1996-The Centre for Evidence-Based Medicine - Prospectus

Preamble

Physicians and other health professionals, whether serving individual patients or populations, have always sought to base their decisions and actions on the best possible evidence. This tradition has its origins and expressions in Oxford and other leading health sciences centres around the world. Recently, scientific advances in the methods for studying patients and populations have occurred (exemplified in the randomised controlled trial), and have been coupled with revolutions in the means for tracking down, critically appraising, and synthesising this evidence (exemplified in the systematic review). Again, these advances have been pioneered in Oxford, and are leading to changes in the way that evidence is incorporated into clinical and health care decisions. To these innovations have been added the more rigorous evaluation of the precision and accuracy of the bedside clinical examination and the sensitivity, specificity and utility of diagnostic investigations. This set of evolving principles, strategies, and tactics has been named "evidence-based health care." In order to contribute to its further development (through applied research), to help translate its results into clinically-useful tools and ways of thinking (such as the "number of patients needed to be treated to prevent one event"), and to help health professionals learn how to apply it in the front lines, a Centre for Evidence-Based Medicine has been established at Oxford.

Definition of Evidence-Based Medicine

Objectives of the Centre for Evidence-Based Medicine

1. **To promote the teaching, learning, practice, and evaluation of Evidence-Based Medicine throughout the UK.**
2. **To promote the teaching, learning, practice, and evaluation of Evidence-Based Health Care.**

   Evidence-Based Health Care (EBHC) extends the principles, strategies, and tactics of evidence-based decision-making to other health professionals (eg, physiotherapy, dentistry, nursing, etc), to public health practitioners, to health planners and purchasers, to health policy makers, to health administrators and managers, and to consumers.

3. **To conduct applied, patient-based and methodological research in order to generate the new knowledge required for the practice of evidence-based health care.**

   The Centre's primary research efforts will be directed to generating new knowledge that serves the immediate needs of patients, the public, and the National Health Service (eg, as described in the September 1994 Report to the Minister of Health of the Research and Development Task Force chaired by Professor Culyer). Examples of proposed research (described in detail in the next section on Methods and Examples) include studies of the knowledge and performance of clinicians during and after completing their training; randomised trials and overviews of preventive, diagnostic, therapeutic, organisational, and educational manoeuvres; and inquiries into the statistical properties and clinical usefulness of new ways of describing the results of diagnostic, prognostic and therapeutic research.

4. **4. To collaborate with other scientists in the creation of a Graduate Programme to train researchers to perform randomised trials and systematic reviews.**

Thus, the first two objectives of the Centre are educational, and promote evidence-based health care as a core element of the life-long continuing professional development advocated by professional organisations such as the Standing Committee On Postgraduate Medical & Dental Education (SCOPME). The second two objectives of the Centre are dedicated to generating and synthesising the required evidence through the conduct of appropriate research and the training of health researchers.

Methods and Examples

1. To promote the teaching, learning, practice, and evaluation of Evidence-Based Medicine throughout the UK:

a) by members of the Centre practising EBM in their everyday clinical work .

For example:

1. prediction of the results and usefulness of complementary invasive diagnostic studies (such as abdominal ultrasound, coronary angiography, ventricular function, pulmonary function tests, endoscopy, etc) from the history and physical examination ;
2. bedside demonstrations and discussions of the precision and accuracy of the clinical examination, including the demonstration of findings with sufficiently high sensitivity to "rule-out" diagnoses, and with sufficiently high specificity to "rule-in" diagnoses;
3. employment of the methods of Osler and Zadig;
4. immediate hypothesis-generation and "next-best evidence" in the diagnostic process;
5. prescribing and filling EBM educational prescriptions;
6. application of likelihood ratios to multi-level diagnostic results in order to increase their diagnostic power;
7. demonstration of quick bedside methods for determining the "number of patients needed to be treated" to prevent one event {NNT} as a means of relating the results of a trial or overview to an individual patient; etc.

b) by members of the Centre demonstrating EBM during Visiting Professorships at other institutions around the UK and Europe. Initiatives are underway in all these areas, and there is much to learn through national and international co-operation.

c) by collaborating in planning and running Workshops on:

1. How to Practice EBM: by mastering the fundamentals of searching for reliable evidence, efficiently critically appraising this evidence for its validity and clinical usefulness, and converting this evidence into clinical action. Working in small groups allocated by clinical field and prior expertise, participants will work their way through clinical cases requiring decisions about screening/ diagnosis (including the clinical examination), prognosis, therapy, aetiology, quality of care, economic analysis, guidelines, and overviews.
2. How to Teach EBM: by firsthand practice of the strategies and tactics of teaching EBM at the bedside, in the out-patient department or surgery, in Grand Rounds and Journal Clubs, and in the classroom. Participants will learn how to develop and test

(by assigning roles to other group members and simulating actual bedside, out-patient, lecture theatre, or other teaching situations) their abilities to teach EBM, and will receive abundant feedback about their performance.

3. How to Introduce and Evaluate EBM: by designing (at a previous Workshop), introducing (in between Workshops), and evaluating (at a subsequent Workshop) EBM teaching programmes. Special attention will be given to how to identify and overcome barriers to the successful introduction of EBM teaching.

Building from the Director's 14-year experience of designing and running such workshops elsewhere, this series was launched in Oxford in June 1995. Subsequent Workshops are being conducted both here and at other locations throughout the UK, Europe, and the Nordic Countries (3 are already being planned). A consortium (and email discussion group) of Workshop Tutors is being formed from like-minded individuals in all these countries, and the training of additional tutors is a top priority for initial Workshops in the "How to Teach EBM" series.

d) by initiating a new clinical journal, *Evidence-Based Medicine*, in collaboration with the BMJ Publications Group and the American College of Physicians.

This journal of secondary publication will present structured abstracts of key, sound clinical articles, each accompanied by a Commentary from a clinical expert in the field. Thus, it will expand the scope of the highly successful *ACP Journal Club* (which deals only with general medicine) to include general practice, surgery, obstetrics and gynaecology, and psychiatry. Like that of its predecessor, its editorial staff will screen each issue of several current clinical journals for original articles that both are of high clinical relevance and pass scientific quality filters (eg, if an article is about therapy, was the assignment of patients to treatments randomised?; if an article is about a diagnostic test, was there an independent, blind comparison with a diagnostic standard?; if an article is about prognosis, was an inception cohort of individuals assembled at a uniform point in the course of their illness?; etc). These sound articles are then reviewed by a panel of front line clinicians who select a further subset that are both valid and of current clinical import ance. This two-stage selection process reduces the clinical literature by 98 per cent, presenting busy clinicians with an easily digestible summary (average reading time is about 30 minutes) every 8 weeks.

Articles that satisfy both of these requirements will be published as single-page spreads consisting of:

1. a declarative title, in the active voice;
2. a structured ("more informative") abstract summarising the clinical question posed in the article, the patients to whom its results apply, key elements of its methods, the clinical results of greatest importance to practitioners, and its conclusions.
3. a commentary (prepared by an individual with both clinical and methodological expertise) that places it within the context of other work in the field and offers guidance in its clinical application.
4. Editorials and essays on EBM will round out each issue.
5. DLS will edit this new journal (in collaboration with Brian Haynes of McMaster University, the Editor of the *ACP Journal Club*). The first issue is planned for the autumn of 1995.

e) by collaborating in the introduction and expansion of EBM-teaching in other clinical schools and postgraduate training programmes throughout the UK.

f) by working with national professional organisations (such as the National Association of Clinical Tutors and the National Association of GP Trainers) which wish to increase their emphasis on evidence- based approaches to continuing education and continuing professional development.

2) To promote the teaching, learning, practice, and evaluation of Evidence-Based Health Care :

1. by members of the Centre modelling EBHC in their work in the other health professions and in organising, administering, purchasing, and planning health services.
2. by participating in the planning, execution, and evaluation of EBHC Workshops.
3. by assisting other health professional groups as they plan and launch their own *Journals of Evidence-Based XXX*.
4. by collaborating with other units in the Oxford Institute of Health Sciences in programmes to evaluate EBHC educational programmes.
5. by working with Librarians and other information scientists in developing and testing new approaches to the provision of library services.
6. By assisting Regional Directors of Research & Development in identifying strategies, tactics, and human resources for the evaluation of their implementation programmes.

3) To conduct applied, patient-based and methodological research in order to generate the new knowledge required for the practice of evidence-based health care :

a) by continuing to perform randomised trials of therapy.

(eg, DLS is Co-Principal Investigator [with colleagues across North America] of NIH-sponsored RCTs of both drugs [high vs moderate vs low dose peri-operative aspirin] and surgery [carotid endarterectomy] in symptomatic carotid artery disease).

b) by continuing to perform developmental research into the generation and evaluation of clinically- useful measures of the "economics" of diagnosis and therapy.

(eg, DLS is Co-Principal Investigator [with Michel and Stephane Sauve and Richard Cook in Canada, and with Douglas Altman in England] in a series of investigations into the "Number of patients one Needs to Treat in order to prevent one event" or NNT. This concept will be extended both into diagnosis [eg, the number of patients one needs to subject to a definitive diagnostic test in order to generate the relevant NNT] and into further therapeutic considerations [eg, quicker and more accurate methods for relating RCT results to individual patients].

c) by performing a series of surveys and observational studies into the clinical competence and clinical information needs of UK clinicians:

1. to determine the relationships between competence (both knowledge and performance) and years elapsed since graduation from medical school and completion of clinical training (Ha from parallel studies performed elsewhere is that we will document clinically and statistically significant declines in both knowledge and performance).
2. to determine, by both interview and direct observation, the need for, and methods for obtaining, clinically important information by clinicians (Ha from parallel studies elsewhere is that interviews will underestimate actual information needs and overestimate the use of texts and journals to meet them).
3. to determine access to, and competency in, computer-based approaches to obtaining clinically-important information.

d) by continuing to perform studies on the precision and accuracy of specific elements of the medical history and physical examination.

e) by collaborating in research programmes that seek to test the results of bench research for their usefulness as diagnostic tests, prognostic markers, and preventive/ therapeutic/ rehabilitative/ palliative interventions.

f) by co-ordinating and fostering, in collaboration with Dr. Andrew Oxman of Oslo, the Cochrane Collaboration's Methods Working Groups in their development of research methods for controlled trials and systematic reviews, and by working to ensure the integration of these scientific methods into the activities of NHS R& D Programmes, such as that concerned with health technology assessment.

4) To collaborate with other scientists in the creation of a Graduate Programme Evidence-Based Health Care to train researchers to perform randomised trials and systematic reviews:

a) by delivering problem-based courses as part of a Certificate, a Diploma, and a Master's Degree in Evidence-Based Health Care:

1. at the Certificate Level, through modules in How to Practice, Teach, and Introduce Evidence-Based Medicine/ Health Care.
2. at the Diploma Level, through modules in the Architecture of Research (with particular emphasis on controlled trials and overviews), Fundamentals of Medical Statistics, and Fundamentals of Research Design (in the latter of which the learners prepare a definitive research protocol).
3. at the Master's level, through modules on advanced issues in the design, conduct and analysis of controlled trials and systematic reviews and through the submission of a thesis (which may focus on the design of a definitive controlled trial or systematic review).

b) by assisting in the assembly and nurturing of the faculty required to lead and teach in such a graduate programme.

c) by assisting in the development of the necessary infrastructure for supporting such a graduate programme (space, library and computer facilities, etc).

d) by identifying and enlisting outstanding mentors and learning environments for graduates students.

e) by collaborating with other individuals and groups to develop the human resources and career structures that will be required to achieve the critical mass of applied health research necessary for bringing evidence-based health care to patients and to the public.

Staff of the Centre for Evidence-Based Medicine:

Core Staff:

David L. Sackett FRSC, MD, FRCPC, Professor of Clinical Epidemiology and Head of the Centre.

Douglas Badenoch, BSc, MSc, Programme Manager for Communication and Education.

Olive Goddard, Centre Co-ordinator, Editorial and Professional Assistant.

Caroline Hinton, Secretary.

Members of the Centre:

By mutual agreement, individuals would join in order to collaborate in designing, developing and carrying out its programmes of education and research. There are twelve foundation members of the Centre.