



SELECTED ASPECTS OF THE LOGISTICS NETWORK OF PUBLIC HOSPITALS IN THE COMPETITIVE MARKET OF HEALTH SERVICES

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ABSTRACT. Background: The below considerations provide an overview of the issues of sustainable development, logistics, to financial engineering instruments and the role of intellectual capital in the process of transformation of public hospitals. The aim of this research was to assess the competitiveness of the network of public hospitals in the market of health services based on literature studies, as well as empirical research.

Methods: Empirical study using a questionnaire survey was conducted in the period from January 2007 to December 2011, in the area of Warmia and Mazury, Pomerania and Wielkopolska.

The goal of this questionnaire survey was to know the medical staff reviews issues related to adaptation to the nature of the network of public hospitals methods and logistics tools, sustainable development, corporate social responsibility - CSR. The study was carried out in 104 public hospitals, on a sample of 8975 respondents.

Results and conclusions: Analysis of the completed study showed that the logistic processes and their improvement in the health sector play a significant role.

The surveyed entities explicitly draw attention to the need for information systems, pro-environment activities, access to information, or the use of GS1 global standards.

These tools allow you to increase the efficiency of supply chains, ensuring not only tracking and tracing of products from the manufacturer to the patient, but also enabling better protection against making a mistake or counterfeit products.

Key words: logistics, network of hospitals, CSR, logistics, competitive market, sustainable development.

INTRODUCTION

Today public hospitals that address the challenges of the twenty-first century need a strategy which would enable them to become more distinguishable from the competition. The increasing globalization of the economy causes decrease in quality, technology and price differences between offered health services. Cooperation and building partnerships is essential for sustainable development of the network organization, by

obtaining a balance between the development of economic activities and human development in the following areas:

- economic - concerning effective financial management implemented through the introduction of innovative diagnostic and therapeutic technologies for managing the process of providing comprehensive health services affecting directly and indirectly the increase in the quality of life,
- natural - determining the development of the network of public hospitals through investments that have a positive impact on

the environment, compliance with standards and regulations relating to environmental protection, rationalization of water and electricity consumption, prevention of water soil and air pollution, using the technology of effective waste management and recycling,

- social - which creates the possibility of dialogue with all stakeholders, which results in the analysis of the needs of health care (prevention), assuming from the beginning that the benefits must be balanced on both sides: the network of public hospitals and social groups (an increase in quality of life).

The changes caused by the emergence of "risk society", individualization, detraditionalization and cultural processes of globalization, impose taking action to increase the quality of human life while preserving natural and cultural values. Outphasing activities in the above-mentioned dimensions can only help to solve the current problems, rather than building a long-term strategy that would enable the efficient development of the network of public hospitals.

For years, the health sector has successfully adapted methods and tools to improve quality in the industry [Fiałkowska, Zymonik 2012]. The challenges of economic, social and organizational strongly are also influenced by the demographic change - aging populations.

The determinant of the implementation of methods and tools related to logistics sustainable development, corporate social responsibility - CSR is to adapt them to the nature of the network of public hospitals - health services and their nature. In characterizing the contemporary society and health requirements, you should also emphasize the phenomena and manifestations which determine the implementation of these solutions into a network of public hospitals by:

- escalating population movements,
- emphasis on the protection of nature,
- increase in the importance of quality,
- frequent changes in health systems, education,
- technical and technological progress,

- development of the theory of entropy (Entropy is a measure of the degree of disorder of the system (system), from the physical point of view each economic process is an one-way entropy increase ("degradation"); the term was coined by German physicist),
- more and more significant "minorities", not "majorities" [Toffler 2006].

It is a positive fact, however, that there is a growing awareness of hospital personnel - if the network organization is to survive, it must actively seek ways to communicate and interact with local communities. Having better access to information modern prosumers require that health services provided should meet higher and higher demands in terms of availability and quality.

LOGISTICS IN THE MODERN MANAGEMENT OF THE NETWORK OF PUBLIC ENTITIES

In medical care logistics is a field that is not visible to the patient, but directly affects the quality of the management processes of health services in the network organization, which is an important area of interest. Since this process is a non-medical one, the main actors will be those managing entities which are included in the areas of economy, administration, technology, but also law. It depends on the respective competences of these people whether the implementation process of health services will be at a satisfactory level for prosumers.

Supply chain management must take place in consultation and cooperation with medical professionals since they are responsible for appropriate diagnostic and therapeutic processes, and their recommendations determine the consolidation of orders.

The size and structure of the logistics center network of public hospitals should be tailored to the specific tasks that are a function of the number and nature of needs because the traditional hospital storage are being replaced by cross-docking terminals. The components of hospital services are received from

suppliers. Then they are deconsolidated in the terminals and consolidated again for load units in accordance with the order of a specific entity. The product stream flowing through the terminal remains uninterrupted, regardless of the number of providers, the type of products and their distribution. Logistics Flow helps meet the growing demands of the network of public hospitals in the supply and distribution of products. Implementation of the principles of outsourcing of logistics services is to allow logistics centers or logistics operators to perform some or all of the logistical operations for the network of public hospitals. This allows to focus on the core business which is comprehensive management of hospital services. Infrastructure and environmental constraints determine the development of interest in multimodal transport (under one contract at least two means of transport are used). Creative logistics management is becoming increasingly important. There are many starting points for operations which can rationalize the course diagnostic subprocesses aimed at reducing costs, sustaining high quality, and increasing the added value of comprehensive hospital services. Implementation of new management concepts (ISO, TQM philosophy and many others) creates further opportunities for process optimization (IT development, computerization, etc.). Moreover, in the process of solving problems which arise when implementing these concepts, what might be helpful is the philosophy of Kaizen consisting of simple improvement tools. Imai [2007] assumes that: our way of life (regardless of whether it is a job, social or personal life) should be continuously improved. In contrast, increasing the participation of administrators of public entities in activities that shape Kaizen is possible, inter alia, through active participation in all processes related to the improvement, including personally assisting employees in the process of solving problems [Staszewski, Kautsch 2010].

In the process of identification and characterization of processes (systems) what plays a critical role is logistics comprehensive analysis of their functional, instrumental and structural characteristics and effects of their interaction. Based on this, the logistic system can be described as a collection of elements

where the relationships between them are concretized through appropriate processes of transformation. These elements, having specific properties, also interact with each other closely in terms of organizational relationships. This means that the structure of the logistics system is created by only those processes that are assigned in a systemic manner to appropriate organizational and functional solutions of a network organization. In practice, this means moving from an operational approach geared to control logistics operations, towards the systemic concept of logistically oriented management.

The problem of choosing a logistics operator for the management and implementation of certain logistics functions belongs to the strategic issues of comprehensive management of a network organization. Decisions of this type are decisions such as: "leave it at home, or acquire it from outside". This applies to all situations, which play a decisive role in the reduction of the operating costs of entities, taking into account both quantitative and qualitative factors [Hella, de Leeuw, Klumpp].

One of the methods for the comparison of qualitative factors in the decision process "make or buy" is the method of "scoring". The final result is a solution that can be an element of support in the decision making process. The process approach and flow concurrency are a requisite for the reduction in the time of processes (hospital services). The logistics operator participating in the value chain monitors the completion of deliveries from sub-supplier; their processes - deliveries to the main link, which is the network of public hospitals. Turbulences in the environment enforce the need to continuously adapt to new conditions and to be flexible in the comprehensive management of the process of provision of hospital services. On the one hand they must be solutions for relatively rapid and significant improvement in quality, reduction in the decision-making risk, involving adequate measures. On the other hand, what should also be considered is the effectiveness of implemented diagnostic and therapeutic innovation and the ability to use them for a longer period of time. According to the authors, the term "do it once and for all"

carries a new message for a network organization, determining, on the one hand, the costs of providing services and the increase in health satisfaction and reduce the risk of decision-making on the other hand. Economic reality forces the network of public hospitals operating in turbulent conditions to subordinate to the concept of modern supply chain [Wolffgram, Rutkowski 2001], which is characterized by:

- rapid response capability, the ability to satisfy the rapidly changing demand,
- flexibility, ability to adapt to the optimum: "cost of hospital service - patient care level",
- ability to make optimal use of a hospital /a ward resources,
- the ability to make full use of all available information.

This is what makes the logistics network of public hospitals an interdisciplinary area, involving all the staff employed (regardless of the form of employment). In managing the process of health services costs play an important, but not dominant role. Through this approach, properly implemented logistics processes in the network of public hospitals, can directly affect the quality of health services, reduce the risk of decision-making and increase satisfaction of health prosumers.

In the era of knowledge-based economy what is required is a new look at the functioning of the network of public hospitals. [Maczewski 2001] asserts that contemporary management necessarily includes fraction of different approaches, combining the results of research of many fields, even breaking down barriers of disciplinary, because management needs the interdisciplinary approach. The synergistic merging and the use of different expertise, can allow organizations to obtain network capacity to cope with environmental turbulence. Query literature indicates the growing needs and a growing number of manifestations of systemic treatment, shaping functions and logistics processes in integration and strategic aspects. The proper selection of components makes it possible to obtain an advantage over competitors, and this, in turn, allows to achieve long-term goals. In this context, the search for solutions in the field of logistics management refers to those that can

be used in sustainable logistics chains. These are complex operations, requiring of public bodies close partnership and flexibility, so that the end result of their actions will satisfy the expectations of stakeholders.

In the literature sustainable logistics chains are referred to as feedback chains or waste chains. There are seen as processes where resources used environmentally friendly, and whatever is produced as a result is subject to disposal. This creates a balance in the chain, providing the opportunity to dispose of the product obtained and, consequently prolonging its life cycle [Brdulak, Michniewska, 2009]. The offer of logistics services available in the market is rapidly expanding to meet the expectations of the organization of the network. For the market offer to be suitable to meet the specific requirements of public entities it includes:

- comprehensive service by offering an integrated set of logistics services in accordance with the concept of "buy everything in one place", what enables the organization to make significant savings in terms of costs, but also time,
- excellence of orders (relevant to the diagnostic and therapeutic processes) in accordance with the major principles of logistics:
 - the right shipping (elimination of mistakes and errors in terms of objects transported),
 - at the right time (punctuality),
 - the right place (elimination of mistakes and errors to targets),
 - the right condition (increasing importance of transport security).

(Re)defining its business model the organization (network) must define its strategic dimensions of functioning by [Slywotzky, Morrison, Andelman, 2000]:

- choice of target groups of patients,
- capturing value,
- strategic controlling,
- the scope of activities.

Implementation of solutions for sustainable logistics network of public hospitals should consider:

- Transfer of the industry-specific know-how, as well as temporarily delayed return-on-investment,
- clearly defined competencies in data processing (compatible databases),
- readiness to deal with the legal conditions of health,
- readiness to take design responsibility for the basic functions that go far beyond the normal flow of materials.

The term "supply chain" is one of the most dynamically developing concepts [Świerczek 2004]. Coordination of activities within the framework of a comprehensive management of hospital services - a network of public hospitals - is associated with the need to solve complex, multi-criteria decision problems, the choice of "something for something" - trade off. Particular areas of strategic behavior subsidize each other: the cost for time, the time for the service level (quality), quality for the cost, etc. [Chaberek 2001].

Porter [2001] believes that the value chain is: Performing similar activities better than the rivals do, where every company (including public hospitals) is not only a link in the value chain of the broader economy, but also creates the same internal value chain [Giereszewska, Romanowska 1999] – a balanced budget. The concept of the value chain is the basis of a comprehensive process approach to managing the process of providing hospital services [Pinna, Carrus, Marras 2015]. It is subject to verification in terms of value for the customer (patient) and the reference to performance indicators achieved by the organizations (the network of public hospitals) in relation to the competitive environment [Lisiecka 2003]. It is also the structure of cooperating with each other entities [Fung, Fung and Wind 2008], while the network is the entire population of suppliers, from which, for a specific order, one can extract the best set of suppliers - the supply chain. Modern supply chains should be "demand controlled chains" - or controlled by the needs of the consumer. This means the ability to respond rapidly to changing demand, i.e. in the so-called reaction in real time.

Rising medical costs arising from the use of more advanced technologies and a growing number of patients are contributing to the search for solutions to improve the supply chain and improve the safety of the patient. The basic criterion for a comprehensive policy analysis of supply chain management in the network organization are the costs generated by logistics operations, while the process approach indicates the need for consideration of the costs relating to activities carried out within the framework of individual processes. The concept of cost accounting taking into account processes in logistics is ABC - Activity Based Costing [Bober 2012]. Its wide range of applications gives it huge potential opportunities for both strategic and operational management of the network organization costs. The integrated supply chain is the optimal approach to the market of health services, where the network of public hospitals operates. Depending on the pro-quality needs, the supply chain must provide a suitable compromise between reaction rate and efficiency. In addition to the above tasks, processes of order management must also provide the so-called exception handling, such as for example, road crashes. The desire to organize and enrich the knowledge of logistics in unusual applications has been the inspiration for this work.

IT SYSTEMS SUPPORTING THE PROCESS OF CHANGE IN THE NETWORK OF PUBLIC HOSPITALS

The implementation of procedures and systems tailored to the organizational and functional requirements of a network of public hospitals, the market and the law, enables the identification of the components of hospital services at each stage of the supply chain. Additionally, one can also reduce the risks associated with the management of the provision of services, thus determining reproducible quality. Data, information and knowledge are assets necessary in the process of implementing the principles of sustainable development of the network of public hospitals, supply chain management - SCM.

They are the basis for the operation of e-medicine and management control of the flow

of goods and information, and their distribution among the supply chain participants. IT systems are used in particular in [Waters 2007]:

- acquisition and data collection about services for specific logistics operations in real time,
- storage of information in databases in pre-defined categories and formats,
- analyzing the stored data to generate information for decision-making in terms of cost reduction,
- cooperation and communication with the participants of the chain,
- formulation of a coherent system of coding to automate communication between participants in the process of exchange based on the standard UCC - European Article Number Association-Uniform Code Council (transformed into a global standard GS1 - Global Standard),
- standardizing logistics operations and procedures for data acquisition, regulatory and control measures.

In contrast, intelligent transport systems - ITS, provide a wide collection of various telecommunication and information technologies as well as management techniques used in medical transport, in order to increase the efficiency of the transport system safety and protection of natural resources. The implementation of the concept of the so-called. Quick Response - QR allows to identify and meet the real demand for health services. The integration with electronic commerce tools is used to make decisions and actions helping time compression in the duration of the process of distribution. [Rutkowski, 2005].

IT solutions for the possibility of links between the patient and the supply chain will allow not only the identification of the drug, but above all in the case of adverse reaction of non-patient, an immediate intervention. The evolution of technology provides tools and systems to facilitate, to meet the demand for processing, transmission of data and information. It also provides innovative technologies, such as wireless technologies and systems for flow control based on RFID - Radio Frequency Identification. AIDC

Technology - Automatic Identification and Data Communication is used for automatic identification and data collection, recording the maximum number of components in the system of health services using e.g. barcodes, magnetic stripes. It also allows to perform the following operations in the hospital supply chain:

- store relevant information to enable product traceability,
- solve the problem at the source - the general improvement of quality,
- decline in demand for labor,
- inventory control, quality assurance,
- elimination of errors related to the human factor,
- locating components of services - enabling delivery on time,
- control of transport conditions - reduction of damage.

Technologies based on barcodes or RFID tags are increasingly applicable in the implementation of the logistics activities in hospitals [Roper, Sedehi and Ashuri 2015; Long, Dung, Xuan, Qiang, Enmin 2015]. Tracking the movement of goods in the supply chain improves inventory management undoubtedly, while guaranteeing an appropriate medication, in the right place and time.

Gaining quick access to comprehensive information, improving patient safety in the process of hospital treatment is extremely important. Such actions raise the efficiency of logistics hospital, allowing at the same time, reduce administrative costs. Optimizing the conduct of health and medical organizations sauges translates to minimize errors, increase employee effectiveness and efficiency of processes. It should be pointed out that in hospitals dealing with the identification of multiple streams of natural resources, among which indicate [Nowakowski, 2011]:

- Medicinal products (e.g. Vaccines, prescription drugs, blood, etc.),
- Medical devices (e.g. Laboratory and diagnostic equipment, containers, etc.),
- Organ to transplant,
- Personal protective equipment (e.g. Protective clothing and footwear, etc.),
- Articles hotel (e.g. Sheets, chairs, cosmetics, etc.),

- Foodstuffs,
- Articles and office equipment and renovation,
- Medical waste.

This classification shows the enormity of the problem with which the hospitals are struggling to effectively manage, plan, hospital supplies, or spend all sorts of products. Due to the nature of assortments should take into account a number of important issues such as low predictability of supply of medicinal products, the need to ensure inventories, high capital intensity, or provision of special physicochemical conditions during transport and storage. It is also necessary to continuously monitor the use-by dates, as well as keeping track of individual production batches of medicines and changes in this regard. Therefore, each of the product groups has to do with logistics functions, such as: development and implementation of the order, warehousing, packaging, transport and waste management. Some functions require a number of significant decisions.

The multidimensional nature of the decisions made in the diagnostic and therapeutic process means that the effectiveness and success is often determined by the ability to work in an interdisciplinary medical team. An important task in the provision of health services is to coordinate and control the movement of people (co-workers and patients) and information about them.

Through decision support systems - SWD [Bober 2013] contemporary IT proposes solutions for vague environments, incomplete data, minimizing errors arising from misinterpretation of medical records. On the one hand the system ensures the correct identification of the patient, controls the diagnostic and therapeutic process and responds to the patient's changing vital signs, makes the medical staff focus more on the patient and less on writing referrals, prescriptions, etc. On the other hand, medical managers can optimally control the revenues and costs, manage medications and inventory more efficiently and safely, etc. Another important aspect is the optimization of medical

orders by identifying the hospital units producing unjustified costs.

IMPLEMENTATION OF THE PRINCIPLES OF SUSTAINABLE DEVELOPMENT AS THE BASIS FOR DEVELOPMENT OF A NETWORK OF PUBLIC HOSPITALS

The 1989 reform changed the rules of public hospitals. Although the hospitals are not viewed as acting according to the principles of sustainable development, they have a relatively rich record of responsible business conduct. These actions result from their policies which include quality standards determining all aspects of a network of public entities. The concept of sustainable development was formulated at the Second Session of the Executive of the United Nations Environment Programme in 1975 (The concept of sustainable development comes from the German forestry and was introduced by H. von Carlowitz in 1713, and meant such a way of managing the forest that such a number of trees was cut only that could be restored at the same location) [Witte 2011]. It assumes: such a course of inevitable and desirable economic development, which would not irreversibly affect the human environment and would not lead to the degradation of the biosphere, which would not undermine the laws of nature, economy and culture [Dick, 2006]. In Poland, it was considered a problem so weighty that it was entered into the 5 article of the Polish Constitution that: the Constitution safeguards the national heritage and protects the natural environment, based on the principle of sustainable development [1997 Constitution]. In addition, it creates a common basis for analysis and practical solving of social, economic and ecological problems of a network organization. It involves shaping development policies in such a way that apart from the purely economic elements also social and environmental goals would be taken into account. The condition for the achievement of the strategic objectives of sustainable

development in the regional ecosystem is endogenous ability to create innovation and, in particular, eco-innovation understood as ecological novelty - in technology, organization, management, promotion, environmental education, planning, marketing, which reduce or prevent the negative effects of regional entities on the environment [Strahl 2010].

Innovation is defined in many ways, but using the most general terms we can say that these are all facts, processes, phenomena of a technical, organizational, social, psychological, scientific, financial or commercial nature, aimed at the development and implementation of new or significantly improved products and processes [Kurpanek 2006]. Defining innovation Schumpeter [Pomykalski 2001] has focused his attention on the introduction of new processes or improving existing ones, introducing new or improving existing products, the use of a new method of sales or purchases, opening a new market, the use of new raw materials or semi-finished products and the introduction of a new organization of production. However, according to the OECD definition, innovation is when a new or significantly improved solution is introduced in the company, with regard to the product, process, marketing or organization [European Commission 2003, 2004]. Innovation can be both a product and a whole range of different products, which constitute an integrated entity. The use of new technology is not only more economical but also more efficient than the search for different ways to reduce pollution, which arose as a result of the use of outdated technologies [Janasz 2007]. The life cycle of products and services is becoming shorter and innovative products, positively verified by the market, play an increasingly important role in achieving the success of many companies [Majchrzak-Lepczyk 2012]. Innovation, therefore, determines the development of logistics, thus leading to increased competitiveness and development of the organization. In contrast, logistics competences, as factors affecting the changes in the comprehensive management, enable more effective implementation of the planned economic effects of a market [Bujak 2011]. In addition, logistics facilitates the formation of

social, ecological and spatial order. In the environmentally oriented logistics system environmental objectives are treated as equivalent to economic objectives [Messiah-Lech 2012]. A special type of innovation is eco-innovation, which is seen as an essential tool in the quest for efficient use of environmental resources, competitiveness and job creation resulting from the social interaction, technical discoveries and applications of new knowledge. As a result of interaction they create new products and processes with reduced negative impact on the environment [Wozniak, Ziolkowski 2006].

The network of public hospitals meet many criteria for the applied ecological, economic, and social solutions. The creation of the report GRI - Global Reporting Initiative would be a confirmation of the achievements of the network organization in meeting these standards. It is a tool to monitor the achievements in the implementation of sustainable development strategies. It also allows the identification of the places where it is possible to introduce modifications. The effectively conducted policy of sustainable development is a major step in order to influence the image of public entities. Moreover, emphasizing the achievements in the environmental and social fields can be a great tool for Public Relations in the network of public hospitals.

SUSTAINABLE TRANSPORT AS A RESPONSE TO ENVIRONMENTAL REQUIREMENTS

Ongoing economic volatility causes changes in the business of public hospital network. The network exists in the booming environment and is constantly forced to seek new and effective business models that provide enhanced competitiveness. The concept of sustainable development is a proposal for a qualitatively new form of conscious, responsible individual and social conduct, enabling the further development of civilization with respect for the laws of nature and socio-economic aspirations of mankind [Skowronski 2006].

In the context of a general reflection on the sustainable development of the network organization what should be noted is the increased interest in the phenomenon of sustainability in different areas of human activity. In numerous publications relating to sustainable transport one can encounter two similar concepts: Sustainable Development of Transport and Sustainable Transportation. Sustainable transport development is a process of changes in the transport sector, showing characteristics of growing sustainability (mobility, accessibility), reflecting a steady disparate economic, social and environmental objectives. In contrast, sustainable transport is referred to interchangeably as environmentally sustainable transport and or a environmentally sustainable system (these terms are treated as synonyms).

Within the framework of the White Paper the European Union has developed its own definition of a sustainable transport system, according to which it:

- ensures the availability of the communication objectives in a safe manner, without jeopardizing human health and the environment, in a manner equal to the current and next generations,
- can function effectively, offer a choice of means of transport and sustain the economy and regional development,
- limits emissions and waste within the limits of the soil absorption properties, uses renewable resources in the amounts possible to restore them, consumes non-renewable resources in the amounts possible to replace them by renewable substitutes, while minimizing land take and noise [White Paper 2010].

Man not only uses natural resources satisfying their needs, but also protects them from degradation and transforms them according to their needs [Deszczka, Wąsowicz 2013]. However, according to the definition (The definition of a sustainable transport system, adopted in 2004 by the European Conference of Ministers of Transportation of the OECD and the Centre for Sustainable Transportation in Toronto in 2005.), a sustainable transport system should take into account accessibility criteria for transport services in line with the requirement of health

and environmental safety (impacts on ecosystems) including:

- the principle of intergenerational justice,
- the criterion of economic efficiency,
- the criterion limiting the impact on the environment (negative external factors),
- the use of space (land).

Transport is the sphere of management which has a multidimensional character of relationships and dependencies of the economy, society and the natural environment [Crew 2013]. Despite its complex nature, being the "bloodstream" of the economy, transport should be balanced, and the balance should go along the following axes: economic, social, environmental and spatial ones [Pawłowska 2011].

CSR - AN EFFECTIVE AND RESPONSIBLE PUBLIC HOSPITAL

The art of management responds quickly to the changing reality and the drive for change in the network of public hospitals are new practical experiences. The economic, social and natural challenges inspire the creation of new concepts, methods, systems and management techniques [Poskrobko 2008]. These challenges led to the development of the concept of corporate social responsibility - CSR. The concept of corporate social responsibility has many counterparts, used interchangeably. In the literature and business practice the most frequently used terms are: Corporate Sustainability Management, Business Responsibility, Corporate Citizenship, Global Business Citizenship, Corporate Social Performance, Corporate Social Responsiveness, Social Responsibility, Corporate Responsibility, Community Relations [Roszkowska 2011]. The multiplicity of interpretations of the term CSR, as well as ambiguity in its conveyed meaning is shows that the idea is still being developing, but if it is still taking shape, it is not so easy to capture its essence, and hence, not so easy to implement it in life [Filek 2008].

A precise definition of corporate social responsibility was reflected in ISO 26000, which requires entities: to include

environmental and social aspects in the decision making process and take responsibility for the impact of decisions and activities on society and the environment [Ministry of the Economy 2011]. They contribute to sustainable development, including health and the welfare of the society and:

- involve expectations of stakeholders,
- comply with the applicable rules of law and being consistent with international norms of behavior,
- implemented throughout the organization they are practiced in its activities within its sphere of influence [ISO 2010].

The basic premise of CSR is therefore responsible and ethical conduct of business in relation to social groups, which it interacts with as well as the greatest possible respect for the natural environment.

In addition, Kuraszko [2010] recognized the following as the characteristics of socially responsible actions:

- the introduction of ethical values in core business,
- fair fulfillment of commitments,
- the use of transparent business practices based on respect for employees and the community,
- use of dialogue in the process of streamlining the development strategy of the organization,
- building a strategy of competitive advantage in the market, which is based on providing a lasting value.

In the above mentioned definitions, the emphasis is on the conscious and voluntary commitments adopted by entities towards various stakeholder groups: society as a whole, and its separate groups, in particular: customers, consumers, employees, business partners and the environment [Nowak-Lewandowska, 2010].

Social responsibility in the relation: hospital network towards the patient is quite diverse in the way it is expressed, measured and considered. This is due to the fact that it is a diverse subject matter and the nature of services of these entities is diverse, too.

However, there are some general rules - the CSR imponderables, which gather most attention when prosumer-hospital relations are examined:

- compliance with the acceptable forms of advertising and promotion,
- analyzing the level of patient satisfaction with the quality of hospital services and following certain principles related to response to their feedback,
- clear definition of the obligations of public entities providing services and presenting accurate, relevant information.

In these areas, there are rules of conduct under the law as well as principles (codes) voluntarily accepted by the network of public hospitals. Reputation, as one of the intangible resources, becomes a particularly valuable resource in developing and achieving competitive advantage in the market for health services. Gaining a good reputation takes many years, and minimizing the risk of its loss means taking measures to create value for stakeholders. Public entities within the network, implementing the concept of corporate social responsibility are becoming more transparent. In this regard Corporate Social Responsibility reporting plays an important role. It can be defined as a voluntary initiative for the presentation of the overall strategy of the organization to everybody concerned. Reporting social activities is a key communication tool for an organization with different groups of stakeholders [Golob, Bartlett 2007].

The implementation of CSR principles into practice network of public hospitals is hindered by a number of significant barriers: poor quality of leadership, inappropriate relationships between roles of authority and ownership as well as imperfect law and fairly high social approval of unethical business behavior. To change the attitude of the society to the environment and sustainable development Howaniec [2010] suggests starting with the proper presentation of the same concept, both in informal and formal education (ranging from senior grades of primary school).

In addition, it is advisable to develop and implement a conscious policy of ethics, which

requires the inclusion of ethical principles in the mission of the network organization and their transfer to all staff, regardless of the form of employment.

THE CHALLENGE OF MODERNITY - TELEMEDICINE

The following piece of work has been devoted to one of the most important elements falling within the scope of sustainable development, namely the health of present and future generations. The authors showed that, thanks to modern communications technologies, digitization and computerization of medicine the quality and standard of public health can be improved. With e-medicine medical staff network of public hospitals will be able to reach a larger number of patients, ensure safety and permanent professional help, and by means of telecommunications quickly and efficiently give immediate guidance on dealing with specific ailments [Mendoza, 2014].

Telemedicine is also an advancing cooperation between hospital institutions and interdisciplinary diagnostic and therapeutic teams. In contrast, the creation of databases of medical cases, descriptions of rare diseases are just some of the elements that determine the process of increasing the knowledge of medical staff at any place and time. In addition to benefits of equal opportunities and the possibility of improving health, it is also designed to significantly reduce the process costs of hospital services rendered. Improving the quality of health with the help of e-medicine contributes to the objectives of sustainable development such as: green development, security, acting in accordance with democracy, and last but not least – a decent life. In addition, the process of their implementation can be a source of knowledge affecting the rationalization of activities undertaken in the network of public hospitals, improving relationships with patients, strengthening cooperation with partners and creating network connections. As the P.F. Drucker [2010], management philosophy should allow, among other things: full development of the individual human forces and responsibility; give a common direction to

the sense of perspective and efforts, as well as provide work collectivity, harmonizing the objectives of the individual with the common good. The need for a rapid and flourish is justified by both ethical and economic reasons. They allow the reduction of health care costs, and help to create equal opportunities for all patients.

THE ESSENCE OF INTELLECTUAL CAPITAL IN SOCIALLY RESPONSIBLE HOSPITAL NETWORKS

Corporate social responsibility is a relatively new and still evolving concept, which speaks of the need to care for the natural environment and concern for the satisfaction of social needs. It should be emphasized that the skillful implementation of the concept of corporate social responsibility is determined not only by the available resources of financial capital, but also intellectual capital, which a network organization has. According to the authors whether the presented solutions will prove effective in their implementation depends on the availability of human capital with adequate quality and effective management.

Knowledge, skills, perception, attitudes, values employees, openness to change, and everything that falls under the concept of human capital is a factor in determining the degree of competitiveness and innovation of a network of public hospitals. A major support is also important structural capital associated with technical, organizational and IT infrastructure.

Accumulation of knowledge at the level of individual entities within the network, allows to increase the skills and knowledge of staff, adapting health services to pro-quality requirements of patients and environmental requirements. It also contributes to a more effective knowledge acquisition from the outside, as well as shape the correct relationships with various groups of stakeholders. From the perspective of CSR, structural capital is therefore very important, because it has a positive effect on the

improvement of core competencies, supports the process of organizational learning, serves to create innovative solutions to build up relationships of individual entities with the environment. In this context, the organizational culture plays a special role, which constitutes an integral part of structural capital.

Environmental education is, among others, environmental education and upbringing, which is the transfer of knowledge about the natural environment, about the processes taking place within it, as well as its problems and the formation of environmentally friendly system of values (ethics, sensitivity) and raising the society's activity in order to protect the natural world [Kiełczewski 2001]. In contrast, education for sustainable development is a broader concept than environmental education. This is mainly due to the fact that the concept of sustainable development is a complex notion, whose features make it difficult to translate it into practical effect, including also the sphere of education. The complexity of the concept results from the fact that it applies to all aspects of human life and requires a multidisciplinary, systemic and holistic approach. Meanwhile, sustainable development is about cultural identity, social equality, access to environmental resources, the relationship: society- nature and conflicts between values. [Dobrzański 2006]. A network organization initiating activities aimed at their staff is now making efforts to implement integrated systems of health and safety management - Environmental, Health and Safety Management System - EHS. In this way it is possible to manage the strategic planning process, linking environmental and health and safety issues, together with development plans. Undoubtedly, the key element in the creation of a network of public hospitals appears to be human capital.

PUBLIC SUPPORT AS A TOOL TO STIMULATE THE SUSTAINABLE DEVELOPMENT OF THE NETWORK OF PUBLIC HOSPITALS

The main objective of sustainable development is to ensure economic prosperity

while maintaining a high level of protection of the natural environment and social justice. Among the instruments for the implementation of the policy are legal and economic factors, financial factors. The latter play an important role; these are subsidies to support investment activities in public hospitals. It is worth mentioning that due to the scope, donors and forms which they take subsidies are a broader concept than aid [Stiglitz 2004]. A characteristic feature of public aid is its selective nature, that is, the focus on the selected instances: public hospitals (health care).

State aid is a form of state intervention in economic activity and the social public entities. Appearing in various forms, it plays an important role in the intensification of efforts at improving the quality of life of society and the protection of the natural environment. The managerial staff of public hospitals must be aware that: financial intelligence is a gift and a skill for proper handling of money [Fesnak 2011] – a collection of psychological and financial skills required for effective management of public resources, and the goal of efficient financial management of public finances is balanced budget. In addition: management habit is more important than the amount of money [Ecker 2007].

One cannot distinguish any health care system that would systematically work better than others in terms of cost-effectiveness. It turns out that this is not the type of system, but how to manage it is what determines the cost-effectiveness. Both systems - these focused on the market and these centralized - have advantages and disadvantages.

THE RESEARCH MATERIAL AND RESEARCH METHODOLOGY

The empirical study was conducted in the period from January 2007 to December 2011 (on an annual basis), the area of the Warmia and Mazury, Pomerania and Wielkopolska, marked for the further consideration, respectively, as A, B, C (18.75% of all the provinces). The aim was to know the opinion of medical staff on issues relating to the

adaptation to the nature of the network of public hospitals in terms of methods and tools in the field of logistics, sustainable development, corporate social responsibility - CSR. The author's questionnaire consisted of mostly closed questions (with the matching list of answers based on the study of literature) of single - and multiple choice types. Anonymous questionnaires were sent to 104 public hospitals (20.43% of the total), the region A, B and C in the period from January 2007 to December 2011. The representatives of management issued a letter to the coordinators of hospital wards, as well as financial directors, due to some valuable financial data on the costs at the end of five years studied (data from the years 2007-2011). For further analysis 203 correctly completed questionnaires 81.20% (250) were allowed.

The study was conducted on a sample of 8975 respondents (7.33% of all physicians), representing the medical staff of public hospitals, regardless of the form of employment. The share of respondents in each of the five hospital branches (The criterion for selection of wards: internal, gynecology and obstetrics, neurology, orthopedics and cardiology was data on the number of complaints lodged with the Ombudsman (Act of 15 July 1987. on the Ombudsman (Journal. Laws of 2001. No. 14, item. 147 later. amended.), the Patient Ombudsman (Commissioner for Patients' Rights was

established by the Act of March 31, 2009., Journal. Laws of 2009. No. 52, item. 417), the Ministry of Health, the Principal Court whose composition, , according to art. 38 of the Act of 2 December 2009 (about medical chambers) is decided by the National Assembly of medical doctors) is - in line with the test procedures - similar, although there was little difference in the number of public hospitals being the result of changes in health care. In order to know personal data, the research questionnaire contained "the respondent's imprint ". The sample was selected in a random-stratified manner. The strata were public hospitals (small, medium, large).

In the registry REGON (As of 31.12.2006., Poland had 425 registered public hospitals in 16 provinces (excluding hospitals of Defense and Ministry of Interior)) 104 public hospitals were registered in the analyzed regions (which increases the reliability and representativeness of the results). The sampling took place with the stratification criteria:

- regional differences - the division into provinces (voivodships),
- the size of the public hospital.

The selection of the research sample was purposive (medical staff of public hospitals), which allowed the selection of respondents with specific characteristics (job seniority, education, position / department).

Table 1. The detailed structure of the surveyed population - medical staff of public hospitals
 Tabela 1. Szczegółowa struktura badanej zbiorowości - kadry medycznej szpitali publicznych

L.s	Branches	Seniority in wards					Education					Sex	
		do 5	6-10	11-15	16-20	above 20	no-specialist	I ^o	II ^o	dr	prof	W	M
1.	Internal Medicine	2051	174	294	429	318	2051	397	686	657	74	2555	973
2.	Gynecology and obstetrics	421	139	245	385	213	421	113	134	153	26	1058	331
3.	Neurology	249	198	209	184	167	249	299	354	398	56	1020	503
4.	Orthopedics	583	193	229	294	174	583	322	374	429	31	199	767
5.	Cardiology	271	231	299	309	216	271	250	264	342	41	1076	493
Total		3575	3575	935	1276	1601	1588	3575	1381	1812	1979	228	5908

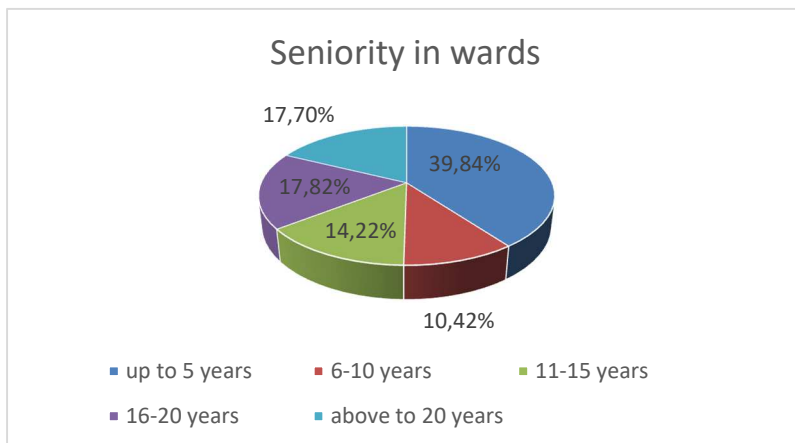
Source: Compiled on the basis of own studies in the period from January 2007 to December 2011

In this research, in addition to professional categorization, another kind of stratification was introduced. It took into account, among other things, work experience, education, gender (Table 1).

Taking into account the criterion of length of service, the largest group is people up to 5 years, 39.84% (3575). Subsequently, there are people with experience between 6-10, 10.42%

(935) of respondents, followed by 11-15, 14.22% (1276), 16-20, 17.82% (1601) (figure 1). People over 20 years of seniority and more represent 17.70% (1588) of the subjects of the study. Another division

criterion included in the sampling is gender test.



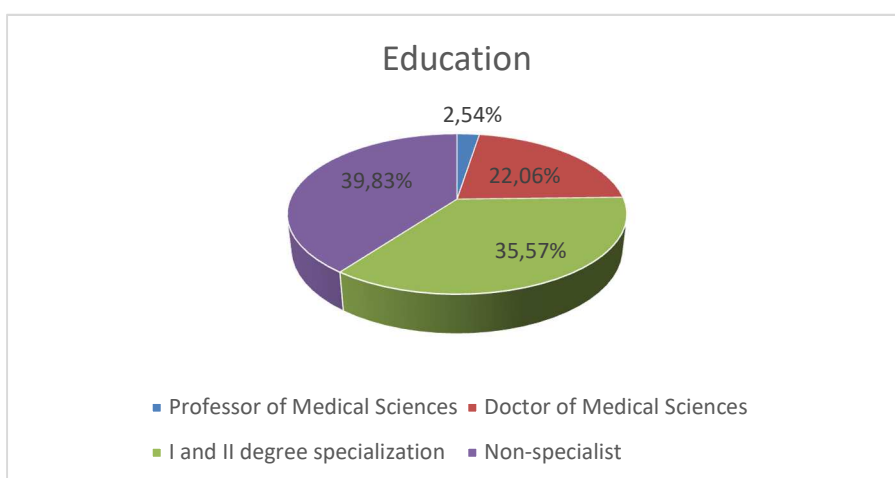
Source: Compiled on the basis of own studies in the period from January 2007 to December 2011

Fig. 1. Seniority in wards of the surveyed population
Rys. 1. Staż pracy badanej populacji

Public hospitals are mostly entities dominated by women, which was confirmed also in this case. In the surveyed enterprises the female share in the medical staff is 65.83% (5907), M - 34.17% (3067). Studies have shown that 39.83% of respondents are characterized by a lack of sufficient experience (1-5 years work experience). 35.57% (3193) hold the 1st and 2nd degree specialization, Doctor of Medical Sciences is the title possessed by 22.06% (1979) of respondents.

The degree of professor of medical science is in the hands of 2.54% (228) (figure 2).

Moreover, information from various sources was used in the research, both primary and secondary. Primary information was obtained directly from the analyzed public entities, while secondary information was derived from statistical studies, reports, records of government institutions.



Source: Compiled on the basis of own studies in the period from January 2007 to December 2011

Fig. 2. Education in wards of the surveyed population

Rys. 2. Wykształcenie wśród badanej populacji

The verification process was based on the results of the query literature and analyses made by the researchers of scientific centers, existing legislation, statistical data of the

Central Statistical Office, Marshal Offices and Provincial Environmental Protection Inspectorates.

Table 2. Structural Capital in analyzed public hospitals
 Tabela 2. Kapitał strukturalny w analizowanych szpitalach publicznych

L.p.	Province	population	Number of hospitalized patients	gamma camera	linear accelerator	X-ray camera with video	CT scanner	magnetic resonance imaging	
1.	Warmia and Mazury	2007	1426883	265059	2/0,1	0/0,0	35/2,5	4/0,3	0/0,0
		2008	1426155	263607	1/0,1	0/0,0	38/2,7	4/0,3	0/0,0
		2009	1427073	285201	2/0,1	0/0,0	33/2,3	4/0,3	0/0,0
		2010	1427118	270100	2/0,1	0/0,0	30/2,1	6/0,4	0/0,0
		2011	1427241	265 975	3/0,2	0/0,0	33/2,3	6/0,4	0/0,0
2.	Pomerania	2007	2203595	359646	5/0,2	7/0,3	53/2,4	18/0,8	3/0,1
		2008	2210920	340109	5/0,2	7/0,3	51/2,3	19/0,9	3/0,1
		2009	2219512	399360	5/0,2	7/0,3	56/2,5	17/0,8	4/0,2
		2010	2230099	416795	4/0,2	7/0,3	60/2,7	19/0,9	6/0,3
		2011	2240319	406 568	7/0,3	8/0,4	46/2,1	19/0,9	6/0,3
3.	Wielkopolskie	2007	3378502	691356	6/0,2	5/0,1	84/2,5	20/0,6	3/0,1
		2008	3386882	705756	6/0,2	5/0,1	82/2,4	23/0,7	2/0,1
		2009	3397617	765273	5/0,1	7/0,2	82/2,4	27/0,8	2/0,1
		2010	3408281	781568	5/0,1	7/0,2	73/2,1	31/0,9	3/0,1
		2011	3419426	786 807	5/0,1	7/0,2	81/2,4	34/0,1	6/0,2

Indicator: 100 thousand people

Source: Compiled on the basis of own studies in the period from January 2007 to December 2011

The work also uses materials derived from post-conference publications, which reflect the most current developments and perceptions of the representatives of sciences. The analysis of structural capital deployment carried out in the period from January 2007 to December 2011, regions A, B and C allowed to assess the extent of the problem of access to modern diagnostic equipment (table 2). In the region A there is, among other elements, the lack of a linear accelerator and magnetic resonance imaging. This represents, on the one hand, a significant threat to the regularity (continuity) of the diagnostic process, and on the other it means an increase in the cost of providing hospital services. Significant differences also exist in access to a CT scanner in A province in relation to the regions B and C.

THE RESULTS OF THE STUDY

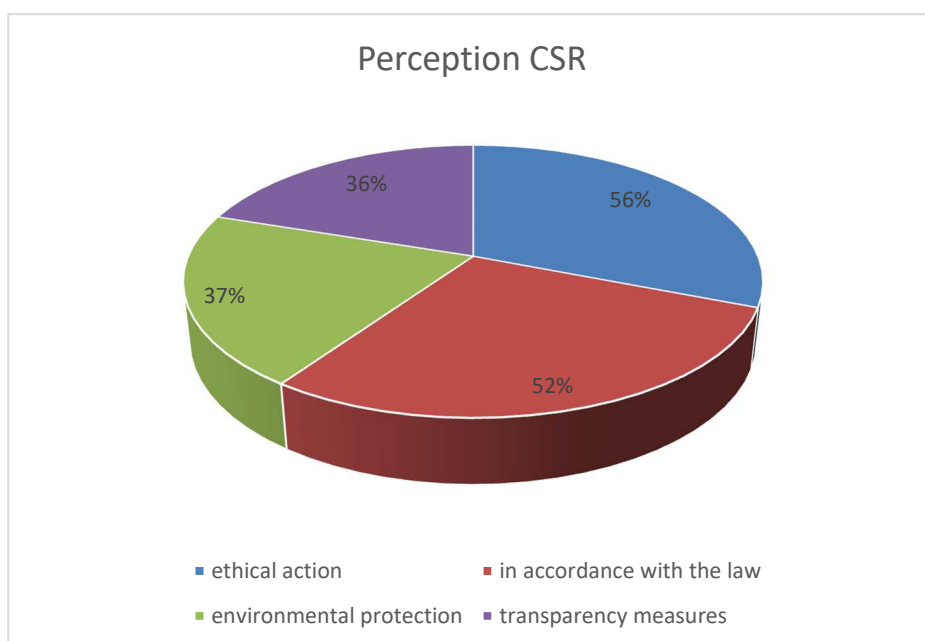
As a result of empirical research it has been found that 83% of employees in the analyzed public entities understand the concept of social responsibility. What is interesting is how CSR is understood by subjects: ethical action 56%, in accordance with the law 52%, environmental protection 37%, transparency measures 36% (figure 3) (Statements do not add up to 100 because respondents could choose more than one answer.).

78.69% of respondents opted for the separation of logistic processes to a specialized operator. Regarding the use of IT systems functioning in the analyzed public entities, 64% of statements indicated that access to the database has a positive impact on the decision-making processes. In contrast, 56%

of respondents indicated the importance of compactness, transparency, credibility of the information available.

Non-economic benefits arising from the implementation of the presented tools include: development of manuals and operating procedures included in the network organization, increasing the monitoring and control of environmental impact, increasing the loyalty of contractors, subcontractors and associates - this was stated by 69.77% of respondents. The study also showed that 72.21% believe activities in the field of

environmental protection are cheaper than corrective action, and more than 51.16% have knowledge of the pollution reduction. Moreover, they are also aware of its importance in building of the image - 67.44% of respondents. 78.49% of respondents mentioned subsidies as an instrument for the development of infrastructure, yet, the motto of H. Ecker should be a guidance in the distribution of aid funds: as long as you show that you get by with what you have, you will not get anything more.



Source: Compiled on the basis of own studies in the period from January 2007 to December 2011

Fig. 3. Perception CRS in analyzed public hospitals
Rys. 3. Postrzeżenie CRS w analizowanych szpitalach publicznych

The analysis of the questionnaire survey shows that in the studied public entities there is an effective communication system, affecting the quality of provision of hospital services - 69% of the respondents' answers. Also, interpersonal relationships between the participants of the interdisciplinary team are rated as good - 41%. It is therefore a confirmation of the fact that the information supplied by collaborators affects the efficiency of work, as well as confidence among medical staff, which is so important. This is the basis to develop appropriate practices, standards and procedures in the diagnostic and therapeutic processes. The analyzed public entities

perceive the patient as a buyer, indicating in some cases that the patient is the source of their recommendations. In one case, it was even expressed clearer: that the patient is the most important asset and a major stakeholder. The information from the survey also shows consideration for patients' observations: A complaint is the basis of a careful analysis of its causes and corrective actions, if confirmed is its merits. Yet, it should be noted that the reported observations are often emotional, and are not directly related to the assessment process in the provision of hospital services. Therefore, it can be concluded that the studies seem to confirm this work's idea that

the implemented tools determine the advantage of the network organization in a competitive health services market. It is therefore necessary to build and strengthen a sense of responsibility for a comprehensive process management among the personnel. The surveys were a valuable source of information, they enriched knowledge of the issues raised in this publication, and their results complement the theoretical considerations.

The economic progress increases the range of choices available to an individual recipient of services, but the increase in the number of the available choices is not synonymous with the growth of wealth of individual recipients and improving the quality of life. The implementation of tools in the field of logistics, sustainable development, CSR is the basis for development of a network of those public hospitals which (in the era of globalization) intend to stay in business and want to be seen as socially responsible. According to the authors an effective way in the process of implementing characterized tools seems the idea to promote the mixed concepts. Such concepts contain both ethical demands and elements defining the strategy of the network organization, as well as codes of defining the standards of good medical practice. A major mistake is, therefore, defining a strategy without any influence on its implementation. Another mistake is to regard CSR as a set of rules of conduct of public bodies and the outsourcing of logistics services as the remedy to reduce costs in managing the process of provision of health services. A mistake is also forgetting that the process of accumulation of knowledge determines the adjustment of health services to pro-quality requirements of patients and environmental requirements, while also contributing to a more effective knowledge acquisition from outside.

Presented topics should not be exposed to frequently in the literature, which is why it is worth further research, the results of which from a practical point of view can help public hospitals operate efficiently and effectively.

SUMMARY

This publication is an introduction both into the subject as a whole, as well as into these tools, which the authors of this paper refer to. It does not exhaust the whole subject, but provides a list of supplementary literature. Competition and prosumers, as essential elements of the external environment network of public hospitals determine the operational realities. In contrast, the rate and nature of these factors is characterized by variability of the comprehensive process of managing hospital services. This requires the implementation of such organizational models as well as diagnostic and therapeutic processes, which will allow sufficiently flexible responses, or even forward phenomena (pro-health prevention). More and more public hospitals (and medical management) understand the need for the introduction of modern, but proven organizational solutions, but the importance of problems arising during implementation is not always appreciated. The problems are:

- insufficient preparation of public entities to make changes which would require re-implementation of certain activities,
- frequent implementation of technical changes without prior preparation of other elements of the hospital (e.g. taking into account the potential needs of prosumers),
- concerns in the implementation of changes that may not properly adjust the pace of their introduction to the pace and nature of changes in the environment.

The above-mentioned determinants are of particular importance in the context of the implementation to the specific nature of public hospitals (another dimension here are technical elements, another dimension are organizational ones). The adaptation of these solutions to the scale of the needs of those entities is indeed quite difficult, but necessary - increase in quality of life. The success of public hospitals is the result of the degree of adaptation and accepting the economic, social, legal and technological changes, which are recognized as the result of turbulent economic changes.

It is the commitment of public hospitals to act in accordance with applicable law.

Any activities that go beyond the minimum and activities related to the care for the common good are a voluntary decision. They, however, cannot be really blamed for this state, and for the choice of these and not the other solutions. Public hospitals, or rather a system in which they function - makes it impossible or extremely difficult to carry out the action presented here. Each of them requires a commitment of certain funds to perform a technological change and, in the short term, may also reduce the demand for certain health services. For this reason it is difficult to expect that in the current socio-economic system the characterized tools will be much more than a detail which slightly improves the indicators, but does not change the overall picture.

From all these considerations, what can be observed is the alteration in the development of these concepts as well as their multiple aspect nature, problems arising in the course of its implementation, conditions and challenges posed by the changing reality. The application of global GS1 standards gives you doubtless the ability to create an efficient supply chain to guarantee tracking and origin of products from the manufacturer to the patient. This situation ensures better protection against making a mistake or counterfeit product, which is the biggest problem of modern medicine. Therefore, in the above synthesis specific tools in the functioning of the network of public hospitals are exposed, which - as the authors say - deserve to be presented in order to be popularized.

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WYBRANE ASPEKTY LOGISTYCZNE SIECI SZPITALI PUBLICZNYCH NA KONKURENCYJNYM RYNKU USŁUG ZDROWOTNYCH

STRESZCZENIE. Wstęp: Poniższe rozważania stanowią przegląd zagadnień zrównoważonego rozwoju, logistyki, do instrumentów inżynierii finansowej oraz roli kapitału intelektualnego w procesie przekształceń szpitali publicznych. Celem pracy była ocena konkurencyjności sieci szpitali publicznych na rynku usług zdrowotnych na podstawie badań literaturowych, jak również badań empirycznych.

Metody: Badanie empiryczne przy wykorzystaniu kwestionariusza ankiety zostało przeprowadzone w okresie od stycznia 2007 do grudnia 2011 roku, na obszarze województw: warmińsko-mazurskiego, pomorskiego oraz wielkopolskiego.

Celem ankiety było przeanalizowanie opinii kadry medycznej w zakresie zagadnień związanych z dostosowaniem do charakteru sieci szpitali publicznych metod oraz narzędzi z zakresu logistyki, zrównoważonego rozwoju, społecznej odpowiedzialności przedsiębiorstw - CSR. Badania zrealizowano w 104 szpitalach publicznych, na próbie 8975 respondentów.

Wyniki i wnioski: Analiza zrealizowanych badań wykazała, iż procesy logistyczne i ich poprawa w służbie zdrowia mają istotną rolę. Badane podmioty w sposób jednoznaczny zwracają uwagę na potrzebę stosowania systemów informatycznych, działań pro-środowiskowych, dostęp do informacji, czy stosowanie globalnych standardów GS1. Narzędzia te pozwalają zwiększyć efektywność łańcuchów dostaw, gwarantując śledzenie nie tylko pochodzenia wyrobów od producenta do pacjenta, ale również umożliwiając lepsze zabezpieczenie przed popełnieniem błędu czy sfalszowaniem produktu.

Słowa kluczowe: sieć szpitali, usługi, CSR, logistyka, konkurencyjny rynek, zrównoważony rozwój.

AUSGEWÄHLTE ASPEKTE DES LOGISTIKNETZWERKES VON ÖFFENTLICHEN KRANKENHÄUSERN AUF DEM WETTBEWERBSMARKT VON GESUNDHEITSDIENSTLEISTUNGEN

ZUSAMMENFASSUNG. Einleitung: Die nachfolgende Diskussion liefert einen Überblick über die Fragen der nachhaltigen Entwicklung, der Logistik und der Finanzinstrumente sowie über die Rolle des intellektuellen Kapitals im Prozess der effektiven Transformation der öffentlichen Krankenhäuser. Der Artikel bewertet die Wettbewerbsfähigkeit des Netzes der öffentlichen Krankenhäuser innerhalb des Gesundheitsmarktes aufgrund der Forschungsliteratur sowie empirischer Forschungen.

Methoden: Die empirische Erforschung dieser Fragen wurde anhand von Fragebögen in der Zeit vom Januar 2007 bis zum Dezember 2011 auf den Gebieten von Ermland, Masuren, Pommern und Großpolen durchgeführt. Ihr Ziel war es, das Meinungsgut des medizinischen Kaders in Bezug auf die mögliche Anpassung von logistischen Tools und Methoden, ferner von Prinzipien der nachhaltigen Entwicklung und der CSR-Unternehmensführungsphilosophien an die Beschaffenheit des jeweiligen Netzwerkes der öffentlichen Krankenhäuser zu analysieren. Die Studie wurde in 104 öffentlichen Krankenhäusern durchgeführt und auf eine Stichprobe von 8975 Befragten gestützt.

Ergebnisse und Fazit: Die Analyse der abgeschlossenen Studie zeigte, dass die logistischen Prozesse im Gesundheitssektor eine bedeutende Rolle spielen. Die befragten Organisationen weisen ausdrücklich auf die Notwendigkeit der Anwendung von Informationssystemen, auf die Inangriffnahme von Umweltschutz-Aktivitäten, auf den Zugang zu Informationen bzw. auf die Inanspruchnahme von globalen GS1-Standards hin. Diese Tools ermöglichen es, die Effizienz von Lieferketten zu erhöhen, wobei sie die Verfolgung der Herkunft und Bewegung von Produkten vom Hersteller bis zum Patienten, sowie einen besseren Schutz vor Fehlern oder gefälschten Produkten gewährleisten.

Codewörter: Netzwerk von Krankenhäusern, Dienstleistungen, CSR-Unternehmensführungsphilosophie, Logistik, wettbewerbsorientierter Markt, die nachhaltige Entwicklung.

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