

The Fraser Institute

# *Hospital Report Card*

*British Columbia 2008*



by Nadeem Esmail and Maureen Hazel

9 Scores by Municipality



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The authors, of course, take full and complete responsibility for any remaining errors or omissions. As they have worked independently, the views expressed in this study are their own and do not necessarily reflect those of the trustees, supporters, or other staff of The Fraser Institute.

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# Overview and Observations

## Overview

The Fraser Institute's *Hospital Report Card: British Columbia 2008* is constructed to help patients choose the best hospital for their inpatient care by providing them with information on the performance of acute-care hospitals in British Columbia. All of the information in this report, which is laid out in 12 documents, is available at <[www.fraserinstitute.org](http://www.fraserinstitute.org)>.

We set out to create a hospital report card that is easy to understand and accessible by the public, where individuals are able to look up a given condition or procedure and compare death rates, volumes of procedures, rates of adverse events, and utilization rates for their hospital to those of other hospitals in British Columbia.

This is accomplished by using state-of-the-art indicators developed by the US Agency for Healthcare Research and Quality (AHRQ) in conjunction with Stanford University that have been shown to reflect quality of care inside hospitals. These indicators are presently in use in more than a dozen US states, including several of the more populous ones, New York, Texas, Florida and California.

We are using the Canadian Institute for Health Information's (CIHI) Discharge Abstract Database (DAD) as our primary information source. This information is derived from patient records provided to CIHI by all hospitals in British Columbia. Demographic, administrative, and clinical data are extracted from the Discharge Abstract Database for inpatient hospital stays from all acute care hospitals in British Columbia.

Since more specialized hospitals may treat more high-risk patients and some patients arrive at hospitals sicker than others, it is important to risk-adjust hospital death rates, adverse events rates, and utilization rates for patients with the same condition but a different health status. The international standard for risk adjustment, 3M™ APR™ DRG Classification System, [1] is employed to risk-adjust the data.

The Fraser Institute spent two years developing the methods, databases, and computer programs required to adapt the measures to Canadian circumstances. This work has been internally and externally peer-reviewed (Mullins, Menaker, and Esmail, 2006) and is supported by an extensive body of research based on the AHRQ approach.

None of British Columbia's 95 acute-care hospitals granted us authorization to identify them by name in this report. This contrasts with the Fraser Institute's forthcoming *Hospital Report Card: Ontario 2008*, for which 29 hospitals agreed to be identified. The non-participation of British Columbia's hospitals is a setback to the empowerment of patients in British Columbia regarding the health care they receive and for the ongoing commitment of hospitals to quality improvement through accountability and transparency.

[1] 3M and APR are trademarks of 3M, used under license in Canada.

The Fraser Institute's *Hospital Report Card: British Columbia 2008* consists of 39 of AHRQ's indicators of quality (such as death due to a stroke) and patient safety (such as a foreign body left inside a patient during a procedure). The indicators are shown for all acute-care hospitals in British Columbia from 2001 to 2006, comprising almost two million patient records. We have also calculated the indicators for all municipalities in British Columbia, based on patient location. This constitutes the most comprehensive and detailed publicly available measure of acute-care hospital performance and accountability in Canada at the present time.

The indicators are expressed as observed rates (such as death due to hip replacement surgery) and risk-adjusted rates (the same rate adjusted for patient health status). Each institution was given a score from 0 to 100 for each indicator based on its risk-adjusted rate, where 100 is the best. The institutions were then ranked based on their scores, where 1 is the best.

The indicators are classified into three groups: those related to medical conditions, hospital procedures, and child birth. The indicators are further classified by type: death rates, volumes of procedures, utilization rates, and adverse events.

A Hospital Mortality Index (HMI) has been constructed to examine the overall performance of a hospital or municipality across indicators that measure death rates. It consists of nine indicators including:

- deaths due to hip replacement surgery
- deaths due to heart attacks
- deaths due to heart failure
- deaths due to acute strokes
- deaths due to bleeding from the esophagus, stomach, small intestine or colon
- deaths due to hip fractures
- deaths due to pneumonia infection
- deaths among patients that are considered unlikely to die in the hospital
- deaths in patients that developed complications of care during hospitalization

The final HMI is an average of the scores of these indicators, where 100 is the best. All institutions and municipalities were ranked based on their HMI score, where 1 is the best. It is important to note that the 39 indicators and the Hospital Mortality Index are applicable only to acute-care conditions and procedures for inpatient care. The results cannot be generalized to assessing the overall performance of any given hospital.

Since this report is based on administrative data, the results have limitations related to coding variations and other factors. Hospital deaths or complications will occur even when all standards of care are followed. Deciding on treatment options and choosing a hospital are decisions that should be made in consultation with a physician. It is not recommended to choose a hospital based solely on statistics and descriptions such as those given in this report.

That said, the DAD is a major data source used to produce various CIHI reports including annual reports on the performance of hospitals and the health-care system and for seven of the health indicators adopted by the federal, provincial, and territorial governments. These data have been used extensively in previous reports on health care performance, and form the basis for many journal articles.

As the *Ontario Hospital Report*, [2] which uses the same DAD data set underlying this report card, notes, “the data are collected under consistent guidelines, by trained abstractors, in all acute care hospitals in Ontario. The data undergo extensive edit checks to improve accuracy, but all errors cannot be eliminated” (p. 6).

There are a number of publications that have addressed data-quality issues that are discussed in our report. Of note are CIHI’s reabstraction studies that go back to the original patient charts and recode the information using a different set of expert coders. [3]

Overall, according to CIHI, [4] findings from their three-year DAD reabstraction studies have confirmed the strengths of the database, while identifying limitations in certain areas resulting from inconsistencies in the coding of some data elements. In addition, the findings from the inter-rater data (that is, comparison between reabstractors) were generally similar to the findings from the main study data (that is, comparison between original coder and reabstractor). This suggests that the database is coded as well as can be expected using existing approaches in the hospital system.

In addition to the aforementioned reabstraction studies, the OECD published a report [5] that supports the AHRQ patient-safety indicator approach, noting that “this set of measures represents an exciting development and their use should be tested in a variety of countries” (p. 11). Further, a recently released report by the Manitoba Center for Health Policy that used the AHRQ Patient Safety Indicators [6] noted two important advantages to using the AHRQ approach. The first advantage is the breadth of coverage offered by the indicators in studying in-hospital patient safety. The second is that the AHRQ patient safety indicators were developed to measure complications of hospital-based care among a group of patients for whom the complications seemed preventable or highly unlikely.

## Observations

A report based on just under two million patient records, shown across 39 quality and safety indicators for 95 hospitals and 50 municipalities over five years, is not something that can be summarized in a few words. In fact, the primary purpose of this research is to provide patients with access to information on specific medical procedures and conditions and understand the variation of hospital care across the entire system. It is for that reason that we have rates, scores, and ranks for each separate indicator. All documents are available at <[www.fraserinstitute.org](http://www.fraserinstitute.org)>.

However, we have created one summary measure of mortality, based on the most important and reliable data in this study, the Hospital Mortality Index. The nine component indicators of the HMI were arrived at by a process of elimination. Starting with our complete group of 39 indicators, we eliminated indicators that had no data for several years or relatively few hospitals with data. The resulting HMI has scores and rankings for 25 hospitals and 42 municipalities in the latest year.

[2] A joint initiative of the Ontario Hospital Association and the Government of Ontario. Hospital Report 2006: Acute care. Report available at <<[http://www.oha.com/client/OHA/OHA\\_LP4W\\_LND\\_WebStation.nsf/resources/Hospital+Reports/\\$file/acute\\_report\\_2006.pdf](http://www.oha.com/client/OHA/OHA_LP4W_LND_WebStation.nsf/resources/Hospital+Reports/$file/acute_report_2006.pdf)>>.

[3] Reabstractors participating in the study were required to have several years of coding experience, experience coding in ICD-10-CA and CCI in particular, experience coding at a tertiary care centre, and attendance at specific CIHI educational workshops. They were also required to attend a one-week training session and to receive a passing score on the inter-rater test.

[4] Data Quality of the Discharge Abstract Database Following the First-year Implementation of ICD-10-CA/CCI. CIHI, 2004.

[5] Selecting Indicators for Patient Safety at the Health Systems Level in OECD Countries. John Millar, Soeren Mattke and the Members of the OECD Patient Safety Panel. Report available at: <http://www.oecd.org/dataoecd/53/26/33878001.pdf>

[6] Bruce, S., et al., *Application of Patient Safety Indicators in Manitoba: A First Look*. Winnipeg, Manitoba Centre for Health Policy, June 2006.

Tables 1 (page 6) and 2 (page 8) show scores and rankings for the Hospital Mortality Index for the average score over the latest two years, 2004/05 and 2005/06. This is compared to the average score in the first three years of our survey from 2001/02 to 2003/04. The change column shows the improvement or deterioration in score between the two periods. Only scores and rankings for hospitals with data for all years are presented.

## Hospital Mortality Index: Hospitals

### Top-Ranked Hospitals

- The top hospital in British Columbia is Anonymous Hospital 11 with a high HMI score of 83.5 out of 100 in the latest years. It has performed consistently and was the top-ranked hospital in the previous period also.
- Anonymous Hospital 26 is the second ranked hospital. It held a similar position in the early 2000s, where it ranked fourth with a score of 83.1 as compared to 82.7 in the more recent period.
- Among the hospitals ranked in the top ten in 2004/05 and 2005/06, half saw an improvement in their scores and half saw a deterioration. All but one hospital in the top 10 for 2004/05 and 2005/06 were also in the top 15 for the period from 2001/02 to 2003/04.
- Anonymous Hospital 66, ranked seventh, has had the largest improvement in its HMI score of any hospital (up 5.6 points) since the early 2000s.

### Bottom-Ranked Hospitals

- Anonymous Hospital 28 is the lowest-ranked hospital with a score of 68.8. It also saw a deterioration of its score over time and was ranked second to last from 2001/02 to 2003/04.
- Anonymous Hospital 52 is the second lowest-ranked hospital, with a score of 72.5, but saw an improvement in its score (up 2.1 points) from 2001/02 to 2003/04. Anonymous Hospital 41 is third lowest, with a score of 72.8 and a drop of almost 5 points from the earlier period.
- The hospital with the sharpest decline is anonymous Hospital 5 with a 7.2 point fall and drop from eighth position in the period from 2001/02 to 2003/04 to 21<sup>st</sup> in the period from 2004/05 to 2005/06.

### Consistency

- There is a high level of consistency in the performance of both top-ranked and bottom-ranked hospitals.
- Five of the top ten hospitals, Anonymous Hospitals 11, 12, 26, 93 and 42, have sustained top-ten performances over the entire time period.
- All of the bottom ten hospitals ranked among the bottom ten in 2001/02–2003/04 except for Anonymous Hospitals 5, 13, and 8.

Table 1: Hospital Mortality Index—Hospitals

	2004/05–2005/06		2001/02–2003/04		Change	
	Score	Rank	Score	Rank	Score	Rank
Hospital 11	83.5	1	85.0	1	-1.5	14
Hospital 26	82.7	2	83.1	4	-0.4	11
Hospital 25	82.6	3	80.6	12	2.0	6
Hospital 24	82.3	4	80.7	11	1.6	8
Hospital 89	81.7	5	80.3	13	1.4	9
Hospital 22	81.5	6	79.8	14	1.7	7
Hospital 66	81.5	7	75.9	20	5.6	1
Hospital 42	81.2	8	82.7	6	-1.4	13
Hospital 12	81.1	9	83.6	3	-2.5	19
Hospital 93	80.5	10	82.9	5	-2.3	17
Hospital 67	80.4	11	78.3	16	2.1	5
Hospital 14	80.0	12	75.0	22	5.0	2
Hospital 17	79.6	13	82.0	9	-2.4	18
Hospital 39	78.6	14	83.7	2	-5.1	23
Hospital 13	77.7	15	82.4	7	-4.7	21
Hospital 38	77.0	16	78.0	17	-1.0	12
Hospital 19	76.5	17	75.9	21	0.6	10
Hospital 8	76.3	18	81.6	10	-5.3	24
Hospital 59	75.7	19	72.5	23	3.2	3
Hospital 15	75.0	20	78.8	15	-3.7	20
Hospital 5	74.9	21	82.1	8	-7.2	25
Hospital 53	74.2	22	76.3	19	-2.1	16
Hospital 41	72.8	23	77.7	18	-4.9	22
Hospital 52	72.5	24	70.4	25	2.1	4
Hospital 28	68.8	25	70.6	24	-1.8	15

## Hospital Mortality Index: Municipalities

### Top-Ranked Municipalities

- The top municipality is Nelson with a high HMI score of 78.6 out of 100. However, this municipality and second-ranked Port Moody had inadequate data to show a score in fiscal years 2001 to 2003.
- The third-ranked municipality is Penticton, which also ranked among the top 10 in the earlier years.
- Municipalities are less consistent over time than hospitals. Only three municipalities among the top 10 in 2004/05 were also among the top 10 in 2001/03. On the other hand, half of the bottom ten municipalities in 2004/05–2005/06 were also in the bottom 10 in the earlier years.

Note: The Hospital Mortality Index (HMI) is calculated for municipalities using the residence of patients treated in British Columbia's acute-care hospitals.

- Municipalities with larger populations that had high rankings are: Victoria, ranked 11<sup>th</sup>; Vancouver, ranked 12<sup>th</sup>; Surrey, ranked 13<sup>th</sup>; Kelowna, ranked 14<sup>th</sup>; and Delta, ranked 15<sup>th</sup>. It is notable that none of British Columbia's largest municipalities are ranked among the top 10.

#### **Bottom-Ranked Municipalities**

- The lowest-ranked municipality in British Columbia is Salmon Arm, with a low HMI score of 57.1 for the most recent period, which comes after a sizable decline of 10.2 points from its score during the period from 2001/02 to 2003/04.
- Most of the bottom-ranked municipalities are consistently of low rank over the two time periods, except for Burnaby, which fell from 8<sup>th</sup> to 31<sup>st</sup> with a 13.9 point decline in its HMI score, and Central Saanich, which fell from 1<sup>st</sup> place to 29<sup>th</sup> with a 17.4 point decline in its HMI score.
- Abbotsford, ranked 36<sup>th</sup>, is the lowest-ranked, larger-population municipality in British Columbia.

#### **Five Largest Municipalities**

- The five largest municipalities in British Columbia by number of inpatient stays are: Vancouver, ranked 12<sup>th</sup> on the Hospital Mortality Index with a score of 71.8; Surrey, ranked 13<sup>th</sup> with a score of 71.7; Victoria, ranked 11<sup>th</sup> with a score of 72.0; Kelowna, ranked 14<sup>th</sup> with a score of 71.3 and Abbotsford, ranked 36<sup>th</sup> with a score of 59.4.

## **Conclusion**

The Fraser Institute's *Hospital Report Card: British Columbia 2008* provides a comprehensive measure of inpatient acute-care conditions in British Columbia's hospitals. This is the first edition of an annual report card for patients in British Columbia. A report for Ontario is already available and future editions of The Fraser Institute's *Hospital Report Card* will include performance measurement of acute-care hospitals in other provinces. We welcome comments on the content and format of this report via <comments@hospitalreportcards.ca>.



Table 2: Hospital Mortality Index—Municipalities

	2004/05 & 2005/06		2001/02 - 2003/04		Change	
	Score	Rank	Score	Rank	Score	Rank
Nelson	78.6	1				
Port Moody	77.5	2				
Penticton	76.7	3	76.6	6	0.0	6
Trail	75.6	4	75.9	7	-0.3	8
Parksville	74.8	5	73.9	14	1.0	4
Sidney	74.3	6	73.8	16	0.5	5
Other	73.6	7	74.0	12	-0.4	9
Rural	73.4	8	73.4	18	0.0	7
Langley	73.3	9	69.5	26	3.9	1
Campbell River	72.8	10	75.1	9	-2.3	17
Victoria	72.0	11	73.1	19	-1.1	12
Vancouver	71.8	12	74.8	10	-3.0	19
Surrey	71.7	13	68.3	27	3.4	2
Kelowna	71.3	14	73.8	15	-2.5	18
Delta	71.1	15	76.8	5	-5.7	22
Qualicum	69.5	16	67.1	31	2.4	3
Coquitlam	69.0	17	78.2	2	-9.1	28
Vernon	69.0	18	78.1	3	-9.1	29
Nanaimo	68.8	19	69.6	25	-0.8	11
New Westminster	68.3	20	70.5	22	-2.3	16
Prince George	67.7	21	77.1	4	-9.4	30
Kamloops	67.0	22	74.4	11	-7.4	23
Port Coquitlam	66.5	23	73.9	13	-7.4	24
Cranbrook	66.5	24	68.2	28	-1.7	14
Port Alberni	66.4	25	67.0	32	-0.5	10
Duncan	66.0	26	70.3	24	-4.3	20
Mission	65.1	27				
Chilliwack	64.5	28	73.1	20	-8.5	26
Central Saanich	64.1	29	81.5	1	-17.4	34
Richmond	63.6	30	72.5	21	-8.9	27
Burnaby	61.5	31	75.3	8	-13.9	33
Courtenay	60.9	32	62.3	34	-1.4	13
Salt Spring	60.5	33				
Dawson	60.3	34	65.3	33	-5.1	21
White Rock	59.7	35	67.6	29	-7.9	25
Abbotsford	59.4	36	70.4	23	-11.0	32
Maple Ridge	58.8	37	60.9	35	-2.1	15
Salmon Arm	57.1	38	67.3	30	-10.2	31
Powell River			73.5	17		

# Introduction and background

The goal of the Fraser Institute's *Hospital Report Card: British Columbia 2008* is to contribute to the improvement of inpatient care in British Columbia by providing hospital-specific information about quality of service directly to patients and to the general public. This series was the first in Canada to empower patients to make informed choices about their health-care delivery options by providing comparable, hospital-specific, performance measurements on clearly identified indicators. The Fraser Institute's *Hospital Report Card: British Columbia 2008* has been published to promote accountability within hospitals, thereby stimulating improved performance through an independent and objective measurement of performance.

## Introduction

In Canada, individuals have access to data identifying problem areas in an automobile from information willingly supplied by consumers, the vehicle's manufacturer, and industry experts. They can find which CD player is the best on the market for their needs. They can compare restaurants before heading out for an evening meal. Yet when it comes to health care, which many will consider more important for an individual's well being, consumers are left with remarkably little information about where the best services are available. They cannot even tell which hospitals offer the worst care or have the highest mortality rates (Esmail, 2003).

## What Are Hospital Report Cards? [1]

Hospital report cards provide a set of consistent performance measurements to rank the products in question and help inform consumer choice. In some cases, these indicators may be subjective, or based on the opinions of survey respondents. In other cases, the indicators will be objective measures of performance or outcomes.

Hospital report cards are used to measure specific practices in hospitals such as the application of a specific drug or technology to certain events; or performance with respect to access to care or consumer friendliness; or to measure the likelihood of a positive outcome provided by health facilities in a specific jurisdiction.

[1] Daniel P. Kessler, Stanford University, Hoover Institution, and the National Bureau of Economic Research. provide a helpful delineation of the field in a PowerPoint® slideshow entitled "Health Care Quality Report Cards."

## The Four Primary Types of Hospital Report Cards

**1 Process Report Cards** This type of report card describes the inputs used by hospitals, health plans or individual physicians in the course of treating their patients. An example of these types of report cards can be found in those commissioned by The Leapfrog Group (Leapfrog Group, 2005). [2] The primary strength of a Process Report Card is that it can be developed from existing medical

[2] Further information available at <<http://www.leapfroggroup.org/>>.

administrative databases with relative ease. The process report card, however, does not necessarily measure the appropriateness, the quality, or the importance of the inputs employed in ensuring good health, although these factors can be captured to some extent by the inclusion or exclusion of specific inputs.

**2 Survey Report Cards** These types of report cards are composed of patients' evaluations of their quality of care and/or customer service. An example of this type of report card is found in the Pacific Business Group on Health's (PBGH) *Healthscope* reports. Although survey-based report cards do provide valuable information on subjective areas of patient care, they cannot measure how treatment decisions by a doctor or hospital lead to objective improvements in patient care.

**3 Outcomes Report Cards** These report cards present average levels of adverse health outcomes based on mortality or complication rates experienced by patients as part of a health plan, as treated by a specific doctor, or in a specific hospital. An example of this type of report card can be found in the *Pennsylvania CABG* surgery reports (Pennsylvania Health Care Cost Containment Council, 2006). [3] These report cards provide objective measures of differences in the quality of care but are susceptible to being "gamed" by either doctors or hospitals. For example, the doctor or hospital may avoid exceptionally sick patients (that is, patients who are qualitatively more ill with a listed condition and who will consequently drag average results down) in favour of healthy patients (to skew results upward). This unintended effect can, however, be mitigated through the appropriate application of risk-adjustment in the measures. Outcomes report cards (including The Fraser Institute's *Hospital Report Card*) provide the most empirically sound basis for analyzing the quality of care.

[3] Further information available at <http://www.phc4.org/reports/cabg/>.

**4 Balanced Scorecards** The balanced scorecard was developed in the early 1990s by Drs. Robert Kaplan and David Norton to examine a business above and beyond the financial bottom line. Translated into the healthcare field, this results in four quadrants. In the case of the *Ontario Hospital Reports* series, a prime example of the use of a "balanced scorecard," these are [a] financial performance and conditions; [b] patient/client satisfaction; [c] clinical utilization and outcomes; and, [d] system integration and change. While this variant of report card is useful in determining the broadest view of a hospital's operations and functions, specific and relevant indicators regarding hospital performance may be overlooked.

## Why Are Hospital Report Cards Published?

The publication of hospital report cards is based on the concept that publishing outcomes data can both improve the quality of care in hospitals and inform patients' healthcare decision-making. Armed with more information based on a set of repeatable measurements about the relative performance of caregivers, both patients and physicians are able to make a more informed choice about which

facility or provider to select for a given condition. This allows for a rational discussion of relative levels of quality of service provision and eliminates measurement based on anecdotal information, which can be misleading and ultimately harmful.

## Where Are Hospital Report Cards Published?

### The United States of America

The United States was one of the first nations to begin measuring, comparing, and publishing measurements of hospital performance. Hospital report card initiatives were first undertaken by the federal government, with state governments following its lead. Private-sector information providers offering several competing reports on provider quality have refined the reporting of information.

In 1987, the first US hospital report cards were published by the Health Care Financing Administration (HCFA). These reports detailed annual mortality rates that were measured from the records of hospitalized Medicare patients. However, due to extensive criticism regarding the accuracy, usefulness, and interpretability of the HCFA's mortality data, this initiative was withdrawn in 1993 (Berwick and Wald, 1990).

In the late 1980s, the state of New York began the Cardiac Surgery Reporting System (CSRS), which collected data from patients' medical histories and recorded whether they died in hospital following surgery. From these data, New York was able to report detailed physician-specific statistics. While the information contained in the CSRS was not originally intended to provide the public with information about the performance of their provider, the news media understood the public's desire for such data and saw the benefit in publishing the information. In December of 1990, the *New York Times* used this information to publish a list of local hospitals, which ranked facilities according to their mortality rates for Coronary Artery Bypass Surgery (CABG). Invoking the *Freedom of Information Act*, the *New York Newsday* sued the New York State Department of Health to obtain access to its database on bypass surgery and on cardiac surgeons. The goal was to publish physician-specific death rates for patients. The Supreme Court of New York ruled that it was in the public's best interests to have access to these mortality data in order to make informed decisions about their health care (Zinman, 1991). As a result, *New York Newsday* was able to publish the information on physician performance for citizens to assess where the best care was available. Driven by this development, the New York State Department of Health began publishing annual editions of the *Coronary Artery Bypass Surgery Report* in 1996 (New York State, Department of Health, 2005). [4]

Following the precedent set by this pioneering case, a wide variety of hospital performance reports began to be produced in the 1990s by a disparate group of authors that ranged from the news media, coalitions of large employers, consumer advocacy organizations, and state governments (Marshall et al., 2003). Many different development paths have been taken so that there is currently no "standardized" hospital report card or agreement on the indicators to measure.

[4] Links to the entire series of reports can be found at <[http://www.health.state.ny.us/nysdoh/heart/heart\\_disease.htm](http://www.health.state.ny.us/nysdoh/heart/heart_disease.htm)>.

Furthermore, these different reports range widely in terms of both quality and comprehensiveness. Indeed, as Marshall and colleagues cheekily note: “Public reporting in the United States is now much like healthcare delivery in that country: It is diverse, is primarily market-based, and lacks an overarching organizational structure or strategic plan. Public reporting systems vary in what they measure, how they measure it and how (and to whom) it is reported.” [5] Of course, for patients who are the beneficiaries of such competition between information providers, each of whom strives to deliver a product in some way superior to his competitors, this is no bad thing.

[5] Document available at <[www.medscope.com/viewarticle/452953\\_3](http://www.medscope.com/viewarticle/452953_3)>.

### Examples of American Private and Public Information Providers

- [1] America’s Best Hospitals—USNEWS & World Report <<http://www.usnews.com>>.
- [2] Healthgrades <<http://www.healthgrades.com>>
- [3] Leapfrog Group <<http://www.leapfroggroup.org>>
- [4] National Committee for Quality Assurance (NCQA) <<http://www.ncqa.org>>
- [5] National Quality Forum <<http://www.qualityforum.org>>
- [6] Quality Check <<http://www.jointcommission.org/PerformanceMeasurement/PerformanceMeasurement/>>
- [7] Cardiac Surgery in New Jersey <<http://www.state.nj.us/health/reportcards.htm>>
- [8] Cardiac Surgery Reports <<http://www.health.state.ny.us/nysdoh/healthinfo/index.htm>>
- [9] Pennsylvania Hospital Performance Reports <<http://www.phc4.org>>
- [10] Indicators of Inpatient Care in New York Hospitals <<http://www.myhealthfinder.com/newyork>>
- [11] Indicators of Inpatient Care in Texas Hospitals <<http://www.thcic.state.tx.us>>
- [12] Maryland Hospital Performance Evaluation Guide <<http://www.hospitalguide.mhcc.metro-data.com>>
- [13] Pacific Business Group on Health (PBGH) <<http://www.healthscope.org>>.

### The United Kingdom

The hospital reporting universe in the United Kingdom is a fraction of the US market’s size. League tables [6] of death rates for English hospitals were available from 1992 to 1996 (Leyland and Boddy, 1998) and mortality statistics for English hospitals were published by the Labour government in 1998. Although publicly released, these were intended for managerial use and had little discernible impact (Street, 2002). The first initiative designed for public consumption was the Patient’s Charter (National Health Service, 1991), [7] which focused on waiting times as opposed to clinical quality.

[6] A league table ranks the performance of a range of institutions.

[7] Further information can be found at <<http://www.pfc.org.uk/medical/pchrt-e1.htm#foreword>>.

In 1998, the National Health Service (NHS, Britain's tax-funded and universal medical insurance program) adopted a new Performance Assessment Framework (PAF) to report clinical outcomes at the hospital level (London: Department of Health, 1998). It focused on health gain, fair access, effective delivery of services, efficient delivery of services, health outcomes, and patient/career experience. This initiative received prominence in 2001 as the NHS Plan became the first government plan in the developed world to deal explicitly with report cards. Beginning in September 2001, the UK Department of Health began to publish a new rating system for all NHS non-specialist hospitals in England. The performance of hospitals included in this survey was classified into one of four categories, ranging from zero to three stars based on the hospital's performance on a range of indicators and the outcome of their clinical governance review by the Commission for Health Improvement (CHI). As an additional incentive for improvement, beyond that assumed to come with public reporting of performance, the Department of Health mandated that hospitals scoring at the high end of the scale would receive greater funding and autonomy, while those at the bottom of the scale would be subject to greater government oversight and intervention. For example, those receiving zero stars were subject to investigations and underwent changes in management where necessary.

Although the lion's share of reporting in Britain has been by and at the direction of government, an independent initiative entered the arena in the latter half of 2000 when Tim Kelsey and Jake Arnold-Forster, a pair of *Sunday Times* journalists, founded Dr. Foster to generate authoritative independent information about local health services on the web at <<http://www.drfooster.co.uk>>. The partnership is in the form of a 50:50 joint venture involving the new Health and Social Care Information Centre (a special health authority of the NHS) and Dr. Foster, a commercial provider of healthcare information. Numerous publications have emerged from this initiative including the *Good Birth Guide* and the annual *Good Hospital Guide*, which was first published in 2001 and continues to be published annually. These guides contain information about hospital-specific mortality rates; the total number of staff; wait times; numbers of complaints; as well as, uniquely, private hospital prices for services.

## Canada

Hospital reporting initiatives, like those in both the United States and the United Kingdom, have emerged in Canada only recently. In 1998, the Ontario Hospital Association produced a report card comparing the hospitals covered by its organization. Undertaken by a research group at the University of Toronto, the publication focused upon inpatient acute care and reported results at both peer group and regional levels of aggregation, but not for individual facilities. *Hospital Report '99*, published the following year, saw the first reporting of hospital-specific acute-care hospital performance indicators in Canada. In 2000, the Government of Ontario joined as a partner in the enterprise and the scope of the report was expanded to include such areas as complex continuing care, mental health, rehabilitation, and emergency department care. In addition, specific reports dealing

with women's health, the health of the population as a whole, and nursing care were also produced. These publications have since appeared annually. The Hospital Report Series appears in a "balanced scorecard" format and assesses the performance of hospitals in four quadrants including: [a] financial performance and conditions; [b] patient/client satisfaction; [c] clinical utilization and outcomes; and [d] system integration and change.

Other notable reporting initiatives in Canada include CIHI's Hospital Standardized Mortality Ratio (HSMR) (discussed below), *Healthcare Performance Measurement in Canada: Who's Doing What?* (Baker et al., 1998), *Quality of Cardiac Care in Ontario* (ICES, 2004) [8] and *The State of Hospital Care in the GTA/905* (GTA/905 Healthcare Alliance, 2005). [9] Additionally, two publications that have reported on patient safety and adverse events are *The Ottawa Hospital Patient Safety Study* (Forster et al., 2004) [10] and *The Canadian Adverse Events Study* (Baker et al., 2004), though neither reported institution-specific measures. [11] Additionally, for the last 17 years, The Fraser Institute has published *Waiting Your Turn: Hospital Waiting lists in Canada*, a report that provides Canada's only national, comparable, and comprehensive measurement of waiting times for medically necessary treatment (Esmail and Walker with Bank, 2007). [12] Another Fraser Institute initiative is *How Good is Canadian Health Care? An International Comparison of Health Care Systems* (Esmail and Walker, 2007) [13], which compares Canada's health policies and healthcare performance with other nations that guarantee their citizens access to healthcare insurance.

Other avenues of hospital performance reporting and monitoring in Canada have largely been in the form of private hospital assessments of performance by a contracted third party using a proprietary performance indicator methodology. A prime example of this is the work done by the Hay Group in rating the performance of participating Ontario hospitals for a fixed fee per facility (Hay Group, 2005).

### Canadian Institute for Health Information's Hospital Standardized Mortality Ratio (HSMR)

The Canadian Institute for Health Information (CIHI) published its own measure of hospital and regional performances, the *Hospital Standardized Mortality Ratio* (HSMR), in 2007. While both the CIHI's measure and the *Hospital Report Card: British Columbia 2008* use data from CIHI's Discharge Abstract Database, there are several significant differences between the measure published by CIHI and those published by The Fraser Institute. These differences make comparisons between the two reports difficult and lead to the conclusion that CIHI and the *Hospital Report Card: British Columbia 2008* are measuring mortality in two very different ways.

The most significant difference between the measures published by The Fraser Institute and those published by CIHI is the level of detail available. According to the CIHI's report, the *Hospital Standardized Mortality Ratio* (HSMR) is a "big dot summary" measure (CIHI 2007: 4), or a measure that "tracks

[8] Report available at <[http://www.ices.on.ca/WebBuild/site/ices-internet-upload/file\\_collection/Ccort%5FFull%5FReport%2Epdf](http://www.ices.on.ca/WebBuild/site/ices-internet-upload/file_collection/Ccort%5FFull%5FReport%2Epdf)>.

[9] Further details available at <<http://www.gta905health.com/mediaroom/2005-may3.html>>. Report available at <<http://www.gta905health.com/whatsnew/gta905-hospitalreport.pdf>>.

[10] Article available at <<http://www.pubmedcentral.gov/articlerender.fcgi?tool=pubmed&pubmedid=15078845>>. Also, the Manitoba Center for Health Policy recently released an in-hospital patient safety report using the AHRQ Patient Safety Indicators (Bruce et al., 2006).

[11] Article available at <<http://www.cmaj.ca/cgi/content/full/170/11/1678>>.

[12] Report available at <[http://www.fraserinstitute.org/commerce.web/publication\\_details.aspx?pubID=4962](http://www.fraserinstitute.org/commerce.web/publication_details.aspx?pubID=4962)>.

[13] Report available at <[http://www.fraserinstitute.org/commerce.web/publication\\_details.aspx?pubID=5035](http://www.fraserinstitute.org/commerce.web/publication_details.aspx?pubID=5035)>.

progress on broad outcomes at a system level” (2007: vii). More specifically, the HSMR is a composite measure of mortality in diagnosis groups that comprise 80% of all deaths in acute-care facilities. These include:

- Acute pancreatitis
- Acute renal failure
- Adult respiratory distress syndrome
- Alcoholic liver disease
- Alzheimer’s disease
- Acute myocardial infarction
- Angina pectoris
- Aortic aneurism and dissection
- Atrial fibrillation and flutter
- Cardiac arrest
- Cerebral infarction
- Chronic ischemic heart disease
- Chronic obstructive pulmonary disease
- Chronic renal failure
- Complications of procedures, not elsewhere classified
- Convalescence
- Diabetes mellitus type 2
- Diffuse non-Hodgkin’s lymphoma
- Diverticular disease of intestine
- Fibrosis and cirrhosis of liver
- Heart failure
- Hepatic failure
- Hip fracture
- Intracerebral hemorrhage
- Intracranial injury
- Lymphoid leukemia
- Malignant neoplasm of bladder
- Malignant neoplasm of brain
- Malignant neoplasm of breast
- Malignant neoplasm of bronchus and lung
- Malignant neoplasm of colon
- Malignant neoplasm of liver and intrahepatic bile ducts
- Malignant neoplasm of pancreas
- Malignant neoplasm of prostate
- Malignant neoplasm of stomach
- Malignant neoplasm without specification of site
- Multiple myeloma and malignant plasma cell neoplasms
- Myeloid leukemia
- Other and unspecified types of non-Hodgkin’s lymphoma
- Other bacterial intestinal infections
- Other diseases of digestive system
- Other diseases of intestine
- Other disorders of brain
- Other disorders of fluid, electrolyte and acid-base balance
- Other disorders of urinary system
- Other interstitial pulmonary diseases
- Other non-traumatic intracranial hemorrhage
- Paralytic ileus and intestinal obstruction without hernia
- Peritonitis
- Pleural effusion, not elsewhere classified
- Pneumonia
- Pneumonitis due to solids and liquids
- Post-procedural respiratory disorders, not elsewhere classified
- Pulmonary embolism
- Respiratory failure
- Secondary malignant neoplasm of other sites
- Secondary malignant neoplasm of respiratory and digestive organs
- Septicemia
- Shock, not elsewhere classified
- Stroke, not specified as hemorrhage or infarction
- Subarachnoid hemorrhage
- Unspecified dementia
- Unspecified renal failure
- Vascular disorders of intestine
- Volume depletion

By comparison, the measures published in the *Hospital Report Card: British Columbia 2008* allow for the examination of hospital performance in specific and detailed areas, thus providing patients with a greater level of information regarding their particular interest or diagnosis and allowing providers greater insight into the areas of care that are of particular concern in their facilities. In



the latest year of data, 39 specific and well-defined indicators of quality of care are examined in The Fraser Institute's report. The composite measure published in the *Hospital Report Card: British Columbia 2008*, the Hospital Mortality Index (HMI), is also a more specific measure of mortality in acute-care hospitals than the CIHI's composite measure and includes only the following nine measures:

- Hip replacement mortality (IQI 14)
- Acute myocardial infarction mortality (IQI 15)
- Congestive heart failure mortality (IQI 16)
- Acute stroke mortality (IQI 17)
- Gastrointestinal hemorrhage mortality (IQI 18)
- Hip fracture mortality (IQI 19)
- Pneumonia mortality (IQI 20)
- Death in low mortality Diagnosis Related Groups (PSI 2)
- Failure to rescue rates (PSI 4)

Further, the *Hospital Standardized Mortality Ratio* (HSMR) is a relative measure, giving a measure of a hospital's or region's performance relative to Canada's performance as a whole in 2004. The indicator measures the ratio of the actual number of deaths for a hospital or region given its case mix (age, sex, length of stay, diagnosis group, etc. of its patients) to the number of deaths that would be expected according to national estimates in 2004. [14] Conversely, the 39 indicators published in the *Hospital Report Card* and the Hospital Mortality Index (HMI) composite measure give an absolute measure of patient safety or inpatient quality of care.

These significant differences in the approaches used by CIHI and the *Hospital Report Card: British Columbia 2008* lead to the conclusion that the two measures cannot be compared with one another directly. Further, the relative rankings of hospitals are not necessarily comparable because of differences in what is being measured in the HSMR and the various indicators of the *Hospital Report Card: British Columbia 2008* or the HMI composite measure, and because of the differences between an absolute and relative measure (i.e. for a given indicator, a hospital or region performing better than the Canadian average will not necessarily score highly if the Canadian average is low). In addition to these significant differences in approach is a difference in risk-adjustment methodologies: the indicators in the *Hospital Report Card: British Columbia 2008* are risk-adjusted using the publicly-available 3M/AHRQ methodology/software and are not risk adjusted in the manner developed and employed by CIHI for the HSMR.

However, while the two sets of measures cannot be directly compared, it is nevertheless true that the HSMR provides a measure of hospital mortality that can be used in conjunction with the HMI and the other measures produced in the *Hospital Report Card: British Columbia 2008*. [15] Both sets of measures are based on an internationally validated and commonly applied methodology, and both sets of measures can provide patients and providers with insight into where mortality rates are unacceptably high or exceptionally low. [16] In this sense, the authors of this report welcome the CIHI's measure and hope that greater reporting of, and attention to, provider performances on mortality leads to improved outcomes from care for Canadians.

[14] The number of deaths is computed for the 65 diagnosis groups listed above, accounting for 80% of in-patient mortality.

[15] Note that the regional results published by CIHI are based on where patients were treated, while municipal measures published in the *Hospital Report Card: British Columbia 2008* are based on where patients lived.

[16] It is worth noting that CIHI began working with the HSMR measure for Canada in 2005 while The Fraser Institute's research program on the *Hospital Report Card* began in 2004. Further, The Fraser Institute's *Hospital Report Card: Ontario 2008* was the first publicly available report in Canada that allowed the comparison of mortality rates in Canadian hospitals based on a standardized measure. A significant advantage of the CIHI's report over the *Hospital Report Card: British Columbia 2006* is that it names all hospitals for which data is published while many hospitals in Ontario elected to remain unnamed in the report produced by The Fraser Institute.

## What Are the Measurable Impacts of Patient Safety and Hospital Report Cards?

In the United States, hospital report cards have had a number of measurable impacts on performance and the quality of patient care. The first and most notable example came from the *New York State Cardiac Surgery Report*. Hannen et al. (1994) reported an associated 41% decline in the risk-adjusted mortality rate of Coronary Artery Bypass Graft patients with the publication of these outcomes statistics and data. A similar overall trend was experienced in Pennsylvania and New Jersey following the publication of their report cards. [17]

These findings have also created controversy about the Cardiac Surgery Reporting System, the database used to create the New York State Surgery Report. Critics have raised pertinent questions regarding “up-coding” [18] and the possibility that hospitals have decided not to operate on some complex and critically ill patients and have referred such complex cases to out-of-state jurisdictions (McKee and Healy, 2000). In contrast, using data from the *Cardiac Surgery Reporting System Report* (CSRS) for the period from 1991 to 1999, researchers at the National Bureau of Economic Research found that the reporting program had an impact on the volume of cases and the future quality at hospitals identified as poor performers. Those identified as weaker hospitals lost some relatively healthy patients to competing facilities with better records. Subsequently, these “weaker” hospitals experienced a decline of 10% in the number of patients during the first 12 months after an initial report, and this decrease remained in place for three years. Consequently, patients choosing these hospitals demonstrated a decrease in their risk-adjusted mortality rate by approximately 1.2 percentage points (Cutler et al., 2004). [19]

Though subject to a number of caveats regarding the design and structure, report cards have had a beneficial impact on the quality of healthcare delivery in those regions where they are published.

[17] For Pennsylvania data, see Cardiac Care: Pennsylvania’s Guide to Coronary Artery Bypass Graft Surgery 1994–1995, <<http://www.phc4.org/reports/cabg9495/default.htm>> (April 2, 2002). For New Jersey data, see Cardiac Surgery in New Jersey: Technical Report, <[http://www.state.nj.us/health/hcsa/cabgs01/cabg\\_technical01.pdf](http://www.state.nj.us/health/hcsa/cabgs01/cabg_technical01.pdf)> (April 2, 2002). For the northern New England initiative, see G.T. O’Connor et al., “A Regional Intervention to Improve the Hospital Mortality Associated with Coronary.”

[18] “Up-coding” is a term used to describe when financial incentives cause a physician or hospital to exaggerate or falsely represent patients’ medical conditions and services provided in order to increase payment received from the government.

[19] <<http://papers.nber.org/papers/w10489>>.

## The Fraser Institute’s Hospital Report Card

The primary focus of this project was the construction of a patient-friendly hospital and patient-care report card focused on clinical outcomes. The report itself includes information about all acute-care facilities treating patients in British Columbia, none of which (out of a total of 95) are identified in the report. [20] The report is built on a recognized hospital report card methodology from the Agency for Healthcare Research & Quality (AHRQ) in the United States and is used in more than 12 US States including New York, Texas, Colorado, [21] California, Florida, Kentucky, Maryland, Massachusetts, Minnesota, New Jersey, Oregon, Utah, Vermont, and parts of Wisconsin.

[20] Facilities in British Columbia either declined or offered no response to our requests for participation/identification.

[21] New York <<http://www.myhealthfinder.com/newyork05/glancechoose.htm>>; Texas <<http://www.dshs.state.tx.us/THCIC/Publications/Hospitals/IQIReport2003/IQIReport2003.shtm>>; Colorado <<http://www.hospitalquality.org>>.

## 1 What Are the AHRQ Inpatient Quality and Patient Safety Indicators?

The first stage of the research process in producing this report was to acquire or create a methodology that was reliable, easily understood by the public and participants, and that produced an accurate measurement of provider performance. An initial period of examining performance indicator frameworks from earlier literature on hospital report cards provided a number of different examples of accepted and proven methodologies that were not otherwise proprietary information and thus could be employed by The Fraser Institute. [22] The search also turned up methodologies that, though available, would be less effective in providing a patient-friendly clinical outcomes-focused hospital report card.

Further examination of these available methodologies led to the selection of the performance indicator framework developed by AHRQ in the United States. [23] AHRQ's indicator modules were chosen because they represent a comprehensive set of indicators that are widely used, highly regarded, and applicable to any hospital inpatient administrative data. They are readily available and relatively inexpensive to use. Importantly, they comprise an ideal set of indicators to allow a patient-friendly, clinical outcomes-focused, hospital-specific patient care report card.

The AHRQ indicators date from the mid-1990s when AHRQ developed a set of quality measures, or indicators, that required only the information found in routine hospital administrative data: diagnoses and procedures codes, patient age, gender, other basic demographic and personal information, source of admission, and discharge status. These indicators, 33 in all, made up the Healthcare Cost and Utilization Project (HCUP) Quality Indicators, designed to be used by hospitals to assess their inpatient quality of care as well as by the State and community to assess access to primary care. [24] Although they could not be used to provide definitive measures of the quality of health care directly, they are used to provide indicators of healthcare quality. They serve as the basis for subsequent in-depth investigation of issues of quality and patient safety at the facility level.

In the years following the release of the HCUP, both the knowledge base regarding quality indicators increased and newer risk adjustment methods developed. Following input from then-current users, as well as advances in the specific indicators themselves, AHRQ underwrote a project to develop and further refine the original Quality Indicators. This project was undertaken by the University of California San Francisco-Stanford Evidence-based Practice Centre. The results of this research were the AHRQ Quality Indicators, which are currently used to measure hospital performance in more than 12 US States including New York, Texas, Colorado, California, Florida, Kentucky, Maryland, Minnesota, New Jersey, Oregon, Utah, Vermont and parts of Wisconsin.

### AHRQ indicators Are Organized in Four Modules [25]

[1] **Prevention Quality Indicators (PQIs)** [26] Consisting of ambulatory care sensitive conditions, these indicators pertain to hospital admissions that could have been prevented via high-quality outpatient care.

[22] For a clear example of how individual report card methodologies are proprietary, please refer to Healthgrades user agreement at <<http://www.healthgrades.com/aboutus/index.cfm?function=modnw&modtype=content&modact=UserAgreement>>.

[23] An agency of the US federal government's Department of Health and Human Services.

[24] Further information regarding the HCUP Quality Indicators can be found at <[http://www.qualityindicators.ahrq.gov/hcup\\_archive.htm](http://www.qualityindicators.ahrq.gov/hcup_archive.htm)>.

[25] The Fraser Institute's *Hospital Report Card: British Columbia 2008* is composed of 39 indicators from the quality and safety modules of the AHRQ system (see Appendix E for a list of all indicators used in this report).

[26] The PQIs identify the quality of care for ambulatory care-sensitive conditions and are measures of the overall healthcare system. Since the *Hospital Report Card* was designed to analyze the care inside acute-care hospitals, the PQIs were omitted from this report.

**[2] Inpatient Quality Indicators (IQIs)** These indicators reflect the quality of care inside hospitals and include such items as inpatient mortality; the utilization of procedures where there are questions of misuse, overuse, or underuse; and volume of procedures from which evidence shows that a higher volume of procedures is associated with a lower rate of mortality.

**[3] Patient Safety Indicators (PSIs)** These indicators focus upon preventable instances of harm to patients such as complications arising from surgery and other iatrogenic [27] events.

**[4] Pediatric Quality Indicators (PDIs) [28]** These indicators examine the quality of pediatric inpatient care, as well as the quality of outpatient care that can be inferred from inpatient data, such as potentially preventable hospitalizations. [29]

The Fraser Institute's *Hospital Report Card* uses the IQI and PSI indicators; it is made up of 39 of the 59 available indicators in these categories [30]. These two modules were chosen because of their widespread use and high quality record.

The AHRQ indicator modules are designed to be used with data from administrative databases in the United States, which themselves are primarily used by hospitals for billing purposes. This type of record, referred to as "administrative data" consists of diagnoses and procedures codes along with information about a patient's age, gender, and discharge status. The Canadian counterpart is the Canadian Institute for Health Information's Discharge Abstract Database (DAD), which contains demographic, personal, administrative, and clinical data for hospital discharges (inpatient acute, chronic, rehabilitation) and day surgeries.

The indicators in The Fraser Institute's *Hospital Report Card* analyze nearly two million patient records extracted from the DAD for the period of fiscal years 2001/02 to 2005/06. The data are also risk-adjusted using the 3M™ All Patient Refined™ DRG (APR™-DRG) software, commonly recognized to be the gold-standard system for risk-adjusting hospital data [31]. The AHRQ IQIs were in fact designed to be used in conjunction with 3M™ All Patient Refined Diagnosis Related Groups™ (APR™-DRG) software, which risk adjusts the IQIs for patients' clinical conditions and severity of illness or risk of mortality. Indeed, the version of the APR-DRG software built in to the AHRQ software was used for this report.

Participation in the report card project was not mandatory for hospitals in British Columbia. In the end, none of British Columbia's acute-care facilities, agreed to have their institution identified.

Since this report is based on administrative data, the results have limitations. Coding variations exist among hospitals and codes do not always provide specific details about a patient's condition at the time of admission or capture all that occurs during hospitalization. For these reasons, individual judgment often is required while reviewing the results from this report.

When reviewing mortality or other quality and patient safety measures, remember that medicine is not an exact science and death or complications will occur even when all standards of care are followed. Deciding on treatment

[27] An iatrogenic event is one that is inadvertently caused by a physician, a medical/surgical treatment, or a diagnostic procedure.

[28] The PDI module became available in February 2006 and was therefore not used in this first edition of the *Hospital Report Card* for British Columbia.

[29] For details, please see <[http://www.qualityindicators.ahrq.gov/pdi\\_download.htm](http://www.qualityindicators.ahrq.gov/pdi_download.htm)>.

[30] The 11 area indicators were not used. Out of the 48 provider indicators, 9 were dropped (see Appendix G for details).

[31] For further details, please refer to Appendix B and <[http://www.3m.com/us/healthcare/his/products/coding/refined\\_drg.jhtml](http://www.3m.com/us/healthcare/his/products/coding/refined_drg.jhtml)>.

options and choosing a hospital are decisions that should be made in consultation with a physician. It is not recommended to choose a hospital based solely on statistics and descriptions such as those given in this report.

## 2 Data Quality

CIHI's Discharge Abstract Database (DAD) contains information on hospital stays in Canada. Various CIHI publications note that the DAD is used extensively by a variety of stakeholder groups to monitor the use of acute-care health services, conduct analyses of health conditions and injuries, and increasingly to track patient outcomes. [32] The DAD is a major data source used to produce various CIHI reports, including annual reports on the performance of hospitals and the health care system and for seven of the health indicators adopted by the federal, provincial, and territorial governments. [33] These data have been used extensively in previous reports on health-care performance and form the basis for many journal articles. [34]

As the *Hospital Report 2006: Acute Care* notes, [35] using the same DAD data set underlying this report card, "the data are collected under consistent guidelines, by trained abstractors, in all acute care hospitals in Ontario. The data undergo extensive edit checks to improve accuracy, but all errors cannot be eliminated" (p. 6). However, in order to produce good information about data quality, CIHI established a comprehensive and systematic data-quality program, whose framework involves 24 characteristics relating to five data quality dimensions of accuracy, timeliness, relevance, comparability, and usability. [36]

There are a number of publications that have addressed data-quality issues, which are discussed in our report. Of note are CIHI's reabstraction studies that go back to the original patient charts and recode the information using a different set of expert coders. [37]

The reabstraction studies note the following rates of agreement between what was initially coded compared to what was coded on reabstraction:

- a) non-medical data: 96%–100%
- b) selection of intervention codes (procedure codes): 90%–95%
- c) selection of diagnosis codes: 83%–94%
- d) selection of most responsible diagnosis: 89%–92%
- e) typing of co-morbidities: pre-admit: 47%–69%; post-admit: 51%–69%
- f) diagnosis typing (which indicates the relationship of the diagnosis to the patient's stay in hospital) continues to present a problem; discrepancy rates have not diminished with adoption of ICD-10-CA.

The coding issues in points (e) and (f) do not affect our results since the most responsible diagnosis is coded with a high degree of agreement and the AHRQ indicators do not discriminate among diagnosis types. Overall, when the rates of agreement in the third year of this reabstraction study (performed on data coded

[32] DAD Data Quality Reabstraction study. Combined findings for FY 1999/2000 and 2000/2001. Dec 2002.

[33] DAD Data Quality Reabstraction study. Combined findings for FY 1999/2000 and 2000/2001. Dec 2002.

[34] A joint initiative of the Ontario Hospital Association and the Government of Ontario. *Hospital Report 2007: Acute care*. <[http://www.oha.com/Client/OHA/OHA\\_LP4W\\_LND\\_WebStation.nsf/resources/2007+Hospital+Reports/\\$file/OHA\\_Acute07\\_EN\\_final.pdf](http://www.oha.com/Client/OHA/OHA_LP4W_LND_WebStation.nsf/resources/2007+Hospital+Reports/$file/OHA_Acute07_EN_final.pdf)>.

[35] A joint initiative of the Ontario Hospital Association and the Government of Ontario. *Hospital Report 2006: Acute care*. <[http://www.oha.com/client/OHA/OHA\\_LP4W\\_LND\\_WebStation.nsf/resources/Hospital+Reports/\\$file/acute\\_report\\_2006.pdf](http://www.oha.com/client/OHA/OHA_LP4W_LND_WebStation.nsf/resources/Hospital+Reports/$file/acute_report_2006.pdf)>.

[36] The CIHI Data Quality Framework. June 2005 Revision.

[37] Reabstractors participating in the study were required to have several years of coding experience, experience coding in ICD-10-CA and CCI in particular, experience coding at a tertiary care centre, and attendance at specific CIHI educational workshops. They were also required to attend a one-week training session and to receive a passing score on the inter-rater test.

in ICD-10-CA) were compared to the rates of agreement of the previous years' data (coded in ICD-9-CCP), the rates were as good as, or better than, previous rates.

However, with regard to the coding of pneumonia, a potential data quality issue exists because some reabstraction coders selected pneumonia instead of chronic obstructive pulmonary disease (COPD) as the most responsible diagnosis. [38] This could potentially create false positive results for Pneumonia mortality rate (IQI 20) since this indicator counts deaths due to pneumonia in situations where the primary diagnosis is a pneumonia diagnosis code. We have noted this proviso in our report.

With respect to specific conditions related to the health indicators examined, those that are procedure driven (i.e. Cesarean section, coronary artery bypass graft, and total knee replacement) were coded well with low discrepancy rates. The following had less than a 5% rate of discrepancy: Cesarean section, coronary artery bypass graft, hysterectomy, total knee replacement, vaginal birth after Cesarean, and total hip replacement. The following had greater than a 5% discrepancy: AMI (8.9%), hip fracture (6.0%), hospitalization due to pneumonia and influenza (6.9%), and injury hospitalization (5.3%). [39]

Discrepancy rates were noted in conditions that are diagnosis driven: acute myocardial infarction (AMI) [40], stroke, pneumonia, and COPD [41] (as described above). Only the pneumonia codes are potentially affected in our report.

Overall, according to CIHI, findings from their three-year DAD reabstraction studies "have confirmed the strengths of the database, while identifying limitations in certain areas resulting from inconsistencies in the coding of some data elements." [42] In addition, the findings from the inter-rater data (that is, comparison between reabstractors) were generally similar to the findings from the main study data (that is, comparison between original coder and reabstractor). This suggests that the database is coded as well as can be expected using existing approaches in the hospital system.

In addition to the aforementioned reabstraction studies, the OECD published a report [43] in support of the AHRQ patient safety indicator modules noting that "this set of measures represents an exciting development and their use should be tested in a variety of countries" (p. 11). Further, a recently released report by the Manitoba Center for Health Policy that used the AHRQ Patient Safety Indicators [44] noted two important advantages to using the AHRQ module. The first advantage is the breadth of coverage offered by the indicators in studying in-hospital patient safety. The second is that the AHRQ patient-safety indicators were developed to measure complications of hospital-based care among a group of patients for whom the complications seemed preventable or highly unlikely.

[38] Canadian Coding Standards for ICD-10-CA and CCI 2004.

[39] DAD Data Quality Reabstraction study. Combined findings for FY 1999/2000 and 2000/2001. Dec 2002.

[40] DAD Data Quality, Reabstraction Study Combined finding for Fiscal Years 1999/2000 and 2000/2001. CIHI 2002, pg 8.

[41] Data Quality of the DAD following the First year implementation of ICD-10-CA/CCI. September 2004.

[42] Data Quality of the DAD following the First year implementation of ICD10CA/CCI. September 2004: p.41.

[43] John Millar, Soeren Mattke, and the Members of the OECD Patient Safety Panel. *Selecting Indicators for Patient Safety at the Health Systems Level in OECD Countries*. <<http://www.oecd.org/dataoecd/53/26/33878001.pdf>>.

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# Methodology Overview

All hospital data used in The Fraser Institute's *Hospital Report Card: British Columbia 2008* are from the Discharge Abstract Database (DAD) that was purchased from the Canadian Institute for Health Information (CIHI). The DAD is an administrative database containing demographic, administrative, and clinical data for hospital discharges (inpatient acute, chronic, rehabilitation) and day surgeries. Only inpatient acute records were used in this report (see Appendix A for details on which DAD data fields were used).

CIHI is unable to release the identity of specific institutions in DAD data releases unless those institutions have explicitly granted permission to the researchers requesting the data. Unlike hospitals in Ontario, none of British Columbia's 95 acute-care hospitals granted The Fraser Institute authorization to identify their institution-specific discharge data in the DAD for the years from 2001/02 to 2005/06.

These records were then grouped into diagnosis-related groups (DRGs) using The Centers for Medicare and Medicaid Services (CMS) Grouper with Medicare Code Editor software. The program sorts patients' records into groups that are expected to have similar hospital resource use. The groupings are based on information extracted from diagnosis and procedure codes as well as the patients' age, sex, and the presence of complications or co-morbidities (see Appendix B for details). [1]

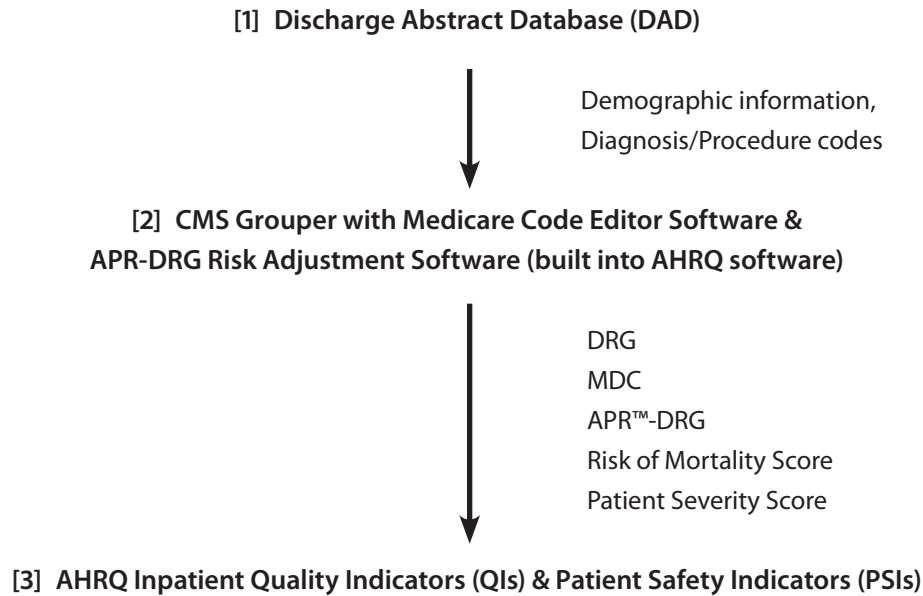
Since more specialized hospitals may treat more high-risk patients and some patients arrive at hospitals sicker than others, it is difficult to compare hospital mortality and utilization rates for patients with the same condition but a different health status. In order to compensate for this potential difference in hospital case mix, the international standard for risk adjustment, developed by 3M Corporation (for information, see <[http://www.3m.com/us/healthcare/his/products/coding/refined\\_drg.jhtml](http://www.3m.com/us/healthcare/his/products/coding/refined_drg.jhtml)>), was employed to risk-adjust the data. This was done to ensure that a hospital's final score reflected the performance grading that the hospital would have received if it had provided services to patients with the average mix of medical complications (see Appendix B for details).

The final step in the methodology was to produce separate indicators for hospital performance based on the methodology developed by the Agency for Healthcare Research and Quality's (AHRQ) Evidence-Based Practice Center (EPC) at the University of California San Francisco-Stanford [2] (for information, see <<http://www.qualityindicators.ahrq.gov/>>; see Appendix C for details). AHRQ's indicator modules use readily available discharge data and were chosen because they have been demonstrated to be a concise and effective tool by which to inform patients' decision-making about their health care. They are currently used to measure hospital performance in more than 12 US states including New York, Texas, Colorado, California, Florida, Kentucky, Maryland, Massachusetts, Minnesota, New Jersey, Oregon, Utah, Vermont and parts of Wisconsin. Figure 1 shows a graphical representation of the methodology.

[1] In order to use the Centers for Medicare and Medicaid Services (CMS) Grouper with Medicare Code Editor as well as the Agency for Healthcare Research and Quality (AHRQ) Inpatient Quality Indicators (IQI) and Patient Safety Indicators (PSI) modules, the diagnosis and procedure codes had to be translated from ICD10CA/CCI (ICD-10-CA is an enhanced version of ICD-10 developed by CIHI for morbidity classification in Canada; the companion classification to ICD-10-CA for coding procedures in Canada is CCI) to ICD-9-CM. Please see Appendix J for details.

[2] The AHRQ Quality Indicators were developed in response to the need for both multidimensional and accessible quality indicators. They include a family of measures that patients, providers, policymakers and researchers can use with easily accessible inpatient data to identify apparent variations in the quality of inpatient care.

Figure 1: Methodology Overview



The Fraser Institute's *Hospital Report Card: British Columbia 2008* comprises 39 indicators of the quality of inpatient care and patient safety (for a list of all indicators used in the report, see Appendix E).

Inpatient Quality Indicators (IQIs) reflect the quality of care inside hospitals and include mortality rates, the utilization of procedures (where there are questions of misuse, overuse, or underuse), and volume of procedures (for which evidence shows that a higher volume of procedures is associated with a lower rate of mortality).

Patient Safety Indicators (PSIs) focus on preventable complications acquired while in hospital, as well as adverse events following surgeries, procedures, and childbirth.

The indicators are expressed as observed rates (which are raw measures) and risk adjusted rates (incorporating patient severity and risk of mortality scores from the 3M™ software described above). IQI rates are expressed as rates per hundred patients while PSI rates are expressed per thousand. Each institution was also given a score from 0 to 100 for each indicator based on its risk-adjusted rate and was then ranked based on their scores (see Appendix F for details on calculating scores and ranks). [3]

A Hospital Mortality Index (HMI) was constructed to examine the overall performance of a hospital or municipality across mortality indicators. It consists of nine mortality indicators: *hip replacement mortality* (IQI 14), *acute myocardial infarction mortality* (IQI 15), *congestive heart failure mortality* (IQI 16), *acute stroke mortality* (IQI 17), *gastrointestinal hemorrhage mortality* (IQI 18), *hip fracture mortality* (IQI 19), *pneumonia mortality* (IQI 20), *low mortality DRGs* (PSI 2) and *failure to rescue rates* (PSI 4). The final HMI index score is based on an equal-weight construct of the separate indicators. For an indicator to be included in the HMI, hospitals representing at least 75% of the patient sample for that year

[3] Ranks are not used for comparisons of hospitals across indicators as they are based on a varying number of hospitals. It is advisable to rely on the scores (as in the HMI) to examine the overall performance of a hospital across indicators. The HMI also has a fairly large number of hospitals so any bias is insignificant.

had to have measured data in order to ensure an adequate number of hospitals for comparison. For example, in 2005/06 an indicator had to contain at least 291,785 records in order to be included in the HMI. [4] All institutions were ranked based on their HMI score, where the highest rank (1) corresponds to the highest score out of 100 (for details on calculating scores, ranks, the HMI, and rank of the HMI, please see Appendix F).

[4] The total number of patient records in 2005/06 was 389,047..

Throughout the *Hospital Report Card*, several measures were taken in order to protect patient confidentiality. First, patient identifiers such as patients' names and addresses were removed prior to The Fraser Institute accessing the dataset. Also, postal codes were truncated to Forward Sortation Areas (FSAs) and grouped into municipalities in order to assess and compare care received by patients from those jurisdictions (please see Appendix H for details). Furthermore, results were omitted from publication if the patient population in any given indicator was less than, or equal to, 5 in any institution and/or municipality.

## Legend for Sample Table

Use the sample table (p. 27) and the explanations below to help you understand how each indicator is displayed in the data tables of the *Hospital Report Card*.

[A] The name of the Inpatient Quality Indicator (IQI) or Patient Safety Indicator (PSI) from the Agency for Healthcare Research and Quality (AHRQ). [5]

[5] Please see Appendix E for a complete list of the indicators used in the *Hospital Report Card*.

[B] All indicators were expressed as:

- [a] an Observed Rate (which are raw measures)
- [b] a Risk Adjusted Rate (incorporating patient severity and risk of mortality scores from 3M™ All Patient Refined Diagnosis Related Groups [APR™-DRG] Software) [6]
- [c] a Score [7]
- [d] a Rank

[6] Please see Appendix B for details.

[7] Please see Appendix F for details on calculating scores, ranks, HMI, and rank of the HMI.

Two additional measures were calculated to examine the overall performance of a hospital or municipality across mortality indicators: a Hospital Mortality Index (HMI) and a Rank of the Hospital Mortality Index.

[C] Indicators are stratified by Institution and by Municipality. [8]

[8] Postal Codes were truncated to Forward Sortation Areas (FSAs) before The Fraser Institute accessed the dataset. All patient FSAs were grouped into corresponding municipalities as described by Canada Post. Please see Appendix H for details.

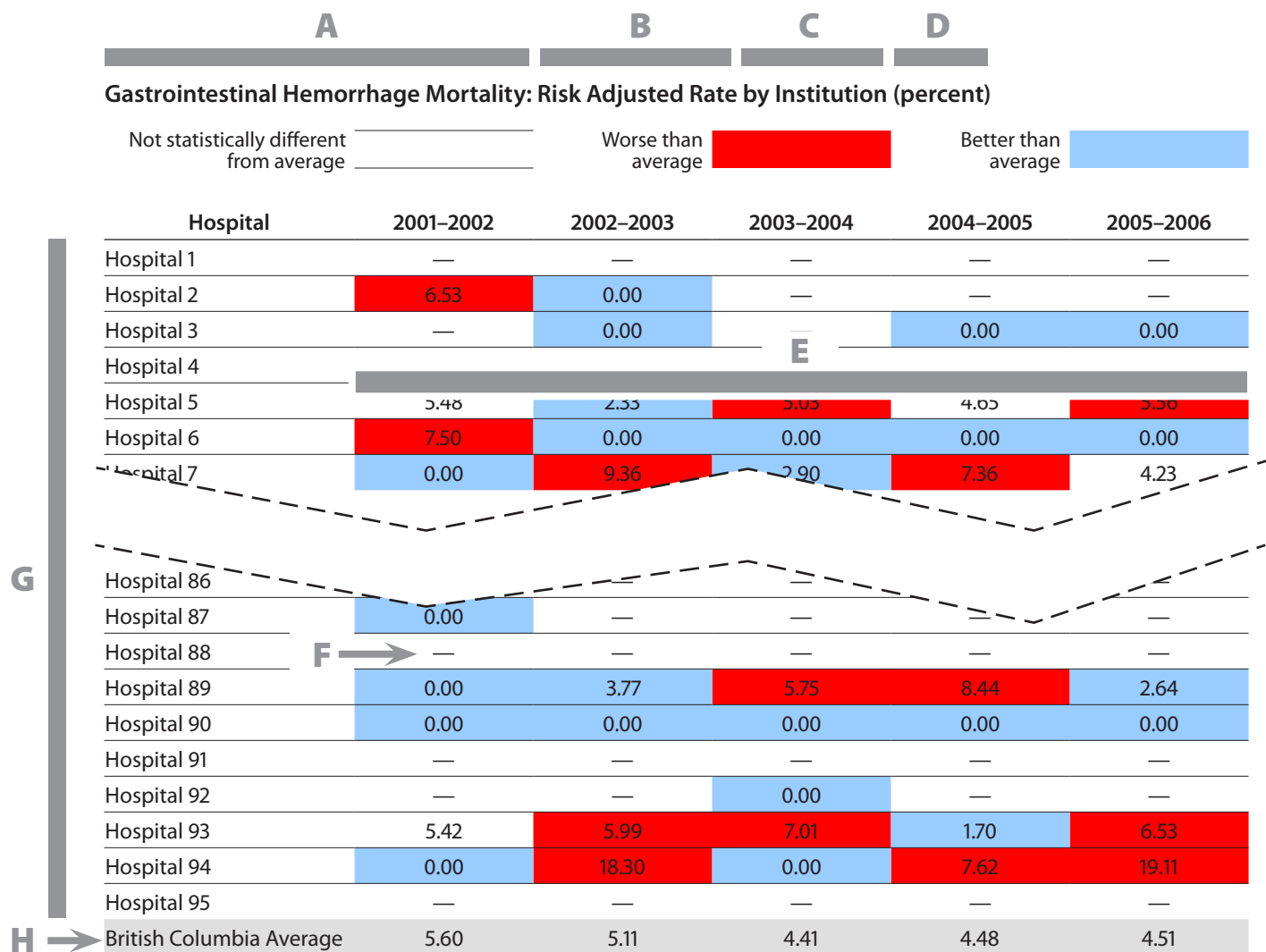
[D] All IQIs are expressed as percent. PSIs are expressed per thousand.

[E] All data used in the *Hospital Report Card* were extracted from the Discharge Abstract Database (DAD), which was purchased from CIHI for the period from Fiscal 2001 (April 1, 2001 to March 31, 2002) to Fiscal 2005 (April 1, 2005 to March 31, 2006).

[F] “—“ indicates that either no data were available for that hospital for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator is 5).

[G] Indicators were calculated for all of British Columbia’s 95 acute-care hospitals. Since none of the acute-care hospitals consented to be identified in the *Hospital Report Card*, institution numbers from all acute-care hospitals were encrypted by the Canadian Institute for Health Information (CIHI) prior to delivery. We assigned these institutions an arbitrary number from Hospital 1 to Hospital 95.

[H] The average rate (Observed or Risk Adjusted) for all the acute-care hospitals in Ontario.



“—“ indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Esophageal Resection Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	—	—	—	—	—
Burnaby	—	—	—	—	—
Campbell River	—	—	—	—	—
Castlegar	—	—	—	—	—
Central Saanich	—	—	—	—	—
Chilliwack	—	—	—	—	—
Coquitlam	—	—	—	—	—
Courtenay	—	—	—	—	—
Cranbrook	—	—	—	—	—
Dawson	—	—	—	—	—
Delta	—	—	—	—	—
Duncan	—	—	—	—	—
Fort St John	—	—	—	—	—
Kamloops	—	—	—	—	—
Kelowna	—	—	—	—	—
Kitimat	—	—	—	—	—
Ladysmith	—	—	—	—	—
Lake Country	—	—	—	—	—
Langley	—	—	—	—	—
Maple Ridge	—	—	—	—	—
Merritt	—	—	—	—	—
Mission	—	—	—	—	—
Nanaimo	—	—	—	—	—
Nelson	—	—	—	—	—
New Westminster	—	—	—	—	—
Parksville	—	—	—	—	—
Penticton	—	—	—	—	—
Port Alberni	—	—	—	—	—
Port Coquitlam	—	—	—	—	—
Port Moody	—	—	—	—	—
Powell River	—	—	—	—	—
Prince George	—	—	—	—	—
Prince Rupert	—	—	—	—	—
Qualicum	—	—	—	—	—
Richmond	—	—	—	—	—
Salmon Arm	—	—	—	—	—
Salt Spring	—	—	—	—	—
Sidney	—	—	—	—	—
Surrey	—	—	100	—	—
Terrace	—	—	—	—	—

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

There is no score for FY 2005 since all municipalities had a mortality rate of 0%.

## Esophageal Resection Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Trail	—	—	—	—	—
Vancouver	100	42	—	100	—
Vernon	—	—	—	—	—
Victoria	—	—	0	—	—
White Rock	—	—	—	—	—
Whitehorse	—	—	—	—	—
Williams Lake	—	—	—	—	—
Yellowknife	—	—	—	—	—
Rural	—	58	100	100	—
Other	—	—	—	—	—

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

There is no score for FY 2005 since all municipalities had a mortality rate of 0%.

## Pancreatic Resection Surgery Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	—	—	—	—	—
Burnaby	—	—	—	—	—
Campbell River	—	—	—	—	—
Castlegar	—	—	—	—	—
Central Saanich	—	—	—	—	—
Chilliwack	—	—	—	—	—
Coquitlam	—	—	—	—	—
Courtenay	—	—	—	—	—
Cranbrook	—	—	—	—	—
Dawson	—	—	—	—	—
Delta	—	—	—	—	—
Duncan	—	—	—	—	—
Fort St John	—	—	—	—	—
Kamloops	—	—	—	—	—
Kelowna	—	—	—	—	0
Kitimat	—	—	—	—	—
Ladysmith	—	—	—	—	—
Lake Country	—	—	—	—	—
Langley	—	—	—	—	—
Maple Ridge	—	—	—	—	—
Merritt	—	—	—	—	—
Mission	—	—	—	—	—
Nanaimo	—	—	—	—	—
Nelson	—	—	—	—	—
New Westminster	—	—	—	—	—
Parksville	—	—	—	—	—
Penticton	—	—	—	—	—
Port Alberni	—	—	—	—	—
Port Coquitlam	—	—	—	—	—
Port Moody	—	—	—	—	—
Powell River	—	—	—	—	—
Prince George	—	—	—	—	—
Prince Rupert	—	—	—	—	—
Qualicum	—	—	—	—	—
Richmond	—	—	—	—	—
Salmon Arm	—	—	—	—	—
Salt Spring	—	—	—	—	—
Sidney	—	—	—	—	—
Surrey	—	—	100	71	100
Terrace	—	—	—	—	—
Trail	—	—	—	—	—

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Pancreatic Resection Surgery Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	100	73	0	100	47
Vernon	—	—	—	—	—
Victoria	—	0	100	100	100
White Rock	—	—	—	—	—
Whitehorse	—	—	—	—	—
Williams Lake	—	—	—	—	—
Yellowknife	—	—	—	—	—
Rural	86	37	100	0	100
Other	—	—	—	—	—

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)



## Coronary Artery Bypass Graft (CABG) Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	79	78	32	66	82
Burnaby	88	79	100	93	96
Campbell River	85	100	100	100	100
Castlegar	100	—	100	100	100
Central Saanich	51	73	100	100	100
Chilliwack	100	84	43	55	91
Coquitlam	91	84	0	100	81
Courtenay	81	100	100	100	78
Cranbrook	—	—	—	—	—
Dawson	—	—	100	—	—
Delta	89	83	100	88	95
Duncan	86	100	100	45	100
Fort St John	—	—	100	100	—
Kamloops	100	91	74	67	87
Kelowna	87	100	92	100	84
Kitimat	—	100	100	100	100
Ladysmith	100	100	100	100	100
Lake Country	100	100	100	—	100
Langley	100	95	46	41	100
Maple Ridge	67	81	100	0	73
Merritt	—	—	100	100	100
Mission	100	73	100	35	100
Nanaimo	100	92	79	93	80
Nelson	100	100	100	100	100
New Westminster	81	89	36	49	35
Parksville	100	88	100	75	100
Penticton	100	100	52	100	100
Port Alberni	53	100	100	100	100
Port Coquitlam	100	80	44	78	90
Port Moody	100	100	100	100	100
Powell River	100	0	100	71	90
Prince George	100	100	100	94	86
Prince Rupert	0	—	100	100	87
Qualicum	50	100	68	100	100
Richmond	75	83	76	78	89
Salmon Arm	100	0	100	100	100
Salt Spring	100	—	100	100	—
Sidney	100	69	100	61	5
Surrey	90	87	68	82	89
Terrace	100	100	100	100	100
Trail	100	100	—	69	100

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Coronary Artery Bypass Graft (CABG) Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	71	92	64	86	90
Vernon	100	100	60	100	76
Victoria	86	86	63	85	84
White Rock	91	93	35	100	62
Whitehorse	—	83	100	100	100
Williams Lake	100	100	100	100	100
Yellowknife	—	—	—	—	—
Rural	86	95	77	92	84
Other	67	89	51	91	95

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Craniotomy Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	100	90	75	93	97
Burnaby	94	92	75	96	97
Campbell River	100	100	100	100	100
Castlegar	—	—	—	—	100
Central Saanich	—	100	100	—	—
Chilliwack	79	87	80	95	100
Coquitlam	96	78	100	100	100
Courtenay	100	92	100	100	100
Cranbrook	—	—	—	—	—
Dawson	—	—	—	—	—
Delta	100	100	69	89	97
Duncan	91	100	48	74	54
Fort St John	—	—	—	—	—
Kamloops	91	83	81	92	100
Kelowna	93	93	80	33	90
Kitimat	—	—	—	—	100
Ladysmith	—	—	—	—	—
Lake Country	—	—	100	—	—
Langley	100	100	46	87	100
Maple Ridge	100	94	72	100	90
Merritt	—	—	100	—	—
Mission	88	100	100	100	100
Nanaimo	95	95	100	100	77
Nelson	—	—	—	—	—
New Westminster	85	89	63	96	82
Parksville	—	—	65	91	100
Penticton	93	94	100	100	100
Port Alberni	86	—	100	100	100
Port Coquitlam	92	100	0	91	100
Port Moody	100	—	—	100	—
Powell River	89	65	—	100	—
Prince George	100	85	26	100	100
Prince Rupert	—	—	—	—	—
Qualicum	—	—	—	100	—
Richmond	86	100	78	87	100
Salmon Arm	—	100	—	—	100
Salt Spring	—	82	100	—	—
Sidney	76	77	33	100	93
Surrey	93	91	85	100	93
Terrace	—	—	—	100	100
Trail	—	—	—	—	—

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

**Craniotomy Mortality: Score by Municipality**

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	95	93	68	90	92
Vernon	100	100	100	100	93
Victoria	91	89	47	77	86
White Rock	100	95	90	90	88
Whitehorse	—	—	—	100	100
Williams Lake	—	—	—	—	—
Yellowknife	—	—	—	—	—
Rural	92	91	72	89	89
Other	95	93	81	86	87

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Hip Replacement Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	100	100	100	100	100
Burnaby	100	100	100	44	100
Campbell River	100	100	100	100	100
Castlegar	—	100	100	100	100
Central Saanich	100	100	100	100	75
Chilliwack	100	100	100	100	100
Coquitlam	100	100	100	100	100
Courtenay	100	100	33	0	100
Cranbrook	100	100	100	100	100
Dawson	100	100	100	100	100
Delta	100	100	100	100	100
Duncan	100	100	100	100	100
Fort St John	—	—	100	—	100
Kamloops	100	100	100	51	100
Kelowna	50	100	100	100	53
Kitimat	—	—	100	—	100
Ladysmith	100	100	100	100	100
Lake Country	—	—	100	7	100
Langley	100	100	100	100	100
Maple Ridge	0	100	0	100	0
Merritt	100	—	100	100	—
Mission	100	100	100	100	100
Nanaimo	100	21	100	100	100
Nelson	100	—	100	100	100
New Westminster	100	100	100	100	100
Parksville	100	100	100	100	100
Penticton	100	100	100	100	100
Port Alberni	100	100	72	100	100
Port Coquitlam	100	100	89	100	100
Port Moody	100	100	100	100	100
Powell River	100	100	100	100	100
Prince George	100	100	100	83	100
Prince Rupert	100	—	100	100	100
Qualicum	100	100	100	100	100
Richmond	100	100	100	100	81
Salmon Arm	100	100	100	100	100
Salt Spring	100	100	100	100	100
Sidney	100	100	100	100	100
Surrey	56	0	100	100	100
Terrace	—	—	—	100	100
Trail	100	100	100	100	100

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Hip Replacement Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	93	91	100	79	100
Vernon	100	100	100	100	100
Victoria	100	82	100	100	100
White Rock	100	100	100	100	100
Whitehorse	100	100	100	100	100
Williams Lake	100	100	100	100	100
Yellowknife	—	—	—	—	—
Rural	85	63	89	87	100
Other	100	100	100	100	65

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Acute Myocardial Infarction (AMI) Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	77	48	16	63	44
Burnaby	80	57	59	74	61
Campbell River	60	26	93	81	78
Castlegar	55	0	66	75	73
Central Saanich	82	53	82	73	82
Chilliwack	72	53	64	67	61
Coquitlam	89	66	57	51	62
Courtenay	77	71	68	75	67
Cranbrook	84	36	67	81	27
Dawson	55	50	37	100	67
Delta	93	55	51	62	82
Duncan	89	60	92	85	66
Fort St John	79	71	74	100	52
Kamloops	83	68	78	73	50
Kelowna	92	61	54	82	65
Kitimat	66	16	0	0	49
Ladysmith	94	50	63	72	100
Lake Country	75	80	63	100	0
Langley	82	57	40	49	38
Maple Ridge	70	32	2	68	41
Merritt	94	38	78	100	37
Mission	50	54	33	86	21
Nanaimo	81	63	63	84	72
Nelson	84	41	27	72	68
New Westminster	86	56	24	81	65
Parksville	85	63	70	69	78
Penticton	78	53	47	83	66
Port Alberni	95	38	48	71	58
Port Coquitlam	86	65	40	65	75
Port Moody	80	100	100	79	100
Powell River	92	84	58	65	58
Prince George	100	86	74	87	70
Prince Rupert	67	61	32	80	45
Qualicum	91	71	89	78	72
Richmond	89	63	49	74	56
Salmon Arm	59	53	30	92	25
Salt Spring	97	56	87	51	20
Sidney	84	41	61	79	61
Surrey	93	63	52	75	61
Terrace	95	53	68	68	49
Trail	68	100	59	63	83

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Acute Myocardial Infarction (AMI) Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	86	63	55	76	63
Vernon	86	38	55	82	59
Victoria	82	58	54	81	68
White Rock	84	58	52	75	47
Whitehorse	93	—	—	—	—
Williams Lake	70	100	53	79	72
Yellowknife	—	—	—	—	—
Rural	76	55	57	81	55
Other	83	55	48	76	67

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)



## Congestive Heart Failure (CHF) Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	73	57	70	54	62
Burnaby	77	73	67	64	60
Campbell River	71	74	52	56	52
Castlegar	87	40	35	86	61
Central Saanich	78	69	80	77	40
Chilliwack	61	73	74	31	46
Coquitlam	67	80	64	57	68
Courtenay	53	25	45	43	54
Cranbrook	85	71	59	77	42
Dawson	70	0	23	20	77
Delta	75	78	59	60	67
Duncan	69	49	62	19	72
Fort St John	100	52	59	100	82
Kamloops	71	47	69	55	63
Kelowna	80	67	80	63	62
Kitimat	77	45	50	55	38
Ladysmith	48	65	0	64	18
Lake Country	75	100	15	55	0
Langley	78	76	68	79	69
Maple Ridge	65	46	81	56	54
Merritt	61	46	77	65	85
Mission	72	44	55	40	62
Nanaimo	79	56	72	45	57
Nelson	85	92	86	56	85
New Westminster	79	57	54	59	69
Parksville	80	74	66	68	63
Penticton	89	59	79	72	84
Port Alberni	80	63	60	38	72
Port Coquitlam	77	72	46	42	72
Port Moody	43	27	92	80	33
Powell River	75	68	63	66	78
Prince George	82	76	72	68	80
Prince Rupert	64	30	71	65	92
Qualicum	87	64	8	68	75
Richmond	75	73	52	16	61
Salmon Arm	56	40	63	26	81
Salt Spring	100	64	91	52	100
Sidney	69	100	73	80	67
Surrey	81	57	68	61	64
Terrace	68	65	33	0	28
Trail	76	32	64	61	50

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Congestive Heart Failure (CHF) Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	81	66	76	68	75
Vernon	77	54	81	59	67
Victoria	79	55	71	69	65
White Rock	85	40	60	58	67
Whitehorse	—	—	—	—	—
Williams Lake	72	75	70	92	40
Yellowknife	—	—	—	—	—
Rural	75	52	68	60	66
Other	83	60	73	53	70

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Acute Stroke Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	78	55	55	76	53
Burnaby	76	77	70	77	79
Campbell River	61	31	70	47	71
Castlegar	14	51	36	50	—
Central Saanich	47	70	83	63	67
Chilliwack	49	62	64	62	78
Coquitlam	59	62	77	76	75
Courtenay	46	54	51	29	59
Cranbrook	10	79	36	38	0
Dawson	60	76	71	36	53
Delta	72	69	66	74	77
Duncan	42	56	58	62	67
Fort St John	—	—	15	—	—
Kamloops	58	70	73	60	77
Kelowna	51	61	58	62	51
Kitimat	84	0	82	75	100
Ladysmith	61	—	0	39	80
Lake Country	39	10	45	84	54
Langley	59	59	49	55	89
Maple Ridge	66	66	65	67	74
Merritt	30	22	74	—	—
Mission	48	71	44	71	83
Nanaimo	52	59	65	59	73
Nelson	55	76	80	54	62
New Westminster	65	71	72	81	61
Parksville	46	78	61	83	70
Penticton	65	70	62	70	78
Port Alberni	0	55	22	0	80
Port Coquitlam	68	63	63	68	69
Port Moody	100	60	77	100	0
Powell River	58	52	75	85	—
Prince George	57	73	72	83	77
Prince Rupert	49	35	78	49	100
Qualicum	67	65	65	64	60
Richmond	64	65	73	67	72
Salmon Arm	61	41	69	69	71
Salt Spring	22	84	77	36	0
Sidney	65	53	76	71	67
Surrey	64	66	68	73	74
Terrace	54	36	76	71	82
Trail	51	53	34	65	75

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Acute Stroke Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	68	74	71	75	78
Vernon	69	57	64	63	75
Victoria	63	61	58	68	59
White Rock	63	61	61	67	64
Whitehorse	—	—	—	—	—
Williams Lake	100	65	59	—	—
Yellowknife	—	—	—	—	—
Rural	56	56	60	63	69
Other	68	66	67	72	66

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Gastrointestinal Hemorrhage Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	91	96	82	68	41
Burnaby	95	95	90	79	0
Campbell River	100	95	69	52	62
Castlegar	83	66	100	68	100
Central Saanich	100	100	100	100	0
Chilliwack	91	91	93	93	57
Coquitlam	97	94	69	78	18
Courtenay	97	91	82	84	64
Cranbrook	88	86	71	76	100
Dawson	83	100	51	100	100
Delta	94	89	82	87	61
Duncan	86	92	84	64	72
Fort St John	100	100	100	100	40
Kamloops	99	89	65	88	26
Kelowna	98	90	70	93	56
Kitimat	96	100	30	100	100
Ladysmith	84	79	3	76	1
Lake Country	0	0	55	100	59
Langley	94	88	100	100	100
Maple Ridge	97	82	91	76	40
Merritt	100	100	74	0	100
Mission	84	92	100	45	6
Nanaimo	95	97	80	92	32
Nelson	92	100	100	100	100
New Westminster	90	85	60	90	29
Parksville	96	86	87	66	39
Penticton	87	87	76	89	80
Port Alberni	96	87	86	66	56
Port Coquitlam	97	98	100	100	6
Port Moody	100	100	0	100	100
Powell River	96	89	85	100	100
Prince George	95	93	70	24	61
Prince Rupert	100	100	82	13	58
Qualicum	97	90	44	51	47
Richmond	96	97	71	68	12
Salmon Arm	95	80	8	100	2
Salt Spring	83	100	57	68	100
Sidney	100	83	84	92	100
Surrey	91	95	86	81	49
Terrace	89	100	100	100	19
Trail	100	90	100	100	100

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Gastrointestinal Hemorrhage Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	92	91	74	70	43
Vernon	95	90	81	79	6
Victoria	97	92	83	90	52
White Rock	91	91	76	81	42
Whitehorse	—	—	—	—	—
Williams Lake	100	85	80	67	20
Yellowknife	—	—	—	—	—
Rural	97	93	89	84	51
Other	98	92	87	81	80

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Hip Fracture Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	69	77	83	15	61
Burnaby	80	87	86	81	69
Campbell River	86	94	86	74	100
Castlegar	70	0	100	100	100
Central Saanich	100	80	80	63	100
Chilliwack	84	83	90	55	78
Coquitlam	83	86	89	90	65
Courtenay	100	83	61	52	78
Cranbrook	61	85	79	94	24
Dawson	12	93	100	61	0
Delta	91	91	81	89	79
Duncan	47	75	78	91	76
Fort St John	0	100	—	100	100
Kamloops	91	84	85	81	65
Kelowna	85	85	85	81	84
Kitimat	—	—	—	—	—
Ladysmith	100	—	65	—	83
Lake Country	—	100	100	100	100
Langley	64	62	0	58	75
Maple Ridge	83	90	67	56	76
Merritt	90	—	100	—	82
Mission	100	100	83	100	84
Nanaimo	69	75	73	64	76
Nelson	74	100	100	72	100
New Westminster	74	80	89	77	54
Parksville	86	90	60	86	88
Penticton	93	81	90	76	71
Port Alberni	100	96	72	64	100
Port Coquitlam	92	83	73	68	43
Port Moody	90	100	59	100	100
Powell River	80	59	95	85	100
Prince George	86	87	85	58	62
Prince Rupert	100	20	—	—	100
Qualicum	59	43	45	91	59
Richmond	67	80	77	83	82
Salmon Arm	90	67	100	87	63
Salt Spring	84	100	86	89	87
Sidney	67	50	80	87	71
Surrey	73	78	83	82	75
Terrace	100	19	81	—	100
Trail	87	91	100	5	100

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Hip Fracture Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	81	84	76	81	76
Vernon	82	80	85	74	80
Victoria	75	83	81	83	72
White Rock	67	86	67	79	44
Whitehorse	—	—	—	—	—
Williams Lake	—	—	100	—	58
Yellowknife	—	—	—	—	—
Rural	88	86	87	89	86
Other	63	90	78	85	83

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)



## Pneumonia Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	43	52	46	69	58
Burnaby	37	41	61	50	78
Campbell River	80	19	89	82	79
Castlegar	70	77	68	71	51
Central Saanich	47	100	43	70	63
Chilliwack	34	44	45	55	56
Coquitlam	55	75	81	34	60
Courtenay	49	7	44	80	69
Cranbrook	62	14	81	84	49
Dawson	70	52	0	74	1
Delta	71	55	84	58	71
Duncan	19	34	74	49	57
Fort St John	46	57	77	63	85
Kamloops	50	58	78	79	76
Kelowna	60	51	72	61	62
Kitimat	100	100	23	72	52
Ladysmith	53	79	86	55	35
Lake Country	78	35	100	—	61
Langley	48	3	37	41	78
Maple Ridge	33	48	60	67	66
Merritt	42	60	71	66	84
Mission	42	79	45	34	47
Nanaimo	53	58	77	70	62
Nelson	44	71	62	84	12
New Westminster	54	45	65	53	49
Parksville	41	37	78	60	48
Penticton	79	62	81	85	69
Port Alberni	10	60	56	7	63
Port Coquitlam	40	40	69	67	49
Port Moody	80	0	72	82	2
Powell River	16	36	72	70	63
Prince George	33	79	65	70	65
Prince Rupert	33	54	75	74	100
Qualicum	39	41	56	100	58
Richmond	53	61	45	48	57
Salmon Arm	16	20	53	9	35
Salt Spring	78	27	89	58	0
Sidney	85	50	61	71	71
Surrey	41	57	55	60	66
Terrace	0	4	43	0	72
Trail	65	66	49	77	100

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Pneumonia Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	48	55	68	67	72
Vernon	59	70	81	70	77
Victoria	50	49	72	81	68
White Rock	55	42	67	59	72
Whitehorse	—	—	—	—	—
Williams Lake	62	71	74	65	65
Yellowknife	—	—	—	—	—
Rural	53	50	67	69	71
Other	43	59	75	65	74

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Percutaneous Transluminal Coronary Angioplasty (PTCA) Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	89	76	100	51	100
Burnaby	100	87	87	90	52
Campbell River	80	70	100	100	71
Castlegar	100	100	100	100	100
Central Saanich	100	100	100	87	100
Chilliwack	100	83	100	71	6
Coquitlam	100	75	89	87	75
Courtenay	100	100	100	100	79
Cranbrook	—	—	—	—	—
Dawson	—	100	100	90	100
Delta	94	0	78	81	100
Duncan	100	83	86	0	100
Fort St John	—	100	100	100	15
Kamloops	85	100	89	100	100
Kelowna	100	90	100	91	100
Kitimat	100	100	100	100	100
Ladysmith	100	100	100	100	100
Lake Country	100	100	100	100	100
Langley	100	89	100	72	100
Maple Ridge	86	87	100	87	25
Merritt	100	100	100	100	100
Mission	25	87	83	100	0
Nanaimo	86	86	85	88	91
Nelson	100	100	100	100	100
New Westminster	85	69	84	90	71
Parksville	100	89	92	52	56
Penticton	41	100	100	100	100
Port Alberni	100	55	100	55	100
Port Coquitlam	71	49	77	68	70
Port Moody	0	100	100	75	100
Powell River	100	49	100	100	100
Prince George	100	100	100	92	85
Prince Rupert	100	100	100	100	25
Qualicum	100	100	100	100	100
Richmond	79	37	86	100	19
Salmon Arm	100	100	100	100	100
Salt Spring	51	100	100	100	100
Sidney	84	71	100	94	79
Surrey	100	95	87	85	93
Terrace	100	100	100	100	100
Trail	100	100	100	100	100

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Percutaneous Transluminal Coronary Angioplasty (PTCA) Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	82	78	91	90	62
Vernon	100	100	90	100	73
Victoria	77	78	90	95	63
White Rock	55	67	100	82	43
Whitehorse	65	100	0	100	100
Williams Lake	100	100	72	100	100
Yellowknife	—	—	—	—	—
Rural	90	95	94	96	95
Other	67	82	92	91	62

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Carotid Endarterectomy Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2004–2005
Abbotsford	100	100	93	100	100
Burnaby	100	69	100	100	100
Campbell River	100	100	100	100	100
Castlegar	—	—	—	100	—
Central Saanich	100	100	100	—	100
Chilliwack	100	100	100	100	100
Coquitlam	100	33	66	100	100
Courtenay	100	100	100	100	100
Cranbrook	—	—	—	—	—
Dawson	—	—	—	—	—
Delta	33	100	100	100	0
Duncan	100	100	—	—	100
Fort St John	—	—	—	—	—
Kamloops	100	100	100	100	100
Kelowna	100	0	100	0	100
Kitimat	—	—	—	—	—
Ladysmith	—	—	—	100	100
Lake Country	100	100	100	100	—
Langley	100	—	100	100	100
Maple Ridge	100	100	100	100	100
Merritt	—	—	—	—	—
Mission	100	100	100	100	100
Nanaimo	100	100	100	100	100
Nelson	—	—	—	—	—
New Westminster	100	85	100	100	42
Parksville	100	100	100	100	100
Penticton	100	100	100	100	100
Port Alberni	100	—	—	100	100
Port Coquitlam	6	100	100	100	100
Port Moody	—	100	—	100	—
Powell River	—	—	—	100	—
Prince George	100	—	100	100	100
Prince Rupert	—	—	—	—	—
Qualicum	100	—	100	100	100
Richmond	100	3	100	100	100
Salmon Arm	—	—	—	—	—
Salt Spring	—	—	—	—	—
Sidney	61	100	100	100	100
Surrey	76	100	100	34	100
Terrace	—	—	—	—	—
Trail	100	—	—	—	—

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Carotid Endarterectomy Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2004–2005
Vancouver	73	66	98	100	100
Vernon	100	100	100	100	100
Victoria	82	73	100	75	100
White Rock	100	76	100	100	100
Whitehorse	—	—	—	—	—
Williams Lake	—	—	88	—	—
Yellowknife	—	—	—	—	—
Rural	78	83	100	71	72
Other	0	100	100	100	100

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Acute Myocardial Infarction (AMI), without Transfer Cases Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	73	42	55	66	49
Burnaby	79	51	78	74	70
Campbell River	64	29	96	74	83
Castlegar	38	30	81	76	77
Central Saanich	80	45	91	75	86
Chilliwack	70	45	81	73	67
Coquitlam	90	62	76	54	70
Courtenay	74	66	83	76	73
Cranbrook	83	28	82	80	45
Dawson	53	0	67	100	75
Delta	91	47	72	65	80
Duncan	90	60	96	91	74
Fort St John	74	54	85	100	61
Kamloops	82	62	88	75	62
Kelowna	92	56	77	83	74
Kitimat	54	51	0	0	0
Ladysmith	93	41	75	74	100
Lake Country	73	77	80	100	26
Langley	80	53	70	50	45
Maple Ridge	61	18	44	69	57
Merritt	86	24	100	—	—
Mission	0	51	55	84	26
Nanaimo	80	62	84	85	79
Nelson	82	29	70	34	69
New Westminster	84	47	61	82	77
Parksville	85	65	85	74	86
Penticton	76	45	72	84	73
Port Alberni	95	38	72	74	68
Port Coquitlam	81	64	68	69	72
Port Moody	66	100	100	100	100
Powell River	89	79	79	66	65
Prince George	100	84	86	88	72
Prince Rupert	64	29	53	81	59
Qualicum	90	65	94	84	79
Richmond	88	61	72	75	64
Salmon Arm	57	45	63	92	42
Salt Spring	96	44	93	54	35
Sidney	95	32	79	80	72
Surrey	92	57	73	76	68
Terrace	96	48	83	64	50
Trail	65	100	78	62	87

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Acute Myocardial Infarction (AMI), without Transfer Cases Mortality: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	85	57	77	77	72
Vernon	83	26	78	84	72
Victoria	82	54	76	82	76
White Rock	82	53	75	75	61
Whitehorse	—	—	—	—	—
Williams Lake	54	100	76	79	76
Yellowknife	—	—	—	—	—
Rural	71	43	76	83	65
Other	80	50	75	77	76

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)



## Cesarean Section Delivery: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	79	44	50	45	80
Burnaby	82	57	52	50	87
Campbell River	53	44	28	26	70
Castlegar	95	46	57	46	71
Central Saanich	76	36	49	43	83
Chilliwack	64	38	48	36	80
Coquitlam	77	53	49	48	80
Courtenay	92	50	51	50	86
Cranbrook	100	42	38	20	74
Dawson	77	43	62	51	82
Delta	80	46	47	44	80
Duncan	75	53	52	58	88
Fort St John	57	30	37	35	75
Kamloops	61	39	35	36	64
Kelowna	81	48	49	42	75
Kitimat	0	0	0	0	71
Ladysmith	67	36	42	51	75
Lake Country	65	56	46	46	88
Langley	78	49	58	49	78
Maple Ridge	66	54	46	45	80
Merritt	84	39	35	31	63
Mission	78	51	53	47	83
Nanaimo	67	40	46	44	72
Nelson	82	47	49	63	93
New Westminster	83	49	54	52	85
Parksville	72	20	33	46	68
Penticton	100	39	66	50	87
Port Alberni	63	52	46	36	72
Port Coquitlam	76	48	54	48	82
Port Moody	81	44	44	52	83
Powell River	39	32	23	31	70
Prince George	63	40	46	48	78
Prince Rupert	89	46	70	51	78
Qualicum	67	30	52	33	83
Richmond	74	52	50	53	81
Salmon Arm	55	22	34	31	73
Salt Spring	70	50	56	52	72
Sidney	58	51	46	57	83
Surrey	76	48	48	45	80
Terrace	55	31	35	49	79
Trail	66	36	73	48	100

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Cesarean Section Delivery: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	83	53	56	52	85
Vernon	71	38	40	45	73
Victoria	68	40	43	35	73
White Rock	69	42	50	42	77
Whitehorse	—	—	—	—	—
Williams Lake	10	29	15	31	82
Yellowknife	—	—	—	—	—
Rural	69	41	47	43	78
Other	71	44	49	45	81

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Vaginal Birth after Cesarean Section (VBAC) Delivery: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	54	40	50	72	33
Burnaby	29	46	27	33	33
Campbell River	26	17	15	16	24
Castlegar	61	35	60	45	25
Central Saanich	33	43	37	0	57
Chilliwack	39	38	47	56	27
Coquitlam	41	42	44	46	34
Courtenay	49	40	66	42	45
Cranbrook	21	41	37	0	23
Dawson	48	9	67	28	0
Delta	46	33	42	45	22
Duncan	24	31	48	43	45
Fort St John	37	49	12	57	13
Kamloops	32	36	36	58	19
Kelowna	39	25	28	25	16
Kitimat	0	40	0	19	0
Ladysmith	33	18	20	37	11
Lake Country	18	18	16	0	18
Langley	28	40	42	82	36
Maple Ridge	30	46	41	52	41
Merritt	79	0	20	0	0
Mission	39	43	46	68	37
Nanaimo	22	24	21	36	13
Nelson	45	100	23	100	100
New Westminster	45	44	55	60	43
Parksville	32	42	13	21	0
Penticton	94	63	41	98	25
Port Alberni	27	58	53	43	17
Port Coquitlam	27	28	38	38	33
Port Moody	57	28	29	42	38
Powell River	8	11	10	20	0
Prince George	42	35	32	47	43
Prince Rupert	100	54	80	54	14
Qualicum	—	0	—	0	22
Richmond	45	38	18	31	25
Salmon Arm	51	15	47	0	15
Salt Spring	—	—	—	40	—
Sidney	22	14	63	21	25
Surrey	46	48	41	49	29
Terrace	23	13	22	62	27
Trail	0	57	—	0	—

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Vaginal Birth after Cesarean Section (VBAC) Delivery: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	43	46	50	57	35
Vernon	45	30	29	28	22
Victoria	47	38	43	48	31
White Rock	37	25	46	45	32
Whitehorse	—	—	—	—	—
Williams Lake	40	51	22	82	53
Yellowknife	—	—	—	—	—
Rural	40	44	41	49	29
Other	44	27	62	58	29

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Laparoscopic Cholecystectomy: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	80	32	37	64	69
Burnaby	82	77	84	90	93
Campbell River	51	0	10	82	89
Castlegar	94	46	76	81	47
Central Saanich	93	94	79	84	92
Chilliwack	87	56	47	69	77
Coquitlam	79	61	53	76	79
Courtenay	95	69	70	90	83
Cranbrook	80	71	77	82	84
Dawson	28	50	9	79	69
Delta	88	78	46	80	90
Duncan	94	56	76	87	91
Fort St John	85	87	47	50	60
Kamloops	78	75	68	86	84
Kelowna	88	59	59	83	77
Kitimat	69	12	77	76	89
Ladysmith	81	96	96	92	89
Lake Country	86	87	44	84	67
Langley	66	82	25	62	75
Maple Ridge	80	64	64	80	81
Merritt	88	20	71	66	—
Mission	87	30	0	70	65
Nanaimo	93	87	86	95	94
Nelson	99	85	94	71	74
New Westminster	72	57	70	85	74
Parksville	100	90	90	96	100
Penticton	85	74	74	98	81
Port Alberni	84	71	94	80	82
Port Coquitlam	78	69	59	87	93
Port Moody	64	80	47	86	83
Powell River	91	76	86	98	96
Prince George	49	6	1	67	59
Prince Rupert	27	0	17	35	81
Qualicum	89	100	93	100	100
Richmond	79	76	83	91	88
Salmon Arm	87	8	42	73	79
Salt Spring	82	79	56	—	52
Sidney	76	72	77	85	90
Surrey	77	59	46	72	80
Terrace	81	24	37	95	74
Trail	80	100	51	74	85

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Laparoscopic Cholecystectomy: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	75	58	58	82	84
Vernon	55	58	21	82	86
Victoria	80	72	79	88	87
White Rock	83	78	82	79	76
Whitehorse	—	—	—	—	—
Williams Lake	87	38	82	97	87
Yellowknife	—	—	—	—	—
Rural	79	57	57	81	78
Other	78	59	53	77	75

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Primary Cesarean Delivery: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	73	48	56	45	87
Burnaby	71	57	57	49	90
Campbell River	51	53	38	23	82
Castlegar	87	57	65	54	78
Central Saanich	71	33	55	44	86
Chilliwack	60	41	57	38	90
Coquitlam	68	56	55	49	85
Courtenay	91	56	53	54	90
Cranbrook	100	42	48	17	86
Dawson	75	59	68	65	87
Delta	70	50	53	46	88
Duncan	72	55	62	59	93
Fort St John	56	34	46	41	88
Kamloops	64	40	42	33	76
Kelowna	75	60	56	40	83
Kitimat	0	0	0	0	87
Ladysmith	67	44	51	61	89
Lake Country	63	77	54	45	96
Langley	77	53	66	46	84
Maple Ridge	62	55	50	42	85
Merritt	72	62	44	35	82
Mission	80	56	59	47	89
Nanaimo	62	42	56	46	84
Nelson	78	41	52	60	92
New Westminster	68	46	57	47	88
Parksville	73	21	39	51	86
Penticton	88	37	72	46	93
Port Alberni	68	60	50	43	86
Port Coquitlam	72	51	59	47	86
Port Moody	63	41	45	51	87
Powell River	45	46	33	52	80
Prince George	56	44	55	51	85
Prince Rupert	75	61	77	53	84
Qualicum	53	37	53	45	94
Richmond	64	55	58	54	89
Salmon Arm	49	41	40	32	85
Salt Spring	65	45	58	70	73
Sidney	57	60	45	65	87
Surrey	69	50	54	45	86
Terrace	55	39	52	62	95
Trail	68	37	75	63	100

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Primary Cesarean Delivery: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	70	52	58	47	88
Vernon	69	40	47	54	82
Victoria	59	39	45	24	77
White Rock	64	43	58	41	82
Whitehorse	—	—	—	—	—
Williams Lake	5	26	22	31	90
Yellowknife	—	—	—	—	—
Rural	68	44	55	45	86
Other	61	47	51	46	89

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)



## Vaginal Birth after Cesarean Section (VBAC), All: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	59	41	61	76	33
Burnaby	33	46	34	39	34
Campbell River	25	16	27	24	22
Castlegar	64	35	100	46	20
Central Saanich	44	38	44	0	69
Chilliwack	40	39	56	61	27
Coquitlam	40	40	53	55	34
Courtenay	49	37	74	60	41
Cranbrook	32	41	50	0	30
Dawson	47	9	73	31	0
Delta	49	33	46	51	20
Duncan	22	39	58	38	40
Fort St John	43	44	26	58	12
Kamloops	31	39	42	61	19
Kelowna	44	26	33	28	17
Kitimat	0	40	0	21	12
Ladysmith	32	17	23	56	9
Lake Country	35	17	16	0	30
Langley	33	38	57	89	33
Maple Ridge	32	44	46	58	41
Merritt	83	0	22	0	0
Mission	45	39	51	71	36
Nanaimo	28	24	23	43	12
Nelson	48	89	27	100	100
New Westminster	46	47	68	70	42
Parksville	30	42	15	23	0
Penticton	91	54	53	92	24
Port Alberni	33	55	59	45	15
Port Coquitlam	29	31	49	43	31
Port Moody	52	27	38	44	40
Powell River	17	20	11	21	0
Prince George	44	34	39	54	42
Prince Rupert	100	55	79	49	13
Qualicum	—	0	—	0	22
Richmond	47	38	20	32	27
Salmon Arm	61	15	66	0	14
Salt Spring	28	—	—	44	—
Sidney	21	12	70	20	25
Surrey	49	50	52	55	30
Terrace	22	12	25	64	32
Trail	0	57	79	0	—

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Vaginal Birth after Cesarean Section (VBAC), All: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	45	47	61	66	35
Vernon	47	28	38	28	22
Victoria	51	38	49	52	30
White Rock	36	27	54	47	31
Whitehorse	—	—	—	—	—
Williams Lake	39	49	31	80	55
Yellowknife	—	—	—	—	—
Rural	42	45	48	55	29
Other	45	26	74	62	30

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Death in Low-Mortality DRGs: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	73	85	89	64	68
Burnaby	57	88	87	44	58
Campbell River	100	82	91	72	100
Castlegar	100	100	78	26	100
Central Saanich	100	100	100	100	4
Chilliwack	88	83	92	78	47
Coquitlam	100	89	90	100	89
Courtenay	41	35	66	100	31
Cranbrook	60	100	88	100	72
Dawson	46	100	100	0	100
Delta	89	65	70	66	74
Duncan	50	85	85	62	52
Fort St John	100	100	100	100	100
Kamloops	68	75	90	82	85
Kelowna	74	79	89	87	91
Kitimat	100	100	73	51	100
Ladysmith	100	100	100	100	50
Lake Country	100	100	75	100	100
Langley	75	100	93	73	83
Maple Ridge	45	92	83	71	62
Merritt	100	100	100	100	100
Mission	76	100	75	58	81
Nanaimo	60	78	81	68	65
Nelson	100	100	83	100	100
New Westminster	74	76	78	95	71
Parksville	100	0	85	100	67
Penticton	53	83	92	60	83
Port Alberni	64	76	89	100	100
Port Coquitlam	79	71	88	89	85
Port Moody	100	72	100	80	75
Powell River	53	100	84	70	100
Prince George	66	77	77	89	85
Prince Rupert	100	100	63	100	100
Qualicum	100	42	54	61	48
Richmond	49	71	92	87	83
Salmon Arm	100	61	100	72	0
Salt Spring	100	100	16	100	47
Sidney	50	64	100	72	68
Surrey	76	81	88	84	86
Terrace	100	100	100	100	100

Note: This indicator is not risk-adjusted

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Death in Low-Mortality DRGs: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Trail	100	100	100	100	54
Vancouver	57	74	92	77	77
Vernon	86	88	100	82	76
Victoria	80	61	85	77	49
White Rock	0	67	61	34	16
Whitehorse	100	100	0	100	100
Williams Lake	100	100	86	100	100
Yellowknife	—	100	—	100	—
Rural	74	90	91	86	92
Other	53	65	96	89	87

Note: This indicator is not risk-adjusted

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Decubitus Ulcer: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	92	78	72	65	18
Burnaby	81	71	67	63	54
Campbell River	94	90	100	39	81
Castlegar	84	100	78	57	100
Central Saanich	100	74	80	74	100
Chilliwack	90	78	80	84	84
Coquitlam	90	0	79	91	77
Courtenay	87	85	29	63	44
Cranbrook	100	20	61	70	72
Dawson	83	73	74	72	71
Delta	81	64	84	56	47
Duncan	93	100	69	80	47
Fort St John	59	31	0	0	100
Kamloops	81	61	79	36	57
Kelowna	92	84	89	83	80
Kitimat	100	53	17	47	100
Ladysmith	100	44	100	78	77
Lake Country	100	100	100	69	100
Langley	78	45	77	35	31
Maple Ridge	77	65	72	60	52
Merritt	100	32	100	41	29
Mission	100	81	82	81	34
Nanaimo	82	93	68	78	58
Nelson	89	76	100	100	0
New Westminster	82	52	73	52	51
Parksville	68	100	89	21	59
Penticton	78	63	23	4	7
Port Alberni	92	86	70	67	100
Port Coquitlam	67	84	80	71	74
Port Moody	100	100	100	31	44
Powell River	90	42	48	0	24
Prince George	79	70	84	39	68
Prince Rupert	57	100	67	100	43
Qualicum	89	81	45	60	100
Richmond	96	78	71	70	72
Salmon Arm	90	100	85	100	55
Salt Spring	100	100	38	100	72
Sidney	55	63	62	43	90
Surrey	76	79	57	54	77
Terrace	84	53	80	79	77
Trail	90	100	66	82	67

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Decubitus Ulcer: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	78	72	69	70	69
Vernon	84	88	78	72	79
Victoria	84	79	85	61	83
White Rock	80	64	78	54	86
Whitehorse	0	100	100	100	100
Williams Lake	69	100	48	49	100
Yellowknife	—	—	—	—	—
Rural	89	79	70	72	68
Other	80	68	78	77	60

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Failure to Rescue: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	69	54	60	54	21
Burnaby	74	56	64	67	23
Campbell River	81	81	37	71	35
Castlegar	100	—	58	65	95
Central Saanich	63	86	56	76	0
Chilliwack	69	62	52	72	24
Coquitlam	61	68	55	70	50
Courtenay	69	68	67	67	43
Cranbrook	44	29	65	57	75
Dawson	60	86	68	54	42
Delta	72	73	48	56	17
Duncan	66	82	64	52	41
Fort St John	86	66	29	63	41
Kamloops	73	47	39	70	27
Kelowna	75	70	57	77	53
Kitimat	—	31	58	0	34
Ladysmith	74	67	42	62	48
Lake Country	73	66	100	100	94
Langley	83	83	77	66	67
Maple Ridge	60	67	51	73	12
Merritt	86	99	39	38	20
Mission	67	100	57	85	70
Nanaimo	80	49	43	76	45
Nelson	87	31	0	78	73
New Westminster	70	54	46	63	32
Parksville	85	75	64	75	83
Penticton	78	73	52	65	48
Port Alberni	80	19	85	79	41
Port Coquitlam	73	69	56	58	42
Port Moody	61	80	100	76	88
Powell River	78	64	51	48	16
Prince George	67	65	45	44	14
Prince Rupert	54	0	86	75	83
Qualicum	82	61	50	87	32
Richmond	76	70	50	65	32
Salmon Arm	92	76	87	61	36
Salt Spring	88	—	52	78	6
Sidney	63	55	75	58	22
Surrey	72	56	47	63	36
Terrace	62	66	36	55	5
Trail	73	41	50	81	48

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Failure to Rescue: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	75	71	60	67	49
Vernon	79	84	66	58	34
Victoria	76	67	60	65	51
White Rock	71	71	47	66	5
Whitehorse	—	—	100	—	100
Williams Lake	83	73	58	66	41
Yellowknife	—	—	—	—	—
Rural	76	86	61	70	44
Other	71	66	59	71	41

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)



## Foreign Body Left During Procedure: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	100	73	100	92	90
Burnaby	78	85	62	94	79
Campbell River	80	100	100	100	100
Castlegar	100	100	100	100	100
Central Saanich	100	100	100	100	100
Chilliwack	100	100	44	100	86
Coquitlam	100	100	62	94	100
Courtenay	100	100	100	100	80
Cranbrook	100	36	100	100	100
Dawson	100	100	100	100	100
Delta	90	79	100	96	100
Duncan	100	64	100	100	73
Fort St John	63	100	2	100	100
Kamloops	82	100	76	96	87
Kelowna	95	100	100	100	100
Kitimat	100	100	100	100	100
Ladysmith	52	100	100	81	100
Lake Country	34	100	100	100	100
Langley	78	100	100	100	100
Maple Ridge	68	79	100	100	100
Merritt	100	100	100	100	100
Mission	100	100	100	100	100
Nanaimo	92	100	100	97	100
Nelson	100	100	100	100	40
New Westminster	100	100	45	100	90
Parksville	100	100	100	100	100
Penticton	84	67	100	100	100
Port Alberni	100	100	100	91	100
Port Coquitlam	90	80	76	96	100
Port Moody	100	100	0	100	100
Powell River	100	100	100	100	100
Prince George	89	100	24	96	100
Prince Rupert	100	100	100	100	100
Qualicum	100	0	100	100	100
Richmond	100	100	100	97	100
Salmon Arm	100	23	100	100	100
Salt Spring	0	100	100	100	100
Sidney	100	100	100	88	100
Surrey	94	87	92	100	96
Terrace	100	32	100	100	100

Note: This indicator is not risk-adjusted

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Foreign Body Left During Procedure: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Trail	57	100	100	100	36
Vancouver	92	89	100	99	100
Vernon	89	100	36	91	0
Victoria	79	78	72	97	96
White Rock	91	79	72	100	100
Whitehorse	100	100	100	0	100
Williams Lake	100	100	100	100	100
Yellowknife	100	100	100	100	100
Rural	99	87	97	99	88
Other	95	100	56	96	93

Note: This indicator is not risk-adjusted

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Postoperative Physiologic and Metabolic Derangement: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	100	89	63	88	79
Burnaby	54	100	78	100	100
Campbell River	100	100	100	100	100
Castlegar	100	100	100	100	100
Central Saanich	100	100	100	100	100
Chilliwack	100	100	100	85	100
Coquitlam	100	100	100	80	100
Courtenay	100	100	100	100	100
Cranbrook	100	100	100	100	100
Dawson	100	100	100	100	100
Delta	51	100	100	85	80
Duncan	100	100	100	100	100
Fort St John	100	100	100	100	100
Kamloops	100	100	79	100	76
Kelowna	100	100	100	100	92
Kitimat	100	100	100	23	100
Ladysmith	100	100	100	100	100
Lake Country	100	100	100	100	100
Langley	100	68	100	100	100
Maple Ridge	100	100	100	100	58
Merritt	100	100	100	100	100
Mission	100	100	37	100	100
Nanaimo	100	100	100	89	100
Nelson	100	100	100	100	100
New Westminster	100	100	81	100	81
Parksville	100	0	100	100	100
Penticton	0	100	100	100	100
Port Alberni	100	100	53	100	100
Port Coquitlam	100	100	78	100	100
Port Moody	100	100	100	100	100
Powell River	100	17	100	100	39
Prince George	100	100	100	100	62
Prince Rupert	100	100	100	0	100
Qualicum	100	100	100	100	100
Richmond	100	100	100	100	100
Salmon Arm	100	100	100	100	100
Salt Spring	100	100	100	100	100
Sidney	100	100	100	100	100
Surrey	83	84	100	96	93
Terrace	100	100	0	100	100
Trail	100	100	44	100	100

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Postoperative Physiologic and Metabolic Derangement: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	74	97	100	91	93
Vernon	100	100	100	82	100
Victoria	100	95	95	100	96
White Rock	100	100	76	100	100
Whitehorse	100	100	100	100	100
Williams Lake	100	100	100	100	0
Yellowknife	—	—	—	—	—
Rural	79	100	97	98	97
Other	60	87	100	100	100

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Postoperative Respiratory Failure: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	80	100	79	92	86
Burnaby	76	80	64	85	86
Campbell River	100	100	72	81	100
Castlegar	100	100	100	100	100
Central Saanich	0	100	100	100	100
Chilliwack	100	72	100	89	84
Coquitlam	100	83	100	100	100
Courtenay	100	100	78	100	100
Cranbrook	100	100	100	81	38
Dawson	100	100	100	0	100
Delta	100	100	71	95	48
Duncan	100	73	100	77	100
Fort St John	100	100	100	100	100
Kamloops	100	100	59	96	83
Kelowna	100	94	100	92	92
Kitimat	100	100	100	100	100
Ladysmith	100	17	100	100	100
Lake Country	100	100	100	100	100
Langley	100	100	100	91	71
Maple Ridge	100	100	86	100	58
Merritt	100	0	100	100	100
Mission	100	100	100	88	100
Nanaimo	100	89	75	100	100
Nelson	100	100	100	76	100
New Westminster	90	79	90	92	68
Parksville	100	100	100	100	100
Penticton	100	100	100	92	74
Port Alberni	100	100	0	100	100
Port Coquitlam	100	80	87	90	84
Port Moody	100	100	100	100	100
Powell River	100	100	100	77	35
Prince George	100	88	100	90	85
Prince Rupert	100	100	100	100	100
Qualicum	100	100	100	100	50
Richmond	100	71	80	81	69
Salmon Arm	100	100	100	68	35
Salt Spring	100	100	100	100	0
Sidney	100	100	100	100	100
Surrey	92	80	68	94	51
Terrace	34	100	100	100	100
Trail	100	100	100	100	100

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Postoperative Respiratory Failure: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	88	89	85	93	69
Vernon	100	100	100	100	79
Victoria	93	86	93	95	92
White Rock	88	100	87	96	100
Whitehorse	100	100	100	100	100
Williams Lake	100	100	100	100	100
Yellowknife	—	—	—	—	—
Rural	96	96	84	98	80
Other	89	100	100	92	59

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## Postoperative Sepsis: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	80	91	71	83	91
Burnaby	87	93	100	87	78
Campbell River	100	100	100	100	75
Castlegar	0	0	100	73	100
Central Saanich	100	100	100	74	100
Chilliwack	100	94	74	88	88
Coquitlam	81	100	100	100	100
Courtenay	100	100	81	84	84
Cranbrook	100	100	45	100	56
Dawson	100	100	100	0	100
Delta	75	100	100	100	77
Duncan	28	100	100	100	100
Fort St John	100	100	100	100	100
Kamloops	100	92	91	100	100
Kelowna	94	88	100	97	100
Kitimat	100	100	0	64	100
Ladysmith	100	100	100	100	100
Lake Country	100	49	100	64	100
Langley	100	100	100	100	100
Maple Ridge	100	87	82	95	63
Merritt	100	100	100	100	100
Mission	100	77	100	100	100
Nanaimo	89	94	100	93	100
Nelson	100	100	100	100	100
New Westminster	77	100	67	90	71
Parksville	100	100	72	83	100
Penticton	78	88	73	88	58
Port Alberni	100	100	74	100	100
Port Coquitlam	86	85	61	100	100
Port Moody	100	100	100	100	100
Powell River	100	74	63	100	63
Prince George	89	88	100	100	90
Prince Rupert	100	100	100	100	100
Qualicum	100	100	100	100	100
Richmond	85	88	100	100	64
Salmon Arm	100	100	100	100	100
Salt Spring	100	100	100	100	100
Sidney	52	100	100	100	100
Surrey	96	91	91	86	85
Terrace	36	100	69	51	0
Trail	100	100	100	100	100

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## Postoperative Sepsis: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	86	86	85	90	76
Vernon	100	100	100	92	83
Victoria	94	98	91	98	94
White Rock	100	92	81	95	100
Whitehorse	100	100	100	100	100
Williams Lake	100	76	100	100	100
Yellowknife	—	—	—	—	—
Rural	89	96	86	94	82
Other	89	83	75	96	90

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## Birth Trauma, Injury to Neonate: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	96	97	97	92	88
Burnaby	91	77	87	95	89
Campbell River	92	92	72	89	81
Castlegar	100	35	41	20	100
Central Saanich	100	100	100	100	100
Chilliwack	100	94	94	100	97
Coquitlam	92	88	85	95	95
Courtenay	85	100	87	100	100
Cranbrook	87	78	100	83	100
Dawson	100	76	43	100	100
Delta	97	88	91	93	93
Duncan	71	100	100	100	100
Fort St John	84	100	100	91	83
Kamloops	78	67	22	54	80
Kelowna	93	98	92	95	88
Kitimat	100	100	100	59	100
Ladysmith	70	100	100	100	75
Lake Country	43	100	100	28	100
Langley	93	94	100	100	94
Maple Ridge	83	79	90	85	92
Merritt	0	100	51	68	42
Mission	100	94	89	100	100
Nanaimo	73	53	88	86	85
Nelson	76	100	100	100	100
New Westminster	83	92	76	82	93
Parksville	100	100	65	39	75
Penticton	79	91	67	100	89
Port Alberni	76	100	78	100	87
Port Coquitlam	88	87	92	81	91
Port Moody	83	85	100	80	91
Powell River	43	0	0	73	0
Prince George	70	76	61	64	85
Prince Rupert	33	52	48	30	40
Qualicum	58	100	100	0	100
Richmond	95	95	94	96	98
Salmon Arm	100	100	67	76	64
Salt Spring	7	100	100	100	100
Sidney	100	100	100	100	100
Surrey	95	91	92	97	95
Terrace	100	100	100	100	100
Trail	56	100	22	100	100

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Birth Trauma, Injury to Neonate: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	83	76	64	93	89
Vernon	94	100	79	87	94
Victoria	97	96	94	96	99
White Rock	94	90	100	93	86
Whitehorse	—	—	—	—	100
Williams Lake	100	100	100	85	32
Yellowknife	—	—	—	—	—
Rural	85	85	77	85	81
Other	84	82	89	100	86

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Obstetric Trauma, Vaginal with Instrument: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2004–2005
Abbotsford	78	81	59	75	63
Burnaby	78	84	64	77	48
Campbell River	89	100	59	76	83
Castlegar	100	—	—	59	—
Central Saanich	78	—	100	—	100
Chilliwack	74	76	51	14	14
Coquitlam	88	80	87	72	89
Courtenay	71	59	41	51	22
Cranbrook	88	89	78	65	100
Dawson	81	58	65	100	70
Delta	84	80	79	76	77
Duncan	92	74	27	75	41
Fort St John	87	76	86	46	100
Kamloops	61	73	30	0	44
Kelowna	61	61	49	50	43
Kitimat	—	—	—	—	26
Ladysmith	73	—	66	—	75
Lake Country	42	61	31	76	14
Langley	72	71	49	46	81
Maple Ridge	82	83	81	71	63
Merritt	—	—	—	15	—
Mission	85	93	56	73	59
Nanaimo	86	71	63	53	77
Nelson	100	100	100	51	100
New Westminster	80	79	71	59	65
Parksville	78	82	—	46	100
Penticton	69	77	70	26	83
Port Alberni	100	93	73	89	85
Port Coquitlam	82	91	83	71	79
Port Moody	79	90	76	70	61
Powell River	0	0	7	28	10
Prince George	66	65	59	59	71
Prince Rupert	92	90	86	54	62
Qualicum	—	—	61	—	67
Richmond	86	80	75	59	70
Salmon Arm	55	74	39	77	82
Salt Spring	—	—	—	—	—
Sidney	100	78	60	—	100
Surrey	91	86	77	70	72
Terrace	74	80	71	53	85
Trail	83	—	72	56	66

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## Obstetric Trauma, Vaginal with Instrument: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2004–2005
Vancouver	81	74	64	58	62
Vernon	76	81	57	61	0
Victoria	87	82	75	72	76
White Rock	81	74	42	52	46
Whitehorse	—	—	—	—	—
Williams Lake	60	85	16	62	42
Yellowknife	—	—	—	—	—
Rural	84	79	63	56	69
Other	79	73	58	46	68

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Obstetric Trauma, Vaginal without Instrument: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	61	60	57	77	60
Burnaby	61	72	45	68	37
Campbell River	79	64	39	94	65
Castlegar	34	46	70	80	100
Central Saanich	75	30	82	47	33
Chilliwack	54	78	22	77	31
Coquitlam	66	92	87	77	74
Courtenay	33	60	56	85	14
Cranbrook	51	72	88	62	86
Dawson	37	87	84	72	33
Delta	57	60	61	67	73
Duncan	15	75	50	75	52
Fort St John	90	67	38	82	58
Kamloops	37	60	55	74	62
Kelowna	46	60	34	73	30
Kitimat	51	35	42	72	100
Ladysmith	71	100	100	89	100
Lake Country	35	34	25	0	1
Langley	55	72	73	73	11
Maple Ridge	75	76	77	81	75
Merritt	67	69	68	100	30
Mission	84	65	49	60	59
Nanaimo	41	68	69	64	62
Nelson	69	40	100	90	50
New Westminster	58	71	67	80	39
Parksville	100	72	13	14	71
Penticton	39	72	61	77	27
Port Alberni	71	65	86	100	67
Port Coquitlam	68	74	75	84	73
Port Moody	75	63	74	86	73
Powell River	50	22	77	87	30
Prince George	47	53	57	74	50
Prince Rupert	84	73	48	80	80
Qualicum	100	0	13	74	100
Richmond	72	72	66	70	54
Salmon Arm	14	100	27	25	80
Salt Spring	47	100	52	25	100
Sidney	72	65	42	71	78
Surrey	67	78	68	79	57
Terrace	59	78	69	62	66
Trail	100	100	58	50	51

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## Obstetric Trauma, Vaginal without Instrument: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Vancouver	56	69	67	78	49
Vernon	30	67	0	85	20
Victoria	67	69	66	79	69
White Rock	55	66	48	61	29
Whitehorse	—	—	—	—	—
Williams Lake	0	19	32	24	32
Yellowknife	—	—	—	—	—
Rural	49	62	52	72	54
Other	20	61	53	68	0

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Obstetric Trauma, Cesarean Section: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Abbotsford	54	92	89	97	90
Burnaby	100	32	10	68	88
Campbell River	48	100	100	61	86
Castlegar	100	100	100	100	100
Central Saanich	39	26	100	100	56
Chilliwack	92	100	100	100	94
Coquitlam	100	44	86	92	86
Courtenay	100	0	72	87	100
Cranbrook	100	46	65	100	100
Dawson	100	100	100	100	100
Delta	93	68	38	90	85
Duncan	76	100	66	59	100
Fort St John	80	100	76	100	53
Kamloops	100	100	80	88	100
Kelowna	81	80	78	96	93
Kitimat	53	100	100	100	100
Ladysmith	100	100	100	100	100
Lake Country	100	100	29	100	100
Langley	81	100	100	100	91
Maple Ridge	100	68	91	95	100
Merritt	100	100	100	100	100
Mission	100	64	75	88	86
Nanaimo	100	100	78	93	89
Nelson	100	100	100	100	36
New Westminster	80	28	44	84	84
Parksville	51	100	48	100	64
Penticton	65	100	100	34	100
Port Alberni	100	26	100	100	100
Port Coquitlam	84	60	77	92	63
Port Moody	100	35	100	55	100
Powell River	100	100	1	100	100
Prince George	87	88	72	94	90
Prince Rupert	100	34	100	59	100
Qualicum	100	100	100	39	0
Richmond	78	62	61	66	91
Salmon Arm	100	100	100	100	73
Salt Spring	0	100	100	100	100
Sidney	100	100	100	100	100
Surrey	96	78	86	92	89
Terrace	100	100	100	100	100

Note: This indicator is not risk-adjusted

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)

## Obstetric Trauma, Cesarean Section: Score by Municipality

Municipality	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006
Trail	100	100	100	0	100
Vancouver	66	19	0	60	71
Vernon	100	75	100	80	100
Victoria	63	29	61	80	63
White Rock	88	80	62	100	91
Whitehorse	—	—	—	—	—
Williams Lake	82	18	43	4	53
Yellowknife	—	—	—	—	—
Rural	86	66	69	83	85
Other	92	100	89	83	64

Note: This indicator is not risk-adjusted

“—” indicates either no data were available for that facility for that year, that the institution did not exist in that year, or that the data were censored to protect patient confidentiality (when the denominator for a given indicator < 5)