

Hospital Report 2005: Acute Care

Financial Performance and Condition Technical Summary

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ISBN 1-55392-709-5

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Overview

This section describes the methodology used to define and calculate the twelve measures of financial performance and condition presented in *Hospital Report 2005: Acute Care*. A discussion of the process used to select the twelve measures of financial performance and condition presented in *Hospital Report 2005: Acute Care* is provided, followed by a brief overview of the data sources used and the steps taken to verify and validate data prior to calculating indicators. Methods to assess hospital performance are also outlined. This document concludes with a presentation of descriptive statistics for the indicators used in *Hospital Report 2005: Acute Care*.

Methodology

Developing the Indicators

The methodology used to identify and validate indicators of financial performance and condition is based on the approach developed by McKillop, Pink, Schraa et al. (1999)¹. *Hospital Report 2005: Acute Care* marks the fifth consecutive report in the *Hospital Report: Acute Care* series in which this type of methodology has been used.

Criteria for selecting these indicators were first established during the development of *Hospital Report '99*. The first step in the selection of the indicators was achieved through a thorough review of the literature to identify a manageable list of potential indicators. The Financial Advisory Panel for *Hospital Report '99* then reviewed this list and used a voting process during their deliberations to indicate support of a potential measure of financial performance and condition. Information such as correlation matrices was provided to the committee to assist in their deliberations when choosing between indicators with overlapping information content. As a result of this process, five broad categories of indicators were chosen to provide a framework for assessing financial performance:

- **Financial Viability** – These are measures of expected long-term financial health.
- **Efficiency** – These are measures of hospital outputs compared to the cost of the inputs required to produce the outputs.
- **Liquidity** – These are measures of how current assets and current liabilities are being managed.
- **Capital** – These are measures of how long-term assets, such as major equipment, are being maintained.
- **Human Resources** – These are measures of how hospitals allocate human resources to patient care and non-patient care activities.

For *Hospital Report '99*, *Hospital Report 2001: Acute Care*, *Hospital Report 2002: Acute Care*, *Hospital Report 2003: Acute Care* and, again, this year for *Hospital*

Report 2005: Acute Care, the following categories and indicators of financial performance and condition were reported¹:

Financial Viability

1. Total Margin – measures the percent by which a hospital's total revenues differ from its total expenses, excluding the impact of facility amortization (land, building and building service equipment).

Efficiency

2. Unit Cost Performance – measures the extent to which a hospital's actual cost per equivalent weighted case differs from its expected cost.
3. Corporate Services – measures how much a hospital spends in areas of administrative services relative to its total operating expenses.
4. Days In Inventory – measures the average number of days hospital supplies are held in inventory before being used.

Liquidity

5. Current Ratio – measures the number of times a hospital's short-term obligations can be paid using the hospital's short-term assets.
6. Working Capital to Revenue – measures how much working capital (current assets less current liabilities) a hospital has compared to total revenues.

Capital

7. Equipment Expense – measures how much a hospital spends in a given year to operate and maintain its computer systems, x-ray machines, and other capital equipment, and compares this amount to its total expenses.

Human Resources

8. Nursing Care Hours – measures how much time inpatient nursing personnel spend engaged in patient care activities as a percentage of their total earned hours.
9. Patient Care Hours – measures the number of worked hours for patient care staff as a percent of a hospital's total worked hours.
10. Nursing Hours per Weighted Case - measures the number of acute inpatient and surgical day-care nursing hours (including purchased service hours) consumed per acute inpatient and surgical day-care weighted case.
11. Registered Nursing (RN) Staff Hours - measures the proportion of nursing care hours that were provided by registered nurses.
12. Direct Patient Care - measures the proportion of nursing worked hours (including purchased service hours) for direct patient care using nursing workload data.

¹ The only exceptions are the three indicators of nursing financial performance (Nursing Hours per Weighted Case, Registered Nursing Staff Hours and Direct Patient Care), which were first seen in *Hospital Report 2003: Acute Care* and are calculated at the hospital-specific level for the first time in *Hospital Report 2005: Acute Care*.

The Unit Cost Performance indicator used in *Hospital Report 2005: Acute Care* (calculated using data from fiscal year 2003-2004) has been modified from previous years. For more information on changes to this indicator, please consult the Joint Policy and Planning Committee's website at <http://www.jppc.org/rates/Rate0304%20Cover%20Memo.doc>

Comprehensive definitions of the twelve *Hospital Report 2005: Acute Care* Financial Performance and Condition indicators can be found in Appendix A. This appendix provides the necessary information for hospitals to replicate indicator values.

Role of the Advisors

In 2001, CIHI assumed lead responsibility for the production of the Acute Care volume in the *Hospital Report* series. *Hospital Report 2005: Acute Care* is the fourth acute care report produced by CIHI. Researchers from the University of Toronto, the University of Waterloo and the University of North Carolina at Chapel Hill provided input and advice throughout the project.

Data Sources

All indicators, with the exceptions of the Unit Cost Performance indicator and the Nursing Hours per Weighted Case indicator, were calculated exclusively from data obtained from a database developed by the Ontario Ministry of Health and Long-Term Care (MOHLTC). This electronic database contains the internally generated, year-end general ledger balances for each hospital in the province. Data are submitted by individual hospitals using a common coding structure known nationally as the MIS Guidelines, which has been adapted for use in Ontario in the form of the Ontario Hospital Reporting System (OHRS). The MOHLTC applies a number of edit checks before adding hospital annual submissions to the provincial database.

The data included in *Hospital Report 2005: Acute Care* are for the fiscal year 2003-2004, the most recent data available at the time of publication. In November 2004, the MOHLTC provided the research team with the data used to generate the indicators, with the exceptions of the Unit Cost Performance indicator and Nursing Hours per Weighted Case indicator. For these indicators, data were obtained directly from the Ontario Joint Policy and Planning Committee (JPPC) in the spring of 2005.

Sector Codes

In OHRS version 5.0, provincial sector codes were implemented to allow hospital expenses to be separated from other types of expenses, such as those for Community Mental Health and Community Care Access Centres. In *Hospital Report 2005: Acute Care*, only data reported under provincial sector codes beginning with the digit '1' (hospital sector codes) were used to calculate financial performance and condition indicators. Therefore, the indicator values should reflect the financial and statistical activity of the hospital only.

Data Verification and Validation

Although the financial data used in this study passed all of the MOHLTC edit checks, experience with use of internally generated accounting records for performance measurement has shown that data quality problems and reporting variations among hospitals may still be present. As an additional check, the data were also subjected to CIHI edit routines to confirm that national data quality requirements were met.

One of the key objectives in publishing *Hospital Report 2005: Acute Care* is to improve the quality of data used for management and statutory reporting purposes. Accurate data lead to informed decisions. Accordingly, the research team was committed to ensuring that the most accurate data available were used for *Hospital Report 2005: Acute Care* indicators. To achieve this goal, a further data verification process that allowed hospitals to identify and correct data errors prior to the release of *Hospital Report 2005: Acute Care* was undertaken.

The 123 participating hospital corporations were provided with verification reports summarizing data elements used in the calculation of the indicators. Each hospital was advised of its own value for each measure of financial performance and condition. Hospitals were asked to review these reports and advise the research team at CIHI of any errors in the data. No hospitals requested changes to their 2003-2004 data during or subsequent to the verification period.

Performance Measurement

High Performing Hospitals

For quality improvement purposes, the *Hospital Report* series identifies high performing hospitals in two ways: 1) hospitals that meet “high performer” criteria in two or more quadrants; and 2) hospitals that meet “high performer” criteria in a single quadrant. For the Financial Performance and Condition quadrant in *Hospital Report 2005: Acute Care*, high performing hospitals had to have indicator averages higher than the provincial mean for at least nine of the twelve indicators².

Benchmarks

Benchmarks for two indicators in the Financial Performance and Condition quadrant are introduced in this year’s report. Benchmarks were developed for the Total Margin and Current Ratio indicators, which are among the most widely-used and accepted financial indicators. Benchmarks were determined by surveying the Chief Financial Officers of 137 acute and complex continuing care hospitals, 100 of whom responded. Among other questions, they were asked “How low would the indicator value have to be for you to be concerned about your hospital’s financial performance on this indicator?” and “How high would the value have to be for you to be concerned about your hospital’s financial performance on this indicator?”

² For Unit Cost Performance, Corporate Services and Days In Inventory, an indicator score lower than the provincial mean was required to meet “high performer” criteria.

Median values of the answers to these two questions were established as the high and low benchmark values. Actual indicator values between the low and high benchmark values are considered to be good financial performance. Actual indicator values not between the low and high benchmark values are considered to be poor financial performance and / or to require investigation. The benchmark thresholds are also used in the eScorecard web product.

Development of indicator benchmarks and thresholds for other financial performance and condition indicators remains a research priority for future reports.

Not Applicable

Indicator values were designated as Not Applicable (NA) if there was an absence of data. For example, equivalent weighted cases for various specialty hospitals are not available, making it impossible to calculate the Unit Cost Performance indicator for these sites. As a result, these specialty hospitals receive a Not Applicable (NA) symbol for this indicator.

System-Level Findings

Table 1 shows descriptive statistics for each of the twelve indicators of Financial Performance and Condition, including mean, standard deviation, and quintile values (0, 20th, 40th, 60th, 80th and 100th percentiles). Just as the median is the value above and below which 50% of hospitals fall, percentiles provide the same information for different percentages of observations. For example, at the 20th percentile, twenty percent of hospitals had indicator values at or below that value in terms of performance evaluation and 80% of hospitals had indicator values above.

For more information:

ⁱ McKillop I, GH Pink, E Schraa, et. al. "Financial Performance and Condition," *The Hospital Report '99: A balanced scorecard for Ontario acute care hospitals*. Eds. GR Baker, et al. Toronto: Dept. of Health Administration, University of Toronto, pp 3.31-3.60, 1999.

Table 1 – Descriptive Statistics for Hospital-Specific Indicators of Financial Performance and Condition

	Total Margin (%)	Corporate Services (%)	Days In Inventory	Current Ratio	Working Capital to Revenue (%)	Equipment Expenditure (%)	Unit Cost Performance (%)	Nursing Care Hours (%)	Patient Care Hours (%)	Nursing Hours per Weighted Case	Registered Nursing Staff Hours (%)	Direct Patient Care (%)
Number of Hospitals	123	123	122	123	123	123	121	123	123	123	123	123
Mean [†]	2.1%	9.9%	19.3	0.8	-5.0%	6.5%	NA	74.3%	58.2%	41.1	82.5%	75.9%
Standard Deviation	4.6%	2.6%	17.3	1.6	20.5%	1.5%	11.9%	4.8%	4.9%	7.7	13.0%	16.0%
0 th percentile	-7.2%	6.6%	7.5	0.2	-32.8%	2.9%	-31.5%	65.5%	43.5%	25.2	39.4%	1.1%
20 th percentile	-0.9%	8.4%	16.3	0.7	-6.1%	5.2%	-8.3%	73.5%	54.0%	34.3	62.5%	60.6%
40 th percentile	1.1%	9.6%	24.0	1.0	-0.5%	5.8%	-3.8%	76.0%	56.3%	37.0	72.2%	69.2%
60 th percentile	2.4%	11.2%	34.7	1.4	5.1%	6.5%	1.4%	78.8%	58.4%	39.8	78.7%	75.0%
80 th percentile	6.0%	12.9%	46.2	2.5	16.6%	7.5%	7.7%	81.1%	61.1%	44.5	85.3%	81.5%
100 th percentile	21.5%	18.0%	81.3	11.8	95.1%	10.5%	46.6%	89.3%	73.1%	76.8	100.0%	119.3%

[†] This is a weighted mean of Ontario hospital indicator values, not an arithmetic mean.

Appendix A: Financial Indicator Definitions

Total Margin (%)

Total Margin is an indicator measuring financial viability and expected long-term financial health. It is strongly influenced by positive financial outcomes on a yearly basis. It is calculated using the following formula:

$$\frac{[\text{Total Revenues} - (\text{Total Expenses} - \text{Facility Amortization}), \text{excluding Externally Funded Research Projects}] * 100}{\text{Revenues, excluding Other Vote, OHIP, Grant, Donation, Internal Recovery, and Externally Funded Research Revenues}}$$

Codes Used in the **numerator** include: All fund types, excluding primaries 7*7 and 8*7 in funds 2-9, revenue and expense secondaries 1*-9 excluding 95020*, 95040*, 95060*, 95065*.

Codes used in the **denominator** include: All fund types, excluding primaries 72*, 82* and 7*7 and 8*7 in funds 3-9, revenue secondaries 1*, excluding 11014*, 11016*, 11017*, 11045*, 12171*, 12195*, 12196*, 12197*, 122*, 14*, 15*.

This indicator is calculated using **only** data reported under sector codes 1*.

Corporate Services (%)

Corporate Services is one of three measures of a hospital's efficiency. It is calculated using the following formula:

$$\frac{[\text{General Administration, Finance, Human Resources, Staff Recruitment \& Retention, Systems Support, \& Communication Expenses, Net of Recoveries except Cash Discounts, and excluding Medical Compensation and all Amortization}] * 100}{\text{Operating Expenses, Net of Recoveries and Excluding Medical Compensation and all Amortization}}$$

Codes used in the **numerator** include: Primaries 71110*, 71115*, 71120*, 71122*, 71125*, 71130*, revenue and expense secondaries 120*, 121*, 122*, 3*-9*, excluding 12*90, 390*, 750*, 751*, 950*, 951*.

Codes used in the denominator include: Fund types 1 & 5, Revenue and Expense secondaries 120*, 121*, 122*, 3*-9* excluding 390*, 750*, 751*, 950*, 951*.

This indicator is calculated using only data reported under sector codes 1*.

Days in Inventory

Days in Inventory is another measure of a hospital's efficiency. It is calculated using the following formula:

$$\frac{\text{Year-End Inventory Balance}}{\text{Average Daily Inventoried Supplies Expense}}$$

Codes used in the **numerator** include: All fund types, primary 1*5.

Codes used in the denominator include: All fund types, expense secondaries 4* and 5*. For 2002-2003 indicator values, the denominator is divided by 365 to produce the Average Daily Inventoried Supplies Expenses; for 2003-2004 values, it is divided by 366.

This indicator is calculated using only data reported under sector codes 1*.

Current Ratio

Current Ratio is an indicator of a hospital's liquidity that measures how current assets and liabilities are managed. The inability to meet short-term obligations can hinder the delivery of quality patient care services. The formula used to calculate this indicator is:

$$\frac{\text{Current Assets + debit Current Liability Balances excluding Deferred Revenues}}{\text{Current Liabilities, excluding Deferred Revenues + credit Current Assets, except Current Asset Contra Accounts}}$$

Codes used in the **numerator** include: Primary 1* + debit balances in primary 4* excluding 4*8.

Codes used in the **denominator** include: Primary 4* excluding 4*8 + credit balances in primary 1* except 1*355.

This indicator is calculated using **only** data reported under sector codes 1*.

The Current Ratio is represented as an absolute value and is therefore always positive.

NOTE: Data are adjusted for amounts not re-allocated on the trial balance to be consistent with financial statement reporting (e.g. only a net credit position across current cash accounts would be added to the denominator).

Working Capital to Revenue (%)

Working Capital is another measure of a hospital's liquidity. The formula used to calculate this indicator is:

$$\frac{[\text{Current Assets} - \text{Current Liabilities excluding Deferred Revenues}] * 100}{\text{Total Revenues, excluding Internal Recovery Revenue}}$$

Codes used in the **numerator** include: Primaries 1* and 4* excluding 4*8.

Codes used in the **denominator** include: All fund types, Revenue secondaries 1*, excluding 12171*, 12175*, 12195*, 12196*, 12197*, 122*.

This indicator is calculated using **only** data reported under sector codes 1*.

After dividing the numerator by the denominator, the result is multiplied by -1 to obtain the Working Capital to Revenue indicator value.

Equipment Expenditure (%)

Equipment Expenditure is an indicator measuring hospital expenses related to the maintenance and operation of equipment. The formula used to calculate this indicator is:

$$\frac{[\text{Equipment Maintenance, Replacement of Major Equipment Parts, Amortization on Major Equipment, Net Gain/Loss on Disposal, Interest on Major Equipment Loans, Rental/Lease of Equipment, Minor Equipment Purchases, and Equipment Expense not Elsewhere Classified}] * 100}{\text{Total Expenses, Net of all Recoveries}}$$

Codes used in the **numerator** include: All fund types, secondary expense accounts 7*.

Codes used in the **denominator** include: All fund types, expense secondary accounts 3*-9*, net of revenue secondaries 12*.

This indicator is calculated using **only** data reported under sector codes 1*.

Nursing Care Hours (%)

This is one of two indicators measuring human resources. They examine how hospitals allocate human resources to patient care and non-patient care activities. This indicator focuses solely on nursing units and is calculated using the following formula:

[Nursing Inpatient Services Unit Producing Personnel Worked & Purchased Service Hours] * 100

Total Nursing Inpatient Services Earned Hours, excluding Medical Compensation Hours

Codes used in the **numerator** include: Primary 712*, statistical secondaries 35010*, 35090*, 38010* and 38090*.

Codes used in the **denominator** include: Primary 712*, statistical secondaries 310*, 350* and 380*.

This indicator is calculated using **only** data reported under sector codes 1*.

Patient Care Hours (%)

This is another indicator measuring human resources. It is calculated using the following formula:

[Nursing Inpatient Services, Ambulatory Care, and Diagnostic & Therapeutic Worked & Purchased Service Hours] * 100

Total Operating Worked Hours, excluding Medical Compensation Hours

Codes used in the **numerator** include: Primaries 712, 713, 714, statistical secondaries 35010*, 35090*, 38010* and 38090*.

Codes used in the **denominator** include: Fund types 1 & 5, statistical secondaries 31010*, 31090*, 35010*, 35090*, 38010* and 38090*.

This indicator is calculated using **only** data reported under sector codes 1*.

Unit Cost Performance (%)

The Unit Cost Performance indicator describes the percent difference between the expected cost per equivalent weighted case and the actual cost per equivalent weighted case of a hospital.

The indicator is calculated as follows for fiscal year 2002-2003:

[Actual Cost per Equivalent Weighted Case – Expected Cost per Equivalent Weighted Case] * 100

Actual Cost per Equivalent Weighted Case

For fiscal year 2003-2004, this indicator is calculated as follows:

[Actual Cost per Equivalent Weighted Case – Expected Cost per Equivalent Weighted Case] * 100

Expected Cost per Equivalent Weighted Case

Data Source: Ontario Joint Policy and Planning Committee (JPPC) documents. For more information, please refer to <http://www.jppc.org/>

Nursing Hours per Weighted Case

The Nursing Hours per Weighted Case indicator helps gauge the efficiency of a hospital. It is calculated using the following formula:

The inpatient portion of Acute Nursing Inpatient and Surgical Day/Night Care Worked and Purchased Service Hours (excluding Nursing Administration, Rehabilitation and Long-term Care)

Acute Inpatient and Surgical Day Care Weighted Cases

Codes used in the **numerator** include primary accounts 712* (excluding 71205*, 71206*, 71207*, 71281* and 71295*), 7134020*, 7134025* and 7134055* and secondary statistical accounts 31010*, 31090*, 35010*, 35090*, 38010* and 38090*.

OR/PARR (primary accounts 71260*, 71262* and 71265*) and Day Surgery (primary accounts 7134020*, 7134025* and 7134055*) worked and purchased service hours are allocated 100% to inpatient services. The inpatient portions of the remaining primary accounts in the numerator are derived using a ratio of workload secondary statistical accounts (10211* + 10215*) to 102*.

The **denominator** includes Acute Inpatient weighted cases from the Discharge Abstract Database (DAD) and Surgical Day Care weighted cases calculated by the Ministry of Health and Long-Term Care using an approach which groups the activity reported to the National Ambulatory Care Reporting System (NACRS). This approach uses the DPG methodology and weights based on the PAC-10 scale.

This indicator is calculated using **only** data reported under sector codes 1*.

NOTE: This specification applies to data from fiscal year 2003-2004 in which the surgical day care activity was collected in the NACRS database. In order to calculate this indicator using data from fiscal year 2002-2003 in which the surgical day care activity was reported in the DAD, the inpatient portion of OR/PARR (primary accounts 71260*, 71262* and 71265*) and Day Surgery (primary accounts 7134020*, 7134025* and 7134055*) worked and purchased service hours must be allocated using the 2002-2003 OCDM ratio of Acute & Newborn & Qualifying Day Surgery Nursing Inpatient Expenses to Net Expenses. The weighted cases used in the denominator for fiscal year 2002-2003 values represent all Acute Inpatient weighted cases and Surgical Day Care weighted cases reported to the DAD.

Registered Nursing Staff Hours (%)

The Registered Nursing Staff Hours indicator measures the percentage of unit-producing personnel earned hours in nursing units that are reported for registered nurses. It is calculated using the following formula:

$$\frac{[\text{Acute Nursing Inpatient Services Registered Nurse Unit-Producing Personnel Earned Hours (excluding Nursing Administration, Rehabilitation and Long-term Care)] * 100}{\text{Acute Nursing Inpatient Services Total Unit-Producing Personnel Earned Hours (excluding Nursing Administration, Rehabilitation and Long-term Care)}}$$

Acute Nursing Inpatient Services Total Unit-Producing Personnel Earned Hours (excluding Nursing Administration, Rehabilitation and Long-term Care)

Codes used in the **numerator** include primary accounts 712* (excluding 71205*, 71206*, 71207*, 71281* and 71295*) and secondary statistical accounts 72851*.

Codes used in the **denominator** include primary accounts 712* (excluding 71205*, 71206*, 71207*, 71281* and 71295*) and secondary statistical accounts 728*.

This indicator is calculated using **only** data reported under sector codes 1*.

Direct Patient Care (%)

The Direct Patient Care indicator uses workload data to measure the percentage of unit-producing personnel worked hours reported in nursing units for direct patient care. It is calculated using the following formula:

$$\frac{[\text{Acute Nursing Inpatient Services Service Recipient Workload Units (excluding Nursing Administration, Rehabilitation and Long-term Care)} / 60] * 100}{\text{Acute Nursing Inpatient Services Unit-Producing Personnel Worked and Purchased Service Hours (excluding Nursing Administration, Rehabilitation and Long-term Care)}}$$

Acute Nursing Inpatient Services Unit-Producing Personnel Worked and Purchased Service Hours (excluding Nursing Administration, Rehabilitation and Long-term Care)

Codes used in the **numerator** include primary accounts 712* (excluding 71205*, 71206*, 71207*, 71281* and 71295*) and secondary statistical accounts 102*

Codes used in the **denominator** include primary accounts 712* (excluding 71205*, 71206*, 71207*, 71281* and 71295*) and secondary statistical accounts 35010*, 35090*, 38010* & 38090*.

The numerator is divided by 60 to convert the workload units into hours.

This indicator is calculated using **only** data reported under sector codes 1*.