Slovenian health care system performance in the light of Euro Health Consumer Index 2012

Zmogljivost sistema zdravstvenega varstva Slovenije z vidika Euro Health Consumer Index 2012

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Abstract: Health care systems are complex entities with several stakeholders that include patients, health care providers, payers, regulators and government. For lay and professional public, the methodology of health care system performance analysis, result interpretation and translation to policy making is not well understood. Slovenian health care system performance results from a Swedish health care analyst (Euro Health Consumer Index 2012) and opportunities for improvement are discussed. We specifically addressed methodological challenges of international health care system performance comparisons.

Key words: comparison; health care system; indicators; Slovenia

Povzetek: Sistemi zdravstvenega varstva so kompleksni sistemi s številnimi deležniki, med katerimi so najpomembnejši uporabniki in izvajalci zdravstvenih storitev, plačniki, regulatorji in odločevalci. Metodologija ocenjevanja zmogljivosti sistemov zdravstvenega varstva, interpretacija rezultatov in prenos v načrtovanje zdravstvenih politik so tako za laično kot tudi za strokovno javnost pogosto slabo razumljivi. V prispevku predstavljamo rezultate, ki jih je v sklopu mednarodne primerjave sistemov zdravstvenega varstva Euro Health Consumer Index 2012 prejel slovenski sistem in razpravljamo o možnostih za izboljšanje. Posebej se osredotočamo na metodološke pomanjkljivosti, ki jih mednarodne primerjave sistemov zdravstvenega varstva lahko vsebujejo.

Ključne besede: primerjava; sistem zdravstvenega varstva; kazalniki; Slovenija

1. Introduction

Health care systems are complex entities with several stakeholders including patients, health care providers, payers, regulators, government and the lay public. The fundamental goal of health care systems is to improve the health of patients and of the general population (1). Although outline and goals of health care systems are straightforward and well defined, they may not be met in daily practice. Various objective and subjective reasons contribute, and many are beyond health care system itself. Even when declaratively similar health care systems are compared there may be marked differences in professional roles, in coordination mechanisms and in care settings. Hence, the context in which different health care systems were developed and operate can vary largely and those can be two main independent variables that also limit comparability. To compare performance of health care systems, a detailed and comprehensive approach is needed but even then the quality of results can be argued.

Performance measurement is used to monitor, evaluate and communicate the extent to which various aspects of the health care system meet key objectives (1). Ability to provide relevant, accurate and timely performance information is essential to reach, maintain and improve the performance of health care systems and to identify where there is room for improvement (2). Records of performance measurement efforts in health care systems can be traced back at least 250 years (3). More formal arguments for the collection and publication of performance information were developed only about 100 years ago, because pioneers in the field were continuously

challenged by various professional, practical and political barriers (1, 4). According to Smith and colleagues, we have witnessed dramatic growth in health care system performance measurement and reporting over the last 25 years (1).

Performance measurement begins with a decision on what to measure, continues with an identification of the appropriate measures and their data sources, and ends with an analysis, aggregation, interpretation, and result reporting (4). Following fundamental goal of health care systems, many instruments have focused either on measures of the patient clinical outcomes or on population health measures. The former usually include indicators as appropriate drug prescribing, regular glucose monitoring for diabetics or blood pressure monitoring for hypertension, whereas the latter have traditionally been presented with standardized mortality rates, life expectancy, years of life lost or disability-adjusted life years. Since many performance measures are provided for different aspects of the health care system, the information can become complex and difficult to understand. Therefore, composite indicators are becoming increasingly popular. If not carefully designed, they may be misleading and cause serious fallacies when used for health care system policy-making or planning. The fundamental challenge of composite indicators is to select measures to include in the individual indicator and to assign the weights (1). Because different types of performance measures, as well as composite indicators, are frequently applied in international comparisons of health care system performance, adequate caution must be used in interpreting such results.

For lay and professional public, the methodology of health care system performance analysis, result interpretation and translation to policy making is not well understood. Slovenian health care system performance results from a Swedish health care analyst (Euro Health Consumer Index 2012) and opportunities for improvement are discussed. We specifically addressed methodological challenges of international health care system performance comparisons.

2. Characteristics of Slovenian health care system

Before placing Slovenian health care system in the light of international comparison with other European countries, certain level of background information about health care system organization is necessary. In Slovenia, the debate whether health funding should be based on general taxation or social insurance, ended in favour of Bismarck type of social insurance system. Since 1992, previously exclusively publicly financed system has been transformed into a mixed system (11). Namely, in 2008 the share of health expenditure from private health insurance institutions was 13.1% and from direct payments by households 13.5% (12).

In the last two decades, Slovenia has transferred from a communist regime into a democratic system, thus large-scale political, socio-demographic, and economic changes have taken place. In the year 2003 the number of people over 65 years had exceeded the number of people aged less than 15 years and differences among those two population groups are increasing ever since (13). In 2010, the proportion of older people increased to 16.5% (14), and this number is projected to reach 30.2% by the year 2030 (15). Although morbidity and mortality data show that Slovenia experiences same scenario as other countries in Western and Central Europe, high rates of suicide (18.7 per 100,000 in 2009) and deaths caused by chronic liver diseases and cirrhosis (24.8 per 100,000 in 2009) are reasons for concern (16). By taking into account the aging of the population and the rapidly increasing number of chronically ill people, expansion of coverage, development of more expensive health technologies and increased population expectations, the pressure on Slovenian health care system is constantly rising.

According to Rechel and McKee, major health reforms in countries of Central and Eastern Europe have included a reduction in size of the hospital sector, expansion of private providers, decentralisation, a change in methods of payment for providers, and efforts to improve public health and quality of care (17). In Slovenia, the number of hospital beds has been decreasing since the 1980s. This was a consequence of a process focusing on management of acute conditions and elective procedures, as well as of a planned shift to more outpatient-oriented care. As a result of this policy, the overall number of hospital beds decreased gradually by approximately 30% (from 695 per 100,000 population in 1980 to 470 per 100,000 in 2008) (10, 12, 16, 18). This process was also assisted by significant changes in the hospital reimbursement systems, including the shift from bed-day payments to case-based payments, as well as the introduction of diagnosis-related groups (11). Partial privatisation within the health care system has taken place gradually (19); however, the Slovenian health care system remains relatively centralized and the responsibility of municipalities is still limited. In 2008, the total health expenditure accounted for 8.3% of GDP (12). Among the European Union (EU)-12 countries (that joined the EU in 2004 and 2007), Slovenia ranked first in terms of per capita spending and first in terms of their share of GDP spent on health (11). In order to produce health, health care systems should address the needs of their populations (20). Therefore, there is a growing awareness that a public health perspective should be incorporated in health system governance practices (21,

22). The main problem encountered in terms of health promotion, as in other countries, is adequate support and interest by political decision-makers for health promotion in the future development of the health care system (11).

3. International comparisons of health care systems

Although the international comparisons of health care systems present some methodological challenges due to differences in national definitions or methods of data collection (5), there is growing interest in such comparisons. According to Veillard and colleagues, there are three major reasons for that: accountability, which enables countries to compare their performance with that reported in other countries, strategy development, and last, but not the least important, mutual learning (6). International comparisons of health care system performance provided by multilateral organizations such as World Health Organization (WHO) and the Organization for Economic Cooperation and Development (OECD) attracted much attention (6).

In the year 2000, WHO carried out the first ever analysis of the world's health care systems using five performance indicators in 191 member states (7). In designing the framework for health care system performance, WHO entered new methodological ground by employing a technique not previously used for health care system analysis. It compared each country's health care system to what the experts estimate to be the upper limit of what can be done with the level of resources available in that country. It also measured what each country's health care system has accomplished in comparison with those of other countries. WHO's assessment was based on five indicators: overall level of population health, health inequalities (or disparities) within the population, overall level of health care system responsiveness (a combination of patient satisfaction and how well the system acts), distribution of responsiveness within the population (how well people of varying economic status find that they are served by the health system), and the distribution of the health care system's financial burden within the population (who pays the costs) (8). According to that analysis France provided the best overall health care followed by Italy, San Marino, Andorra, Malta and Singapore. In Europe, health care systems in Mediterranean countries were rated higher than others in the continent and Norway was the best ranked Scandinavian nation in 11th place, whilst Slovenia was ranked as 38th (8). Despite many criticisms, "The World Health Report 2000" placed international health care system performance on the political agenda, raised awareness about performance issues and resulted in many initiatives to improve the perceived health situation across the globe (6).

Health care systems have been continuously forced to improve performance by restricting expenditures while maintaining steady improvements in access and quality (9). As a consequence, many international comparisons of health care systems were based on national health care expenditures of OECD member countries, measured either as a percentage of gross domestic product (GDP) or on a per capita basis (9). Latest data on different aspects of the performance of health care systems across the OECD member countries were published in "Health at a Glance 2011" (10). Key performance indicators provide information on health status, the determinants of health, health workforce, health care activities, quality of care, access to care, health expenditure and financing as well as long-term care in OECD countries (10).

The Health Consumer Powerhouse, Swedish health care analyst and information provider introduced the Swedish Health Consumer Index in 2004 to compare 21 county councils by 12 basic indicators concerning the design of systems policy, consumer choice, service level and access to information. Next year this concept was transferred to a pan-European level with its first Euro Health Consumer Index (EHCI). The EHCI 2012 assessed 34 European health care systems based on 42 health care performance indicators structured to a framework of 5 sub-disciplines: Patient rights and information, Accessibility (Waiting times for treatment), Outcomes, Prevention/Range and reach of services provided, and Pharmaceuticals (23).

4. Euro Health Consumer Index 2012 score for Slovenian health care system

According to the EHCI 2012 the Slovenian health care system was ranked 19th among 34 European countries, scoring 638 points out of 1,000 (23). Slovenia was among the highest ranked Central and Eastern European countries and did well in the areas of Patient rights and information, Outcomes and Pharmaceuticals. The following performance indicators were given the highest rating: health care law based on patients' rights, right to second opinion, same day access to the family doctor, low infant mortality rate, low rate of births by Caesarean sections, inclusion of the dental care in the public health care financing, layman-adapted pharmacopoeia readily accessible by the public, appropriate deployment of medications for Alzheimer disease, and high public awareness of the lack of efficiency of antibiotics against viruses (Table 1) (23). EHCI 2012 stated that in the past years Slovenia has introduced certain novelties in the domain of access to specialist, no-fault malpractice

insurance, and the right to second opinion, together with considerable improvement in the area of access to information (e.g. register of legit doctors, layman-adapted pharmacopoeia, and even an attempt to construct a true providers' catalogue with quality ranking); some of these changes being attributable to the introduction of an "Act on Patients' Rights" in 2008 (23).

In general, Slovenian health care system scored worst in the Accessibility (Waiting times for treatment) sub-discipline. The lowest rates were also applied to some of the indicators included in the Patient rights and information sub-discipline (e.g. cross-border care mobility, existence of health care provider quality ranking catalogue, and functional e-prescription service), Prevention/Range and reach of services provided sub-discipline (e.g. number of cataract operations, rate of mammography in females aged 50-69 years, and share of dialysis done outside of clinics), and to single indicator in Outcomes sub-discipline (e.g. prevalence of undiagnosed diabetes) – Table 1.

We performed less well in terms of the e-health indicators, which were also part of the Patient rights and information sub-discipline. Our results were especially poor in the introduction of e-prescriptions service (the percentage of general practitioners' (GP) practices which can send prescriptions electronically to pharmacies). A role model in this field is Sweden with its centralized pharmacy system. More than 85% of all prescriptions are sent to a central e-mailbox, and the patient can then walk into any pharmacy in the country, where they simply pull down the prescription from the mailbox (23). However, in terms of e-health infrastructure, Slovenia scores better than EU average: 97% of GP practices owe a computer, 83% are connected to the Internet and 54% having access to a broadband Internet connection (24). When compared to the other Central and Eastern European countries, Slovenia is second after Estonia. The use of e-health applications however is considerably lower. The rather low use rates attained by Slovenian GPs in the area of e-health application can be partially explained by the fact that Slovenian e-health strategy is relatively new. The government published the "e-Health 2010 Strategy" as late as in December 2005. Next year a Council for Health Care Informatics was established with the aim to promote information and communication technology use in the health care system in general and to foster the establishment of appropriate standards (24). Considering EHCI 2012 ratings, e-health solutions remain a challenging issue and several projects are currently on-going in order to implement "e-health 2010 Strategy" and to improve outcomes in the years to come.

The key area, where Slovenia performed poor is the Accessibility (Waiting times for treatment) sub-discipline, particularly in the following indicators: direct access to specialist (can patient see a specialist without a referral from a primary care doctor), major non-acute (elective) operations in less than 90 days, and CT scan in less than 7 days (time to get a CT scan after referring doctor's decision) (23).

Slovenia is an example of a country where GPs have a gatekeeping role in the health care system. Patients do not have direct access to secondary care level; they need a referral from their GP. In addition to GP, who acts as a personal physician, children are required to have a personal paediatrician and women have the opportunity to choose a personal gynaecologist. Therefore, direct access to those two specialists is possible. Of course, all insured individuals in Slovenia have access to health care at the secondary care level in the case of an emergency or in the event that personal doctors decide that delaying the treatment would cause an irreversible damage to the patient's health. In past years, waiting times existed especially in the area of orthopaedics (hip and knee replacement), open heart surgery, coronary angiography and balloon dilation, for cataract and thyroid gland surgery, as well as for some more demanding diagnostic tests (for example, MRI scanning) (11). Since this had particularly involved patients with chronic disease and elderly patients, these groups were particularly affected by the waiting lists. Various measures, including increased funding for health care providers in areas in which excessive waiting times existed, have been adopted by the Ministry of Health and the Health Insurance Institute of Slovenia in order to abolish or reduce waiting times (11). As a result, long waiting lists have been partially reduced but the problem is far from being solved. There are various opinions as to why waiting times still exist and in some areas even continue to increase (e.g. knee replacement, peripheral vessel disease surgery) (25). Health care providers claim that it is because of insufficient funding; while some hospitals claim that it is due to the lack of human resources, space and equipment. Given that there were very different data concerning effective waiting list times in different hospitals, a decision was taken that a national waiting list for several most common conditions should be formed. In order to support such an approach, a web-based solution was developed, which offers information on waiting list times to patients and their relatives as well as to their GPs, prevent repetition of input of the same patient, as well as set some benchmarking goals for hospitals among themselves in order to aim for reduction in waiting list times (26). Due to the "Regulation on maximum acceptable waiting times for individual health care services and on management of waiting lists", every health care provider had to introduce a waiting list manager, whose responsibilities include prompt updating of waiting lists. If the waiting time for certain health care service is beyond

acceptable, health care provider has to inform the patient about the possibility of management in an alternate institution with acceptable waiting time (27). However, this is one of the few indicators, where traces of financial crisis show up: waiting times for (expensive) elective surgery seems to have increased, most notably in countries severely hit by the crisis (23).

According to EHCI 2012, Slovenia has to increase the percentage of women aged 50-69 years screened for breast cancer. There are intense and comprehensive activities in the field of prevention and management of cancer burden. Firstly, being aware of this major public health problem, our Government has chosen cancer as the central topic for the Slovenian EU Presidency during the first half of 2008. Secondly, Slovenia can build on a number of strengths, including the population-based Cancer Registry, which systematically collects cancer epidemiology data on a national scale. Although different cancer control activities have been in place for many years, a comprehensive national cancer control programme, based on a systematic assessment of the strengths and weaknesses of existing services for cancer prevention and the clinical management of cancer patients has recently been developed (28). Important part of national cancer control programme is promotion of 3 cancer screening programmes: cervical, breast, and colorectal cancer screening (28). Finally, breast cancer screening programme started in April 2008 for women aged 50-69 years residing in Ljubljana municipality. First response rates (73.8% after first invitation) were encouraging, since this was higher than in comparable pilot programmes of other countries that have introduced organised screenings for breast cancer (29). By establishing new screening units the plan was to gradually expand the programme to other geographical areas and to cover the target population of the whole Slovenia. Besides screening units, quality of the organization of screening programme is of essential importance. The key elements of a high quality screening programme include the appropriate education and professional qualification of the personnel, primarily radiologists and radiological engineers, and also of other personnel participating in further diagnostics and treatment, double blind reading of mammograms, interdisciplinary cooperation, appropriate technical quality of mammography machines, appropriate information system, and monitoring and evaluation of program quality indicators (30). Currently, continuous efforts are under way to overcome organizational barriers and cover larger geographical area (29). This would not only increase the percentage of women screened for breast cancer, but also allow the program to move closer to achieving its ultimate goal of reducing mortality from breast cancer in Slovenian women.

Diabetes mellitus affects a large number of people worldwide and the number of newly diagnosed cases is rising. As EHCI 2012 results show, the prevalence of undiagnosed diabetes is high in Slovenia. Although the indicator that Health Consumer Powerhouse really desired for was percentage of diabetics with high HbA1c levels (above 7.0%), they were unable to find any sort of reliable data for a significant number of countries. For this reason, they decided to follow data from the International Diabetes Federation Atlas for the 2012 analysis (23). On the other hand, the same health care analyst provided Euro Consumer Diabetes Index in 2008, where percentage of diabetics with HbA1c levels above 7.0% was included. HbA1c is an important assessment tool of how well diabetes has been managed on individual patients for the previous two or three months. From the states reporting data, there were ten countries (Austria, Belgium, Cyprus, Denmark, Estonia, Lithuania, Norway, Poland, Slovenia, and Spain) that have more than 50% of patients with HbA1c levels above 7.0%. However, some of them explain that many of the patients included in these 50% stay between 7.0 and 7.5% (31). The continuing growth of diabetes places an increasing drain on health care system. For purposes of preventing complications it is crucial to maintain a good glucose balance and to avoid the risk factors for arterial disease. It is at least equally important to alleviate the situation through improved self-care. In 2010, Slovenian Ministry of Health launched "National programme on management of diabetes mellitus (Development Strategy 2010-2020)", which incorporates objectives, responsibilities, financial support, interventions, and quality control at all levels (32).

EHCI 2012 pointed out the low number of dialysis performed outside of clinics. In Slovenia, there are 21 dialysis centers. According to Slovenian nephrologists the interest of patients for home dialysis was sporadic. This type of dialysis is more frequent in countries where distances to the dialysis centers are longer, but also in some countries, where quality of treatment in dialysis centers is suboptimal. In addition to clear benefits (e.g. no transport, no waiting for the dialysis, staying in home environment), there are also some disadvantages: problems with the stabbing, responsibility for the appropriate care of the dialysis apparatus and supplies, control of the procedure, burden for the family, issues of loneliness and isolation of the patient. At this time, funding and logistics for the dialysis at home are not formally regulated in Slovenia. Nevertheless, the debate about combining home dialysis with dialysis in centers (for example, once every two or four weeks) is starting, as well as initiatives for greater flexibility in dialysis centers (33).

5. Challenges and opportunities for Slovenian health care system

At a time when the number of elderly and chronically ill is constantly rising and when economic downturn is enlarging health inequalities, the need for efficient and sustainable health care system is more important than ever. In addition, new medical technologies, pharmaceutical innovations and increasing population expectations, speed the growing of health care expenditure. The discrepancy between the needs and demand for advanced diagnostic or treatment options and long-term care services are becoming another burning issue. The health care system must become more competitive and development-oriented and needs redefinition of a basic basket of health care rights as well as of public-private partnerships (34). Current situation demands more funds and attention, as well as it requires additional skilled human resources.

Another chronically unresolved issue in Slovenian health care system is the shortage of medical doctors, which makes implementation and health care quality maintenance very difficult. Although the number of medical doctors has been growing somewhat more strongly in recent years, Slovenia's gap to the EU and OECD average nevertheless continues to increase. Slovenia lags behind most notably in the number of general practitioners (49.8 per 100,000 population in 2010; in the EU-27: 87.4 per 100,000 population in 2009), which is problematic as regards both access to health care services and the cost-effectiveness of the health care system. In 2010 and 2011, Slovenia took certain measures to strengthen primary health care and take some burden off the general practitioners: firstly, introduction of new training primary health care offices, in which doctors specialising in general medicine can register their patients (under tutorship); secondly, introduction of reference primary health care offices, in which registered nurses assume greater responsibilities; and thirdly, additional funding for the primary health care (35). Hence, the challenge for the future is to ensure the continuous development of human resources.

Recently, the scope and impact of medical errors enticed national efforts to address this problem. According to Leape and colleagues, safety does not depend just on measurement, practices and rules, nor does it depend on any specific improvement methods; it depends on achieving a culture of trust, reporting, transparency and discipline. For health care organisations in every country, this requires a major cultural change (36). Education and training in the areas of quality and patient safety should become an integral part of the curricula of all health education institutions and programmes, as well as of internal education programmes in each health care organization, and requirements related to quality and patient safety should be included in the education and training of health care providers. Continuous development of individuals also needs to be ensured through acquisition of new knowledge in the areas of quality and patient safety, and development of social and personal skills and behaviours (such as doctor–patient communication) (11). Additionally, introduction of a medical error reporting system would also help to prevent easily avoidable mistakes with potentially serious consequences.

6. Methodological challenges of international health care system comparisons

International health care system comparisons may constitute a rich source of evidence as well as powerful influence on policy (37). If undertaken carefully, such comparisons offer a powerful resource for identifying weaknesses and suggesting relevant changes. However, its full potential is currently limited by several problems. Country comparisons that are not conducted with properly validated measures and unbiased policy interpretations may prompt adverse policy impacts and so caution is required in the selection of indicators, the methodologies used, and the interpretations made (37). Another problem is selecting certain indicator areas as being more important than others and multiplying their scores by numbers other than one. Definitions of performance indicators should be clear and consistent, and fit into a clear conceptual framework. The metrics used should have widespread acceptance and certain adjustment for variations in the demographic, social, cultural and economic circumstances of nations is necessary. Furthermore, single number measures of whole health care system performance, while offering a more rounded view of performance, have limited scope for policy action, and may distract policy-makers from seeking out and remedying the parts of their system that require attention (37).

Some attempts to compare health care systems are sporadic and therefore many vital contributors for system performance may not be considered. The Health Consumer Powerhouse, on the other side, has been publishing a wide range of comparative analyses since 2004. As such it has a considerable potential to overcome many of the limitations observed in sporadic comparisons. However, definitive and precise comparisons are challenged because indicators are assigned different weights in yearly analysis and over time. Some inconsistency of total score, although several indicators are repetitively used may further introduce a selection bias.

7. Conclusions

Concerning various comparisons of the health care systems, we should be aware of the used data sources quality and reasons for the selection of specific performance measures. The quality of data varies between countries, which limits exact comparisons. Furthermore, we should be careful when weighting of certain composite indicators were applied and if possible changes in indicator definitions appeared through years. Consequently, a careful consideration of possible approaches to interpreting international comparisons of health care system performance is needed.

European health care systems, including Slovenian, need to find a balance between the values they are committed to while striving for efficiency and competition, providing options that benefit the society and help contain health care expenditure, in particular to meet the challenge of an increasingly ageing population. Management of chronic diseases demands a different type of care organisation than management of acute conditions. The emphasis is on care (rather than cure), on monitoring (rather than acute interventions), and on a multidisciplinary approach and creation of integrated care networks (21, 22). In order to establish a health care system, which would optimally meet the needs of the population, we should focus on population health consideration as well.

As no structural changes have been implemented in the previous decade, it is of utmost importance that Slovenia implements the reform of the health care system (12). Soon, Slovenian patients and health care professionals will be faced with rewriting of Health Care and Health Insurance Act regulating the system of financing and Health Services Act regulating the operation and management by health care providers (12), which should also address those issues.

Table 1: Euro Health Consumer Index 2012 scores for Slovenia according to individual performance indicator.

Sub-discipline	Indicator	Slovenia
1. Patient rights and information	1.1 Health care law based on patients' rights	
	1.2 Patient organisations involved in decision making	
	1.3 No-fault malpractice insurance	
	1.4 Right to second opinion	
	1.5 Access to own medical record	
	1.6 Register of legit doctors	
	1.7 Web or 24/7 telephone health care info with interactivity	
	1.8 Cross-border care seeking financed from home	
	1.9 Provider catalogue with quality ranking	
	1.10 Electronic patient record penetration	
	1.11 Patients' access to on-line booking of appointments	
	1.12 E-prescriptions	
2. Accessibility (Waiting times for treatment)	2.1 Family doctor same day access	
	2.2 Direct access to specialist	
	2.3 Major elective surgery <90 days	
	2.4 Cancer therapy <21 days	
	2.5 CT scan <7 days	
	3.1 Heart infarct case fatality	

3. Outcomes	3.2 Infant deaths	
	3.3 Cancer deaths relative to incidence	
	3.4 Preventable years of life lost	
	3.5 MRSA infections	
	3.6 Caesarean sections	
	3.7 Undiagnosed diabetes	
	3.8 Depression	
4. Prevention/Range and reach of services provided	4.1 Equity of health care system	
	4.2 Cataract operations	
	4.3 Infant 4-disease vaccination	
	4.4 Kidney transplants per million population	
	4.5 Dental care included in the public health care offering	
	4.6 Rate of mammography	
	4.7 Informal payments to doctors	
	4.8 Smoking prevention	
	4.9 Long term care for the elderly	n.a.
	4.10 % of dialysis done outside of clinic	
5. Pharmaceuticals	5.1 % of public subsidy for total drug sales	
	5.2 Layman-adapted pharmacopoeia	
	5.3 Novel cancer drugs deployment rate	
	5.4 Access to new drugs	
	5.5 Alzheimer drugs	
	5.6 Schizophrenia drugs	
	5.7 Awareness of the efficiency of antibiotics against viruses	

The performance of the individual national health care system was graded on a three-grade scale for each indicator: green 👍=good, yellow 👉=so-so and red 👎=not so good. After applying weight coefficients in each sub-discipline a green score earns 14.59 points in Patient rights and information sub-discipline, 50.00 points in Accessibility (Waiting time for treatment) sub-discipline, 37.50 points in Outcomes sub-discipline, 17.50 points in Prevention/Range and reach of services provided sub-discipline and 14.29 points in Pharmaceuticals sub-discipline (23).
n.a.=non applicable

References

1. Smith PC, Mossialos E, Papanicolas I, Leatherman S. Part I. Principles of performance measurement. Introduction. In: Smith PC, Mossialos E, Papanicolas I, Leatherman S, eds. Performance measurement for health system improvement: experiences, challenges and prospects. Cambridge: Cambridge University Press, 2009: 3-24.
2. Menabde N. Foreword. In: Smith PC, Mossialos E, Papanicolas I, Leatherman S, eds. Performance measurement for health system improvement:

experiences, challenges and prospects. Cambridge: Cambridge University Press, 2009: ix.
3. McIntyre D, Rogers L, Heier EJ. Overview, history, and objectives of performance measurement. Health Care Financ Rev 2001; 22: 7-21.
4. Loeb JM. The current state of performance measurement in health care. Int J Qual Health Care 2004; 16 (Suppl 1): i5-i9.
5. van der Zee J, Kroneman MW. Bismarck or Beveridge: a beauty contest between dinosaurs. BMC Health Serv Res 2007; 7: 94.
6. Veillard J, Garcia-Armesto S, Kadandale S, Klazinga N. Part V. Health policy and performance measurement. International health system comparisons: from measurement challenge to management tool. In: Smith PC, Mossialos E, Papanicolas I, Leatherman S, eds. Performance measurement for health system improvement: experiences, challenges and prospects. Cambridge: Cambridge University Press, 2009: 641-672.
7. World Health Organization. World Health Organization Assesses the World's Health Systems. Available at: http://www.who.int/whr/2000/media_centre/press_release/en/index.html. Accessed 10.6.2012.
8. World Health Organization. The World Health Report 2000. Health systems: improving performance. Geneva: World Health Organization, 2000.
9. Anell A, Willis M. International comparison of health care systems using resource profiles. Bull World Health Organ 2000; 78: 770-778.
10. Organisation for Economic Cooperation and Development. Health at a Glance 2011: OECD Indicators. Paris: Organisation for Economic Cooperation and Development, 2011.
11. Albreht T, Turk E, Toth M, Ceglar J, Marn S, Pribakovič-Brinovec R, Schaeffer M. Slovenia: Health System Review 2009. Health Systems in Transition Vol. 11, No. 3, 2009. Copenhagen: World Health Organisation, Regional Office for Europe, 2009.
12. Stanovnik T, Turk E. Analytical Support on the Socio-Economic Impact of Social Protection Reforms (ASISP) Annual National Report 2011. Pensions, health care and long-term care. Cologne: Analytical Support on the Socio-Economic Impact of Social Protection Reforms, 2011. Available at: http://www.socialprotection.eu/. Accessed 10.6.2012.
13. Ilic M, Kalin K, Povhe J, Ster D, Znidarsic T. Population of Slovenia 2006. Ljubljana: Statistical Office of the Republic of Slovenia, 2008.
14. Čuček S. Svetovni dan zdravja 2012. Posebna objava. (World Health Day 2012. Special publication.) Ljubljana: Statistical Office of the Republic of Slovenia, 2012.
15. United Nations Population Division. World population prospects: the 2008 revision population database. New York: United Nations, 2008.
16. World Health Organisation. European Health for All database (HFA-DB). Copenhagen: World Health Organisation, Regional Office for Europe, 2012. Available at: http://www.euro.who.int/HFADB. Accessed 24.5.2012.
17. Rechel B, McKee M. Health reform in Central and Eastern Europe and the former Soviet Union. Lancet 2009; 374: 1186-1195.
18. Health Statistical Yearbook of the Republic of Slovenia 2004. Ljubljana: Institute of Public Health of the Republic of Slovenia, 2006.
19. Albreht T, Klazinga N. Privatisation of health care in Slovenia in the period 1992-2008. Health Policy 2009; 90: 262-269.
20. Delnoij DMJ, Klazinga NS, Van der Velden K. Building integrated health systems in Central and Eastern Europe. Eur J Public Health 2003; 13: 240-245.
21. Gröne O, Garcia-Barbero M. Integrated care: a position paper of the WHO European Office for Integrated Health Care Services. Int J Integr Care 2001; 1: e21.
22. Plochg T, Delnoij DMJ, Hogervorst WVG, van Dijk P, Belleman S, Klazinga NS. Local health systems in 21st century: who cares? – an exploratory study on health system governance in Amsterdam. Eur J Public Health 2006; 16: 559-564.
23. Björnberg A. Euro Health Consumer Index 2012. Report. Brussels: Health Consumer Powerhouse, 2012.
24. Dobrev A, Haesner M, Hüsing T, Korte WB, Meyer I. Benchmarking ICT use among general practitioners in Europe. Final report. Bonn: European Commission, Information Society and Media Directorate General, 2008.
25. Inštitut za varovanje zdravja Republike Slovenije. Spremljanje čakalnih dob. Mesečno poročilo za stanje na dan 1.8.2012. (Monitoring of waiting times. Monthly report on the state of the day August 1st, 2012.) Ljubljana: Inštitut za varovanje zdravja Republike Slovenije, 2012.
26. Albreht T. Online solution for waiting lists in hospitals. Available at: http://hpm.org/si/a10/1.pdf. Accessed 10.6.2012.
27. Ministrstvo za zdravje. Pravilnik o najdaljših dopustnih čakalnih dobah za posamezne zdravstvene storitve in o načinu vodenja čakalnih seznamov. (Regulation on maximum acceptable waiting periods for individual health care services and on management of waiting lists). Ljubljana: Ministrstvo za zdravje, 2010. Available at: http://www.mz.gov.si/si/delovna_podrocja/zdravstve

no_varstvo/kakovost_in_varnost_sistema_zdravstvenega_varstva/cakalne_dobe/. Accessed 10.6.2012.

28. Primic-Zakelj M, Zagar T. Cancer control in Slovenia: achievements, shortcomings and opportunities. In: Coleman MP, Alexe DM, Albreht T, Mckee M, eds. Responding to the challenge of cancer in Europe. Ljubljana: Institute of Public Health of the Republic of Slovenia, 2008: 279-296.
29. Državni presejalni program za raka dojk (DORA). National screening programme for brest cancer. Available at: http://dora.onko-i.si/novice/8. Accessed 10.6.2012.
30. Krajc M, Primic-Zakelj M, Hertl K, Kadivec M. National population based breast cancer screening program – DORA has been launched. Onkologija 2008; 1: 72.
31. Cebolla B, Björnberg A. Euro Consumer Diabetes Index 2008. Report. Brussels: Health Consumer Powerhouse, 2008.
32. Ministrstvo za zdravje. Nacionalni program za obvladovanje sladkorne bolezni. Strategija razvoja 2010-2020. (National programme on management of diabetes mellitus. Development strategy 2010-2020). Ljubljana: Ministrstvo za zdravje, 2010.
33. Zveza društev ledvičnih bolnikov Slovenije. Dializa. Pogovor s profesor Jadranko Buturović-Ponikvar s Kliničnega oddelka za nefrologijo UKC Ljubljana. Available at: http://www.zveza-dlbs.si/pogovor_buturovic.html. Accessed 10.6.2012.
34. Setnikar-Cankar S, Petkovšek V. Transferring good practice to the health care system in Slovenia. Rome: Clute Institute International Conference, 2012: 219-229.
35. Institute of Macroeconomic Analysis and Development. Development Report 2012. Ljubljana: Institute of Macroeconomic Analysis and Development, 2012.
36. Leape L, Berwick D, Clancy C, Conway J, Gluck P, Guest J, et al. Transforming healthcare: a safety imperative. Qual Saf Health Care 2009; 18: 424-428.
37. Smith PC, Papanicolas I. Health system performance comparison: an agenda for policy, information and research. Copenhagen: World Health Organisation, Regional Office for Europe and World Health Organisation on behalf of the European Observatory on Health Systems and Policies, 2012.