

# Young doctors facing medical errors – a possible solution to control the incidence of diagnostic errors

*Tinerii doctori în fața erorilor medicale – o posibilă soluție pentru a controla incidența erorilor de diagnostic*

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## Abstract

**Introduction.** Patient safety is fundamental to a qualitative medical system. Although the subject of medical errors has been in the spotlight for many years, they continue to be responsible for many deaths worldwide. Out of these, the highest morbidity is claimed by diagnostic errors. Cognition is the key factor responsible for this type of errors. The aim of this study was to evaluate how medical residents are taught to employ cognition in the process of clinical reasoning.

**Methods.** The study consisted of applying a 14-item online questionnaire to 51 male and female medical residents in Iași, Romania, between July 4<sup>th</sup> and September 4<sup>th</sup>, 2017.

**Results and discussions.** A vast majority of respondents (84.2%) have recognized the existence of cognitive biases during the diagnostic process. Almost half of the contributing residents (41.2%) think that the experience of older physicians is helping them commit less cognitive errors. The same percentage of respondents admit that they do not know how to reduce the incidence of diagnostic errors.

**Conclusions.** The survey reveals the lack of information in preventing diagnostic errors and the need for education regarding clinical reasoning during residency training.

**Keywords:** patient, safety, healthcare improvement science

## Rezumat

**Introducere.** Siguranța pacienților este fundamentală pentru un sistem medical de calitate. Deși subiectul erorilor medicale este în centrul atenției de mai mulți ani, acestea continuă să fie responsabile pentru un număr mare de decese la nivel global. Dintre acestea, cea mai mare morbiditate este atribuită erorilor de diagnostic. Cogniția este factorul-cheie responsabil pentru acest tip de erori. Scopul studiului este de a evalua modul în care medicii rezidenți sunt învățați să aplice cogniția în procesul raționamentului clinic.

**Materiale și metodă.** Studiul a constat în aplicarea unui chestionar online de 14 întrebări la 51 de rezidenți medicali de sex masculin și feminin, din Iași, România, între 4 iulie și 4 septembrie 2017.

**Rezultate și discuții.** Marea majoritate a respondenților (84,2%) au recunoscut existența prejudecăților cognitive apărute în timpul procesului de diagnosticare. Aproape jumătate dintre aceștia (41,2%) consideră că experiența medicilor mai în vârstă îi ajută să comită mai puține erori cognitive. Același procent de respondenți admit că nu știu cum să reducă incidența erorilor de diagnostic.

**Concluzii.** Sondajul relevă lipsa de informații care ar putea duce la prevenirea erorilor de diagnostic și nevoia de educație în ceea ce privește raționamentul clinic în timpul pregătirii din perioada rezidențiatului.

**Cuvinte-cheie:** pacient, siguranță, știința îmbunătățirii sistemului sanitar

## Introduction

Starting in 1999, the medical community took a real close look at medical errors, when the Institute of Medicine (IOM) released a defining report entitled *To Err Is Human*<sup>(1)</sup>. Although this report has opened the way for research on this subject and significant advances have been made since then, medical errors continue to plague the medical system and the safety of patients. Research has revealed that diagnostic errors are responsible for an estimated 40,000–80,000 deaths per year in the USA alone<sup>(2)</sup>. Also, another review assessed that “diagnostic errors are associated with a proportionately higher morbidity than is the case with other types of medical errors”<sup>(3)</sup>. A worrying fact is related to the cognitive factors that lead to the failure of the physician’s clinical reasoning. The faulty reasoning is cascading into the patient’s distrust towards doctors, their recommendations and, finally, the healthcare system itself<sup>(4)</sup>. The

consequences of diagnostic errors are prone to the “double standard” effect. Therefore, the physicians who are involved in a medical error suffer from the “second victim” symptom<sup>(5)</sup>, causing them to lose empathy towards their patients<sup>(6–9)</sup>.

Conventionally, metacognition elements that contribute to clinical reasoning are implemented during medical school, but this process is not carried out in the same manner during the residency training period. Young doctors constitute the first line that is being influenced by the medical educational system, therefore they play an important role in the diagnostic error phenomenon. Being familiar with terms like clinical reasoning, diagnostic error and cognitive error is essential for the development of an efficient medical decision making. This idea led to the development of a set of questions addressed to medical residents in different fields with the purpose to assess their level of perception

regarding diagnostic errors. The feedback generated by the responders will help develop solutions which, in the end, will reduce diagnostic errors.

## Methods

We used a survey methodology applying a 14-item online questionnaire with a 5-level Likert scale (1 – disagree to 5 – always agree) to obtain data from young doctors undergoing the residency training in Iasi, Romania. A part of the questions was designed to evaluate the level of awareness and knowledge of possible strategies regarding diagnostic errors. Another section of the survey deals with the respondents' capacity to identify diagnostic errors made by others or even by themselves. The questions refer to aspects of medical training and expertise which are not influenced by the residency speciality of the respondents. Also, the questionnaire is evaluating the impact of diagnostic errors on the physicians' clinical reasoning and on their interaction with the patients and their relatives. The questions were delivered in the form of an online survey, available from July 4<sup>th</sup> to September 4<sup>th</sup>, 2017. The respondents' group consisted of 51 persons, both male and female, which answered the questions anonymously, but not before the aim and purpose of the survey was explained to them. No financial compensation was offered to the participants, which were contacted using different means of online communication (e-mail, social media).

## Results

More than half of the respondents (58.8%) think that experienced clinicians are committing cognitive errors and the majority of the residents (78.4%) understand that they have an important role in reducing diagnostic errors. When it comes to talking about cognitive errors, 54.9% (28 out of 51) of respondents have indicated that they have taken part in discussions led by their superiors, while 62.7% (32 out of 51) have taken part in discussions led by their peers. When asked if they feel encouraged by their superiors to talk openly about cognitive errors, 54.9% answered with "yes" and 58.8% believe that they know strategies for reducing such errors.

In the second part of the questionnaire, the young doctors were asked to assess the impact of cognition biases during the consultation. 84.2% of responses have acknowledged the importance of cognitive biases when making a medical decision (15.7% feel the maximum level of impact, 33.3% indicate a medium level of impact, while 39.2% place themselves at a level between medium and maximum), while a single respondent (2%) felt that he is not influenced by this factor. Talking about their own clinical reasoning with their colleagues is favored among all respondents (11.8% – likely; 25.5% – more than likely; 62.7% – definitely). When it comes to talking about the same matter with patients and their relatives, the percentage of residents that are the most open to this interaction falls to almost half of the one before

(37.3%), while the highest proportion of responders (45.1%) have indicated a more than likely openness to this subject. When asked to rate their level of fear of committing errors in their clinical reasoning, the physicians who took part in the survey did not form a majority for one answer in particular (13.7% – absolutely not; 33.3% – not likely; 19.6% – likely; 23.5% – more than likely; 9.8% – definitely).

The dynamic of answers for the situations concerning the communication of doctors with patients and their relatives in the case of an actual diagnostic error is very similar to that when talking to the same persons about the physicians' own clinical reasoning. Therefore, while 43.1% are definitely willing to talk to their colleagues about a diagnostic error, only 19.6% are definitely willing to talk about the same matter to the patients and their families. The vast majority of respondents have indicated that they experience negative effects (guilt, shame, fear, anxiety, depression) after committing a diagnostic error (31.4% – likely; 33.3% – more than likely; 27.5% – definitely).

## Discussion

This study is limited by the fact that all residents have responded anonymously. For this reason, it is impossible to know the situations that the respondents are faced with when they made or witnessed a medical error.

The fact that 41.2% of the residents which took part in the survey believe that experienced physicians are rarely committing cognitive errors speaks for the belief of today's young doctors that diagnostic errors are caused by a lack of experience, and not by a faulty approach to clinical reasoning. While this point of view may apply to common afflictions, it creates an "Achilles heel" when it comes to rare diseases or conditions with an atypical onset. A possible solution to this danger is the implementation of a system of thought that does not see the diagnostic process as a comparison to known patterns, but rather as an analysis of each patient's condition.

The fact that almost 80% of respondents have admitted that they have an important role in the reduction of diagnostic errors shows that they are willing to take responsibility for such outcomes. In regard to initiating discussions on the topic of cognitive errors, the numbers show that the peers of residents are more open to this subject than their superiors. However, the fact that the percentage of the residents who have answered affirmatively to this question is identical to that of the respondents who felt encouraged by their superiors to talk about cognitive errors shows the importance of this initiative.

The fact that the share of residents who admit that they do not know strategies to reduce diagnostic errors is identical to the one of responders who believe that experienced physicians do not commit cognitive errors may further indicate that today's young doctors rely more than anything on experience in order to avoid

diagnostic errors. Also, the 41.2% margin of these respondents indicates the significant lack of information necessary to correct this situation.

Although the vast majority of responding residents are willing to discuss clinical reasoning with their colleagues, the situation changes drastically when it comes to communication with patients and their families. The same pattern applies when it comes to the aftermath of a diagnostic error. But a closer look at the numbers reveals that residents have a reluctance to engage in discussion with patients and their relatives after the occurrence of a diagnostic error. This negative reaction is also proved by the vast majority of respondents who indicate the manifestation of emotions like guilt and depression after delivering a wrong diagnostic.

## Conclusions

The survey data proves that there is a lack in knowledge regarding the prevention and reduction of diagnos-

tic errors. This fact suggests the need of educational programs, which can be implemented even in medical schools, with a corresponding curriculum in order to correct the current biases in the diagnostic process and to overcome the barriers created by the “second victim” effect.

A first step should be changing the view on discussing medical errors, a practice that is almost a taboo in the present. The mentality which is dominating the medical education system is focusing on memorizing all the possible diagnostic possibilities, thus creating the background for missing the outcomes which have never been encountered before. In the digital era, the mobile phone has become an important tool, providing access to unlimited information. Future doctors should be taught to make use of this valuable resource. Even without an Internet connection, a smartphone can be very useful through the decision support software that is already available. ■

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