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A Swiss survey on teaching evidence-based medicine

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Summary

Questions under study: To explore the degree to which evidence-based medicine (EBM) is taught in postgraduate training in different clinical fields.

Methods: A questionnaire was mailed to all residents in Swiss hospitals in postgraduate medical training programs to obtain specialist titles. Response rate was 65%. In an Internet survey, directors of the medical training programs answered questions on teaching EBM. Response rate was 75%.

Results: Four items used to measure the teaching of EBM formed a reliable scale. Teaching EBM is more important in internal medicine than in the other clinical fields examined. The lowest values were obtained for general surgery. Higher values were observed in the teacher sample compared with the resident sample.

Conclusions: In most clinical fields, EBM seems not to be an important part of the curriculum. Residents evaluate the training differently from teachers. Feedback mechanisms are essential so that teachers can know how their training programs are evaluated.

Key words: education; evidence-based medicine; postgraduate training; survey; Switzerland

Introduction

Evidence-based medicine (EBM) is an empirical approach to optimal decision making in medicine [1]. EBM is the integration of clinical expertise and the best available clinical evidence from systematic research [2]. Evidence from research and from patients' circumstances is integrated and used to help patients make informed decisions [3]. EBM should result in more effective and efficient clinical decisions [2]. EBM is an element in undergraduate, postgraduate, and continuing medical education [3].

In most approaches to EBM, four key elements can be identified [1, 4]: An answerable question is formulated, literature is searched for evidence and the evidence is critically evaluated. Finally, the information is used to decide what clinical action is best for the patient.

Results of a survey at a university hospital in Denmark suggest that most hospital doctors lack knowledge of key methodological EBM terms [5]. A UK study indicates that postgraduate trainees have limited ability to critically evaluate published research [6] and a US survey showed that 37% of the internal medicine residency programs in the USA offered a freestanding EBM curriculum [7]. Little is known, however, about the prevalence of EBM in postgraduate training in Europe.

We therefore examined the extent to which EBM is taught in postgraduate training in Switzerland. In one survey we focused on residents; in a second survey we focused on teachers.

Participants and methods

The Swiss Medical Association evaluates the quality of residents' training programs based on a yearly survey among residents [8]. Residents answer questions related to the training program and the working conditions. Questions related to EBM were included in the 2004 survey.

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Participants sample, residents

The population was defined as all residents in Swiss hospitals who are in postgraduate medical training programs to obtain specialist titles. We sent the questionnaires to the directors, who passed them on to the resi-

dents. The residents returned the questionnaires directly and anonymously to us at the University of Zurich. The program directors reported a total of 8229 residents. We received 5388 completed questionnaires from the residents. The response rate was 65%. For the seven clinical fields with the highest number of residents, the highest response rate was observed for gynaecology and obstetrics (71%), the lowest for psychiatry (61%).

Forty-seven percent of the respondents were females, and 53% were males. The entire sample is described in detail elsewhere [8]. For the purpose of the present study, responses were analyzed only from residents who had been in training programs for two months or longer (N = 5035).

Participants sample, teachers

The population was defined as the directors of the medical training programs. Each of the four questions related to EBM was answered by at least 75% of the 1371 program directors; 1015 (74%) answered all four questions related to EBM.

Measures

Residents responded to 80 questions in an 8-page questionnaire. We will describe the questions that are relevant to the present research question. Participants in the teacher sample answered different questions, related to their training programs. A paper and pencil method was used by residents; teachers responded to the questionnaire on the Internet.

Respondents in the resident sample were asked to respond to the following four items: "I learn how to assess scientific publications", "The use of search strategies to find the best evidence in the literature for or against a certain treatment is taught at our training institution", "I learn how to apply the results of a scientific study to the treatment of a patient", "Our training program teaches how to formulate applied questions and how to answer them based on the literature." A 6-point Likert scale was used, where 1 = does not apply at all, and 6 = fully applies. Cronbach's α was 0.91. The average Likert scale response for the four items was used as the EBM scale. For the 2.2% (n = 110) of the respondents who did not answer all four questions, no value for the EBM scale was computed.

The items were adapted for the teachers (e.g., "Our residents learn how to assess scientific publications"). A 6-point Likert scale was used, where 1 = does not apply at all, and 6 = fully applies. Cronbach's α was 0.85. The average of the four Likert items was computed.

Data collection and analysis

Data collection in the resident sample occurred in the summer and autumn of 2004. Data collection for the teacher sample occurred in Spring 2005. Analysis was carried out using SPSS 11 for Macintosh. We do not report any statistical inferences, because there was no random sampling in this survey. Instead we summarize data using medians and quartiles.

Results

Five percent (n = 237) of the residents answered "1 = does not apply at all" to all four EBM questions, and 23% (n = 1139) of the residents answered "1" to at least one question. The medians and the 25 und 75 percentiles for the EBM scale were computed (table 1). The median for the resident sample was noticeably lower than the median for the teacher sample. Compared to residents, teachers have the impression that EBM is more extensively taught.

Differences among the seven clinical fields with the highest number of residents were examined. Residents in internal medicine have the impression that they learn more about EBM than residents in other clinical fields. Low values were observed for general surgery and anaesthesiology. We further examined whether type of hospital influences teaching of EBM. Residents following a training program in a type A institution (university hospital or cantonal hospital) had a median value for the EBM scale of 3.75 (IQR = 2.00; N = 2597); residents following a training program in other institutions had a somewhat lower median of 3.25 (IQR = 2.25; N = 2328).

We observed similar findings for the teacher sample. Results shown in Table 1 suggest that there are noticeable differences in the extent that EBM is taught in various clinical fields. In internal medicine, teaching EBM is more common than in general surgery.

Table 1

Medians and 25 and 75 percentiles (IQR) for the evidence-based medicine scale across seven clinical fields for residents and for teachers.

Clinical Field	Residents			Teachers		
	Median	IQR	n	Median	IQR	n
Whole Sample	3.50	2.50–4.50	4925	4.50	3.75–5.00	1015
General Surgery	3.00	1.75–4.00	633	4.00	3.25–4.75	98
Anaesthesiology	3.00	1.75–4.00	247	4.00	3.25–4.75	44
Gynaecology and Obstetrics	3.25	2.00–4.25	312	4.25	3.50–4.75	63
Orthopaedic Surgery	3.25	2.50–4.50	180	4.25	3.31–4.75	48
Psychiatry	3.50	2.25–4.50	666	4.00	3.00–5.00	91
Paediatric	3.50	2.50–4.44	252	4.50	4.06–5.19	32
Internal medicine	4.00	3.00–4.75	1198	4.75	4.00–5.00	164

Discussion

Our study showed that the degree to which EBM is taught differs across clinical fields. The large differences across the clinical fields are remarkable. Teaching EBM seems to be significantly more important in internal medicine than in the other clinical fields examined. The lowest values were observed for general surgery and anaesthesiology. Twenty-three percent of the residents answered with "does not apply at all" to at least one of the four EBM questions. In other words, based on the results, we can conclude that a substantial part of the residents expressed serious reservations that EBM is properly taught. For the teacher sample, higher values were observed. Nevertheless, results suggest that in many clinical fields EBM is not a central aspect in postgraduate training.

The EBM scale had a high internal consistency. This may indicate that the different aspects of EBM are similarly well or poorly covered in postgraduate training.

The fact that residents evaluate the teaching of EBM in postgraduate training programs differently from teachers suggests that teachers are not able to accurately predict residents' evaluations of their training programs. Consequently, it is essential to formulate feedback mechanisms to help teachers assess their training programs.

Evaluating the effectiveness of new methods is critical [9]. The extent to which new methods are taught should not be neglected, however. It may not be sufficient to evaluate curricula. It is only by surveying or testing residents that we can obtain information on what residents learn in postgraduate training.

In the present study, we did not assess quality in the teaching of EBM. Isolated teaching of how to do literature research and how to evaluate research literature may not be sufficient to enable residents to practice EBM. Residents must be exposed to the entire process of evidence-based decision making. This should enable them to apply EBM in real decision situations. Future studies should closely examine the qualitative aspects of EBM teaching.

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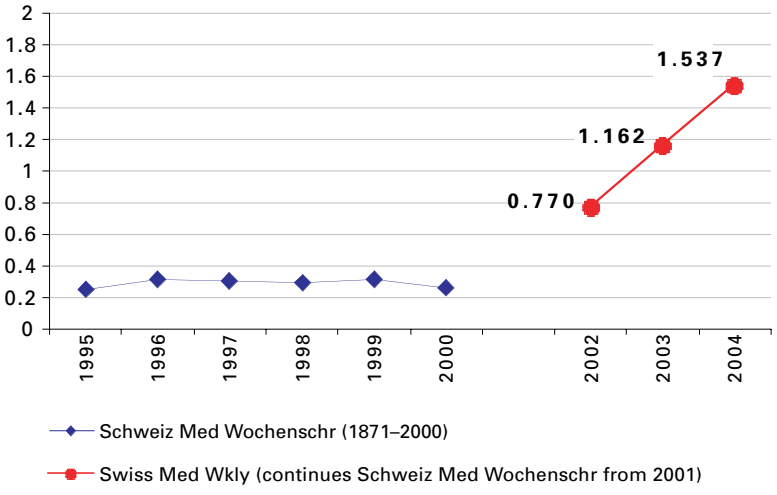

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