

***Hospital Report 2006: Emergency Department Care***

**Patient Satisfaction Technical Summary**

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## **Summary**

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Approximately 111,000 individuals from participating hospitals in Ontario were sampled for the 2004-2005 Emergency Department Care Patient Satisfaction analysis. Patients discharged between April 2004 and March 2005 who were not deceased, psychiatric patients, infants less than 10 days old, patients with no fixed address, or patients who presented with sexual assault or other sensitive issues, were eligible for inclusion in the sample. Approximately 32% of the sampled individuals returned their questionnaires.

The latest cut of the 2005-2006 patient satisfaction data that was available for *Hospital Report 2006: Emergency Department Care* analysis included approximately 82,000 individuals from participating hospitals in Ontario, discharged between April 2005 and December 2005. Approximately 27% of the sampled individuals returned their questionnaires.

## **Describing the Survey Process**

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### ***Sampling Plan***

Each participating hospital corporation and NRC + Picker collaboratively established a sampling plan. Deciding factors influencing the agreed-upon sampling plan included budget, achieving reasonable response rates, and which sites within the corporation were of primary interest. A minimum of 100 valid survey responses is required for a hospital's results to be displayed in the publicly released summary report.

Hospitals were then charged with the responsibility of sending patient data files to NRC + Picker every month. For *Hospital Report 2006: Emergency Department Care*, data was collected for all 12 months of the 2004-2005 fiscal year, and for the first 9 months of the 2005-2006 fiscal years. Then, according to each hospital's sampling plan, a random sample was drawn from the patient data files, and surveys were mailed.

Questionnaires were not sent to deceased patients, psychiatric patients, infants less than 10 days old, patients with no fixed address, or patients who presented with sexual assault or other sensitive issues.

### ***Mailing of Questionnaires***

Included in each patient mailing was an explanatory cover letter, a return envelope (postage-paid), and the questionnaire itself. The first mailing went out within a couple of weeks of NRC's reception of a hospital's monthly patient data file. To

increase response rates, there was a second wave of mailings to patients whose first questionnaires were not returned within three weeks of the original mailing date.

### ***Inclusion/Exclusion Criteria***

Surveys that were returned, but that did not have a single valid response, were treated as non-responses and dropped from the analysis.

If a record had no valid responses to any of the evaluative questions on the questionnaire (i.e. only had responses to demographic-type questions), then it was seen as having insufficient data and was excluded from the subsequent analysis.

Finally, for a record to be included in the analysis, it had to have valid responses for at least half of the evaluative questions that were used to build the indicators. This amounts to 17 valid responses out of the 34 evaluative questions that make up the four indicators that are included in the Executive Summary report. See Appendix A for a list of the questionnaire items. Note that it is at this stage that the volumes were calculated to determine whether a hospital passed the 100-case volume screen.

## Developing the Indicators

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Thirty-four of the 58 Emergency Department Care survey questions were combined to form four indicators for the publicly released Summary Report, as well as seven Picker-based indicators and two functional indicator to be released exclusively on the private emergency department care Hospital Report E-scorecard ([www.hospitalreport.ca](http://www.hospitalreport.ca)).

Expert opinion, from patient focus groups and hospital staff surveys, and discussions among team members lead to the amalgamation of NRC groupings and items into four indicators. This took place in two steps: NRC groupings were first adjusted by moving some items and combining some categories; then this reduced set of indicators was further reduced into four categories.

### ***The Four Indicators used in Hospital Report 2006: Emergency Department Care***

1. **Overall Impressions:** A patient's assessment, overall, of their hospital stay. Based on 4 survey questions.

#### **Survey Questions:**

- Did you have confidence and trust in the doctors treating you?
- Did you have confidence and trust in the nurses treating you?
- Overall, how would you rate the care you received at the hospital?
- Would you recommend this hospital to your friends and family?

2. **Communication:** A patient's assessment of how well information was communicated to them or their family during their ED stay. Based on 14 survey questions.

#### **Survey Questions:**

- When you arrived at the Emergency Department, did the first person who took your information answer your questions?
- If you had to wait to be seen, did someone from the Emergency Department explain the reason for the delay?
- Did someone in the Emergency Department help get your messages to family or friends?
- When you had important questions to ask a doctor, did you get answers you could understand?
- If you had any anxieties or fears about your condition or treatment, did a doctor discuss them with you?
- When you had important questions to ask a nurse, did you get answers you could understand?
- If you had any anxieties or fears about your condition or treatment, did a nurse discuss them with you?

- Did someone explain why you needed these tests in a way that you could understand?
- Did someone explain the results of the tests in a way that you could understand?
- Did they tell you what danger signals about your illness or operation to watch for after you went home?
- Did someone explain how to take the new medications?
- Did someone tell you about medication side effects to watch for when you went home?
- Did you know who to call if you needed help or had more questions after you left the hospital?
- How would you rate the explanation of what was done to you?

**3. Consideration:** A patient's assessment of whether they were treated with consideration. Based on 6 survey questions.

**Survey Questions:**

- How would you rate the courtesy of the first person who took your information?
- How would you rate the courtesy of your doctors?
- How would you rate the courtesy of your nurses?
- Did each hospital staff person treat you with dignity and respect?
- Did you have enough say about your care?
- How would you rate the courtesy of the Emergency Department staff?

**4. Responsiveness:** A patient's assessment of the organization and responsiveness to their needs during their ED stay. Based on 10 survey questions.

**Survey Questions:**

- Did you have to wait too long to see a doctor?
- Did you wait too long for this other doctor or specialist?
- How would you rate the availability of your nurses?
- Did you wait too long to get your tests?
- Do you think that the Emergency Department staff did everything they could to help control pain?
- Overall, how much pain medicine did you get?
- How would you rate the amount of time you spent in the Emergency Department?
- While you were in the Emergency Department, were you able to get all the services you needed?
- While you were in the Emergency Department, were there times when you did not get the help you needed?
- How would you rate how well the doctors and nurses worked together?

## ***The Seven Picker-based Indicators***

These Picker-based indicators are only available in the E-scorecard.

### **1. Overall Satisfaction**

#### **Survey Questions:**

- How would you rate the amount of time you spent in the Emergency Department?
- How would you rate the explanation of what was done to you?
- How would you rate how well the doctors and nurses worked together?
- Was the entire Emergency Department as clean as it should have been?
- Would you recommend this Emergency Department to family and friends?

### **2. Coordination of Care and Access**

#### **Survey Questions:**

- While you were in the Emergency Department, were there times when you did not get the help you needed?
- While you were in the Emergency Department, were you able to get all the services you needed?
- Did you have to wait too long to see a doctor?
- Did you wait too long for this other doctor or specialist?
- How would you rate the availability of your nurses?
- Did you wait too long to get your tests?
- After you arrived at the Emergency Department, how long was it until you talked to a NURSE about your illness or injury?
- Was there one particular doctor in charge of your care in the Emergency Department?

### **3. Physical Comfort**

#### **Survey Questions:**

- Do you think that the Emergency Department staff did everything they could to help control your pain?
- Overall, how much pain medicine did you get?

### **4. Respect for Patient Preferences and Courtesy**

#### **Survey Questions:**

- Did each hospital staff person treat you with dignity and respect?
- Did you have enough say about your care?
- Did you feel you had enough privacy during your Emergency Department visit?

- How would you rate the courtesy of your doctors?
- How would you rate the courtesy of your nurses?
- How would you rate the courtesy of the first person who took your information?
- How would you rate the courtesy of the Emergency Department staff?

## **5. Information and Education**

### **Survey Questions:**

- When you had important questions to ask a nurse, did you get answers you could understand?
- When you had important questions to ask a doctor, did you get answers you could understand?
- Did someone explain the results of the tests in a way that you could understand?
- Were the possible causes of your problem explained in a way that you could understand?
- Did someone explain why you needed these tests in a way that you could understand?
- When you arrived at the Emergency Department, did the first person who took your information answer your questions?
- If you had to wait to be seen, did someone from the Emergency Department explain the reason for the delay?

## **6. Continuity and Transition**

### **Survey Questions:**

- Did someone explain how to take the new medications?
- Did you know who to call if you needed help or had more questions after you left the Emergency Department?
- Did someone tell you about side effects the medicines might have?
- Were you told what danger signals about your illness or injury to watch out for when you got home?

## **7. Emotional Support**

### **Survey Questions:**

- If you had any anxieties or fears about your condition or treatment, did a doctor discuss them with you?
- Did you have confidence and trust in the nurses treating you?
- Did you have confidence and trust in the doctors treating you?
- If you had any anxieties or fears about your condition or treatment, did a nurse discuss them with you?

- Did someone in the Emergency Department help get your messages to family or friends?

### ***The Two Functional Indicators***

These indicators, available only in the E-scorecard, are assessments of the quality of the care received from health care providers

#### **1. Physician Care**

##### **Survey Questions:**

- When you had important questions to ask a doctor, did you get answers you could understand?
- If you had any anxieties or fears about your condition or treatment, did a doctor discuss them with you?
- Did you have confidence and trust in the doctors treating you?
- Did you wait too long for this other doctor or specialist?
- How would you rate the courtesy of your doctors?

#### **2. Nursing Care**

##### **Survey Questions:**

- When you had important questions to ask a nurse, did you get answers you could understand?
- If you had any anxieties or fears about your condition or treatment, did a nurse discuss them with you?
- Did you have confidence and trust in the nurses treating you?
- How would you rate the courtesy of your nurses?
- How would you rate the availability of your nurses?

## ***Calculating the Indicator Scores***

A variety of response scales were used in the patient satisfaction questionnaire. Some questions employed a Likert-type scale with five response choices: "Poor", "Fair", "Good", "Very Good", "Excellent". These were assigned the following scores: Poor = 0, Fair = 25, Good = 50, Very Good = 75, Excellent = 100.

Other questions used a three point scale with responses resembling: "Yes, Always", "Yes, Sometimes", "No". These were assigned the following scores: "Yes, Always" = 100, "Yes, Sometimes" = 50, "No" = 0. A number of these questions had a fourth viable selection. For example, the question "Did someone tell you about side effects the medicines might have?" had the response options "Didn't need explanation". This was an acceptable response to the question, but was not assigned a score.

There were also questions using three-point scoring schemes with responses similar to those outlined above, but where the awarding of points was reversed. For example, the question "Did you have to wait too long to see a doctor?" would be scored: "Yes, definitely" = 0, "Yes, somewhat" = 50, "No" = 100.

For a full listing of the questionnaire's items and related scoring, see Appendix A.

## Risk-Adjustment

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In comparing hospitals on the quality of their patient care, it is important to take into account differences in patient characteristics that may vary systematically among hospitals. In clinical research this is called risk-adjustment, where patient scores are adjusted to remove pre-existing influences. This issue is particularly important because certain groups of patients tend to systematically report lower levels of satisfaction than other groups. If a hospital tends to serve a disproportionate number of such patients, it may be unfairly reported as having lower patient satisfaction, when in fact, satisfaction may be comparable to another hospital with higher satisfaction scores that simply serves a different population. Therefore, to improve hospital comparability, a statistical technique called hierarchical modeling was used to control for possible differences in pre-existing patient characteristics. Hierarchical modeling is a way of looking at outcomes, in this case patient satisfaction scores, and their relationships to particular factors that can be used to predict them. Hierarchical models differ from multivariate regression models (used in past years of the Hospital Report) in that they take into account the fact that the data are nested into distinct groups (in this case, patients nested into hospital corporations). Hierarchical models allow the hospital corporation's effect on the resulting model to vary from hospital to hospital, essentially treating the corporation itself as a risk-adjustment variable. As in previous *Reports*, five different factors, or predictor variables, were used at some stage of the risk-adjustment.

Characteristics that are most commonly used in risk-adjustment of patient satisfaction scores are age and gender<sup>6,7</sup>. Previous research has found that older patients tend to report slightly higher satisfaction than younger patients. Similarly, men tend to be slightly more satisfied with their care than women. Both of these variables were used in the risk-adjustment.

In addition, questions assessing patients' perception of the severity of their conditions were also used. Less healthy patients may systematically report different levels (higher or lower) of satisfaction than do relatively healthier patients, regardless of the quality of hospital care they received<sup>8</sup>. Thus, patients' self-assessed health status was used in the risk-adjustment. Results were also adjusted for whether the patient had a regular family physician/general practitioner.

Finally, a question asking if someone other than the patient had completed the survey was considered. A hospital might care for relatively more patients who were less able to complete the survey because of age, language barriers, or illness, for example. If these proxy respondents tended to give different (higher or lower) responses than actual patients, then a biased representation of the satisfaction scores for that hospital would result. A decision was made not to include the proxy variable in the risk-adjustment model, but rather, to divide the dataset into 'patient' responses and 'proxy' responses, and then to risk-adjust them separately.

The risk-adjustment was performed separately for each of the 13 indicators (four Hospital Report indicators, seven Picker-based indicators, two Functional indicators). The results of this analysis were then used to construct new patient satisfaction scores, removing any variation in the original scores that was attributable to the predictors used in the risk-adjustment.

### ***Risk-Adjustment Procedure***

- The patient satisfaction data was divided into two sets: one including surveys that were completed by the patients themselves; the other including surveys that were completed by someone else (i.e. by proxy).
- The model that was chosen to risk-adjust the 'patient' responses included the fixed effects of the variables age, gender, self-assessed health, whether the patient had a regular family physician, and a squared age term ( $age^2$ ). This model also included the random effects of the hospital corporation (allowing the intercept of the model to vary by corporation) and age (allowing the effect on the model of an individual's age to vary by corporation). The model that was chosen to risk-adjust the 'proxy' responses included the variables self-assessed health, and whether the patient had a regular family physician. Again, this model included the random effect of the hospital corporation.
- Based on the resulting models, residual scores were calculated for each patient level record. The residual is the portion of the original score that cannot be explained or predicted by the model. The residual score is, therefore, the result of some unknown source of variation in the data. Note: a patient's 'residual' score plus their 'predicted' score adds to their original score. An individual's 'predicted' score is the score that is output when all of the patient's risk-adjustment characteristics are put into the model.
- Each patient's residual score is added to the overall mean of the 'predicted' scores to yield their risk-adjusted score.
- Before re-combining the newly risk-adjusted 'patient' and 'proxy' datasets, a 'Proxy bump' is applied. The mean patient scores for each of these datasets (patient, proxy) were calculated by approximate 10-year age bands (18-29, 30-39, etc.). The difference between the mean scores of the corresponding age bands in the two datasets was calculated and added to the 'proxy' responses to bump them to the same level as the 'patient' responses (the 'proxy' means were lower than the 'patient' means in all but one instance, where no bump was applied).
- The 'patient' and 'proxy' datasets are then combined.

Note: Missing values in the risk-adjustment variables were assigned alternative valid responses (see Tables 1a & 1b).

### ***Risk-adjustment for Sex-Disaggregated (Women’s Health) Patient Satisfaction Results***

The Patient Satisfaction Women’s Health results were risk-adjusted slightly differently from those in the regular analysis. So as not to compensate for the differences between males and females, the risk-adjustment was performed on the data using the same methodology as outlined above, but without controlling for the effect of gender. As a result, variation in the data due to differences between males and females will remain intact.

All other aspects of the risk-adjustment for the sex-disaggregated results – including the separate adjustments for ‘patient’ and ‘proxy’ groups, the other covariates in the models, and the ‘proxy bump’ – are consistent with the methodologies of the regular patient satisfaction analysis.

### ***Missing Values for Predictors Used in Risk-Adjustment***

Table 1a: FY 2004/2005

<b>Predictor</b>	<b>Frequency</b>	<b>Percent</b>	<b>Default substitution for missing values</b>
Proxy Question	821	2.39%	A proxy response
Age	0	0%	N/A
Gender	0	0%	Female
Self-assessed health	578	1.68%	The mode for all other patients from the same corporation
Whether patient has regular family physician	382	1.11%	No regular family physician

Table 1b: FY 2005/2006

<b>Predictor</b>	<b>Frequency</b>	<b>Percent</b>	<b>Default substitution for missing values</b>
Proxy Question	478	2.19%	A proxy response
Age	0	0%	N/A
Gender	0	0%	Female
Self-assessed health	342	1.56%	The mode for all other patients from the same corporation
Whether patient has regular family physician	250	1.14%	No regular family physician

### ***Descriptive Statistics for Predictors Used in Risk-Adjustment***

Table 2a: Descriptive Statistics for Proxy Question FY 2004/2005

	<b>Frequency</b>	<b>Percent</b>
Patient response	25547	74.38%
Proxy response	8798	25.62%

Table 2b: Descriptive Statistics for Proxy Question FY 2005/2006

	<b>Frequency</b>	<b>Percent</b>
Patient response	16426	75.14%
Proxy response	5435	24.86%

### ***Patient-response Statistics***

Table 3a: Descriptive Statistics for Age FY 2004/2005

<b>N</b>	<b>Min.</b>	<b>Max.</b>	<b>Mean</b>	<b>Std Dev.</b>	<b>Skewness</b>	<b>Kurtosis</b>
25547	16	97	52.07	18.56	-0.07	-0.91

Table 3b: Descriptive Statistics for Age FY 2005/2006

<b>N</b>	<b>Min.</b>	<b>Max.</b>	<b>Mean</b>	<b>Std Dev.</b>	<b>Skewness</b>	<b>Kurtosis</b>
16426	16	101	52.83	18.57	-0.14	-0.88

Table 4a: Descriptive Statistics for Gender FY 2004/2005

	<b>Frequency</b>	<b>Percent</b>
Female	14487	56.71%
Male	11060	43.29%

Table 4b: Descriptive Statistics for Gender FY 2005/2006

	<b>Frequency</b>	<b>Percent</b>
Female	9328	56.79%
Male	7098	43.21%

Table 5a: Descriptive Statistics for Self-Assessed Health FY 2004/2005

	<b>Frequency</b>	<b>Percent</b>
Poor	1016	3.98%
Fair	4086	15.99%
Good	8943	35.01%
Very Good	8208	32.13%
Excellent	3294	12.89%

Table 5b: Descriptive Statistics for Self-Assessed Health FY 2005/2006

	Frequency	Percent
Poor	648	3.94%
Fair	2600	15.83%
Good	5779	35.18%
Very Good	5234	31.86%
Excellent	2165	13.18%

Table 6a: Descriptive Statistics for whether patient has a regular family physician FY 2004/2005

	Frequency	Percent
Yes	23173	90.71%
No	2374	9.29%

Table 6b: Descriptive Statistics for whether patient has a regular family physician FY 2005/2006

	Frequency	Percent
Yes	15005	91.35%
No	1421	8.65%

### ***Proxy-response Statistics***

Table 7a: Descriptive Statistics for Age FY 2004/2005

N	Min.	Max.	Mean	Std Dev.	Skewness	Kurtosis
8798	0	103	25.51	28.96	1.06	-0.45

Table 7b: Descriptive Statistics for Age FY 2005/2006

N	Min.	Max.	Mean	Std Dev.	Skewness	Kurtosis
5435	0	101	25.84	29.51	1.03	-0.57

Table 8a: Descriptive Statistics for Gender FY 2004/2005

	Frequency	Percent
Female	4102	46.62%
Male	4696	53.38%

Table 8b: Descriptive Statistics for Gender FY 2005/2006

	Frequency	Percent
Female	2475	45.54%
Male	2960	54.46%

Table 9a: Descriptive Statistics for Self-Assessed Health FY 2004/2005

	Frequency	Percent
Poor	471	5.35%
Fair	986	11.21%
Good	2142	24.35%
Very Good	2911	33.09%
Excellent	2288	26.01%

Table 9b: Descriptive Statistics for Self-Assessed Health FY 2005/2006

	Frequency	Percent
Poor	293	5.39%
Fair	587	10.80%
Good	1295	23.83%
Very Good	1825	35.58%
Excellent	1435	26.40%

Table 10a: Descriptive Statistics for whether patient has a regular family physician FY 2004/2005

	Frequency	Percent
Yes	8114	92.23%
No	684	7.77%

Table 10b: Descriptive Statistics whether patient has a regular family physician FY 2005/2006

	Frequency	Percent
Yes	5070	92.18%
No	425	7.82%

## Weighting

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### *Hospital Site Weights*

Weights are necessary in hospital-specific analysis to ensure that a hospital's patient sample reflects the actual discharge pattern of the units/sites that make up that hospital corporation.

Hospital site weights were calculated using the patient data files that hospitals provided to NRC. The expectation was that these patient data files would yield a reasonable approximation of actual discharge patterns from a hospital. Within each hospital corporation, a weight was calculated for each site and month by comparing the sample population to the discharge population. This means that each site within a corporation can have as many as 12 distinct weights (one for each month of data). For every corporation/site/month combination where it was not possible to calculate a weight, a weight of 1 was assigned.

For each hospital corporation, the goal of weighting is to make the distribution of the sampled population resemble that of the discharged population. Ideally, site X would represent the same proportion of cases in the sample population as it does in the discharge population. If this is the case, then a weight of 1 is assigned to each case within site X. If site X is under-represented in the sample (i.e. it has proportionately fewer cases in the sample population than in the discharge population), then every case from that site will receive a weight greater than one to compensate. Similarly, cases from sites that are over-represented will receive weights smaller than one (but greater than zero; there are no negative weights).

These hospital site weights were applied throughout the patient satisfaction analysis. They were applied in the risk adjustment with hierarchical models, and the calculation of hospital-specific indicator scores. These were also used, along with corporation weights, in calculating indicator scores by region (LHIN) and peer group, and in calculating province-level satisfaction scores (note: these provincial scores are not those used for the performance allocation).

### *Corporation Weights*

A different set of weights was required (along with the hospital unit weights) for the calculation of indicator scores at the peer group, regional, and provincial level. Where above, we discussed weights for sites within a corporation, here we need to consider weights for corporations within the province. In calculating broader indicator scores, we have to ensure that the size of a corporation's sample population within the entire sample is proportional to the size of its discharge population within the entire discharge population (i.e. all discharges for the participating Ontario hospitals). A corporation that is either over-represented or under-represented in the sample will see weights applied to its cases accordingly.

Discharge information from NRC + Picker's sampling plan was used to calculate the corporation weights.

## **Response Rates**

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For the 2004-2005 fiscal year, the overall response rate was 31.4%. Females had a response rate of 33.4% while males had a response rate of 29.3%. The mean hospital response rate was 32.2%, and the median response rate was 32.1%. The lowest response rate for a given hospital corporation was 19.5%.

For the 2005-2006 fiscal year, the overall response rate was 26.9%. Females had a response rate of 28.5% while males had a response rate of 25.2%. The mean hospital response rate was 27.5%, and the median response rate was 27.6%. The lowest response rate for a given hospital corporation was 14.7%.

## **Hospital-Specific Analysis: Assessing Relative Performance**

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Each hospital's performance on each indicator is designated "above average", "average", or "below average". For the patient satisfaction indicators, two criteria were used to assess each hospital's performance. Statistical significance was used to assign hospitals to the above average performance category. This criterion alone, however, was insufficient when designating hospitals as having below average performance. The calculation of statistical significance relies heavily on sample size, and different hospitals in this project had dramatically different sample sizes. It was possible to find statistically significant differences from average in hospitals with a larger sample size, even though those differences were small and not substantive. A second criterion, described below, was used for assigning hospitals to the below average performance category.

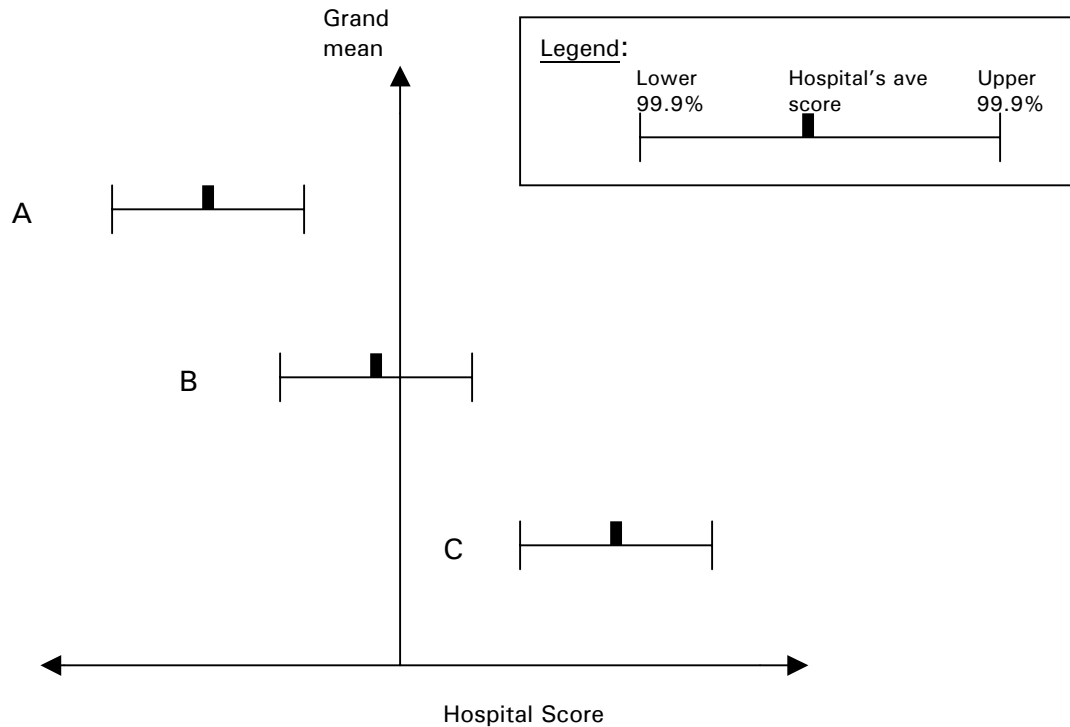
A 99.9% Confidence Interval (CI) was calculated for each indicator score within each hospital. Each hospital was compared to the average indicator score for all hospitals (the grand mean):

- "Above average" performance allocations were given to hospitals with indicator scores that were significantly statistically above the grand mean, using the 99.9% CI. This means that the lower bound of the confidence interval was higher than the grand mean.
- "Provincial Average" performance allocations were given to hospitals with indicator scores not significantly different from the grand mean.
- "Below average" performance allocations were given to hospitals with indicator scores both statistically significantly below the grand mean and lower than all non-significant hospital indicator scores. This means that the upper bound of the confidence interval was below the grand mean, and the hospital's indicator

score was lower than the scores of all hospitals that were allocated an “average” performance.

**Step 1: Calculate 99.9% CIs and Compare to Grand Mean**

Figure 1.1: Procedure for Determining a Hospital’s Performance Category



**HOSPITAL A:** The grand mean is above the upper 99.9% CI. The average indicator score for hospital A is estimated to be less than the grand mean (average of all hospital average) 999 times out of 1000.

ALLOCATION: Below average

**HOSPITAL B:** The grand mean falls between the upper and lower 99.9% CI of the hospital average. The average indicator score for hospital B is estimated to not be significantly different than the grand mean 999 times out of 1000.

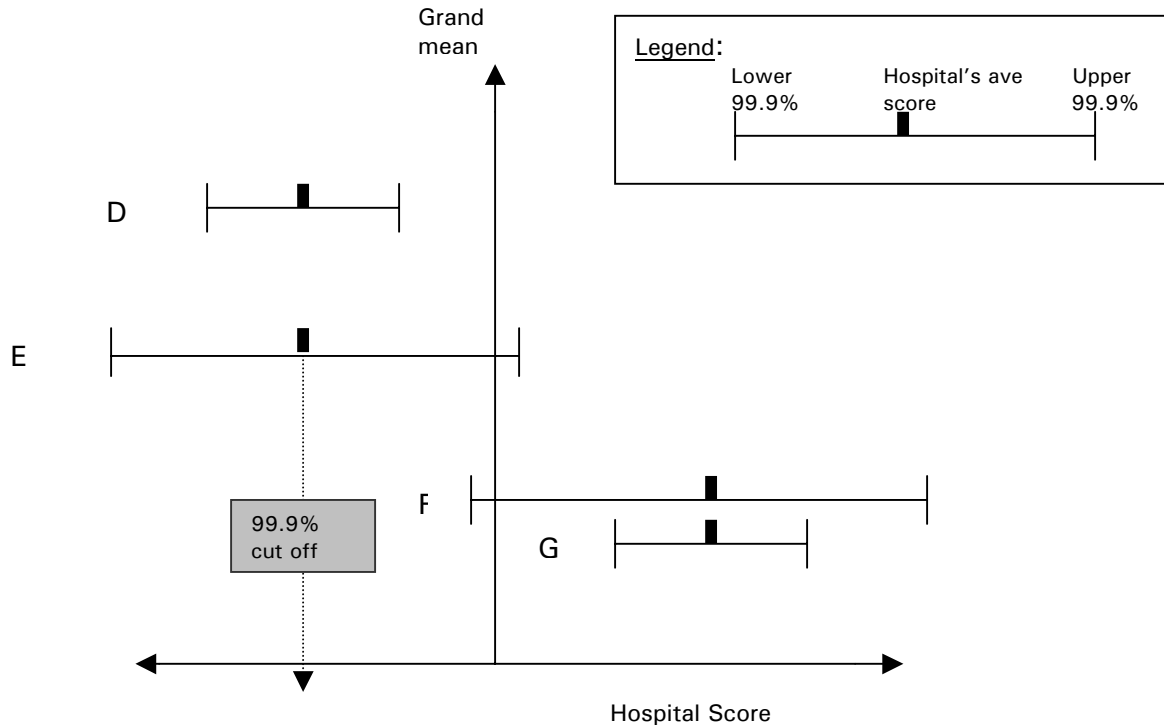
ALLOCATION: Provincial Average

**HOSPITAL C:** The grand mean is below the lower 99.9% CI. The average indicator score for hospital C is estimated to be greater than the grand mean 999 times out of 1000.

ALLOCATION: Above average

**Step 2: Apply Low Cut-Off Point**

Figure 1.2: Applying the Low Cut-Off Point for Performance Allocations



**Confidence Intervals and the Allocation Bias**

The value for each patient satisfaction indicator represents the average response of patients surveyed. Hospitals that survey a greater number of patients tend to have a narrower confidence interval. This means that we are generally more confident (99.9%) that the true indicator score is within this narrow band. Conversely, hospitals that survey fewer patients would be more likely to have a wider confidence interval. Therefore, hospitals with an average score below the grand mean would be more likely to receive an allocation of "provincial average" when they have a wider confidence interval while a hospital with the same score with a narrow confidence interval would be more likely to receive an allocation of "below average". To prevent this problem, a low cut-off point was used for the "below average" allocation.

**99.9% Low Cut-off Point (HOSPITAL D & E)**

Hospital D has the same average score as hospital E. However, based on the allocation process previously described, hospital D would receive a lower allocation (below average) than hospital E (provincial average) due to the size of the confidence intervals. A low cut-off point is applied to prevent this bias against hospitals that have a greater sample size/narrower confidence interval.

The 99.9% low cut-off point is determined by identifying the lowest indicator score of those hospitals that received an allocation of "provincial average" (and for which the grand mean fell within the 99.9% CI). Any hospital with an average score which falls between this low cut-off point and the grand mean receives an allocation of "provincial average" irrespective of whether the upper 99.9% confidence limit falls below the "provincial average". Therefore, hospital D which has the same average score as hospital E would also receive an allocation of "provincial average".

**What About an Above Average Cut-off Point? (HOSPITAL F & G)**

Note that although a low cut-off point was applied to prevent a bias against poorer allocation of performance for hospitals with a greater sample size and narrower confidence interval, this process was not applied for above average performance. Conversely applied, this process would penalize hospitals that have a greater sample size and narrower confidence interval by lowering the performance score when in fact the hospital is significantly above average. As a result, while both hospital F and G have the same average score, hospital G would receive an "above average" allocation, while hospital F would receive a "provincial average" allocation.

The following table represents the lower cut off points for all the indicators.

**Table 11: 99.9% Low Cut-Offs (FY 2004-2005 only)**

Indicator Group	Indicator	99.9% Low Cut-Off
Hospital Report Indicators	Overall Impressions	71.1265
	Responsiveness	62.9967
	Consideration	71.1794
	Communication	63.8434
Picker-based Indicators	Overall Satisfaction	65.3153
	Coordination of Care and Access	63.8413
	Physical Comfort	60.4673
	Respect for Patient Preferences and Courtesy	71.0910
	Information and Education	68.3952
	Continuity and Transition	56.5112
	Emotional Support	68.5575
Functional Indicators	Physician Care	71.5275
	Nursing Care	67.1688

### ***Reporting Results (by sex) for Women's Health***

The E-scorecard will include the sex difference values [i.e. (F-M)] for each indicator and an indication of the direction (i.e.  $F > M$  or  $M > F$ ) and the statistical significance of these values at a hospital level. Participating hospitals may access their own and other hospitals' difference values and the direction (i.e.  $F > M$  or  $M > F$ ) and statistical significance of these differences for each indicator on a password-protected database at [www.hospitalreport.ca](http://www.hospitalreport.ca).

The interpretation of these data and notes about suppression will accompany this database. In terms of interpretation, if this value [i.e. (F-M)] is negative, males have higher scores than females; if this value is positive, females have higher scores than males. A value of "0" is used as the benchmark as it represents true equity between women and men. Furthermore, if a hospital's 95% confidence interval around their specific value of the difference between women and men for a given indicator includes zero, then the hospital is said to have no statistically significant sex difference for that indicator (which is preferred). If a hospital's 95% confidence interval around their specific value of the difference between women and men for a given indicator does not include zero and is negative, then the hospital is said to have unequal (i.e.  $M > F$ ) performance or a statistically significant sex difference, in which males have a higher score than females. If a hospital's 95% confidence interval around their specific value of the difference between women and men for a given indicator does not include zero and is positive, then the hospital is said to have unequal ( $F > M$ ) performance or a statistically significant sex difference, in which females have a significantly higher score than males.

## Appendix A: Questionnaire Items

Questionnaire items, including Hospital Report scoring scheme.

\* Indicates that the item is not part of any of the indicators

#	Question	Response options	Scoring
1	When you arrived at the Emergency Department, did the first person who took your information answer your questions?	Yes, completely Yes, somewhat No Didn't Have Questions	100 50 0 no score
2	How would you rate the courtesy of the FIRST person who took your information?	Poor Fair Good Very Good Excellent	0 25 50 75 100
3	After you arrived at the Emergency Department, how long was it until you talked to a NURSE about your illness or injury?	Right Away 15 minutes or less More than 15 minutes Don't know	100 50 0 no score
4*	Once you went to a bed or an examination room, about how long did you have to wait to see a doctor?	Less than ½ hour Between ½ hour and 1 hour 1 to 2 hours More than 2 hours I did not wait at all	
5	If you had to wait to be seen, did someone from the Emergency Department explain the reason for the delay?	Yes No Didn't have to wait	100 0 no score
6	Did someone in the Emergency Department help get your messages to family or friends?	Yes No I had no messages	100 0 0
7	Was there one particular doctor in charge of your care in the Emergency Department?	Yes No Not Sure	100 0 no score
8	Did you have to wait too long to see a doctor?	Yes, definitely Yes, somewhat No	0 50 100
9	When you had important questions to ask a doctor, did you get answers you could understand?	Yes, always Yes, sometimes No Didn't have any questions	100 50 0 no score
10	If you had any anxieties or fears about your condition or treatment, did a doctor discuss them with you?	Yes, completely Yes, somewhat No Didn't have anxieties or fears	100 50 0 no score
11	Did you have confidence and trust in the doctors treating you?	Yes, always Yes, sometimes No	100 50 0
12*	Did doctors talk in front of you as if you weren't there?	Yes, often Yes, sometimes No	
13*	After you had seen a doctor in the Emergency Department, was another doctor or specialist called in to see you?	Yes No I did not see a doctor	
14	Did you wait too long for this other doctor or specialist?	Yes, definitely Yes, somewhat	0 50

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		No No other doctor was needed	100 no score
15	How would you rate the courtesy of your doctors?	Poor Fair Good Very Good Excellent	0 25 50 75 100
16	When you had important questions to ask a nurse, did you get answers you could understand?	Yes, always Yes, sometimes No Didn't have any questions	100 50 0 no score
17	If you had any anxieties or fears about your condition or treatment, did a nurse discuss them with you?	Yes, completely Yes, sometimes No Didn't have anxieties or fears	100 50 0 no score
18	Did you have confidence and trust in the nurses treating you?	Yes, always Yes, sometimes No	100 50 0
19*	Did nurses talk in front of you as if you weren't there?	Yes, often Yes, sometimes No	
20	How would you rate the courtesy of your nurses?	Poor Fair Good Very Good Excellent	0 25 50 75 100
21	How would you rate the availability of your nurses?	Poor Fair Good Very Good Excellent	0 25 50 75 100
22*	Did you get any tests (such as blood, urine, or x-rays) when you visited the Emergency Department?	Yes No (go to #26)	
23	Did you wait too long to get your tests?	Yes, definitely Yes, somewhat No	0 50 100
24	Did someone explain why you needed these tests in a way that you could understand?	Yes, completely Yes, somewhat No	100 50 0
25	Did someone explain the results of the tests in a way that you could understand?	Yes, completely Yes, somewhat No	100 50 0
26*	Were you ever in any pain?	Yes No (Go to #31)	
27*	When you had pain, was it usually severe, moderate, or mild?	Severe Moderate Mild	
28*	Did you ever request pain medicine in the Emergency Department?	Yes No	
29	Do you think that the Emergency Department staff did everything they could to help control your pain?	Yes, definitely Yes, somewhat No	100 50 0
30	Overall, how much pain medicine did you get?	Not enough Right amount Too much I did not get pain medicine	0 100 0 no score

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31	Were you told what danger signals about your illness or injury to watch out for when you got home?	Yes, completely Yes, somewhat No	100 50 0
32*	Before you left the Emergency Department, were any new medications prescribed or ordered for you?	Yes No	
33	Did someone explain how to take the new medications?	Yes, completely Yes, somewhat No Didn't need explanation	100 50 0 no score
34	Did someone tell you about side effects the medicines might have?	Yes, completely Yes, somewhat No Didn't need explanation	100 50 0 no score
35*	Did you need further treatment after you left the Emergency Department?	Yes No (Go to #37)	
36*	Was an appointment made for this treatment before you left the Emergency Department?	Yes, with a new doctor or nurse Yes, with the same doctor or nurse No	
37	Did you know who to call if you needed help or had more questions after you left the Emergency Department?	Yes No Not sure	100 0 0
38*	About how long did you spend in the Emergency Department from the time you arrived to the time you left?	Less than 1 hour Between 1 and 3 hours Between 3 and 6 hours Between 6 and 10 hours Between 10 and 12 hours Between 12 and 24 hours More than 24 hours	
39	How would you rate the amount of time you spent in the Emergency Department?	Poor Fair Good Very Good Excellent	0 25 50 75 100
40	While you were in the Emergency Department, were you able to get all the services you needed?	Yes, completely Yes, somewhat No	100 50 0
41	Were the possible causes of your problem explained in a way that you could understand?	Yes, completely Yes, somewhat No Didn't need explanation	100 50 0 no score
42	While you were in the Emergency Department, were there time when you did not get the help you needed?	Yes, often Yes, sometimes No Didn't need help	0 50 100 no score
43	Did each hospital staff person treat you with dignity and respect?	Yes, always Yes, sometimes No	100 50 0
44	Did you have enough say about your care?	Yes, definitely Yes, somewhat No	100 50 0
45	Did you feel you had enough privacy during your Emergency Department visit?	Yes, always Yes, sometimes No Doesn't apply	100 50 0 no score

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46	Overall, how would you rate the care you received in the Emergency Department?	Poor Fair Good Very Good Excellent	0 25 50 75 100
47	How would you rate the courtesy of the Emergency Department staff?	Poor Fair Good Very Good Excellent	0 25 50 75 100
48	How would you rate the explanation of what was done to you?	Poor Fair Good Very Good Excellent	0 25 50 75 100
49	How would you rate how well the doctors and nurses worked together?	Poor Fair Good Very Good Excellent	0 25 50 75 100
50	Would you recommend this Emergency Department to family and friends?	Yes, definitely Yes, probably No	100 50 0
51	Was the entire Emergency Department as clean as it should have been?	Yes, definitely Yes, somewhat No	100 50 0
52*	In general, how would you rate your health?	Poor Fair Good Very Good Excellent	
53*	Do you have a regular family physician/general practitioner who you see when you have health problems?	Yes No	
54*	How serious was the injury or illness that prompted you to come to the Emergency Department?	Extremely serious Very serious Moderately serious Slightly serious Not at all serious	
55*	During the past month, how many days did illness or injury keep you in bed all or part of the day?	None One Day Two Days Three Days Four Days Five to Seven Days Eight to Ten Days More than Ten Days	
56*	In the last 6 months, have you been a patient in a hospital overnight or longer?	No Yes, only one time Yes, more than one time	

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57*	What is the highest grade or level of school that you have completed?	Public school High school College, trade, or technical school University undergraduate degree Post university/graduate education	
58*	Who completed this survey?	Patient Someone else	

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