THE ALTERNATIVE MODEL FOR QUALITY EVALUATION OF HEALTH CARE FACILITIES BASED ON OUTPUTS OF MANAGEMENT PROCESSES

Rajiani I., Bačík R., Fedorko R., Rigelský M., Szczepańska-Woszczyna K. [*]

Abstract: This article presents a summary of the scientific view of the quality of health care facilities in dimensions reflecting the quality of certain device management. The main objective is to construct an alternative model that will reflect the quality of the health care device using the minimum inputs. The authors have selected inputs from four areas to evaluate the quality. The study has selected the area of marketing-management to the recommendations of the patient, from the field of crisis management in the dimension of preventive activity with the output of the number of extraordinary events. The third area captures the quality of the services provided as a prerequisite for minimizing sanctions and of course, the area of financial management has not been omitted, and so the model also includes the variable ability to generate own resources. The study can be characterized as secondary since the data were collected from the INEKO databases and the Health Care Surveillance Office with a sample of 65 health care facilities in the territory of Slovakia during the period of 2009-2016. The before mentioned dependent variables at the outputs of the correlation analysis significantly approximated all independent variables. If dependent variables were to be considered separately, the "recommending the hospital" variable correlated with more than 50% of the independent variables. Variable of sanctions is more than 30% and the variable of the ability to generate own resources is more than 20% of independent variables. Significant correlation with the variable of extraordinary events has occurred in almost 20% of cases. Many other health care quality-evaluating models have a common feature, which is cumbersome and complex, on contrary, the proposed model is easy to apply, and it is useful when "fast" evaluation is needed.

Key words: health care facilities, management of health care facilities, quality of health care facilities, quality model of health care facilities

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Introduction

The aging of the society and the extension of life expectancy increase the demand for health care services, require increased expenditure on health policy, including

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[*] **Ismi Rajiani,** PhD, Department of Business Administration & Port Management, STIA Dan Manajemen Kepelabuhan Barunawati, Perak Barat, 173 Surabaya, Indonesia; **Radovan Bačík,** doc. PhD, MBA PhD; **Richard Fedorko,** Mgr. PhD, **Martin Rigelský,** Mgr. University of Prešov in Prešov, Faculty of Management; **Katarzyna Szczepańska-Woszczyna,** PhD, Assoc. Prof., WSB University, Faculty of Applied Sciences

✉ Corresponding author: richard.fedorko@gmail.com

✉ ismi.rajiani@stiamak.ac.id; radovan.bacik@unipo.sk; martin.rigelsky@smail.unipo.sk; kszczepanska@wsb.edu.pl

long-term care for the elderly, development and access to modern treatment methods, innovative medical equipment and ensuring appropriate medical prophylaxis. The modern methods of treatment, innovative medical equipment, as well as increased awareness of societies about the need to take care of health result in the fact that a health care sector is currently considered one of the fastest growing industries in the world. The global industry of medical devices is also dynamically developing. In 2014, the value of the global market for medical devices was estimated at USD 360 billion and a further annual increase is expected by approximately 4.4-4.9% (Feliczek, 2016).

The health care sector, due to its scale and social importance, requires precise management. The system of health care delivery consists of networks of networks or systems of systems that consist of a great number of independent stakeholders and interests, layered by organization, specialty, state, etc. (Rouse, 2008). The provision of medical services forces a proper and organized manner of action, whose main area of interest should be quality. There are multiple reasons for why it is necessary to improve quality of healthcare, as well as to increase the responsibility of health practitioners and managers, resource efficiency, identifying, and minimizing medical errors while maximizing the use of effective care and improving outcomes, and adjusting care to what users/patients want in addition to what they need (Dodwad, 2013; Gavurová et al., 2017; Lauzadyte-Tutliene et al., 2018). The safety and effectiveness of medical service provision are supposed to be ensured, among others, by regulations and quality standards. When choosing a management model, the managers of health care facilities must first pay attention to the safety and the quality of services and medical devices. The survival and development of each organism on the market is conditional on competitiveness, which we see as a continuous process of streamlining and improving the management processes leading to stability and, ultimately, customer satisfaction.

Quality standards for this sector, which define quality, performance and safety requirements for health care services, help the organization, design a quality management system that establishes and maintains the efficiency of its processes. It builds the reputation of the company that provides safe health care services, meets customer requirements and respects the law, and also contributes to the promotion of better healthcare. The quality assurance and management process includes strategy planning, structured processes, collective decision-making, monitoring, improvement, customer focus, review of operative processes and organization-wide participation, applied as turns of an ascending spiral system (Shopov, 2009). The design and implementation of an organization's quality management system is a strategic decision of an organization, which is based on the needs of the organization, the size of the organization, processes used and products offered (Medical, 2015), as well as corporate culture, which is significant in the productivity of a company employees, and is a factor that is rarely regarded as a method used to enhance efficiency (Fine, 2006; Szczepańska-Woszczyna,

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2014). The high quality of health care means a comprehensive approach to quality at every stage of service provision, and requires appropriate medical, personnel, infrastructure and financial resources (Bembnowska and Jośko-Ochojska, 2015). It covers three dimensions of the quality of medical services, which together make up its quality: the quality of the structure, the quality of the process and the quality of the outcome (Donabedian, 2005).

The issue to evaluate the quality of health care facilities has long been proclaimed in scientific circles, but so far, there is no comprehensive concept of comprehensive assessment. The quality of health care facilities can be viewed from different perspectives. Sreenivas et al. (2013), Štefko et al. (2017), Kubák et al. (2018) and Štefko et al. (2018) highlight marketing and evaluate healthcare facilities by analyzing elements of the marketing mix from the personnel dimension. The quality of health care from a marketing point of view looks similar according to Lega (2006), who highlights the role of marketing in public health care. This results in the increased importance of marketing activities such as promotion policy, service before and after sales, or implementation of marketing research (Czuba 2016). Wang et al. (2018) and Štefko et al. (2016) highlight the importance of financial areas and technologies. Handayani et al. (2015) emphasize the hospital should pay more attention on human resources as the top dimension. Quality management standards such as 'ISO 9001' focusing on management processes. We could name many other areas. Aggregation of all possible areas will inevitably result in the general quality of the healthcare facility.

Health care is one of the most monitored areas in the national economies of the vast majority of countries. Its quality and efficiency are the primary attributes of its operation. Continuous health assessment is an inherent part of its development.

Evaluating the services is often relatively demanding due to lack of, or complicated and time-consuming procurement of input data, financial difficulty, or procedural difficulty (Olšovská et al., 2016; Litavcová et al., 2015; Łyszczarz, 2016) as well as reward for personnel performing service quality (Olken et al., 2014). A number of tools and techniques have been developed to evaluate the quality of services for different organizations, but they are time-consuming and expensive (Lajčin et al., 2012). The best-known models with a high degree of validity and added value are inherently the DEA and BCS but these also have their disadvantages. For instance, when we apply DEA models, we can talk about "lasting a week" effort.

As mentioned, there are few approaches to evaluate the health care facilities, but the complex ones are limited. One of the comprehensive approaches to evaluation is the approach based on the DEA models. Vitezić et al. (2016) have verified the applicability of this method on the Croatian health care system. As the authors presented in their article, DEA models are effective tools, but with a complex application. A common feature of healthcare, without any difference in the development, is the lack of funds, so it can be argued that the vast majority of health care facilities have no potential or means to apply the DEA models. For the assessment of health care facilities Tsai et al. (2017), uses the Balanced Scorecard

model with a high level of success. This model suggests that if a health care facility is to be rated with a high degree of validity, the evaluation should be based on several areas. Ozorovský and Vojteková (2016) in their publications in relation to health care, represent management processes as all of the processes in the company that aim to influence the behaviour of health care as a whole. The authors state that if the study wants to evaluate the quality of health care, it must evaluate all the processes. The most elegant way to analyze these variables is to evaluate them at the output, as emphasizes the BSC model.

In this work, it is focusing on the creation of an alternative model of quality evaluation of health care facilities. Although this issue is of the utmost importance so far, there is no systematic approach to the quality evaluation of health care facilities.

Methodology

The main objective of our research is to develop the simplest yet effective way of evaluating the quality of health care facilities. The explicit idea of evaluating the quality of a health care facility is, from our point of view, a patient's satisfaction - recommendations, the number of extraordinary events, the number of sanctions and the economic aspect. These variables form the basis of an alternative model for the evaluation of health care facilities. The principle of deduction of this model is based on the derivation of the correlation between all variables and the definition of the exact variables, the substance of which is given in the Figure 1.
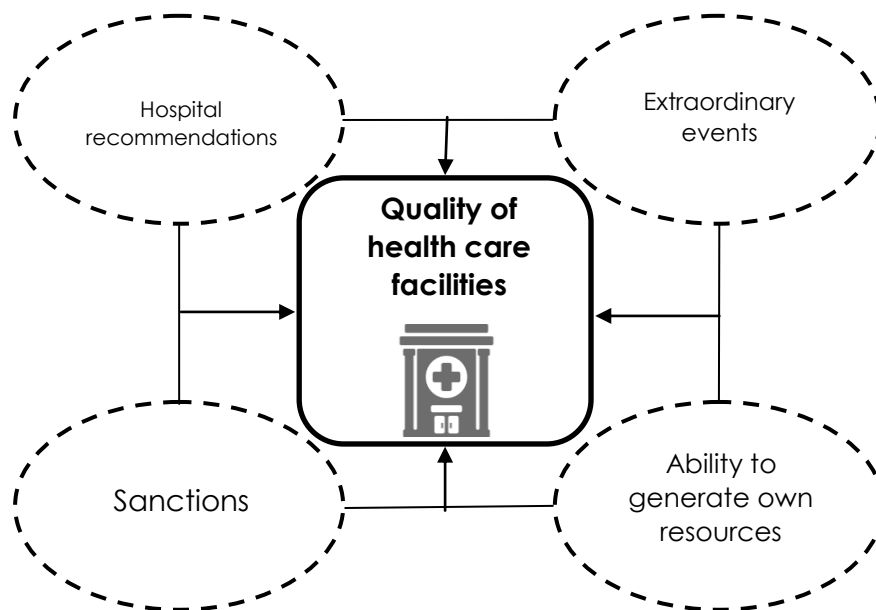

Figure 1. Suggested Quality Evaluation Model

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The Figure 1 is based on the basic assumption that the quality assessment is possible based on the satisfaction expressed by the recommendation (the variable examined on the Likert scale the attitude towards the recommendation of the health care facility to a family member / 1 definitely yes ..., 5 certainly not). There is one indicator of financial performance by the ability to generate own resources. (The ratio of the total economic result of the accounting period and the depreciation of tangible and intangible fixed assets to revenues from the sale of own products and services), the number of undesirable events (reporting according to the HCSA methodological guidelines - accidents, falls, unintentional damage without lasting consequences, serious events with a permanent effect or death, foreseeable events of unforeseen events, etc.) The number of sanctions (the number of fines imposed per 10,000 hospitalizations). For these indicators the authors assume that they acquire a significant relationship to other quality indicators and thus approximate them in a certain sense. The justification of the variables is also defined by the fact that they are variables that the health care facility cannot independently influence, but their output is subject to several indicators. For example, recommend it to a family member based on his/her free will.

Based on the above-mentioned main objective, we formulate the research question:

R.Q.I: Is there a relationship between the predicted evaluation elements and the selected quality indicators?

This survey could be characterized as secondary in terms of data collection. Data were collected from INEKO's primary research databases (Institute for Economic and Social Reforms) and from HCSA (Health Care Surveillance Authority). In the research, we included 27 variables to verify the existence of the above-described assumptions. The functionality of the assumed model of quality evaluation of health care facilities was verified in Slovakia on a sample of 65 health care facilities. In order to minimize the deviations in the final outputs, the authors selected the health care facilities from all the regions of Slovakia. Slovakia's regions are relatively diverse. Three types of health care facilities were analyzed, namely state university and faculty hospitals, children's faculty hospitals and general hospitals. This sample includes both private and state facilities. The study obtained the analytical data from 2009 to 2016 and subsequently treated with the arithmetic mean. This research can be characterized as interdisciplinary, quantitative, applied research, the output of which would be a model for the quality evaluation of health care facilities. The Table 1 shows the variables used in the analysis.

For processing, the researchers used correlation analysis methods. The authors carried out the analysis itself using the Spearmen ρ correlation coefficient. The authors used the given coefficient due to the low occurrence of variables with the fulfilled condition of normality.

The study applied the analysis in a way that it compared the correlation of a single dependent variable to all other variables. The authors performed the evaluation based on a comparison of p with a level of significance of 0.05, i.e. 5%. Analyzes

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were broken down by dependent variables and only relationships are displayed, which showed a significant association rate.

Table 1. Description of Analyzed Variables

Variable	Description	Better result
Total_patient_satisfaction	Total patient satisfaction (1-5)	MIN
Dept_%	Debt overdue to sales (%)	MIN
Dr_behaviour_Dptm	The behavior of Dr. in the department	MIN
Info_illness_Dr	Information about examinations and illness by the attending Dr.	MIN
Nurses_behaviour	Behavior of nurses in the department	MIN
Dr_care	Doctors care at the department	MIN
Nurses_care	Nurses care at the department	MIN
Quality_accommodation	Quality of accommodation	MIN
Quality_food	Quality of food	MIN
Quality_cleaning	Quality of cleaning	MIN
Provided_healthcare	Provided healthcare	MIN
Info_Dr_home_treatment	Information from the attending doctor about next home treatment	MIN
Info_nurses_home_treatment	Information from the attending nurses about next home treatment	MIN
Improvement_health_release_home	Improvement of health after release from the hospital	MIN
treated_again_hospital	If you needed, would you be treated in this hospital again?	MIN
recommend_hospital	Would you recommend this hospital to their relatives and friends?	MIN
Rehospitality_30d_%	Rehospitality total 30 days (%)	MIN
Nosocomial_infection_%	Nosocomial infections (%)	MIN
Adverse_events_N	Adverse events (N)	MIN
Nosocomial_infections_catheters_cannulas	Nosocomial infections in cannulas catheters insertion (ratio)	MIN
Postoperative_wound_infections	Postoperative wound infections (ratio)	MIN
Ability generate own resources	Ability generate own resources (ratio - aggregate financial indicator)	MAX
Bank_loans_bailouts	Bank loans and bailouts (%)	MIN
Transparency_Index	Transparency Index (%)	MAX
Number_fines_10000_hospitalizations	N of fines per 10000 hospitalizations (N)	MIN
Number_complaints_UDZS_10000_hospitalizations	N of complaints adressed to the UDZS per 10000 hospitalizations (N)	MIN
Number_substantiated _complaints_UDZS _10000_hospitalizations	N of substantiated complaints adressed by the UDZS per 10000 hospitalizations (N)	MIN

MIN - **smaller value** is better

MAX - **greater value** is better

Results

The following describes and visualizes the steps by which the authors validate the variability of the variables in the predicted models. As mentioned in the previous section, the study will use a correlation analysis for verification. The study has divided the analytical section into four separate blocks where each block is devoted to the analysis of one dependent variable.

Variable - Recommendations

The following analysis enters as a dependent variable of the recommendation of a health care facility to a family member and as an independent, defines the different areas of quality output of health care facilities.

Table 2. Correlation Analysis of Recommendations - Independent Variables

Recommended hospital	Total patient satisfaction	Dr behaviour Dptm	Info illness Dr	Nurses behaviour	Dr care
Sig. (2-tailed)	0,000	0,000	0,000	0,000	0,000
Coefficient	0,600	0,641	0,654	0,515	0,591

Recommended hospital	Nurses care	Quality accommodation	Quality food	Quality cleaning	Provided healthcare
Sig. (2-tailed)	0,000	0,000	0,000	0,000	0,000
Coefficient	0,490	0,503	0,551	0,503	0,643

Recommended hospital	Info Dr home treatment	Info nurses home treatment	Improvement health release home	treated again hospital
Sig. (2-tailed)	0,000	0,000	0,000	0,000
Coefficient	0,643	0,570	0,601	0,857

The Table 2 only shows variables that correlate significantly with the dependent variable. The study carried out the correlation analysis in the first step by p-value analysis, and in the second, it deduced the degree of dependence. As it shows from the Table 2, all outputs show minimum medium-degree dependence rate. The authors measured the lowest dependence in the quality of the cleanliness and quality of the accommodation and the highest in the reuse of the services of the health care facility.

Variable - Extraordinary events

The following analysis enters as a variable of extraordinary (undesired) events and as independent of all other variables defining different areas of quality outputs of health care facilities. We consider any undesirable incident any event (statutory obligation) that is, by its nature, likely to endanger the health or life of the employee and the patient.

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Table 3. Correlation Analysis of Extraordinary Events - Independent Variables

Adverse events N	Rehospitality 30d %	Nosocomial infection %	Nosocomial infections catheters cannulas	Postoperative wound infections	Transparency Index
Sig. (2-tailed)	0,001	0,008	0,006	0,001	0,007
Coefficient	0,477	0,381	0,458	0,533	0,384

The Table 3 only shows variables that correlate significantly with the dependent variable. In the first step, the study has carried out the correlation analysis by p-value analysis, and in the second, the authors have deduced the degree of dependence. Dependency outputs are lower than the previous inquiry. The authors have found the lowest rate in the nosocomial infection, which they interpret as the weakest and the highest degree, understood as the mean dependence in post-operative wound infections.

Variable - Sanctions

The following analysis enters as a dependent variable, the number of sanctions per 10,000 hospitals and as independent all other variables defining the different areas of quality outputs of health care facilities.

Table 4. Correlation Analysis of Sanctions - Independent Variables

Number fines 10000 hospitalizations	Total patient satisfaction	Dr care	Provided healthcare	Info nurses home treatment	Improvement health release home
sig. (2-tailed)	0,034	0,027	0,037	0,035	0,015
Coefficient	0,263	0,274	0,259	0,262	0,302

Number fines 10000 hospitalizations	Ability generate own resources	Bank loans bailouts	Number complaints UDZS 10000 hospitalizations	Number substantiated complaints UDZS 10000 hospitalizations	
sig. (2-tailed)	0,032	0,009	0,000	0,000	
Coefficient	-0,268	0,331	0,576	0,648	

The Table 4 only shows variables that correlate significantly with the dependent variable. The vast majority of outcomes are interpreted as a low degree of dependence; the number of complaints per 10,000 hospitalizations identifies the mean rate. The highest rate among analyzed variables is the number of substantiated complaints per 10,000 hospitalizations.

Variable - Ability to Generate own Resources

The following analysis enters into a dependent variable numerically expressed ability to generate own resources and as independent of all other variables defining

the different areas of quality outputs of health care facilities. The ability to generate our own resources can be understood as the ability to generate funds for the renovation and modernization of assets. The authors calculate this indicator as the ratio of the sum of the profit after tax and of the tangible and intangible fixed assets to the receipts of the health care facility.

Table 5. Correlation Analysis of the Ability to Generate Own Resources –
Independent Variables

Ability generate own resources	Dept %	Quality accommodation	Info nurses home treatment
sig. (2-tailed)	0,021	0,005	0,041
Coefficient	-0,291	-0,345	-0,257

Ability generate own resources	Number fines 10000 hospitalizations	Number complaints UDZS 10000 hospitalizations	Number substantiated complaints UDZS 10000 hospitalizations
sig. (2-tailed)	0,032	0,025	0,003
Coefficient	-0,268	-0,280	-0,366

The Table 5 only shows variables that correlate significantly with the dependent variable. In the first step, the study has carried out the correlation analysis by p-value, and in the second, the authors have deduced the degree of dependence. The study places all outputs in the interval with low dependency.

Discussion

Previous analyzes have deduced the degree of dependence of dependent variables; understand as factors of the model of quality analysis of health care facilities. The main idea of the previous analysis is to examine the relationship of dependent variables to the highest possible number of independent variables. The Table 6 points to significant relationships of independent variables with particular dependent variables.

As the study has predicted, the given dependent variables can approximate those outcomes of health care facilities. The Table 6 consists of two columns; the first shows the independent variables and the second the dependent variable that correlates with the independent. If the study once again focuses on modeling, it needs to define the application's exact settings. The proposed model should be applied as a benchmarking tool in the dimension of each of the four parts. Analyze the degree of recommendation and then ask questions: *Why do we have the recommendation to this extent? What can we do to make it better?*

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Table 6. Illustration of Specific Relationships of Independent Variables to Dependent Variables

Variable	correlation with
Total_patient_satisfaction	recommend hospital, Number fines 10000 hospitalizations
Dept_%	Ability generate own resources
Dr_behaviour_Dptm	recommend hospital
Info_illness_Dr	recommend hospital
Nurses_behaviour	recommend hospital
Dr_care	recommend hospital, Number fines 10000 hospitalizations
Nurses_care	recommend hospital
Quality_accommodation	recommend hospital, Ability generate own resources
Quality_food	recommend hospital
Quality_cleaning	recommend hospital
Provided_healthcare	recommend hospital, Number fines 10000 hospitalizations
Info_Dr_home_treatment	recommend hospital
Info_nurses_home_treatment	recommend hospital, Number fines 10000 hospitalizations, Ability generate own resources
Improvement_health_release_home	recommend hospital, Number fines 10000 hospitalizations
treated_again_hospital	recommend hospital
Rehospitality_30d_%	Adverse events N
Nosocomial infection (%)	Adverse events N
Nosocomial_infections_catheters_cannulas	Adverse events N
Postoperative_wound_infections	Adverse events N
Bank_loans_bailouts	Number fines 10000 hospitalizations
Transparency_Index	Adverse events N
Number_complaints_UDZS_10000_hospitalizations	Number fines 10000 hospitalizations, Ability generate own resources
Number_substantiated _omplaints_UDZS _10000_hospitalizations	Number fines 10000 hospitalizations, Ability generate own resources

Similarly, it is appropriate to approach other elements of the model. What can we do to make our ability to generate our own resources higher? What can we do to reduce the number of sanctions? What can we do to reduce failures and prevent extraordinary events? These principles are appropriate for the self-diagnosis

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of each health care facility. It is also appropriate to compare these four attributes with other (competitive) health care facilities with a similar focus. The Figure 2 shows that the theoretical relationship between the principles of the evaluation system with the ideal outcome in improving the quality of health care rankings as well as the competitiveness on a nationwide scale.
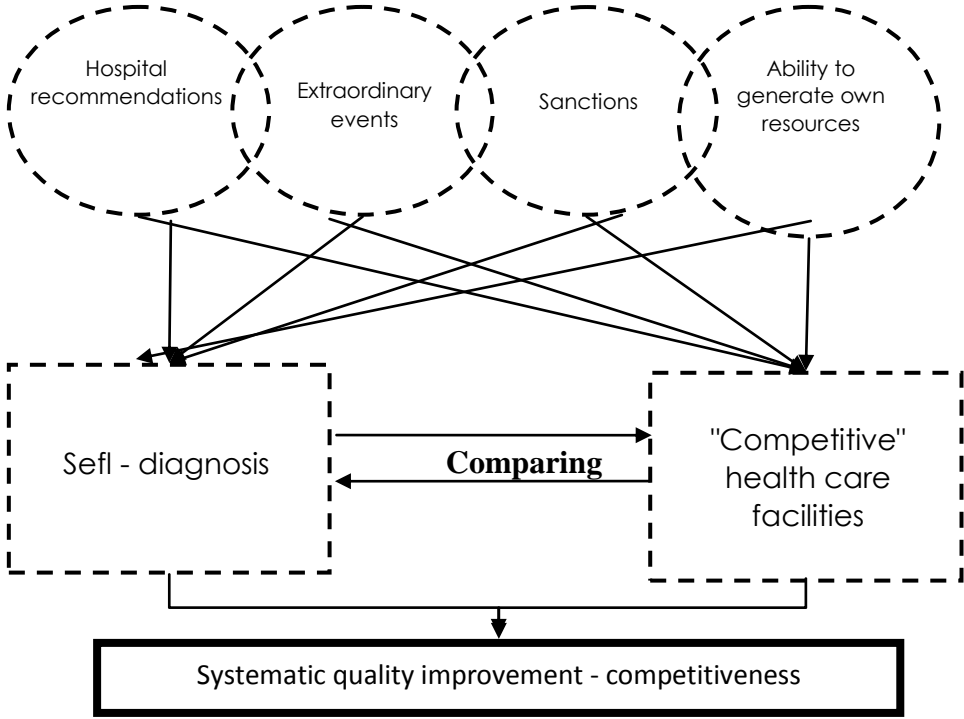
Figure 2. System and Principles of Quality Evaluation

The well-known attributes (hospital recommendations, extraordinary events, sanctions and the ability to generate own resources) make every health care facility without any problems more secure, which speeds up the evaluation process. We understand this model in two dimensions; in the first dimension theoretically, it defines the bases that take on importance, in the second dimension, in application with the output of systematic improvement of the quality of health care facilities.

Issues in health care quality assessment and modeling are widespread in a number of areas, but often in areas of treatment directly related to health care provision. The essence of the problem for example in the field of intensive care is highlighted Salluh et al. (2018). Rogalewicz (2016) looks again at the assessment and quality of health care facilities from the point of view of instruments and techniques in the health care sector. Gavurova et al. (2017) examines the long-term evaluation of the processes of health care facilities. Saputra and Rajiani (2017) examine that health

care facility is dependent on ruling government interest. The presented evaluation approach is not so detailed. It is not applied directly to the "*health care*" area, as the above-mentioned studies, but its application is found in the management application. Similar approaches to quality assessment from the management perspective are not many, and the authors therefore emphasize the importance of this issue.

Summary

As it has mentioned in the introduction, the goal of this research is to develop the simplest yet effective way of assessing the quality of health care facilities. This goal is realized based on a research question in which the authors have sought to respond to the existence of a patient's hospital recommendation to a family member, the occurrence of extraordinary events, the number of sanctions have granted and the ability to generate own resources to selected indicators evaluating the quality of the health care facility. As it has assumed, relationships are confirmed and the assumption is verified. The authors consider these variables to be a qualitative assessment of the quality of health care facilities. The greatest positive feature of this model is its simplicity and fast applicability. If we focus on other models of evaluation (for example DEA, BSC) of health care facilities, their common denominator is high accuracy but also a high demanding applicability.

This model, from a managerial point of view, appears to be suitable for normal use in the management of health care facilities. The control section can seamlessly retrieve the data, then apply it, and draw the conclusions necessary for the operational distributions. The most significant limitation of the model lies in the very nature of health care facilities, and therefore, there are often no resources. Health care can be compared to find out where more "effort is needed", but when it comes to budgeting, the implementation of decisions (with higher financial cover) is reversed in never-achievable plans, as there are no resources.

As highlighted in the introduction, the evaluation of service areas is often relatively demanding due to the lack of complicated and time-consuming procurement of input data. However, in areas of business, science or personal interest, we are in a situation where the quality evaluation of health care facilities is necessary. In the analytical part of this article, it concludes that there is no need to analyze dozens of indicators of the different areas for the qualitative evaluation, but only 4, namely the patient's recommendations to a family member, the occurrence of extraordinary events, the number of sanctions granted and the ability to generate own resources.

The above variables approximate 100% of the considered independent variables. These variables are divided into 4 areas. In the first, facilities are evaluated from the marketing point of view in order to satisfy the customer's needs. This area recorded a correlation to more than 50% of the analyzed items. The second area, extraordinary events, is the output of quality as well as the management of the health care facility. In this area, in all variables, a significant relationship is manifested in almost 20% of cases. The third area focuses on the quality of the

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services provided, as well as on the assumption of sanctions. In case of a sanction variable for 10,000 hospitalizations, there is a significant relationship in more than 30% of the analyzed variables. The last variable determines the financial area. The right financial management is extremely important for medical facilities. If the health care facility gets into a spiral of deepening debts, analogically, several components will drop as well as the quality of the services due to saving. In this variable, the relationship is recorded in more than 20% of cases.

The research on this issue is beneficial. Quality and its systematic increase in health care is one of the main pillars of the development. Further research can be carried out in areas of re-testing of the model, in the areas of determining the individual weight ratios of individual elements of the model, or, among other things, the experimental view of model application outputs in health care facilities.

References

Bembnowska M., Jośko-Ochojska J., 2015, *Quality management in health care system,* "Hygeia Public Health", 50(3).

Czuba M., 2016, *Youth as a recipient of marketing innovations in activities of companies providing municipal services*, "Forum Scientiae Oeconomia", 4(1).

Dodwad S., 2013, *Quality management in healthcare*, "Indian Journal Public Health", 5.

Donabedian A., 2005, *Evaluating the quality of medical care,* "The Milbank Quarterly", 83(4).

Feliczek P., 2016, *Quality System Management in medical devices industry in the face of normative changes,* "Studia Oeconmica Posnaniensia", 4(12).

Fine K. A., 2006, *Emphasis on corporate culture: Embracing quality system compliance in corporate culture*, [Available at: http://www.mdtmag.com/product-releases /2006/02/emphasis-corporate-culture-embracing-quality-system-compliance-corporate-culture; access on: 09.03.2014].

Gavurová B., Kováč V., Fedačko J., 2017, *Regional disparities in medical equipment distribution in the Slovak Republic – a platform for a health policy regulatory mechanism*, "Health Economics Review", 7(1).

Gavurová B., Kováč V., Šoltés M., Kot S., Majerník J., 2017, *Income inequality in non-communicable diseases mortality among the regions of the Slovak Republic*, "Central European Journal of Public Health", 25.

Handayani P.W., Hidayanto A.N., Sandhyaduhita P.I., Ayuningtyas D., 2015, *Strategic hospital services quality analysis in Indonesia*, "Expert Systems with Applications", 42(6).

Kubák M., Štefko R., Barták M., Majerník J., Vagašová T., Fedelešová M., 2018, *Risk of dying from cancer by socio-demographic indicators in the Slovak Republic*, "Central European Journal of Public Health", 25(Supplement).

Lajčin D., Frankovský M., Štefko R., 2012, *Possibilities of predicting the behavior of managers when coping with demanding situations in managerial work*, "Ekonomicky casopis", 60(8).

Lauzadyte-Tutliene A., Balezentis T., Goculenko E., 2018, *Welfare state in Central and Eastern Europe*, "Economics & Sociology", 11(1).

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Rajiani I., Bačík R., Fedorko R., Rigelský M.,
Szczepańska-Woszczyna K.

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Lega F., 2006, *Developing a marketing function in public healthcare systems: A framework for action*, "Health Policy", 78(2–3).

Litavcová E., Bucki R., Štefko R., Suchánek P., Jenčová S., 2015, *Consumer's behaviour in East Slovakia after euro introduction during the crisis*, "Prague Economic Papers", 24(3).

Łyszczarz B., 2016, *Public-private mix and performance of health care systems in CEE and CIS countries*, "Oeconomia Copernicana", 7(2).

Medical Device Single Audit Program, 2015, [Available at: https://www.fda.gov /downloads/MedicalDevices/InternationalPrograms/MDSAPPilot/UCM535976.pdf; access on-line: 10.04.2018].

Olken B.A., Onishi J., Wong S., 2014, *Should aid reward performance? Evidence from a field experiment on health and education in Indonesia*, "American Economic Journal: Applied Economics", 6(4).

Olšovská A., Mura L., Švec M., 2016, *Personnel management in Slovakia: An explanation of the latent issues*, "Polish Journal of Management Studies", 13(2).

Ozorovský V., Vojteková I., 2016, *Zdravotnícky manažment a financovanie*, Bratislava: Wolters Kluwer.

Rogalewicz V., 2015, *Health technology assessment as a tool for medical devices management in hospitals*, E-Health and Bioengineering Conference, EHB.

Rouse W.B., 2008, *Health care as a complex adaptive system: Implications for design and management,* "Bridge Washington Nat Acad Engineering", 38.

Salluh J.I.F., Chiche J.D., Reis C.E., Soares M., 2018, *New perspectives to improve critical care benchmarking*, "Annals of Intensive Care", 8(1).

Saputra M., Rajiani I., 2017, *Stakeholders' misbehavior conduct in HIV/AIDS mitigations in the era of Indonesian decentralization and democracy*, "Indian Journal of Public Health Research & Development", 8(4).

Shopov D., 2009, *The quality manual by ISO 15189 as a model of any health establishment,* "Medical Review", 45(2).

Shortell S.M., O'Brien J.L., Carman J.M., Foster R.W., Hughes E.F.X., Heidi Boerstir H., O'Connor E.J., 1995, *Assessing the impact of Continuous Quality Improvement / Total Quality Management: Concept versus implementation,* "HSR: Health Services Research", 30(2).

Sreenivas T., Srinivasarao B., Rao U.S., 2013, *7Ps in corporate hospitals – Administrators' perspective*, "African Journal of Business Management", 7(43).

Štefko R., Gavurová B., Kocisova K., 2018, *Healthcare efficiency assessment using DEA analysis in the Slovak Republic*, "Health Economics Review", 8(6).

Štefko R., Gavurová B., Korony S., 2016, *Efficiency measurement in healthcare work management using malmquist indices*, "Polish Journal of Management Studies", 13(1).

Štefko R., Jenčová S., Litavcová E., Vašaničová P., 2017, *Management and funding of the healthcare system*, "Polish Journal of Management Studies", 16(2).

Szczepańska-Woszczyna K., 2014, *The importance of organizational culture for innovation in the company,* "Forum Scientiae Oeconomia", 2(3).

Tsai J.M., Chien H.H., Shih S.C., Lee S.C., Tsai L.Y., Tsay S.L., 2017, *Using Balanced Scorecard on reducing fall incidents and injuries among elderly cancer patients in a medical center in Taiwan*, "International Journal of Gerontology", 11(4).

Vitezić N., Šegota A., Setnikar Cankar S., 2016, *Measuring the efficiency of public health services by DEA*, "International Public Administration Review", 14(4).

Wang T., Wang Y., McLeoda A., 2018, *Do health information technology investments impact hospital financial performance and productivity?* "International Journal of Accounting Information Systems", 28.

ALTERNATYWNY MODEL OCENY JAKOŚCI OBIEKTÓW OCHRONY ZDROWIA OPARTY NA WYJŚCIACH PROCESÓW ZARZĄDZANIA

Streszczenie: W artykule przedstawiono podsumowanie naukowego poglądu na jakość placówek służby zdrowia w wymiarach odzwierciedlających jakość zarządzania. Głównym celem było stworzenie alternatywnego modelu, który odzwierciedlałby jakość urządzeń medycznych przy użyciu jak najmniejszej ilości danych wejściowych. w celu oceny jakości wybraliśmy dane wejściowe z czterech obszarów. Z obszaru zarządzania marketingowego do obszaru zaleceń pacjenta, z obszaru zarządzania kryzysowego w wymiarze działania profilaktycznego z wynikiem zdarzeń nadzwyczajnych. Trzeci obszar określa jakość świadczonych usług. Model obejmuje również zmienną zdolność do generowania własnych zasobów. Przeprowadzone badania scharakteryzować można jako wtórne, zebrane zostały z baz danych INEKO i Urzędu Nadzoru Opieki Zdrowotnej w próbie 65 zakładów opieki zdrowotnej na terenie Słowacji w latach 2009-2016. Wspomniane wcześniej zmienne zależne na wyjściu analizy korelacji znacznie przybliżyły wszystkie zmienne niezależne. Jeżeli zmienne zależne rozpatrywano by osobno, zmienna "polecanie szpitala" korelowałaby z ponad 50% zmiennych niezależnych, zmienna sankcji korelowałaby z ponad 30%, a zmienna zdolność do generowania własnych zasobów z ponad 20% zmiennych niezależnych. Istotna korelacja ze zmienną zdarzeń nadzwyczajnych wystąpiła w prawie 20% przypadków. Wiele innych modeli oceny jakości opieki zdrowotnej ma wspólną cechę, są skomplikowane, a przez to trudne do praktycznego wykorzystania, nasz model w przeciwieństwie do pozostałych jest łatwy do zastosowania i przydatny, gdy potrzebna jest "szybka" ocena.
Słowa kluczowe: placówki służby zdrowia, zarządzanie placówkami służby zdrowia, jakość placówek służby zdrowia, model jakości placówek służby zdrowia

基于管理过程输出的医疗卫生服务质量评估模型

摘要：本文总结了卫生保健设施质量的科学观点，反映了某个设备管理质量的维度。主要目标是建立一个替代模型，尽可能少地反映医疗保健设备的质量。我们从四个方面选择投入来评估质量。从营销管理领域到患者的建议，从预防性活动维度的危机管理领域与特殊事件数量的输出。第三个领域将所提供服务的质量作为实现制裁最小化的先决条件，当然，财务管理领域也没有被忽略，因此该模型还包括生成自有资源的可变能力。我们可以将我们的研究描述为次要的；我们在2009-2016年期间在斯洛伐克境内的65个医疗保健.机构中采集了来自INEKO数据库和医疗保健监督办公室的数据。前面提到的因变量在相关分析的输出中显着地逼近了所有的自变量。如果将因变量分开考虑，"推荐医院"变量与超过50%的自变量相关。制裁变量超过30%，自变量产生的自变量超过20%。几乎20%的病例发生非常事件变量的显着相关性。许多其他医疗保健质量评估模型具有共同的特点，这是相当繁琐和复杂的，相反，我们的模型易于应用，并且在需要"快速"评估时非常有用。
关键词：卫生保健设施，卫生保健设施管理，卫生保健设施质量，卫生保健设施质量模型