

Frequently Asked Questions

- FAQ 1 Comparing rates, scores, and ranks
- FAQ 2 Patients included in municipal results
- FAQ 3 Common and rare adverse events compared
- FAQ 4 Using the AHRQ indicators in Canada
- FAQ 5 Quality of hospital data from the CIHI
- FAQ 6 Palliative and end-of-life care
- FAQ 7 Reporting on cancer
- FAQ 8 What are the strengths of this report card?
- FAQ 9 What are the weaknesses of this report card?
- FAQ 10 Methodological comparisons with US reports
- FAQ 11 Risk adjustment

FAQ 1 *How precisely are the scores being ranked? How meaningful are the differences based on the scores? Is it fair to say that indicator results tend to be more precise for larger hospitals or municipalities than smaller ones? In producing rankings, it is important to take into account the extent to which differences in indicator results may be explained by chance alone, as opposed to real differences in care. Statistical tools such as confidence intervals are often used to evaluate how likely it is that observed differences are simply the result of random variation. Likewise, to what extent does a small difference in score (which may make a big difference in ranking) represent a true difference in the quality of care and patient safety?*

The scores and rankings are a direct result of the underlying indicator rates. The Fraser Institute's *Hospital Report Card* is published to help people understand the relative position of the hospitals for any given indicator (for further information on calculating the scores and ranks, please see Appendix F). In addition, the report compares the upper and lower bounds of the 95% confidence interval of each institution's and municipality's risk-adjusted rate (where available) to the upper and lower bounds of the 95% confidence interval (CI) of the province's risk-adjusted rate (per indicator). This analysis is performed to measure the statistical significance of each result.

Institutions and municipalities whose upper-bound risk-adjusted confidence interval lies below the lower bound of the British Columbia risk-adjusted confidence interval are statistically "better than average" for indicators where lower rates are better. Institutions and municipalities whose lower-bound risk-adjusted confidence interval lies above the upper bound of the British Columbia risk-adjusted confidence interval are statistically "worse than average" for indicators where lower rates are better. For IQIs 22, 23, and 34, where higher rates are better, the opposite is true.

This analysis is presented in the interactive web-based tool at www.hospitalreportcards.ca/bc through colour coding, where blue colour coding signifies a statistically significant better than average performance, white colour coding signifies a performance that is not statistically significantly different from the average, and red colour coding signifies a performance that is statistically significantly worse than the average performance.

While the scores, rankings, observed rates, risk-adjusted rates, and confidence interval comparisons of risk-adjusted rates all provide valuable insights into hospital performance, it is recommended that readers focus on the 95% confidence interval colour-coded risk-adjusted rate comparisons where available and use the additional information provided to build a fuller picture. It is not recommended that readers rely solely on the scores or rankings to compare hospital performance for the majority of indicators (for volume indicators, it is recommended that readers focus on the scores provided as these give a comprehensive picture of performance on these indicators).

With regard to small hospitals and municipalities (or small numbers of cases at hospitals and municipalities), we have used the AHRQ recommendations and do not show information where there are five or fewer cases. This is done for reasons of confidentiality and comparability. The CIHI provided our database and has a standard policy of censoring any data cells that are three or fewer.

Further exploration on the subject of indicators for small hospitals can be found in FAQ 3.

FAQ 2 *Whose results are reflected? Are results for municipalities based on patients treated in hospitals in that area or patients from that area regardless of where they were treated? To what extent were results adjusted for the fact that people who live in some communities (e.g., rural or remote regions) may be more likely to be transferred to specialized centres for care? Depending on how indicators were calculated, this may affect mortality and other indicator results.*

The municipality results are based on the location of the patient's residence and this is determined from the first three digits of their postal code (the Forward Sortation Area). There is no exact match of municipality to hospital, as every municipality has patients at more than one hospital. On the other side, every hospital in our study has patients who are from different municipalities.

The Fraser Institute's *Hospital Report Card* has made no adjustment to the municipality measures for the degree to which patients receive care at different hospitals. They are simply measures of results for patients from a given municipality, no matter where the hospital is located in the province.

FAQ 3 *Some types of adverse events are relatively common; others are very rare. In selecting indicators appropriate for a particular level of reporting (e.g., in this case the hospital or municipality level), to what extent has this been taken into account? For example, measures based on rare events (such as foreign objects left in a patient's body after a procedure) may not be valid for small populations, such as individual hospitals or communities.*

It is true that some adverse events tend to be rare and smaller places and hospitals will not always see these consequences of patient care. It cannot be imputed that a high score on these types of indicators is due to fewer adverse events for those places with relatively low numbers of cases (this is further discussed in Appendix E). Their volume of activity may simply be inadequate to produce an adverse event inevitable where volume is higher. Therefore,

results for some indicators must be interpreted with caution in the case of smaller institutions and municipalities. AHRQ can be referenced for work in this regard. Note that Patient Safety Indicators, in particular, measure very rare outcomes (i.e., one adverse event in 1,000 or more discharges) and thus should be interpreted with caution for smaller institutions and municipalities.

At the same time, it is also possible that smaller hospitals may appear to have higher mortality rates in a particular year due to a small denominator accompanied by death or complications that would have occurred even when all standards of care had been met. The authors recommend viewing rates across several years in such circumstances.

FAQ 4 *How were the AHRQ indicators adapted for use in Canada? Canadian hospitals capture information about the types of health problems and procedures that patients have in ways that differ from the methods used in the United States and have changed over time. For example, the AHRQ indicators used in this study were designed for a classification system that was historically used in some Canadian hospitals. Hospitals in British Columbia historically used a different, though similar, classification system but all switched to a new system in 2001. Comparing results based on these classification systems is challenging (e.g., because clinical understanding of conditions has changed over time and the level of detail available differs). Also, have the APR-DRGs been adapted for use with the current classification systems in use in Canada?*

Appendix J outlines our entire coding methodology. Both the AHRQ indicators and 3M™ risk-adjustment software are measured in the American 9th version of the International Classification of Diseases (ICD-9-CM), whereas in British Columbia, the Canadian International Classification of Disease, Version 10 (ICD-10-CA/CCI) has been in use since 2001. We are dealing with over 10,000 classification codes in the 9th version and over 30,000 codes in the 10th version. In order to compensate for differences between ICD-9-CM and ICD-10-CA/CCI, conversion tables were purchased from the CIHI and applied to the codes in the DAD. Each code required for the *Hospital Report Card's* 39 indicators¹ that did not directly translate between the two classifications was individually analyzed with respect to each indicator and other codes that contained the same information. A concentrated effort was applied to this process (which took months to complete) in order to ensure the most accurate translations to the degree possible. All of this is discussed in the Appendices.

1 Two additional indicators, adapted by the Fraser Institute, are also included in this years report

FAQ 5 *Has the validity of the data used in calculating specific indicators been assessed? The quality of much hospital data is high but the extent of reporting and consistency of some data varies between institutions and over time. For example, there are known historical issues that may affect the comparability of some of the indicators cited. How likely is it that there were data processing or coding mistakes in the data you bought from the CIHI? Or, did you do the coding yourself?*

The Fraser Institute's *Hospital Report Cards* are built from the Canadian Institute for Health Information's (CIHI) Discharge Abstract Database (DAD), which contains information on hospital stays and patient discharges 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, to conduct analyses of health conditions and injuries, and increasingly to track patient outcomes. The DAD is a major data source used by the CIHI to produce various reports such as annual reports on the performance of hospitals (including the CIHI's comparison of mortality in hospitals, the *Hospital Standardized Mortality Ratio* or HSMR) and the health care system as well as health indicators adopted by the federal, provincial, and territorial governments (CIHI, 2002). These data have been used extensively in previous reports on health care performance and form the basis for many journal articles (see, e.g., Canadian Institute for Health Information et al., 2007; Aubrey-Bassler et al., 2007).

Data for the DAD is provided by individual hospitals to the CIHI. The CIHI then applies a comprehensive editing and correction system for the DAD and inaccuracies or incorrect information are checked at the hospital level when the DAD is sent back to the hospitals for data validation. The data undergo extensive edit checks to improve accuracy but all errors cannot be eliminated. However, in order to produce good information about data quality, the CIHI established a comprehensive and systematic program designed to evaluate the overall quality of coding of clinical and non-clinical data with particular focus on selected health conditions. You can find an extensive discussion of their findings in the main body of the report (see "Data Quality," pages 7–10).

The CIHI's data quality studies, while making note of coding issues outlined in the main text of the report, determined that their three-year DAD reabstraction studies "confirmed the strengths of the database, while identifying limitations in certain areas resulting from inconsistencies in the coding of some data elements" (CIHI, 2004b: 41), and that "the DAD data is fit for use with respect to the health conditions studied" (CIHI, 2010a: xi).

FAQ 6 *How was palliative care handled? Some studies suggest that Canadians receiving end-of-life care in hospital (rather than in a hospice or at home) are more likely to die than similar patients in many other countries. Within Canada, the extent to which end-of-life care occurs in hospital varies from community to community. Deaths among these patients are not unexpected and do not necessarily indicate any issues with quality of care. Identifying these patients is complex but important, particularly when calculating results for indicators such as deaths among patients with pneumonia. For example, about 15% of in-hospital deaths were palliative-care cases in acute-care hospitals. Furthermore, a substantial number of patients who were hospitalized mainly for other conditions also received palliative care services during their stay.*

The Discharge Abstract Database (DAD) is a national database for information on all acute-care hospital separations (discharges, deaths, sign-outs, transfers). Palliative patients are difficult to diagnose (and much palliative care is given outside the hospital setting) and are often identified as such only in hindsight. The CIHI began instructing institutions on how best to indicate a palliative patient as of June 19, 2006. Previously (and until FY2006/07 in their databases), there was no national coding standard to identify patients with terminal illness who are receiving palliative care in hospital. There is, however, an ICD-10-CA code for palliative care. In FY2008/09, the frequency of this code is 2.5% (or 10,272 of 408,780 patient records) across all diagnosis fields. At present, AHRQ does not provide any specific guidance about how to handle these cases appropriately.

FAQ 7 *Why is there so little in the report about cancer? Is it particularly difficult to report?*

The treatment of cancer is not included in the AHRQ indicators. We chose the ARHQ methodology because it was objective, backed by a large body of research, in use in a number of jurisdictions, and based on administrative data. We have noted in the report that the indicators are for a very specific portion of hospital care: inpatient acute care. There is nothing directly related to cancer, ambulatory, clinical, ER, and so on; nor are there measures of things like patient satisfaction or the financial performance of hospitals.

FAQ 8 *What do you see as the strengths of this report card?*

The strengths of the report card are its transparency in terms of data and methodology, the naming of all of British Columbia's acute-care hospitals, the detail provided at the hospital and indicator level, the clear presentation of statistical significance in the web-based interactive tool, and the focus on patient-oriented information, as well as the fact that it uses the population of patient records for British Columbia rather than a sample, which over the eight-year period studied is over 3 million records in total.

FAQ 9 *What about its weaknesses?*

The weaknesses of the report card are its limited coverage (applying only to inpatient acute care) and potential issues with data quality. For a further examination see “Limitations, Caveats, and Notes of Caution,” pages 6–10.

FAQ 10 *Is this exactly the same methodology that New York and other states used in their hospital care surveys? Or were there some changes?*

The AHRQ methodology is the same as that used in more than a dozen US states, including New York, Texas, Colorado, California, Florida, Kentucky, Massachusetts, Maryland, Minnesota, New Jersey, Oregon, Utah, Vermont, and parts of Wisconsin. There is also a report published by the Manitoba Center for Health Policy that used the AHRQ Patient Safety Indicators (Bruce et al., 2006).

In order to use the CMS- and APR-DRG software, the DAD dataset received from the CIHI required several standard modifications to account for differences in the Canadian and US coding methodologies. All of these standard modifications are explicitly described in Appendices B, C, and J.

FAQ 11 *To what extent did the risk adjustment improve the “fit” of the model used to describe the indicators? This is typically measured statistically by measures such as a t-statistic, which tells you how much better you were at predicting which patients would die when you used the risk-adjustment model compared to when you did not.*

The AHRQ and 3M™ risk-adjustment processes are employed to control, at least partially, for variances in patient health status. The methodology employs three types of adjustments involving age, gender, and co-morbidities. They are not used to predict which patients would die. The risk-adjustment model has not been validated by us. It has been thoroughly validated in the course of developing the AHRQ program over the past decade. It also has additional value because the methodology is transparent, is in use in many other jurisdictions, and is done in an identical and therefore comparable way. The software required to run these programs is in the public domain, in contrast to similar reports, which have a proprietary risk-adjustment technique.

Hospital Report Card: British Columbia 2011

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