

General practitioners' perceptions of the route to evidence based medicine: a questionnaire survey

Alastair McColl, Helen Smith, Peter White, Jenny Field

Abstract

Objectives: To determine the attitude of general practitioners towards evidence based medicine and their related educational needs.

Design: A questionnaire study of general practitioners.

Setting: General practice in the former Wessex region, England.

Subjects: Randomly selected sample of 25% of all general practitioners (452), of whom 302 replied.

Main outcome measures: Respondents' attitude towards evidence based medicine, ability to access and interpret evidence, perceived barriers to practising evidence based medicine, and best method of moving from opinion based to evidence based medicine.

Results: Respondents mainly welcomed evidence based medicine and agreed that its practice improves patient care. They had a low level of awareness of extracting journals, review publications, and databases (only 40% knew of the *Cochrane Database of Systematic Reviews*), and, even if aware, many did not use them. In their surgeries 20% had access to bibliographic databases and 17% to the world wide web. Most had some understanding of the technical terms used. The major perceived barrier to practising evidence based medicine was lack of personal time. Respondents thought the most appropriate way to move towards evidence based general practice was by using evidence based guidelines or proposals developed by colleagues.

Conclusion: Promoting and improving access to summaries of evidence, rather than teaching all general practitioners literature searching and critical appraisal, would be the more appropriate method of encouraging evidence based general practice. General practitioners who are skilled in accessing and interpreting evidence should be encouraged to develop local evidence based guidelines and advice.

Introduction

Evidence based medicine is being promoted in general practice as throughout the NHS. General practitioners can attend workshops on how to practice and teach it, research networks promote its use, the Cochrane Library has an increasing number of systematic reviews relevant to general practice, and the journal *Evidence-Based Medicine* regularly contains summaries

of general practice topics. Books on evidence based medicine present common general practice questions, show how to critically appraise papers, and to evaluate different sorts of evidence. Critical appraisal is now part of the MRCGP exam. Recent papers have highlighted the need for evidence based general practice,^{1,2} the role of evidence based guidelines in the management of conditions common to general practice,³⁻⁵ and the estimated proportion of interventions in general practice that are based on evidence.⁶ One paper has described the problems that may arise in general practice from overreliance on evidence based medicine.⁷ These included the potential lack of applicability of the biomedical perspective and the role of opinion in tailoring evidence to a patient's context and preferences.

In the United Kingdom, however, very little is known about general practitioners' attitudes towards evidence based medicine, the extent of their skills to access and interpret evidence, the barriers to moving from opinion based to evidence based practice, and the additional support necessary to incorporate evidence based medicine into everyday general practice. The objectives of this study were to determine the attitude of general practitioners towards evidence based medicine and their related educational needs. Postgraduate tutors, health authorities, and the Wessex Primary Care Research Network (WREN) required this information to inform local strategies aimed at encouraging general practitioners to implement evidence based medicine. Early approaches used in Wessex included workshops on critical appraisal and evidence based medicine and training in performing literature search as part of courses on research methods. After initial local enthusiasm, however, it had become harder to recruit general practitioners to such training events.

To fulfil the objectives of the study we set out to identify general practitioners'

- Attitude towards evidence based medicine
- Awareness and perceived usefulness of relevant extracting journals, review publications, and databases
- Ability to access relevant databases and the world wide web
- Understanding of technical terms used in evidence based medicine
- Views on the perceived major barriers to practising evidence based medicine
- Views on how best to move from opinion based to evidence based medicine.

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BMJ 1998;316:361-5



Survey questionnaire appears on our website

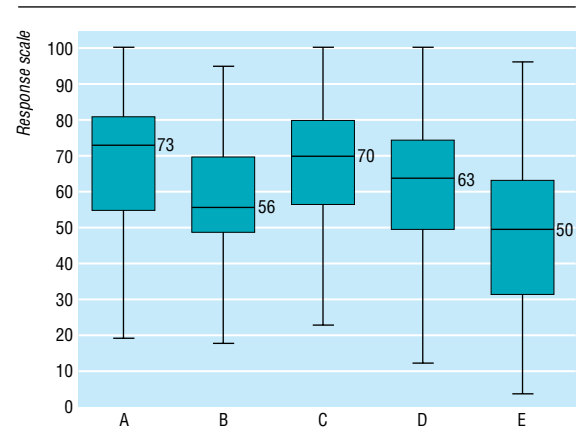
Subject and methods

In April 1997 we sent a questionnaire to 452 general practitioner principals in the former Wessex region in south England. These represented 25% of all Wessex general practitioner principals obtained from a national database,⁸ who were randomly selected by means of random numbers generated by Microsoft Excel with supervision from a statistician.

The covering letter for the questionnaire included a definition of evidence based medicine as the “conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients. Its practice means integrating individual clinical expertise with the best available external clinical evidence from systematic research.”⁹

The questionnaire consisted of

- Visual analogue scales to determine the general practitioners’ attitudes towards evidence based medicine
- Closed questions to assess their awareness of and perceived usefulness of extracting journals, review publications, and databases relevant to evidence based medicine; their ability to access Medline or other bibliographic databases and the world wide web; their



Attitudes of 293 general practitioners towards evidence based medicine: (A) attitude towards current promotion of evidence based medicine (100=extremely welcoming, 0=extremely unwelcoming); (B) perceived attitude of colleagues towards evidence based medicine (100=extremely welcoming, 0=extremely unwelcoming); (C) practising evidence based medicine improved patient care (100=strongly agree, 0=strongly disagree); (D) perceived usefulness of evidence based medicine in day to day management of patients (100=extremely useful, 0=totally useless); (E) estimated percentage of respondent’s clinical practice that is evidence based. Box plots show maximum and minimum values, median, and first and third quartiles

Table 1 Characteristics of 302 respondents* and 148 non-respondents to postal questionnaire of general practitioners in former Wessex region. Values are numbers (percentages) of subjects unless stated otherwise

| | Respondents | Non-respondents | P value of difference |
|--|--------------|-----------------|-----------------------|
| Personal characteristics | | | |
| Men | 210/301 (70) | 103/141 (73)† | 0.48 |
| MRCGP | 183/298 (61) | 35/148 (24) | <0.0001 |
| Full time principals | 242/300 (81) | Unavailable | |
| Practice characteristics | | | |
| WReN member‡ | 41/302 (14) | 5/148 (3) | <0.05 |
| Undergraduate teaching practice | 185/297 (62) | 81/148 (55) | 0.13 |
| Postgraduate training practice | 154/299 (52) | Unavailable | |
| Practice size less than 5000 | 61/299 (20) | Unavailable | |
| Mean No of full time equivalent partners | 4.7 | Unavailable | |
| Fundholding practice | 165/298 (55) | Unavailable | |
| Setting: | | | |
| Rural | 56/300 (19) | Unavailable | |
| Urban | 129/300 (43) | Unavailable | |
| Mixed | 115/300 (38) | Unavailable | |

*Some respondents did not answer all the questions.

†We were unable to determine the sex of some of the non-respondents.

‡Wessex Primary Care Research Network.

Table 2 Awareness of 302 general practitioners* of extracting journals, review publications, and databases relevant to evidence based medicine and their usefulness. Values are numbers (percentages) of subjects who ticked each response

| Publication | Unaware | Aware but not used | Read | Used to help in clinical decision making |
|--|--------------|--------------------|-------------|--|
| Bandolier (published in Oxford) | 141/294 (48) | 49/294 (17) | 55/294 (19) | 49/294 (17) |
| Evidence-Based Medicine (BMJ publishing group) | 83/287 (29) | 132/287 (46) | 52/287 (18) | 20/287 (7) |
| Effective Health Care Bulletins (Universities of Leeds and York) | 115/287 (40) | 48/287 (17) | 81/287 (28) | 43/287 (15) |
| Cochrane Database of Systematic Reviews (part of Cochrane Library) | 169/284 (60) | 89/284 (31) | 15/284 (5) | 11/284 (4) |
| Database of Abstracts of Reviews of Effectiveness (part of Cochrane Library) | 231/283 (82) | 43/283 (15) | 7/283 (2) | 2/283 (1) |
| Evidence-Based Purchasing (South and West R&D) | 232/283 (82) | 36/283 (13) | 12/283 (4) | 3/283 (1) |

*Some respondents did not answer all the questions.

understanding of technical terms; and their views on how best to move from opinion based practice to evidence based medicine

- A free text section to determine their views on the major barriers to practising evidence based medicine in general practice. These brief statements were coded and grouped by AMcC. (For details of the questionnaire, see copy included in this article on the *BMJ* website www.bmj.com).

We sent reminders to non-respondents in June and July 1997, and data on non-respondents were collected by AMcC from teaching and research networks and the 1997 *Medical Directory*.¹⁰

We entered the data into a spreadsheet. We initially identified 38 categories, but these were grouped into broader categories during the analysis. We analysed data from the visual analogue scales using SPSS for Windows 6.1.2 and analysed the other data using Microsoft Excel 5.0. We compared differences between respondents and non-respondents using the χ^2 test.

Results

Of the 452 questionnaires we sent out, two were returned because the general practitioners had retired. We received 302 replies (67%) to the remaining 450 questionnaires. Table 1 compares the characteristics of the respondents and non-respondents.

Attitudes towards evidence based medicine—The figure shows the responding general practitioners’ attitudes towards evidence based medicine. Most were welcoming towards the current promotion of evidence based medicine (A), although colleagues were perceived to be less welcoming (B), and most agreed that practising evidence based medicine improved patient care (C) and that research findings were useful in the day to day management of patients (D). The median value for the estimated percentage of the respondents’ clinical practice that was evidence based was 50% (E).

Awareness and perceived usefulness of relevant information sources—Table 2 shows that the doctors had a low level of awareness of extracting journals, review publications, and databases relevant to evidence based medicine. Only 40% of respondents were aware of the *Cochrane Database of Systematic Reviews*, 52% of *Bandolier*, and 60% of *Effective Health Care Bulletins*.

Access to relevant databases and the world wide web—Only 20% (41/220) of respondents had access to Medline or other bibliographic databases at their surgery while 76% (173/227) had access at their local library and 21% (45/219) at their home. They also lacked access to the world wide web: only 17% (40/236) had access at their surgery, 41% (73/178) at their local library, and 29% (71/247) at their home. In the previous year 51% (102/201) had used Medline or another database for literature searching or had asked someone to do a search on their behalf, and 12 had searched on more than 10 occasions. Of these 102 doctors, 28 reported having had some training in literature searching, while a total of 16% (47/297) had received formal training in search strategies. At least 11 of those trained had not made a literature search in the previous year. Those trained in searching were more likely to have access to Medline or another database in their home (30% (14/47) v 11% (27/250)) and in their surgery (32% (15/47) v 12% (29/250)).

Understanding of technical terms used in evidence based medicine—Most of the respondents had some understanding of the technical terms used in evidence based medicine, and a third felt able to explain to others the meaning of some of these terms (table 3). However, only 15% (44/290) understood publication bias and could explain it to others. A considerable proportion who did not understand the terms expressed a desire to understand (9-48%). In total 39% (115/297) had received formal training in critical appraisal.

Views on major barriers to practising evidence based medicine—The main perceived barrier to practising evidence based medicine in general practice was a lack of personal time (table 4).

Views on how best to move from opinion based to evidence based medicine—Most of the respondents (57%) thought that the most appropriate way to move from opinion based practice to evidence based medicine was “using evidence based guidelines or protocols developed by colleagues for use by others,” while 37% thought it should be by “seeking and applying evidence based summaries” and only 5% by “identifying and appraising the primary literature or systematic reviews” (table 5).

Discussion

Methodological issues

A response rate of 67% is a considerable achievement as response rates to questionnaire surveys among general practitioners are dropping.¹¹ Respondents were more likely to be members of the Royal College of General Practitioners and the Wessex Primary Care Research Network. Other questionnaire studies have suggested that members of the royal college are more innovative¹² and more “enthusiastic” to participate in quality assessment¹³ than non-members. The difference between the respondents’ attitude and their perception of their colleagues’ attitudes could be explained by a

Table 3 Understanding of 302 general practitioners* of technical terms used in evidence based medicine. Values are numbers (percentages) of subjects who ticked each response

| Term | It would not be helpful for me to understand | Don't understand but would like to | Some understanding | Understand and could explain to others |
|------------------------|--|------------------------------------|--------------------|--|
| Relative risk | 7/291 (2) | 31/291 (11) | 157/291 (54) | 96/291 (33) |
| Absolute risk | 7/291 (2) | 40/291 (14) | 153/291 (53) | 91/291 (31) |
| Systematic review | 8/288 (3) | 55/288 (19) | 160/288 (56) | 65/288 (23) |
| Odds ratio | 27/289 (9) | 138/289 (48) | 92/289 (32) | 31/289 (11) |
| Meta-analysis | 12/291 (4) | 63/291 (22) | 120/291 (41) | 96/291 (33) |
| Clinical effectiveness | 5/290 (2) | 27/290 (9) | 165/290 (57) | 93/290 (32) |
| Number needed to treat | 6/288 (2) | 54/288 (19) | 126/288 (44) | 102/288 (35) |
| Confidence interval | 17/290 (6) | 90/290 (31) | 124/290 (43) | 59/290 (20) |
| Heterogeneity | 20/289 (7) | 124/289 (43) | 116/289 (40) | 29/289 (10) |
| Publication bias | 21/290 (7) | 88/290 (30) | 133/290 (46) | 44/290 (15) |

*Some respondents did not answer all the questions.

more positive attitude of respondents towards evidence based medicine than non-respondents.

Our subjects were general practitioners rather than primary healthcare teams. Our narrow focus was partly due to the availability of an adequate sampling frame, but we are sending a similar questionnaire to practice nurses to widen our understanding of evidence based health care in primary care.

Interpretation of findings

Attitudes towards evidence based medicine—Although most of the respondents agreed that practising evidence based medicine improved patient care, the median value for the estimated percentage of their clinical practice that was evidence based was 50%. However, this was a self reported question, and it had limitations. This estimate was considerably less than one from a retrospective review of case notes, which concluded that over 80% of interventions in general

Table 4 Perceived major barriers to practising evidence based medicine in general practice reported by 242 general practitioners*

| Perceived barrier | No of responses |
|---|-----------------|
| Lack of personal time | 171 |
| Context of primary care: | 62 |
| Personal and organisational inertia | 35 |
| Morale in general practice | 6 |
| Lack of investment by health authorities and trusts | 4 |
| Difficulties in involving whole practice | 5 |
| No financial gain in using evidence based medicine | 8 |
| Closed lists | 4 |
| The evidence itself: | 59 |
| Lack of hard evidence | 20 |
| Evidence not related to context of primary care | 16 |
| Too much evidence | 9 |
| Availability and access to information | 14 |
| Attitudes of patients: | 44 |
| Patients' expectations | 23 |
| Patients demanding ineffective treatment | 11 |
| The need for lengthy discussions with patients | 6 |
| An ignorant media | 4 |
| General practitioners themselves: | 35 |
| Attitudes of colleagues | 29 |
| Lack of critical appraisal skills | 2 |
| Evidence based medicine seen as threat | 4 |
| Others | 3 |

*Only 80% of the 302 respondents answered these questions. Respondents gave more than one answer

Table 5 Views of 302 general practitioners* on ways of moving from opinion based practice to evidence based general practice. Values are numbers (percentages)

| Method of moving towards evidence based medicine | Method currently using | Method of interest for future use | Most appropriate method |
|---|------------------------|-----------------------------------|-------------------------|
| a) Learning the skills of evidence based medicine | 84/297 (28) | 101/296 (34) | 15/281 (5) |
| b) Seeking and applying evidence based summaries | 215/297 (72) | 229/296 (77) | 105/281 (37) |
| c) Using evidence based practice guidelines or protocols | 249/297 (84) | 230/296 (78) | 161/281 (57) |
| Doctors currently using method (a)—Learning the skills of evidence based medicine | | | |
| a) Learning the skills of evidence based medicine | — | 62/84 (74) | 12/84 (14) |
| b) Seeking and applying evidence based summaries | 67/84 (80) | 64/84 (76) | 28/84 (33) |
| c) Using evidence based practice guidelines or protocols | 69/84 (82) | 64/84 (76) | 39/84 (46) |
| Doctors currently using method (b)—Seeking and applying evidence based summaries | | | |
| a) Learning the skills of evidence based medicine | 67/215 (31) | 82/215 (38) | 11/215 (5) |
| b) Seeking and applying evidence based summaries | — | 191/215 (89) | 96/215 (45) |
| c) Using evidence based practice guidelines or protocols | 174/215 (81) | 170/215 (79) | 96/215 (45) |
| Doctors currently using method (c)—Using evidence based practice guidelines or protocols | | | |
| a) Learning the skills of evidence based medicine | 69/249 (28) | 82/249 (33) | 8/249 (3) |
| b) Seeking and applying evidence based summaries | 174/249 (70) | 194/249 (78) | 80/249 (32) |
| c) Using evidence based practice guidelines or protocols | — | 200/249 (80) | 146/249 (59) |

*Some respondents did not answer all the questions. In the questionnaire, method (a) was described as "by learning the skills of evidence-based medicine i.e. to identify and appraise the primary literature or systematic reviews oneself"; method (b) was "by seeking and applying evidence-based summaries, which give the clinical 'bottom line.' Such summaries may be obtained from abstracting journals"; and method (c) was "by using evidence based practice guidelines or protocols developed by colleagues for use by others." Respondents were allowed more than one response when asked what methods they were currently using and would be interested in using in the future but only one response when asked which of these methods they thought was most appropriate in general practice.

practice were evidence based.⁶ The methods used were criticised, as the quality of evidence was not reviewed and non-experimental evidence was included.^{14 15} The case notes may not have been representative of typical consultations, as only recorded consultations with a primary diagnosis and intervention were used and in general practice patients rarely enter the consulting room with a discrete, one dimensional problem.^{15 16} Other reviews have suggested that evidence based medicine is less relevant to general practice than other specialties because it mainly addresses the biomedical perspective of diagnosis from a doctor centred paradigm⁷ and does not integrate quantitative and qualitative research, epidemiology, and psychology and the skills of public health and family medicine.¹⁷

Awareness of relevant information sources—Respondents showed a low level of awareness of extracting journals, review publications, and databases relevant to evidence based medicine. Attempts have been made to find out who uses the Cochrane Database¹⁸ and whether obstetricians and gynaecologists were aware of and used it,¹⁹ but there have been no such studies of general practitioners. The practice of evidence based medicine involves integrating individual clinical expertise with the best available external clinical evidence from systematic research.⁹ Much of this clinical evidence in primary care has already been identified, critically appraised, and packaged in extracting journals and databases.²

Health authorities in Wessex send *Effective Health Care Bulletins* to every general practice, and *Bandolier* and *Evidence-Based Purchasing* are available to general practitioners on request without charge. Respondents may not have been aware of the formal title of some of these publications despite having read them and so we may have underestimated awareness. Of the general practitioners who were aware of these sources, 13-46% did not use them. Further studies with interviews are needed to understand why this is so. Without current best evidence, medical practice risks becoming out of date, to the detriment of patients.⁹

Access to relevant databases and the world wide web—Less than a fifth of the respondents had access to a relevant database or world wide web in their surgeries. Although almost all general practices have computers, access to the internet cannot be available on machines that hold patient data. Sackett suggested that, to improve efficiency, evidence must travel to general practitioners' surgeries as they can spend twice as long travelling to a medical library as reading in it.²⁰ The respondents thought that 75% of their local libraries had access to Medline or other relevant databases and that only 42% had access to the world wide web. In reality all 12 libraries had access to Medline, and 10 had access to the world wide web (J Stephenson, personal communication). The resource implications of advertising and improving access to evidence, at local libraries and in doctors' surgeries, should be considered. Primary care research networks may have a role in this, as shown by Starnet in the South Thames region.²¹

Understanding of technical terms—Our respondents showed a partial understanding of the technical terms used in evidence based medicine. Interpretation of evidence is a key element in practising evidence based medicine, and this partial understanding could hinder interpretation and make cascading of evidence to other members of the primary care team more difficult.

Views on major barriers to practising evidence based medicine—The barriers described in this study are more pragmatic than some of those identified in other papers.^{7 17} Lack of personal time was the main perceived barrier. There are ways of increasing the time available for practising evidence based medicine.^{2 20} This time could be spent more efficiently by changing the emphasis of postgraduate education away from lectures and toward training in accessing and interpreting evidence and then spending time putting these skills into practice. Two general practitioners in a Southampton pilot project receive postgraduate education payments for preparing summaries of evidence based medicine for their practices. Dawes suggested that a general practitioner who spent an hour a week searching and reading would make huge strides in implementing evidence.²

A considerable proportion of respondents perceived personal and organisational inertia and the attitudes of colleagues as a major barrier. Tensions between doctors in general practices may lead to difficulties in investing in technology to access evidence and in failures to agree practice policies on clinical management that are evidence based. However, the attitudes of patients were also seen as a barrier.

Views on how best to move to evidence based medicine—The focus of workshops on critical appraisal and evidence based medicine in Wessex has been on training healthcare workers to identify and appraise primary literature or systematic reviews. However, few respondents thought that this was the most appropriate way to move from opinion based to evidence based medicine. Most thought that the best way was by using evidence based guidelines or protocols developed by colleagues for use by others. Only 14% of those currently identifying and appraising primary literature or systematic reviews thought this was the best method.

Conclusions

Postgraduate tutors, health authorities, and primary care research networks are attempting to encourage

general practitioners to implement evidence based general practice. They should refocus their efforts on promoting and improving access to summaries of evidence. They should also encourage local general practitioners working in localities or commissioning groups, who are themselves skilled in accessing and interpreting evidence, to develop local evidence based guidelines and advice. This may be a more effective approach to harness the interest and welcoming attitude of general practitioners towards evidence based medicine than trying to teach all general practitioners skills in search and critical appraisal.

We thank the Wessex general practitioners who took part in this survey.

Contributors: HS developed the original idea and questionnaire. AMcC, HS, PW, and JF refined the questionnaire and jointly wrote the paper. Chris Spencer-Jones, Paul Roderick, and Ruairidh Milne gave advice on the questionnaire. AMcC coordinated the distribution and follow up of the questionnaire, coded the free text sections, and performed the data analysis. Wendy Davis coded the rest of the questionnaire and provided administrative support. Mark Mullee advised on the random sampling. AMcC is guarantor for the paper.

Funding: The Wessex Primary Care Research Network is funded by the South and West Research and Development Directorate. The Southampton GP Tutor Educational Fund paid for the coding and entry of data.

Conflict of interest: None.

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Key messages

- Despite considerable variation in 302 general practitioners' attitudes to the promotion of evidence based medicine, most were welcoming and agreed that it improved patient care
- There was a low level of awareness of extracting journals, review publications, and databases relevant to evidence based medicine, and the major perceived barrier to its practice was lack of personal time
- In their surgery only 20% of general practitioners had access to Medline or other bibliographic databases and 17% had access to the world wide web
- Most had some understanding of the technical terms used in evidence based medicine, but less than a third felt able to explain to others the meaning of these terms
- Respondents thought that the best way to move from opinion based practice towards evidence based medicine was by using evidence based guidelines or protocols developed by colleagues

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Physicians' attitudes toward evidence based obstetric practice: a questionnaire survey

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Evidence based medicine integrates the best available data from clinical research into clinical practice to enhance the quality of clinical decisions and achieve the best possible outcome.^{1,2} With a lack of awareness of relevant research, a substantial part of clinical practice in reproductive health relies on practitioners' personal experience, resulting in large variations in practice between healthcare workers.³ The precise role of evidence based medicine is being debated; we therefore examined the awareness and views of medical practitioners with special emphasis on obstetric practice.

Subjects, methods, and results

We mailed an anonymous, self administered, two page questionnaire to a random sample of 190 practitioners

in obstetric practice between March and May 1996. The response rate of family physicians (120/154, 78%) and obstetricians (28/36, 78%) was similar, as were the demographic characteristics of the urban and rural practitioners who responded. As expected, there were similar numbers of urban (63) and rural (57) family physicians, but only six rural obstetricians compared with 22 urban practitioners.

Overall, 113 (76%) of the 148 respondents were aware of evidence based medicine. However, 75 (51%) indicated that, when faced with a difficult clinical problem, they consulted a respected authority, 55 (37%) used a textbook or clinical practice guidelines, while only 12 (8%) conducted Medline literature searches. Fewer family physicians used Medline than did obstetricians (4 (3%) v 8 (29%), $P < 0.001$). Forty (27%)

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BMJ 1998;316:365-6

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respondents felt that they were very familiar with the critical appraisal of the medical literature, 31 (21%) were familiar with the use of computers in scientific inquiry, 42 (28%) had access to the internet, and only 14 (9%) indicated that they had access to the Cochrane Pregnancy and Childbirth database.⁴ Although only 59 (40%) considered evidence based medicine to be very applicable to obstetric practice and another 56 (38%) thought it somewhat applicable, 130 (88%) expressed interest in learning more about it. Similar trends occurred for both family physicians and obstetricians.

Concerns about evidence based medicine were expressed through comments such as “erosion of physician autonomy;” “scarcity of evidence in reproductive health;” “it is time consuming;” “obstetrics requires manual dexterity more than science;” and “evidence based medicine ignores clinical experience.”

Comment

Clinical decision making—which has until recently been based on pathophysiological principles, personal observation, and intuition—is shifting toward the artful application of systematically analysed results of scientific research.⁵ Our study shows that personal experience and authoritarian views of experts still have an enormous influence in obstetric practice. Most practitioners in this survey were unfamiliar with the use of computers for accessing medical databases and with the critical appraisal of the literature. As most thought that evidence based medicine was only partially or not at all applicable to obstetric practice, we suggest that much scepticism prevails. Some of the views expressed may differ widely according to

practice characteristics such as location or specialty, but these should be amenable to appropriate interventions.

The ability to evaluate the literature and apply methods of data analysis to procedural practice is an important aspect of medical education. This may be the most important skill that we can pass to the next generation of medical practitioners. The dividing line between the science and art of medicine is not as distinct as we would wish with clinical decision making in reproductive health. Evidence based medicine should enhance doctors' competence through the integration of important evidence from research, moderated by experience, into clinical care. The views expressed by doctors in this study reflect obstacles to evidence based practice, which should be tackled through changes to training and access to resources.

Contributors: OAO, the principal investigator and guarantor of the study, conceived the research idea and coordinated the study as well as designing the questionnaire with substantial contributions from LE and RAP, who also provided statistical advice and participated in data analysis and preparation of the manuscript.

Funding: None.

Conflict of interest: None.

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(Accepted 17 December 1997)

A memorable patient How to lose credibility

A large proportion of my patients these days are the worried well types. Nevertheless, their evident relief after a careful assessment and reassurance is for me a considerable reward. However, it takes substantial energy and more time than you might spend on a straightforward and perhaps more serious condition to reassure such a patient.

He was a youngish, worried well, bank manager when he arrived. He left, despite my best efforts, even more worried. From somewhere he had acquired a pamphlet canvassing for patients with threatened strokes, as part of a proposed clinical study. He had read about transient ischaemic attacks. It was soon clear from his history, however, that his symptoms in no way would have aroused such a suspicion in my mind.

I read the pamphlet critically while he watched apprehensively. After a minute he could not help interjecting, “It says that one of the symptoms is a disturbance of vision and loss of balance. I think I have that.”

Further questioning made it clear that he was describing presbyopia. I explained this in what I thought was a satisfactory manner. He was now, I pointed out, well past 40. I asked him to step into the examining room. My examination was thorough, particularly as I was determined to impress him with my thoroughness in order to back up the next stage, my reassurance. I spent longer than usual examining his optic fundi. To do so I had to remove my glasses. (I am near sighted and always do that). Nothing unusual was discovered. He was normal, if worried. I left him to dress and went back to my desk to make notes. I did not look up when he returned and sat down. I was vaguely aware that

he was more tentative than usual and seemed to fumble unnecessarily with his seat.

Once again he interrupted, “Excuse me doctor,” he said, his voice quavering, “I don't wear glasses. Is there any reason why I should be wearing these?”

I looked up and was taken aback to see him floundering around with my glasses perched on the bridge of his nose. Everything was now really blurred—for both of us. Then I remembered. While I was making mental notes for my letter to his general practitioner I had absentmindedly replaced what I—in my preoccupied state—assumed were his glasses.

After that it was difficult to regain my composure or establish any credibility. I thought of passing it off as a test of his balance, but decided I had better not. He listened in sceptical silence to my comforting speech, but it was clear that I had lost any rapport I had hoped for. He left scanning the pamphlet minutely.

Harold Jacobs, *neurologist, Edmonton, Alberta*

We welcome articles up to 600 words on topics such as *A memorable patient, A paper that changed my practice, My most unfortunate mistake*, or any other piece conveying instruction, pathos, or humour. If possible the article should be supplied on a disk. Permission is needed from the patient or a relative if an identifiable patient is referred to. We also welcome contributions for “Endpieces,” consisting of quotations of up to 80 words (but most are considerably shorter) from any source, ancient or modern, which have appealed to the reader.

Netlines

Office of Alternative Medicine

- Many conventional doctors are sceptical of alternative medicine, so it is perhaps surprising to see that the American government's National Institutes of Health host an Office of Alternative Medicine (OAM) with an associated website: <http://altmed.od.nih.gov/>. However, the site is excellently designed and provides evidence for the efficacy of some alternative treatments, details of research funded by the OAM, and advice for patients on how to find and evaluate practitioners of alternative medicine. There is even encouragement for patients to search Medline for information on alternative therapies.

Cancer genome anatomy project

- The US National Cancer Institute has recently announced the establishment of an interdisciplinary cancer genome anatomy project (<http://www.ncbi.nlm.nih.gov/ncicgap/>) involving research teams at the National Cancer Institute, at academic centres and within the private sector, with the overall goal of achieving a comprehensive molecular characterisation of normal, precancerous, and malignant cells.

More of the medical establishment on the web

- The Royal Society of Medicine (<http://www.roysocmed.ac.uk/>) and the Royal College of Pathologists (<http://www.rcpath.org>) have now established footholds on the web.

Healthfinder and CME via OMNI

- The American government's Healthfinder website (<http://www.healthfinder.gov/>) provides an excellent gateway to online information about consumer health and human services. Britain's OMNI site (Organising Medical Networked Information) at <http://www.omni.ac.uk> not only provides a database of online medical resources but, with the Royal College of Physicians, has just launched a database of courses approved for continuing medical education (CME), complete with details on how to obtain CME approval (<http://omni.ac.uk/cme/>).

Circumcision online

- Circumcision is one of those subjects that crops up repeatedly in online medical discussion forums. For useful online information on the subject visit the circumcision information resource on <http://www.cirp.org/CIRP/>.

Gulf war illness research

- The Gulf War Illness Research Unit at King's College Medical School is recruiting, via its website <http://www.smd.kcl.ac.uk/kcsmd/gulfwar/index.htm>, servicemen who fought in the Gulf war for inclusion in a large epidemiological study to try to identify the long term health effects of the war on soldiers.

NHS white paper *The New NHS*

- The full text of the Labour government's white paper for the NHS is available online from the Stationery Office on <http://www.official-documents.co.uk/document/doh/newnhs/newnhs.htm>, with an executive summary on <http://www.open.gov.uk/doh/newnhs.htm>.

Ethnic medicine

- The Ethnomed Ethnic Medicine Guide (<http://www.hslib.washington.edu/clinical/ethnomed/>) has been produced by the University of Washington to help doctors cope with the needs of ethnic minority groups. Although addressed to the local problems of Seattle, it contains information of use to anyone treating patients from Ethiopia, Eritrea, Tigré, Somalia, Vietnam, or Cambodia.

Paediatrics online

- The PEDINFO website (<http://www.uab.edu/pedinfo/>) at the University of Alabama provides an exhaustive list of online paediatrics resources and even includes its own mailing list and an internet relay chat channel for paediatricians and other child health professionals. There is a European mirror on <http://www.nice.it/pedinfo>.

Medical mnemonics

- Remember all those bizarre mnemonics you tried to master as a student to get you through exams? Shaun Holt has collected them together on his website at <http://home.clara.net/sholt/>.

Buying and selling, catching trains, and reading teletext

- The internet is not just there for academic pursuits but can also help you with day to day living. If you need a British business telephone number try the Electronic Yellow Pages on (<http://www.eyp.co.uk/>). If you want to buy or sell something visit *LOOT* on <http://www.loot.co.uk>. If you want to know the times and routes of rail services visit Railtrack on <http://www.railtrack.co.uk/travel/>. And you can access Teletext over the web on <http://www.teletext.co.uk/>.

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