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Effectiveness of Serbian Health Care System in 2014 and 2015

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Abstract

Introduction: The European Health Consumer Index (EHCI) was founded as a project in 2006, and it has since been working on comparing and ranking the health systems of the European countries. Its main aim is to set standards for well-functioning and organization of health care from the perspective of patients (consumers) - users of the health system. Their assessment of the health system is based on forty-eight pre-determined indicators, divided into six groups. Countries are ranked with scores ranging from 1 to 3 [1]. The aim of this study was to assess the state of Serbian health care system in 2014 and 2015 and compare with neighboring countries, from the perspective of European health consumer index and propose recommendations for its improvement in accordance with the norms of European standards.

Methods: A retrospective and comparative analysis of data on Serbian and neighboring countries healthcare system functioning in 2014 and 2015, based on the European Health Consumer Index indicators was performed.

Results: The Republic of Serbia, according to the European Health Consumer Index, was ranked 33rd. in 2014 among selected European countries, with 473 points, while in 2015 was ranked 30 with 554 points.

Conclusions and Recommendations: In order to get closer to European Union countries' standards and to satisfy users of the health care system in the Serbia, the accessibility to diagnostic procedures, major elective surgery, cancer therapy, long term care for elderly and preventive activities should be improved, like FYR Macedonia already achieved.

Keywords: Health system; European health consumer index; Indicators of the health system

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Introduction

The European Health Consumer Index (EHCI) was founded as a project in 2006, and it has since been working on comparing and ranking the health systems of the European countries. Its main aim is to set standards for well-functioning and organization of health care from the perspective of patients (consumers) - users of the health system. Their assessment of the health system is based on forty-eight pre-determined indicators, divided into six groups.

Indicators of the Health Care System Efficiency

Health care system assessment was made on the basis of forty-eight pre-determined indicators, divided into six following groups:

- The first group included indicators that describe the awareness of patients and their rights;
- The second group of indicators assessed the availability of health care (waiting times for the treatment);
- The third group of indicators evaluated the outcomes of the treatment;
- The fourth group observed the range and scope of services provided in health care;
- The fifth group assessed prevention;
- The sixth group assessed use of pharmaceuticals.

Ranking of countries was based on the calculated indicators, where the highest score for a given indicator was 3 and the lowest 1. The scoring points were multiplied by a coefficient determined for each group of indicators, so that the total sum amounted 1000 [2].

The score in each individual group is shown in the **Table 1**.

In 2014 and 2015 there were 36 countries included in the EHCI estimation, among them was the Republic of Serbia. The aim of this study was to assess the state of Serbian health care system in 2014 and 2015 and compare with neighboring countries, from the perspective of European health consumer index and propose recommendations for its improvement and functioning in accordance with the norms of European standards.

This study compared the functioning and organization of the health care system of the Republic of Serbia with health care systems of the neighboring countries (Slovenia Croatia, Montenegro, Bulgaria, Macedonia and Albania in 2014 and 2015 [3-6].

Results

The Republic of Serbia, according to the European Health Consumer Index, was ranked 33rd in 2014 among European countries, with 473 points, while in 2015 it was ranked 30 with 554 points.

Group I – patients’ rights and their awareness were evaluated by the following indicators:

1. Healthcare law based on Patients’ Rights
2. Patient organisations involved in decision making
3. No-fault malpractice insurance
4. Right to second opinion
5. Access to own medical record
6. Registry of bona fide doctors
7. Web or 24/7 telephones HC info with interactivity
8. Cross-border care financed from home
9. Provider catalogue with quality ranking
10. EPR penetration
11. Patients’ access to on-line booking of appointments
12. e-prescriptions

In connection to the rights of patients and their awareness, the highest score in 2014 as well as in 2015 was achieved by FYR Macedonia.

Table 2 shows that out of former Yugoslav Republics, only Macedonia achieved excellent results in most indicators about rights and patients’ awareness.

Serbia showed low score (20 points) in 2014, but in 2015 made progress and reach 25 points, which could be concluded as a

Table 1 Relative weight of the six observed groups presented in scores.

Group:	Maximum scores
I Group- Patient rights and information	150
II Group- Accessibility of health care	225
III Group- Outcomes of the treatment	250
IV Group- Range and reach of services	150
V Group- Prevention	125
VI Group- Pharmaceuticals	100
Total	1000

move to the right direction. However, there is still room for improvement in:

- patients’ involvement in health policy through raising their awareness
- establishing a catalog-ranked health providers
- accessing to electronic patient record at the entire territory, provide phone scheduled and appointments to physicians and availability of electronic prescriptions [7].

Surprisingly, Albania have reduced involvement of patient organizations in health policy, Montenegro have diminished availability of Web or 24/7 telephone HC info and Bulgaria have lost Registry of bona fide doctors.

Group II – accessibility to health care (waiting for treatment) was assessed by the following indicators:

1. Family doctor same day access
2. Direct access to Specialist
3. Major elective surgery <90 days
4. Cancer therapy <21 days
5. CT scan <7days
6. A&E waiting time for a visit to the Accident and Emergencies department of a hospital.

As it can be seen from **Table 3**, Macedonia achieved the highest score in assessing the availability of health services in 2014 and in 2015 with stable 17 points. Serbia and Slovenia with nine points were the weakest with availability of health services in 2014, but in 2015 Serbia achieved eleven points, which make Serbia even better then Slovenia(10) and Montenegro (10) in 2015, but still weaker than Bulgaria (12), Albania (13) and Croatia (14).

In 2015 Serbia improved patients access to specialist and reduced waiting time for a visit to the Accident and Emergencies department of a hospital.

In order for Serbian health services to become more accessible, it is necessary to work on improvement of availability of necessary diagnostic, operational procedures and therapy.

III Group- outcomes of the treatment through the following indicator:

1. Decrease of CVD (cardiovascular diseases) deaths
2. Decrease of stroke deaths
3. Infant deaths
4. Cancer survival
5. Preventable Years of Life Lost
- 6.MRSA (Methicillin-resistant *Staphylococcus aureus*) infections
7. Abortion rates
8. Depression

In the third group which evaluated outcomes of the treatment, the highest score was awarded to Slovenia (20), followed by Croatia (15), Montenegro (15), Serbia (12), Bulgaria (12), Albania (10), with the least points achieved by Macedonia (10).

Serbia improved treatment outcomes significantly in 2015 compared with 2014, specifically with decrease of stroke

Table 2 Patient rights and their awareness in 2014 and 2015.

INDICATOR	Serbia 2014	Serbia 2015	Slovenia 2014	Slovenia 2015	Croatia 2014	Croatia 2015	Montenegro 2014	Montenegro 2015	FYR Macedonia 2014	FYR Macedonia 2015	Albania 2014	Albania 2015	Bulgaria 2014	Bulgaria 2015
Healthcare law based on Patients' Rights	3	3	3	3	3	3	2	2	3	3	3	3	1	1
Patient organisation involvement	2	2	2	3	2	3	1	2	3	3	3	1	3	3
No-fault malpractice insurance	2	2	2	2	1	1	2	2	2	2	1	1	1	1
Right to second opinion	2	3	2	2	3	3	3	3	3	3	2	3	1	1
Access to own medical record	2	3	2	3	2	2	3	3	3	3	3	3	2	3
Registry of bona fide doctors	1	3	2	2	2	3	1	1	3	3	3	3	2	1
Web or 24/7 telephone HC info	2	3	2	2	1	3	2	1	3	3	1	1	1	1
Cross-border care seeking freely allowed	2	2	1	3	1	2	2	2	2	2	2	2	1	1
Provider catalogue with quality ranking	1	1	1	1	1	2	1	1	2	3	1	1	1	1
EPR penetration	1	1	2	2	3	3	2	2	3	3	1	1	3	3
On-line booking of appointments	1	1	3	3	3	3	1	1	3	3	1	1	1	1
e-prescriptions	1	1	1	3	3	3	1	1	3	3	1	1	1	1
Total score	20	25	23	29	25	31	21	21	33	34	22	21	18	18

Source: Björnberg Arne, Hjertqvist Johan (2016): "Euro Health Consumer Index 2015 Report", Health Consumer Powerhouse, 26.01.2016

1. Weak 2. good or uncomparable 3. great

and infant deaths, as well as reduction of abortion rates and depression.

Devastating output effects of the Serbian health care system in 2014 concerning depression have been changed as Ministry of Health of the Republic of Serbia, the Republican expert committee for creation and implementation of the best practises guidelines, published a National guide to good clinical practise in diagnosing and treating depression. National guide has been financed and published through the "DILS" (Delivery of Improved Health Services) project of the Serbian Ministry of Health.

Considering the indicators regarding depression for 2014 and 2015, the guide was widely applied and thus contributed to the significant progress Serbia has made in 2015 (2), which helped reach the same level as Slovenia(2), Croatia (2), Montenegro (2) and Bulgaria (2), while surpassing Macedonia (1) and Albania (1), in regards to this indicator.

IV Group- the fourth set of indicators evaluated range and reach of services through the following indicator:

1. Equity of health care systems
2. Cataract operations per 100 000 people age 65+

3. Kidney transplants per million of population
4. Is dental care included in the public healthcare offering?
5. Informal payments to doctors
6. Long term care for elderly
7. % of dialysis done outside of clinic
8. Caesarean Sections

As can be seen from **Table 5**, in 2015 Serbia did not make any improvements in range and reach of services provided compared with the results in 2014.

The highest score in this group of parameters achieved Croatia (19), followed by Slovenia (17), Macedonia (13), and Montenegro (12). The lowest score was achieved in Albania (9) and Bulgaria (9). Serbia is somewhere in the middle with 11 points (**Table 5**).

Long-term health care for the elderly includes a wide range of assistance to the elderly with daily activities over a long period of time in order to assist them and to ensure them a higher quality of life.

In 2014 and 2015, Serbia recieved a minimum score of (1) when the long-term protection of elderly persons is considered, together with Croatia (1), Macedonia (1) Albania (1) and Bulgaria (1).

Table 3 Accessibility (waiting times for treatment) in 2014 and 2015.

INDICATOR	Serbia 2014	Serbia 2015	Slovenia 2014	Slovenia 2015	Croatia 2014	Croatia 2015	Montenegro 2014	Montenegro 2015	FYR Macedonia 2014	FYR Macedonia 2015	Albania 2014	Albania 2015	Bulgaria 2014	Bulgaria 2015
Family doctor same day access	3	3	2	2	3	3	2	2	3	3	3	3	3	3
Direct access to specialist	1	2	2	2	2	3	1	1	2	2	3	1	2	1
Major elective surgery <90 days	1	1	1	1	1	1	1	1	3	3	3	3	3	3
Cancer therapy <21 days	1	1	1	2	3	3	2	2	3	3	2	1	2	1
CT scan <7 days	1	1	1	1	1	1	1	1	3	3	2	2	1	2
A&E waiting times	2	3	2	2	3	3	3	3	3	3	3	3	2	2
Total score	9	11	9	10	13	14	10	10	17	17	16	13	13	12

Source: Björnberg Arne, Hjertqvist Johan (2016): "Euro Health Consumer Index 2015 Report", Health Consumer Powerhouse, 26.01.2016
1. weak 2. good or uncomparable 3. great

Table 4 Treatment outcomes in 2014 and 2015.

INDICATOR	Serbia 2014	Serbia 2015	Slovenia 2014	Slovenia 2015	Croatia 2014	Croatia 2015	Montenegro 2014	Montenegro 2015	FYR Macedonia 2014	FYR Macedonia 2015	Albania 2014	Albania 2015	Bulgaria 2014	Bulgaria 2015
Decrease of CVD (cardiovascular diseases) deaths	1	1	3	3	1	1	1	1	1	1	1	1	3	3
Decrease of stroke deaths	1	2	2	3	2	3	3	3	1	1	1	1	1	1
Infant deaths	1	2	3	3	3	2	2	2	1	1	1	2	1	1
Cancer survival	1	1	2	2	1	1	1	1	1	1	1	1	1	1
Preventable Years of Life Lost	1	1	2	2	2	2	1	1	2	2	2	2	1	1
MRSA (Methicillin-resistant <i>Staphylococcus aureus</i>)infections	1	1	2	2	1	1	2	2	1	1	1	1	2	2
Abortion rates	1	2	3	3	3	3	3	3	2	2	2	3	1	1
Depression	1	2	2	2	2	2	2	2	1	1	1	1	2	2
Total score	8	12	19	20	15	15	15	15	10	10	10	12	12	12

Source: Björnberg Arne, Hjertqvist Johan (2016): "Euro Health Consumer Index 2015 Report", Health Consumer Powerhouse, 26.01.2016
1. weak 2. good or uncomparable 3. great

Only Slovenia (2) and Montenegro (2) have solved the problem of the long-term care of the elderly in 2014 and 2015. In Serbia, work is being done on opening new and adapting the existing institutions for long-term health care of the elderly, so an improvement of this indicator is expected in the coming years.

V Group- the fifth set of indicators evaluated prevention through the following indicators

1. Infant immunization
2. Blood pressure
3. Smoking prevention

4. Alcohol prevention
5. Physical activity
6. HPV vaccination
7. Traffic deaths

In connection to the prevention, the highest score in 2014 as well as in 2015 was achieved by FYR Macedonia (16 and 18). In Serbia, unfortunately, overall score for prevention was smaller in 2015 (12) compared to 2014 (13).

In Serbia, there are a lot of activities that should be done in order to improve the citizens' health, like a greater engagement in the

Table 5 Range and reach of services provided in 2014 and 2015.

INDICATOR	Serbia 2014	Serbia 2015	Slovenia 2014	Slovenia 2015	Croatia 2014	Croatia 2015	Montenegro 2014	Montenegro 2015	FYR Macedonia 2014	FYR Macedonia 2015	Albania 2014	Albania 2015	Bulgaria 2014	Bulgaria 2015
Equity of health care systems	1	1	2	2	3	3	1	1	3	1	1	1	1	1
Cataract operations per 100 000 people age 65+	1	1	3	3	2	2	2	2	2	2	2	2	1	1
Kidney transplants per million of population	1	1	1	1	3	3	1	1	1	1	1	1	1	1
Is dental care included in the public healthcare offering	2	2	3	3	3	3	2	2	3	3	1	1	2	2
Informal payments to doctors	1	1	3	2	1	3	1	1	2	2	1	1	1	1
Long term care for elderly	1	1	2	2	1	1	2	2	1	1	1	1	1	1
% of dialysis done outside of clinic	2	2	1	1	1	2	1	1	1	1	1	1	1	1
Caesarean Sections	2	2	3	3	2	2	2	2	2	2	1	1	1	1
Total score	11	11	18	17	16	19	12	12	15	13	9	9	9	9

Source: Björnberg Arne, Hjertqvist Johan (2016): „Euro Health Consumer Index 2015 Report“, Health Consumer Powerhouse, 26.01.2016
1.weak 2. good or uncomparable 3. great

blood pressure normalization (like it was in 2014) , and the full implementation of the “National Program for Teens, ” which started at the end of 2015, so better results are expected next year.

Compared to the neighbouring countries Serbia’s highlights are good results in both years (2014 and 2015) of the activities undertaken on physical activity (3) (Table 6).

Smoking prevention has not yielded the expected results in any country in the region in 2014 and 2015 (all of the observed countries were rated with the lowest mark (1)).

The unfavorable situation with this indicator points to a need for more work on a defined range of activities related to the prevention of smoking, as well as a need for introducing new targeted activities, such as working harder on the problem within the community. This would yield better results for the requested indicators, while reducing the harmful effect of smoking on the health of both smokers and non-smokers.

Unlike smoking prevention, prevention of alcoholism is at a good stable level in the surveyed countries in the region. Serbia with 2 points in 2014 and 2015 is equal with Slovenia (2) Croatia (2) and Bulgaria (2), while excellent results are also achieved by Montenegro (3), Macedonia (3) and Albania (3) in both years.

VI Group- the sixth set of indicators evaluated Pharmaceuticals through the following indicators:

1. Rx pharmaceutical subsidy
2. Layman-adapted pharmacopoeia?

3. Novel cancer drugs deployment rate
4. Access to new drugs (time to subsidy)
5. Arthritis drugs use
6. Metformin use
7. Antibiotics per capita

In this group of parameters, Macedonia was again in the first place, with a total of 15 points achieved in 2014 and 2015, followed by Slovenia (14) and Croatia(14) in 2014, but in 2015 Croatia decreased achieved points related to pharmaceuticals (13).

The lowest score was achieved by Montenegro and Albania (11) while Bulgaria and Serbia reached a score of 12 points in 2014 and 2015. In the assessment of indicators and use of pharmaceutical products paid by public subsidies, Serbia received poor marks (1) in both observed years.

Conclusion and Recommendations

This ranking and applied parameters in the European health consumer index, provide clear insight into what is good in the health care system of Serbia and what needs to be improved in order to reach the ultimate goal – a satisfied and healthy user-consumer of health care system.

The greatest advances in Serbia in 2015 compared to 2014, have been made in the area of the patient rights and their awareness, such as having the right to a second opinion, access to their own medical data, and the fact that a registry of bona fides doctors in Serbia has been created.

Table 6 Prevention achieved in 2014 and 2015.

INDICATOR	Serbia 2014	Serbia 2015	Slovenia 2014	Slovenia 2015	Croatia 2014	Croatia 2015	Montenegro 2014	Montenegro 2015	FYR Macedonia 2014	FYR Macedonia 2015	Albania 2014	Albania 2015	Bulgaria 2014	Bulgaria 2015
Infant immunization	2	2	3	2	3	3	2	2	3	3	3	3	2	2
Blood pressure	2	1	1	1	1	1	1	1	1	3	1	1	1	1
Smoking prevention	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Alcohol	2	2	2	2	2	2	3	3	3	3	3	3	2	2
Physical Activity	3	3	3	3	1	1	2	2	3	3	2	2	1	1
HPV Vaccination	1	1	3	3	1	1	2	2	3	3	1	1	3	3
Traffic deaths	2	2	2	2	1	2	2	2	2	2	1	1	2	2
Total score	13	12	15	14	10	11	13	13	16	18	12	12	12	12

Source: Björnberg Arne, Hjertqvist Johan (2016): „Euro Health Consumer Index 2015 Report“, Health Consumer Powerhouse, 26.01.2016
1. weak 2. good or uncomparable 3. great

Table 7 Pharmaceuticals in 2014 and 2015.

INDICATOR	Serbia 2014	Serbia 2015	Slovenia 2014	Slovenia 2015	Croatia 2014	Croatia 2015	Montenegro 2014	Montenegro 2015	FYR Macedonia 2014	FYR Macedonia 2015	Albania 2014	Albania 2015	Bulgaria 2014	Bulgaria 2015
Rx pharmaceutical subsidy	1	1	2	2	2	3	1	1	3	3	1	1	1	1
Layman-adapted pharmacopoeia?	3	3	3	3	3	3	2	2	3	3	1	1	3	3
Novel cancer drugs deployment rate	1	1	2	2	1	1	2	2	2	2	2	2	1	1
Access to new drugs (time to subsidy)	2	2	1	1	2	2	2	2	2	2	1	1	2	2
Arthritis drugs use	1	1	2	2	1	1	2	2	2	2	2	2	1	1
Metformin use	2	2	1	1	2	2	1	1	1	1	2	2	2	2
Antibiotics per capita	2	2	3	3	2	2	1	1	2	2	2	2	2	2
Total score	12	12	14	14	13	14	11	11	15	15	11	11	12	12

Source: Björnberg Arne, Hjertqvist Johan (2016): „Euro Health Consumer Index 2015 Report“, Health Consumer Powerhouse, 26.01.2016
1. weak 2. good or uncomparable 3. great

Regarding the availability of health services, directly coming to a specialist has been made easier, and the waiting time in emergency cases has been reduced in 2015 compared to 2014.

Serbia improved treatment outcomes significantly in 2015 compared with 2014, specifically with decrease of stroke and infant deaths, as well as reduction of abortion rates and depression.

The improvement of indicators for depression treatment, which through the National guide to good clinical practise in diagnosing and treating depression became available to all general

practitioners (and thus enabled them to more easily identify the given problem), represents the most significant progress in terms of mental health care in 2015 compared to 2014.

The fourth set of indicators which evaluated range and reach of services shows that in 2015, Serbia did not make any improvement compared to the results from 2014.

Overall score for the fifth set of indicators which evaluates prevention was smaller in 2015 (12) compared to 2014(13) in Serbia.

In 2015 results for the sixth group of indicators which explore use of pharmaceutical products paid by public subsidies are the same as in 2014.

For Patient rights and their awareness in 2014 and 2015, Accessibility (waiting times for treatment) in 2014 and 2015, Prevention achieved in mentioned years and Pharmaceuticals, FYR Macedonia showed the best results. Surprisingly, for selected Treatment outcomes in 2014 and 2015, Macedonia was the most unsuccessful country of all observed countries, with the least points.

In order to get closer to European Union countries' standards and

to satisfy users of the health care system in the Republic of Serbia the following should be improved:

- preventive activities,
- the rate of application of specific new concepts and new drugs for the treatment of cancer,
- use of drugs for arthritis treatment,
- range and reach of services provided like long term care for elderly,
- accessibility to diagnostic procedures like CT scan,
- accessibility to major elective surgery,
- accessibility to cancer therapy,
- activities to reduce adverse treatment outcomes.

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