

# INFORMATION SYSTEM FOR REGISTRATION AND ECONOMIC ASSESSMENT OF MEDICAL ERRORS - HEALTH MANAGERS' READINESS TO INTRODUCE

Raycheva R.<sup>1</sup>, R. Stoyanova<sup>2</sup>

<sup>1</sup> *Social medicine and Public Health Dept.*

<sup>2</sup> *Health management, health economics and general medicine Dept.  
Faculty of Public Health, Medical University – Plovdiv*

## ABSTRACT

This report investigates the attitude and the willingness of health managers to implement an information system for registration and evaluation of medical errors. The study is based on direct anonymous questionnaire with registration card. The questionnaire results demonstrate that the possibility of introducing the Information system for registration and economic assessment of medical errors was generally met with a positive attitude from the health managers of medical clinics and labs, despite the prejudice among some of them that it may cause some repressive consequences.

**Key words:** medical mistakes, information system

## INTRODUCTION

In recent years even more countries make endeavor to establish systems for registration, reporting and analyzing medical malpractice, and emerging costs that accompany them. The main objective is to achieve improved quality of medical care and to reduce the following costs accompanying the error through identification and prevention of the most common recurring medical errors.

Necessary conditions for implementation of information and communication system for recording and evaluation of medical errors are to determine:

1. What exactly is meant by the term medical malpractice?
2. Classification of medical errors on certain signs;
3. Determining the structure and the types of costs that will be used for economic assessment of emerging medical errors.

According to the definition given by The Quality Inter-agency Coordination Task Force QuIC in 2000 [1], which is extended by originally given by IOM in 1999 [2] the medical errors could be considered as follows:

“Failure of a planned action to be completed as intended or use of a wrong plan to achieve an aim “

Errors can include problems in practice, products, procedures, and systems.

There are many types of medical errors [2], [4], [5], [6], but despite their diversity, the following seven categories summarize types of medical errors that can occur [3]:

- Medication Errors, such as a patient receiving the wrong drug;
- Surgical Error, such as amputating the wrong limb;

- Diagnostic error, such as misdiagnosis leading to an incorrect choice of therapy, failure to use an indicated diagnostic test, misinterpretation of test results, and failure to act on abnormal results;
- Equipment failure, such as defibrillators with dead batteries or intravenous pumps whose valves are easily dislodged or bumped, causing increased doses of medication over too short a period;
- Infections, such as nosocomial and post-surgical wound infections;
- Blood transfusion-related injuries, such as a patient receiving an incorrect blood type;
- Misinterpretation of other medical orders, such as failing.

The expenditure classification and report is based on the generally valid rules written into the Accountancy Law and the International Accounting Standards.

The aim of this study is to explore the attitude and the willingness of health managers to implement an information system for registration and economic assessment of medical mistakes as a result of the working process in the medical institution they manage.

## MATERIAL AND METHODS

The study is based on a questionnaire among 39 general managers of clinics and labs in the city of Plovdiv, conducted in April-June 2011. An anonymous questionnaire was built. It contains ten multiple choice questions related to:

- the reasons that would hinder the implementation of the system for registration of medical errors,

- the main characteristics which the system must have and how they have to be organized,
  - The access and the availability of the filed information.
- SPSS 17 - descriptive analysis, chi-square analysis and coefficient of Kramer for testing the relationships of observed objects and Excel for Windows software were used for data processing.

## RESULTS

On the question: “Over the past 10 years – have you ever made a mistake in treating your patient? And Have you ever become a witness of medical error done by a colleague of yours?” the following distributions of responses were received (Fig. 1 and Fig.2):

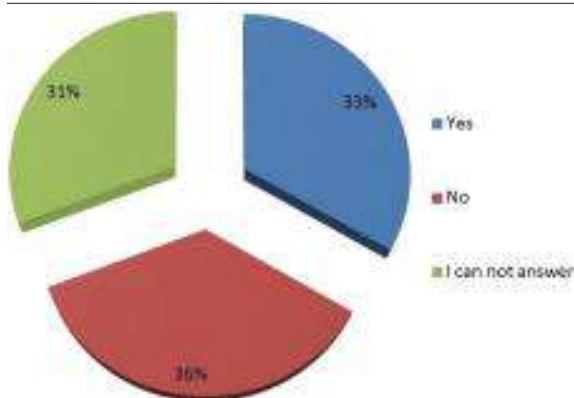


Fig. 1. Have you ever made a mistake in treating your patient?

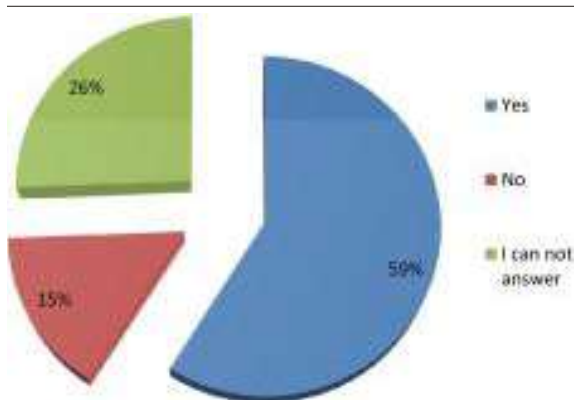


Fig. 2. Have you ever become a witness of medical error done by a colleague of yours?

The next four questions are related to the benefits and negatives managers believe that would result from the introduction of the information system for registration and economic evaluation of medical errors. The views of respondents' surveyed are quite controversial. Pooled data are presented in Fig.3.

The Fig. 3 indicates that 43.6% of respondents considered that the introduction of the system would increase the quality of medical services in general.

A significant part (61.5%) of the heads of medical units participating in the study believe that the operational service of the information system, including the registration of medical errors, should be performed by any medical person authorized and trained for this purpose and not by the professionals who made the mistake, as only 17,9% of them considered. Of the remaining 20.6% respondents - 10.3% have designated other persons to register adverse event, such as - the head of the hospital, an independent body, a committee of specialists and etc. The rest of 10.3% think that it is not necessary medical errors to be filed.

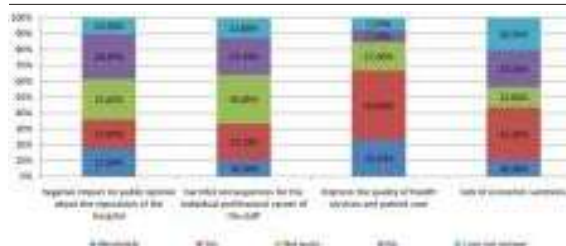


Fig. 3. Benefits and negatives from the introduction of the Information system for registration and economic evaluation of medical errors

Extremely controversial was the issue related to the patients' access to the system and the possibility to be in position to report when suspected medical error occurred. Data are presented in Fig. 4:

The main features we design to be set in the Information system for registration and economic assessment of medical errors are the following:

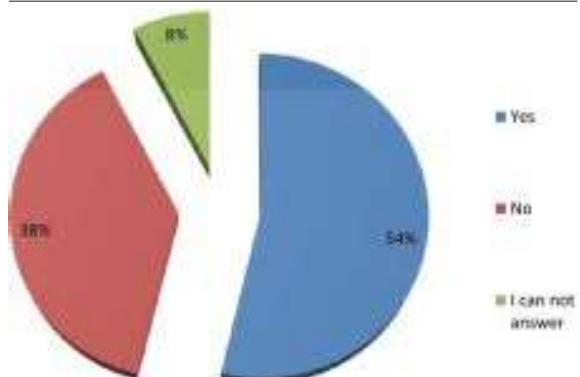


Fig. 4. The Patients' access to the Information system for registration and economic evaluation of medical errors according to the Health Managers.

- system should improve patient care;
- System should provide education and to train medical personnel;
- System should provide better public awareness;
- System format should have facilitative, time-saving features (e.g., checkboxes, templates), system should be easy and quick to use, and should contribute minimally to extra workload, reporting process should not be lengthy, drawn-out, or burdensome for users or the organization;

Preferred system would be anonymous or de-identified the person who reported the error from public point;

Personal data of the patient object of medical error should be filed in a database with authorized access;

Purpose of the system should not be punitive, should not allow for retaliation or punitive consequences of reporting and filing medical error should not to be used for prosecution [7].

The health managers were able to choose more than one of the above-mentioned characteristics, so that the sum of the responses is more than 100%. Data are presented in Fig. 5. Despite the contradictory attitude of the managers 64.1% of them would implement such a system in the medical unit they are head of - against 23.1%.

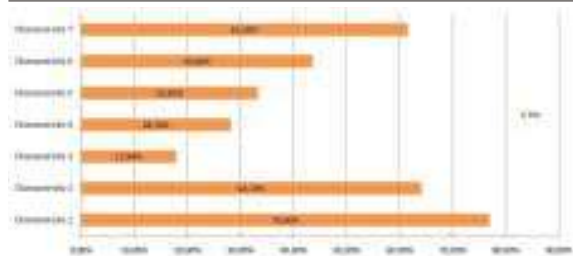


Fig. 5. Distribution of healthcare managers' preferences regarding the characteristics of the system.

To determine whether a link exists between the responses to questions related to benefits and negatives, as a result of the system's initiation and the final decision of managers to bring it into use, the X-square analysis and analysis of Kramer for measuring the strength of the relationship were performed. Due to the small sample size results we registered are not eligible for the representation and will not be presented in this study.

Nevertheless in order to realize our intention to find such dependencies we set a future goal to expand our research.

## CONCLUSIONS

The possibility of introducing the Information system for registration and economic evaluation of medical errors was generally met with a positive attitude from the health man-

agers of medical facilities, despite the prejudice among some of them that it may cause some repressive consequences.

Some of the respondents believe that the system must take into account the specifics of the activity of various medical specialists by type, character and severity.

In terms of patient access in the information system, medical experts believe that they should be entitled only to file signals, but not to have access to all recorded information. Majority of respondents see an opportunity to improve the quality of medical services through the introduction of the system that will incorporate all adverse events and consequences. According to them, analyzing the causes could create better working conditions with modern and reliable equipment and better opportunities for further training.

## REFERENCES

1. Quality Interagency Coordination Task Force (QuIC). Report to the President, February, doing what counts for patient safety: Federal actions to reduce medical errors and their impact [Website], 2000. Accessed September 7, 2003. <http://www.quic.gov/report/mederr4.htm#evidence>.
2. Institute of Medicine. To err is human: Building a safer health system, Washington, (DC), National Academy Press, 1999
3. Lazarou J, Pomeranz BH, Corey PN. Incidence of adverse drug reactions in hospitalized patients: Ameta-analysis of prospective studies. JAMA, 1998 April; 279(15): 1200–1205.
4. Leape, L. L. Error in medicine. JAMA, 1994; 271(27), 1851–1857.
5. National Coordinating Council for Medication Error Reporting and Prevention <http://www.nccmerp.org/medErrorCatIndex.html>
6. Joint Commission on Accreditation of Healthcare Organizations [JCAHO] <http://www.jointcommission.org/>
7. Karsh BT, Escoto KH, Beasley JW, Holden RJ. Toward a theoretical approach to medical error reporting system research and design. Applied Ergonomics, 2006; 37: 283–295