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Zarządzanie ryzykiem w zakładach opieki zdrowotnej

Risk management in health care centres

Streszczenie

Wstęp. Ryzyko jest wszechobecne w życiu człowieka, we wszystkich jego dziedzinach, a wraz z rozwojem cywilizacji wzrasta zarówno poziom ryzyka, jak i stopień jego akceptowalności. Są takie dziedziny jak np. medycyna, w których oczekuje się w większym stopniu identyfikacji ryzyka, wykrycia jego źródeł, a następnie usystematyzowania, monitorowania i obniżania do akceptowalnego poziomu.

Cel. Celem niniejszej publikacji jest przedstawienie metod zarządzania ryzykiem i możliwości ich zastosowania w zakładach opieki zdrowotnej w Polsce.

Materiał i metoda. Prezentowane wyniki pochodzą z badania, które w latach 2006-2007 przeprowadził zespół badawczy Uniwersytetu Medycznego w Łodzi, na próbie 70 szpitali stanowiących reprezentatywną grupę polskich szpitali publicznych.

Dyskusja. Omówiono systemy zarządzania ryzykiem w publicznych zakładach opieki zdrowotnej (ich wady i zalety). W ramach studium przypadku scharakteryzowany został jeden z programów zarządzania ryzykiem uzyskany podczas przeprowadzania badania w jednym ze szpitali powiatowych.

Wnioski. Postulowane jest stworzenie instrukcji formalizującej zasady postępowania w zarządzaniu ryzykiem w zakładach opieki zdrowotnej wykorzystując stosowane już w przedsiębiorstwach for-profit techniki zarządzania ryzykiem, jak: drzewa zdarzeń niepożądanych, VaR czy BSC. Dopiero całościowy program zarządzania ryzykiem pozwoli na poprawę bezpieczeństwa w tych instytucjach, a nawet prawdopodobnie, bez żadnych dodatkowych nakładów finansowych, osobowych, itp. umożliwi ustabilizowanie pozycji i usprawni funkcjonowanie jednostek ochrony zdrowia.

Słowa kluczowe: system ochrony zdrowia, zakład opieki zdrowotnej, ryzyko, zarządzanie ryzykiem.

Abstract

Introduction. Risk is omnipresent in human life and in all its areas. Levels of risk increase along with civilization development; however, its acceptability increases as well. There are areas, for instance, medicine, where identification of risk is expected to greater extent as well as detecting its source and then systemizing, monitoring and decreasing it to acceptable levels.

Aim. The aim of this paper is to present methods of risk management and their applicability in health care system in Poland.

Material and method. The research covered 70 hospitals as a representative group of Polish public hospitals of directed survey with the hospitals management and of completing the questionnaire concerning risk management. The research was carried out by the group of researchers from the Medical University of Lodz in the years 2006-2007.

Discussion. The discussion covers risk management systems for public health care centers (their advantages and disadvantages). Within the case study one of the risk management programs obtained in the examination in one of district hospitals has been described.

Conclusions. It is advisable to create the instructions which would formalize the rules of risk management in health care centers using already used by for-profit enterprises risk management techniques such as: methods of event trees and fault trees (damage, unfitness), VaR or Balanced Scorecard. Therefore, it is particularly important to create a risk management programme, the execution of which guarantees safety in health care units.

Key words: health care system, health care unit, risk, risk management.

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INTRODUCTION

Polish people are willing to accept a much higher level of risk within the health care area comparing to any other countries being relatively longer the member of European Union. Such behaviors are typical of countries with a low level of well-being and development. Indirectly, it seems to be a result of low access to the information concerning adverse events and infections occurring in hospitals, limited responsibility of the people in charge of such events or the organization and functionality of this lame system. Additionally, the current situation is accompanied with the poor policy of the government towards the health care, ineffective, inadequate and long-lasting reforms, insufficient information distribution and low readiness of the society for their implementation [1].

AIM

The aim of this publication is presentation of the methods of risk management and the possibilities of their implementation in health care centers in Poland.

MATERIAL AND METHODS

The research carried out between 2006 and 2007 by the research team of the Medical University of Łódź which comprised: Dominika Cichońska, Edward Gabryś, Zbigniew Marcinkiewicz, under the scientific supervision of Professor Romuald Holly, on the sample of 70 hospitals which made a representative group of Polish public hospitals.

DISCUSSION

Risk

The term "risk" can be defined in various ways and the choice of the best one seems to be a problem. The most common definitions are:

- measurable insecurity [2],
- possible occurrence of an undesirable event, negative consequence of an event [3],
- probability of occurrence of an event and its possible consequences (positive and negative) [4],
- dispersion of actual and expected results [5].

Such diversity and inability of forming one universal and unequivocal definition of risk indicate the need to perceive risk as a process, not a state and to research this matter taking various aspects and circumstances into consideration.

Basing on the research carried out in 70 public hospitals in Poland it can be assumed that from the point of view of the hospital, the risks can be divided into [6]:

1) unsystematic risks:
   - technical risks – equipment failures,
   - classic risks – environmental-thefts,
   - subsequent risks, the results of environmental random events,
   - criminal risks and the risk of a fraud,
   - the risk of personal liability due to the damages resulting from an unlawful act,
   - transportation and communication risks,
   - depreciation of the image (loss of reputation),
2) systematic risks, which are:
   - system risks (including political risk) and legal risk,
   - financial risks,
   - risks resulting from personal liability of medical workers,
   - risks connected with the range of the managers' decision-making abilities,
   - risk of the lack of medical personnel,
   - remaining systematic risks – resulting from the functions and type of the entrepreneur's activity.

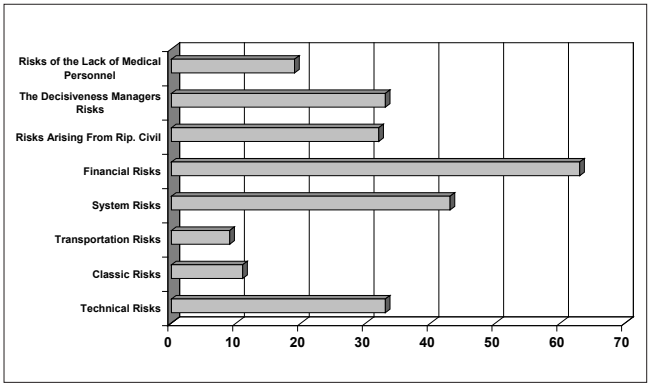

FIGURE 1. Specific and nonspecific risk identified in the Polish public hospitals.

Risk management

Risk management is a process of identification of possible threats that must be faced by various types of entities (including health care centers) and the choice of the most effective methods of protection against them [7].

Risk management should be a process which allows for protecting the organization against the consequences of adverse events and to create an added value of the company for their owners through:

- providing an adequate model for the prospective tasks implementation,
- improving of decision-making, planning and evaluating processes through the implementation of the well-organized approach to opportunities and threats analysis of the enterprise,
- effective resources and capital allocation,
- lowering the level of loss susceptibility,
- protecting and improving the image of the company,
- supporting the development of the personnel and the expertise of the organization,
- optimizing of operational effectiveness [8].

This article presents the methods of risk management which focus on techniques oriented towards positive effects (including prevention and the promotion of the system culture together with the prophylactic activities). The classic group of methods which aim at the prevention of the consequences of negative changes or the controlling of the processes with a significant level of system evolution risk to the level creating almost exclusively adverse results, is specified here.

The most frequently used methods of risk management in a company are:

1) Value at Risk (VaR)

Value at Risk is a limit of the risk of loss in a given time (frequently it is 1 day). This limit can be exceeded with a given probability (1 – *p*) where usually p=0.99 or 0.95. As we can see, VaR is not an absolute value for the given point, the parameters are: time period t (which is time horizon) and a probability level *p* [9].

When combining these two figures it is necessary to remember that in case of VaR evaluation of the following must be taken into account:

- the lower the level of tolerance, the higher the value of VaR,
- the longer the time horizon, the higher the value of VaR.

$$\mathbf{VaR = - R_{\&} W_o}$$

- where: $R_{\&}$ rate of return, W_o - current portfolio value

2) ETA – event tree analysis and FTA – fault tree analysis

These are methods which base on the evaluation of the probability of the human factor failure. Competence, qualifications, individual capacity for failure or resistance of junior and senior employees, equipment, infrastructure of the system and the quantified impact of the circumstances and random factors are analyzed here. Other factors that are taken into consideration are the functioning and the changes occurring in the legal, political and economic systems, technological development and the evolution of the social system. The optimization means the decrease of the failure risk resulting from organizational and other changes. By means of the event tree analysis the model based on generating an initiating event is created. Then the probabilistic method is used to assess the partial and initial probabilities and risk analysis. There are also the detailed definitions of: the budget, schedule and the multi-dimensional quality criterion which enable the overall evaluation of the failure of the system [10].

3) Historical simulation

The historical simulation means that due to the current portfolio value, the rate of return is calculated on the basis of historical data, for example a period including the last 200 or 250 days. Its main advantage is that it presents non-parametric approach and the evaluation of parameters is avoided i.e. the average or standard deviation, based on historical data [11].

4) Balanced Scorecard (BSC)

The basis of the BSC is a cause and result relationship between the strategic initiatives undertaken, the targets for the particular perspectives and the realization of the main strategic targets. Thanks to them the Balanced Scorecard can identify strategic weaknesses and indicates the enterprises which should be undertaken in the first instance.

5) Lamfalussy Process

One of the instruments of the system risk management is Lamfalussy process (planned by baron Alexandre Lamfalussy and his team, the Competent Advisory Committee). The process is also referred to as regulating procedure as all the legal regulations are prepared by the representatives of the member-states, who comprise the Committee. The European Parliament plays the role of "an external supervisor". This regulating procedure consists of four stages which aim at indentifying and defining the risks and acquiring methods of neutralizing them with the help of adequate regulations. This structure proposes two levels of regulations – framework regulations included in the full legislation procedure (level 1) and detailed regulations prepared and approved by the Committee and relevant panels (level 2). Such a structure assumes the national regulators work on coordinating new regulations with national ones and their proper implementation (level 3) and the active participation of the Commission in the implementation of the EU regulations (level 4) [12].

6) Noise analysis method and other parameters of the stochastic process

The usage of the noise analysis method and other parameters of stochastic process depends on a frequent measurement of the parameters of the realization of stochastic process, therefore it requires the collection of a great set of data regarding frequently occurring events. The proper analysis should base on the monitoring of the signal of the high risk events, so called "abortive events" – of which only some can lead to an adverse event or can be qualified as an adverse event. This happens thanks to the compensation mechanism in the form of parallel or emergency activities. So far this group of methods has been used mostly in the safety systems evaluation, e.g. transportation or communication systems.

Unfortunately, the risk management analysis method in public hospitals in Poland revealed gross negligence in this area, despite the well-known and successfully implemented in other branches of industry techniques/methods. The health care centers do not dispose of any universal risk management program. In each of these centers such a program (if it exists whatsoever) includes different elements and structure. Most frequently, the attempts of risk management are not performed in a form of the integrated or well-coordinated activities aiming at neutralizing of risks (lack of formal procedures in a written form, protocols, definitions, missions and goals). It is rather focused on the limitation of adverse events consequences. Such a situation is the result of the lack of the need of proper risk management among the managing officers or the lack of skills.

The results of the research carried out in Poland on the risk management and common practices in health care sector are confirmed in the Report MORPH (Management of Risks & Practices in Health Care) [13], in which the risk management in 165 (out of 204 asked for filling in the survey) public and non-public health care centers was analyzed. The following are the most common methods of manipulation of the identified risks:

- internal controls – 67.0% of the responses,
- defined range of responsibilities on a certain position – 67.0%,
- self-assessment – 52.1%,
- guarantee of competence – 36.2%%,
- early warning system regarding the adverse events – 30.9%,
- accreditation system – 20.2%,
- periodical reports regarding the process – 6.4%.

The officers responsible for the preparation and implementation of the risk management program: the managing director – 30.9% of the responses, director-general – 14.7%, personnel – 13.2%. The special risk management team or control commissions were enumerated relatively seldom which leads to the conclusion that the above mentioned bodies were not appointed.

RISK MANAGEMENT IN THE HEALTH CARE CENTERS – CASE STUDY

I hereby present the case study of the management risk program which was implemented in one of the district hospitals of Mazowieckie Province.

The program includes three possible ways of reporting factual or potential adverse events: anonymous, confidential and conditionally confidential. The anonymous way means reporting all the information regarding any faults and the situation dangerous for the patients (also for the personnel and the hospital resources) without disclosing the identity of the person reporting. Such a system prevents obtaining additional information, frequently important for the person reporting. The conditional system includes reporting the details regarding the adverse event as well as the personal information regarding the perpetrator of the event, which however shall remain known only to the person responsible for the registration of such situation. This model gives the possibility of obtaining additional information and to provide the person reporting with the feedback information. The conditionally confidential system resembles the confidential system, however the identification of the person reporting the event by the management is possible only in the case of serious negligence.

The employees of the hospital (who were divided into 2 groups – doctors and other medical personnel) were asked to fill in a survey specifying the level of acceptance of the particular systems of reporting adverse events. The conditionally confidential model turned out to be most accepted, which was confirmed by the choice of 90.63% respondents from group 2 and 51.1% from group 1. The next question were to determine the preferences of the professional staff regarding the choice of persons responsible for receiving reports and providing feedback information. The respondents from group 1 (91.3%) stated that the person responsible for the registration of the adverse events should represent their professional group. The respondents from group 2 (80.85%) presented a similar opinion. Respectively 4.3% and 4.26% of the respondents objected this opinion and respectively 4.3% and 14.89% - regarded it as unimportant. More than a half of the respondents in group 1 (52.2%) and almost a half in group 2 (48.94%) stated that the person responsible for reporting an adverse event and providing feedback information to the person reporting should be the head of the ward. Other person from the ward could take such a responsibility according to 17.4% of the respondents from group1 and 38.3% from group 2. Other person from the hospital could take such a responsibility according to respectively 17.4% and 10.64% of the respondents. Merely 4.3% of the respondents from group 1 thought that the person responsible should be the person outside the hospital. No one from group 2 indicated such a solution. The last criterion was the criterion for the events qualifying for the report. As many as 62.2% of the respondents from group 1 and 51.06% from group 2 favored the exclusively obligatory model of reporting adverse events. It assumes the existence of the list of adverse events which are obligatory registered. The obligatory model imposes the necessity of reporting the events from the list and other events are reported at the professional's (doctor), nurse's, diagnostician's, rehabilitation specialist's or technician's choice. Only 4.3% of the respondents from group 1 and 10.64% from group 2 allowed for the model basing solely on the personal choice of the perpetrator.

The system of risk management in this hospital allows for:

1. creating obligatory, conditionally confidential model of the registration of adverse events;
2. engaging the representatives of various professional groups and professionals in a team responsible for analysis of the circumstances of the event;
3. taking responsibilities by the persons – if it is possible heads of the ward and other managers – for receiving the reports and providing feedback information.

CONCLUSION

Summing up, the effective risk management process in an organization (including or above all in such a special organization as is a public health care center) must be governed by precisely described procedures, implemented in a respective order and time. Therefore, it is necessary to prepare an instruction which would specify all the rules with the use of commonly accepted techniques of risk management in for-profit companies, such as: tree analysis, VaR or BSC. Only the complete risk management program will improve safety in self-dependant public health care centers and, what is highly probable, it will enable to stabilize the position and facilitate the performance of health care units without any additional financial and personal investments.

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REFERENCES

1. Marczak M. (ed.) Risk management in health care system – methodology and chosen examples. Łódź: Wydawnictwo Politechniki Łódzkiej; 2008, 4.
2. Knight FH. Risk. Uncertainty and Profit. Boston; 1921.
3. Rowe WA. An Anatomy of Risk. New York; 1977:24.
4. Stupczewski G. Zarządzanie ryzykiem – systematyka pojęć. Wiadomości Ubezpieczeniowe 2004;5-6:68.
5. Kowalewski E. Przyczynek do behawioralnej teorii ryzyka. In: Szumlicz T (ed.) Społeczne aspekty ubezpieczenia. Warszawa: Szkoła Główna Handlowa w Warszawie; 2005:11.
6. Holly R, Suchecka J. (eds.) Szpital publiczny w polskim systemie ochrony zdrowia. Zarządzanie i gospodarka finansowa. Łódź-Warszawa: Uniwersytet Medyczny w Łodzi/Krajowy Instytut Ubezpieczeń; 2009.
7. Ortyński K. Zarządzanie ryzykiem w zakładzie ubezpieczeń. In: Monkiewicz J (ed.) Podstawy ubezpieczeń. Tom III – przedsiębiorstwo. Warszawa; Poltext; 2003:129.

8. Stupczewski G. Zarządzanie ryzykiem – systematyka pojęć. In: Wiadomości Ubezpieczeniowe. 2004;5-6:69.
9. Kuziak K. Koncepcja wartości zagrożonej VaR. Wrocław; Akademia Ekonomiczna we Wrocławiu. Katedra Inwestycji Finansowych i Ubezpieczeń; 2003 oraz Ridde T. Approximate Distributions of Order Statistics. New York-Berlin-Heidelberg; Springer; 1989.
10. Marczak M. Analytic methods in risk management and health measurement. In: Marczak M. (ed.) Risk management in health care system – methodology and chosen examples. Łódź: Wydawnictwo Politechniki Łódzkiej; 2008:10.
11. Jajuga K. Value at Risk. In: Rynek Terminowy. 2001;13:18-20.
12. Holly R. Procedury Lamfalussy jako systemowy instrument zarządzania ryzykami europejskiego rynku finansowo-ubezpieczeniowego. Referat na seminarium w Wyższej Szkole Ubezpieczeń i Bankowości w Warszawie, dnia 12 lutego 2003roku: p.2.
13. Projekt MORPH – Zarządzanie ryzykiem i praktykami w sektorze zdrowia. Fundacja Rozwoju Przedsiębiorczości; 2004:11-2.

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