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## Assessment of the Level of Implementation of Internal Audits in Polish Public Hospitals

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### **Abstract:**

**Purpose:** The aim of the article is to evaluate the work of internal audit units in Polish public hospitals. An additional objective was the assessment of the indicators used by the Ministry of Finance (MF) to verify the work of auditors in government administration units.

**Design/Methodology/Approach:** The authors have analysed specialized literature concerning audit issues in hospitals analyzing data included in the MF reports for 2012-2019, presenting indicator values related to internal audits, their quality and efficiency.

**Findings:** Studying the literature of the subject revealed that there is a research gap concerning evaluation of the efficiency of internal audits at hospitals.

**Practical Implications:** The authors' analysis of MF reports of internal audit units in hospitals and the interpretation of the indicators contained in them enabled evaluation of the functioning of internal audits at analysed hospitals and determining their position compared to other entities from the research sample. Indicator values for hospitals vary from those obtained from other public sector units, as particular public finance sector units' function in various legal and organizational environments and vary in operational aims and specificity.

**Originality/Value:** The results from the conducted analysis should be regarded as a starting point for more advanced evaluation studies of the functioning of internal audits in hospitals.

**Keywords:** Internal audit, hospital efficiency and indicators, comparative analysis.

**JEL Classification:** H51, I18, M42.

**Paper Type:** Research article.

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## 1. Introduction

Hospitals have a special position in the healthcare system of every state (Ballantine *et al.*, 1998; Northcott and Llewellyn, 2003, Alakeson *et al.*, 2013; Raulinajtys-Grzybek, 2014; Pestoff, 2019). They are characterized by an extensive organizational structure and a complexity of the medical and non-medical processes realized. In Poland, a special position is attributed to the public hospitals. The public hospitals may be created by: (1) the State Treasury represented by a Minister of Health, (2) medical universities as teaching hospitals, or (3) local government bodies (Medical Activity Act, 2020). They are included in public finance sector units. The public hospitals are obliged to provide health services that rescue the health and life of the patient regardless of their financial position, and they obtain funds from the public payer (i.e., the National Health Fund). These hospitals have a limited capacity to provide commercial health services. Therefore, it is important to properly target them in the use of financial resources for the implementation of public health tasks.

The public hospitals possess a statutory obligation to conduct internal audits. They are obliged to hire an internal auditor who, with their activities, supports the manager of the unit in exercising internal managerial control and has an impact on streamlining all the processes in all the areas of the hospital's activities. The role of internal audit in public hospitals is fulfilled if the internal audit brings about an added value and is characterized by a high quality and effectiveness (productivity) of operations. For this reason, an examination is justifiable of the functioning of internal audit in hospitals to determine the degree of the implementation of the functions of internal audit in these units.

Internal auditors, in the public hospitals, are hired under an employment contract in internal audit departments with one or more members of the personnel. In public hospitals, internal audit may also be conducted by an external provider, provided that specific conditions are met in compliance with the Public Finances Act (2019). In the scope of internal audit, public hospitals they must submit mandatory information to the MF on the work of internal audit. In the reports: "Benchmarking of internal audit in public finance sector units" (Benchmarking: 2013, 2015, 2016, 2017, 2018, 2019, 2020), the indexes are presented of public hospitals.

The aim of the article is to evaluate the work of internal audit units in Polish public hospitals. An additional objective was the assessment of the indicators used by the MF to verify the work of auditors in units of the public finance sector. The article presents the study related to the assessment of the effectiveness of internal audit in the public hospitals against the Polish public finance sector. The values of the indexes covering the years of 2012 – 2019, which the MF published in the annual reports, were analysed in the present article. The authors set out to answer the following research questions:

- RQ1 - What is the position of hospitals in relation to other public finance sector units from the comparative group which hospitals were qualified? what are the results of the work of internal audit units in Polish hospitals (activities, quality and effectiveness of internal audit) and what is the result of the work of internal audit units in public hospitals against the work of auditors in other units' public finance sector?
- RQ2 - Is it possible, on the grounds of the presented set of the indexes prepared by the MF, to draw objective conclusions about the operations, quality, and efficiency of internal audit in hospitals?

The authors put forward the following thesis: *"Conditions of the functioning and the specificity of medical operations realized constitute grounds for drawing up new separate measures, that are adequate to the operations of hospitals, to assess the functioning of internal audit, its quality and effectiveness (productivity)"*.

In section 2 we present a literature review. Section 3 contains a description of our research approach and the research sample. In section 4 we present the research findings from the empirical study. The last section of the paper sums up the research findings, discusses potential study limitations and presents recommendations.

## **2. Literature Review**

The currently valid definition of the notion of internal audit according to the Standards of internal audit states that it is an independent and objective activity whose purpose is to provide a value, to streamline the operating activities of a unit and to contribute to an improvement of its operations. The internal audit should assist a unit in achieving its objectives while providing guarantee concerning the effectiveness of the processes occurring in the unit and providing advisory activities (Stępniewski and Bugdol (eds.) 2010; Dąbrowska, 2010; Korendowicz, 2010). The need to conduct an assessment and to improve its quality involves an effective functioning of internal audit in the unit. This issue is important for the Polish public finance sector, where internal audit has been functioning for eighteen years now.

However, the issues related to the measurement of the quality of internal audit and an improvement of its functioning in public finance sector units have so far been very rarely described in the national research literature. Bartoszewicz and Cygańska (2020) analysed audit implementation in hospitals and audit tasks performance in the finance area. Szczepankiewicz (2010a; 2010b), Foremna-Pilarska (2015), Zaleska (2018), Szczepankiewicz and Zalewska (2018) studied the quality improvement of auditors in hospitals and the necessary improvements in this area. References to the issue of audit quality improvement in other unit of public finance sector are to be found in Bartoszewicz (2015), Bednarek (2015), Szczepankiewicz and Młodzik (2016), Szczepankiewicz (2017a; 2017b). No author in the Polish literature has undertaken any research into the quality of internal audits in Polish hospitals.

The authors have also found a gap in the world literature. World literature in the field of audit in hospitals is dominated by the clinical (medical) audit perspective and can be found in, for example, Johnston *et al.* (2000), Alakeson *et al.* (2013), Bennadi (2014), and Esposito and Dal Canton (2014). Hübner-Bloder and Ammenwerth (2009), as well as Wind and van Harten (2017), conducted research on the benchmarking in specialty hospitals. The evaluation of the organisation and effectiveness of internal audits to govern patient safety in hospitals was conducted acted by Van Gelderen *et al.* (2018) and Johnston *et al.* (2000), who analyzed the benefits of conducting internal audit in hospitals and pointed to the improvement of internal communication among employees and the improved quality of healthcare services. Van Gelderen *et al.* (2018) recommend hospital management focus on four areas: (1) organization, (2) task assignment for internal audit departments, (3) the skills of auditors, and (4) the attitudes towards the post-audit recommendations.

Research conducted in Greek hospitals by Souliotis *et al.* (2019) and Kourtis *et al.* (2021) proves that internal audits are maybe the key tool for the wide-scale rationalization of health care services provision, including evidence-based services which provide research findings regarding to the safety and efficiency of the treatment. The limited scope of the research in the activity, quality, and productivity (effectiveness) of internal audits in the hospitals of internal audit departments in the hospitals inspired us to undertake our study.

### **3. Research Methodology**

#### **3.1 Characterization of Research Sample**

The analysis covers data from the annual reports: “Benchmarking of internal audit in public finance sector units” for the years 2012-2019 published by the MF. The data for the calculation of the indexes comes from the annual reports handed over by the managers of public finance sector units to the MF, including from public hospitals. The purpose of these reports is to show the values of those indexes that describe the quality and results of the work of internal auditors in public finance sector units. The indexes were prepared based on the list of the indexes presented in the IIA Performance Measures for Internal audit departments (Performance Measures, 2009). Based on the values of the indexes presented in these reports, internal auditors may conduct their own comparative research. Benchmarking of units is expected to contribute to the public finance sector to: (1) raise the effectiveness and an improvement of the quality of internal audit in the units assessed in this sector and (2) strengthen the position of internal auditors in units.

In this study, the average values of the indexes of hospitals from 7 annual reports (for the years of 2012-2019) were presented to compare their values in the individual years and to define the tendency of changes. Based on the last report from the year 2020, which presents data for the year 2019, the indexes were distinguished for all the units that belong to the comparative group (which hospitals were classified) to in

the division into indexes with the largest, smallest, and average weighted values. The purpose of this division was to compare the values of the indexes of hospitals with the values of the indexes of other units from the comparative group classified according to the implementation of similar tasks or according to their organizational and legal forms. In the report from the year 2019, the values of the indexes were presented based on the information from 561 public finance sector units, including 51 hospitals. The hospitals constituted 9% of the units examined in the comparative group. Those units whose indexes are presented in the report were assigned to the defined comparative groups classified according to: (1) the total number of people employed in a unit, (2) the size of unit measured by the level of expenses or costs, (3) the number of the vacancies of internal auditors and auxiliary positions in the internal audit department, (4) the number of the vacancies of internal auditors in the internal audit department, (5) the realization of similar tasks or organizational and legal form, (6) the area of audit measured by the number of people employed in a unit falling onto one employee of internal audit department. The indexes from the public hospitals and the comparative group established based on the implementation of similar organizational and legal form will be presented in this paper.

### **3.2 Characterization of Data for the Analysis**

The presented values of the indexes in the annual reports: “Benchmarking of internal audit in public finance sector units” for the years of 2012-2019 concern the following:

- the results of the internal audit activity, which are expressed by the indexes and numbers of assurance tasks completed and by the numbers of recommendations issued;
- the quality of internal audit which involves the indexes of self-evaluation, external assessment, time devoted to training and professional development;
- the productivity (effectiveness) of internal audit, which is expressed by the indexes of the labour intensity of assurance tasks, the labour intensity of verifying activities, the average time devoted to advisory activities, the degree of the implementation of the audit plan, the efficient time of audit, the percentage of recommendations recognized to be justifiable.

The formulae according to which those indexes are calculated that describe the quality and results of the work of internal audit departments and those auditors that are service providers were defined in these reports (Table 1). The research covers an assessment of the results of the activity, quality, and productivity (effectiveness) of internal audit in the hospitals. In the section 4, the average values of the indexes for the hospitals will be presented compared to the largest, smallest and average values of the index in the comparative group for the year 2019. The purposes of the data analysis conducted concerning internal audit in hospitals based on the reports: “Benchmarking of internal audit in public finance sector units” for the years of 2012-2019 are as follows:

**Table 1.** Computational formulae for indexes that describe the quality and results of the work of internal audit departments and auditors that are service providers in public finance sector units

No.	Name of the index	Computational formula
<b>Indexes of the results of internal audit activity</b>		
1.	Number of completed assurance tasks	Number of completed assurance tasks in a given year (tasks commenced and non-completed are not taken into consideration).
2.	Number of recommendations issued	Sum of all the recommendations issued within the framework of assurance tasks completed in a given year
<b>Indexes of the quality of internal audit</b>		
3.	Self-evaluation	Percentage of affirmative answers provided to the question: "Was self-evaluation carried out in the reporting year?"
4.	External assessment	Percentage of affirmative answers provided to the question: "Was external assessment carried out?"
5.	Self-evaluation and external assessment	"Was self-evaluation carried out in the reporting year?" and "Was external assessment carried out?" and "Was external assessment carried out (in the years of 2013-2017)?"
6.	Time devoted to trainings and professional development	Percentage of participant days used for trainings and professional development in relation to the total time budget of the internal audit department.
<b>Productivity (effectiveness) indexes of internal audit</b>		
7.	Labour-output ratio of assurance tasks	$\frac{\text{Sum of participant days for assurance tasks}}{\text{Number of tasks completed}}$
8.	Labour-output ratio of verifying activities	$\frac{\text{Sum of participant days for verifying activities}}{\text{Number of verifying activities carried out}}$
9.	Average time devoted to advisory activities	Sum of participant days for carrying out of advisory activities
10.	Degree of the implementation of the audit plan	$\frac{\text{Number of assurance tasks implemented}}{\text{Sum of assurance tasks to be implemented in the year}}$
11.	Efficient time of audit 1	$\frac{\text{Sum of participant days used for assurance tasks, advisory and verifying activities}}{\text{Sum of the used participant days – total time budget}}$
12.	Efficient time of audit 2	$\frac{\text{Sum of participant days used for assurance tasks, advisory and verifying activities}}{\text{Sum of participant days used constituting the total time budget – holidays and other absences}}$
13.	Efficient time of audit 3	$\frac{\text{Sum of participant days used for assurance tasks, advisory, verifying activities, monitoring, planning and reporting}}{\text{Sum of the used participant days – total time budget}}$
14.	Percentage of recommendation recognized as valid	$\frac{\text{Sum of recommendations recognized as important by the managers of the department audited or the manager of the unit}}{\text{Sum of recommendations issued contained in reports}}$

*Source:* Authors' own study based on *Benchmarking, 2020*.

- to determine the tendency related to the changes of the index values for the hospitals in the years of 2012-2019,
- to compare the values of the indexes for hospitals for the year 2019 with the values of the indexes for the other units examined for this period from the comparative group to which the hospitals were classified,

- to establish the positions of the hospitals in relation the other units from the comparative group based on the comparison made for the year 2019.

#### 4. Research Results

##### 4.1 Assessment of the Results of Internal Audit Activities in Hospitals

Assurance tasks and advisory activities are recognized as audit tasks. As a result of these, recommendations are formulated which constitute a proposal of an elimination of the weaknesses of internal managerial control in the unit. In the case of the manager of the unit deciding on the implementation of the recommendations formulated in the final report to be performed in the area examined, the auditor undertakes activities that verify the state of the implementation of the recommendations (their monitoring). Table 2 presents the values of the indexes related the results of the activities of internal audit.

**Table 2.** *Values of the indexes related to the activities of internal audit in hospitals for the years of 2012-2019*

Name of the index	Average value of the index in hospitals for the years of 2012-2019*							Data for the year 2019 in the comparative group		
	2012	2014	2015	2016	2017	2018	2019	Average weighted value	Largest value	Smallest value
Number of completed assurance tasks	2	2	2.6	2.4	2.2	2.2	2.2	2.4	5.5	1.6
Number of recommendations issued	13	17	18	16	11	10	10	13	39	7

**Note:** \* In 2013, data for hospitals were not published in annual reports.

**Source:** Authors' own study based on Benchmarking 2013, 2015, 2016, 2017, 2018, 2019, 2020.

Based on the data from Table 2, it can be found that the average number of completed assurance tasks in the hospitals was 2.2 in the year 2019. It differs little from the average value, which was 2.4. The largest value of completed assurance tasks in the comparative group, which the hospitals were assigned to, was 5.5, and the smallest was 1.6. Therefore, large discrepancies can be observed between the extreme values. This is the result of numerous factors which may have an impact on the number of assurance tasks completed. These factors may include the following: (1) the number of internal auditors employed in the unit where the internal audit is conducted, (2) the working time of the internal auditor hired by the unit, (3) the type of the internal auditor's employment (an employment contract or a civil-legal contract), (4) the specificity of the activity run by the unit where the internal auditor is employed, (5) the organizational and legal complexity of the unit where the internal audit was conducted, and (6) the complexity and labour intensity of the assurance tasks implemented.

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The average value of the index of completed assurance tasks for the hospitals can prove that no internal audit departments with several members of the personnel occur in the hospitals examined and only one internal auditor is employed there. An implementation of 2-3 tasks (on average: 2.2) annually is not a satisfactory result, yet it may prove the complexity of the assurance tasks implemented. Many areas of the hospital's operations include the processes of medical and non-medical nature.

For example, the realization of medical procedures requires financial information and information connected with the patient's treatment process. An internal auditor, who is implementing an assurance task concerning the profitability of medical procedures, must use the knowledge of medical specialists and the knowledge of accounting services in cost accounting. Obtaining appropriate information on medical procedures requires time and the availability of those persons who can provide such information. As a final effect, an implementation of an assurance task in medical and financial processes may take significantly longer than an assurance task in the area where, for example, only financial processes are realized. In the year 2012 and in the year 2014, its value was 2. In the year 2015, the value of the index of completed audit tasks was 2.6. In the subsequent years, a small decrease of the value of the index is noticeable (2.2 in 2017-2019). In the comparative group, the index is 2.4. The index of the number of completed audit tasks in hospitals does not exhibit any clear decreasing or increasing tendency in the period examined. This points to the implementation of a similar number of tasks in the subsequent years covered by the assessment.

The average index of recommendations issued in hospitals was 10 in the year 2019, which constitutes almost the average value in the comparative group, which was 13. The largest value of the index in the comparative group examined was 39 and the smallest was 7. It seems that the number of recommendations issued in relation to the number of assurance tasks implemented in the hospitals is high and this may demonstrate an effective identification of irregularities by the internal auditors based on their analyses and assessments of the risk of the non-implementation of goals and tasks which may occur in operations.

From the year 2012 to the year 2015, there was an increase of the number of recommendations issued by the internal auditors of the hospitals in relation to the audit tasks completed. The number of recommendations issued has been decreasing since the year 2016. In the year 2019, its value was 10. This can be explained by the cycle of internal audit. By accepting an average five-year period of internal audit, the decrease of the value of the index starting from the year 2016 can be explained by the implementation of audit tasks in the areas which were covered research several years ago and the irregularities found by the internal auditors were eliminated in them. The managers probably implemented the recommendations issued by internal auditors in those areas of the unit's operations examined that they are responsible for. This resulted in a smaller number of recommendations issued by the internal auditors in the subsequent research made in the following years.



## 4.2 Assessment of the Quality of Internal Audit in Hospitals

The quality of internal audit in the research carried out is measured by the value of the four indexes (Table 3).

**Table 3.** Values of the indexes related to the quality of internal audit in hospitals for the years of 2012-2019

Name of the index	Average value of the index in hospitals for the years of 2012-2019* (%)							Data for the year 2019 in the comparative group (%)		
	2012	2014	2015	2016	2017	2018	2019	Average weighted value	Largest value	Smallest value
Self-evaluation	44	83	84	75	69	81	81	83	100	67
External assessment	92	24	42	39	37	32	38	53	100	14
Self-evaluation and external assessment	92	22	36	31	33	30	32	48	100	7
Time devoted to trainings and professional development	4	4	3,2	3	3	3	4	4	5	3

**Note:** \* In 2013, data for hospitals were not published in annual reports.

**Source:** Authors' own study based on *Benchmarking 2013, 2015, 2016, 2017, 2018, 2019, 2020*.

According to the recommendations of the MF, self-evaluation should be made by internal auditors once a year. In hospitals, the value of the index in the year 2019 was 81%. It is evident based on this that 19% of the auditors of the hospitals examined did not conduct any self-evaluation; thereby, they did not comply with the standards of internal audit issued by the MF. The index of external assessment was 38% in the hospitals examined. In the recommendations by the MF, an external assessment of the internal auditor's work should be conducted every five years or more frequently.

However, this involves additional costs to be incurred by those hospitals which hire internal auditors. A part of the units, considering their poor financial condition, depart from external examination. Apart from this, the index of external assessment counted for one year does not provide any information as to whether such assessment was made over the last five years. Accurate information in this area is provided by the index of self-evaluation and external assessment, which covers the percentage of answers provided to the questions: "Was self-evaluation carried out in the reporting year?" and "Was the external assessment carried out (in the years of 2013-2019)". In the hospitals, its value amounted to 32% in the year 2019, which is not a satisfactory result. This proves that both the managers and the internal auditors of the hospitals examined do not believe that carrying out self-evaluation and

external assessment may contribute to an improved quality of the internal auditor's work.

From the year 2012 to the year 2019, the value of the self-evaluation index demonstrates a significant growing tendency. This proves an increasing significance of the self-evaluation of internal audit conducted in the hospitals examined. This is a positive phenomenon, which points to the fact that most internal auditors conduct self-evaluation every year in the hospitals examined. The external assessment index in the year 2012 demonstrates the highest value in the whole period examined (92%). There was a sudden drop of the value of the index in the year 2014 in comparison to the year 2012: by 68 percentage points. Its value was then 24%. It results from the fact that in the year 2014, an external assessment of internal audit was conducted in merely 24% of the hospitals examined. There was an increase of the external assessments conducted of internal audits in the hospitals examined in the subsequent years since the year 2015. In 2019, the index is 38%.

The small number of those hospitals where the external assessment of internal audit is conducted every year may be the result of the fact that in the Polish financial sector, it is recommended to conduct an external assessment of internal audit every 5 years. The hospitals carry out it only in the recommended time intervals because either they do not perceive any need to do it more frequently or they do not dispose of funds which would enable carrying it out. This is confirmed by the index of self-evaluation and external assessment, which demonstrates a similar tendency of changes in the period examined as the index of external assessment.

The index of time devoted to trainings and professional development in the hospitals in the period examined is on a similar level every year (3%-4%). The index of time devoted to training and professional development in the hospitals was 4% in the year 2019 which is little below the average value in the comparative group, which amounted to 4%. It is evident based on this that the internal auditors of the hospitals examined attach great importance to an improvement of professional abilities and competences. This is necessary due to the continuous changes in legal regulations and the conditions of the functioning of medical institutions. A reform of healthcare has been introduced in the recent years in Poland, which has an impact on changing the way funds are obtained for the operation of the hospitals and on changing their organization of labour and specializations. This is a positive phenomenon.

### **4.3 Assessment of the Effectiveness of Internal Audit in Hospitals**

The effectiveness of internal audit should be distinguished from performance audit, which is a systematic, purposeful, organized, and objective examination of activities undertaken in the public finance sector with the use of the criterion of effectiveness, productivity, and efficient management. It is expected to provide the managers of units with an assessment of the activities undertaken by them. The information collected, recommendations and observations serve the purpose of the promotion of

responsible, honest, and effective methods of running business within the framework of the sector (Performance audit 2008). In the annual report “Benchmarking of internal audit in public finance sector units”, the effectiveness (productivity) of internal audit should be understood as an optimal implementation of audit activities between the resources involved (human, financial) and the results achieved. Table 4 presents the values of the indexes related to the effectiveness of internal audit.

**Table 4.** *Values of the indexes related to the effectiveness (productivity) of internal audit in hospitals for the years of 2012-2019*

Name of the index	Average value of the index in hospitals for the years of 2012-2019*							Data for the year 2019 in the comparative group		
	2012	2014	2015	2016	2017	2018	2019	Average weighted value	Largest value	Smallest value
Labour intensity of assurance tasks	33	32	33	36	38	31	34	50	410	32
Labour intensity of verifying activities	3	7	5.2	5.9	7.7	6.8	8	8	21	5
Average time devoted to advisory activities	28	28	28	26	28	30	35	68	118	18
Degree of the implementation of the audit plan	64 %	75 %	77 %	66 %	73 %	77 %	74 %	74%	84%	28%
Efficient audit time of 1	70 %	69 %	67 %	66 %	72 %	67 %	71 %	64%	72%	54%
Efficient audit time of 2	81 %	83 %	82 %	83 %	83 %	83 %	80 %	78%	84%	66%
Efficient audit time of 3	68 %	79 %	68 %	67 %	84 %	72 %	81 %	70%	94%	13%
Percentage of recommendations recognized as valid	98 %	95 %	99 %	97 %	98 %	100 %	99 %	98%	100%	95%

**Note:** \* In 2013, data for hospitals were not published in annual reports.

**Source:** Authors' own study based on *Benchmarking: 2013, 2015, 2016, 2017, 2018, 2019, 2020*.

The index of the efficiency of internal audit related to the labour intensity of assurance tasks carried out in the hospitals in the year 2019 was 34, and it was by 16 points lower than the average value in the comparative group (50). It results from this that in the hospitals examined, the average completion time of a single assurance task is 34 days. The value of this index should be considered in combination with the labour intensity indexes of verifying activities and average time assigned to advisory activities. In the case of the hospitals examined, the first index is 8, and it constitutes a value that is greater below by 2.0 point than the average value in the comparative group (8). The value of the index of average time devoted to advisory activities in the hospitals in the year 2019 is 35, and it constitutes a value that is smaller by 33 points than the average value in the comparative group (68). It can be observed that the number of participant days devoted to the implementation of assurance, verifying and advisory tasks in hospitals in the year 2019 is low in comparison to the other units examined. This may prove the fact that in the hospitals, internal auditors are

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employed as part-time personnel, which causes the number of participant days counted in proportion to the part-time job each year to be smaller than the full time equivalent.

Consequently, an auditor hired as a part-time employee performs the same organizational activities related to the implementation of the internal audit plan, assurance tasks, advisory and verifying activities as an auditor employed as a full-time worker, but they dispose of a smaller number of participant days to perform assurance tasks, checking and advisory activities. This method of the employment of internal auditors in hospitals (as part-time personnel) may prove the fact that there are no funds for any other form of their employment, or it may prove a low position of the internal auditor's job in the hospital. This may also point to the perception of conducting an internal audit by the managers of hospitals as an obligation which must be met as required by legal regulations, and which does not bring any benefits which may streamline the management process of a medical institution. Taking into consideration the indexes related to efficient audit time, it can be noted that in the hospitals examined in the year 2019, all the three indexes (i.e., efficient audit time 1, efficient audit time 2 and efficient audit time 3) achieved values above the average values established for the comparative group which the hospitals were assigned to.

The value of the index of efficient audit time 1 calculated for the hospitals shows that time devoted by internal auditors to assurance tasks, advisory and verifying activities from the total time of internal audit established each year was 71%. This means that the auditors of the hospitals examined used 29% out of the total time of internal audit to perform reporting activities (the audit report, the plan year, preparation of mandatory information for the MF), self-evaluation, organizational activities, holidays and trainings. It is evident based on this that a greater part of the working time of internal auditors within a year was devoted to the implementation of the basic audit tasks. This is a positive phenomenon. The high productivity of the internal auditors' work in the hospitals examined is confirmed by the value of the index of efficient audit time 2, which was 80%. Efficient audit time 2 expresses the relation of the sum of participant days used for assurance tasks, advisory and verifying activities to the sum of used participant days, which constitutes the total budget of time reduced by holidays and other absences. The value of the index of efficient audit time 3, which of the hospitals examined was on the level above 81% is also correct; this is following the recommendations of the MF.

The index of recommendations recognized as valid also obtained a high value (99%) in the year 2019. This means that only 1% of the recommendations related to audit tasks completed issued by the internal auditors in the final reports were not recognized as valid by the managers of those areas which had been assessed by the internal auditors. However, there is no information as to whether all the recommendations issued by the auditors which were recognized as valid were implemented in the areas which were audited; if so, the question is what the degree of their implementation was.

When analysing changes in the indexes of productivity (effectiveness) of internal audit in the hospitals in the period examined, it can be noted that the index of the percentage of recommendations recognized as valid retains a high level over the whole period examined. Its value oscillates in the limits from 95% to 100%. This proves that almost all the audit recommendations included by the internal auditors in the final reports made after the completed audit tasks are acceptable by the managers of the areas examined and by the manager of the unit. The indexes of efficient internal audit time 1, 2 and 3 for the hospitals in the years examined do not demonstrate any clear tendency of changes. They are on a similar level showing small year-over-year decreases or increases from one percent to eight percent. The values of the efficient working time indexes 1, 2 and 3 confirm the thesis that the auditors of the hospitals examined assign most of their working time in the year to the implementation of audit tasks such as assurance tasks, advisory and verifying activities. No clear tendency was observed in changes in the years examined for the following indexes: the labour intensity of assurance tasks and the labour intensity of verifying activities. It results from this that every year, the internal auditors in the hospitals examined devote a similar number of days during the year to the implementation of assurance and verifying tasks. Average time devoted to advisory activities increased significantly in 2018-2019. It results from the increased importance of advisory activities performed by internal auditors in the hospitals surveyed.

It is evident based on the analysis carried out that there is a clear tendency of changes in the values of the indexes of the hospitals in the period examined from the year 2012 to the year 2019. The observation of the year 2019, on the basis of which a comparison was made of the average values of the indexes of the hospitals with the average values of the indexes in the whole comparative group, which the hospitals were qualified to, allows one to find that: (1) the average values of the indexes related the activity of internal audit do not diverge significantly from the average values for the whole comparative group, but they are considerably smaller than the greatest values, (2) the average values of all the indexes of the internal audit quality in the hospitals are below the average values established based on all the units in the comparative group, and (3) the average values of almost all the indexes of the effectiveness (productivity) of internal audit in the hospitals are above the average values of the indexes calculated for the units from the comparative group examined where the hospitals were found. Only two indices, labour intensity of assurance tasks and average time devoted to advisory activities exhibits a value that is smaller than the average value of the index for the comparative group.

It is worth noting that the COVID-19 pandemic has had a devastating effect on societies and individuals. Hospitals were one of those organisations which have been under strain to deliver their services and align the operations to the new challenges. New management procedures had to be implemented to ensure business continuity and safety of healthcare personnel and patients. In 2020 the internal auditors in hospitals had to analyse the annual audit plans, carry out risk analysis and change

the priorities to fulfil the internal audit tasks considering the new legal requirements and operations in the unstable environment. The objectives set for 2020 included in the annual manual audit plans could have proven inadequate to address the risks faced by hospitals. Some of those objectives may have even been impossible to meet due to technical and organizational problems. The auditors should therefore consider identifying new risks, needs, opportunities and limitations for hospitals. Most of the risks and challenges remain valid in 2021. To be perceived as a useful function by the stakeholders, internal audit should be sensitive to the needs of hospitals and provide them with flexible solutions.

An auditor should constantly identify, analyse, assess, evaluate risks, and offer advice on further developments. In the new realities internal auditors are faced with the necessity to improve their performance and seek new methods of work, including adopting (Deloitte, 2020). Creativity and knowledge sharing are crucial to achieve necessary performance during the pandemic crisis. Report "Benchmarking of internal audit in public finance sector units for 2020" will be published in a few months. It is hard to predict what the values of indexes of the results of internal audit activity, indexes of the quality of internal audit and productivity (effectiveness) indexes of internal audit will be.

## **5. Conclusions and Recommendations**

The primary aim of the analysis carried out related to the indexes of internal audit in the hospitals based on the data included in the annual reports by the MF was to determine the tendency of changes in these indexes in the years of 2012-2019. The values of the indexes of the hospitals from the year 2019 were also compared with the values of the indexes of other units examined from the comparative group which the hospitals were qualified to. An analysis of the tendency of the changes in the values of the indexes of the hospitals in the years of 2012-2019 exhibited small changes in their values. For example, in 2019, the value of the index of the number of completed assurance tasks for the hospitals was 2.2, and the highest value in the comparative group was 5.5. The index of the number of recommendations issued for the hospitals was 10, and the biggest value for this index in the comparative group was 39. The same is true of the indexes of the quality of internal audit and the indexes of the effectiveness (productivity) of internal audit. Comparing the average values of the indexes of comparative group, which the hospitals were qualified to, with the values of the indexes of the hospitals, it can be found that the values of all the indexes for the quality of internal audit in the hospitals are below the average values, the values of the indexes for the activity of internal audit do not diverge significantly from the average values calculated for the whole comparative group.

The values above the average values of the indexes calculated for the whole comparative group were obtained in the hospitals only by the indexes of effectiveness (productivity) of internal audit. It results from this that the position of the hospitals towards the other units from the comparative group, which the

hospitals were qualified to, is low. This might point to a low quality, productivity and effectiveness of internal audit conducted in the hospitals examined.

The other question posed was as follows: is it possible to draw objective conclusions on the activity, quality, and productivity of internal audit in the hospitals on the basis of the presented set of the indexes developed by the MF? According to the authors, the values of the indexes presented in the report of the MF given for the hospitals cannot form a base of comparison for other public finance entities.

The authors of this study claim that it is difficult to compare the indexes of audit in hospitals to the indexes of audit in other units that operate in the public finance sector based on Benchmarking reports of internal audit in public finance sector units that include the data for the years 2012-2019. This is the result of the fact that it is difficult to compare medical operations to other operations. The operations of the hospital engage specific physical and human resources which do not have any reflection in other units, even those which, similarly as hospitals, mostly engage public funds for the purpose of their functioning. Research into some areas of the hospital's operations by internal auditors requires obtaining medical and non-medical information, which results from the specificity of medical operations. This has an impact on the selection of tools and research techniques applied in the analysis and assessment for the operational risk of the hospital. The effectiveness and quality of an audit task completed around the operations of a medical entity depends on numerous factors.

These include the following among others: (1) the availability of medical and non-medical information, which is related to the possibility of contact with the medical personnel, (2) the awareness of medical personnel in the scope of the need of the implementation of audit tasks, and (3) the financial condition of the hospital and the willingness of its manager to allocate funds to the development of internal audit in the medical entity.

There is a lack of information on the specialization of hospitals, size of the entities, the number of internal auditors hired and the form of their employment, or the amount of funds assigned to the operations. The number of auditors employed has an impact on the number of the tasks implemented, their labour intensity and the time of their performance. This may in turn have an impact on the values of the indexes of the number of audit tasks completed, the number of recommendations issued and efficient audit time. The specialization of hospitals relates to the realization of various medical and non-medical activities. It is difficult to compare the area of the operations of teaching public hospitals, which implement medical, scientific, and didactic tasks, with the area of the operations of hospitals which only realize medical activity. The specificity of the operations has an impact on the labour intensity of audit tasks realized in the areas of the operations of hospitals. This may in turn diversify the values of the indexes of the labour intensity of assurance tasks, labour intensity of verifying activities and average time devoted to advisory activities.

According to the authors, for the reasons mentioned above, the values of the indexes calculated until now on the grounds of the measures as proposed by the MF for public finance sector units are not adequate to the operations of hospitals. A new list of the indexes should allow one to compare values between hospitals classified according to: (1) the specificity of medical operations, (2) tasks realized, (3) the level of incomes and expenses, (4) the organizational structure, (5) the number of medical and non-medical personnel employed, (6) the number of the posts of internal auditors employed and (7) the period of the internal audit conducted. For example, comparison should take place according to the groups classified, e.g., in a group of teaching hospitals or in a group of hospitals which employ one internal auditor under a contract of employment. This assessment may take place according to various indexes of activity. Conducting a comparison between individual hospitals enables one to pay attention to ineffective activities in internal audit and facilitates an introduction of changes.

The research results presented confirm the necessity to conduct further advanced research into the complex issues of the measurement and improvement of internal audit quality in those hospitals that operate in the form of independent public healthcare units. Therefore, the authors of this study recommend conducting further wide research in relation to the functioning of internal audit in such units. The results of such research could offer guidelines as to how the indexes need to be modified recommended by the MF for the purpose of an examination of internal audit effectiveness in hospitals. It would be desirable to prepare a list of simple indexes and measures (quantitative and qualitative) which could be used by management and auditors to improve the quality of internal audit in hospitals.

The literature lacks research results in the field. The authors have also found a gap in Polish and world literature. Despite that the research sample includes the report from the MF, the conclusions drawn from the study can be related to the internal audit departments in other countries. There is an ongoing global challenge to evaluate the work of internal audit departments in hospitals. We believe that further investigation with a cross-country comparative analysis will be needed.

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