skills will be applied in an increasingly sophisticated way to solve everyday clinical problems. The skills learnt will include critical appraisal, self directed learning, and group working besides the theory and applications of epidemiology and biostatistics.

As our medical school revises the later years of the undergraduate curriculum we look to our clinical colleagues to put the principles of evidence based medicine into practice so that we train a new generation of doctors who will be practising more of the science, as well as the art, of medicine and who will contribute to the knowledge based health service that Smith envisages.

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Methods of assessing medical treatments

EDITOR,—We agree with Trevor A Sheldon that randomised clinical trials are one of the most important methods of assessing the merit of medical treatments.[1] We question, however, whether they can, by themselves, address successfully two critical challenges that Sheldon identifies: "to provide answers to more clinically relevant questions" and "to get the results of research into practice."

Quality of care is the extent to which health care is able to achieve those health benefits that science and technology make possible,[2] or the gap between efficacy—the probability of benefits under ideal conditions—and effectiveness.[3] Whether drugs or techniques of proved efficacy are used effectively depends largely on factors related to the clinical setting and the clinician's practice. Additionally, achieving desired health outcomes often requires the active participation of the patient.[2] Research focusing on efficacy seeks to exclude such factors, either by design or by statistical analysis. Clinically relevant questions also include how effects will be modified, and by how much, in relation to the clinical setting, the clinician's practice, and the patient's behaviour. It may, however, be difficult to assign controlled and yet realistic combinations of these factors to the comparison groups in a randomised clinical trial, whatever its size.

Randomised clinical trials are also unlikely to provide sufficient insight into how experimental results produced in a controlled environment translate into medical practice. Health services researchers need to examine carefully the assumptions and simplifications built into experimental studies, whether in the design of the research, the definition and measurement of key variables, or the analyses performed. Clinicians need to appraise the validity of the results produced by clinical trials in specific practice environments and to recognise their limitations. Once a consensus has been reached the diffusion of medical guidelines should be, in itself, the focus of rigorous and useful research.[4]

Increased reliance on valid data published in the medical literature has brought considerable improvements in the practice of medicine over the past decades.[5] While randomised clinical trials are a vital component of this literature and should continue to be improved—for example, to incorporate some measures of the patients' values—they cannot provide scientifically valid answers to all the questions raised in the search for high quality care. Attempts to develop sound and robust observational and quasiexperimental research designs should be scrutinised and criticised constructively, not snubbed.

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Conducting clinical research in the new NHS

EDITOR,—J F Smyth and colleagues outlined the problems in obtaining funding for clinical trials since the advent of the purchaser-provider split.[1] The crux of the paper was that hospitals can no longer afford to subsidise clinical trials as they cannot be assured that the real cost of undertaking trials will be recouped from purchasers.

It might be helpful to examine this from a purchaser's perspective. Stockport Health Commission has recently been faced with the choice of funding a clinical trial over and above its contract with a local cancer centre. The potential benefits for the population of Stockport of patients in Stockport entering the clinical trial can be estimated. Over four years three patients would enjoy an increased survival of three years or more for an investment by the commission of just under £50 000. For these three patients to enjoy this survival, however, 30 patients would have to undergo chemotherapy for six months. For a similar investment Stockport Health Commission could treat every patient in Stockport with severe venous ulceration of the leg effectively; this would benefit 300 patients. Both age groups would be similar. Treatment of leg ulcers can improve mobility and enhance the quality of life, although there is mild discomfort because of the application of bandages.

Cancer research is emotive. If the public was asked what its priority would be it would probably say cancer research. What choice should the purchaser make? The purchaser has to choose between funding an unproved intervention or a proved intervention. If research is to be funded from purchasers' allocations it will always have to compete with general service developments, most of which, I hope, are proved in their effectiveness. Clearly, it is important that cancer research progresses, and I agree with Smyth and colleagues that a mechanism needs to be found whereby the service costs of research can be met from top slicing funds from the NHS. Then each trial may be fully funded at its inception.

Researchers must recognise, however, that the number of clinical trials that can be legitimately funded in any year is limited. Purchasers recognise the importance of this research, but we do not want to reach a situation where headlines, instead of reading "cancer research stifled by NHS reforms," read "cancer research stifles proved effective treatments."

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Thalidomide may not be a mutagen

EDITOR,—I wish to comment on W G McBride's report of two children with malformations whose fathers are thalidomide victims.[1] In case 1 the father is described as having no thumb on the right hand while the child has no thumb and only two digits on both hands. As far as I can tell from the photographs, however, the child's malformations seem to be the result of split hands, while the father's malformations seem to be something other than a radial ray defect. I believe that both the father and the child have split hand deformity (McKusick definition), which is autosomal dominant. Alternatively, the father's malformations could be part of a construction band syndrome (an amniotic band, with amputation of the thumb), which is thought to be sporadic. In case 2 the photographs show radial ray defects (thalidomide embryopathy in particular) in both the father and daughter. These may be due to the Holt-Oram syndrome.

If the agent is assumed to be a mutagen it would have affected the germ cells of the fetus when each father's mother used it. Since mutagens do not have specificity at the affected site the children would be unlikely to have the same symptoms.

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Education and training for general practice

Royal college lacks necessary mandate

EDITOR,—Jamie Bahrami gives a predictable view of education and vocational training in general practice.[1] A recent paper from the National Association of Health Authorities and Trusts[2] and *General Practice Education and Training* from the Royal College of General Practitioners,[3] to which his editorial alludes, are other recent contributions. Now that we have heard from NHS managers and "academic" general practitioners, I seek to give a view from those on whom change will be visited.

Bahrami casts doubt on the future of the Joint Committee on Postgraduate Training for General Practice, supports the recommendation for increased fiscal power for regional advisers, and welcomes the bid by the Royal College of General Practitioners for untramelled power in matters of education. Within the joint committee, representatives from the General Medical Services Committee realise that the status quo is untenable and that the world of education must develop;