

A Citizen's Guide to Health Indicators

Health Council of Canada

Conseil canadien de la santé

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THIS GUIDE IS FOR YOU.

We have created this guide for people like you – interested citizens who want to understand the purpose, power, and pitfalls of health indicators. We hope this serves you as a useful resource.

About this guide

If you are...

- a patient or family member who wants to get involved in improving health care in your community,
- a member of a local health care board or committee,
- a journalist who needs to interpret health statistics for the public,
- a student exploring a career in health or a related field,
- a health care professional, or
- anyone who wants to better understand the steady flow of health information you encounter in the news or in your work,

...this guide is for you.

It's an introduction to health indicators: what they are, where they come from, how they influence decisions and policies, and some important things to consider in using them.

YOU'LL FIND VALUABLE RESOURCES UNDER THESE ICONS



Learn More

Information on other resources and reports that you can use to expand your knowledge of health indicators.



Cool Tools

Links to online interactive resources where you can find and work with health indicators.



Definition

Explanations of technical terms.

Many resources are noted throughout this guide. We used them as we developed the document, and we encourage you to take advantage of them too. They can deepen your understanding and help you get comfortable working with health indicators. Many of them are meant for specific audiences, and we bring this to your attention throughout the guide.

For a look at health indicators in action, read the section called *Health Indicators at Work*. These stories use real-world situations to show some strengths and limitations of indicators.

By reading this guide, you will be better able to answer questions such as: How can I use health indicators to guide my decisions? What should I watch out for, and what do I need to know to use them well?

A NOTE ON OUR SOURCES

Statistics Canada and the Canadian Institute for Health Information (CIHI) are Canada's key authorities on health indicators. We have built on their work throughout this guide, in consultation with the work of others, to produce a unique resource for you.

Foreword

Health indicators are measures of performance that help us understand and compare Canadians' health and health care. Indicators have become an important part of the health information that many Canadians think about daily in their lives or work. At the Health Council of Canada, we rely on health indicators to report on the progress of health care renewal in this country, much as economists use the Consumer Price Index to report on the state of our economy.

These essential measurements have been developed thanks to work at many levels of government and across multiple agencies for more than a decade. It is through health indicators that we know, for example, that Canadians are living longer and enjoying more years of good health, but also that these improvements are not true for all of us.

We believe that understanding how to be a critical user of health indicators is a key part of health literacy – the ability to access, understand, and use information for health purposes. This is especially important now, as Canadians are becoming more involved in making decisions about their own health care and in planning the health care system of tomorrow.

Like many people, you may be deeply interested in health issues and concerned about the health care system. You want to better understand the origins of the numbers that lie behind so much of the information you receive and so many of the decisions that governments, health care providers, and others make – decisions that affect you and your health.

We have created this guide for people like you – interested citizens and professionals who want to understand the purpose, power, and pitfalls of health indicators. This guide brings together and builds on a wide range of largely Canadian resources. We'll help you to identify health indicators and learn more about them, so that we can all play our part in influencing our own health and the direction of our health care system.

We hope you find this guide useful, and we welcome your feedback.

Sincerely,
John G. Abbott
CEO, Health Council of Canada



SECTION 1

Getting to Know Health Indicators

WHAT THEY ARE

Health indicators are measures of health and of the factors that affect health. They are numbers and statistics that can provide a basis for comparison.¹

In a nutshell, that's the purpose and power of health indicators. They let you measure, monitor, and compare important factors that influence the health of Canadians and the health care system.

Using health indicators, you can compare geographic areas, populations, time periods, or the quality of health care. You can see how people's health and their experiences with health care vary across the country and among different groups, such as people with different socio-economic status. Health indicators are tools that show communities, governments, health care organizations and providers where they've been, where they're headed, and where they need to improve.

WHAT THEY DO

Health indicators have often been compared to the gauges on a car dashboard.

Data such as the engine temperature, speed, and levels of gas and oil are fed into gauges that tell you about the car's "health" and performance. The gauges show you whether things are running smoothly and alert you to possible problems. They may not show exactly what the problems are, but they let you know if you should take some action or investigate further.

Think of the health care system as the car – and, in the driver's seat, the people who deliver, use, and manage health care services. This includes you. Patients, family members, nurses, doctors, other service providers, administrators, board members, and government officials who plan and fund the services – everyone wants the system to run smoothly. We want it to guide us safely to our destination, a destination which might be described as the best possible health, using appropriate and effective services, at an affordable cost.

Whatever role you play in health or health care, you'll want to pay attention to the dashboard and respond to the feedback it provides.

Health Indicators – A Dashboard for Health and Health Care

Health indicators can let you know that things are running smoothly. They can also alert you to problems that may need attention.



HEALTH INDICATORS AT WORK

In public health

How do people working in public health use health indicators? As part of our research for this guide, the Health Council of Canada commissioned two national public health organizations – the Canadian Public Health Association, www.cpha.ca and the Canadian Obesity Network, www.obesitynetwork.ca – to survey their members to explore how they've used health indicators in their work.

There were over 800 responses from a wide range of health care providers (physicians, nurses, dietitians and therapists, among others), researchers, and people who develop public health programs and policies:

- About 70% said they use health indicators in their work, and had accessed health data within the past year; or
- If they didn't use health indicators in their work, it was because they didn't know enough about indicators, how to use them, or how or where to access them. Others said the data available are not relevant to their work, or cannot be accessed at a local level.

What did these people use the indicators for?

- program planning (59%)
- providing information to health care professionals (52%)
- providing information to other audiences (50%)
- program or policy evaluation (43%)
- providing information to communities (42%)
- policy planning (33%)
- providing information to health care facilities (19%)
- provincial reporting (15%).

Note: Respondents could select more than one option.

HOW THEY ARE USED

Health indicators are the measures or gauges that can help all decision-makers to:

Understand and respond to health issues and trends

Health indicators help governments and community organizations analyze health needs in the community so they can set priorities for action and develop appropriate services. Health indicators can deepen the understanding of health issues in a population, or present individuals' health status in a broader social context.

See a story about the body mass index (BMI) indicator and how it can be useful in discussions between a family and their doctor (p. 28).

Monitor and improve the health care system

Health indicators can help providers improve the care they give by letting them compare practices at their facility with the practices at those facilities that show better results. Indicators can also show people where problems may be emerging or where they may be falling short of goals. For example, a community nursing station may want to increase the number of children who get immunized, or a province may want to provide better access to mental health services. They need health indicators to see where they are succeeding or where they need to improve.

See a story about long-term care quality indicators and how they might be used to identify areas for improvement in a nursing home (p. 31).

Make decisions about health policies based on good evidence

Decision-makers rely on health indicators for evidence about whether health programs and policies are effective, or where they should look at moving in another direction.

See a story about a new health policy indicator that will be used to track bicycle helmet laws across Canada, with the goal of reducing rates of preventable head injury among Canada's children and youth (p. 34)

Become informed about the quality of health care and health policies

Health indicators that are reported clearly and openly to the public help patients, families, and other citizens get involved in improving the quality of health services.

WHAT THEY CAN MEASURE

In Canada, health indicators are generally divided into five groups or dimensions, based on the kinds of things they can measure (see Table 1).

These dimensions form the backbone of the Health Indicator Framework. The framework – a way of organizing health indicators – was first developed in 1999 as part of the Health Indicators Project. Spearheaded by CIHI and Statistics Canada, the Health Indicators Project is a shared effort to provide objective, up-to-date health information that can be compared across regions, provinces and territories, and nationally. The project started with a core set of health indicators that has now grown to over 80, in consultation with a broad group of stakeholders.¹ And this set of Canadian health indicators continues to evolve (see Section 4).



COOL TOOLS

Connect with Canadian indicators data
Statistics Canada – Health Indicators:
Data Tables, Maps and Fact Sheets
www.statcan.gc.ca

Canadian Institute for Health Information (CIHI)
www.cihi.ca

Statistics Canada and CIHI co-host an interactive list of the more than 80 indicators in the Canadian Health Indicators Framework.

This web-based tool allows you to run customized reports using health indicators data from CIHI and Statistics Canada databases.

When you click on the name of the health indicator, you can jump to information about that measure, including:

- the indicator definition
- data tables and maps
- Statistics Canada fact sheets
- searchable data on CIHI's website.

TABLE 1
Canada's Health Indicator Framework: What They Can Measure

DIMENSIONS	PURPOSE	EXAMPLES
1. Health Status	How healthy are Canadians? Measures such as rates of specific health conditions and causes of death and disability, and measures of well-being help us understand the health of the population.	<ul style="list-style-type: none"> • Body mass index (BMI) (see p. 28) • Injury hospitalization (see p. 34) • Self-perceived health status • Infant mortality
2. Non-medical determinants of health	Outside of the health system, what factors affect Canadians' health? Measures of living conditions, health behaviours, socio-economic factors, and environmental factors provide insight into non-medical aspects of life that impact our health.	<ul style="list-style-type: none"> • Fruit and vegetable consumption • Life satisfaction • Sense of community belonging • Smoking rates (see p. 14) • Average personal income
3. Health system performance	How healthy is the health care system? This group includes indicators such as whether Canadians have access to important procedures and services, and indicators such as whether services delivered are appropriate, effective, and safe.	<ul style="list-style-type: none"> • Wait time for hip fracture surgery • Influenza immunizations • In-hospital deaths within 30 days after admission due to a heart attack • Asthma readmission rate
4. Community and health system characteristics	How do Canadians use health care? What are our communities like? Indicators in this group are not direct measures of Canadians' health or the quality of health care. Instead, they provide context to help us understand various issues.	<ul style="list-style-type: none"> • Population group characteristics such as the number and percentage of immigrants, single parent families, etc. • Rate of hip replacement surgery • Health spending
5. Equity (Disparity)	Do all Canadians have equal opportunity for good health and quality of life? With this group we can look at one indicator through the lens of another, to understand health related disparities and to ask questions such as: What differences in health status exist among groups in Canada's population, and what are the contributing factors?	<ul style="list-style-type: none"> • Injury hospitalization by neighbourhood income level

Source: Content (with the exception of equity) is adapted from Canadian Institute for Health Information. (2009) *The Health Indicators Project: Report from the Third Consensus Conference on Health Indicators*. Ottawa: CIHI.

Equity content is adapted from:

Canadian Institute for Health Information. (2005). *The Health Indicators Project: the Next 5 Years, Report from the Second Consensus Conference on Population Health Indicators*. Ottawa: CIHI.

Canadian Institute for Health Information. (2010). *Analysis in Brief: Injury Hospitalizations and Socio-Economic Status*. Ottawa: CIHI.

PUBLIC REPORTING

Canadians expect governments and publicly-funded organizations to be accountable for the programs and services that they deliver, and health care is no exception. Public reporting of information from health indicators has become a key tool for accountability in recent years, providing evidence for discussions about whether health services are appropriate, safe, and effective.

CIHI and Statistics Canada jointly produce a *Health Indicators* report each year with a national perspective (see *Learn More*). In addition, the federal, provincial, and territorial governments and their agencies report to their citizens using a variety of health indicators. Governments agreed to report publicly and comparably on health indicators, in an agreement set out in two key documents: the 2003 *First Ministers' Accord on Health Care Renewal* and the 2004 *10-Year Plan to Strengthen Health Care*. Following on that agreement, the Auditor General of Canada devoted a chapter to the subject of public reporting on health indicators in her 2008 report to the House of Commons.²

The style, scope, and areas of focus of public reporting by governments on those indicators has varied across the jurisdictions. Governments use this information in many ways – everything from health system plans, to research on women's health, to updates on wait times for various services.

In turn, governments are using health indicators to monitor the effectiveness and quality of the services they fund. Through accountability agreements and other arrangements, some governments are flowing money to hospitals based on indicator results.³



LEARN MORE

Health Indicators – Yearly Reports

Canadian Institute for Health Information (CIHI) and Statistics Canada
www.cihi.ca

Since 2000, CIHI and Statistics Canada have produced yearly reports on health indicators, along with companion reports and analyses covering key aspects of the health of Canadians or the health care system.

Get a global view

Health at a Glance, OECD Indicators
www.oecd.org/health/healthataglance

At the international level, the Organisation for Economic Co-operation and Development (OECD) publishes comparable health indicators for a range of countries, including Canada.



COOL TOOLS

Get a handle on chronic disease data

Public Health Agency of Canada – Chronic Disease Infobase Data Cubes
www.infobase.phac-aspc.gc.ca

An online tool provided by the Public Health Agency of Canada connects you with indicators related to chronic diseases. You can create customized tables and graphs using chronic disease-related data by year, province or territory, age group, and gender, with indicators such as:

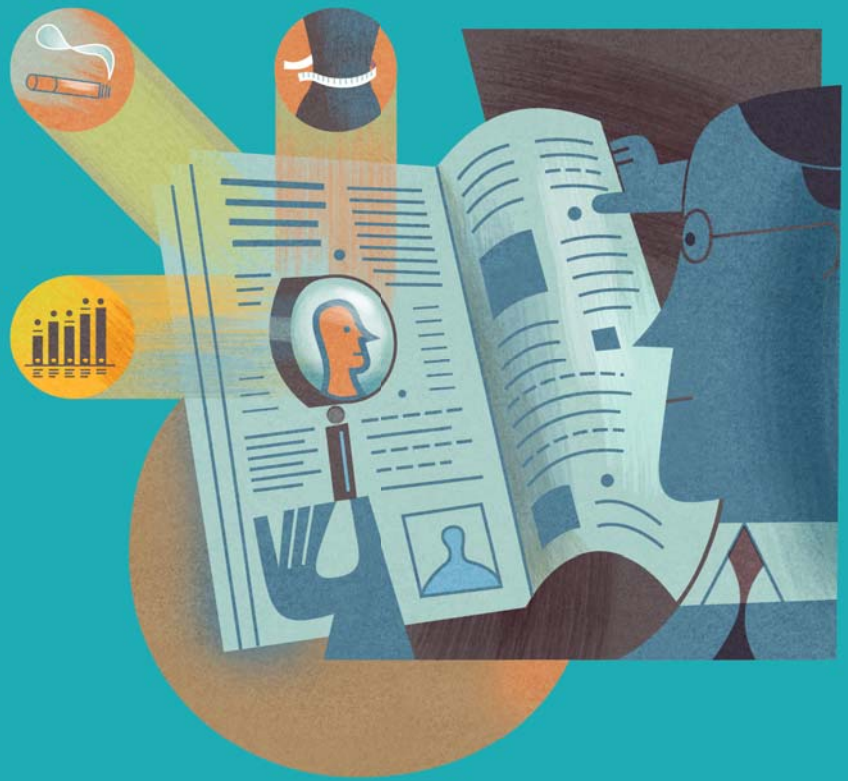
- mortality (death rates)
- incidence (number of new cases)
- risk factors
- prevalence (number of ongoing cases in a population).

A short training video helps you get started.

Create a report on health in your community

Statistics Canada – Health Profile
www.statcan.gc.ca

Statistics Canada's Health Profile tool lets you use health indicators for regions across the country, and compare results to provincial data. Data sources include health surveys, administrative data (data on the use of health services), and census data.



SECTION 2

A Closer Look at Health Indicators

HEALTH INDICATORS AT WORK

Tracking infectious diseases

When you hear news that the rate of tuberculosis is on the rise in one region, or the rate of newly reported cases of HIV is in decline elsewhere, where do the data for these health indicators come from?

Health professionals are required by law in Canada to report cases of certain infectious diseases to public health authorities.⁴ This local information is then captured through national *surveillance* systems at the Public Health Agency of Canada, which then makes the information available through public reports and national databases.⁵

WHAT MAKES A GOOD HEALTH INDICATOR?

Health indicators are designed to provide comparable statistics on specific elements of health and health care.

A great deal of thought and work goes into developing high-quality health indicators. Comparable health indicators for public reporting at the national, provincial and territorial levels are typically built by teams of researchers, clinicians, and planners in universities, health care organizations, and government agencies.

CIHI, Statistics Canada, and the Public Health Agency of Canada are organizations that are heavily involved in populating health indicators with data from surveys of Canadians and data gathered from hospitals, health care organizations, and health care professionals.

A good health indicator:

Measures what it claims to measure

Health indicators must pass numerous tests. These tests ensure that the indicator provides solid information based on accepted statistical methods, and that the results are reliable—meaning they can be reproduced over and over again, under the same conditions.

**surveillance**

the ongoing collection and analysis of data about a disease or health condition.⁶

Allows you to make apples-to-apples comparisons

Health indicators should be based on standard definitions and analytical methods, to allow you to make valid comparisons. If necessary, the data should be adjusted to account for differences that would otherwise skew the comparisons. Two common adjustments are *age standardization* and *risk adjustment*. However, sometimes you may need *crude* (unadjusted) data. For example, if your work involves planning local health services for the coming flu season, you may want to know how many people in your region were hospitalized for influenza in the past few years. In this case, how that number compares to other regions may not be important to you.

Is well documented

Health indicators should come with technical documentation that describes them in detail and outlines the methodology that was used to calculate them. The technical appendix or background information is the place to go if you have questions about how the data were collected or how the results you're using were calculated, or if you want to use the indicator to do research in your own setting or community.

**age standardization**

a statistical process that removes the effect of differences or changes in age groups among the populations or time periods being compared.⁷ For example, some health conditions – such as stroke and heart attack – are more common among older people. To compare those health conditions across Canada, you need to account for the fact that some provinces and territories have much younger or older populations than others.

risk adjustment

a statistical process that accounts for differences in risk factors among groups being compared (see the story on long-term care indicators on page 31 for an example and source of information).

**LEARN MORE**

The Good Indicators Guide: Understanding how to use and choose indicators
Association of Public Health Observatories and National Health Service Institute for Innovation and Improvement,
2009 (Author: David Pencheon)
www.apho.org.uk

Written with planners and health executives in mind, this British resource provides an overview of technical and statistical information about indicators, common myths about the purpose of indicators, and how to use indicators to support quality improvement.

Making Sense of Health Indicators: Statistical Considerations
Canadian Institute for Health Information (CIHI), 2010
www.cihi.ca

This report provides guidance on statistical considerations to help with the interpretation and use of health indicators, particularly those which are presented in the annual Health Indicators reports published jointly by CIHI and Statistics Canada. The report is for data users such as staff in ministries of health, local health authorities, and hospitals.

EVERY HEALTH INDICATOR HAS SOME BASIC PARTS

To make sense of a health indicator, start by looking for these components:

- *Title and definition* tell you what is being measured.
- *Methodology* describes a formula for calculating the indicator.
- *Data* shows the numbers that are used in the formula and the source of the data.
- *Rationale or commentary* tells you what health issue is being investigated and how the indicator can contribute to better understanding of the issue.
- *Limitations* describe any constraints or issues you should be aware of when interpreting the results.

Using the indicator *smoking rate* as an example, the components or the anatomy of the health indicator are described in Figure 1.

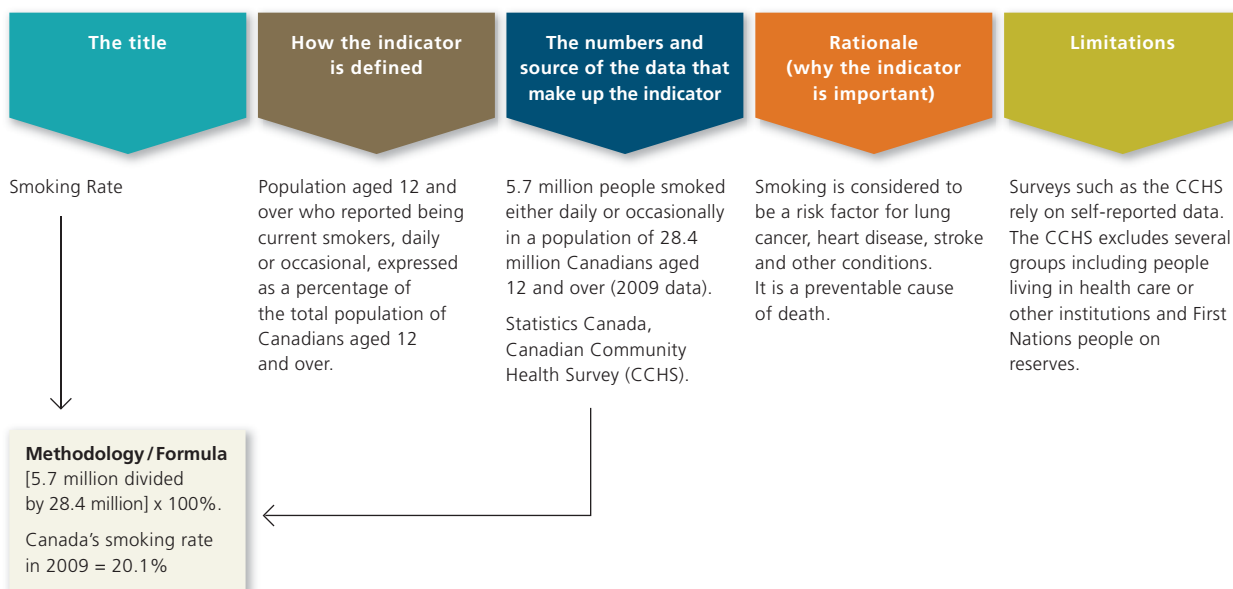
A CLOSE LOOK OR A BIG PICTURE

Some indicators measure a single health condition or factor and focus in on one issue. Smoking rates, and the percentage of people who have diabetes, are examples of this kind of specific health indicator.

Other health indicators give you the big picture. By combining individual measures into a single piece of information, some health indicators produce a broad look at a complex issue. You'll see these indicators called by various names: composite or aggregate indicators, indices, or summary or roll-up measures. Think of the Consumer Price Index, in which Statistics Canada tracks the cost of a basket of goods and services by rolling all the prices into a single number that can tell you if the cost of living is going up or down over time.

With health indicators, there may be more intangibles. For example, it's hard to measure something as complex as quality of life. But summary measures have been developed to capture a group of key health-related factors that contribute to it; the Health Utilities Index combines results from survey questions about factors such as vision,

FIGURE 1
Anatomy of an Indicator – Smoking Rate



Source: Statistics Canada. (2010). Definitions and Data Sources – Non-Medical Determinants of Health. (web page), www.statcan.gc.ca.

Statistics Canada. (2010). Canadian Community Health Survey – Detailed Information for 2010 (web page), www.statcan.gc.ca.

Statistics Canada. (2010). Health Fact Sheet: Smoking, 2009. (web page) www.statcan.gc.ca

hearing, speech, mobility, dexterity, emotion, cognition, and pain.⁸ Health care decision-makers might, for example, use this index to compare quality-of-life scores for various groups of people based on the number or type of health conditions they have, or the type of services they receive.

In health and health care, summary indicators can be useful information tools, but they have both pros and cons. Summary measures let health care facilities or health regions see how they are doing against a set of broad goals, or how they rank among their peers. But some of these measures have been criticized as being poorly constructed, or for leading to inappropriate use if the composite indicator is based on individual indicators that are not clearly defined (see Table 2).



LEARN MORE

Understanding Health Indicators

First Nations Centre, 2007

www.naho.ca

This guide was created by the First Nations Centre at the National Aboriginal Health Organization (NAHO) to support First Nations community health workers, planners, and others in understanding how to use health indicators and statistics to investigate and improve health in their communities.

The Health Planner's Toolkit, Module 3:

Evidence-Based Planning

Ontario Ministry of Health and Long-Term Care, 2006

www.health.gov.on.ca

Designed for health system planners, managers, and decision-makers, this resource describes the types of evidence that can be used to support health planning.

TABLE 2
Pros and Cons of Using Composite Indices (Summary Indicators)

PROS	CONS
Summarize complex issues for decision-makers.	Could lead to wrong policy decisions if the composite indicator is poorly constructed or misinterpreted.
Easier to interpret one number than to look for trends across multiple indicators.	Could suggest simplistic policy solutions if the composite indicator is viewed in isolation from the individual indicators on which it is based.
Facilitate ranking of health care organizations or system on complex issues.	Could lead to inappropriate use if the composite indicator is based on individual indicators that are not clearly defined, or if the way they are combined is not transparent.
Facilitate assessing a health care organization or system performance over time.	Choice and weighting of indicators could be challenged by critics.
Reduce the total number of indicators.	Could mask problems with individual indicators, making it harder to identify the best corrective action.
Highlight a health care organization or system's performance and progress on improvement.	Could lead to wrong policies if difficult-to-measure aspects of performance are not considered.

Source: Adapted with permission from Manitoba Centre for Health Policy. Metge C, Chateau D, Prior H et al. (2009). *Composite health indices: Useful tools or more work than they're worth?* Winnipeg:

Manitoba Centre for Health Policy (MCHP) www.umanitoba.ca/medicine/units/mchp



SECTION 3

Proceed with Caution! Challenges in Using Health Indicators

WHAT HEALTH INDICATORS CANNOT DO

As useful as health indicators are, it's also important to know what they *cannot* do:

They raise questions, but do not usually provide direct answers

For example, in the *Health Indicators at Work* story on p. 28, the preteen boy's body mass index (BMI) is rising, and he's at risk of becoming obese. But what is the cause of his weight gain and what can be done about it? The indicator prompts you to look into these questions.

They should not be used in isolation to interpret a complex health issue

A single indicator will fill in only one piece of a puzzle. For example, a hospital looking at the quality of its heart-attack care will track the *outcomes* of care, such as what proportion of heart-attack patients die in hospital during their stay. But the hospital will also want to monitor its *processes* of care, such as the percentage of heart-attack patients who received acetylsalicylic acid (aspirin) within 24 hours before or after their arrival in hospital – a process indicator related to good-quality care.⁹

They should not be used for unintended purposes

For example, the first phase of Ontario's public reporting system on the quality of care in nursing homes was designed in 2009 to motivate facilities to see where they needed to improve (see *Health Indicators at Work* on p. 31). Only a small percentage of nursing homes took part in that phase, so the information isn't yet complete and it may not be appropriate for people to use it for help in choosing a home.¹⁰



outcome indicators

measure the results of health care, such as quality of life or unplanned readmissions to hospital.¹¹

process indicators

measure what health care providers do to maintain or improve patients' health,¹¹ such as wait times for various services or the percentage of diabetes patients receiving regular vision tests.

SOME COMMON CHALLENGES

Despite the high quality of health indicators available in Canada, you may run into some common challenges in using and interpreting the data. Here are just a few of them:

The data can't tell you what you want to know

For example, in the Health Council of Canada's 2010 report, *Decisions, Decisions: Family Doctors as Gatekeepers to Prescription Drugs and Diagnostic Imaging in Canada*, we reported that the number of prescriptions filled in Canadian retail pharmacies nearly doubled in the past decade, from 272 million in 1999 to 483 million in 2009. The data provided important information to set the context for our report, but the indicator was not ideal, and we had to caution readers about interpreting the data because of the indicator's limitations (see Figure 2).

Comparable indicators have not yet been developed for the issue you want to learn about

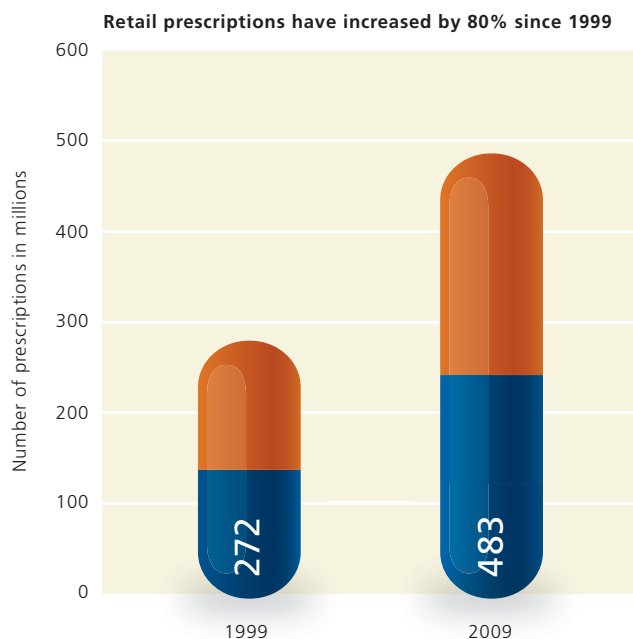
For example, you might want to monitor rates of homelessness in your community to plan health services and to know whether your housing programs are having an impact. To get funding for your research, you need to know how your community compares to others of a similar size. But Canadian municipalities, researchers and others now use a range of different methods to define and measure homelessness and to collect data. Some count the number of homeless people on a given day.¹² Others describe homelessness as the number of shelter users relative to the total population in a province or territory.¹³ Until more places use an indicator with the same definition and in the same way, the results will not be comparable. That's why Canadian public health experts support the development of a consistent indicator on homelessness.¹⁴

FIGURE 2

What Do the Data Tell You?

This chart illustrates the growth in the number of prescriptions in Canadian retail pharmacies. The indicator simply counts up the number of times a prescription is filled at a pharmacy, including refills. The caution is, each prescription could represent a different duration for the same drug –

patients might have received a prescription for one week, one month, three months, or longer. So, while the indicator shows a clear increase based on the size of the change, it cannot be used to specify the exact quantity of drugs being prescribed.



Source: IMS Health, Canada, Canadian CompuScript database (data extracts from 1999 and 2009).

Reproduced from Health Council of Canada. (2010). *Decisions, Decisions: Family Doctors as Gatekeepers to Prescription Drugs and Diagnostic Imaging in Canada*. Toronto: Health Council of Canada.

Note: Excludes drugs dispensed in hospitals.

Jurisdictions are ranked, but without the context to help you make sense of the results

In another example from the Health Council of Canada's *Decisions, Decisions* report, recent international data on diagnostic imaging shows that Canada ranks sixth among a group of 11 Organisation for Economic Cooperation and Development (OECD) countries in the rate of CT (computed tomography) and MRI (magnetic resonance imaging) scans performed (see Figure 3). In 2009 Canadians received 121 CT scans per 1,000 people. Because there is no agreed-upon goal or *benchmark* that countries can use to measure or compare their own performance, we can't tell if this is an appropriate rate or not. Relative rankings are difficult to interpret if it's not clear what constitutes a high-quality service or the best use of health care resources.

Data do not match the health indicator's standard definition, so the results are not comparable

For example, since 2005 provinces and territories have been monitoring their progress in reducing wait times for health care procedures related to

five priority areas: cancer, heart disease, diagnostic imaging such as CT and MRI scans, joint replacement, and cataract surgery.

To track this progress, indicators of wait times have been developed for the five priority areas. These indicators are based on agreed-upon benchmarks (CT and MRI scans are the exceptions) and standard definitions that cover such things as when a wait time starts and stops and which patients should be included in the calculations. However, for some of the procedures, such as coronary artery bypass surgery, provinces continue to use a range of definitions to calculate wait times. This makes it difficult to compare progress across the country (see Table 3).



benchmark

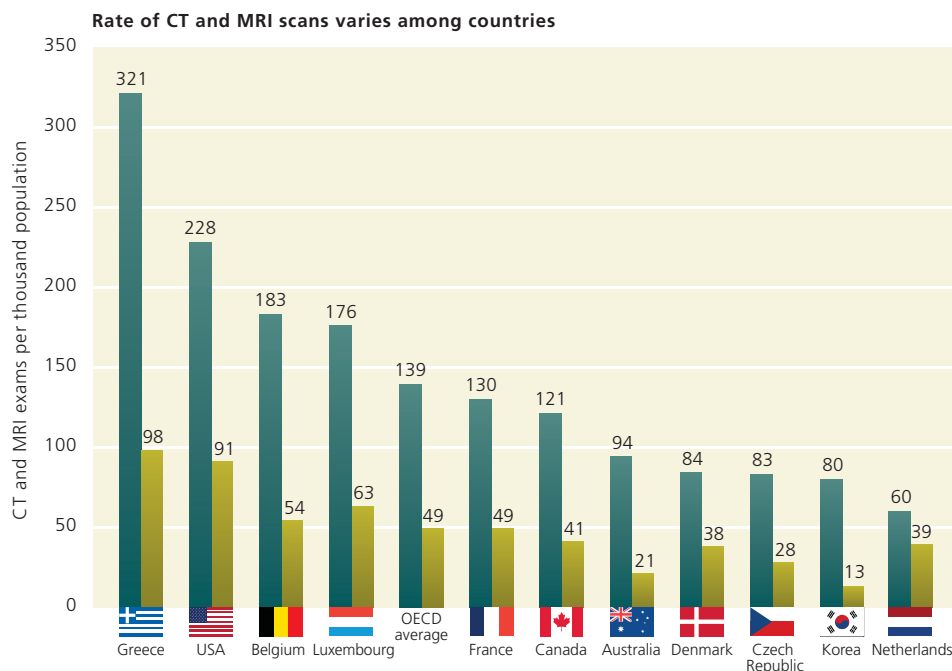
a reference point or a standard against which performance is measured.¹¹

FIGURE 3

How Should You Interpret This Ranking?

Positioned near the middle of the 11 countries, is Canada providing CT scans at a rate that's good for Canadians? It's hard to say, because no benchmark exists for the preferred

rate of CT scans. The ranking raises other questions too, such as why Canada uses CT scans at twice the rate of the Netherlands but only about one-third the rate of Greece.



Source: OECD Health Data, (2010); CIHI, National Survey of Selected Medical Imaging Equipment, (2009); Statistics Canada, Quarterly Demographic Estimates, (October to December 2009).

Reproduced from Health Council of Canada. (2010). *Decisions, Decisions: Family Doctors as Gatekeepers to Prescription Drugs and Diagnostic Imaging in Canada*. Toronto: Health Council of Canada.

Note: Data for Australia include any exams for out-patients and private in-patients (excluding exams in public hospitals).

TABLE 3

The Challenge of Different Definitions

Even though there is a standard definition for wait times for priority level 1 patients for coronary artery bypass surgery, Canadian provinces report their wait times in different ways. These differences make it difficult to compare jurisdictions.

It's not clear whether the various wait times reported are a result of using different definitions, or if they reflect real differences in how quickly patients across Canada get bypass surgery.

Coronary artery bypass surgery wait times for priority level 1 patients, 18 or older, April to September 2009

PROVINCE	EXCEPTIONS TO THE DEFINITION AND POPULATION	% SURGERIES DONE WITHIN 14-DAY BENCHMARK
Newfoundland and Labrador	Includes emergency cases. Includes CABG without valve replacement only.	100%
New Brunswick	As determined by the surgical prioritization tool completed by the surgeon. Excludes emergency cases.	81%
Quebec	Includes valve replacement, CABG, repair of congenital defects and other procedures.	86%
Ontario	Includes CABG without valve replacement only.	94%
Manitoba	Excludes emergency cases.	98%
Saskatchewan	Excludes emergency cases.	92%
Alberta	Start time is decision to treat. Excludes emergency cases.	96%
British Columbia	Start time is the day the patient is placed on the wait list; the day of placement on the wait list is not counted. Includes CABG without valve replacement only. Excludes emergency cases.	100%

Standard Definition: The number of days a patient waited, from the booking date to the date the patient received a coronary artery bypass graft (includes CABG with and without valve replacement).

Notes: Nova Scotia data were not available. PEI and the territories do not offer cardiac surgery; patients receive care in other jurisdictions.

Source: Adapted with permission from CIHI. (2010). *Analysis in Brief: Wait Times Tables – A Comparison by Province, 2010*, Table 6-A, Bypass Surgery Wait Times by Province, April to September 2009. Ottawa: CIHI.

REPORT CARDS AND RANKINGS: A LOOK BENEATH THE SURFACE

Health report cards and rankings are increasingly popular in Canada. You'll see them in newspapers and magazines, and in reports from universities, think tanks, and other organizations.

For example, the University of Regina's 2010 *Health Region Report Cards and Ranking* presents a series of report cards for 45 health regions in Canada. The rankings are based on 19 comparable health indicators such as the rates of 30-day stroke survival, asthma readmission, Caesarian section, and the population with a regular medical doctor. This report card also generates composite scores for three categories of performance: quality, access, and patient satisfaction. Jurisdictions are compared and ranked according to each individual health indicator as well as the indices.¹⁵

Some health ranking reports generate good debate and may stimulate improvement work. But before you take the results at face value, consider the kinds of questions raised in CIHI's 2008 publication, *Making Sense of Health Rankings*:

Is the approach to ranking based on a sound concept?

Does the ranking cover areas of health and health care that are relevant to the purpose of the comparisons?

Are the methods, indicators, and data quality solid?

Are good-quality indicators used? Are they consistent with the purpose of the ranking? Are the data of good quality and comparable, so that the ranking is based on fair comparisons?

Can you be confident in the interpretation of results?

Is the method of scoring or ranking clearly stated? For example, some report cards assign an A-B-C grade to each jurisdiction based on the numerical results for the health indicator – but have the authors explained how they converted the numerical results to a letter grade?



LEARN MORE

Making Sense of Health Rankings

Canadian Institute for Health Information (CIHI), 2008
www.cihi.ca

This report discusses health rankings in detail, with a checklist to help you ask questions and evaluate what you read.



SECTION 4

The Evolving World of Health Indicators

INDICATORS NEED TO CHANGE WITH TIME

Any inventory of health indicators should evolve in response to the changing needs of the people who use the data.

The health issues that command attention today are not the same as the priorities of the past. A hundred years ago, the leading causes of death were pneumonia, tuberculosis, and intestinal conditions; today the big killers are cancer, heart problems, and stroke.¹⁶ Also changing is the kind of information that people who use health indicators want, reflecting a growing interest in the broader determinants of health and in previously under-recognized issues such as mental health.

From time to time, the indicators in Canada's Health Indicator Framework (see Section 1) are reviewed, and the list can change. An indicator may change to take advantage of new data sources that can produce better information about a particular aspect of health or health care. Or, technical concerns about data quality or the way an indicator is defined may require that it be taken out of use. New indicators may also be developed based on new thinking about health issues that need to be measured.

HEALTH EQUITY: AN EMERGING THEME

Policy-makers and other data users are increasingly interested in using health indicators to look at *inequities* and *disparities* among groups in the population. Indicators that describe health in relation to factors such as income level, gender, and urban-versus-rural residence can refine our understanding of why some groups have poorer health than others, and what might be done to address those gaps.

In its *Health Indicators 2010* report, CIHI focused on disparities related to heart attacks and hysterectomies (the complete or partial removal of the uterus). CIHI's analysis revealed, for example, that the age-standardized rate of hysterectomy for Canadian women in rural areas is 46% higher than for those in urban areas (464 versus 318 per 100,000 women, respectively).¹⁷ Such a large difference raises questions: Is surgery overused in

**LEARN MORE**

The Health Indicators Project: Report from the Third Consensus Conference on Health Indicators
 Canadian Institute for Health Information (CIHI) and Statistics Canada, 2009
www.cihi.ca

At Canada's most recent Health Indicators Consensus Conference – a gathering of representatives from federal, provincial, and territorial ministries of health, health care and research organizations, and experts in the health indicators field – participants identified the need to develop new comparable health indicators in a number of priority areas, including health care outcomes, child and youth health, mental health, social determinants of health, healthy environments, and Aboriginal health.

**health disparities or inequalities**

health differences that it may be possible to reduce but not eliminate, such as those related to genetics or aging.¹⁸

health inequities

differences that are unfair and preventable.¹⁸

health equity

the absence of unfair and avoidable differences in health among population groups.¹⁹

rural areas? What's a good or expected rate for hysterectomies in a population like Canada's? As with many indicators, the results may signal a problem that merits investigation.

Meanwhile, a variety of organizations, federations, and community agencies have been taking the measurement of health inequalities into their own hands. For example:

- *Genuine Progress Index* (GPI) provides communities with a rich snapshot of their well-being. The GPI is based on six main categories: living standards, population health, how people use their time, community vitality, education, and environmental quality. *GPIAtlantic* has reported some GPI results for Nova Scotia.
www.gpiatlantic.org
- *Canadian Index of Wellbeing* (CIW) is an adaptation of GPI Atlantic's early work. This initiative reports on eight measurement areas: democratic engagement, community vitality, education, environment, healthy populations, leisure and culture, living standards, and time use. These individual indicators are rolled together to create the index, a single composite measure that will track whether the quality of life for Canadians is improving.
www.ciw.ca
- *Quality of Life Reporting System*, led by the Federation of Canadian Municipalities, provides Canada's largest cities and towns with indicator data to inform policy-making across a wide range of issues – for example, how to balance environmental health and economic growth. This reporting system takes a broad approach to measuring the social determinants of health and well-being, with indicators tracking everything from “affordable, appropriate housing” to “community and social infrastructure” to “personal financial security.”
www.fcm.ca
- *Vital Signs*® community report cards and *Canada's Vital Signs* are produced annually – the former by some of the more than 170 member organizations of Community Foundations of Canada, in the context of local priorities and indicators; and the latter on a nationwide basis to present a cross-Canada perspective on quality-of-life issues such as housing, health, learning, and arts and culture.
www.vitalsignscanada.ca



COOL TOOLS

Take stock of your community

The government of Newfoundland and Labrador has developed an online tool which you can use to generate an indicator report for communities throughout the province. You can use a range of indicators for health issues as well as other determinants of health such as income, employment, and education. Nova Scotia and Prince Edward Island have implemented similar databases, and a 2009 Senate report has recommended that the tool be implemented by other provinces and territories.²⁰

Newfoundland and Labrador – Community Accounts
www.communityaccounts.ca

Nova Scotia – Community Counts
www.gov.ns.ca/finance/communitycounts

Prince Edward Island – Community Accounts
www.communityaccounts.ca/PEI



LEARN MORE

Closing the Gap in a Generation: Health Equity through Action on the Social Determinants of Health
World Health Organization (WHO) Commission on Social Determinants of Health, 2008
www.who.org

This WHO report presents a framework for measuring health equity that countries can use to develop their own locally relevant health indicators. This global framework overlaps with Canada's Health Indicator Framework (see Section 1), but also includes indicators that cover a broader range of socio-economic determinants of health such as housing conditions, work stress, health care coverage, and the social and economic consequences of ill health, as recommended by the WHO.

Indicators of Health Inequalities
The Pan-Canadian Public Health Network, 2009
www.phn-rsp.ca

This report was produced by the Pan-Canadian Public Health Network, a collaboration among the federal, provincial, and territorial governments. It identifies indicators that can be used to measure and report on inequalities in health across Canada.

The Canadian Index of Wellbeing
Learn more in a podcast from the Health Council of Canada. Listen at www.healthcouncilcanada.ca.

MEASURING PERFORMANCE TO IMPROVE PATIENT SAFETY AND QUALITY OF CARE

Some national organizations have a primary focus on improving the safety and quality of health care:

- Canadian Patient Safety Institute
www.patientsafetyinstitute.ca
- Accreditation Canada www.accreditation.ca.

A number of provinces have also created their own quality or patient safety organizations:

- BC Patient Safety and Quality Council
www.bcpsqc.ca
- Health Quality Council of Alberta
www.hqca.ca
- Health Quality Council, Saskatchewan
www.hqc.sk.ca
- Manitoba Institute for Patient Safety
www.mbips.ca
- Ontario Health Quality Council
www.ohqc.ca
- Québec Health and Welfare Commissioner
www.csbe.gouv.qc.ca
- New Brunswick Health Council
www.nbhc.ca.

These organizations can be a good source of provincial and regional information about quality-of-care indicators and activities to monitor and improve care. Many of them report each year with local results for various performance and safety health indicators. Some have created their own frameworks to organize performance indicators. For example, the Health Quality Council of Alberta uses a “quality matrix for health” with six categories: acceptability, accessibility, appropriateness, effectiveness, efficiency, and safety.²¹

HEALTH INDICATORS AT WORK

“Big dots” for patient safety

A “big dot” indicator gives you a high-level look at an important goal in improving health care. Preventing avoidable deaths or infections in hospital, or increasing patients’ satisfaction with care are examples of goals that can be tracked with big dot indicators.

By providing a single number that can represent many aspects of care, big dot indicators help health care leaders, such as hospital board members and administrators, quickly see how their organization is doing over time or compared to others. The thinking is this: if the big dot measure says the system is performing well, then you can be fairly confident that the smaller parts that contribute to that result are also working well. If things don’t look good at the top, that prompts you to find out where the problems lie.²²

For example, CIHI reports on the Hospital Standardized Mortality Ratio (HSMR), a big dot indicator that helps hospitals monitor their progress in improving patient safety. The HSMR looks at deaths that occur in hospital from causes which account for most in-patient deaths (e.g. cancer, cardiovascular diseases, infections such as pneumonia, and trauma such as hip fracture). The indicator compares the number of deaths in each hospital to the expected number of deaths given these types of patients receiving care.²³

Learn more about the HSMR at www.cihi.ca.



LEARN MORE

Selecting Quality and Resource Use Measures: A Decision Guide for Community Quality Collaboratives
 Agency for Healthcare Research and Quality, 2010
 (Authors: Romano PS, Hussey P, Ritley D)
www.ahrq.gov

This American resource provides an introduction to performance, quality, and resource measures in health care and provides guidance about how to select and interpret them.

Effective Governance for Quality and Patient Safety: A Toolkit for Healthcare Board Members and Senior Leaders

Canadian Patient Safety Institute
www.patientsafetyinstitute.ca

This online toolkit is based on research led by Dr. G. Ross Baker in the 2010 report, *Effective Governance for Quality and Patient Safety in Canadian Healthcare Organizations*. The section called *Measurement of Quality and Patient Safety* outlines key principles in using indicators of quality and safety, with links to additional resources.

HEALTH INDICATORS AT WORK

Balanced Scorecards

Balanced scorecards are a systematic way of looking at groups of key indicators – to see how a change in one indicator might be affecting others. This approach was originally developed in the private sector to help companies track their performance against business objectives in wide-ranging areas such as financial measures, customer perspectives, and organizational learning and growth.²⁴

The approach has been adapted for use in the health sector. Individual health care organizations such as hospitals use balanced scorecards to track their performance in areas such as clinical indicators, patient satisfaction, and financial performance. This method can also be used at the system level.

Balanced Scorecard

A hospital or health region might start with categories like these to track their performance using a balanced scorecard. Each category would include a number of indicators to measure specific aspects of the topic area.





SECTION 5

Health Indicators at Work

This section presents three stories that show health indicators at work

- Weighing in on a measure of healthy weight
- Website opens a window into the quality of nursing home care
- Informing health policies—do bicycle helmet laws work?





HEALTH INDICATORS AT WORK

Weighing in on a measure of healthy weight

This story shows:

- 1) how a health indicator (body mass index, BMI) can help people understand and take action on a personal health issue;
- 2) how a single health indicator can provide vital information for individuals, families, and communities;
- 3) the strengths and limitations of a health indicator.

A VISIT TO THE DOCTOR

Imagine you're at your family doctor's clinic with your 12-year-old son Matt because he has been getting short of breath when he plays soccer at school. Dr. Long examines Matt, reviews his chart, and tells you she has one concern: he has grown overweight since his last visit and is at risk of becoming obese if he continues to gain weight at the same rate as in the past few years.

She explains that obesity puts children at risk for serious long-term health conditions, including type 2 diabetes.²⁵ You've heard this alarm before – childhood obesity is often in the news and is being called a national crisis.

Dr. Long suspects that Matt is not getting enough exercise, which would contribute to his weight gain as well as his shortness of breath. "Let's look at your family's physical activity and eating habits," the doctor says. "It's important to try and shift the trend we're seeing and keep Matt healthy."

USING AN INDICATOR TO SEE TRENDS

Dr. Long uses a well-known health indicator – body mass index, or BMI – to show you how Matt's weight compares with recommendations for a healthy weight, relative to his age and height. She adds the latest BMI calculation to the growth chart in Matt's file (see Figure 4), and you can easily see her concern. Now that the BMI indicator has given you a picture of the problem, you and your son talk with the doctor about what can be done to help.

A TOOL FOR PERSONAL AND POPULATION HEALTH INFORMATION

In Canada today, BMI is used in different ways. For example, as this story shows, it can be used in clinical practice for children. It is also used in research on population health, particularly in adults.

Importantly, health indicators such as BMI can help us to understand and respond to this health issue at an individual level. Currently, more than one in four children and youth in Canada are overweight or obese, a worrisome trend cited in the federal, provincial and territorial health ministers' recent joint declaration on curbing childhood obesity.²⁶

USEFUL BUT NOT PERFECT

Like any indicator, BMI has its strengths and limitations. One of its strengths is that the calculation of the indicator is easy and quick to do. But BMI is not a perfect method. For example, there are cautions advised in using BMI for children under two years of age due to the potential inaccuracy in measuring the length and height of infants and toddlers.

FIGURE 4

Matt's BMI Chart

BMI is a number that describes a person's weight relative to his or her height.

Health care professionals can use a BMI chart especially designed for children and youth. It compares their BMI results to those of others of the same sex and age.

When Matt was 10, his BMI was 18.3, just below the 85th percentile – at the high end of the healthy range for

his age. At 11, his BMI of 19.9 was above the 85th percentile, into the overweight range. And now at age 12, his BMI of 22.4 sits close to the 97th percentile, meaning Matt will soon become obese unless the rising trend can be turned. (BMI ranges are described by the Dietitians of Canada and the Canadian Paediatric Society, in *A Health Professionals Guide for Using the New WHO Growth Charts, 2010*, www.dietitians.ca.)

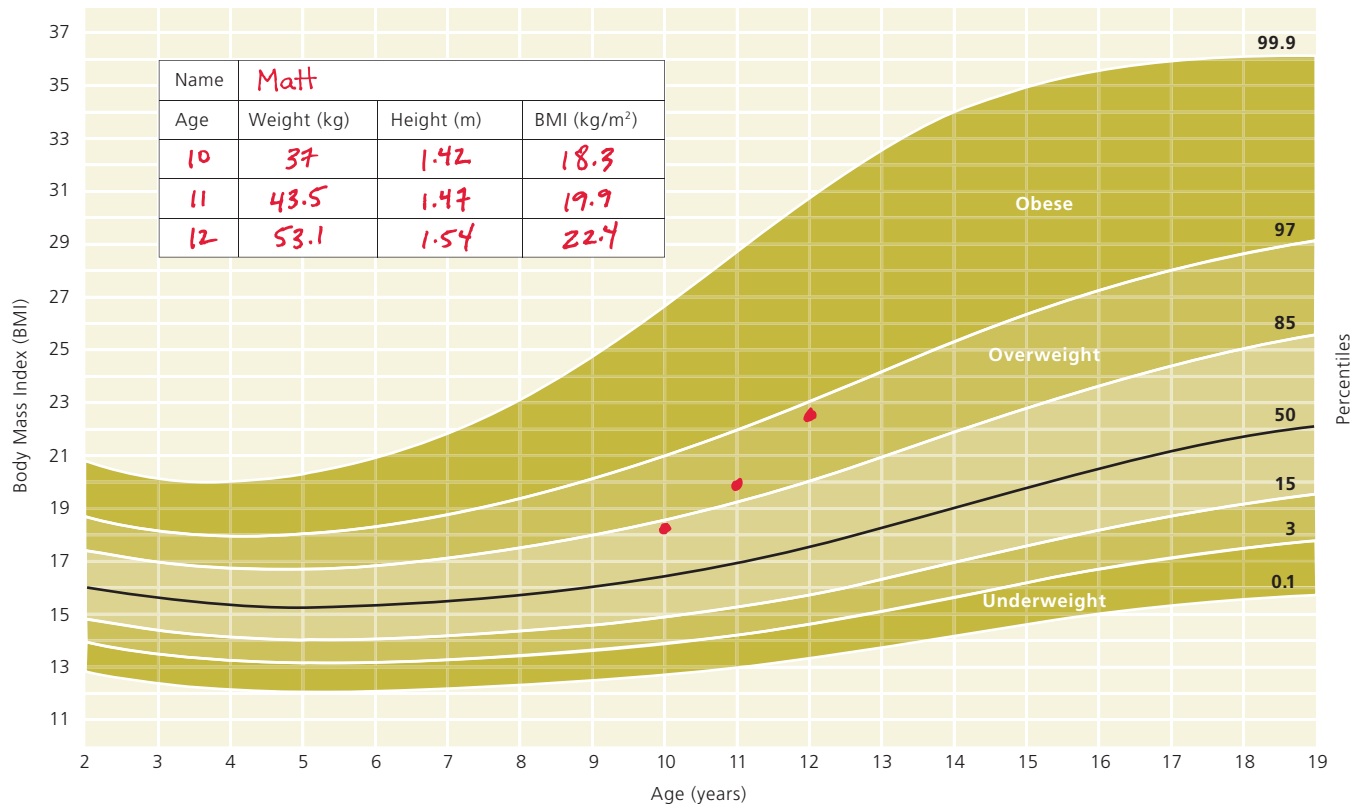
WHO growth charts for Canada: BMI-for-age percentiles, for boys 2 to 19 years

Chart adapted with permission from Dietitians of Canada, for illustration only.

Source: Based on the World Health Organization (WHO) Child Growth Standards (2006) and WHO Reference (2007) adapted for Canada by Dietitians of Canada, Canadian Paediatric Society, the College of Family Physicians of Canada and Community Health Nurses of Canada. © Dietitians of Canada. 2010. www.dietitians.ca/growthcharts.

**percentile**

Percentiles are values that divide a set of data into 100 equal parts. "The percentile rank is the proportion of values in a distribution that a specific value is greater than or equal to."²⁷ If Matt's BMI is near the 97th percentile, this means it is equal to or greater than the BMI of about 97% of all boys his age.

HEALTH INDICATORS AT WORK

Thinking about health indicators of healthy weights

Finding the right indicator to help you understand a personal health issue might involve a series of questions, like these:

- *What's the health issue?* (obesity in children and youth)
- *What indicator might relate to this issue?* (body mass index (BMI) over time, for an individual child or teen)
- *Is this indicator designed to be used by individuals or clinicians and planners?* (In this story, clinicians use it with their patients: see *Learn More* for the use of BMI in adults.)
- *What are some strengths and weaknesses of the BMI indicator?* (The data are easy to get and the indicator can be calculated quickly, but BMI does not measure body fat directly.)
- *Where do I go if I want to learn more?* (Ask your doctor or public health nurse, or look into resources available online from organizations such as Dietitians of Canada, www.dietitians.ca.)



LEARN MORE

A note about BMI in adults

This story focuses on the use of BMI for children. If you want to know more about the use of BMI in adults and population health findings in this area, both Statistics Canada (www.statcan.gc.ca) and Health Canada (www.hc-sc.gc.ca) are good sources of information.





HEALTH INDICATORS AT WORK

Website opens a window into the quality of nursing home care

This story shows:

- 1) how health indicators can be used to consider the quality of care in nursing homes, and to stimulate quality improvement;
- 2) some of the strengths and limitations of public reporting on health indicators;
- 3) how health indicators on nursing home care are developed and what data they use.

BIG CHANGES, MANY QUESTIONS

Suppose your elderly mother lives in Ontario and – frail, prone to falling now, and unable to stay in her own home – has recently moved into long-term care. You're concerned about whether she'll be comfortable and content, safe and well cared for.

Beyond your own observations during visits, how can you know about the quality of care in her nursing home? How does it compare? Has anything gotten better or worse recently?

A NEW SOURCE OF PUBLIC INFORMATION

The Ontario Health Quality Council (OHQC) has created a public website where you can find this kind of quality-of-care information. Go to www.ohqc.ca and click on Long-Term Care Reporting. This website was the source of all the information that follows in this story. You can search the website to see how individual homes score on the following indicators:

- *falls*: percentage of residents who fell in the last 30 days;
- *pressure ulcers (bed sores)*: percentage of residents with a new pressure ulcer, and percentage who have a pressure ulcer that has recently gotten worse;
- *bladder function*: percentage of residents with worsening bladder function.

This kind of public reporting is still relatively new, and so far (January 2011) only about 70 of Ontario's 632 long-term care facilities are reporting through this system. Most homes are not yet collecting enough data in the standardized way that's required to participate. For this reason, **OHQC recommends that people not use the website to help them choose a long-term care facility until the information is more complete.**

Instead, the website is designed to encourage residents, families, and staff to discuss the posted results and to work together to improve the quality of care.

LOOKING AT FALLS

Fortunately, your mother's nursing home is reporting into the system. Since she has a history of falls, you look in particular at how the home scores on the indicator for falls (based on data posted on the website for April 2008 through to March 2009).

On average over the past year, close to 15% of residents in that home had a fall during any month-long period – a bit higher than the Ontario average of 13.4%. You also learn that scores for other facilities range much higher (up to 28%) and much lower (less than 5%).

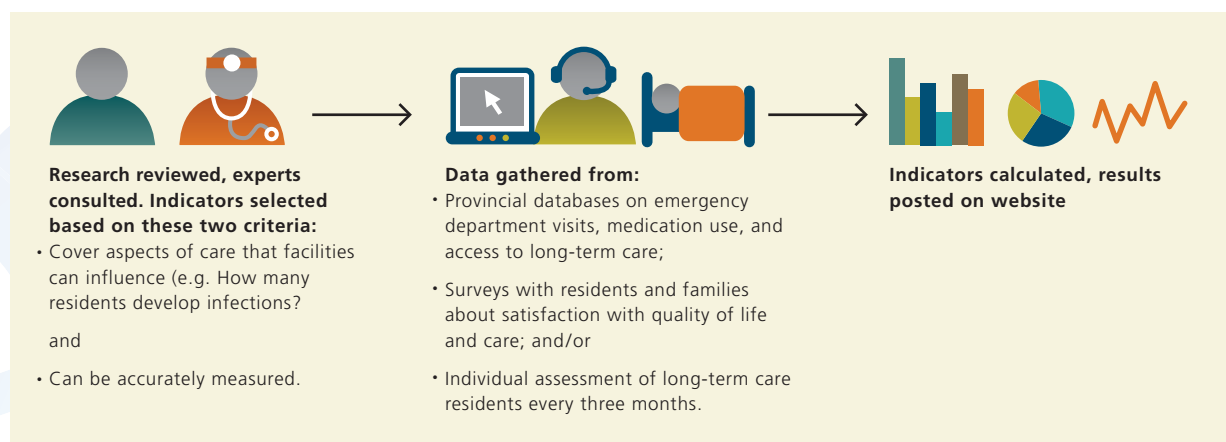
To make fair comparisons among nursing homes, the indicator data are *risk-adjusted* before they are made public.

FROM INFORMATION TO ACTION ON FALLS

What should you make of these numbers? You might use them to raise some questions to the home's staff, perhaps at the family council meeting later this month. Some things you might ask:

- What's being done to prevent falls here?
- The OHQC website lists good ideas for preventing falls – for example: providing good lighting, avoiding medications known to increase risk of falls, and ensuring that residents get regular exercise to keep their muscles strong. Are we trying these ideas? If not, what are the barriers? How can they be addressed?
- What's the best way for us to offer our own ideas or suggestions?
- I've also read on the OHQC website that it's important to ensure that we're not seeing fewer falls for all the wrong reasons, such as a high use of physical restraints or because residents are not getting up and moving around much. How are we doing on those indicators?

FIGURE 5
Where Do Ontario's Indicators on Long-Term Care Come From?



For more information, including the 2009 report, *Long-Term Care Measurement & Reporting Scientific Expert Panel: Full Report and Indicators*, go to www.ohqc.ca.

Source: Ontario Health Quality Council. Long-Term Care Reporting website. www.ohqc.ca.

A GROWING RESOURCE

Choosing which indicators to report on was the result of extensive research by OHQC, and consultation with experts on long-term care and data quality (see Figure 5).

By the end of 2011, OHQC expects to post indicator results for every long-term care home in the province, including more frequent updates, more indicators, and more reporting of trends.

Meanwhile, the website also reports provincial averages (but not yet scores for individual homes) for more than 20 indicators of quality in long-term care. As this guide goes to publication, the provincial averages are based on data from more than 200 of the province's 632 facilities. A few more examples from the growing list of indicators currently reported on:

- *weight and nutrition*: percentage of residents with recent unintended weight loss;
- *potentially inappropriate prescribing*: percentage of residents aged 65 or older prescribed at least one drug that should be avoided among the elderly;
- *freedom to speak up*: percentage of residents comfortable expressing concerns to staff.



risk adjustment

a statistical process that accounts for differences in risk factors among groups being compared. For example, frail elderly people are more likely to develop pressure ulcers. Without risk adjustment, a facility with more frail elderly residents might show a higher rate of pressure ulcers²⁸ and you wouldn't be able to tell if this indicated a poorer quality of care or if it was due to the characteristics of the residents.

HEALTH INDICATORS AT WORK

Thinking about health indicators for long-term care

Finding the right indicator to help you understand a health quality issue might involve a series of questions, like these:

- *What's the health issue?* (quality of care in my mother's nursing home)
- *What indicator might relate to this issue?* (percentage of residents who fell in past 30 days, for her nursing home, other homes, and provincial average)
- *Is this indicator designed to be used by individual citizens or clinicians and planners?* (all)
- *What are the strengths and weaknesses of the indicator on falls?* (It measures the issue directly and tells me clearly how my mother's home compares to others; but reporting is not yet available for all facilities, and I don't know why falls may be more of a problem in some than in others.)
- *Where do I go if I want to learn more?* (Talk to staff at the nursing home; follow links on the OHQC public reporting website, www.ohqc.ca.)



HEALTH INDICATORS AT WORK

Informing health policies—do bicycle helmet laws work?

This story shows:

- 1) how health indicators can help to inform and evaluate public policy;
- 2) the work that goes into developing health indicators.

HEALTH POLICY INDICATORS

Say you're a policy-maker or a community service provider, and you want to encourage kids to ride bikes for exercise and as part of a strategy to help families reduce their reliance on cars for local travel. But you want to ensure that more cycling doesn't lead to more injuries.

Where's the best place to put your resources, so that kids can ride safely? What indicators would you use to help you decide?

That's the kind of question being asked by the Canadian Injury Indicators Development Team, a group of experts collaborating to create and promote the use of a standard set of measures that focus on important causes of preventable injury among children and youth. This work is described in the team's 2010 report, *Measuring Injury Matters: Injury Indicators for Children and Youth in Canada*.

The team is breaking new ground in building policy indicators that will measure the effectiveness of laws and regulations designed to prevent injuries – laws requiring cyclists to wear helmets, for example.

“It's important to treat health *policy* indicators the same as we treat other health indicators,” says Alison Macpherson, co-leader of the team and associate professor at York University. The other co-leader is Ian Pike, assistant professor at the University of British Columbia and director of the BC Injury Research and Prevention Unit which is based at the Children's & Women's Health Centre in Vancouver and dedicated to promoting the use of evidence-based practices to prevent injuries.

USEFUL AND ACTIONABLE

Through an intensive consultation with policy-makers and researchers from across Canada, the team sifted through hundreds of existing health indicators to come up with a set of 34 injury measures that got the go-ahead for being:

- useful (they give information that deepens the understanding of what causes children's injuries); and
- able to prompt action (they give evidence about which strategies help to prevent injuries).

Also included in the indicator set are outcome indicators that measure the number of children and youth who die or are injured severely enough to need hospital care, and risk indicators that capture data about the use or non-use of protective equipment such as bike helmets and car seats.

In addition to the indicator for bike helmet laws, the Canadian Injury Indicators Development Team is promoting new policy indicators that can be used to monitor the effectiveness of:

- graduated driver licensing laws;
- child restraint (car seat and booster seat) laws;
- pediatric trauma centres (how access to these affects the outcomes of injury).

In a parallel collaboration, the team is also working with a number of national First Nations and Inuit organizations to develop risk, outcome, and policy indicators specifically for First Nations and Inuit children and youth. Reports and updates on this work are available through BC Injury Research and Prevention Unit at www.injuryresearch.bc.ca.

WHY FOCUS ON INJURIES?

Injuries are the leading cause of death and disability for Canadian children and youth.²⁹ Major causes of injury include motor vehicle and bike crashes, falls, and violence. For many of the major causes, including cycling, rates of death and hospital admissions among children have declined in recent years (see Figure 6).

Prevention efforts seem to be making a difference, but what factors contribute to this improvement, and how?

The new policy indicators are designed to allow rigorous comparisons of laws and regulations that have been passed in hopes of preventing serious injuries. Looking at a range of policies adopted by governments across Canada, the team aims to rank the policies against a gold standard and also in comparison to one another.



LEARN MORE

Measuring Injury Matters: Injury Indicators for Children and Youth in Canada

Canadian Injury Indicators Development Team, 2010
(Authors: Pike I, Macpherson A, Warda L, et al.)
www.injuryresearch.bc.ca

The story of the team's journey and the set of indicators they've come up with is told in this clearly written two-volume resource. It's designed as a guide for injury prevention professionals and practitioners, policy-makers, and non-governmental organizations. Volume 1 covers the basics of health indicators, the state of injury indicators in Canada, and the approach used to develop a common set of indicators in this field of public health. Volume 2 provides definitions and specifications (technical documentation) for the set of 34 indicators.



COOL TOOLS

Inform yourself about injury
Public Health Agency of Canada
Injury Surveillance On-Line
www.phac-aspc.gc.ca

Current statistics about injuries in Canada are available in an online tool where you can generate maps, tables, and graphs using information about the number of deaths and hospital admissions. You can go by province or territory, by age group, by cause of injury, and over time.

HEALTH INDICATORS FOR BICYCLE-RELATED INJURIES

Policy-makers, researchers, and advocates can turn to a variety of indicators on the number of Canadians who suffer injury while riding bikes, and the kinds of injuries that are most common.

The range of indicators available reflects the importance people place on understanding the burden of injuries from cycling and the need for high-quality indicators that can help evaluate prevention efforts, particularly for children and youth.

Just a few of the indicators available from CIHI and Statistics Canada:

- mortality (number of deaths related to cycling);
- rate of bicycle-related hospitalizations;
- percentage of cyclists who wear a helmet.

EVIDENCE FOR HELMET LAWS

Head injuries are a leading source of severe injuries in Canadian children and teen cyclists. They are responsible for close to one-third of the bicycle-related hospital admissions among this group. Although helmets can reduce the risk of head injury by 85%, safety campaigns promoting voluntary helmet use do not appear to be the entire answer.³⁰ As a supplement to public education on the benefits of helmet use, laws requiring cyclists to wear helmets have been shown to be highly effective in:

- increasing helmet use, and
- reducing head injuries.³¹

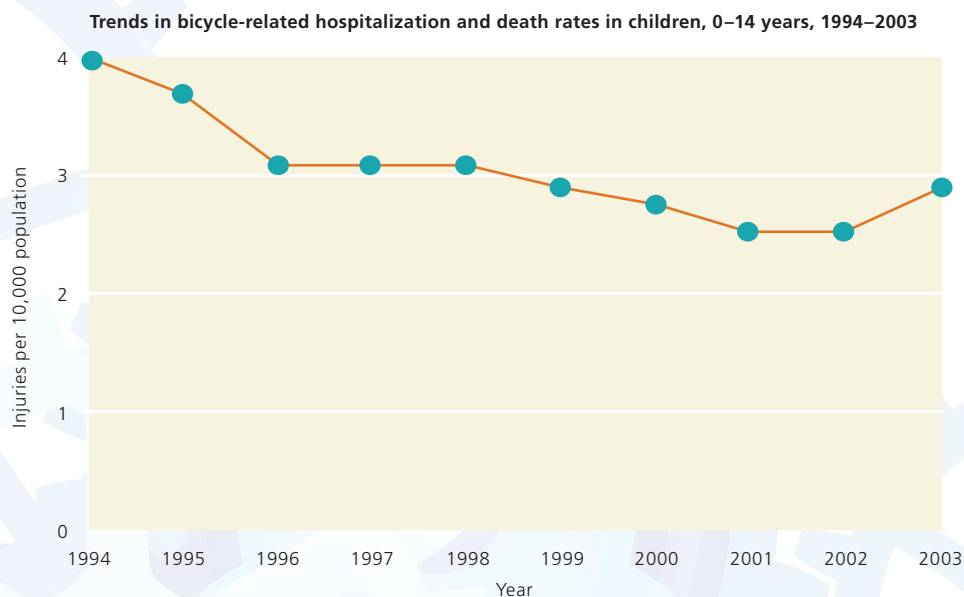
In response, six provinces and a number of municipalities have passed bike helmet laws – some covering only children and youth, and others covering adults as well.³² (For a chart summarizing current bicycle helmet legislation across Canada, see www.safekidscanada.ca.)

FIGURE 6

Injuries Declining, but Why?

Hospitalization and death rates among young cyclists declined by 29% between 1994 and 2003, according to data provided by CIHI and Statistics Canada for a report by Safe Kids Canada. This downward trend may be

due in part to voluntary changes in helmet use and to the introduction of helmet laws in six provinces. The injury indicators shown in this graph tell you what happened, but not why.



Source: Canadian Institute for Health Information; Statistics Canada. (Deaths for 2003 were estimated from trends for the years 1994–2002.)

Reproduced with permission from Safe Kids Canada. (2007). *Child & Youth Unintentional Injury, 1994–2003: 10 Years in Review*. Toronto: Safe Kids Canada. www.safekidscanada.ca

USING THE POLICY INDICATOR

Based on their review of the evidence, the Canadian Injury Indicators Development Team flagged Nova Scotia's bike helmet law as the current standard for ranking similar bike helmet laws. Nova Scotia's law requires helmets not only for all cyclists, but also for anyone using inline skates, scooters, and skateboards, with a minimum \$25 fine.

The bicycle helmet law policy indicator is defined by the team as "the percentage of provinces/territories with comprehensive laws requiring use of bicycle helmets that meet 'best practice' for helmet laws, currently set by the one enacted in Nova Scotia (2007)."

Dr. Macpherson and her colleagues are creating a scoring system to rank bike helmet laws across Canada. The results are intended to encourage discussion and action to pass laws where they don't yet exist or to improve existing regulations based on a continued review of evidence and health indicator results.

"We're also now looking at cycling-related head injuries in each jurisdiction, as well as bike helmet use in selected cities," she says. "And we'll look at the relationships between those indicators, and in relation to the presence and quality of bike helmet legislation in each jurisdiction. We hope that those results will inform future public policy and keep moving it forward."

HEALTH INDICATORS AT WORK

Thinking about health indicators for injury prevention

Finding the right indicator to help you understand a health policy issue might involve a series of questions, like these:

- *What's the health issue?* (Injuries are the leading cause of death and disability in children and youth, and some types of injuries are preventable – for example, head injuries from cycling.)
- *What indicator might relate to this issue?* (Percentage of provinces/territories with comprehensive bicycle helmet laws that meet best practice)
- *Is this indicator designed to be used by individual citizens or clinicians and planners?* (planners)
- *What are some strengths and weaknesses of the policy indicator?* (It captures data about the legislation and policies that are in place, but more work is needed to develop a score or index that will look at how well these reflect the evidence that's available about research on effective injury prevention strategies.)
- *Where can I go to learn more about injury prevention?* (your local public health office or organizations such as Safe Kids Canada, www.safekidscanada.ca, SMARTRISK, www.smartrisk.ca or ThinkFirst Canada, www.thinkfirst.ca)

Your turn

In an age of increased accountability, public reporting, and patient engagement, this guide is a primer for people who want to know more about health indicators: what they are, where they come from, and how to use them.

We've introduced you to key concepts, examples, and stories to show you how different types of indicators can inform decisions made by people using or working in the health system.

Now it's your turn. Learn more from the resources that we've listed throughout the guide. Tell us how you've used this guide and how it can be improved. How have you used health indicators – in your work as a journalist, as a health care professional, as a patient advocate or as someone who works in community services, or business, or law? Have you used them to help with personal health care decisions? Share your story with us in the blog space at www.healthcouncilcanada.ca.

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