

# MANAGEMENT ACCOUNTING INFORMATION SYSTEM IN PUBLIC HEALTHCARE ENTITIES IN POLAND

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## **Abstract**

The shape of an information system and the quality of management information should depend on managers' needs. However, as it stems from the conducted research the information system is often identified with a computerized system, i.e. technical equipment, and meeting formal reporting requirements.

In the management accounting system formal regulations of the information process are secondary to the managers' information needs. The quality of the information generated in the management process, including its usefulness, should depend on the managers' knowledge and skills. However, the majority of medical information in health care entities, if it fits within the nature of the management information, is used only for reporting purposes.

The purpose of this article is to indicate the conditions of the management accounting information system functioning in health care entities, and the elements that are a part of the management control system were accepted as those conditions.

**Key words:** management accounting, information system, public health care entities

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## **Introduction**

In this article it was assumed that the management accounting information system fits into the management system as a response to the managers' needs and issues (CIMA, 2014; Williams, 2008).

The article, with regard to the fact that public health care entities are required to apply management control, presents its essence in the context of possible use in the design of management accounting information system. The assessment of the conditions of the management accounting information system functioning in health care entities was made by identifying elements necessary for the functioning of the management control system. Among

others, the use of selected methods and tools of management accounting and how the management control environment was organized, which is described as the responsibility accounting system, were evaluated. In order to support the obtained results, the managers' involvement in defining the information needs as well as the information capabilities of the systems used in health care entities were additionally assessed.

## 1 Research methodology

In order to assess the management accounting information system in health care entities, apart from literature research, results of conducted surveys and interviews were used.

In the survey research 567 health care entities participated. It was conducted in 2013 within the framework of a project, co-financed from the EU funds within the European Social Fund, entitled: "Modern management in health care entities - trainings in cost accounting and management information as well as in reorganization and consolidation of health care institutions", carried out in the years 2009-2013 in partnership between the Ministry of Health and the Warsaw School of Economics.

The assessment of the conditions of management accounting information system functioning was made using study results obtained from public entities, which accounted for 78.2% of the study population. The results of the survey research were verified by conducting interviews in public hospitals constituting 10% of the study population. As a justification for selecting such public institutions the statutory duty of maintaining management control was accepted. One of the purposes of its functioning is the effectiveness of the undertaken actions, which is intrinsic to the management accounting information system.

## 2 Management control and its essence in the design of management accounting information system

The notion of management control has evolved over time, influenced by changes in environment and other conditions in which business units operate. The definitions and their interpretations are presented in Table 1.

**Tab. 1: Definitions and interpretations of management control**

Specification	Characteristics
Management	- activities undertaken in an effective, efficient, and timely manner,

control in the Public Finance Law	<ul style="list-style-type: none"> <li>- the purpose of management control is obtaining the best results with given resources,</li> <li>- concerns the management process and includes elements of authority and accountability</li> </ul>
Management control in theories of management and management accounting	<ul style="list-style-type: none"> <li>- ensures that resources are obtained and used efficiently and effectively,</li> <li>- a way of collecting and using information in management,</li> <li>- management process which leads to pursuing a strategy,</li> <li>- management accounting practices and tools related to productivity management</li> </ul>

Source: Own work based on Public Finance Law, 2009; Carens, 2010; Anthony et al., 2004.

Presentation of the definition of management control in light of the Public Finance Law aims at indicating similarities to control defined in theories of management and management accounting. Thus it justifies accepting conditions suitable for management control system functioning as the conditions of the management accounting information system functioning in health care entities (point 3 of this article).

Management control in health care entities applies to various aspects of control in management. Due to the specifics of health care entities operations it focuses, among others, on control of medical activity and it refers to the quality of patient care by addressing the issue of total quality management (Bell et al., 1993).

Persistent rendering of high quality services with the use of management and accounting tools, and with the participation of medical personnel can bring tangible benefits. Apart from the increase in patient satisfaction there will also be economic benefits that are included in the objectives of management control functioning.

Reaching specified goals requires an appropriately designed management control system based on management systems, which for the management control functioning should utilize the management accounting system that uses the essence of accounting by responsibility centers and budgeting (Hammad et al., 2010).

The condition for the functioning of the management control system should be decentralization, and with it the delegation of decision-making authority and responsibility to lower levels of management. Activities planned to achieve the main goals should be measured and periodically evaluated. The formal part of the management control process, determined by

using the appropriate techniques (management accounting tools), includes planning, budgeting, measuring the results of operational activities, and reporting (Lowe, 1971).

### 3 The conditions of the management accounting information system functioning in public health care entities

The conditions of the management accounting information system functioning were based on the conditions intrinsic to the management control system functioning perceived from the perspective of financial control, which was described as one of the functions of accounting meant to provide information for decision-making processes (Bedeian & Giglioni, 1974). Such an approach can be justified by the use of management accounting and management control to perform the same tasks, i.e. to provide information for decision making, as well as the fact that the concepts of management control and management accounting were used interchangeably and ascribed the same meaning (Chenchall, 2003; Otley et al., 1995).

For the purpose of the research the standards of management control defined by the Minister of Finance for entities of the public finance sector were used (see Tab. 2), and health care entities, which are the subject of the presented considerations, fall in this category as well.

**Tab. 2: The conditions of the management control system functioning as the basis for the design of the management accounting information system**

Management control standards	Management accounting methods and techniques	Management accounting information system	System output	-----Feedback-----
Internal environment	— unit decentralization, — delegating authority and responsibility			
Establishing goals	— <i>Balance Scorecard - BSC</i> for defining mission and setting goals, monitoring and evaluating them		Data processing	
Control mechanisms	— cost accounting decision-making systems, budgeting		System input	
Information and communication	— reporting according to responsibility centers			
Monitoring and evaluation	— analysis of deviations, measures of evaluation, revision of plans and strategy			

Source: Own work based on Ministry of Finance, 2009; Baran, 2013.

Indicating the conditions of management accounting information system functioning, apart from the Minister of Finance's guidelines, also indications from the management accounting theory were used (see the second column in Tab. 2).

Bearing in mind the information systems theory, which included the management accounting system, it was considered significant to use the system of responsibility accounting in its design. This system is also the environment for the functioning of management control. On the information system input it was planned to evaluate the goals established to be achieved by the health care entities. Their character should determine the managers' information needs and the shape of the information system. To determine the feasibility of the goals, also on the system input, the stages of the goal-setting and the degree of decentralization in the structure of reaching the goals in the health care entities were evaluated (see Tab. 3).

**Tab. 3: The conditions of the management control system functioning stemming from a standard determining the way of establishing goals and the internal environment of management control for achieving them**

Stages of achieving goals	Rate of respondents	The degree of structure decentralization	Rate of respondents
Strategic goals were set	94,2%	Cost centers were distinguished	90,4%
Strategic goals were communicated	86,5%	Profit centers were distinguished	76,9%
Strategic goals were made specific by setting operational objectives	80,8%	Investment centers were distinguished	51,9%
Measures of achievement were assigned to the objectives	75,0%	Decision-making authority was given	67,3%
Responsibility for objectives was assigned	71,2%	Accountability for decisions made was ensured	71,2%

Source: Own work based on Baran, 2013a.

As critical goals the health care entities indicated "improvement of the quality of services provided" (4.74/0.55 - arithmetic average of 4.74 on a scale of 5.0 and a standard deviation of 0.55), "increase of patient satisfaction" (4.72/0.56) and "development of medical staff and retaining it" (4.43/0.74). Reaching goals defined in that way should determine the need for management information in all areas of the entity operation and this information should be generated as indicated in Table 4. The rates obtained in the research, however, do not prove success in achieving goals as the responses given both in terms of stages of meeting them and

the degree of decentralization in the structure of attaining them are varied. Even though the studied health care entities declare that they define strategic goals, not all of them communicate them, establish operational objectives and measures or designate people responsible for meeting them. A similar mismatch occurs in the assessment of the degree of decentralization in the structure of achieving goals.

Bearing in mind the type of goals defined by the surveyed health care entities, the implementation of appropriate measures is essential for their achievement. They should be both financial and non-financial (Tab. 4).

**Tab. 4: The conditions of the management accounting information system functioning resulting from a standard defining the way of setting goals and managing risk**

Financial measures	Measure's significance	Non-fianancial measures	Measure's significance
Revenues	4,69/0,57	Number of patients	4,29/0,93
Costs	4,71/0,53	Number of consultations	4,17/0,89
Financial results	4,33/0,80	Health statistics indicators	3,29/1,41
Financial ratios	3,79/0,91	Epidemiological indicators	3,17/1,40

Source: Own work based on Baran, 2013a.

The assessed measures do not constitute a complete and universal catalog. The relevance of the selected measures should be confronted with the established goals. The results for the financial measures' significance were the highest and most concentrated around the average. Higher numbers could be expected regarding the relevance of financial ratios, e.g. liquidity ratio. This measure in a better way than the financial results should represent, for instance, the possibility of financing resources to improve the quality of services provided, develop and retain personnel, thus increasing patient satisfaction. To achieve the defined goals one could also expect higher significance rates for non-financial measures. This applies particularly to those that reflect the use (statistical indicators) of and the ability to plan (epidemiological indicators) resources necessary for the health care services rendering.

Obtaining the basis for the assessment of actions taken to achieve goals, including information on the level of the accepted measures, requires the application of methods and tools used in the management accounting system (the "data processing" and "system output" stages, respectively). Table 5 presents those that can be used for both planning the undertaken activities and controlling their effectiveness, enabling correcting assumptions made at the planning stage.

**Tab. 5: The conditions of the management accounting information system functioning resulting from a standard defining control mechanisms, ways of conveying information and communication as well as monitoring and evaluation**

Selected methods and tools of management accounting			
Planning area	Method's significance	Control area	Tool's significance
Traditional models of cost accounting for the calculation of the cost of services	3,33/ 1,40	Sales budget report	4,02/ 1,38
Cost accounting decision-making models for planning the costs of activities	3,63/ 1,26	Cost budget report	4,12/ 1,37
Planning (budgeting) revenues and operating costs	4,31/ 0,77	Statistical and medical reports	3,65/ 1,40
Planning (budgeting) resources	3,50/ 1,10	Variance reports	3,17/ 1,54
Planning unused resources	2,96/ 1,29	Reports for the managers' individual needs	3,86/ 1,16

Source: Own work based on Baran, 2013a.

As shown in Table 5, the researched health care entities attach the greatest significance to revenues and costs planning. The conducted interviews show, however, that planning of revenues is done more for the purpose of establishing the value of the contract with the public payer than for the managers' needs. Historical performance is the basis for cost planning instead of a viable amount of health care services to render. Such approach justifies the lack of interest in methods allowing to determine and plan the costs of undertaken activities, and the amount and cost of resources required to perform them. Similarly, a minor and ambiguous significance is attributed to the tools in the control area. The highest significance the studied entities attached to categories related to the contract with the public payer (sales budget execution). Meanwhile, results of the reports on the effectiveness of the undertaken actions would be more important to attain the goals.

The results of the conducted study presented thus far, i.e. the organization of the information system (Tab. 3-4) and the significance of methods and tools of management accounting (Tab. 5), indicate that in the researched health care entities there is a lack of conditions for the management accounting system functioning. The reasons for this situation

should be sought primarily in the absence of the managers' information needs. On them in fact depend the presence and quality of management information systems, into which the management accounting system was included.

For the purpose of the study it was assumed that information needs should correspond to the appropriate levels of the management. It was deemed relevant to what extent the managers are involved in defining information needs (Tab. 6).

**Tab. 6: Recipients and their information needs in health care entities**

Persons defining management needs	Involvement evaluation	Information needs	System evaluation
Chief accountant	4,38 / 0,83	Support for external financial reporting	4,57 / 0,74
Medical director	3,73 / 1,31	Support for external industry reporting	4,40 / 0,82
Chief Financial Officer	2,97 / 1,89		
Managers of core activity centers (medical)	3,62 / 1,05	Support for the ongoing process of operational management	3,76 / 1,15
Managers of auxiliary activity centers (non-medical)	3,23 / 1,13		

Source: Own work based on Baran, 2013a.

As the results show the greatest information involvement was attributed to the chief accountant. Also the information support for external financial reporting received the highest rates. Unfortunately, the weakest involvement in defining and using management information, despite the greatest expectations, was observed at the operational level. At this level decision making is usually carried out without the information support from any system.

External reporting, as a way of using information, does not fit in the essence of the management accounting information system functioning.

## Conclusion

When designing management accounting information system one should bear in mind that data processing, apart from the fact that it takes place in the systems of organizational and technical nature, also happens in the thought process of their users. The presented results indicate low awareness of managers in the information process.

Results of this study indicate that in the researched health care entities the managers' information needs are not defined. Therefore, the reasonable approach to designing management accounting information system should be to use formal management control indications and complement them with those stemming from the theory of management accounting. In their view, attention should be paid to:

- compliance with the specific method of establishing goals, i.e. the steps of defining them, communicating them, establishing measures of the degree of their achievement, and identifying the people responsible,
- the need for decentralization of the organizational structure for reaching the goals with the delegation of authority and responsibility to ensure their achievement,
- proper selection of financial and non-financial measures to assess the actions taken and the extent of reaching the established goals,
- the use of appropriate management accounting methods and tools to provide information for decision making, evaluating the results and the feasibility of correcting assumptions made at the planning stage.

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