

*Hospital e-Scorecard Report 2008: Emergency Department Care*  
**Financial Performance and Condition Technical Summary**

This technical document has been updated by Adam Rondeau, Anyk Glussich, Imtiaz Daniel, Stefan Popowycz and Yujin Jiang for Hospital e-Scorecard Report 2008. Acknowledgement is given to Imtiaz Daniel, Dr Linda McGillis Hall, Dr Ian McKillop and Dr George Pink, the original contributors of the technical document.

## Overview

In this section of *Hospital e-Scorecard Report 2008*, we provide the methodology used to select and calculate the measures of financial performance and condition for hospital emergency departments. A brief overview of data sources used, together with the steps taken to verify and validate data prior to calculating indicators, is provided. The role of the Advisory Panel is discussed, together with the process used to select the indicators of financial performance and condition presented in *Hospital e-Scorecard Report 2008*. Recent changes to the reporting standards of the data used to calculate these indicators are also described. This document concludes with a presentation of descriptive statistics for these indicators.

## Participating Hospitals

The *Hospital e-Scorecard Report 2008* includes hospital-specific financial and statistical data for 113 of the 123 hospital corporations in Ontario that provided emergency services on March 31, 2007 (the year-end date for the 2006/07 fiscal year). The following table highlights participating and non-participating hospital corporations by peer group.

Hospital Corporations	Hospital Type			Total
	Teaching	Community	Small	
# Participating	18	60	35	<b>113</b>
# Not Participating	0	2	8	<b>10</b>
<b>Total</b>	18	62	43	<b>123</b>

Aggregate averages presented in the e-Scorecard include data from all 123 hospital corporations in the province. Averages by peer grouping are also listed; the peer groupings used are small, community and teaching hospitals.

In the context of *Hospital e-Scorecard Report 2008*, the term “emergency department” (ED) refers to both comprehensive EDs and urgent care centres (UCCs). Comprehensive EDs are open 24 hours a day, seven days a week and provide care to patients arriving by ambulance and by other means. UCCs are located in hospitals, but have restricted hours and do not generally care for patients arriving by ambulance.

## Methods

Preparation of the financial and statistical measures of emergency department activity required two research activities: identifying appropriate financial and statistical indicators; and collecting, organizing and validating the data needed to calculate values for the indicators.

An extensive review of the literature related to emergency department financial performance was undertaken during the preparation of *Hospital Report 2003: Emergency Department Care*. Articles were selected for review if they met either of the following criteria: 1) the article examined financial performance measurement issues related to emergency department care; or 2) the article described or discussed financial analysis of emergency departments.

For *Hospital Report 2003: Emergency Department Care*, an Advisory Panel of hospital executives, clinical directors, and managers with extensive knowledge of financial issues related to emergency department care in Ontario assisted the research team with the evaluation and assessment of indicators presented in this quadrant. The Advisory Panel began by adopting the set of financial indicator categories used in previous Hospital Reports. These categories are:

- **Efficiency** – defined as a comparison of hospital output with the cost of inputs required to produce the output.
- **Financial Viability** – defined as positive financial outcomes that ensure long-term financial health.
- **Liquidity** – defined as the ability of an organization to meet its short-term obligations.
- **Capital** – defined as the capacity of the organization to acquire and manage long-term assets such as major equipment.
- **Human Resources** – defined as the allocation of human resources by hospitals to patient care and non-patient care activities.

Indicators representing these categories are presented in the *Hospital e-Scorecard Report 2008*. The e-Scorecard is a Web based, password-protected electronic application incorporating annual *Hospital e-Scorecard Report* indicators and underlying components. Its prime objective is to allow interactive comparative analysis among hospitals by providing predefined and customized reports and graphs.

For the *Hospital e-Scorecard Report 2008*, the emergency department indicators reported are the same as those reported in *Hospital Report 2003: Emergency Department Care* and *Hospital Report* volumes subsequent to it. Their names were changed in *Hospital e-Scorecard Report 2007* in order to be consistent with similar indicators from other reports in the *Hospital Report* series, and to more accurately reflect what they measure. These indicators are:

- **% Total Worked Hours**  
Measures the proportion of staff hours spent engaged in activities related to operation of the emergency department. Sick time and educational time are examples of staff hours (nursing and non-nursing) that are not spent engaged in activities directly related to the operation of the emergency department. Medical staff hours are excluded due to variations in physician staffing models and/or methods of physician remuneration among hospitals.

- ***% Management and Operational Support Hours***  
Measures the proportion of staff hours spent engaged in activities related to managing or directly supporting the department but not directly involved in providing patient care. The activities of a unit manager or registration clerk are examples of management and operational support.
- ***% Nursing Worked Hours***  
Measures the proportion of time nurses spend working in the hospital on activities such as direct patient care, charting, and in-service education, as a proportion of the total hours earned. The hours being measured are for those nursing personnel who normally engage in activities related to patient care, and excludes hours worked by nurses who fill management and administrative roles.
- ***% Registered Nurse Hours***  
Measures the proportion of nursing care hours that were provided by registered nurses.

## **Collecting, Organizing and Validating the Data Used**

### **Data Sources**

The data used to calculate the indicators presented here are submitted annually to the Ontario Ministry of Health and Long-Term Care using formats specified by the Ontario Healthcare Reporting Standards (OHRS). The OHRS is a comprehensive, multi-year database of financial and statistical information describing the activities of Ontario's hospitals. Financial Performance and Condition indicators of all volumes and sectors of the *Hospital Report* series use data extracted from the OHRS.

The financial data included in *Hospital e-Scorecard Report 2008* are for the 2006/07 fiscal year. These data represent the most recent data available at the time of analysis. Comprehensive indicator definitions, account codes and account definitions are provided in Appendix 1 for each of the indicators reported in this quadrant. Account descriptions have been added for completeness.

### **Changes to the OHRS**

To enable informed decisions using relevant management information, the OHRS undergo annual changes. For example, in April 2005, hospitals were required to submit earned hours by occupational class. This change allows for a more detailed reporting of the earned hours of hospital staff by the type of health provider. These changes have been integrated into the OHRS definitions of the four emergency department indicators.

As hospitals increase their familiarity with these new reporting standards, it is expected that the data collected will provide a clearer depiction of the type of health providers employed within Ontario emergency departments.

### **Data Quality**

Although OHRS data submissions are subjected to a variety of edit routines before being added to the provincial database, inconsistencies in hospital reporting practices can create data quality issues. The ability of a hospital to address the following data quality issues may affect the consistency of indicators calculated in *Hospital e-Scorecard Report 2008*:

- *Allocation & Reporting Issues*  
A hospital's internal organizational structure may not match the organizational reporting structure implicit in the OHRS framework. Hospitals compensate for these differences by mapping and re-allocating costs and activities when preparing their internal records for submission to the OHRS. For example, if an emergency department manager spends 25% of his/her time managing an ambulatory care clinic, the OHRS requires that the hospital remove 25% of this manager's worked and non-worked hours from the emergency department and associate these hours with the ambulatory care clinic. Data quality issues with some indicators occur if this re-allocation is not performed correctly.
- *Linkages with Hospital Payroll Systems*  
Another reporting variation can be caused by the inability of a hospital payroll system to accurately identify professional, non-professional and unregulated staff. Data quality issues occur with some indicators in situations where payroll systems are unable to make this distinction.

### **Data Validation**

One of the key objectives in producing *Hospital e-Scorecard Report 2008* 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 emergency department indicators in *Hospital e-Scorecard Report 2008*. To achieve this goal, a further data verification process that allowed hospitals to identify and correct data errors prior to the release of *Hospital e-Scorecard Report 2008* was undertaken.

The 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 emergency department financial performance and condition. Hospitals were asked to review these reports and advise the research team of any errors in the data. In *Hospital e-Scorecard Report 2008*, no hospitals requested changes to their 2006-2007 emergency department data during or subsequent to the verification period.

## System-Level Findings

Table 1 shows descriptive statistics for each of the four hospital-specific emergency department indicators of financial performance and condition, including mean, standard deviation, and quintile values (0, 20<sup>th</sup>, 40<sup>th</sup>, 60<sup>th</sup>, 80<sup>th</sup> and 100<sup>th</sup> 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 20<sup>th</sup> 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.

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

	<b>% Total Worked Hours</b>	<b>% Management &amp; Operational Support Hours</b>	<b>% Nursing Worked Hours</b>	<b>% Registered Nursing Hours</b>
Number of Hospitals	123	100	123	123
Mean <sup>†</sup>	84.9	15.5	84.3	96.8
Standard Deviation	3.7	7.3	3.8	7.6
0 <sup>th</sup> percentile	78.2	0.3	76.7	42.4
20 <sup>th</sup> percentile	83.3	7.1	82.6	93.7
40 <sup>th</sup> percentile	84.7	11.4	84.5	99.5
60 <sup>th</sup> percentile	86.4	15.2	86.2	100.0
80 <sup>th</sup> percentile	88.8	20.4	88.3	100.0
100 <sup>th</sup> percentile	100.0	31.7	100.0	100.0

<sup>†</sup> This is a weighted mean of Ontario hospitals indicator values, not an arithmetic mean.

# APPENDIX 1: Emergency Department Indicator Definitions

## 1. % Total Worked Hours

### Numerator

<i>Description</i>	<i>Data Source</i>
Emergency Department: Total worked hours (excluding medical staff hours)	OHRS Data Definition: Sector Codes 1* Type S Primary Accounts: 71310*, excluding 7131022* Secondary Accounts: 631***1, 631***2, 635***1, 635***2, 638***1, 638***2

### Denominator

<i>Description</i>	<i>Data Source</i>
Emergency Department: Total worked and benefit hours for all staff in the department (excluding medical staff hours)	OHRS Data Definition: Sector Codes 1* Type S Primary Accounts: 71310*, excluding 7131022* Secondary Accounts: 631*, 635*, 638*

## 2. % Management and Operational Support Staff

### Numerator

<i>Description</i>	<i>Data Source</i>
Emergency Department: Management and Operational Support worked and benefit hours	OHRS Data Definition: Sector Codes 1* Type S Primary Accounts: 71310*, excluding 7131022* Secondary Accounts: 631*

### Denominator

<i>Description</i>	<i>Data Source</i>
Emergency Department: Total worked and benefit hours for all staff in the department (excluding medical staff hours)	OHRS Data Definition: Sector Codes 1* Type S

	Primary Accounts: 71310*, excluding 7131022* Secondary Accounts: 631*, 635* and 638*
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### 3. % Nursing Worked Hours

#### Numerator

<i>Description</i>	<i>Data Source</i>
Emergency Department: Total worked hours of nurses reported as Unit-Producing Personnel	OHRs Data Definition: Sector Codes 1* Type S Primary Accounts: 71310*, excluding 7131022* Secondary Accounts: 6351**1, 6351**2, 6381**1, 6381**2

#### Denominator

<i>Description</i>	<i>Data Source</i>
Emergency Department: Total worked and benefit hours of nurses reported as Unit-Producing Personnel	OHRs Data Definition: Sector Codes 1* Type S Primary Accounts: 71310*, excluding 7131022* Secondary Accounts: 6351*, 6381*

### 4. % Registered Nurse Hours

#### Numerator

<i>Description</i>	<i>Data Source</i>
Emergency Department: Registered Nurse Unit-Producing Personnel worked and benefit hours	OHRs Data Definition: Sector Codes 1* Type S Primary Accounts: 71310*, excluding 7131022* Secondary Accounts: 63511*, 63513*, 63514*, 63515*, 63516*, 63816*

#### Denominator

<i>Description</i>	<i>Data Source</i>
Emergency Department: Total worked and benefit hours of nurses reported as Unit-Producing Personnel	OHRs Data Definition: Sector Codes 1* Type S Primary Accounts: 71310*, excluding 7131022*

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	Secondary Accounts: 6351*, 6381*
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