



Attitudes of teachers to evidence based medicine

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AIM

To describe the attitudes of general practitioners and specialist clinical teachers toward teaching evidence based medicine (EBM).

PARTICIPANTS AND METHODS

Questionnaire survey of 114 general practitioner and 162 specialist university teachers teaching EBM.

RESULTS

Two hundred and six (80%) teachers responded; 196 regularly consulted with patients, 21% had received training, and 40% taught EBM. Those with formal training (68%) taught more often than without (32%) ($p=0.0001$), 27% had taught EBM for over 5 years. More GPs (57%) than specialists (40%) asked students to assist in finding evidence ($p=0.036$). Most welcomed EBM and were confident in teaching it. Barriers included antagonism to EBM philosophy, shortage of time, and a need for training in teaching EBM.

DISCUSSION

Although not all trained, GPs and specialists teach EBM, enjoy doing so, and want to increase their ability to teach it.

Medical schools in New Zealand teach various components of evidence based medicine (EBM) to undergraduate medical students. Students are taught how to search the literature, critical appraisal, and the principles of clinical epidemiology early in their preclinical medical education; in line with other medical curricula around the world.¹ Since 1999, EBM has been taught more formally in clinical situations in New Zealand, where clinical teachers have incorporated EBM alongside pre-existing clinical curricular activities with few resources and no EBM teacher training programs.

One systematic review,² (which included a controlled trial³) of learning critical appraisal skills, indicates that undergraduate medical students' learning of specific skills in EBM may increase their medical knowledge more generally. There is insufficient evidence to suggest when this should be undertaken, or whether it should be integrated into clinical attachments. However, educational theory emphasises the importance of applying learning in context.⁵⁻⁷ Perhaps teachers should encourage medical students to integrate EBM into clinical practice.

We could not find a study describing the characteristics of medical teachers who taught EBM during clinical work and their attitudes toward it, although there is enthusiasm for it.⁴ Nor have interdisciplinary differences in such teaching been explored. They became the objectives of this study.

Subjects and methods

In April 2002 we sent a questionnaire to clinical teachers in New Zealand. The sample comprised all those listed as lecturers, senior lecturers, readers, associate professors, or professors in the calendars of the Universities of Otago and Auckland. We sampled 94 teachers from the University of Otago's three Departments of General Practice (Christchurch 63, Dunedin 16 and Wellington 15), 20 from the University of Auckland, and 162 specialist clinical teachers of paediatrics, obstetrics and gynaecology, medicine, surgery, and psychiatry from Wellington.

Questionnaire design

The questionnaire comprised demographic questions: whether the respondent saw patients in clinical practice, whether they had formal training in EBM, and information about past EBM teaching. Visual analogue scales measured attitudes to, and confidence in, teaching EBM skills. Open ended questions explored the barriers and virtues of teaching EBM to medical students. We compared differences between categories using the chi-square or the Mann-Whitney test where appropriate. Responses to open ended questions were subjected to a content analysis in order to identify themes.

We were open to different definitions of EBM, so neither the covering letter nor the questionnaire included a definition of EBM or how it might be taught. There was one reminder letter

Table 1. Qualitative comment by 103 clinical tutors about the barriers and/or virtues of teaching EBM to medical students

Virtues of teaching EBM to medical students	% (n=103*)	Example comments
Supportive of EBM teaching	45	'Teaching EBM encourage critical thinking and analysis. Helps them realise how often we have to make decisions with inadequate data'
EBM helps the student integrate the art with the science of medicine	23	'It is good to use EBM as a starting tool to give options to patients about possible management plans. Other features may well determine what a patient chooses. There is a role for both science and art'
The process of teaching EBM helps clinical tutor in their own clinical work	10	'I like teaching EBM. Students get information I would not think about searching for'
Barriers to teaching EBM to medical students		
Doubt about the philosophy behind teaching the principles of EBM	27	'Some EBM practices conflict with traditional processes, some conflict with political areas. Some practitioners of EBM have taken the model to extremes that detract from concepts of good clinical interaction with patients'
Little evidence available in their area of work for students on which to learn EBM	24	'It is a relatively 'narrow' area in geriatrics, but growing. Much EBM peters out in the over 80 years of age'
Lack of time to teach EBM	22	'Too little contact time. I have 2 hour contact with a group to discuss principles of radiation therapy. I cannot get beyond the basics let alone into evidence!'
Lack of support from other colleagues to teaching EBM	15	'I find that a number of my colleagues are not especially supportive'
Clinical tutors needed more training in teaching EBM	14	'I strongly support teaching EBM. Perhaps clinicians should be offered a course similar to that which is taught as many of us have no formal teaching/learning in this area'
More emphasis given to students gaining clinical experience rather than learning about EBM	12	'A lot of my patients require a listener – empathy and compassion are required more often than EBM and direct answers!'

*Respondents could make more than one comment

sent. Ethical approval was obtained from the Wellington Ethics Committee.

Results

Out of 276 people contacted, 259 received the questionnaire (17 had left their university or retired). Of these, 206 (80%) responded; 90/109 (83%) GPs and 116/150 (77%) specialists. The specialists comprised 34 surgeons, 34 internal medicine specialists, 22 paediatricians, 13 psychiatrists, eight obstetricians and gynaecologists, and five others. The 14 respondents who had not consulted with patients in the previous year were removed from further analysis. Overall, 44% of the GPs worked full time for their university compared to 40% of the specialists ($p=0.328$).

Twenty-one percent had received EBM training, higher among GPs (33%) than specialists (13%) ($p=0.0009$), (independent of working full or part time). Forty percent had

taught EBM, 50% of GPs and 37% of specialists ($p=0.348$). They were more likely to teach EBM if they had been trained in it ($p=0.0001$), (independent of working full or part time). Twenty-seven percent had been teaching EBM for 5 or more years; 59% for 2–5 years, and 13% for less than 2 years; 78% in small groups, 62% on a one-to-one basis in consultation, 19% in lectures, and 10% in all three settings. Both attitudes to, and confidence in, teaching EBM to medical students was high (Figure 1). There were no differences between GPs and specialists and no effect of training in EBM.

Forty-seven percent of teachers had asked medical students to assist in finding evidence to answer a clinical question where they did not know the answer (median=2, range 1–10, IQR=1). General practitioners (57%) were more likely to employ this than specialists ($p=0.036$), a difference independent of whether the teacher worked full or part time.

In the qualitative analysis, 103 teachers (50%) commented on the barriers and/or virtues of teaching EBM (Table 1). Most were supportive. They thought it helped students with critical thinking and integrating the art of medicine with science. Some felt it enhanced their own clinical work. There were also negative comments: doubts about the philosophy of EBM and preference for students to gain clinical experience rather than learn about EBM. Barriers to teaching EBM included lack of time, lack of support from colleagues, lack of evidence in some clinical areas, and the need for more training in teaching EBM.

Discussion

We found a high proportion of clinical teachers taught EBM to undergraduate medical students. They were mostly positive and confident about it, although few had formal training in it. There were few differences between GPs and

specialists in their attitudes and confidence toward teaching EBM, although GPs were more likely to be trained in it.

Medical schools in New Zealand do not have academic departments that focus only on EBM teaching and research. In contrast with those who teach EBM from the point of view of epidemiology or critical appraisal (eg. epidemiologists, medical statisticians and librarians), clinically based EBM teaching is done by teachers whose work entails a clinical patient focus (eg. GPs, physicians and surgeons). About half had asked students to find answers to clinical questions during consultations. This may encourage learning of EBM.^{1,5-7}

Some teachers' positive views were in conflict with other opinions: that teaching EBM was a barrier to teaching everyday clinical practice, that there was a lack of evidence available in a particular specialty, and the lack of time available to teach it – similar to barriers previously reported.⁸ Perhaps we should develop EBM training in New Zealand similar to that offered in Europe and North America.^{3,4}

Implications of this study for general practice

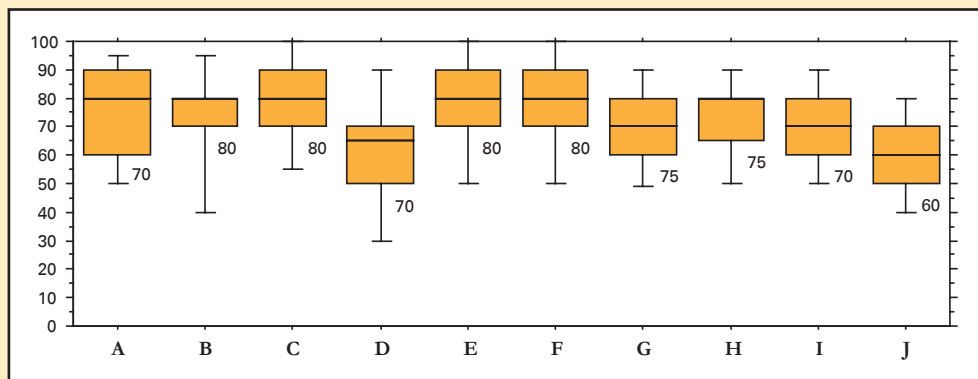
What is known about this topic

- Little is published on the attitudes and needs of clinicians teaching EBM to medical students.

What was found in this study

- GPs welcome EBM and teaching it in their clinics.
- GPs with formal training in EBM are more likely to teach it.
- GPs ask medical students to assist in finding evidence for patient care.
- GPs are confident in teaching EBM but paradoxically seek training for teaching EBM.
- There is little difference between specialists' and GPs' attitudes to teaching EBM.

Conflict of interest: none declared.



A–E: The confidence of 83 teachers toward teaching specific EBM skills. (A visual scale where 100 = extremely confident, 0 = extremely unconfident was used for each question).
F–J: Attitudes of 188 teachers toward teaching EBM. (A separate visual scale was used for each question). Box plots for all questions show maximum and minimum values, median, and first and third quartiles

- A.** Asking an EBM question following a medical student's clinical encounter with a patient
- B.** Helping a medical student find relevant articles in Medline (or other medical databases)
- C.** Helping a medical student critically review article(s)
- D.** Helping a medical student apply the results of their critique of article(s) to the patient's care
- E.** Evaluating a medical student's EBM skills
- F.** How welcoming the teacher was on the current promotion of EBM in medical education (100 = extremely welcoming, 0 = extremely unwelcoming)
- G.** How welcoming the teacher thought colleagues were toward teaching EBM to medical students (100 = extremely welcoming, 0 = extremely unwelcoming)
- H.** How much the teacher agreed or disagreed that practising EBM improved a medical student's ability to learn about patient care (100 = strongly agree, 0 = strongly disagree)
- I.** Rating the usefulness of EBM in the day-to-day management of patients (100 = extremely useful, 0 = totally useless)
- J.** The estimated percentage of clinical practice that is evidence based (100 = 100%, 0 = 0%)

Figure 1. Teaching EBM – response scale

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