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Vitezić, Nada; Janković, Suzana

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**Neda Vitezić**  
University of Rijeka  
Faculty of Economics and Business  
Ivana Filipovića 4,  
51000 Rijeka, Croatia  
neda.vitezic@efri.hr  
Phone: +38551355126

**Suzana Janković**  
Teaching Institute of Public Health of  
Primorsko-Goranska County  
Krešimirova 52a,  
51000 Rijeka, Croatia  
suzana.jankovic@zzjzpgz.hr  
Phone: +38551214359

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# BALANCED SCORECARD IMPLEMENTATION IN PUBLIC SOCIAL MEDICINE

## ABSTRACT

Social medicine is a segment of public health services aiming to improve the population's health through various preventive programmes and activities. This is why the metrics of performance measurement can be a challenge, because these are activities with a qualitative outcome that requires a time lag. The research subject is the assessment of effectiveness of social medicine programmes implemented in the public health system of the Republic of Croatia. For this empirical research, data were used by the county's Teaching Institute of Public Health, Social Medicine Department. The department has three basic objectives: to assess the health and health needs of the population, to develop public health policy, and to ensure the implementation of effective programmes. The aim of this research is to find the metrics that will be useful for the final outcome assessment of social medicine activities. The theory and the concept of the Balanced Scorecard (BSC) are relevant for the field of health care, but there is not much research on applying the BSC in preventive activities, especially those in the field of social medicine. Adjusted Balanced Scorecard is proposed for improving the effectiveness of performance assessment of current and future results. In a modified BSC, its perspectives and metrics help to achieve the set objectives and report critical outcomes through a strategic map. This research confirms the applicability and flexibility of the BSC and contributes to developing a set of common indicators that reflect the qualitative aspects of activities and enable effectiveness assessment of social medicine activities.

**Keywords:** Public social medicine, BSC, efficiency, effectiveness

## 1. Introduction

The public health sector has been facing the issue of rationalisation and the need to measure performance for a long time. Health care institutions are invited to demonstrate their efficiency and effectiveness in providing services for users for whom they exist. In this regard, finding a suitable measurement system is a challenge and a necessity for demonstrating the benefits of different health services for the community.

The Balanced Scorecard (BSC) introduced by Kaplan and Norton (1992, 1993, 1996, 2001) is known as one of the most commonly used tools for meas-

uring performance and a sort of an innovation that appeared towards the end of the 20<sup>th</sup> century. With its object-related modifications, the BSC model is still applicable in the 21<sup>st</sup> century. It is considered a very efficient management tool for describing, implementing and managing a strategy and the most discussed conceptual framework for transforming strategic objectives into a set of measurable and tangible performance measures. The model is based on four fundamental and logical factors (called perspectives) in the business process: financial perspective, internal business process perspective, customers' perspective, and innovation and learning perspective. The point is to keep score of

a set of measures that maintain a balance between “short and long-term objectives, financial and non-financial measures, between lagging and leading indicators, and between internal and external performance aspects” (Kaplan, Norton, 1996b).

Over time, studies became focused on the Balanced Scorecard in the public sector (Azizi et al., 2012), which encouraged Kaplan and Norton (2001) to modify the original model by increasing the number of perspectives and measures depending on the concrete vision and strategy of the organisation. The first article on the BSC in health care settings was published in 1994 (Gurd, Tao, 2008) and since then there have been 6,300 documents in which Balanced Scorecard was associated with health care, hospitals or community health. With the Web of Knowledge, there were 87 documents in which Balanced Scorecard was associated with health care, hospitals or community health in a document topic<sup>1</sup>.

Undoubtedly, the model has been increasingly used in the health care sector all over the world and explored as a management tool that can help organisations to effectively implement strategies (Bisbe, Barubés, 2012), or develop practical conceptualisation, mainly for hospitals (Baker, Pink, 1995; Lovaglio, Vittadini, 2012; Chang et al., 2008; Yilmaz, Erdem, 2015). In their review study, Zelman et al. (2003) concluded that “the theory and concepts of the balanced scorecard are relevant to health care, but a modification to reflect the industry and organisational realities is necessary”. A decade after Kaplan and Norton had introduced the BSC framework, a number of health care organisations in various healthcare settings started to adopt and modify the four quadrants (Voelker et al., 2001; Weir et al., 2009).

When developing a BSC for public health, the focus of which is on prevention and health promotion for the entire population, the proposed BSC is distinguished from BSC in other health care systems. In general, health care systems are specific because of their importance for the society and, therefore, the cause-and-effect relationships between financial and non-financial measures, internal and external short-term and long-term goals require BSC adjustments. As Kaplan and Norton pointed out, greater focus is placed on the qualitative side of performance and it therefore became necessary to develop strategies for the management of an organisation’s intangible assets. In health care, these intangible assets primarily include the relationship to customers – users of its services, innovative programmes and other various types of services,

workforce education, sophisticated technological support, information technology, supportive organisational climate, management by objective-oriented skills, etc.

This paper covers the adaptation of the BSC framework for measuring efficiency in social medicine, verifying the hypothesis that the adjusted BSC is suitable for designing and directing strategic and operational plans in accordance with the mission and vision of the Social Medicine Department.

## **2. The complexity of public social medicine**

Since the mid-19<sup>th</sup> century, social medicine has become an important pattern of public health services. Over time, meanings of the term “social medicine” have changed as it was adapted to different societies and diverse social conditions. Rudolf Virchow (1821-1902), one of the greatest pathologists of the nineteenth century, recognised for his contribution to the understanding of disease at the cellular level, is considered to be the founder of social medicine. R. Virchow and his colleagues formulated in the nineteenth century certain common principles that define the term “social medicine” (Kostičová, 2015: 12):

- Social and economic conditions have a profound impact on health, disease, and the practice of medicine.
- The population’s health is a matter of social concern.
- Society should promote health through both individual and social means.

Sidney and Emily Kark (2006), two famous physicians in the mid-20<sup>th</sup> century, defined social medicine as a discipline “interested in the health of people in relation to their behaviour in social groups and as such concerned with care for an individual patient as a member of a family and of other significant groups in their daily life. It is also concerned with the health of these groups as such and with that of the whole community as a community”. The views of Professor W. Hobson about social medicine have been topical since 1949. He pointed out that “social medicine is a branch of medicine which provides a connecting link with the wider humanities. Its philosophy should permeate all branches of medicine, for its implications cannot be divorced from any branch of medical learning”. Galdston’s book, “The Meaning of Social Medicine,” should go a long way toward dispelling the confusion about differences between social and socialised medicine. He points

out very clearly that social medicine encompasses the whole of present-day diagnostic and therapeutic medicine, and according to some definitions it includes preventive medicine as well. However, in addition, social medicine comprises hygiene and public health. As community services they function in the social units of a nation, state, city, or local community. Nowadays, in the United States and many other countries with conservative views of the medical profession, social medicine has also developed, but the term has not been adopted, but rather incorporated in the term “public health”. In everyday terminology, social medicine and public health are synonymous, but is this really the case? Ryle (1943) thought not. He identified three differences. First, while public health focused on the environment, social medicine was concerned with the person, “and endeavours to study the person in relation to his/her environment”. Whereas public health was limited to housing, clean water, and sanitation, social medicine included “the whole of the economic, nutritional, occupational, educational, and psychological opportunity or experience of the individual or the community”. The second difference is in the level of interest in disease. Public health was mostly identified with communicable disease. By contrast, social medicine had a broader reach – non-communicable diseases, mental health, and injuries. The third distinguishing feature was social medicine’s acceptance of medical social workers: “the organisation of after-care, and the readjustment of the lives of individuals and families disturbed or broken by illness”. Social medicine united the clinical with the public. Ryle summarised the difference between social medicine and public health in this way: “social medicine extends the interest and alters the emphasis of the older public health, just as social pathology extends the interest and alters the emphasis of earlier epidemiological study.” (Horton, 2013). With a number of modifications to the definition, we are more inclined towards the definition of A. Štampar (1923), which is universally accepted and states that “social medicine is a science that examines the interaction of social relations and pathological phenomena in a nation and finds measures of a social character for the improvement of national health” (Jonjić et al., 2007).

Considering the complexity of social medicine activities and, simultaneously, the requirement to improve efficiency and effectiveness, this research aims to propose an appropriate metrics. Efficiency and effectiveness are usually combined for assessing performance in health care. Efficiency is a performance attribute measured by the relationship between specific public health services (out-

put) and the resources used to create that service (input). This means using a minimum number of inputs for a given number of outputs. Therefore, efficient health care is one that produces a given level of care, or quantity that meets an acceptable standard of quality, using a minimum combination of resources (Ozcan, 2014). Effectiveness evaluates the outcomes of health care or services and can be affected by efficiency or can influence efficiency. The focus in public health and social medicine is on the impact on overall national health. However, effectiveness of interventions in health promotion (HP), as part of social medicine, is often difficult to articulate, assess, and measure because the outcomes of any policy, programme or intervention are often temporally distant from the point of intervention. Moreover, the observed outcomes may be further complicated by interactions from other HP efforts or as a result of “natural” evolution or “history” of the phenomena upon which a HP intervention takes place. Indeed, changes over time are difficult to detect, measure, and evaluate (Campostini, 2007).

The case study of the Social Medicine Department is unique and complex, because it is more difficult to set the parameters for monitoring the activities and preventive programmes carried out by the Department. The programmes carried out by the Department of Social Medicine within the Institute are related to a segment or the entire population covered by the programmes and produce results only after a number of years. Prevention of various diseases and preservation of health are the basic purpose of public health care services that are, like other public services, constantly under pressure to increase rationality and be more budget-conscious while simultaneously improving effectiveness and increasing quality. The main objective of all the activities of the Social Medicine Department is to make a positive shift in the population’s health, and therefore, work efficiency is difficult to track by financial or short-term indicators.

### 3. Methodology

#### 3.1 Research aims

This study aims to find the metrics based on the BSC approach that will be useful for the assessment of the final outcome of social medicine activities. Social medicine is an integral part of public health services in Croatia in the framework of the entire health care system and is oriented to preventive activities. Public health preventive services comprise different activities (ecology, epidemiology, microbiology, so-

cial medicine, school medicine, mental health, and addictions) organised through departments, within institutes of public health. Each county has an institute of public health and in Croatia, there are 21 (20 counties plus the City of Zagreb and the Croatian Institute of Public Health). Only three of the largest institutes also have an educational function and are called teaching institutes. Department of Social Medicine is part of the Teaching Institute of Public Health in the County of Primorje and Gorski Kotar, which is the subject of case study in this research. The Department of Social Medicine has been involved in the entire project of implementation of the measuring system based on the BSC. Namely, the Teaching Institute of Public Health developed the BSC framework with the intention for it to be a management tool that aligns strategic direction with internal processes organised through six main departments: Health Ecology, Microbiology, Epidemiology, Social Medicine, School Medicine and Promotion of Mental Health, and Addiction Prevention.

### 3.2 Study design

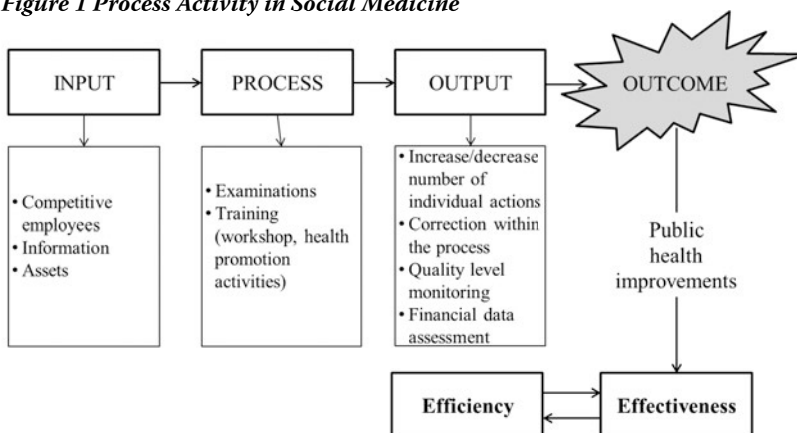
This study is a result of the scientific project “A Model for Measuring the Efficiency of Public Health Services” carried out from 2015 to 2020. We first developed a BSC at the level of a single Teaching Institute of Public Health with the intention to improve efficiency and ensure continuity of measurement of key processes. This was a long process marked by many discussions with the top and operational management; several workshops and meetings were held aiming to convince the department heads of the necessity and purposes of performance monitoring and measuring. The

unanimous opinion was that there was always room for improvement, although progress had already been achieved. Moreover, some of the services are also provided in the private sector, which has become more and more competitive. For this reason, the staff agreed that there was a need for quality improvement of various services in order to satisfy the users.

However, creating a BSC at the level of the entire Institute was a demanding task due to the complexity of the process of public health services. Various services have inputs and outputs which are quantitatively expressed in a different manner; for example, inputs: number of samples, intervention, programme, costs, and outputs: number of analyses, examinations, finished programmes, education, reports, income. Also, some outcomes are evident immediately, but some require a time lag. Therefore, the effects expressed naturally cannot be observed as a sum, but rather individually or expressed through the financial aspect of the effects, i.e. revenue or income. For this reason, each department has created its own strategic map in line with its mission and vision designed according to the vision and perspectives developed at the level of the entire Teaching Institute.

Social medicine outcomes are evident through a number of activities expressed in various quantitative measures, such as the number of prevention activities, children’s examinations, workshops etc. The advantage of BSC is that it enables continuous monitoring of non-financial indicators, possibility to focus on key performance indicators showing how the Institute translates its vision and strategy into concrete actions.

**Figure 1** Process Activity in Social Medicine



Source: Authors

Given that the primary objective of all public health activities of the Social Medicine Department is to improve the health status of the population, monitoring the final result or outcome is of particular importance. The outcome is easier to track in preventive health programmes organised and implemented independently. Self-evaluation is carried out throughout the programme, which also allows quick interventions and, if necessary, corrections of activities. The presented activities (Figure 1) can be applied to the entire Social Medicine Department.

Inputs are highly trained employees who by adequate means based on statistical data on the trend of a phenomenon and the assessment of a possible intervention create and carry out the entire programme and define its ultimate goal. The programme consists of different activities: examinations, awareness-raising events, carrying out workshops, holding lectures, promotion, disseminating health care messages through the media and social media. During the implementation, outputs are monitored that can also be different, depending on the programme, and show an upward or downward trend of a phenomenon, the level of quality of the conducted activities, and financial indicators. During the period of implementation and monitoring of results of the implementation of the programme, oscillations in the interval outcomes become evident, which momentarily becomes a reason for a change in the way of implementing the programme and its improvement, aiming to achieve the best results possible.

All public health programmes have a common outcome – improving the health status of the population and early disease detection. Outcomes are generally achieved after a longer period of time and are mostly measured qualitatively. For example, the outcome of the Programme of Improvement of Oral Health of Children is an improvement of the oral state indicator. The most important input of the programme are experts designing it on the basis of statistical data on health, showing that oral health of school children is below the level prescribed by the World Health Organisation. The activities conducted in the programme are examining children's teeth, teaching them how to brush them properly, issuing referrals, and treatments. Furthermore, the programme is also accompanied by promotional materials; brochures, picture books, radio and TV broadcasts, newspaper articles. Lectures and workshops are organised for the parents at which they learn how to protect the health of their children's teeth. An output is the number of examined children, the number of children with healthy teeth, the number of children that need a dentist's

intervention, and monitoring and quality control of the conducted examinations. Another output is the number of publications and appearances in the media. The outcome to increase the number of children with healthy teeth is the ultimate goal of the programme, set at the beginning of its implementation. Other preventive programmes are carried out in a similar manner: Early Breast Cancer and Colon Cancer Programme, Cardiovascular Disease Prevention, Early Melanoma Detection, Osteoporosis Prevention and Early Detection of Osteoporosis. The outcome can also be monitored in these programmes (e.g., an increased number of early detected cancers, which directly contributes to the reduction of mortality from these diseases).

## 4. Results

### 4.1 BSC creation

Due to the complexity of social medicine activities, the application of BSC was demanding. We started with the mission and vision designed according to the mission and vision of the entire Teaching Institute:

**Mission:** To preserve and promote health of all citizens and visitors to the County

**Vision:** Being the leader in improving the health status and quality of life in the County

The second step in our research according to the already set perspectives (Figure 2) was to create the BSC and the strategic map. These main perspectives are common to other departments due to comparison of effectiveness:

- **Users and other stakeholders** – The primary perspective that verifies the mission and ensures the vision has been achieved. Customer satisfaction is the most important goal of the realisation of all activities. It is not just a matter of a subjective feeling, but an indicator that programmes and activities are conducted and that they are considered necessary by the users. It is necessary to increase the number of new programmes and promote them.
- **Financial management** – Financial management is a common perspective across departments and in line with the institute's policies. It is important to secure sufficient funds for implementation of the programmes and activities within the programmes, and, where

possible, to increase revenues from activities on the market.

- **Quality of internal processes and organisation** – Quality of processes and organisation is of utmost importance for competitiveness in the market, but also for creating customer and shareholder's satisfaction. The standards introduced indicate that the institute guarantees the quality of its activities.

- **Learning and development of innovation** – one of today's fundamental priorities is to create a climate that supports organisational changes, innovation, and growth. External and internal training and a number of innovative solutions are considered as benchmarks.

According to the set perspectives at the level of the Teaching Institute, the objectives were discussed and accepted in the Social Medicine Department (Table 1):

**Table 1 Perspectives and Objectives of the Social Medicine Department**

PERSPECTIVES	OBJECTIVES
Users and other stakeholders (US)	<ol style="list-style-type: none"> <li>1. Increase customer satisfaction through quality of services provided</li> <li>2. Increase the number of preventive public health services and programmes</li> <li>3. Improve the promotion of programmes</li> </ol>
Financial management (FM)	<ol style="list-style-type: none"> <li>1. Ensure sufficient financial resources to provide quality services (mandatory health insurance and the budget)</li> <li>2. Increase revenue from services on the market</li> </ol>
Quality of internal processes and organisation (PO)	<ol style="list-style-type: none"> <li>1. Certify, accredit and integrate a new management system</li> <li>2. Improve the staff structure (ratio between health care professionals and non-health care professionals)</li> </ol>
Learning and development of innovation (LI)	<ol style="list-style-type: none"> <li>1. Increase external and internal trainings</li> <li>2. Introduce innovative solutions</li> </ol>

Source: Authors

Objectives were developed for each of the set perspectives and the initiatives are explained in the following text.

**Users and other stakeholders (US):**

It was important for us to measure the satisfaction of programme users. This objective is easily measurable, because after each activity within the programme, we monitored the satisfaction through questionnaires, measured by a 1-5 scale. The programmes implemented by the Department are aimed at the general population. They often represent an intervention in the health care system aiming to provide users with an examination, education or an activity that they cannot obtain in the public health care system or that they would have to wait for a long time. It is important to introduce new programmes to improve the health of the users by promoting a healthy lifestyle, preventing the onset of the disease or achieve early detection. These programmes include, for example, Early Detection of

Breast Cancer, Prevention and Early Detection of Colon Cancer, Prevention and Early Detection of Cervical Cancer, Improvement of Oral Health of Children, Prevention and Early Detection of Osteoporosis, Prevention and Early Detection of Melanoma, Prevention of Violence... All programmes of the Department are carried out in co-operation with the media that disseminate information, monitor the progress of programme implementation and inform the public of the achieved results.

**Financial management (FM):**

The funds for the implementation of the programme are secured from the budget and own sources. A part of the budget revenues is provided by the Croatian Health Insurance Fund that funds three health teams, each comprised of a doctor specialised in public health and a nurse. The second part of budget revenues comes from local sources (from the County budget). Own revenues are generated from market activities by offering programmes to

local self-government units, companies, associations, which can be influenced by better marketing.

In order to improve the management of financial resources, there is a need to implement cost controlling per each service. Through PR services, it is possible to increase financing from non-public funds – services offered in the market.

These services are offered as programmes like Prevention of osteoporosis in women, Early detection of melanoma, Golden Age, Prevention of Violence, Health picture of a municipality or city.

#### **Quality of internal processes and organisation (PO):**

The quality of processes and organisation is monitored through the introduction of new certification and management systems. All procedures are monitored by the Quality Department and are in the common interest of all departments since they have a significant impact on the acceptance of social medicine programmes in the market. The objective of improving the staff structure has been set regarding the ratio of health care professionals and non-health care professionals, since the latter currently outnumber the first group.

Given that the Department mainly implements health programmes, a larger number of health professionals are also needed. In other institutes in Croatia, the situation is different, primarily due to differences in organizational structure and types of programmes implemented.

Namely, numerous activities in the field of public health are also a subject of interest of economists, lawyers, and other experts, but the activities related to the improvement of health of users in the narrow sense are conducted exclusively by health care professionals who are in short supply. An appropriate ratio also requires defining the process architecture at the strategic and operational level. It depends on the number of programmes that are directly related to improving the health status of the population, which can only be carried out by healthcare professionals (diagnostic procedures, examinations etc.).

#### **Learning and innovation development (LI):**

Learning and innovation development is important for increasing the quality of work of all employees in the Department. Training – external and internal – is an objective that, along with the introduction of innovation, is a foundation for improving and increasing the number of all activities. External trainings include workshops, courses, education,

etc., attended by employees outside of the Institute, upon which they transfer new information to other employees in the department through internal training. Innovations are related to new activities within the existing programmes, new programmes, new software, or introduction of new quality systems. An internal policy may encourage specialisations and development of scientific research. A reward system can be applied to encourage innovative solutions.

For now, there is no reward system and workers are expected to continually upgrade existing and introduce new programmes. Thus, all work is based on the personal level of employee motivation and not on targeted personal policy.

#### *4.2 Adjusted metrics*

It was suggested by Kaplan and Norton (1996) that a BSC should not exceed four or five indicators for each perspective – a total of 20 to 25, but Gurd and Gao (2008) found a great number of measures, from 13 to 44. Our approach was to measure each of the set objectives by a properly defined efficiency indicator. Indicators are selected with the aim to monitor all activities at the department level and are not directly related to performance outcomes. Efficiency is a measure of rationality and, basically, easy to understand – maximisation of valued outputs with as little input as possible, but it is often difficult to make them work in real-life situations. According to Cylus et al. (2016: 241), better efficiency measurement and greater understanding of how to interpret efficiency indicators are essential for developing more focused and effective policies towards enhancing efficiency. They propose a framework for the assessment of efficiency metrics that includes the entity to be assessed, outputs and inputs under consideration, external influences on achievement, as well as the links to the rest of the health care system. Starting with the first element, we assessed the Department of Social Medicine as one of DMUs within the Teaching Institute of Public Health which is a part of the comprehensive health care system. Considering the overall health policy in Croatia, especially the funding policy and population's needs and requirements, outputs and inputs were analysed separately for each DMU including the Department of Social Medicine. In accordance with the set vision, inputs and outputs within the processes, the set objectives are measurable.



**Table 2 Objectives and Measures at the Level of the Department of Social Medicine**

Mission: <b>To preserve and promote health of all citizens and visitors to the County through public health programmes.</b>				
Vision: <b>Being the leader in improving the health status and quality of life of the population in the County</b>				
PER.	OBJECTIVES		MEASURES	TARGET
US	US1	Increase customer satisfaction through the quality of services provided	<ul style="list-style-type: none"> <li>customer satisfaction rating (survey; 1-5)</li> <li>number of current complaints / number in the previous year</li> </ul>	<ul style="list-style-type: none"> <li>4.6/5</li> <li>20%</li> </ul>
	US2	Increase the number of preventive public health services and programmes	<ul style="list-style-type: none"> <li>number of actions/activities in the current year (workshops, lectures, public health activities) / previous year</li> <li>number of actions / planned activities in the current year (workshops, lectures, public health activities)</li> </ul>	<ul style="list-style-type: none"> <li>5%</li> </ul>
	US3	Improve the promotion of programmes	<ul style="list-style-type: none"> <li>number of promotional activities in the current year (media and social media) / previous year</li> <li>number of promotional activities in the current year (media and social media) / plan</li> </ul>	<ul style="list-style-type: none"> <li>5%</li> </ul>
FM	FM1	Provide sufficient financial resources for quality services (mandatory health insurance and the budget)	<ul style="list-style-type: none"> <li>average value (in HRK) per CHIF* team</li> <li>the share of CHIF's income in total revenue</li> </ul>	<ul style="list-style-type: none"> <li>xEUR/year</li> <li>xy%</li> </ul>
	FM2	Increase revenue from services on the market	<ul style="list-style-type: none"> <li>share of market revenue per programme / total revenue</li> <li>share of market in total revenue</li> <li>amount of invoiced services / number of employees in the provision of services</li> </ul>	<ul style="list-style-type: none"> <li>xy%</li> <li>5%</li> <li>xEUR</li> </ul>
PO	PO1	Certify, accredit and integrate new management systems	<ul style="list-style-type: none"> <li>number of implemented management systems / number of planned management systems (ISO / IEC 17025, ISO 9001, ISO 14001)</li> </ul>	<ul style="list-style-type: none"> <li>100% of the plan</li> </ul>
	PO2	Improve employment structure	<ul style="list-style-type: none"> <li>share of health care employees in the total number of employees</li> </ul>	<ul style="list-style-type: none"> <li>50%</li> </ul>
LI	LI1	Increasing external and internal trainings	<ul style="list-style-type: none"> <li>number of internal trainings / number of external trainings (congresses, conferences...)</li> </ul>	<ul style="list-style-type: none"> <li>more than 1</li> </ul>
	LI2	Increasing innovative solutions	<ul style="list-style-type: none"> <li>number of innovations (methods, procedures, analysis, processes ...) per programme</li> </ul>	<ul style="list-style-type: none"> <li>3</li> </ul>

\* CHIF: *Croatian Health Insurance Fund*

Source: *Authors*

Target values are defined on the basis of average results in the past three years and taking into consideration the environment situation set until 2022. The programmes included in the strategic map are the following: Cardiovascular Disease Prevention, Prevention and Early Detection of Melanoma,

Prevention and Early Detection of Osteoporosis, Prevention of Violence. Each programme consists of several activities (workshops, lectures, forums). Programmes are presented to the public through workshops, forums, and other events using various promotional activities (television broadcasts,

radio shows, newspaper articles, brochures, etc.). Financial management is crucial for the implementation of programmes and activities. Social medicine activities are funded, as other public services, through the Health Insurance Fund, county and city budget; these revenues are constant. There is a smaller share of revenues from market activities. Certification, accreditation and implemented man-

agement systems ensure better quality, which is a prerequisite for better quality of services. External and internal trainings encourage development and scientific research on innovation. The structure of employees is important, and efforts are made to increase the share of health care professionals. The described objectives can be achieved through the elaborated initiatives.

**Table 3** Number of Initiatives for Each Objective

Initiatives Objective	INITIATIVE 1	INITIATIVE 2	INITIATIVE 3	INITIATIVE 4
US1	•			
US2	•	•	•	•
US3	•	•		
FM1	•	•		
FM2	•	•	•	
PO1	•			
PO2	•	•		
LI1	•			
LI2	•	•		

Source: Authors

Initiatives from the perspective of users and other stakeholders are aimed at improving preventive actions, attracting new users, initiating changes in the regulatory framework, optimising the personnel structure, and new organisational solutions for promotion. From the perspective of financial management, the aim is to establish better controls and cost monitoring for each service in order to achieve better cost effectiveness. Activities that increase the share of revenues from the market are encouraged. The implementation of management systems and staffing activities for health care professionals are initiatives that improve the quality of the process. Finally, internal policy and an appropriate reward system should encourage the development and scientific research.

## 5. Discussion and conclusion

The basic purpose of public health services is prevention of various diseases and preservation of

health. They encompass the entire population and differ from other health care areas that are more focused on patients and treatments. Prevention activities are like other public services, constantly under pressure to increase rationality and be more budget-conscious, while simultaneously improving efficiency and quality. Efficiency leads to satisfaction of public health care users and is ultimately measured through outcomes which can be affected or influenced by efficiency. Both efficiency and effectiveness are measures of successful performance and influence each other. However, although efficiency is easier to measure, in most public health care services, it is still reduced to a numerical expression without continuous monitoring of the results, and their ultimate goal is measuring outcomes.

In this study, we used the BSC as a proven management tool, even in health institutions, to measure efficiency of the activities in a specific part of preventive health care services – social medicine. Our

study has confirmed the set hypothesis: namely, due to the complexity of social medicine activities, adjusted BSC is suitable for efficiency assessment and achievement of the final outcome in accordance with the set mission, vision, and goals. The study has also confirmed that the proposed metrics is possible with the implementation of an appropriate information system. Although failures in the implementation of the BSC have been attributed to poor design and difficulty of implementation, this case study has refuted these arguments. The only obstacle, which is not negligible, are employees who need to get used to extra work – recording the data used for measures. In this study, social medicine is represented by public health organisational units that have partially secured funds from the budget. A share of the revenues can be generated in the market, but there is lack of marketing activities, in part due to lack of experience in market activities of employees in the public sector.

A limitation in this research is lack of adequate literature regarding measuring of the results or effects in social medicine. No study covering the implementation of the BSC was found, which is an encouragement for further research in this area. The intention is to use Data Envelopment Analysis (DEA) for comparative analysis of the assessment of relative effectiveness of individual programmes at the level of all 22 public health institutes in Croatia.

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## REFERENCES

1. Baker, G. R., Pink, G. H. (1995), "A Balanced Scorecard for Canadian Hospitals", *Healthcare Management Forum*, Vol. 8, No. 4, pp. 7-21.
2. Campostrini, S. (2007), "Measurement and Effectiveness", in McQueen D. V., Jones C. M. (Eds.), *Global Perspectives on Health Promotion Effectiveness*, Springer, New York, pp. 305-325.
3. Chang W., Tung, Y., Huang, C., Yang, M. (2008), "Performance improvement after implementing the Balanced Scorecard: A large hospital's experience in Taiwan", *Total Quality Management & Business Excellence*, Vol. 19, pp. 1257-1258.
4. Cylus, J., Papanicolas, I., Smith, P. C. (2016), "Health system efficiency: How to make measurement matter for policy and management", *Health Policy Series*, No. 46.
5. Galdston, I. (1954), "The Meaning of Social Medicine", *A.M.A. Archives of Internal Medicine*, Vol. 94, No. 5, p. 870.
6. Gurd, B., Gao, T. (2008), "Lives in the balance: an analysis of the balanced scorecard (BSC) in health-care organizations", *International Journal of Productivity and Performance Management*, Vol. 57, No. 1, pp. 6-21.
7. Hobson, W. (1949), "What is social medicine", *British Medical Journal*, Vol 2, No. 4619, pp. 125-130.
8. Horton, R. (2013), "Public health or social medicine? It matters", *The Lancet*, Vol. 382, No. Special issue, S1.
9. Jonjić, A. (2007). *Socijalna medicina*. Rijeka: Nastavni zavod za javno zdravstvo Primorsko-goranske županije.
10. Kaplan, R., Norton, D. (1992), "The Balanced Scorecard – Measures That Drive Performance", *Harvard Business Review*, Vol. 70, No. 1, pp. 71-79.
11. Kaplan, R., Norton, D. (1993), "Putting the balanced scorecard to work", *Harvard Business Review*, Vol. 71, No. 5, pp. 134-147.
12. Kaplan, R., Norton, D. (1996a), "Using the balanced scorecard as a strategic management system", *Harvard Business Review*, Vol. 74, No. 1, pp. 75-85.
13. Kaplan, R., Norton, D. (1996b). *The Balanced Scorecard*. Boston, MA: Harvard Business School Press.
14. Kaplan, R., Norton, D. (2001), "Transforming the Balanced Scorecard from Performance Measurement to Strategic Management: Part I", *Accounting Horizons*, Vol. 15, No. 1, pp. 87-104.
15. Kaplan, R. (2001), "Strategic Performance Measurement and Management in Nonprofit Organizations", *Nonprofit Management and Leadership*, Vol. 11, No. 3, pp. 353-370.
16. Kark, S., Kark, E. (2006), "A practice of social medicine", *Social Medicine*, Vol. 1, No. 2, pp. 115-138.
17. Kostičová, M. (2015). *Social Medicine*. Bratislava: Comenius University in Bratislava.
18. Lovaglio, P. G., Vittadini, G. (2012), "The Balanced Scorecard in health care: a multilevel latent variable approach", *Journal of Modelling in Management*, Vol. 7, No. 1, pp. 38-58.
19. Ozcan, Y. A. (2014). *Health Care Benchmarking and Performance Evaluation, An Assessment using Data Envelopment Analysis (DEA)*. 2nd edition. New York, NY: Springer.
20. Ryle, J. A. (1943), "Social Medicine: Its Meaning and its Scope", *British Medical Journal*, Vol. 2, No. 4324, pp. 633-636..

21. Voelker, K. E., Rakich, J. S., French, G. R. (2001), "The Balanced Scorecard in Healthcare Organizations: A Performance Measurement and Strategic Planning Methodology", *Hospital Topics*, Vol. 79. No 3.
22. Yilmaz, N., Erdem, R. (2015), "Balanced Scorecard Applications in Health Care", *Journal of International Health Sciences and Management*, Vol. 1, No. 1, pp. 53-69.
23. Zelman, W. N., Pink, G. H., Matthias, C. B. (2003), "Use of the Balanced Scorecard in Health Care", *Journal of Health Care Finance*, Vol. 29, No. 4, pp. 1-16.

## ENDNOTES

- 1 McDonald, B. (2012), A Review of the Use of the Balanced Scorecard in Healthcare, available at: <http://www.bmcdconsulting.com> (Accessed on: September 19, 2019)

*Neda Vitezić*

*Suzana Janković*

## IMPLEMENTACIJA *BALANCED SCORECARDA* U JAVNOJ SOCIJALNOJ MEDICINI

### SAŽETAK

Socijalna medicina dio je javnozdravstvenih usluga čija je svrha poboljšanje zdravlja populacije kroz različite preventivne programe i aktivnosti. Zbog toga je metrika mjerenja rezultata poslovanja svojevrsni izazov budući da se radi o aktivnostima s kvalitativnim ishodom koji zahtijeva vremenski odmak. Predmet istraživanja je ocjena učinkovitosti programa socijalne medicine, primjenjenih u javnozdravstvenom sustavu Republike Hrvatske. Za ovo empirijsko istraživanje koristili su se podatci Nastavnog zavoda za javno zdravstvo odjela Socijalne medicine. Odjel ima tri osnovna cilja: ocijeniti zdravlje i zdravstvene potrebe populacije, unaprjeđivati javnozdravstvenu politiku i osigurati učinkovitu primjenu programa. Cilj je ovog istraživanja pronaći metriku koja će biti korisna za ocjenu konačnog ishoda aktivnosti socijalne medicine. Teorija i koncept *Balanced Scorecarda* (BSC) su relevantni za područje javnog zdravstva, ali nema puno istraživanja primjene BSC-a u preventivnim aktivnostima, posebno onih koji se odnose na socijalnu medicinu. Kako bi se poboljšala učinkovitost ocjene tekućih i budućih rezultata rada, predložena je prilagođena BSC metoda. Modificirana BSC tj. perspektive i metrika uz pomoć strateške mape pomažu u postizanju postavljenih ciljeva kao i izvještavanju o ključnim rezultatima. Ovo istraživanje potvrđuje primjenjivost i fleksibilnost BSC-a i doprinosi razvoju niza zajedničkih pokazatelja koji odražavaju kvalitativna gledišta aktivnosti i omogućavaju mjerenje učinkovitosti rezultata rada socijalne medicine.

**Ključne riječi:** javna socijalna medicina, BSC, učinkovitost, djelotvornost