Selection of Key Financial Indicators: A Literature, Panel and Survey Approach

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Since 1998, most hospitals in Ontario have voluntarily participated in one of the largest publicly available performance-reporting initiatives in the world. The project is led by the Hospital Report Research Collaborative (HRRC), a group of over 30 researchers who conduct research and engage Ontario hospitals in performance measurement activities. The HRRC has three objectives: (1) to improve the quality of care provided by Ontario's hospitals, (2) to enhance hospital accountability and (3) to conduct research into the determinants of good performance in healthcare. Over 20 reports have been produced to date, including acute care, emergency department care, complex continuing care, rehabilitation, mental health, nursing and women's health.

In the first issue of *Hospital Report* in 1998, indicators of financial performance and condition were selected by a relatively ad hoc method, reflecting the newness of performance measurement at a system level in Canada. These indicators were used in subsequent issues of *Hospital Report*, with only minor additions and changes. In

2005–2006, the financial performance and condition indicators included in *Hospital Report* underwent a substantial redevelopment to reflect changes in the hospital industry, the data collected and performance criteria.

This article describes the method used to select key financial indicators for inclusion in *Hospital Report*. We describe the literature, panel and survey approach that was used, and we present the results for five years of recent data for Ontario hospitals.

Approach
The approach used to select the key financial indicators is depicted in Figure 1.
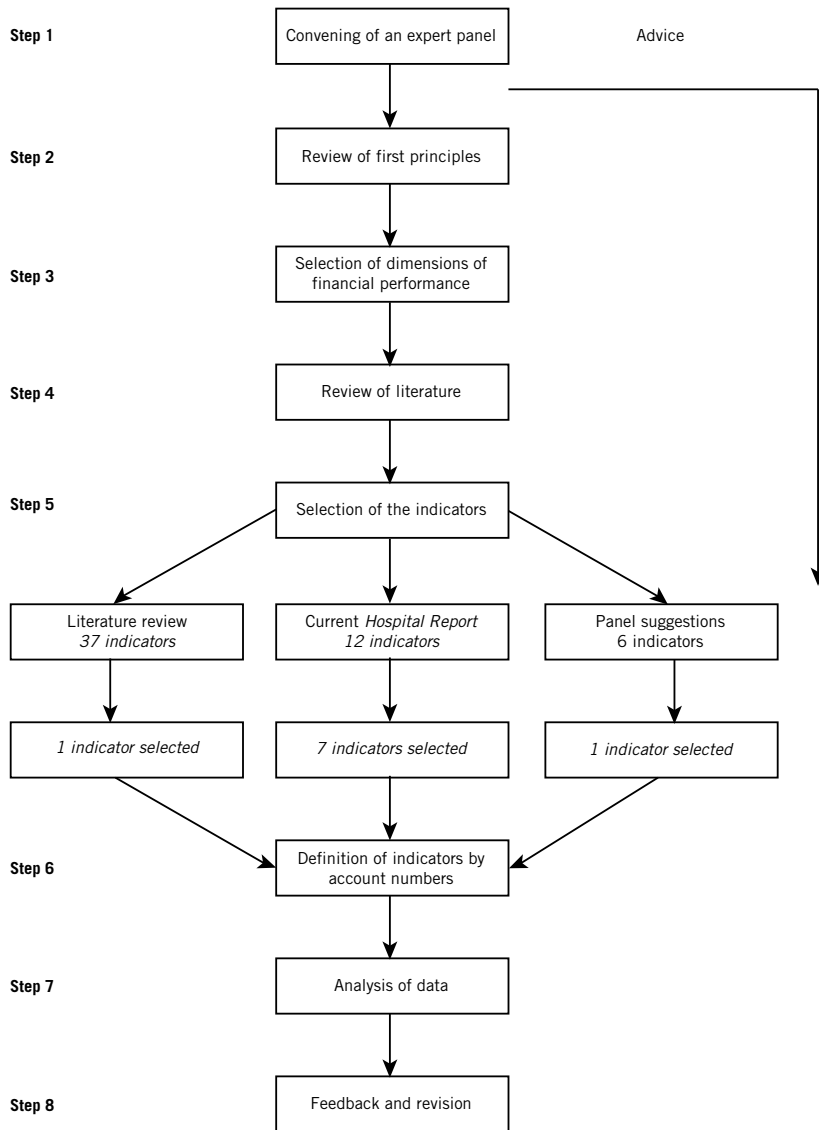
Step 1: Convening of an Expert Panel
From the outset, the HRRC team sought to ground the research in practical financial management. To this end, an expert panel was selected to provide practical advice on the selection and use of financial indicators for acute care hospitals. Fifteen individuals with a valuable mix of expertise

and geographic perspective – and who are knowledgeable about acute care financial and operational issues, data and reporting practices – agreed to serve on the expert panel. Throughout the indicator redevelopment process, the expert panel provided practical advice on numerous methodological issues, including timeliness, accuracy, completeness and relevance of data; potential indicators of financial performance and condition; selection of financial indicators to be produced using secondary data; precise definitions of selected indicators, including account codes; reliability of data; face validity of data analyses; and interpretation of results and data limitations.

Step 2: Review of First Principles
The HRRC has been developing, measuring and reporting indicators of performance for Ontario hospitals since 1997 based on its First Principles, which provide guidance about the design and selection of indicators for quadrants and sectors in *Hospital Report* (Figure 2). The purpose of the principles is to encourage use

Figure 1. Approach for selecting key financial indicators

health of an organization. For example, financial viability indicators may indicate an organization has a surplus, but liquidity indicators may show it is having difficulty paying its bills and capital structure indicators may show a large increase in debt.

Various dimensions of financial performance were identified from the five top-selling textbooks on healthcare financial management, which appear in Table 1. In the end, the expert panel decided to retain the current dimensions of financial performance and condition:

- **Financial viability indicators** measure the ability to generate the financial resources required to replace assets, acquire new technology and meet increases in service demands.
- **Liquidity indicators** measure the ability to meet cash obligations in a timely manner.
- **Capital indicators** measure the ability to meet long-term debt obligations and how capital assets (equipment) are being maintained.
- **Efficiency indicators** measure the ability to provide services at the expected cost and to minimize administrative costs.
- **Human resources indicators** measure the effectiveness of human resource management and practices.

Step 4: Review of Literature
A non-systematic literature review was undertaken to identify the financial indicators included in articles in peer-reviewed journals, industry publications and articles in practitioner journals that had been found to be important measures of hospital financial performance. To identify indicators in peer-reviewed articles, searches of Medline and other academic databases were undertaken using keywords such as *hospital*, *financial performance* and *ratio analysis*. Articles published prior to 1990 were excluded from the

of rigorous research and development processes and to increase coherence and consistency among indicators. They are not requirements but, rather, a set of criteria that teams can use to test whether existing indicators should be retained and to select new indicators. These principles were reviewed by the expert panel and guided the selection process.

Step 3: Selection of Dimensions of Financial Performance
Selecting dimensions of financial performance provided an overarching structure for identification of relevant financial indicators. Different financial indicators measure different dimensions of financial performance, such as profitability and liquidity, and all this information is needed to make an informed judgment about the financial

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Figure 2. Hospital Report Research Collaborative's First Principles

Hospital Report:

1. Is designed for use by the hospital board and senior management
2. Relates to long-term hospital strategies and priorities that are grounded in the real world
3. Indicators are relevant to most services in most hospitals
4. Is evaluative and not descriptive
5. Uses benchmarks
6. Indicators are theory based (best), empirically based (second best) or consensus based (third best)
7. Indicators are theoretically or empirically related to other *Hospital Report* indicators
8. Includes core indicators and service- or program-specific indicators
9. Includes a mix of lead and lag indicators
10. May include experimental indicators that are suggested by theory, empirical research or consensus panels but have no existing evidence

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Table 1. Potential dimensions of financial performance and condition

Cleverley and Cameron 2003	Gapenski 2007	McLean 2003	Nowicki 2004	Zelman et al. 2003
Profitability	Profitability	Profitability	Profitability	Profitability
Liquidity	Liquidity	Liquidity	Liquidity	Liquidity
Capital structure	Debt management (capital structure)	Leverage	Capital structure	Capital structure
Activity	Asset management (activity)	Asset use	Activity	Activity
Other	Other	–	–	–
–	Operating	–	Operating	–

Sources:
Cleverley WO and Cameron AE. 2003. *Essentials of Health Care Finance* (5th ed.). Jones & Bartlett Pub: Sudbury MA.
Gapenski LC. 2007. *Understanding Healthcare Financial Management* (5th ed.). AUPHA/Health Administration Press: Chicago IL.
McLean R. 2003. *Financial Management in Health Care Organizations.* (2nd ed.). Thomson Delmar Learning: Clifton Park NY.
Nowicki M. 2004. *The Financial Management of Hospitals and Healthcare Organizations* (3rd ed.). AUPHA/Health Administration Press: Chicago IL.
Zelman WN, McCue MJ, Millikan AR, and Glick ND. 2003. *Financial Management of Health Care Organizations* (2nd ed.). Blackwell Publishers: Malden MA.

searches because of their likely lower relevance. Indicators were selected from the articles if results showed that they were statistically significant in explaining a dimension of hospital financial performance, such as profitability or financial distress. To identify indicators in industry publications, the Web sites of various commercial suppliers and industry organizations were reviewed. Finally, to identify indicators in practitioner journal articles, searches of various databases including these journals using the keywords above were undertaken. Due to the lack of statistical analysis in these articles, judgment of the project staff was used in selection of indicators. In total, 114 indicators were identified in the peer-reviewed journals, industry publications and articles in practitioner journals. The bibliography lists all the articles and publications in which the 114 indicators were found.

Among the 114 indicators found to be or deemed to be important measures of hospital financial performance, some were used in many articles and some were used in only one article. Identification of the most frequently used indicators was considered to be a logical way of reducing the opportunity set of indicators from 114 to a more manageable number. All publications and the indicators used in them were recorded and coded in a database. The database was then queried to count the articles that found a particular indicator to be important. An indicator was defined as frequently used if it appeared in five or more articles and infrequently used if it appeared in four or fewer articles. On this basis, 37 indicators were identified as frequently used and 77 identified as infrequently used.

To assess the extent to which the 37 frequently used indicators identified in the literature review measured different dimensions of financial performance, each indicator was assigned to one of the five dimensions listed in Step 3. Table 2 shows the five dimensions of financial performance, the indicators included under each dimension, a definition of each indicator and the frequency of the indicator in the articles identified in the literature review.

Step 5: Selection of the Indicators
Two weeks prior to convening, the expert panel was asked to complete and return to the research team an evaluation of the current *Hospital Report* indicators using three criteria:

1. **Validity:** Can the indicator be accurately calculated? Are there significant reporting variations in the data elements used to calculate the indicator? Will there be confidence in the indicator?

Table 2. Thirty-seven most frequently used financial indicators from literature review

Dimension and Indicator	Definition	Frequency
Financial Viability		
Operating margin	(Total operating revenue − operating expenses)/Total operating revenue	33
Total margin	Excess of revenues over expenses/Total revenue	23
Return on assets	Net income/Total assets	22
Return on equity	Excess of revenue over expenses/Fund balance	9
Non-operating revenue	Non-operating revenue/Operating revenue	7
Return on investment	(Revenues and gains in excess of expenses and losses + depreciation + interest)/Price-level adjusted total assets	6
Liquidity		
Current ratio	Current assets/Current liabilities	19
Days revenue in net accounts receivable	Net patient account receivables/(Net patient service revenue/365)	11
Days cash on hand	(Cash + marketable securities + unrestricted investments)/[(Total expenses − depreciation)/365]	9
Average payment period	[Current liabilities/(Total expenses − depreciation expense)]/365	7
Replacement viability	(Restricted plant fund balance + unrestricted investments)/Price-level adjusted accumulated depreciation	5
Acid test ratio	(Cash + marketable securities)/Current liabilities	4
Quick ratio	(Total current assets − inventory)/Total current liabilities	4
Capital		
Equity financing	Fund balance/Total assets	11
Total debt/total assets	Total liabilities/Total assets	9
Debt service coverage	(Revenue over expenses + depreciation + interest)/ (Current portion of long-term debt + interest expense)	9
Cash flow to total debt	(Net Income + depreciation expense)/Total liabilities	9
Long-term debt to capitalization	Long-term debt/(Long-term debt + equity)	7
Long-term debt to equity	Long-term liabilities/Fund balance	7
Long-term debt to total assets	Long-term debt/Total assets	6
Fixed asset financing	Long-term liabilities/Net fixed assets	6
Efficiency		
Total asset turnover	Total operating revenue/Total assets	13
Fixed asset turnover	Total operating revenue/Net fixed assets	8
Current asset turnover	Total operating revenue/Current assets	6
Human Resources		
No indicators found		
Other		

2. **Importance:** Will a change in the indicator be considered to be a material change in financial performance and condition? Will hospitals pay attention to the indicator? Will poor performance on the indicator be of significant concern?
3. **Usefulness:** Can benchmarks be developed for the indicator? Will the indicator be used to improve financial performance and condition?

Prior to convening, the expert panel was provided with an information package that included a project work plan, the five performance dimensions, literature review, a list and definitions of the 37 most frequently used indicators in the literature, a form for evaluating the 37 indicators and a form for defining the account codes needed to calculate each indicator.

The research team and the expert panel met in Toronto on November 28, 2005. The evaluation of the current *Hospital Report* indicators by the expert panel was presented as a starting point for discussion. Each of the 37 most frequently used indicators in the literature and several potential nursing indicators identified in focus groups with nursing executives were discussed. Finally, some expert panel members suggested additional indicators for consideration.

Each of the 37 most frequently used indicators in the literature and the new nursing indicators was evaluated using the same criteria as were used for the current *Hospital Report* indicators: validity, importance and usefulness. After extensive debate and consideration, the expert panel made the following indicator selections:

- **Current *Hospital Report* indicators.** Seven of the current 12 Hospital Report indicators were retained (total margin, current ratio, unit cost performance, per cent corporate services, per cent equipment expense, in-

Table 2. Continued

Occupancy rate	Average daily census/Number of staffed beds	24
In-patient payer mix	Number of Medicare or Medicaid patients/Total number of patients	22
Medicare case-mix	Medicare Case-Mix Index	20
Average length of stay	Total number of in-patient days/Total number of admissions	20
Expense per discharge	(Total operating expenses + other expenses)/Adjusted discharge	19
Average age of plant	Accumulated depreciation/Annual depreciation expense	14
Outpatient mix	Total outpatient (in-patient equivalent) days/Total patient days	10
Herfindahl index	Squared sum of (acute care patient days for hospital/Total acute-care patient days in the county)	10
Revenue per discharge	(Net patient revenue + nonpatient revenue)/Adjusted discharge	9
FTEs per bed	Total FTEs/Occupied beds	9
Market share	Patient revenue (discharges)/Total county patient revenue (discharges)	8
HMO penetration	Percent of revenue from managed care patients	8
FTEs per adjusted day	(FTE/Adjusted average daily census)/(Medicare case-mix index)	5

FTE = Full Time Equivalent; HMO = health maintenance organization.

patient nursing productivity and per cent registered nursing hours).
- **Literature review.** One new indicator from the literature review was selected (debt service coverage). Both total margin and current ratio (retained from the current *Hospital Report*) were also among the 37 most frequently used indicators from the literature review.
- **Expert panel suggestions.** One new indicator was suggested by the expert panel (per cent sick time).

The final performance dimensions, indicator names and indicator definitions are shown in Table 3. The nine indicators are fairly evenly distributed across the five performance dimensions, with the exception of the human resources dimension, in which there are relatively more indicators assigned. Despite an absence in the literature review, the panel decided the impor-

tance of human resources to the financial health of a hospital made it important to include such measures.

Step 6: Definition of Indicators by Account Numbers
A subgroup met immediately after the expert panel to define each indicator using account numbers specified by the Ontario Healthcare Reporting Standards (a comprehensive multi-year database of financial and statistical information describing the activities of Ontario hospitals). Carefully thinking about the precise definition of each indicator and the appropriate accounts to include in the numerator and denominator was simple for some indicators, such as the current ratio, and complicated for others, such as per cent sick time. (The numerator and denominator accounts can be downloaded from the 2006 Acute Care Technical Report at www.hospitalreport.ca.)

Step 7: Analysis of Data
The research team developed a computer program that produces and analyzes the indicator values for individual hospitals. Descriptive statistics, histograms and scatterplots were used to verify programming accuracy. After probable programming errors were eliminated, results showed that there were some obvious data quality problems, such as reporting of long-term debt as a long-term liability, but no current portion of long-term debt as a current liability. From a theoretical standpoint, these numbers were highly unlikely or impossible and reaffirmed an objective of the research team since the beginning of the project – to improve data quality.

When a potential data error was identified, the indicator value for the hospital was not reported and a note about the potential error was inserted. In this way, it was hoped that the hospital would be made aware of the potential data problem and would initiate corrective action so that the error would not appear in future indicator values.

Throughout the data analysis, the expert panel was consulted. Several teleconference calls were held to discuss the validity of the indicator definitions, outliers and data-quality problems. After resolution of these problems, the expert panel reviewed the data analysis, including tabular and graphical presentation of values for each indicator.

Step 8: Feedback and Revision
In January 2006, all acute care hospitals participating in *Hospital Report* were mailed a package with three documents – a letter from the Canadian Institute for Health Information explaining the redevelopment study, indicator values specifically for their hospital and an evaluation form. The evaluation form asked hospitals to provide feedback about the validity, importance and usefulness of the new indicators using

Table 3. *Hospital Report* performance dimensions, indicators, numerators and denominators

Performance Dimension	Indicator	Numerator	Denominator
Financial viability	Total margin	Total revenues − (Total expenses − Facility amortization)	Total revenues
Liquidity	Current ratio	Current assets	Current liabilities
Capital	Debt service coverage	Net income + Depreciation + Interest expense	Current portion of long-term debt + Interest expense
	% equipment expense	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	Total expenses, net of all recoveries
Efficiency	Unit cost performance	Actual cost per equivalent weighted case − expected cost per equivalent weighted case	Expected cost per equivalent weighted case
	% corporate services	General administration, finance, human resources, staff recruitment and retention, systems support and communication expenses, and net of recoveries	Operating expenses, net of recoveries and all amortization
Human resources	% sick time	Nursing in-patient services, ambulatory care, diagnostic and therapeutic and community services UPP paid sick hours	Nursing in-patient services, ambulatory care, diagnostic and therapeutic and community services UPP full-time earned hours
	In-patient nursing productivity	Acute nursing in-patient services recipient workload units (excluding nursing administration, rehabilitation and long-term care)/60	Acute nursing in-patient services UPP worked and purchased service hours (excluding nursing administration, rehabilitation and long-term care)
	% RN hours	Acute nursing in-patient services RN UPP earned hours (excluding nursing administration, rehabilitation and long-term care)	Acute nursing in-patient total UPP earned hours (excluding nursing administration, rehabilitation and long-term care)

RN = registered nurse; UPP = unit-producing personnel.

the same scale as that used by the expert panel in their deliberations.

Forty-nine evaluations were returned, which was a response rate of 48%. In general, results showed that the number of people who rated the indicators as somewhat or very feasible, important or useful was greater than the number who rated the indicators as somewhat or very unfeasible, unimportant or not useful. Many comments about the indicators were also provided by respondents. All comments from the evaluations were categorized and their content analyzed in a report that was distributed and reviewed by the expert panel. As a consequence, changes in the account definitions were made to three of the indicators. Revised indicator values were calculated and circulated to hospitals for verification in April 2006. The comments and suggestions received from hospitals were extremely valuable because they identified several inconsistencies that required fixing and several improvements.

Results

Indicator medians for all Ontario hospitals for 2000–2001 to 2004–2005 are shown in Table 4. A small amount of the year-to-year variation may be due to minor changes in the number of hospitals for which the medians are calculated, as shown in the bottom line of the table. Indicator medians by type of Ontario hospital for 2004–2005 are shown in Table 5.

Financial Viability

Total margin measures the control of expenses relative to revenues as a per cent. Table 4 shows that, on average, Ontario hospitals achieved relatively low levels of financial viability during the five-year study period. Table 5 shows that during the most recent year in the study, community hospitals actually had a negative total margin while teaching and small hospitals had small positive total margins. In 2005, Ontario hospitals were surveyed to create benchmark values for the total margin; it was concluded that a hospital is demonstrating good financial management if the total margin is between 0% and 5% (Pink et al. 2005). Table 5 shows that, on average, small and teaching hospitals were within the benchmarks but that community hospitals were below the benchmark.

Liquidity

Current ratio measures the number of times short-term obligations can be paid using short-term assets. Table 4 shows that, on average, Ontario hospitals experienced declining liquidity during the five-year study period. Table 5 shows that during the most recent year of the study, community and teaching hospitals actually had current ratios less than 1.0, while small hospitals had a current ratio of 2.0. In 2005, Ontario hospitals were surveyed to create benchmark values for current ratio; it was concluded that a hospital is demonstrating good financial

management if current ratio is between 1.0 and 2.0 (Pink et al. 2005). Table 5 shows that, on average, small hospitals were within the benchmarks but community and teaching hospitals were below the benchmark.

Capital

Debt service coverage measures the ability to pay obligations related to long-term debt – principal payments and interest expense. Table 4 shows that, on average, Ontario hospitals experienced a declining ability to service debt during the five-year study period. During the most recent year of the study, small hospitals had the highest and teaching hospitals had the lowest debt service coverage (see Table 5). Per cent equipment expense measures how much of the total expenses is spent to acquire and operate computer systems, radiography machines and other capital equipment. Table 4 shows that, on average, equipment spending by Ontario hospitals was relatively constant during the five-year study period. As shown in Table 5, during the most recent year of the study, small hospitals had the highest and teaching hospitals the lowest per cent equipment expense.

Efficiency

Unit cost performance measures the extent to which a hospital's actual cost per equivalent weighted case differs

Table 4. *Hospital Report* indicator medians for all Ontario hospitals, 2000–2001 to 2004–2005

Performance Dimension	Indicator	2000–2001	2001–2002	2002–2003	2003–2004	2004–2005
Financial viability	Total margin	1.3%	0.1%	0.2%	0.5%	0.3%
Liquidity	Current ratio	1.7	1.4	1.2	1.1	1.1
Capital	Debt service coverage*	18.7	9.5	5.5	7.9	3.8
	% equipment expense	6.2%	6.2%	6.1%	6.2%	6.4%
Efficiency	Unit cost performance	−0.2%	−0.9%	−0.4%	−0.7%	−1.4%
	% corporate services	9.0%	9.1%	9.0%	9.7%	9.4%
Human resources	% sick time	N/A	N/A	4.5%	4.8%	4.8%
	In-patient nursing productivity	71.2%	71.5%	73.7%	71.0%	73.1%
	% registered Nurse hours	73.7%	74.3%	74.5%	74.2%	75.5%
No. of hospitals		137	136	135	133	133

N/A = not available.
*For hospitals reporting long-term debt.

Table 5. *Hospital Report* indicator medians by type of Ontario hospital, 2004–2005

Performance Dimension	Indicator	Small Hospitals	Community Hospitals	Teaching Hospitals	All Hospitals
Financial viability	Total margin	1.6%	−0.7%	0.3%	0.3%
Liquidity	Current ratio	2.0	0.9	0.7	1.1
Capital	Debt service coverage*	12.7	3.0	2.5	3.8
	% equipment expense	6.8%	6.2%	5.7%	6.4%
Efficiency	Unit cost performance	−3.6%	−0.8%	2.0%	−1.4%
	% corporate services	11.5%	8.6%	8.7%	9.4%
Human resources	% sick time	4.6%	4.9%	5.5%	4.8%
	In-patient nursing productivity	59.4%	74.2%	76.9%	73.1%
	% registered Nurse hours	67.5%	77.0%	86.4%	75.5%
No. of hospitals		47	72	14	133

*For hospitals reporting long-term debt.

from its expected cost. On average, unit cost performance of Ontario hospitals was relatively constant during the five-year study period (see Table 4). This is to be expected because the indicator values are regression coefficients for which the median is always close to zero. During the most recent year of

the study, small and community hospitals had negative unit cost performance values, and teaching hospitals had a positive value (see Table 5). Per cent corporate services measures how much of total expenses is spent on administrative, finance, human resources and systems support. Table 4 shows

that, on average, spending on corporate services of Ontario hospitals was relatively constant during the five-year study period. However, during the most recent year of the study, small hospitals had the highest and community hospitals the lowest per cent corporate services (see Table 5).

Human Resources

Per cent sick time measures the proportion of full-time patient care personnel hours that were paid sick hours. Table 4 shows that, on average, sick time of staff in Ontario hospitals was relatively constant during the three-year study period. As shown in Table 5, during the most recent year of the study, small hospitals had the lowest and teaching hospitals the highest per cent sick time. In-patient nursing productivity measures the proportion of nursing worked hours (including purchased service hours) for direct patient care. Table 4 shows that, on average, in-patient nursing productivity of Ontario hospitals was relatively constant during the five-year study period. During the most recent year of the study, small hospitals had the lowest and teaching hospitals the highest in-patient nursing productivity (see Table 5). Finally, per cent registered nurse hours measures the proportion of nursing care hours provided by registered nurses. As seen in Table 4, on average, the proportion of care provided by registered nurses in Ontario hospitals increased slightly during the five-year study period. During the most recent year of the study, small hospitals had the lowest and teaching hospitals the highest per cent registered nurse hours (see Table 5).

Conclusions

The redevelopment of the financial performance and condition quadrant in *Hospital Report* attempted to use a more systematic and evidence-based approach to the selection of key financial indicators. In our opinion,

the approach reaffirmed the value of collaboration between a university-based team with research skills and practitioners with experience in the financial management of acute care hospitals. Together both parties worked to produce key financial indicators that boards and management can use to improve the financial management of their organizations.

Several conclusions can be drawn from comparison of a literature, panel and survey approach to the ad hoc approach used in the original *Hospital Report*. First, the literature, panel and survey approach selected seven indicators that the ad hoc approach had selected, eliminated five indicators that the ad hoc approach had selected and selected two indicators that the ad hoc approach had not selected. Thus, some indicators were affirmed, some were eliminated and some new indicators were selected. The bottom line is that the literature, panel and survey approach selected a set of key financial indicators that differed substantially from the set selected by the ad hoc approach.

Second, the literature, panel and survey approach selected some indicators that have been shown in many studies to be important in explaining hospital financial management, but it also selected some indicators for which there is little evidence. Perhaps this reflects differences in the financial management of Canadian hospitals, government funding methods and incentives, the supply of health human resources or all of the above. In any case, the literature alone provided an insufficient basis to select key financial indicators.

Third, a residual concern is data quality. Although management information systems (MIS) data have been collected for over a decade, there remain reporting variations and other data-quality concerns that affect the validity of the indicators. It is hoped that continued dissemination

of indicators that use MIS data will make hospitals aware of data-quality problems and lead to better data in the future.

Future work includes developing benchmarks. In 2005, benchmarks were developed for total margin and current ratio by a survey of hospitals (Pink et al. 2005). Development of benchmarks for the other seven indicators will be in the 2006–2007 work plan of the HRRC finance team.

Acknowledgement

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Commentary

The Search for Continuously Improving Financial Performance Indicators: The Hospital Report Research Collaborative Approach

Bruce A. Boissonnault

The first lesson that you must learn is, when I call for statistics about the rate of infant mortality, what I want is proof that fewer babies died when I was Prime Minister than when anyone else was Prime Minister. That is a political statistic.

– Winston Churchill 1874–1965

The worst statistics for public policy are selected because they support a predetermined policy position. The best are those that accurately reflect the situation and that provide clues to how we can improve that situation. As healthcare measurement systems evolve, conscious and deliberate steps are required to ensure that our best statistics do not become our worst, and that our systems of measurement continuously improve in step with our systems of care.

In their article titled "Selection of Key Financial Indicators: A Literature, Panel and Survey Approach," Pink et al. describe the approach used by the Hospital Report Research Collaborative (HRRC) to update the key financial indicators included in the 2005–2006 *Hospital Report*, which first was published in 1998. Fundamental to the HRRC's approach is the assumption that transparency and thoughtful aggregation of comparative performance measures can help drive continuous quality improvement (CQI) and better fiscal policy in healthcare.

CQI often refers to a central element of renowned quality expert

> " ... transparency and thoughtful aggregation of comparative performance measures can help drive continuous quality improvement and better fiscal policy in healthcare.

W. Edwards Deming's philosophy, which was summarized by some of his Japanese proponents in the 1970s as follows: When people and organizations focus primarily on quality (i.e., quality = results of work efforts/total costs), then quality increases and costs fall over time. However, when people and organizations focus primarily on cost, then costs rise and quality falls over time (*W. Edwards Demming* 2006). Thus, effective fiscal policy is inseparable from effective CQI as recognized by the HRRC's use of a balanced scorecard model in the *Hospital Report*.

The HRRC approach has several advantages that can help ensure that the *Hospital Report* remains in step with the systems of care it measures. The approach is flexible and can address various types of financial and quality indicators, as well as the frameworks supporting them. It is transparent, thereby reducing the likelihood of undue influence by any single group or special interest. It is scalable and could be used by other regions if such transparent reports were to be expanded across Canada. It could be used to identify possible measurement collaborations with groups of hospitals

outside of Canada. It ensures consideration of many new and divergent indicators. And it affords an effective convergence mechanism to select the final set of indicators. Thus, the approach charts a path that synthesizes (1) an immense body of academic and practical literature, (2) a broad base of hospital experience and (3) input from a diverse panel of financial experts.

In the final analysis, the most important legacy of the HRRC's literature, panel and survey approach may not be its one-time impact on *Hospital Report*.

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Commentary

What Gets Measured, Gets Done

Ida Goodreau

The use of performance indicators can be a powerful driver of an organization's decisions and activities, particularly when coupled with consistently applied consequences. Given that the saying "What gets measured, gets done" is often true, it is imperative that both the actual choice of indicators and the process of how indicators are selected be carried out in a thoughtful, comprehensive and evidence-based manner.

The most critical element in selecting indicators is the alignment and fit between desired organizational goals and outcome, and the behaviours, priorities and decisions the individual indicators will encourage and support. Financial indicators can be particularly challenging. Ideally, they will be a barometer of the organization's financial strength as well as a harbinger of its future economic viability. They must, however, be tightly aligned and integrated with other key objectives and outcomes (particularly quality and service) if they are to be complementary instruments of progress. For example, hospitals that work with primary care and community systems to reduce the length of stay and per capita use are considerably more effective (and desirable) from the perspective of the public purse, although their liquidity and capitalization ratios might be similar. Therefore, it is important that financial indicators be seen as one element in a larger set of drivers and measures that will guide the organization.

A second issue that must be incorporated into a good suite of financial indicators concerns sustainability and long-term investment. Short-term thinking in training, infor-mation systems, technology adoption and leadership development can be inadvertently encouraged through rigorously enforced financial performance indicators at the expense of broader system goals.

A third key element in selecting effective indicators is to be mindful of the law of "unintended consequences." Because indicators can be powerful motivators and drivers of behaviours, poor choices not only can be ineffective but can create the opposite effect to what is desired.

The process undertaken by the Ontario Hospital Report Research Collaborative (HRRC) panel is a particularly interesting one. It sought to ensure, firstly, that a broad range of measures was identified and, secondly, that the potential measures were evaluated for effectiveness both by data analyses and by an expert panel of researchers and practitioners.

The common pitfalls in choosing indicators – namely, that the list is too narrow with important measures not considered, or that indicators may actually not be useful (or may even be harmful) in guiding behaviour – have been largely negated through the breadth and magnitude of the methodology used by the HRRC. Performance indicators are critical elements in improving accountability for outcomes. They provide important information for decision-making and can be powerful motivators if linked with incentives. Choosing the right indicators is fundamental.

The process undertaken by the HRRC is a unique marriage of research (through extensive data and evidence) with practical management experience. It should result in a set of indicators that will be effective and useful for hospitals, particularly when aligned with other system indicators such as health outcomes, sustainability and integration with primary care.

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