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A diagnosis of knowledge management in a public hospital – a case study of employees’ views

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Abstract: The aim of this article is to make a diagnosis of the extent in which knowledge management is applied in a public hospital in the Opole region in Poland, based on the empirical research among the hospital’s management and employees. The research shows the engagement of the employees in the management of knowledge, as well as their consciousness regarding its importance. The management appears to have similar opinions as the employees. It is argued that the hospital is to a large extent oriented on knowledge management, which is important for its competitive position towards other hospitals.

Keywords: knowledge, hospital, knowledge management, Poland

1. Introduction

Knowledge management relies on the effective use of sources of knowledge in an organization, involving processes related with the search, allocation, creation, transfer, application and the ability to maintain such knowledge, in order to achieve organizational aims (Liautaud, 2000: 5). However, besides value added for the organization as such, also positive effects should be created for the customer, leading to a competitive advantage over other organizations. Although public hospitals in Poland function under other conditions than, for example, production companies on the market, they feel pressure from a large number of private entities offering health care services for profit. Public hospitals, theoretically, should...
focus on access to and increase in quality of health care services. Public hospitals seem to operate in a kind of pseudo-market, with a complicated structure where, for example, private services are offered by entities renting infrastructure from public hospitals, or private hospitals compete with public hospitals for contracts from the national health fund (Narodowy Fundusz Zdrowia). In this context, competitiveness does not have a traditional meaning in the economic or marketing sense, but rather obtains the meaning of the relations between particular hospitals, and their ability to deal with different challenges in such a market environment. Knowledge management in hospitals is elementary due to its importance for human capital, while activities are constrained by different strict procedures. It has an important influence on the functioning of a public hospital, in particular due to its importance for the employees, their lives and health.

In this article, a case study of a public hospital in the Opole region in Poland is presented, the Provincial Hospital in Opole (Szpital Wojewódzki w Opolu).\(^1\) The aim is to make a general diagnosis of the extent in which knowledge management is applied in this hospital. In the first quarter of 2012, questionnaire research was carried out among all employees and the management. Only descriptive statistics was applied, as the research was explorative and aimed at identifying tendencies. An interesting finding is that the management appears to have similar opinions as the employees, which supports the results that knowledge management is important in the hospital researched.

2. Empirical research

The empirical research presented is a part of a research project of the author on knowledge management in public hospitals in Poland (Krawczyk-Sołtys, 2011: 407-422; Krawczyk-Sołtys, 2012: 155-162). The research was carried out during the first quarter of 2012. All 370 medical employees, as well as the technical and administrative personnel of the hospital, had the possibility to fill out the questionnaire, while an interview was carried out with the management. The response was 82 employees who filled out the questionnaire.

The group of respondents had the following structure. About \(\frac{3}{4}\) of the sample consisted

\(^1\) This hospital has nine specialized branches and one emergency department.
of women, which is not surprising as more women tend to work as, for example, nurses than men. About 11% worked more than 15 years in the hospital, over 40% between 10-15 years, 37% between 5 and 10 years, and the remaining 10% less than 5 years. Thus, most of the respondents had quite a lot of working experience in the hospital. The majority of respondents was in the age group 40-50 years (44%), followed by age group 30-40 years (35%). A minority was over 50 (11%) or under 30 (10%). The majority of respondents were medical doctors (20%) and other medical personnel (52%). The remaining groups were administrative employees (15%) and technical employees (13%). Most people were employed in the internal department (27%), the trauma-orthopedic department (22%) and surgical department (20%). The remaining part worked in the department for observation and infectious diseases (14%), tuberculosis and lung diseases (7%), dermatology (5%) and dialysis station (5%).

It should be emphasized that that the knowledge management in the hospital has a formalized character, which was confirmed by almost all employees (97.6%). Knowledge management can either focus on organizational knowledge or processes related with the creation of knowledge, requiring the use of financial, physical and human resources (Gołuchowski, 2007: 82). According to a majority of the sample (75.6%), as well as the hospital management, the processes of creating knowledge dominated.

In order to use knowledge properly and to develop the process of knowledge management, typical management functions such as planning, organizing and controlling should be realized (Gołuchowski, 2007: 82). Furthermore, a fourth function of management is essential: motivating employees to participate actively and consciously in such processes. Engagement, education, creativity and contribution to the development of the hospital were identified by employees and the management as the main subject of rewarding the hospital’s personnel.

Regarding the question which function of knowledge management was carried out most properly three options could be chosen. Most often the discovery of knowledge, which could be used by all employees in the context of their organizational roles (67 answers), as well as the guarantee of access to knowledge required for medical services (58 answers)\(^2\) were mentioned. The respondents also acknowledged that every employee was able to obtain

\(^2\) Also the hospital management thought these functions to be most properly carried out. Furthermore, the support of the process of obtaining knowledge from external sources and the development of the capability to absorb and use knowledge were mentioned.
necessary knowledge within the organization (46 answers). The other functions obtained around 20 answers each.  

The next question concerned the issue, which stage of knowledge management (Perechuda, 2008: 166-167) is best implemented. Three answers could be chosen, ranking them from 3 to 1 (3 meaning best implemented). Most points were assigned to the diagnosis of current medical knowledge, market knowledge, marketing knowledge, organizational knowledge and management knowledge (229 points), followed by the diagnosis of knowledge on the hospital’s environment (competitors, customers (patients), local government administration and other stakeholders) (112 points). The identification of gaps in knowledge of the hospital’s environment regarding the hospital’s knowledge obtained 69 points, while the introduction of instruments for long-term communication and creation of long-term relation with patients based on bi-directional exchange of knowledge obtained 58 points. The stage of knowledge management which was assessed as being the worst was the definition of instruments to equalize knowledge between the hospital and its environment (24 points). The hospital’s management gave similar answers – diagnosis of current knowledge (3 points), diagnosis of knowledge on the hospital’s environment (2 points) and the creation of long-term relations with patients (1 point).

The next issue assessed by the respondents was which of the processes of knowledge management in the most important in the case of the hospital. Six interdependent elements were chosen for assessment (Probst et al., 2002: 42): localization of knowledge, acquisition of knowledge, development of knowledge, sharing and dissemination of knowledge, use of knowledge and maintenance of knowledge. Because of the strong interaction between these elements, the improvement of one of them will also have impact on the others. The elements were assessed on a scale from 3 (most important process) to 1. The use of knowledge for the implementation of medical services was considered to be most important (238 points), which was confirmed by the hospital management. Second most important, with only 86 points, was the process of sharing and dissemination of knowledge. These results are not very surprising, as it is not knowledge in itself but the ability to use knowledge that creates value for an

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3 Functions such as: the support of the process of obtaining knowledge from external sources and the development of the capability to absorb and use knowledge, provision of knowledge there where its role in decision-making processes is of particular importance, concern about effective and efficient development of new knowledge.
organization. Thus, the aim of effective use of knowledge as a key organizational resource has as a consequence that management practices and methods are created and implemented that support the other processes of knowledge management.

The author agrees with Skalik (2010: 171) that not only use of currently available knowledge, but also the creation of new knowledge for improving medical services, satisfaction of patients, the economic situation of the hospital as well as the image of the hospital is of fundamental importance. The success of a medical organization depends to a large extent on the efficiency and speed of creation of knowledge, which use in medical procedures and managerial processes creates a competitive advantage (Skalik, 2010: 178). The answers of the respondents confirmed this. Most important were the acquisition of knowledge from other employees (64 points) and the hospital’s environment (55 points). Less important were the storage of knowledge in data bases (38 points) and the protection of knowledge from acquisition by competitors (11 points).

As the processes of acquisition and dissemination of knowledge was considered by the respondents to be important for the hospital’s knowledge management, they were asked to identify so-called soft determinants of these processes. Also for this question an ordinal scale was used, allowing for ranking of the determinants from 4 (most important) to 1. Organizational issues regarding power and policy obtained most points – 242. Other important determinants were the existence of formal and informal groups (212 points), organizational culture (189 points) and organizational learning processes (177 points).

Most important soft determinants of the acquisition of knowledge (assessed on a scale from 5 (most important) to 1) were creativity (388 points) and effectiveness (323 points). The hospital management ranked the determinants similarly. These answers are understandable, taking into consideration the specific aspects of medical services.

Systems of knowledge management may evolve together with the development of the conception of knowledge management, influencing and creating the reality in which an organization functions. This co-development of concepts and systems of knowledge management appears in order to deal with new internal and external sources of knowledge as well as to direct activities in such a way that organizational goals are achieved more effectively. The existence of such a process is crucial for long-term competitiveness of an organization. Almost all employees of the hospital (92.7%) confirmed the existence of a
system of knowledge management.

A system of knowledge management is defined by its rules, methods, resources, collected information, people as well as the interaction and interdependencies between these elements, enabling the adoption and implementation of proper strategies of knowledge management in order to achieve organizational aims (Mikuła, 2005:21). Such a system consists of a range of subsystems realizing different functions and tasks (Soo et al., 2003: 137):

- databases - allow employees to share and collect information, and analyze data in order to create new knowledge,
- organizational language – through codification of personal knowledge in understandable data as well as decoding information from databases employees are better able to understand the state of affairs during verbal and non-verbal communication processes. This not only leads to time saving in communication, but also to a reduction in mistakes and misunderstanding, which may lead to a significant improvement of medical services.
- networks – the relation between people enables the acquisition and use of internal and external information and knowledge on a formal and informal level,
- transfer – proper flows of information and knowledge between employees not only leads to a wider application supporting the development of medical services, but also to the creation of new knowledge.

The respondents were asked to assess the mentioned subsystems realizing the functions and tasks with regard to their importance for the system of knowledge management existing in the hospital. The subsystems should be ranked from 4 (most important) to 1 (least important). Most important was the subsystem “transfer”, obtaining 293 points. The subsystem “databases” received 216 points, “networks” 183 points, while “organizational language” was considered to be least important (128 points).

The next question concerned the phases or stage of knowledge management. The respondents should identify in which phase of knowledge management the hospital was at the time the research was carried out. The phases that could be distinguished were: management, systemic integration, targeting and chaos (Strojny, 2004: 14; Wereda and Malacka, 2006: 126-127). It seems that the best descriptor of the stage of knowledge management is
“management”, identified by 63.4% of the respondents. This means that the hospital has introduced procedures and instruments for knowledge management, but still faces technological and cultural challenges. “Targeting” was mentioned by almost 22% of the respondents. This means that, according to this group, there is a visible relation between procedures and instruments used for knowledge management and the benefits for the hospital. The rest of the respondents, almost 15%, identified “systemic integration” as the best descriptor of the stage of knowledge management. In this case, knowledge management is an integral part of operational processes, while knowledge resources are reflected in the hospital’s value. No-one expressed the opinion that the stage of knowledge management should be described by “chaos”.

The next question concerned the model of knowledge management used in the hospital. In general, three models can be distinguished: top-down, bottom-up and center-top-down (Nonaka and Takeuchi, 2000: 155-162).[4] In the top-down, or the classical hierarchical model, emphasis lies on the creation of knowledge as a result of transformation of information, i.e., on available knowledge. This model of knowledge management was identified by 20.8% of the respondents.

The bottom-up model is a mirror image of the top-down model. Instead of hierarchic relations, autonomy is the main organizational feature. Due to such autonomy, employees at lower levels in the organization have the opportunity to create knowledge and transfer this knowledge to higher levels. Emphasis is on the use of tacit knowledge, while knowledge is created in rather an individual than interactive way. Individual entrepreneurship is more important in this model than co-operation, dialogue and common learning processes (Perechuda, 2005: 55). None of the respondents identified this model.

In the middle-up-down model, knowledge is created by the lower-level management, in the case of hospitals the heads of the different departments. These heads of departments, theoretically, have close contact with the highest levels in the organization, as well as employees at the lowest levels. As a consequence, available knowledge as well as tacit knowledge can be collected. While knowledge is created in an individualized way, many processes appear leading to a flattening of the organizational structure. According to a large

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[4] The first two approaches (centralized (top-down) mainly based on the use of information systems and decentralized (bottom-up) were identified in the practice of 40 consulting companies (Sarvary, 1999: 102-104).
majority of the employees, about 80%, this model is the best descriptor of the existing situation in the hospital.

Theoretically, the middle-up-down model is the best of the three, as most knowledge is created due to the involvement of middle management (Nonaka and Takeuchi, 2000: 160). When applying this model, it is necessary to increase the importance of the middle management (center) in the process of knowledge management. The top should have a strategic navigational role, while the operational level (bottom) should be completely engaged in all stages of knowledge creation (Perechuda, 2005: 54). The assumption is that all members of an organization may possess important and useful information and knowledge. Using this wider range of sources of knowledge creation increase the possibilities to face the ever changing competitive challenges. However, organizational change may be required as the existing relations between particular levels of management should be replaced by a multilevel approach (Dziubińska, 2009: 88-89).

Based on the idea that knowledge is or will become the main resource in an organization, among other things due to its contribution to the creation of value, Nonaka and Takeuchi (2000) identified four elements in the process of creation and transfer of knowledge, also called the knowledge spiral or SECI (socialization, externalization, combination, internalization) model.5

Socialization. This stage in the process of knowledge creation embraces the accumulation of implicit or tacit knowledge, the collection of explicit knowledge (from the organization’s environment as well as internal knowledge) and the transfer of tacit knowledge (Nonaka et al, 2000: 9-10). Human interaction is essential in the process of transferring tacit knowledge. Theories of group behavior and processes within groups as well as organizational culture are helpful in understanding the effectiveness of this process. A problem is that transfer of tacit knowledge, which is often based on experiences gained within a specific context, requires repeated interaction, trust and is accompanied by high transaction costs (Poznański, 1996; Platje, 2011).

Externalization. In this stage, tacit knowledge is transformed into formal knowledge

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5 Each of the four elements is in itself to a limited extent a way of knowledge creation. However, during the different stages in the process of knowledge creation, in particular in the conversion stage, the available resources of explicit and tacit knowledge increase.
made understandable by way of using analogies, metaphors, pictures, etc. Thus, tacit knowledge is transformed in structures notions which enable transfer to different stakeholders within the organization. In this way, so-called conceptual knowledge is created, as well as models, which are the basis for the creation and development of new knowledge.

**Combination.** Combination, or association, is a process where notions and concepts are aggregated in a knowledge system. By way of association, systemized knowledge is created by way of ordering and connecting different types of available knowledge as well as new knowledge into the existing system. In this process of selection, standardization and categorization, synergy effects may appear (the resulting new knowledge is larger than the sum of the knowledge aggregated). Steps included in the process of combination are (Nokana et al., 2000:11): acquisition and integration, synthesis and transformation as well as dissemination.

**Internalization.** Internalization (or operational knowledge) relies on the repetition of activities in order for the organization and its stakeholders to absorb external knowledge and behavioral patterns, becoming part of their tacit knowledge. This process of learning by doing is dynamic, as a process of socialization appears, where tacit knowledge is accumulated, which should be shared and externalized, and be included in the knowledge system. The learning by doing process involves the creation of operational knowledge by applying theory to practice, where knowledge is internalized through personal experience, simulation and experimentation (Nonaka et al., 2000: 11).

The respondents were asked to assess which of the stages in the process of knowledge creation and transfer is most important for the efficient management of knowledge in the hospital. More than half of the sample (52.4%), as well as the management, identified socialization. Combination or association was most important element of the knowledge spiral according to almost 22% of the respondents. Externalization was mentioned by almost 15%, while internalization was most important according to 11% of the employees. However, it should be emphasized that the SECI embraces all four stages or elements of knowledge creation and transfer, being a continuous process from socialization through externalization, combination and internalization, where the process continues with new ways of socialization. The model is the core of the process of knowledge creation in an organization, showing how knowledge in a quantitative and qualitative sense develops and is transferred from the individual level to the group/department level as well as the whole hospital.
The choice of a particular strategy is determined by a set of factors of different types, strength of impact and interdependencies. These factors are often so different, that in each case unique circumstances exist, which is in particular visible when managing such a complex resource as knowledge (Morawski, 2005: 70). The respondents were asked which stage of the choice of the management strategy (Mikula, 2004: 190-193) created most difficulties in the hospital. On this question, more than one answer could be given. It was assessed that most problems appeared in the stage of creation of different variants of strategies of knowledge management (46 answers), followed by the creation of a vision of knowledge (27) and the choice of the basic strategy and supporting strategies and the identification of the extent and field of their use and application (23). Also the hospital management expressed the opinion that most difficulties appeared in these stages. Least problematic were the analysis of the hospital’s external environment (10) and the identification and assessment of missing knowledge (11).

Next, the respondents were asked to identify which strategy of knowledge management was applied in the hospital. Also here more answers could be given. While in literature on the subject many classifications of strategies of knowledge management exist, for the research the classification development by Zbigień-Maciag (Słocińska, 2010: 381-382) was chosen. Most of the respondents identified the business strategy as the best descriptor for the existing strategy of knowledge management (36). This strategy focuses on the creation, acquisition, organization, renewal, sharing and application of knowledge. The personalization strategy, based on situational processing and transformation within a particular context as well as the interpersonal exchange of such knowledge, was considered to be important by 29 employees. The personal knowledge strategy, focused on the responsibility of employees for investments in activities in the field of knowledge management, in particular in the field of dissemination and renewal, was identified by 24 employees. This strategy was also considered to be most important by the hospital management, which also mentioned the knowledge creation strategy, based on a process of organizational learning, research and development and the formation of motivation among employees to obtain new knowledge (also identified by 13 respondents). The strategy of knowledge transfer, concentrating on activities in the field of acquisition, organization, restructuring and collection of knowledge for the sake of its further development and transfer was identified by 22 respondents. The codification strategy, relying of explicit
knowledge independent from people and the repeated application of codified knowledge, was identified by 11 employees. Finally, the socialization strategy, relying on the development of common knowledge and transformation of tacit knowledge into explicit knowledge (8 answers) and the strategy of management of intellectual assets, based on patents, technology, management practice and relations with patients (7 answers) were considered to be the least important as knowledge management strategies in the hospital.

3. Concluding remarks

With the introduction of market incentives on the medical sector, knowledge management becomes one of the most important sources of competitive advantages of organizations offering medical services. Increasing focus on the development of knowledge does not necessarily require an increase in financial resources needed. When applying a proper strategy, the improved location, transfer, processing, etc., of currently available information may be achieved without an increase in expenditure. This is of great importance, as many Polish hospitals are facing financial deficits.

Probably the most important source of knowledge in organizations such as hospitals is its medical and non-medical personnel. When properly managing the existing tacit knowledge and explicit knowledge, this, in combination with the employees’ skills and aspirations, increases the competitive capability of the hospital. However, in reality many opportunities created by knowledge management remain unused by the managerial staff. This is not only the result from lack of training and availability of skilled employees in the field of knowledge management, which could have direct influence on the management of particular branches of the hospital. A lack of engagement of employees, who do not completely understand the causes and later consequences of the realization of new strategies for knowledge management, leads to a lack of motivation and inertia. At such a moment, it is unlikely that a strategy of knowledge management, when introduced, will be successful (Hille-Jarząbek, 2010: 165-166). It should be emphasized that there exist many arguments for the thesis that badly managed hospitals fail to serve clients properly, while being characterized by large frustration among employees while being unable to adapt to changes appearing in the environment in which they function.
(Edwards et al., 2003: 609-610; quoted in Brooks, 2011: 319). While this threatens the long-term existence of such a hospital, and as a consequence the jobs of employees, it negatively influences the quality of life of patients and may lead to higher future costs of poorly treated patients.

The results of the research presented in this article indicate that such a situation does not exist in the provincial hospital in Opole in Poland. Of course, deeper research is required to confirm these results, as only the opinions of employees on knowledge management in the hospital are represented, and, e.g., the level of services was not directly measured. Interesting is the fact that in many cases the majority of the personnel gave similar answers to questions as the hospital management. An explanation may be that employees are involved in knowledge management and aware of its importance. A conclusion is that it seems that the hospital is, to a large extent, knowledge orientated. The system of knowledge management seems to be formalized, being able to create value to a certain extent. The awareness of its importance provides a basis for searching new knowledge as well as the development of strategies for knowledge management. However, in this field improvements are possible, as still much emphasis is on socialization, while less attention is paid to combination and internalization, leaving opportunities for the use of tacit knowledge unused.

**Literature**


Diagnoza zarządzania wiedzą w szpitalu publicznym na podstawie opinii pracowników

Streszczenie

Celem artykułu jest próba diagnozy, w jakim zakresie zarządza się wiedzą w szpitalu publicznym, na podstawie badań empirycznych, w oparciu o opinię zarządzającej placówką oraz zatrudnionego w nim personelu. Wyniki badań potwierdziły zaangażowanie pracowników szpitala w zarządzanie wiedzą i ich świadomość, co do jego istoty. Można więc stwierdzić, iż badana placówka to szpital w dużym stopniu zorientowany na wiedzę. Istnieje duża świadomość znaczenia zarządzania wiedzą dla tworzenia pozycji konkurencyjnej placówki. Na podkreślenie zasługuje też fakt, iż w znaczącej części pytań opinia zarządzającej szpitem jest zbieżna lub tożsama z odpowiedziami personelu w nim zatrudnionego.

Słowa kluczowe: wiedza, szpital, zarządzanie wiedzą, Polska