Developing a national performance indicator framework for the Dutch health system

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Abstract

Objective. To report on the first phase of the development of a national performance indicator framework for the Dutch health system.

Methods. In January 2002, we initiated an informed interactive process with the intended users—policymakers at the Ministry of Health, Welfare and Sport—and academics to develop both the conceptual framework and its content. Decisions were based on consensus after discussing strategic goals of the health system, information needs of policy makers at the Ministry of Health, Welfare and Sport, and studying existing theory and international experiences with national performance indicator frameworks. We identified objectives and criteria for a framework at the national level, constructed a conceptual model, and selected indicator areas.

Results. As a starting point we chose a balanced scorecard reflecting four perspectives towards health system management information at the national level. These perspectives are consumer orientation, finances, delivery of high quality care, and the ability to learn and grow. We then linked the Lalonde model for population health to a balanced scorecard model. The constructed model makes the relationship between population health and health system management apparent, and facilitates the presentation of performance information from various perspectives. The model reflects the strategic goals of the Dutch health system, i.e. contributing to the production of health by providing necessary health care of good quality that is accessible for all Dutch citizens while simultaneously informing policy makers about the performance of the entire health system in all sectors (care, cure, prevention, and social services). The selected indicator areas for health system management information (20 in total) reflect the policy and management functions of the government and the defined public goals of the health system. The model was formally adopted by the Ministry of Health, Welfare and Sport in February 2003, and since then individual indicator areas have been operationalized by 30 representatives of various departments at the Ministry with continuous external research support.

Conclusion. The merit of linking the balanced scorecard inspired model to public health data is that it facilitates the visualization of the contribution of the health system to the improvement of population health. The method of an intensive interactive indicator development process between policy makers and researchers has so far proven successful.

Keywords: balanced scorecard, health care evaluation mechanisms, health services research, health system, indicator framework, performance indicators, performance measurement, the Netherlands

The political and scientific agenda for states to measure and improve the performance of their health systems is encouraged by international organizations [1,2]. As a member state of the Organisation for Economic Co-operation and Development (OECD), the European Union, and the World Health Organization (WHO), the Netherlands participates in the initiatives of these organizations to measure and manage the performance of health systems.

On a national level, the changing accountability mechanisms, burgeoning budgets of national health systems, ageing populations, lapses in quality of care, safety issues, low consumer satisfaction levels, and attendant market mechanisms have contributed to the growing movement towards performance measurement, quality improvement, and even re-engineering of health care delivery systems. All these developments contribute to the health system dynamics in the Netherlands (as illustrated in Table 1) and increase the demand for a national performance indicator framework. The Dutch government, in particular the Ministry of Health, Welfare and Sport (MoH), wants to use such a framework to monitor the...
### Table 1  Characteristics of the Dutch health care system and its reform

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description (current situation)</th>
<th>Government proposal</th>
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<tbody>
<tr>
<td>Actors</td>
<td></td>
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<tr>
<td>Patient/consumer</td>
<td>Limited patient choice partly due to: (1) shortage of manpower and health care facilities; and (2) lack of comparative consumer information.</td>
<td>Informed and empowered patient, choosing rationally between insurers and providers.</td>
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<td>Provider institutions</td>
<td>Privately owned, not-for-profit with fixed budgets, non-competing. Government determines size of budget.</td>
<td>Privately owned, operating within a regulated market: competing with other providers.</td>
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<tr>
<td>Insurers</td>
<td>Public insurers are obliged to contract with every provider of in-patient care. Legally, there is freedom of contracting in ambulatory care. In reality, public insurers contract with every provider of ambulatory care too, partly as a result of shortage of manpower and health care facilities. Private insurers do not engage in contract because of the restitution system (see below), but act as ‘free riders’ with respect to the contracts that are negotiated by public insurers.</td>
<td>In the comprehensive single mandatory insurance scheme (see below) all insurers are obliged to act as strategic purchasers of care, entering into contracts with those providers that offer the best deal in terms of quality and efficiency.</td>
</tr>
<tr>
<td>Government</td>
<td>Cost containment through provider budgets and manpower planning.</td>
<td>Encourage market mechanisms to determine supply and demand, while securing public goals. To monitor performance via the use of indicators in a unifying framework More at distance overseeing the functioning of the health care system and its regulated market.</td>
</tr>
<tr>
<td>System financing</td>
<td></td>
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<tr>
<td>Public</td>
<td>AWBZ; social insurance for long-term care and exceptional medical expenses; covers 100% of the population; operates under a system of direct payment; insurance carriers are the social insurance funds under the ZFW (see below). ZFW: social insurance for acute care and prescription drugs; cover mandatory for 62.9% of the population earning an income below a cut-off value of €31 750 in 2003; operates under a system of direct payment; insurance carriers are 25–30 sickness funds. Taxes (general taxation mainly for prevention activities).</td>
<td>AWBZ remains unchanged in the short run. One single mandatory insurance scheme, offering a limited benefits package for the whole population regardless of income. Private insurance for services outside the limited benefits Package.</td>
</tr>
<tr>
<td>Private</td>
<td>Private insurance: for acute care and prescription drugs, for people with an income above the cut-off value. Out-of-pocket payments.</td>
<td></td>
</tr>
<tr>
<td>Other characteristics</td>
<td>Supply driven, with government regulating budgets, and numbers of providers and institutions.</td>
<td>Demand driven regulated market, where government is responsible only for securing public goals.</td>
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<td><strong>Governance of the system</strong></td>
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health system performance at the national level, and link it to the existing policy and accountability processes.

In this paper we report on the first phase of the development of the Dutch framework. In this first phase we distinguish two stages: (1) construction of the conceptual framework model; and (2) selection of different indicator areas for the management information part of the model. Both stages of the first phase were realised in the period January 2002 to March 2003. The second phase will include selecting indicator areas for the population health information part of the model, identifying causal relationships between indicator areas, constructing and operationalizing indicators, and integrating the framework into the policy and accountability mechanisms of the MoH. The second phase is currently in progress. The whole framework is planned to be operational by January 2005.

Methods

In the first phase of the development of a national performance indicator framework we distinguish two stages. The core activity in the first stage was the construction of a conceptual framework model, and in the second stage the selection of indicator areas. To conduct these activities we initiated an informed, intensive interactive process involving multiple stakeholders.

The information used in this process was retrieved by: (1) detailed exploratory analysis of performance indicator frameworks from other countries and international organizations [3]; (2) focused analysis of the policy and management roles of the Dutch MoH in relation to national stakeholders, including professional and institutional providers, financiers (insurers), health care consumers/patients, and regulators such as the inspectorate of health; and (3) analysis of the existing information infrastructure for public health and health care information. To analyse the envisioned governmental policy and management roles we studied publicly available policy documents [4,5]. We analysed the existing information infrastructure for public health and health care information using publications from the MoH, and from governmental health data institutes and research institutes [6]. In addition, we discussed the results from these analyses with key informants from the involved organizations.

The structure for the interactive process was formed by a multidisciplinary academic research group (n = 6) and, at the MoH, a strategic coordination group (n = 2) and an intra-departmental project group (n = 30) chaired by a director general of the MoH. In addition, the research group was strengthened with members from the MoH and from the national institute for public health and the environment (RIVM; a governmental organisation, collects, analyses and reports population health information for the Netherlands). The intensive interaction was facilitated by weekly meetings of the research team, 2-weekly meetings of the research team with representatives of the strategic coordination group, and by 10, monthly meetings between the research team, the strategic coordination team, and the intra-departmental project group.

The choices for the model and the indicator areas—made in the meetings between the research team, the strategic coordination team, and the intra-departmental project group—were the result of decision making through a consensus approach after discussing strategic goals of the health system, information needs of policy makers at the MoH, and studying existing theory and international experiences with national performance indicator frameworks.

Results

Construction of the conceptual model

The literature study revealed three main conditions for the Dutch national framework. Firstly, a framework which is to be chosen must be coherently balanced, covering various performance dimensions such as effectiveness, efficiency, quality, and equity. Secondly, such a framework needs to be comprehensive, i.e. it must involve information originating from all sectors in the health care system (namely prevention, cure, care, and social services). Thirdly, a suitable framework needs to link performance of health services to population health using public health data [7].

We selected, as a starting point for the development of a conceptual framework model, a balanced scorecard [8]. It provides managers with a comprehensive, balanced, yet minimized amount of management information that combines strategies with policies. There were several reasons to select a balanced scorecard model. Firstly, a balanced scorecard would satisfy the information need of a government that has changed its main steering philosophy from a budget-driven mechanism to a regulated market mechanism. Secondly, a balanced scorecard is a dynamic model that accommodates changing strategies and thus optimizes flexibility in an altering political and economic context. Thirdly, this model has previously been adopted in several other health care performance frameworks, which enables us to build on the experiences of others [9–11]. Fourthly, in the Netherlands, this model has also increasingly been applied in health care institutions and is therefore known to a large group of health care stakeholders. Fifthly, the model can be linked to population health information by using the consumer perspective as the interface between health management information and population health information. Subsequently, we selected Lalonde’s determinants of health model to present the population health information [12,13]. The Lalonde model conceptualizes health determinants in four main quadrants, namely lifestyle, the environment (physical, work, social, political, and economic), the genetic or host’s constitution, and health care. This model has been used frequently in the presentation of public health and health determinants information in the Netherlands [6]. In the health care quadrant of the Lalonde model, the link with the consumer perspective in the balanced scorecard model is found. The result of this construction is a conceptual model for a performance framework that visualizes the relationship between health system management information and population health determinants (Figure 1).
Selection of indicator areas

In the second stage, we focused our activities on the selection of the indicator areas of the management information part of the constructed model. We discussed which core questions needed answering in each of the four perspectives in order to meet the information needs of the MoH.

**Consumer perspective.** What effect does the health system have on the (experienced) health of consumers?

**Financial perspective.** What are the financial consequences of the health system?

**Internal business processes perspective.** Are the preconditions for a regulated market mechanism met and does this result in efficient health care delivery?

**Innovation perspective.** Does the health system have the ability to learn and grow? Does it learn and grow?

To answer these broadly formulated core questions, we identified subquestions and corresponding indicator areas for each of the perspectives. The choice for indicator areas was guided by two criteria. Firstly, indicator areas need to be relevant for policy and management decisions in the specific Dutch context. Secondly, the complete set of indicator areas (Figure 2) must be applicable to the entire Dutch health system.

**Consumer perspective**

Through the consumer perspective, information is presented concerning the link between the health system and the health status of the population. We identified the following outcome-focused subquestions.

Are citizens prevented from getting ill?

Do patients get better?

Are disabled persons properly taken care of?

Does the health care system help patients to attain good health?

Are the risks to which patients are exposed acceptable?

Is the Dutch population in general, specifically its patients, satisfied with the functioning of the health care system?

These subquestions are answered in three indicator areas:

1. Effectiveness of health care (in all sectors, cure, care, social services, and prevention).
2. Patient safety.
3. Patient centeredness.

**Financial perspective**

We need to answer the following subquestions.

What are the costs of health care?

Are the available resources used optimally?

Is the financial burden for consumers equally distributed (who is paying)?

Can all citizens carry this burden?

Can financiers and providers guarantee continuity of care; are they financially viable?
These questions are represented by indicator areas:

Health system costs
Allocative efficiency
Vertical equity
Financial accessibility
Financial viability of financiers and care providers

**Internal business processes perspective**

Identified subquestions include the following.

How do the financiers, i.e. private and social insurers (for acute care), care agencies (for exceptional medical expenses), and municipalities (for preventive care and population screening) perform?

How do they cope with their responsibilities?

Is the provided care of good quality?

Do patients still have a choice of insurer and providers?

Are there enough human resources to provide the necessary care currently required?

Does the market mechanism enforce the creation of new professions or concentrations of care provision?

What are the effects for the patient; does the care delivery setting change?

The corresponding indicator areas are:

Performance of care financiers
Quality of the health care delivery process
Availability of choice of insurers and providers
Concentration of care provision
Human resource management (1) (a, availability of staff; b, vacancies; c, staff satisfaction)
Substitution of care between professions and between care delivery settings

**Innovation perspective**

We identified subquestions that focus on the conditions for developing innovative potential and actual innovations.

**Figure 2** Perspectives and indicator areas of the balanced scorecard part of the performance indicator framework for the Dutch health system.
What financial means are made available for the learning and growth function of the health system?
Are new technologies being promptly implemented?
Does the information infrastructure accommodate innovation?
Do employees work in conditions that are supportive for innovations?
Are professionals motivated to change old habits and procedures for new ones?
Does the health system anticipate the need for new professionals for the health care delivery of tomorrow (especially in professions with long training pathways)?
Are organizational innovations like new service arrangements developed and implemented that enable the system to respond to changing contexts, opportunities, needs, and demands?
Do the market mechanisms increase an influx in learning and growth potential through intensified cooperation between industry and health sectors?

Corresponding indicator areas are:
Allocation of funds for learning and growth
Diffusion of new technologies
Information infrastructure
Human resource management (2) (a, innovative working environment; b, training of new staffs in professions with long training pathways)
Development and diffusion of organizational innovations
Industry-initiated research and development activities in health care

For each of the four perspectives, discussion reports were produced in which boundaries and definitions were set for the perspective and for the indicator areas. First examples were given of concrete indicators that could be used.

Discussion

We described the first phase of development of a performance indicator framework for the Dutch health system. We argue that the approach described in this paper presents an appropriate platform for 'contextual' development of a performance measurement and management framework, one that focuses flexibly on needs assessment, public goals, users, owners, and regulators. This framework, like efforts elsewhere [14], is a step towards modernization, coherence, capacity building, and engagement of all health actors. The first phase of the Dutch MoH project entailed the contextual, conceptual, content, and process development of the national indicator framework. The second phase, already underway, will specifically define, scientifically assess, and field test all chosen and potentially useful indicators to arrive at a critical operational core set by January 2005.

We built the conceptual framework model from the notion that health improvement is the main objective of any health system. Subsequently, it is only sensible to design a performance framework around the consumer. In this era of consumerism and reawakening of public health values underscored by globalization, focusing on the consumer is a rational move towards qualifying and quantifying health care contributions to population health. In doing so we capture clinical medicine as part of the broad-based public health efforts towards population health [15]. Population health is a function of health care, population lifestyle, genetic makeup, and the environment, all being factors that are increasingly within the influence of the health system, thus necessitating a public health approach to performance measurement [16]. The Netherlands has rich sources of public health data, which can be used for research and policy issues. An effort is underway to link existing databases as much as possible and to create new cost-effective sources as the need arises. Regular population surveys will satisfy some of the data requirements.

We realize that the balanced scorecard has been developed as a tool for the strategic management of corporate businesses [8]. Although it has been applied in the non-profit and public sector, it has not been applied before at health system level in a context where the hierarchical and steering responsibilities and relations can be quite different from a corporate business [9]. The Dutch health system is not a corporate business, nor can it be run like one. The MoH has kept responsibilities for the health system but has given financiers (e.g. insurers) and providers large responsibilities in organizing and managing the delivery of health care. We adapted the balanced scorecard approach to fit the use of the constructed model in this specific setting. As a consequence, the content of the four perspectives has been tailored to the needs of the MoH. In addition, its application in the strategic steering mechanisms of the MoH is still underway. A first ‘dummy’ of the model will be ready in spring 2004 and shall replace the existing annual budget plan and policy report of the MoH. Furthermore, the Council for Health and Social Service (RVZ) is preparing a report on how to embed the framework in the existing policy, budget, and accountability documents of the MoH. Also, the next Health Care Forecast report of the RIVM in 2006 will be set up around performance indicators, in compliance with the framework [6].

Selecting the indicator areas as outlined in this paper should be seen in light of the necessity to link the drivers of performance to the output and outcomes of the health system. The ambition is to acquire a better insight into the impact of health system determinants on the health of Dutch men, women, children, minorities, and other characterized populations.

The interactive development of the framework plays an important role in the broader information policy at the MoH. The framework interacts directly with two other policy tracks. The first track is creating transparency within the roles and responsibilities of the Dutch MoH in relation to that of (public) health agencies. The second track is connected to an overall Dutch inter-departmental operation ‘From budget plan to policy accountability (VBTB)’ to develop more result-oriented policy processes. These two tracks constitute two essential pre-conditions to develop and implement the performance indicator framework. Both policy tracks will be implemented simultaneously with the framework. The intra-departmental project group at the MoH will be the central decision-making platform.
The informed, intensive, and interactive collaborative process of building the framework serves as a practical example of how research originates from policy needs and reforms, and goes back to inform the policy-making process [17]. This developmental process represents one of the important ways of enshrining evidenced-based policy making and serves as a guide to the creation of a performance management system for public health. Here, we can see health services research as an important tool in public health, policy analysis, social research, and system redesign.

Conclusions

Linkage of a balanced scorecard model with Lalonde’s health determinants model makes the relationship between population health and health system management information apparent.

The selection of indicator areas has resulted in a set that is recognisable, relevant, and appropriate for policymakers.

The ‘informed’ interactive process was able to bring scientific knowledge into the policy development discussions at the MoH. The ‘intensive’ interactive process has pushed the agenda for the development of the framework effectively: a year after the start a framework was adopted and indicator areas were selected. Finally, in the ‘interaction’ with the MoH, ownership has shifted from academics towards the users of the framework, policy makers at the MoH.

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