Title: Applying the balanced scorecard to local public health performance measurement: deliberations and decisions

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Abstract

Background

All aspects of the health care sector are being asked to account for their performance. This poses unique challenges for the local public health units with their traditional focus on population health and their emphasis on disease prevention, health promotion and protection. Reliance on measures of health status provides an imprecise and partial picture of the performance of a health unit. In 2004 the provincial Institute for Clinical Evaluative Sciences introduced a public-health specific balanced scorecard framework. We present the conceptual deliberations and decisions undertaken by a health unit interested in adopting the framework.

Discussion

Posing, pondering and answering eleven key questions assisted in applying the framework and developing indicators. These questions were: Who should be involved in developing performance indicators? What level of performance should be measured? Who is the primary intended audience? Where and how do we begin? What types of indicators should populate the health status and determinants quadrant? What types of indicators should populate the resources and services quadrant? What type of indicators should populate the community engagement quadrant? What types of indicators should populate the integration and responsiveness quadrants? Should we try to link the quadrants? What comparators do we use? How do we move from a baseline report card to a continuous quality improvement management tool? This paper presents a description of the deliberation process and answers to these questions.

Summary
An inclusive, participatory process was chosen for defining and creating indicators to populate the four quadrants. Examples of indicators that populate the four quadrants of the scorecard are presented and key decisions are highlighted that facilitated the process.
Applying the balanced scorecard to local public health performance measures: deliberations and decisions

Background

All aspects of the health care sector are being asked to account for their performance and to demonstrate efficiency and effectiveness in providing services to their clients. This requirement poses unique challenges for local public health units, with their traditional focus on population health and their emphasis on disease prevention, health promotion and health protection. Multiple factors determine public health outcomes (1), such as poverty, lifestyle, gender and genetics, yet only a few of these factors fall directly under the local health unit’s programmatic responsibility and influence (Table 1). In Ontario, health units are mandated to provide a limited range of programs (2) – and are resourced accordingly. Consequently the overall health status of the residents within a health unit (3) presents only a partial and imprecise picture of the performance of the health unit.

In the past few years a growing number of health care provider organizations have adopted the Balanced Scorecard (BSC) framework to develop a more comprehensive set of performance indicators. The BSC is a management tool, originally applied to businesses in the private sector, developed by Kaplan and Norton in 1992 (4). Its creators describe it as “a multidimensional framework for describing, implementing and managing strategy at all levels of an enterprise by linking objectives, initiatives and measures to an organization’s strategy” (4). Their tool broadened the traditional notion
held by private sector companies that performance is indicated by financial measures solely, by integrating financial measures with other key performance indicators linked to three additional areas: customer preferences, internal business processes and organization growth, learning and development. A balanced scorecard includes performance measures in all four quadrants.

About a decade after Kaplan and Norton developed the BSC, a number of healthcare organizations in various healthcare settings throughout North America and abroad started to adapt and implement the BSC framework for their organizations. In Ontario, for example, over the past few years Cancer Care Ontario <5>, the Ontario Hospital Association <6> and the University Health Network <7> have all adopted the balanced scorecard as their performance management tool.

In 2004 the Ontario Institute for Clinical Evaluative Science (ICES) released a report, “Developing a Balanced Scorecard for Public Health” <8> that introduced a public health specific balanced scorecard framework for performance measurement. The four quadrants were adapted to include not only traditional measures of health status but also measures relating to the structure and processes within the local public health unit (Figure 1).

In 2006, the Ontario Capacity Review Committee was appointed to lead a review of the organization and capacity of Ontario’s local public health units in the aftermath of the
Severe Acute Respiratory Syndrome (SARS) outbreak. The committee recommended that health units produce annual reports for their funders and general public based on the ICES balanced scorecard <9>. In 2007, the Regional Municipality of York decided to join the group of early adopters and apply the balanced scorecard framework to the development of public health performance in the local health unit. (Text box – York Region profile) This paper describes some of the initial key questions and conceptual challenges faced and decisions made in order to adopt a balanced scorecard framework. (Text box – key questions)

Discussion

Who should be involved in developing the performance indicators?

The BSC provides a framework for reporting about performance. It also has the potential to be a management tool that aligns strategic direction with internal processes and instils understanding and engagement in continuous quality improvement. To embrace these latter intentions an inclusive, participatory approach to indicator selection and development was chosen. Three interested staff members, comprising a Director, manager and front-line staff person, from each of the 5 Divisions within the public health branch (i.e. Child and Family Health, Environmental Protection, Health Lifestyles, Environmental Protection, Dental and Nutrition) along with representatives from supporting services (community development, business service and emergency response) formed a panel and participated in a facilitated exercise <10> to discuss and develop indicators to populate the four quadrants.
What level of performance should be measured?

Some of the initial discussion among the panel members focused on the level of performance measurement. The main question that arose was ‘Should the scorecard report performance at the overall health unit or at the division –specific (i.e. programmatic) level?’ The original intent of the project was to develop a scorecard for the health unit by populating a “dashboard” with a few key indicators aligned either with strategic priorities of particular themes, such as health inequity. However, the participatory process involving representatives from all divisions and from three levels of staff invited and supported the development of a comprehensive and large number of indicators that mostly described performance at the program-specific level. As a first attempt at developing these indicators, the decision was made to keep the scorecard comprehensive, anticipating that over time and in future iterations the number and meaningfulness of indicators would be refined.

Who is the primary intended audience?

The BSC potentially has multiple audiences: the local Board of Health and the provincial Ministry who share fiscal responsibility, the staff who plan and deliver programs, the general public who receive public health services and senior administration who set strategic direction. A decision was made to present the initial BSC report to the Board of Health. The initial BSC report was used to describe the range and level of the health unit’s mandated activities and service delivery and to demonstrate the distribution of resources over these activities. Feedback from the Board on the BSC report was sought to better align health unit’s mandate and resources to the scorecard as it is further refined.
Where and how do we begin?

There seemed to be two stark choices about where to begin. One choice was to begin by describing what the health unit does and to develop indicator to measure this performance. The second option was to start with the strategic vision, where the health unit intended to go, and to develop indicators to chart how well the health unit remained on course. As this was the first attempt at the BSC the first option was selected.

Over a period of two years, the team was able to operationalize the BSC, develop performance measures and raise awareness about continuous quality improvement among the health unit staff. The BSC implementation team consisted of an epidemiologist and a continuous quality improvement co-ordinator, who both dedicated 0.2 FTE over the course of the project. The office of the Medical Officer of Health championed the exercise. A consultant familiar with the BSC was hired to initiate the process. Orientation sessions were held with the staff to educate them about the meaning of the BSC and about the health status of the residents within the catchment area for the health unit. A series of facilitated exercises were held with the panel to rank and select indicators for the health determinants and status, community engagement and integration and responsiveness quadrants. To develop indicators about key activities, and the level of service activities and dedicated resources, the BSC team facilitated discussion with each program area. The panel and programs areas submitted their selected indicators and provided text to describe their key activities. The result was a 75 page report containing 46 tables of indicators. Five themes were identified through the indicators selected:
control and prevention of infectious diseases and health hazards, reproductive health and infant/early child development, chronic disease and injury prevention, nutrient and physical activity and inclusivity, immigration and population growth.

What types of indicators should populate the health status and determinants quadrant?
The health status and determinants quadrants should contain traditional measures of health status, such as rates of morbidity, mortality and health behaviours (Table 2). To situate these in context, the quadrant should also be populated with key demographic indicators and some measure of the social determinants of health. Since the number of indicators is potentially very large, the panel was asked to select key indicators that described the burden of illness and the key demographic and social features that characterize York region (YR) as unique. To assist the panel in choosing indicators for this quadrant the following guiding questions were posed: Whom does the YR public health branch serve? What are the health needs of the residents? Where does the burden of illness lie?

What types of indicators should populate the resources and services quadrant?
This quadrant should be populated by measures of inputs and outputs, similar to the types of measures used to complete a program logic model <12>. In addition this quadrant should contain measures of financial and human resources and the level of service delivery (Table 2). Measures of reach and effectiveness were also presented for possible inclusion. To assist in indicator development for this quadrant the following guiding
questions were posed: What are the key activities of the health unit? Who is the target population for these activities? Where is the bulk of our resources going?

**What types of indicators should populate the community engagement quadrant?**

Understanding the views of the population a program serves is a fundamental component of accountability and can improve the way services are delivered. Client satisfaction surveys are one of the traditional ways to invite input and feedback. Ideally community engagement should go well beyond client satisfactions surveys and encompass community and partner involvement in program planning, evaluation and service delivery (Table 2). Questions to guide the development of indicators for this quadrant included: How is the health unit engaging the community? How does the health unit ensure community input into public health planning and service delivery?

**What types of indicators should populate the integration and responsiveness quadrant?**

This fourth quadrant relates to the structural capacity of public health to keep it well integrated into the health care system as well as the capacity to continually transform services in response to evolving needs, issues and evidence (Table 2). This is achieved through the development of partnerships with local health service providers and community agencies. These partnerships have a mandate that impacts health determinants, through a commitment to research and academic pursuits, and through a corporate emphasis on continuing professional development and quality improvement. Questions to guide indicator development in this quadrant included: How are prevention, promotion and protection services integrated into the local health care system? How does
the health unit identify and respond to emerging issues and evidence? How are continuing professional development and competency ensured?

*Should we try to link the quadrants?*

There was a lot of initial deliberation about whether the BSC should attempt to link the quadrants to “tell a story”. A hypothetical example would be: There is a high rate of motor vehicle accidents related to alcohol use in the health unit (health status and determinants quadrant). Currently the health units dedicate 0.1 FTE to this issue through the substance abuse and injury prevention team (Resources and Services Quadrant). There may be effective engagement between the health unit and the school board in promoting responsible drinking. The health unit may not have developed strategic alliances with the police (Community engagement quadrant) and there is emerging evidence that reducing the legal alcohol limit for driving to 50mg% and promoting designated drivers programs is associated with a lower MVA rate (Integration and responsiveness quadrant). Based on this assessment, a decision to enhance resources in this program area may be made together with the establishment of a partnership with the police department to advocate for a change in legislation.

As this example illustrates, it is fairly easy to tie the quadrants together at the program level, but this is more difficult to accomplish at the overall health unit level. The above example does not touch on the numerous activities in the other mandated areas (Table 1). To attempt to weave stories around each activity for the purposes of reporting would result in information overload for the BSC report. Consequently our first BSC report was
comprised of table of indicators with little text to provide narration or interpretation. We decided to rely on the reader to interpret and draw conclusions based on the performance indicators, particularly when the health unit’s performance was poor. However, program areas were encouraged to begin linking the quadrants as they moved forward with 2008 program planning and implementation on the basis of their reported 2007 performance.

What comparators do we use?

Our initial report contains baseline measures that present a snapshot of the health unit’s performance. Indicators are more meaningful when comparators are used. There are many options for comparators. One of the best options is to compare with oneself over time and look for trends in improvement. Establishing criteria for indicator development (Text box) that require validity and reproducibility and developing a data dictionary for each indicator enhances the likelihood that these data will continue to be collected over time and through trends analysis become more meaningful. Other possible sources of comparison might be peer health units, as constructed by Statistics Canada <13>, or provincial averages. Peer groups are better comparators than provincial averages since these health units share similar socio-economic characteristics that in part determine health status.

How do we move from a report card to a continuous quality improvement management tool?

The Board of Health received the BSC report at Committee and Council and requested a report back in six months explaining the action taken by the health unit in light of its
performance. To assist with this, the BSC team facilitated focus groups with the various program areas and offered guidance questions such as: Which of these performance measures prompt you to change the way you do business? Each Division has been asked to identify three measures and to explain their impact on program planning and delivery. After reviewing the 46 tables, the indicators highlighted by program areas for response are those that most resonate with them. Through this selection process we will further identify common themes and use them to establish and inform strategic direction and future programmatic priorities. The BSC process is iterative and plans to refine and improve the selected indicators and our performance is ongoing.

Summary

Tips for implementation of a BSC in a public health unit

- Involve management and front line staff in the development of indicators
- Start with a large number of indicators and refine them over time and through iterations
- Target the initial scorecard at the governing board with fiscal responsibility
- Consider using a Delphi exercise to generate discussion and consensus over indicators
- Indicators will become more informative over time as trends emerge and staff become more familiar with their relevance
Competing interests

The authors declare they have no competing interests. The opinions stated are those of the authors and not of the Regional Municipality of York.

Author’s contributions

EW, ND, SS, KK, VR conceived of the project and participated in the conceptualization of the quadrants and indicators and facilitation of the Delphi exercise. EW drafted this manuscript and ND, SS, KK and VR reviewed it and offered comments and their final approval.

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References


Figure 1

Four quadrants of the balanced scorecard for public health

Table 1
1997 Ontario mandatory health programs and services guidelines

Table 2
Examples of indicators for the four quadrants

Text Boxes (see below)
<table>
<thead>
<tr>
<th>Standard</th>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equal Access</td>
<td>To ensure that all Ontarians have access to public health programs.</td>
</tr>
<tr>
<td>Health Hazard Investigation</td>
<td>To prevent or reduce adverse health outcomes resulting from exposure to health hazards as defined in the <em>Health Protection and Promotion Act</em> and including biological, physical, and chemical agents, natural or manmade.</td>
</tr>
<tr>
<td>Program Planning and Evaluation</td>
<td>To ensure that local programs address the health needs of the community, with cost-effective, efficient, evidence-based approaches.</td>
</tr>
<tr>
<td>Chronic Disease Prevention</td>
<td>To reduce the premature mortality and morbidity from preventable chronic diseases.</td>
</tr>
<tr>
<td>Early Detection of Cancer Injury Prevention Including Substance Abuse Prevention</td>
<td>To reduce mortality from breast cancer and cervical cancer by increasing early detection.</td>
</tr>
<tr>
<td>Sexual Health Reproductive Health Child Health Control of Infectious Diseases</td>
<td>To reduce disability, morbidity and mortality caused by motorized vehicles, bicycle crashes, alcohol and other substances, falls in the elderly and to prevent drowning in specific recreational water facilities.</td>
</tr>
<tr>
<td>Food Safety</td>
<td>To promote healthy sexuality.</td>
</tr>
<tr>
<td>Infection Control</td>
<td>To support healthy pregnancies.</td>
</tr>
<tr>
<td>Rabies Control</td>
<td>To promote the health of children and youth.</td>
</tr>
<tr>
<td>Safe Water</td>
<td>To reduce the incidence of infectious diseases of public health importance.</td>
</tr>
<tr>
<td>Sexually Transmitted Diseases (STDs) Including HIV/AIDS</td>
<td>To improve the health of the population by reducing the incidence of food-borne illness.</td>
</tr>
<tr>
<td>Tuberculosis (TB) Control Vaccine Preventable Diseases</td>
<td>To reduce transmission of infectious diseases.</td>
</tr>
<tr>
<td></td>
<td>To prevent the occurrence of rabies in humans.</td>
</tr>
<tr>
<td></td>
<td>To reduce the incidence of water-borne illness in the population.</td>
</tr>
<tr>
<td></td>
<td>To reduce the incidence of and complications from all sexually transmitted diseases (STDs) including HIV/AIDS.</td>
</tr>
<tr>
<td></td>
<td>To reduce the incidence of tuberculosis (TB).</td>
</tr>
<tr>
<td></td>
<td>To reduce the incidence of vaccine preventable diseases.</td>
</tr>
<tr>
<td>Quadrant</td>
<td>Indicator</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Health Status and Determinants</td>
<td>Teen pregnancy rate</td>
</tr>
<tr>
<td></td>
<td>Percentage of overweight or obese adults aged 18+</td>
</tr>
<tr>
<td>Resources and Services</td>
<td>Total number of investigations of institutional outbreaks per year</td>
</tr>
<tr>
<td></td>
<td>Per capita spending for safe water program</td>
</tr>
<tr>
<td>Community engagement</td>
<td>Proportion of current programs that ever consulted target population in needs assessment</td>
</tr>
<tr>
<td></td>
<td>Proportion of current programs that have completed a formal program evaluation</td>
</tr>
<tr>
<td>Integration and responsiveness</td>
<td>Proportion of staff receiving emergency preparedness training in past year</td>
</tr>
<tr>
<td></td>
<td>Total number of peer reviewed journal publications, conference presentation and posters</td>
</tr>
</tbody>
</table>
Text Box – York Region Profile
York Region is the third largest health unit in Ontario, Canada. It is composed of a population of a million people. It spans an area that extends from the northern border of the City of Toronto to the southern tip of Lake Simcoe. There are 9 municipalities in the Region. It is one of the 14 health units in Ontario where the board of health is aligned with a regional or municipal structure. The remaining 22 health units in Ontario have independent boards of health. York Region is one of the fastest growing health units in Ontario, with a population growth of 22.4% the total immigrant population in 2006 was 42.9% of the population compared to a provincial average of 28.3%. Overall the residents are relatively well off. The average personal income is about $40,000 although about 10% of the population have incomes below Statistic Canada’s low-income cut-off (LICO). The population is aging, has a relatively higher birth rate than most other areas in Ontario and is experiencing the obesity epidemic that pervades at a level consistent with the provincial rate (circa 50%).

Text Box – Key Questions
1. Who should be involved in developing performance indicators?
2. What level of performance should be measured?
3. Who is the primary intended audience?
4. Where and how do we begin?
5. What types of indicators should populate the health status and determinants quadrant?
6. What types of indicators should populate the resources and services quadrant?
7. What type of indicators should populate the community engagement quadrant?
8. What types of indicators should populate the integration and responsiveness quadrants?
9. Should we try to link the quadrants?
10. What comparators do we use?
11. How do we move from a baseline report card to a continuous quality improvement management tool?

Text Box – Criteria for indicator selection
Built on consensus
Based on a conceptual framework
Valid
Sensitive
Specific
Feasible
Reliable
Understandable
Timely
Comparable
Easy to collect
Flexible for use at different organizational levels
# A Balanced Scorecard for Public Health

<table>
<thead>
<tr>
<th>Health Determinants and Status</th>
<th>Community Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resources and Services</td>
<td>Integration and Responsiveness</td>
</tr>
</tbody>
</table>