Accountability in Public Health Units

Using a Modified Nominal Group Technique to Develop a Balanced Scorecard for Performance Measurement

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ABSTRACT

Background: Little attention has been paid to the need for accountability instruments applicable across all health units in the public health system. One tool, the balanced scorecard was created for industry and has been successfully adapted for use in Ontario hospitals. It consists of 4 quadrants: financial performance, outcomes, customer satisfaction and organizational development. The aim of the present study was to determine if a modified nominal group technique could be used to reach consensus among public health unit staff and public health specialists in Ontario about the components of a balanced scorecard for public health units.

Methods: A modified nominal group technique consensus method was used with the public health unit staff in 6 Eastern Ontario health units (n = 65) and public health specialists (n = 18).

Results: 73.8% of the public health unit personnel from all six health units in the eastern Ontario region participated in the survey of potential indicators. A total of 74 indicators were identified in each of the 4 quadrants: program performance (n=44); financial performance (n=11); public perceptions (n=11); and organizational performance (n=8).

Interpretation: The modified nominal group technique was a successful method of incorporating the views of public health personnel and specialists in the development of a balanced scorecard for public health.

La traduction du résumé se trouve à la fin de l'article.

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Accountability, concisely defined as the obligation to answer for a responsibility conferred, is increasingly recognized as a key component in the health care system.¹ One tool for achieving accountability is the periodic report card. The Ontario Hospital Association Hospital Reports, published annually since 1998, are an example of a particularly informative report card, known as the balanced scorecard. This term was introduced by Kaplan and Norton in 1991 to describe a report format for businesses that transcends the limitations of the standard financial statement by including information from three additional quadrants: outcome measures, customer satisfaction, and organizational learning and growth.²⁻⁴ The concept has been successfully employed by a number of multi-national corporations.^{5,6}

In 1999, researchers at the University of Toronto developed a framework for a balanced scorecard for public health. Four sectors (Figure 1), each linked to the mission of public health units, were identified: financial performance, public perceptions of public health, public health program performance, and organizational performance and learning.⁷ The University of Toronto team also identified potential sources for indicators through a consultation process with public health experts identified by a steering committee. The development of a balanced scorecard is an open process and to maintain open communication the same public health experts were consulted during this research, the second stage of the balanced scorecard development. The challenge in implementing such a scorecard is ensuring that it is accepted by public health workers as an accurate portrayal and evaluation of what they do. One approach to achieving this perceived accuracy is to use formal consensus methods by which public health workers themselves may identify appropriate indicators for each quadrant.

Formal consensus methods provide a useful way of making group decisions in situations where information is lacking, contradictory or where there is an overload of information. Consensus methods are a set of techniques that share the common objective of synthesizing expert or stakeholder opinion to guide group decisions about the best course of action. Three main methods have been used in the

health field: the Delphi Process; the Nominal Group Technique (modified and unmodified); and the Consensus Development Conference. These methods were developed in the United States during the 1950s and have been applied to a variety of problems in social services, education, government and industry. In the context of health, they have been used to examine the appropriateness of clinical interventions,⁸ the education and training of health professionals,⁹ in practice development,¹⁰ and for the identification of measures in clinical trials.¹¹

The aim of the present study was to see if a modified nominal group technique could be used to reach consensus among public health unit staff and public health specialists in Ontario about the components of a balanced scorecard for public health units.

METHODS

A list of performance indicators for public health was compiled from published reports and consultation with public health experts. In total, 104 indicators were identified; these were distributed among all quadrants of the scorecard. Senior staff (n=65) with managerial responsibilities at each of the six public health units in Eastern Ontario were sent the list of indicators and asked to rate the usefulness of each indicator on a nine-point scale. The questionnaire also provided room for suggestions of alternative indicators that may have been overlooked. The survey was also sent to public health specialists (n=18) selected from the Public Health Research, Education and Development (PHRED) program, academe, and the Public Health Branch of the Ontario Ministry of Health and Long Term Care. Results from the survey were analyzed by calculating the median and associated inter-quartile range for each indicator.

After completing and returning the questionnaire, respondents attended a structured meeting facilitated by one of the authors (VR), where they were presented with a summary of the first round of responses to the questionnaire. Participants were asked to review and discuss the aggregated results with colleagues and then to re-rate the indicators in light of the discussion. They were also asked to complete a second survey containing alternative indi-

TABLE 1

Public Health Unit Participation Rates for the 1st and 2nd Administration of the Survey

Health Unit	1st Survey Participation Rate		2nd Survey Participation Rate	
	N	%	N	%
Eastern Ontario Health Unit	8/11	72.7	9/11	81.8
Hastings & Prince Edward Counties Health Unit	11/12	91.7	7/12	58.3
Kingston, Frontenac and Lennox & Addington Health Unit	9/10	90.0	7/10	70.0
Leeds Grenville & Lanark District Health Unit	6/7	85.7	5/7	71.4
Ottawa-Carleton Regional Health Department	8/17	47.0	5/17	29.4
Renfrew County & District Health Unit	6/8	75.0	0/8	0
Total	48/65	73.8	33/65	50.8

Figure 1. A balanced scorecard for public health*

* Adapted from Kaplan R and Norton D. *Translating Strategy into Action: The Balanced Scorecard*. Boston: Harvard Business School Press, 1996 and Zelman W et al. Issues for Academic Health Centers to Consider before Implementing a Balanced-scorecard Effort. *Academic Medicine* 1999;74:1269-77.

cators, suggested by participants during the first administration of the indicator survey.

Data were analyzed according to the strict and relaxed rules for agreement as defined by the nominal group technique.^{9,11} There are three pre-defined 3-point regions on the scale. An indicator rating from 1 to 3 was defined as least useful, an indicator rating from 4 to 6 was defined as somewhat useful and an indicator rating from 7 to 9 defined as most useful.^{9,11} The strict rules dictate that for there to be strict agreement among the participants about the rating of an indicator, the median and inter-quartile range of all

responses must fall within one of the three pre-defined agreement regions: 1-3, 4,6, or 7-9. For the relaxed rules the median may fall anywhere along the 9-point rating scale and the inter-quartile range can be no wider than a 3-point range. The results from the second round of surveys were aggregated, as well as the results from the survey of alternative indicators proposed by the health unit participants. The survey responses from public health experts were also aggregated. Ethics approval for this study was granted by the Research Ethics Board of Queen's University.

TABLE II

Results of the 1st and 2nd Administration of the Indicator Survey to Public Health Unit Personnel – Median Ratings and Inter-quartile Ranges, Median and Inter-quartile Range Change (between 1st and 2nd Administration of the Survey)

Indicator		1st Administration		2nd Administration		Median Change	Inter-quartile Range Change
		Median	Inter-quartile Range	Median	Inter-quartile Range		
1) Public Health Program Performance Quadrant							
1	Proportion of regular smokers	8.0	6-9	7.5	7-8	- 0.5	- 2
2	Youth smoking rate	8.0	7-9	8.0	7-8.25	0	- 0.75
3	Quitting smoking	7.0	4.25-8	6.0	5-7	- 1	- 1.75
4	Proportion of heavy drinkers	7.0	5-8	7.0	5-7	0	+ 1
5	Proportion never taken illegal drugs	5.5	3-7	4.0	2-5.125	-1.5	- 0.875
6	Proportion of obese persons	7.0	6.5-8	7.0	5.75-8	0	+ 0.75
7	Physical activity	7.0	7-8	7.0	7-8	0	0
8	Proportion motorists using restraining device	7.0	6-8	7.0	6-8	0	0
9	Incidence of low birth weight	8.0	7-9	8.0	7-8	0	- 1
10	Teenage pregnancy rate	8.0	7-9	8.0	6-8	0	+ 1
11	Proportion of women who have had a Pap test	7.0	6-8	7.0	6-8	0	0
12	Proportion of women who have had a mammogram	7.0	6-8	7.0	6-8	0	0
13	Ontario Breast Screening Program group education sessions	5.0	3-6	5.0	3-6	0	0
14	Proportion of females with pelvic inflammatory disease	6.0	4-7	5.0	3-6	- 1	0
15	Iron-deficiency anemias and pernicious anemias	4.5	3-5.75	4.0	2-5	- 0.5	+ 0.25
16	Vitamin B12 deficiency and Folic acid deficiency anemia	5.0	3-6	4.0	2-6	- 1	+ 1
17	Proportion showing a high level of psychological distress	6.0	3.25-7	5.5	3-7	- 0.5	- 0.25
18	Incidence of notifiable diseases requiring vaccination	7.0	6.5-8	8.0	7-8	+ 1	- 0.5
19	Incidence of notifiable diseases	7.0	6-8	7.0	6-8	0	0
20	Prevalence of leading health problems	5.0	3-7	5.0	1.5-6	0	+ 0.5
21	Deaths due to medically-treatable diseases	6.0	3-7	4.0	1-5.75	- 2	+ 0.75
22	Infant mortality rate	8.0	7-9	8.0	7-8	0	- 1
23	Perinatal mortality rate	8.0	7-8	8.0	6.75-8	0	+ 0.25
24	Suicide mortality rate	7.0	5-8	7.0	3.75-8	0	+ 1.25
25	Proportion of population having seriously contemplated suicide	6.0	4-8	6.0	3-7	0	0
26	Motor vehicle accident victim rate	7.0	5.5-8	6.5	5.75-7	- 0.5	+ 1.25
27	Pneumonia and influenza hospitalizations	7.0	5.25-9	7.5	7-8	+ 0.5	- 2.75
28	Rates of sexually transmitted diseases	8.0	7-9	8.0	7-8	0	- 1
29	Rates of infectious diseases	8.0	7-9	8.0	7-8	0	- 1
30	Rates of congenital conditions	6.0	4.5-8	5.5	2.75-6.25	- 0.5	0
31	Rates of cancer-related conditions	8.0	6-8	7.0	5.5-8	- 1	+ 0.5
32	Proportion of population with injury hospitalizations	7.0	6-8	7.0	6-8	0	0
33	Proportion of population with hip fractures	7.0	6-8	7.0	6-8	0	0
34	Proportion of food and waterborne diseases	8.0	7-9	8.0	7-8	0	- 1
35	Inspection rate of boarding houses, facilities for the aged, etc.	7.0	6-8	7.0	6.25-8	0	- 0.25
36	Inspection rate of day nurseries	7.5	7-8	7.75	7-8	+ 0.25	0
37	Inspection rate of public pools, wading pools and spas	7.0	6.5-8	7.0	7-8	0	- 0.5
38	Inspection rate of settings where there is risk of blood exposure	7.0	6-8	7.0	7-8	0	+ 1
39	24-hour response time to incidents of infectious diseases	7.0	7-8	7.0	7-8	0	0
40	Persons with communicable disease managed by public health staff	8.0	5-8.5	8.0	6.5-8	0	+ 2
41	Communicable disease contacts managed by public health staff	7.0	5-8	7.0	5-7	0	- 1
42	Tobacco Control Act compliance inspection of vendors	7.5	7-9	7.5	7-8	0	- 1
43	Vendors in compliance with the Tobacco Control Act	8.0	7-9	8.0	7-9	0	0
44	Proportion of elementary schools in compliance with the TCA	8.0	6-9	8.0	6.5-8.5	0	- 1
45	Proportion of secondary schools in compliance with the TCA	8.0	6.25-9	8.0	7.5-9	0	+ 0.75
46	Vendors warned of non-compliance with the TCA or charged	7.0	6-8	7.0	7-8	0	+ 1
47	Appropriate health unit response to health hazard call	8.0	6-9	8.0	7.5-8	0	- 2.5
48	Planning and evaluation for 14 Mandatory Programs and Services	7.0	6-8	7.0	7-8	0	- 1
49	Fully investigated cases and suspected cases of tuberculosis	8.0	6-8.25	8.0	7.5-8	0	- 1.75
50	Access to anti-tuberculosis treatment at no cost to the client	7.0	5.75-8.25	7.0	6.5-8	0	- 0.5
51	Confirmed tuberculosis cases for which sensitivity results obtained	7.5	6-8.25	7.0	6-8	- 0.5	+ 0.25
52	Tuberculosis cases for which drug regimen and advice provided	7.0	6-8	7.0	7-7.75	0	- 1.25
53	Tuberculosis cases for which prescribed drug regimens monitored	7.0	6-8	7.0	7-8	0	- 1
54	Tuberculosis cases that were treated by Directly Observed Therapy	6.0	5-7	6.0	6-6	0	- 2
55	Tuberculosis cases that were successfully contacted and managed	7.5	6-8	8.0	7-8	+ 0.5	- 1
56	Rate of critical food infractions	7.0	6-8	7.0	7-8	0	- 1
57	Food handler certification	7.0	7-8	7.0	7-8	0	0
58	Schools with grades 7 and 8 provided food safety information	6.5	5-8	6.0	5-7	- 0.5	- 1
59	Injury prevention community events promoted and provided	7.0	5-8	7.0	6-8	0	- 1
60	Events addressing alcohol use and abuse promoted and provided	7.0	5-8	7.0	6-8	0	- 1
61	Schools provided info & programs - injury prevention & alcohol use	7.0	5-8	7.0	6.5-8	0	- 1.5
62	Group sessions promoting purchasing and preparing healthy foods	6.0	5-7	6.0	5.25-7	0	- 0.25
63	Group sessions to promote child health developmental milestones	7.0	4-8	7.0	5.25-7.75	0	- 1.5
64	Providers reached through the child health group sessions	7.0	4.5-8	7.0	6-8	0	- 1.5
65	Community events targeting fall-related injury prevention	6.0	4.5-7	6.0	5-7	0	- 0.5
66	Schools reached 3 hours sexual health education, grade 7-9 students	7.0	5.75-8	7.0	7-8	0	+1.25
67	Schools reached with reproductive health education consultation	7.0	5-8	7.0	7-7.5	0	- 2.5
68	Public reproductive health education group sessions	6.0	5-8	6.0	6-7	0	- 2
69	Influenza immunization, 65+	8.0	7-8.25	8.0	7-8	0	- 0.25
70	Breastfeeding	8.0	7-9	8.0	7-8	0	- 1.0
71	Childhood immunizations	8.0	8-9	8.0	8-8.5	0	- 0.5
72	Children identified through the Dental Indices Survey Program	8.0	7-8	8.0	7-8	0	0
73	Children who received dental treatment through program	7.0	7-8	7.0	7-8	0	0
74	Schools that were reached using the Dental Indices Survey	7.0	6-8	7.0	7-8	0	- 1
75	Number of children entered into reportable disease info system	7.0	5-8	7.0	5.5-8	0	- 0.5
76	Suspension orders due to incomplete childhood immunization	7.0	4-8	7.0	5-7	0	- 2
77	Proportion of students with acceptable immunization status	8.0	8-9	8.0	8-9	0	0

TABLE II – continued

2) Public Perceptions of Public Health Quadrant							
1	Proportion of persons who do not perceive themselves in good health	6.0	5-7	5.5	4-7	- 0.5	+ 1
2	Community/client input in the evaluation of programs and services	7.0	5-7	7.0	5.75-7	0	- 0.75
3	Proportion of community representatives on health boards	6.0	3-7	6.0	3-7	0	0
4	Programs/services that employ a client satisfaction component	7.0	5-7	6.5	5-7.25	- 0.5	+ 0.25
5	Number of press releases	6.0	5-7	6.0	4-7	0	+ 1
3) Financial Performance Quadrant							
1	Frequency with which regular financial statements are produced	5.0	3-7	5.0	3-7	0	0
2	Frequency of health unit financial audits	4.0	3-7	4.0	1.75-4.25	0	- 1.5
3	Intelligibility of financial report	6.0	3-7	6.0	4-7	0	- 1
4	Cost of program/service per client	7.0	6-8	6.0	5-8	- 1	+ 1
5	Coordination of resource management between programs & services	7.0	5-8	7.0	6-8	0	- 1
6	Has the health unit run a deficit in the last 5 years?	6.0	3-7.25	5.0	4-7	- 1	- 1.25
4) Organizational Performance and Learning Quadrant							
1	Seminars, workshops or conferences attended	6.0	5-7	5.0	4-6	- 1	0
2	Frequency with which agency organizational chart is reviewed	6.0	4-7	5.0	4-6	- 1	- 1
3	Regular meetings held & minutes communicated to staff	7.0	5-8	7.0	5-8	0	0
4	Rate that programs and services are evaluated	7.0	6-8	7.0	6-8	0	0
5	Frequency with which staffing requirements are reviewed	7.0	6-8	7.0	6-8	0	0
6	Frequency with which position descriptions are reviewed and revised	7.0	5-7	6.0	6-7	- 1	- 1
7	Goals and objectives are reviewed and revised for programs	7.0	6-8	7.0	6-8	0	0
8	Organizational charts of each program & service reviewed & revised	6.0	3.5-7	6.0	5-7	0	+ 1.5
9	Frequency with which head of each program and service meets with staff	7.0	6-8	7.0	6-7	0	- 1
10	Program & service policy & procedure manuals reviewed & revised	7.0	5-7	6.0	5-7	- 1	0
11	Continual improvement activities conducted by the agency	7.0	6-8	7.0	6-8	0	0
12	Number of Staff FTE's / number of immunization records	5.0	2-7	5.0	2-5.25	0	- 1.75
13	Number of conferences attended by health unit staff per year	5.0	3-7	5.0	4-7	0	- 1
14	Continuing education courses taken by health unit staff per year	7.0	5-8	7.0	5-8	0	0
15	Computer skill upgrading courses taken by health unit staff per year	7.0	4.5-8	7.0	5-7	0	- 0.5
16	Cross-training sessions provided to health unit staff per year	7.0	5-7	7.0	6-7	0	- 1

Note: The shaded indicators are those indicators that were included in the final balanced scorecard for public health. The indicators that are shaded in this table that do not appear to meet the nominal group technique rules for agreement as described in this paper did meet the rules for agreement during the administration of the survey to the public health experts.

RESULTS

Forty-eight (73.8%) public health unit personnel from all six health units in Eastern Ontario responded to the mailed indicator survey. Five out of the six health units participated in the consensus meetings and the second administration of the indicator survey (Table I). The health unit personnel identified a total of 69 indicators as useful for all quadrants of a balanced scorecard for public health from the first administration of the survey. Following discussion at each health unit, 79 out of the 104 median ratings for all potential indicators did not change between the first and second rating of the survey, but over half (54) of the inter-quartile ranges became smaller and tighter (Table II). In addition to completing the survey for a second time during the consensus meetings, participants at the public health units were presented with a survey containing 61 alternative indicators suggested by participants during the first administration of the survey. Agreement was obtained for the usefulness of 25 of these indicators.

Eleven of 18 (61.1%) public health experts responded to the original mailed indicator survey. Their responses were very similar to those of staff in the public health units. For example, of the 21 indicators in the public

health program performance quadrant chosen by public health personnel, the public health experts chose 18 of the same indicators as useful. In addition to agreement of indicator usefulness, the public health experts proposed 5 more indicators as useful.

In total, 74 indicators were identified as most useful by all participants for a balanced scorecard for public health. In the public health program performance quadrant, 44 indicators met the strict criteria for agreement from either the second administration of the indicator survey to the public health unit personnel, the survey of alternative indicators, or the administration of the indicator survey to the public health experts. These indicators focused on four general themes: child and adolescent health, infectious disease, environmental health, and health behaviours.

In the public perceptions quadrant, 11 indicators met the criteria for agreement as useful: 3 according to the strict rules and 8 according to the relaxed rules. Three general areas were identified: interactions with the media; interactions with the public, including client inquiries; and public awareness of public health units.

In the financial performance quadrant, there were 11 indicators that met the criteria for agreement as most useful indicators: 2 according to the strict rules and

9 according to the relaxed rules. These indicators covered three general areas: the involvement of staff in the financial management of the health unit, financial assessment of resource and staffing needs, and long-range financial planning.

There were 8 indicators in the organizational performance and learning quadrant that met the level of agreement as useful indicators: 4 as somewhat useful according to the strict rules and 4 as most useful according to the relaxed rules. They focused on three general areas: evaluation and needs assessments for programs and services; continual improvement activities for staff; and staff involvement in varied aspects of public health unit activities, including human resources.

DISCUSSION

The main finding of this study was that the modified nominal group technique was successful in achieving consensus about the components of a balanced scorecard for public health units. There was a high level of agreement about the usefulness of 74 indicators. These indicators were distributed across all 4 quadrants: program performance (n=44), financial performance (n=11), public perceptions (n=11) and organizational performance (n=8).

TABLE III

A Balanced Scorecard for Public Health

- 1) **Public Health Program Performance Quadrant**
 - 1 Proportion of regular smokers
 - 2 Youth smoking rate
 - 3 Physical activity
 - 4 Incidence of low birth weight
 - 5 Teenage pregnancy rate
 - 6 Incidence of notifiable diseases requiring vaccination
 - 7 Infant mortality rate
 - 8 Perinatal mortality rate
 - 9 Pneumonia and influenza hospitalizations
 - 10 Rates of sexually transmitted diseases
 - 11 Rates of infectious diseases
 - 12 Proportion of food and waterborne diseases
 - 13 Inspection rate of day nurseries
 - 14 Inspection rate of public pools, wading pools and spas
 - 15 Inspection rate of settings where there is risk of blood exposure
 - 16 24-hour response time to incidents of infectious diseases
 - 17 Tobacco Control Act (TCA) compliance inspection of vendors
 - 18 Vendors in compliance with the TCA
 - 19 Proportion of elementary schools in compliance with the TCA
 - 20 Proportion of secondary schools in compliance with the TCA
 - 21 Vendors warned of non-compliance with the TCA or charged
 - 22 Appropriate health unit response to health hazard call
 - 23 Planning and evaluation for 14 Mandatory Programs and Services
 - 24 Fully investigated cases and suspected cases of tuberculosis
 - 25 Tuberculosis cases for which drug regimen and advice provided
 - 26 Tuberculosis cases for which prescribed drug regimens monitored
 - 27 Tuberculosis cases that were successfully contacted and managed
 - 28 Rate of critical food infractions
 - 29 Food handler certification
 - 30 Schools reached 3 hours sexual health education, grade 7-9 students
 - 31 Schools reached with reproductive health education consultation
 - 32 Influenza immunization, 65+
 - 33 Breastfeeding
 - 34 Childhood immunizations
 - 35 Children identified through the Dental Indices Survey Program
 - 36 Children who received dental treatment through program
 - 37 Schools that were reached using the Dental Indices Survey
 - 38 Proportion of students with acceptable immunization status
 - 39 Rate of outbreaks in a given year
 - 40 Annual inspection rate of high, medium and low risk food premises
 - 41 Proportion of persons on private wells or systems receiving a safe water supply
 - 42 Proportion municipal drinking water systems with Boil Water Advisories issued
 - 43 Proportion of pets inoculated against rabies
 - 44 Proportion reported animal bitings/ animal contact occurrences investigated
- 2) **Public Perceptions of Public Health Quadrant**
 - 1 Proportion of persons who do not perceive themselves in good health
 - 2 Community/client input in the evaluation of programs and services
 - 3 Number of news articles that appeared in papers after a press release was sent
 - 4 Number of times media contacted health unit when no press release was sent
 - 5 Number of inquiries (phone calls, emails) from the public in a given year
 - 6 Rate of response to client inquiries
 - 7 Proportion of population who are aware of health unit services/programs
 - 8 Proportion of population who have used health unit services/programs
 - 9 Proportion of population who were satisfied with health unit contact
 - 10 Proportion of population who trust public health officials
 - 11 Proportion of the population who are aware of the mandate of the health unit
- 3) **Financial Performance Quadrant**
 - 1 Intelligibility of financial report
 - 2 Coordination of resource management between programs & services
 - 3 Frequency with which management staff are involved in budget deliberations
 - 4 Frequency with which the health unit uses logical criteria for staffing programs
 - 5 Frequency of assessments of staff ratios to program needs
 - 6 Does the health unit have the resource capacity to fulfill its mandate?
 - 7 Has the health unit done a resource needs assessment to allow it to comply with the MHPSG?
 - 8 Is the health unit successfully implementing its long range resources plan?
 - 9 Is the health unit using its current resources effectively and efficiently?
 - 10 Does the health unit plan programs on needs assessments & evidence of effectiveness and efficiency?
 - 11 Does the health unit assess effectiveness and cost effectiveness of its programs?
- 4) **Organizational Performance and Learning Quadrant**
 - 1 Rate that programs and services are evaluated
 - 2 Frequency with which staffing requirements are reviewed
 - 3 Goals and objectives are reviewed and revised for programs
 - 4 Frequency with which head of each program and service meets with staff
 - 5 Continual improvement activities conducted by the agency
 - 6 Computer skill upgrading courses taken by health unit staff per year
 - 7 Cross-training sessions provided to health unit staff per year
 - 8 Number of staff involved with human resources initiatives such as health and safety and staff development

Before any conclusions may be drawn, it is important to consider four limitations of the approach. First, the balanced scorecard was developed for the private sector and, although applied to the public sector,¹²⁻¹⁴ to date there has not been an evaluation of the approach in the public sector. Second, use of the modified nominal group technique has the potential for participant selection bias and is entirely opinion-based,^{9,15} rather than based on evidence. Third, it is possible that despite efforts to capture all possible indicators for public health in the survey, indicators were overlooked. Finally, public health personnel found it difficult to rate indicators outside their own area of expertise in the program performance quadrant and experienced even greater difficulty rating indicators in the other three quadrants. This was reflected in the distribution of the indicators chosen for the quadrants. There were 44 indicators in the program performance quadrant rated as most useful according to the strict rules for agreement. The other three quadrants contained 11, 11 and 8 indicators rated as most useful, but the relaxed rules for agreement had to be applied.

This research differs from other public health indicator projects in two ways. First, the balanced scorecard approach captures indicators in four aspects of public health delivery compared to other reports that tend to focus on only one area.¹⁵⁻¹⁸ For example, the Ontario Council on Community Health Accreditation¹² process focuses solely on indicators that measure health unit organizational practices. Second, this was the first time that Ontario public health unit personnel and public health experts were both involved in a process to select indicators. Previous projects, such as "Health Indicators 2000" created by the Canadian Institute for Health Information and Statistics Canada,¹⁷ have relied on expert panels to develop indicators. Involving people at different levels within an organization during the development of a balanced scorecard can enhance the acceptance of the scorecard when it is implemented.²⁻⁴

It should not be assumed that the balanced scorecard for public health is unbalanced due to the large number of indicators in the program performance quadrant. According to Kaplan and Norton, the scorecard is not necessarily balanced by equal numbers of indicators in each quadrant, but by the existence of three additional quadrants containing indicators to complement traditional measures of financial performance.²⁻⁴

Ontario public health units already report on the Mandatory Health Programs and Services Guidelines to the provincial government. Many of the indicators selected in the public health program performance quadrant are already covered by these guidelines mandated by the Ontario Ministry of Health and Long-Term Care. Expanding performance measurement into areas complementary to public health program performance, recognizing that data for some indicators are not currently available, would allow for a more com-

prehensive assessment of public health achievements in Ontario. By broadening the scope of traditional health status reports, a balanced scorecard would permit public health units to compare their performance with other health units and highlight successes. A balanced scorecard has the potential to serve as an important accountability tool for public health units. This is especially important at a time when Canada's public health infrastructure is said to be "on the ropes".¹⁹ Further research directions include indicator refinement and field testing of the balanced scorecard throughout public health units in the province.

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RÉSUMÉ

Contexte : On s'est jusqu'ici peu préoccupé du besoin d'instruments de responsabilité convenant à tous les services de santé du réseau de santé publique. Le tableau de pointage équilibré, un instrument créé pour l'industrie, a été adapté avec succès aux hôpitaux ontariens. Il comprend quatre « quadrants » : le rendement financier, les résultats, la satisfaction des patients et le changement du système. Nous avons voulu déterminer si une technique de groupe nominal modifiée pouvait être utilisée pour que les intervenants et les spécialistes en santé publique de l'Ontario conviennent des éléments d'un tableau de pointage équilibré pour les services de santé publique.

Méthode : Nous avons appliqué au personnel de six services de santé publique de l'est de l'Ontario (n=65) et à des spécialistes en santé publique (n=18) une méthode de regroupement d'opinion faisant appel à une technique de groupe nominal modifiée.

Résultats : Le taux de participation des employés des six services de santé publique de l'est de l'Ontario à l'enquête sur les indicateurs possibles a été de 73,8 %. En tout, 74 indicateurs ont été définis pour chaque quadrant : le rendement des programmes (n=44); le rendement financier (n=11); la perception du public (n=11); et le rendement organisationnel (n=8).

Interprétation : La technique de groupe nominal modifiée est une bonne façon d'intégrer les points de vue des intervenants et des spécialistes en santé publique dans l'élaboration d'un tableau de pointage équilibré pour la santé publique.