

# THE ROLE OF KNOWLEDGE IN PROVISION OF MEDICAL SERVICES

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ABSTRACT

The purpose of this article is to point out the character of medical services and role of knowledge in provision of the processes. The amount of knowledge that appears at different stages of hospital processing results in a lack of control over its repetitive elements. Much information is often sourced multiple times as it is not properly classified, organized and gathered. One of the aspects of improving processes in healthcare units is an access in the right place and time to information resources that mark the particular patient and access to knowledge resources that support processing of medical services in the area of diagnosis and treatment processes.

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## Introduction

Medical service as so called *human based service* (Rudawska, 2005) is based on interpersonal relations. The character of healthcare is influenced with various factors. The basic determinants of such uniqueness are as follows (Hurley, 2000): health needs generating the need of healthcare, externalities associated with extending

social access to healthcare by increasing public subsidies, asymmetry of information between the providers and patients and insecurity of necessity of health protection as well as its efficiency.

The area of health protection is very specific as it does not leave any space for mistakes or lack of knowledge. The right thing to do then is to focus on possibilities of supporting management of knowledge resources in order to refine working conditions, minimize the mistakes and support processes realization in healthcare centers.

The purpose of this article is to point out the character of medical services and role of knowledge in provision of the processes.

## The character of medical services

Among the main characteristics of medical services, one can distinguish (Bukowska-Piastrzyńska, 2007):

- a) intangibility – the services are usually unrelated to production of tangible goods. Realization of the services is possible through: place (interior and exterior design of hospital), people (who take care of patients competently and with empathy), furnishing (modern), informational materials (suggesting efficiency and professionalism), symbols (well-connoted) and price;
- b) diversity – the services are heterogeneous, non-standard and highly differentiated. Diversity of the services stems from the fact that they are provided by qualified individuals; qualifications contribute to the quality of the service provided, they are also related to various starting points in the field of medical condition of a patient (for instance, the same doctor performing the same treatment on different patients may spend different amount of time, use different measures and observe different results);
- c) non-separation – they are provided by the service provider and consumed by the customer at the same time. Some of them require patient's presence (surgical procedure) and the other do not (prescribing medication), sometimes the services is co-created by a patient, the role of other patients must be taken into consideration (experience of the same disease) (Choińska, Szpak, 2011);
- d) instability – there is no possibility if storing services, thus the schedule for the process of provision is such an important matter. Some of the services lack this particular feature and the example may be blood banks, etc.;
- e) inability to acquire property right for the service.

Among the elements contributing to the character of medical services, one can distinguish the following (Bukowska-Piastrzyńska, 2008):

- a) it is associated with high level of uncertainty – applying the same methods of treatment on the patients with the same disease diagnosed does not necessarily have to bring the same effects;
- b) the service is individualized – each case should be treated separately and requires the service provider's (doctor) effort put into creating relationship with the patient in order for the non-medical approach to the patient to be also individualized;
- c) it is heterogeneous – there is less or more of a freedom in selection of the technology of service provision (various methods of diagnosing and treating diseases);
- d) medical service is complex and therefore it requires continuous raising qualifications by medical staff;
- e) the services is a psychological burden for the recipient and its provision is usually accompanied with high level of stress;

- f) in medical services staff is not always able to meet the recipient needs and requirements ("the starting point" determines effectiveness of treatment).

Apart from the abovementioned elements, one could also name the one that distinguishes the medical services from the others – accountability to the environment; a doctor does not always have to meet a patient's requirements as infringement of some rules may lead to decrease in credibility or even a prohibition to exercise a profession (for instance in case of euthanasia). There is also a significance of uncertainty of "purchasing" the services stemming from difficulty in evaluation of the services not only before, but also after the purchase. A patient is not able to properly evaluate neither the doctor's competencies nor the accuracy of their diagnosis because of a lack of medical knowledge. Thus, gaining patient's trust and educating them is so important.

### **Knowledge resources and their meaning in providing medical services**

In medical organizations the key position is held by the doctors. Their knowledge directly influences realization, or supervision of basic processes of diagnostics and therapy (Shortell, Kaluźny, 2001); it is a personalized knowledge. However, in the contemporary medicine, diagnosis, treatment and rehabilitation is performed by multi-specialist teams (team knowledge), and production of medical service requires well organized and managed health care center (organizational knowledge) (Frączkiewicz-Wronka, Saryusz-Wolska, 2009). Thus, systemic knowledge (included in healthcare system) is highly significant and enables to assess health effects of the treatment.

Taking into account diversity of employment, one can conclude that the knowledge used by the staff working in those units is also differentiated which was confirmed in empirical verifications in Polish public hospitals (Krawczyk-Sołtys, 2013a; Krawczyk-Sołtys, 2013b). There are three types of knowledge resources available in healthcare units (Mleczko, 2009): medical, administrative and exploitative knowledge resources. Multiplicity of knowledge that occurs in the production of wide variety of processes in the hospital ward requires specific manner of management. Those processes are focused on a patient (for instance, individual treatment), on employees (for instance, HR, training), on material objects (e.g. flow of medication) or administrative activities (e.g. tender procedures). Thus, the selection of appropriate knowledge resources depends on the type of the process being produced as well as its participants.

The information gained by the patient concerning his disease enable him to consciously co-decide, take responsibility for their health, but also shape relations with the doctor and settle the process of treatment according to their own expectations. The main source of knowledge provided to the patient should be the doctor who, as distinct from mass media (internet, magazines), individualizes data and directs it to the specific person. The effectiveness of the doctor's educational influence depends not only on the level of their professional knowledge, but also on the ability to approach each patient individually – understand their needs and emotional condition connected with disease, ability to establish positive emotional links as well as create the atmosphere appropriate for therapeutic purposes. Medical staff should also enhance the patients' knowledge of what causes diseases and how to prevent them.

What should not be missed is the role that external knowledge resources play in providing medical services: consultants and external specialists, pharmaceutical companies, medical equipment suppliers, research institutes, etc.

Apart from medical personalized knowledge resources, which play key role in medical services provision, one should also take into consideration significance of codified knowledge.

In the sector of medical services there are constantly appearing new diagnostic and rehabilitation techniques, and also the number of individuals providing these services (public and non-public) is continuously increasing. Particular impact is put not only on using the knowledge already possessed, but also on establishing new resources of knowledge with an objective to improve treatment processes, patient satisfaction as well as economics of functioning and image of health care center. The success of health care organization depends mainly on efficiency and speed of producing new knowledge which if used in processing medical procedures and managing those units, allows to achieve competitive edge and more effectively fulfill the patients' expectations (Skalik, 2010).

The specific character of the process of extending knowledge resources in those units is associated with crucial meaning of individual mastery which considers not only attempts of achieving unique level of fluency in fulfilling the commended assignments, but also practicing of creative repetition by the young medical staff which acquires new information and skills from elder, highly qualified employees.

One of the main features of health care centers is collectivity in acquiring new knowledge stemming from the character of medical services which requires a group of people acting together as a team.

The amount of knowledge that appears at different stages of hospital processing results in a lack of control over its repetitive elements. Much information is often sourced multiple times as it is not properly classified, organized and gathered. The same issues come up in case of generating medical documentation. As it is handwritten and on paper, it forces employees of different grades to rewrite repetitive elements of knowledge multiple times. It constitutes one of the reasons for mistakes and inaccuracies. One of the aspects of improving processes in healthcare units is an access in the right place and time to information resources that mark the particular patient and access to knowledge resources that support processing of medical services in the area of diagnosis and treatment processes (Bratnicka, Mleczko, Winkler, 2008).

The basis for process improvement is its identification and analysis in the context of human, material and information flows as well as analysis producing, gathering and circulating knowledge at particular stages of the process.

More and more healthcare units is starting to make use of IT advancements in order for the paper documentation to be replaced with electronic one. It organizes knowledge in a faster and cheaper manner, for instance when a patient from one bed or ward is moved to another place, it allows to calculate the time of particular medical procedures, number of medical cases as well as to monitor progress in their treatment. IT application may also include the price of particular medical procedures, such as medication and service, and pass them on to the hospital's accounting system. The doctors may have the possibility to enter data on a regular basis including doses of applied medication, access to medical record, test results, recommendations and other significant information. Furthermore, properly selected software system makes it easier to communicate with the payer who sends requirements needed for performing particular medical procedures and it results in faster payment for services provided and diminishes the number of rejected claims.

In the area of health protection, there is high complexity and a need for integrity of many sources of information. In Poland, public awareness of the benefits and facilities stemming from advanced tools and IT systems in medicine and health care has not evolved yet. The perfect example may be telemedicine, namely treatment from the distance, which can significantly alter the organizational structure of health care by broadening access to medical services, knowledge and professionals with the use of advanced tools. The duration of stay in hospital is significantly shorter and in many cases there is no necessity for the afflicted to stay in hospital whatsoever, in order for them to be

treated with advanced methods. Progressive personalization of medicine requires personalization of informational tools, but on the other side, it provides the patients with individual solutions adjusted to their particular needs. Personalization of medical knowledge directed at the patient occurs when the basic premise for the use of decisive rules is the possibility for providing the medical staff with the knowledge adequate to the ensuing circumstances.

## Conclusions

Since the beginning of the health care overhaul, the character of provision of medical was changed significantly. Medical staff should reconsider their role towards the patients who are more and more willing to know everything on their disease and the methods of treatment, and at the same time they are getting less eager to trust medical workers. Orientation towards knowledge at health care units has become a chance for adjusting to social expectations.

The character of medical services is based on the basic factor constituting a guarantee for demographical, social and economic development. What seems to be significant then, is not only health protection known as activities in favour of health, but also health care which is basically reduced to service provision activities based on provision of medical services which meet particular needs and requirements. Undoubtedly, the level of knowledge of the professionals who provide those services and their abilities to use their knowledge resources is of a great significance as well.

The character of medical services leads to difficulties or sometimes even inability to evaluate their quality and adequacy of the used knowledge to the scope of service (Lewandowski, 2010). The main reason for such a phenomenon may be the fact that the patient is not always completely healed – in such a case it is hard to say if the effect were optimal because of the level of medical knowledge or stage of disease. There is also much freedom in selection of measures and methods of treatment. Another reason is asymmetry of knowledge between the doctor and the patient – there is a deficit of information on health condition and disease of the recipient (patient) who is not able to evaluate the technical quality of the service provided as they do not possess necessary knowledge in that area. Even the best informed patient does not possess knowledge and experience of the practicing doctor; few patients are able to go against detailed recommendations of a reputable doctor and many of them rely on decisions made by the professionals in this field. The significant restraint of possibilities for verifying the method of treatment is the fact that contact between the doctor and other medical professionals constitute a professional secret.

In the process of servicing patients, the data and information of the patient and his medical history are generated and recorded. Along with the experience and skills of the medical staff, it creates medical knowledge necessary for providing patients with adequate services. Information systems are mainly created for recording and circulating data and information as well as managing medical documentation – they do not take into account the aspect of knowledge management known as processing information in accordance with defined rules into the shape of knowledge supporting production of substantive activities in the process of providing the patients with medical services (Bratnicka, Mleczko, Winkler, 2008).

The precondition for the knowledge to be useful in processing the medical services is its availability regardless of place and time as well as its intelligibility and possibility for establishing new elements of knowledge.

Inter alia, the knowledge is supposed to allow to provide medical services at the cost efficient and high quality level (Wiig, 2002). It can also improve decisive process, make the external stakeholders engage in it and develop intellectual capital. To sum up, one should state that the knowledge plays a significant role in provision of medical

services. Above all, it constitutes a major contributor to functioning of medical units and an important factor of competition between those units in the market.

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