Is there a relationship between health care models and their performance assessment? The results of an extensive review

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Abstract

Background: Health system performance is a multi-dimensional concept related to the achievement of several objectives such as effectiveness, efficiency and equity. The aim of this study is to investigate the relationship between models of health care systems (Beveridge, Bismarck and voluntary health insurance) and performance frameworks available in the scientific literature.

Methods: An extensive literature search in several electronic databases was carried out. According to a preliminary classification of performance domains and dimensions, we analysed, among the selected articles, the relationship between domains/dimensions and the three main models of health care systems.

Results: 12.6% of the children were obese and 26.3% overweight, with the percentage of obesity nearly double in those who do not practice organized sports activities at least once a week, in those who don’t have breakfast in the morning and in those who don’t spend their free time in movement games.

From a multiple logistic regression it results that the risk of being obese is twice and three times higher for the children living respectively in medium and small towns than for the ones living in large towns.

Results: From 540 references found, 17 papers were considered relevant for the purposes of this research. A total of 39 frameworks were identified: 41% referred to the “Beveridge model”, 10% to the “Bismarck model”, and 23% to the “Voluntary health insurance” model and 26% to “Umbrella organizations” (e.g. OECD).

Domains of effectiveness and responsiveness were covered by all of the frameworks while fewer covered equity and efficiency.

The most frequent dimensions in all the models were effectiveness and technical efficiency, but relevant differences exist among the healthcare system models about dimensions of performance considered.

Conclusions: Although the need of evaluate health care systems performance is recognized, there is not agreement on what concepts and dimensions of performance should be measured. Our study underlines an interesting link between the domains/dimensions of performance assessment and models of health care systems.

Key words: outcome and process assessment, health care systems, health system performance, performance dimensions, conceptual framework, international comparison.

Background

At the national and international level it should be noted that the emergence of problems related to the restructuring of health systems must be framed within the broader context of crisis in welfare states. In most cases, healthcare reforms are not presented as isolated phenomena, but as part of a wider debate among all major areas of social environment in which state intervention is relevant [1,2].

The performance assessment of health systems, although a fairly recent topic, is increasingly developing thanks to conceptual approaches adopted both by major international organizations [3-5] and many nations [6-11].

In assessing and improving performance it is very important to understand the role and motivation of the different stakeholders and the instruments available for every health system model [12], since it is plausible to assume that structural differences between conceptual frameworks of performance assessment can be related to the purposes of each health care system [13-15].
Objectives
The objective of the analysis is to investigate the relationship between health systems and the dimensions of performance contained in their assessment.

Firstly, we analyzed the frameworks proposed or adopted for measuring and evaluating the performance of health systems and classified the dimensions commonly adopted within the concept of performance globally. Secondly, the orientation of the different models of health systems (Beveridge, Bismarck, Voluntary health insurance) towards the domains adopted within these frameworks, respectively. Furthermore, we investigated the relationship between the various dimensions of performance and the values obtained from the general reference health systems (political, social, economic).

Methods
In order to perform an extensive literature review we created specific search questions:
• to analyse the prevalence of domains and the dimensions adopted within the evaluation models of the health systems performance, as proposed by the scientific literature;
• to measure the prevalence of such defined domains and dimensions in each health system model.

The focus of research was based on three health systems models: “Beveridge”, “Bismarck” and “Voluntary health insurance”, with further extension to supranational bodies.

The review of the literature was divided into three phases.

In the first phase, a preliminary search was carried out using the scientific literature databases, (Pubmed/ MEDLINE, Embase, Econlit). This search examined papers published from 1 January 1996 to the end of 2006. The key words used were: (equity) OR (effectiveness) OR (efficiency) OR (quality) OR (responsiveness) AND (health care system*) AND (performance assessment) OR (performance measurement) OR (performance evaluation) OR (component* for assessment) OR (performance framework*).

The second phase consisted in an expansion of the research through the analysis of bibliographic references of the articles selected in the first phase.

Finally, the generic internet search engines were used to locate additional information when necessary through a search conducted for keywords.

By using this analysis articles were included according to the methodological characteristics, the correspondence between contents and the purposes of the research. Only publications (drawn up by international agencies) relating to national contexts were selected to carry out the conceptual analyses, evaluations or comparisons of the frameworks for monitoring and evaluating the performance of health systems at the national level.

We excluded publications with inconsistent methodological profiles, not referring to national contexts and not in line with the content of the research itself.

In order to evaluate the different concepts of health system performance developed in the literature a matrix was drawn up in order to qualify the different dimensions adopted by each model noted. This matrix was drawn up according to the models proposed by the OECD[5,16]. The matrix compared the dimensions and domains performance (in the vertical axis), and the different perspectives in which the models for assessing the performance were advanced (in the horizontal axis).

Performance was disaggregated in the four domains described subsequently:
• Effectiveness/improvement of health outcomes: it includes the dimensions of effectiveness, safety, appropriateness and competence;
• Responsiveness: it consists of the performance dimensions of acceptability, satisfaction/patient centeredness, timeliness, continuity of health care and accessibility;
• Equity: equity of access, equity of finance and equity of health outcomes are part of this domain;
• Efficiency: in our model overall efficiency of a health care system is divided into allocative efficiency (microeconomic and macroeconomic) and technical efficiency.

Health care system models to which distribution of performance frameworks has been analysed are the following[17]:
• “Beveridge” model;
• “Bismarck” model (or Social health insurance);
• “Voluntary health insurance” model
(in contrast to compulsory health insurance).

In addition the perspective of Umbrella organizations (supranational body like WHO, OECD, Commonwealth Fund, European Union) were considered, even though they do not refer to a specific context, they constitute an important benchmark for their relevance in the international literature.

Results
Of the 40 articles identified at the beginning of the process (obtained from 540 references found), 17 were considered relevant, because they
fulfilled the purposes of the research. Most of these articles referred to a single context, some of these publications analyzed more than one context, so a total of 39 frameworks were included: 16 (41%) were referred to the “Beveridge model”, 4 (10%) to the “Bismarck model”, 9 (23%) to the “Voluntary health insurance” model and 10 (26%) to “Umbrella organizations”.

We found many points of agreement in the various conceptual frameworks (Table 1): all the analysis embraced at least an aspect effectiveness/improvement of health outcomes and responsiveness. We also identified some points of disagreement between equity and outcomes, the most relevant was effectiveness. Among the responsiveness dimensions, the most prevalent were linked to the pursuit of accessibility and timeliness goals, the less being acceptability, satisfaction. Efficiency measurement is largely centred on technical aspect, rather than allocative one, both macro-economic (or suitability) and microeconomic. On the other hand, most of the performance frameworks analyzed, don’t seem to pursue concepts of equity (above all of health outcomes and finance).

Figure 1 shows the coverage of performance dimensions in the three health care system models considered.

Table 1. Coverage of domains included in the assessment of performance for the health care system models: number of frameworks including the specific domain.

<table>
<thead>
<tr>
<th>Domains</th>
<th>Beveridge models</th>
<th>Bismarck models</th>
<th>Voluntary health insurance models</th>
<th>Umbrella organizations models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness/improvement of health outcomes</td>
<td>16/16 (100%)</td>
<td>4/4 (100%)</td>
<td>9/9 (100%)</td>
<td>10/10 (100%)</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>16/16 (100%)</td>
<td>4/4 (100%)</td>
<td>9/9 (100%)</td>
<td>10/10 (100%)</td>
</tr>
<tr>
<td>Equity</td>
<td>11/16 (69%)</td>
<td>4/4 (100%)</td>
<td>5/9 (56%)</td>
<td>8/10 (80%)</td>
</tr>
<tr>
<td>Efficiency</td>
<td>14/16 (88%)</td>
<td>4/4 (100%)</td>
<td>7/9 (78%)</td>
<td>8/10 (80%)</td>
</tr>
</tbody>
</table>

Total number of frameworks: 39

efficiency goals: 87% of frameworks covered the efficiency-related dimensions and 74% only examined aspects of equity.

With respect to the coverage of each dimension of performance (Table 2) we once again found several points of agreement among the three models examined. In terms of the effectiveness/improvement of aspects of health the most prevalent dimensions of performance are, respectively, effectiveness, appropriateness, safety, technical efficiency, timeliness, accessibility and equity of access. So again, at the conceptual level, are more important objectives such as health outcomes, responsiveness (both to patient experience and patient expectation) rather than macro-economic issues and equity goals, but above all there is respect of the financial aspects.

Table 2. Coverage of performance dimensions: number of frameworks including the specific dimension.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Absolute frequency</th>
<th>Relative frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>39</td>
<td>100%</td>
</tr>
<tr>
<td>Technical efficiency</td>
<td>31</td>
<td>79%</td>
</tr>
<tr>
<td>Accessibility</td>
<td>30</td>
<td>77%</td>
</tr>
<tr>
<td>Equity of access</td>
<td>29</td>
<td>74%</td>
</tr>
<tr>
<td>Timeliness</td>
<td>27</td>
<td>69%</td>
</tr>
<tr>
<td>Safety</td>
<td>23</td>
<td>59%</td>
</tr>
<tr>
<td>Appropriateness</td>
<td>21</td>
<td>54%</td>
</tr>
<tr>
<td>Patient centeredness</td>
<td>21</td>
<td>54%</td>
</tr>
<tr>
<td>Continuity</td>
<td>20</td>
<td>51%</td>
</tr>
<tr>
<td>satisfaction</td>
<td>17</td>
<td>44%</td>
</tr>
<tr>
<td>Equity of finance</td>
<td>16</td>
<td>41%</td>
</tr>
<tr>
<td>Equity of health outcomes</td>
<td>15</td>
<td>38%</td>
</tr>
<tr>
<td>Acceptability</td>
<td>14</td>
<td>36%</td>
</tr>
<tr>
<td>Capability/competence</td>
<td>11</td>
<td>28%</td>
</tr>
<tr>
<td>Micro-economic efficiency</td>
<td>9</td>
<td>23%</td>
</tr>
<tr>
<td>Macro-economic efficiency</td>
<td>8</td>
<td>21%</td>
</tr>
</tbody>
</table>

Total number of frameworks: 39

In the “Bismarck” models, in addition to the dimension of effectiveness and technical efficiency which are included in all models, there is importantly the evaluation around equity goals, and above all respect is given to access and financial issues. Other dimensions frequently taken in assessing the overall performance of health systems are accessibility and patient centeredness. Again, the assessment around allocative efficiency issues is rather marginal.

In the “Voluntary health
insurance” models the performance frameworks seem to pursue prevalently dimensions related to health outcomes (above all effectiveness, safety) and to responsiveness (above all about patient experience, such as timeliness, continuity of health care, and accessibility). Less coverage has been reported for equity and macro-economic efficiency.

The efficiency shows a trend common to the three health care system models: the evaluation of technical efficiency is a main focus in all the three systems, while allocative efficiency (both macro-economic and micro-economic) is considered more frequently in the “Bismarck” models than in the other ones.

Equity of access is frequently included in all the three models, while equity of health outcomes and finance seem to have been evaluated more in the “Bismarck” perspective than in the other ones.

From the point of view of “Umbrella” organizations, in addition to the dimension of effectiveness and responsiveness, equity is relevant in all its components as well as allocative efficiency, both macro-economic and micro-economic.

Discussion

We focused on the relationship between domains/dimensions of performance assessment frameworks and models of health care systems, by carrying out an extensive review of the literature.

Within the concept of performance, measurement and evaluation of the results achieved by a health care system is mainly divided into six main dimensions: effectiveness, technical efficiency, accessibility, equity of access, timeliness and safety. A health system can be considered of “high level quality” if it successfully achieves the expected results over the total of those categories of objectives.

In classifying the retrieved studies according to health system models, the most frequent performance domains identified were “efficacy/health improvement” and “responsiveness”, whilst we found different degrees of inclusion for “equity” and “efficiency”. Those dynamics may ensure the proper environment for those conceptual frameworks where, alongside objectives such as equity and efficiency, effectiveness becomes the core of health systems performance.

At present, measurement and evaluation of the performance of health systems is aimed mainly at determining the degree to which health systems successfully pursue the objectives of maintaining and increasing the health status of the population and how the health system respond, both in terms structural organisational, the expectations of all those who benefit.

In addition to those parameters, the performance of health systems is assessed.
according to the objectives of equity or in relation to the ability to properly allocate the benefits and costs of the health system between different individuals, or between different population groups on the basis to the values and criteria of justice in society and efficiency.

The analysis highlights some subordination of the objectives of equity and efficiency than those of better health and to satisfy the expectations of the population. Equity and efficiency are related to objectives equally important and whose pursuit is concatenated to the success of a health system; however, they pose to a level lower than the first two.

Conclusions

Although there is robust evidence relating to the need to measure health care systems performance, conclusive agreement is yet to be reached on what concepts and dimensions of performance should be measured. In recent years, an increasing amount of work and attention have been devoted to measuring performance within health systems with the ultimate objective of improving them.

Hurst16, recently, has outlined that many points of disagreement emerging between international organisations and among some OECD member countries about concepts of performance measurement for health care systems, could be explained partly on differences in the objectives set for health systems in different frameworks, and partly on concessions made in some frameworks to the difficulties of operationalising the high level concepts of outcomes and efficiency. In recent years [2, 13, 16], other works have underlined that such heterogeneity is caused by different initiatives to ensure quality improvement in health systems undertaken by various governments.

Our study underlines an interesting link between the valuation of equity in health systems and characteristics (organizational, political and value) of health systems to which evaluation refers. The heterogeneity in performance framework assessment of health systems developed at the international level depends largely on the specific range of objectives which they are assigned, particularly the objectives of a political nature (such as equity) that reflect the values of society.

References