

*Original Article***Familiarity of medical residents at Kerman Medical University with evidence based medicine databases**

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**Abstract**

**BACKGROUND:** Using Evidence Based Medicine (EBM) in clinical practice is an important strategy for improving and updating medical services. Therefore, EBM has recently attracted a lot of attention in many medical schools around the world. In this study we tried to evaluate the familiarity of clinical residents who are one of the main clinical decision makers in public hospitals and also the next generation of specialists with EBM and EBM databases.

**METHODS:** This was a cross-sectional study in 2010 in which clinical residents of Kerman Medical University (KMU) participated. Residents were asked about the four main EBM databases. The data was collected by a self-administered questionnaire.

**RESULTS:** The data showed that from the respondents only 26.6% knew about EBM and only 28.7% of the respondents were familiar with "Up to Date", 22.3% were familiar with "Ovid EBM Reviews", 6.4% were familiar with "Cochrane" and 5.3% were familiar with "BMJ Clinical Evidence". The frequencies of those that actually used the databases for clinical decision making and could answer the search questions were even less.

**CONCLUSIONS:** The results showed most of the residents lack sufficient knowledge about EBM and its databases. The reason is probably the inexistence of a systematic and comprehensive curriculum for EBM education during their residency program or undergraduate program. Thus, due to the importance of learning EBM in this group, there is a necessity to plan a comprehensive and proper education schedule for EBM and EBM database use at the beginning or further stages of residency.

**KEYWORDS:** Evidence Based Medicine, EBM database, Clinical Residents, Postgraduate Curriculum.

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There is no doubt that both physicians and patients benefit from strategies that improve diagnosis, clinical judgment, and decision making.<sup>1,2</sup> Evidence Based Medicine (EBM) is one of the strategies that nowadays is used as a new tool in medical sciences to improve health, patient care and medical services. It is taught in many popular world medical school curriculums.<sup>3,4</sup>

Evidence Based medicine is a mixture of clinical expertise, and the best latest evidence from systematic and organized searching of the available literature.<sup>5</sup> In other words, EBM is a tool for properly and efficiently using the results of research work in decision making. Of course, accessing and retrieving valid and reliable evidence is not possible without knowing proper electronic databases and systematic and

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purposeful search strategies.<sup>6</sup> One of the main causes of applying various and controversial medical treatments is the lack of knowledge about the best available evidence.<sup>1,7</sup>

Considering the high load of information and its increasing volume, especially in medical sciences, the necessity of familiarity with information resources and information search strategies for access to up to date information seems essential. Nowadays in order to prevent physicians time waste and access valid, relevant and reliable evidence in the least time, new methods for searching and advanced databases have been made available.<sup>8</sup> But, most physicians lack the necessary skills for searching, evaluating, appraising, and incorporating the information and study results.<sup>9</sup> On the other side, EBM and its related tools such as specific databases and database search techniques are advancing and improving continuously.<sup>10</sup>

Obviously, physicians need to be familiar with and know the search strategies of EBM databases to access information systematically and inquire reliable, trustworthy and beyond chance information for clinical decision making.<sup>11-13</sup>

Medical residents have an important role in patient treatment, clinical decision making and medical services in Iranian public hospitals and are the next generation of medical specialists working in Iran, offering specialist advice and treatment. In this study we aimed to survey the familiarity of clinical residents in one major Iranian University, Kerman Medical University (KMU), with EBM databases accessible from Iranian medical universities servers. Obviously this information can help in recognizing their shortcomings and programming appropriate practical training for this group.

## Methods

A cross sectional survey was conducted in January and February of 2010 at Kerman Medical University (KMU). The population studied was all of the residents at Kerman Medical University. At Kerman Medical University the different residency programs are

pathology, internal medicine, general surgery, anesthesiology, gynecology and obstetrics, dermatology, pediatrics, radiology, cardiology, psychiatry, neurology and otorhinolaryngology. A self-administered questionnaire was used for collecting data. The questionnaire had three parts. The first part was written information explaining the aim and purpose of the study and kindly asking the residents to participate in the study; the second part was questions about the demographic characteristics of the population such as age, gender and years of graduation from medical school. We did not ask about their field of specialty as the demographic data was completely anonymous and without identifiable data; this helped us in attracting residents' trust and cooperation in providing the right answers. The third part of the questionnaire asked about familiarity with the four major evidence based medicine websites through direct questions and then, practical questions about how to use the database.

The websites studied were BMJ clinical Evidence, Up to date, Ovid (EBM Reviews) and Cochrane. Four questions were framed for each website. The first question was a filtering question asking if they are familiar with the database. If the participant replied No, he would be asked to skip the other questions about the database and go to the next database questions.

The second question in each set of questions was about using the database to find relevant articles for clinical decision making. We asked them if they actually search the database to find articles applicable to their clinical decision making.

The third question was a simple, practical question and the fourth question was a more difficult question evaluating their advanced search skills. These questions were designed in order to confirm their familiarity and estimate their use of appropriate skills in searching the database.

These questions were designed mainly by our IT specialist. The questionnaire was in Persian, its validity was approved by expert opinion and its reliability was tested in a pilot

the population. The Cronbach's alpha was calculated 0.84 and the test retest correlation was 0.90. Then, 140 questionnaires were distributed among all the clinical residents of Kerman Medical University.

A research assistant gave the questionnaires to the residents during morning report sessions and also provided the proper explanations for correctly completing the forms. The completed questionnaires were collected by continuous follow up. SPSS version 18 (Copyright © SPSS Inc.) and EXCEL 2007 (Microsoft Inc) were used for statistical analysis and drawing the figures.

## Results

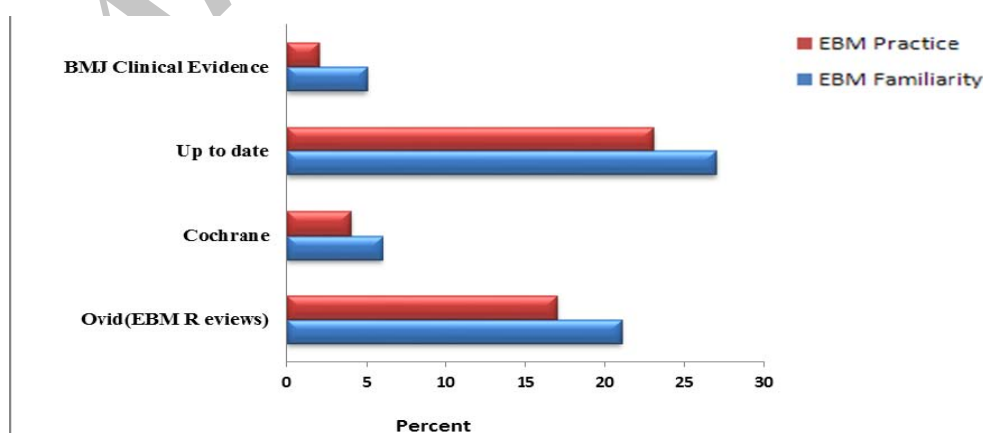
Out of 140 distributed questionnaires, after continuous follow up and reminding, 94 questionnaires were completed and returned back (response rate was 67.1%). In order to find out about the non-responding population, one of the researchers called or asked the non-respondents face to face about why they did not reply; the majority answered because of time constraints, a busy duty schedule, or studying for the final exams. However, our colleague managed to get an oral reply from all non-respondents about their familiarity with EBM, and all of them claimed not being familiar with EBM.

The average age of the respondents was 32.7 (SD= 3.99) years and the average time past from their MD (Medical Doctor) degree gradu-

ation was 5.6 (SD= 2.98) years, and 55.3% of the population were males.

Our results showed that in the responding population only 26.6% were familiar with Evidence Based Medicine and only 34% had written a research article before. Including the non-responders who did not know about EBM, the rate dropped to about 18% of the whole clinical residents.

Our participants had the most familiarity with the Up to Date database and the least familiarity with the BMJ clinical evidence database. Results showed that only 28.7% of the respondents were familiar with "Up to Date", 22.3% were familiar with "Ovid EBM Reviews", 6.4% were familiar with "Cochrane" and 5.3 % were familiar with "BMJ Clinical Evidence". In regard to actually using the databases for finding articles and using the articles for clinical decision making, the rate was even less. The maximum use was for the "Up to date" database and the minimum was for "BMJ Clinical Evidence". The results showed that 85.2% of participants who were familiar with the "Up to date" database, 80.9% of the participants who were familiar with "Ovid (EBM reviews)", 66.7% of participants who were familiar with Cochrane and 40% of participants who were familiar with BMJ Clinical Evidence database used it for actual clinical decision making. Figure 1 shows participants familiarity and percent use of EBM databases for clinical decision making.



**Figure 1.** Familiarity with EBM Databases and Practical use of the databases in clinical decision making

Our study also showed that the knowledge about search skills was low in the respondents; even those who were familiar with these databases did not know about some simple search rules and their applications; and many of them used general search skills and common sense or chance and not appropriately acquired search skills for retrieving articles. The rate of answering the simple question and more difficult question in the databases was respectively, 75% and 25% in BMJ Clinical Evidence, 59.1% and 25% in Up to date, 75% and 66.7% in Cochrane and 82.4% and 71.4% in Ovid.

## Discussion

Despite two EBM workshops conducted in Kerman Medical University in 2010 and 2009 by the Research Deputy of Kerman Medical University for clinical academics and residents, the results of this study showed that the residents of Kerman Medical University, as one of the type I Iranian Universities, did not have enough knowledge and skills about EBM databases. Another study in 2010 in Kerman showed that less than one third of the responding residents (29.7%) at Kerman Medical University were familiar with EBM; also, only 47.8% said that EBM helps them in taking care of their patients, 88% showed interest to learn EBM, and only 13.8% used published articles for clinical decision making.<sup>14</sup> However, no information about residents' familiarity with EBM databases was inquired in this study.

Our study showed that residents' knowledge about specific EBM databases that are designed for better use and application of the latest evidence in clinical decision making is very limited. The study population not only had little knowledge about these databases, also among people who were familiar, not all of them used the sites for actual clinical decision making. The main reason is probably the limited insight about the importance of evidence based medicine in decision making, and using proper search methods.

A study in 1998 showed that the knowledge of general practitioners in England about searching articles in information databases and

finding articles was very limited and another study done in 2004 showed that only 18% of physicians in Denmark used EBM in clinical decision making and only 17% of them used the Cochrane site for searching evidence frequently, while 49% of them had never consulted the Cochrane Library.<sup>15</sup> Another study done in 2006 in Tabriz, Iran, showed that only about one third of the clinical academics in Tabriz used specific EBM sites. Their results also showed that the majority of the population under study not only did not know about the EBM databases, also lacked the required skills for using the internet for retrieving information.<sup>16</sup> In another study done in Ardebil, Iran, in 2008 most of the physicians stated that the reason they did not use EBM databases was lack of familiarity about these sites.<sup>17</sup> A study done in Shiraz in 2007 reported that 70% of the residents were unfamiliar with EBM and 60.9% stated that in the past year they had used the Medline database or other search engines less than 10 times for clinical decisions.<sup>18</sup> A 2005 study also from Shiraz showed that although all residents had access to Medline and the internet in their workplace, they did not use it favorably and only 10% thought they are able to critically evaluate the medical literature.<sup>19</sup>

There has so far been one study to our knowledge about the actual application of evidence based decision making in Iranian hospitals. In this study done in an educational hospital in Isfahan, in 68.9% of the patient records, level I evidence (at least one randomized trial) supported the primary intervention and in the remaining 31.1%, level II (convincing non-experimental evidence) supported the primary intervention. However, there was no information about how up to date and well-criticized the supporting evidence was.<sup>20</sup>

Our study and some other studies<sup>16</sup> suggest that even among those people who think they are familiar with the databases and use them, some of their searches are actually not based on sound search techniques and are based on chance, common sense, general search techniques, etc.

On the other side, there is increasing evidence about gaps between EBM and clinical practice. Physicians often rely on clinical experience, opinion of colleagues and summarizing electronic clinical resources rather than the original medical literature.<sup>21</sup>

It is worth mentioning that access to databases, including some EBM databases is made possible through the access fees paid by the Iranian Ministry of Health and Medical Education and therefore, frequent and efficient use of databases especially in clinical work and decision making should be emphasized. Authors believe that nowadays, the real world busy clinician needs the applied science of information management more than ever before.<sup>13</sup>

Clinical residents not only play an important role in clinical decision making in public hospitals, also represent the next generation of clinical specialists of the country. Therefore, it

is essential to program and schedule practical and affordable ways for acquainting them with EBM and EBM specific databases for prompt access to up to date and valid medical information. We also suggest that EBM coursework, EBM workshops or EBM rotations<sup>4</sup> to be included in the medical curriculum for undergraduate medical students and residents. Also, routine workshops for clinical academics and encouraging them to teach and apply EBM skills to the medical students can be helpful.

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### Conflict of Interests

Authors have no conflict of interests.

### Authors' Contributions

MS helped in framing the questionnaire and validity and reliability of the questionnaire, collecting the data, entering the data and analyzing the data and writing the final manuscript. NK suggested the topic and proposal and helped in designing the questionnaire, provided guidance with the methodology, and helped in analyzing and writing, and eventually translated the text to English. FM helped with designing the study and the questionnaire and validity and reliability of the questionnaire. MS helped with designing the questionnaire and validity and reliability of the questionnaire and writing up and technical support. GS commented on the proposal and study and provided guidance throughout the study.

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