Evidence-based medicine on the Internet

Robert Kiley MSc ALA

J R Soc Med 1998;**91**:74-75

Whatever the long-term outcomes of practising evidence-based medicine prove to be for the delivery of effective health care, there is little doubt of the impact it has had on the printing and publishing industries. For example, in the past 12 months the Medline database alone has indexed more than 300 articles on this topic. Over the same period, a search of *Whitaker's Books in Print* for titles that contain the words 'evidence based' identifies more than a dozen new books, whilst *Ulrich's Periodicals Directory* records the launch of five new journals on this theme. Fear of information overload is compounded by the results of an Internet search which highlights the existence of 5000+ evidence-based medicine Web sites.

The purpose of this brief article is to highlight a few resources on the Internet that can help the busy health professional understand and practise evidence-based medicine.

EBM at McMaster University

<http://hiru.hirunet.mcmaster.ca/ebm/default.htm>

McMaster University in Canada is generally regarded as the home of the evidence-based medicine (EBM) movement. Not surprisingly, therefore, the Web site at this institution is an excellent first stop in your trawl for relevant information. Beginning with an overview, visitors to this Web resource are presented with a clear definition of EBM and details of how McMaster is building a residency programme in which a key goal is to 'practice, role-model, teach, and help residents become highly adept' in this new way of practising medicine.

Central to the practice of EBM is the need for clinicians critically to appraise the information they find. At the McMaster Web site this skill is taught through a number of *Users' Guides* that explain how you can use the medical literature to resolve a treatment decision. For example, the guide entitled *How to Use an Article about Therapy or Prevention* stresses the need to ask yourself questions such as 'are the results of the study valid?', 'was the clinical trial randomized?', 'were the groups treated equally?', and 'will the results help me in caring for my patients?'. Any danger that the discussion may become too theoretical is minimized by frequent reference to real clinical studies. Thus, if you

Figure 1 Obstetric ultrasound analysis

question the importance of using evidence from *randomized* clinical trials to support a clinical decision you will be reminded of the various randomized trials that *contradicted* the results of less rigorous trials. These include the findings that steroids may increase (rather than reduce) mortality in patients with sepsis and that plasmapheresis does not benefit patients with polymyositis.

Emphasizing again the view that EBM is a practical subject and one which should be used in the day-to-day clinical environment the McMaster site provides links to various EBM tools that are available on the Internet. Included here is the Obstetric and Gynaecology Toolbox (<http://www.cpmc.columbia.edu/resources/obgyntools/>) which, amongst other things, allows you to conduct an obstetrical ultrasound analysis to calculate estimated gestational ages and fetal weights based on various measurements (Figure 1), and the Heart Attack Survival Calculator (<http://www.mei.com/resource/calculator/>) where values are entered to determine the probability of survival (Figure 2).

Turning Research into Practice (TRIP)

<http://www.gwent.nhs.gov.uk/trip/test-search.html>

One of the difficulties facing clinicians who wish to practise EBM is the disparate way research findings are disseminated. Though the Cochrane Database (<http://www.cochrane.co.uk/abstracts>) is the premier source for identifying results of systematic reviews, other sources such as clinical practice guidelines and briefing papers may also be of interest. In

Heart Attack Survival Calculator - Microsoft Internet Explorer

Address: <http://www.msi.com/resource/calculator/>

Patient has a [] % probability of survival. Calculate Reset

Press **Calculate** for result and **Reset** for normal values. Click **Help** (or blue headings) for assistance.

Patient history	Heart exam	Life support	Lab results
60 Age (0-124 years)	0 Blocked arteries (0-4)	0 Mechanical vent (0-30 days)	12 BUN (1-250 mg/100 ml)
Check if appropriate: ☐ Angina or MI ☐ CHF ☐ Angioplasty ☐ Stroke or TIA	70 Ejection fraction (1-100%) Check if appropriate: ☐ CHF ☐ Hypertrophy ☐ Acute MI on EKG ☐ MI, unspecified age	15 Glasgow coma (0-15) 12 Respiration rate (1-150 per min) 120 Systolic BP (1-250)	102 CPK (1-5000 IU/liter) 105 Glucose (1-2000 mg/100 ml) 7.4 pH (6.75-8.00) 80 PO2 (15-250 mmHg) 12 SGOT (1-1850 u/l) 7.5 WBC (0-150 cc/mm)

© 1996 MediQual Systems, Inc.

Figure 2 Heart attack survival calculator

Search Results for TRIP Gwent Database

Conservative treatment of prostate cancer	POEM
Diagnosis, management and screening of early localised prostate cancer	HTAP
Do husbands and wives agree on prostate cancer screening?	POEM
Goserelin or other Gonadotrophin releasing hormone analogues in the treatment of advanced prostate cancer	DEC
Prostate Cancer Review	BAND
Prostate specific antigen (PSA) to detect prostate cancer	ARIF
Screening for prostate cancer	BAND

Figure 3 The TRIP database—results of a search on prostate cancer

recognition of this the Primary Care Clinical Effectiveness Team for Gwent have created the TRIP database which provides a single searchable index to 14 EBM resources thus providing a one-stop link to over 1150 evidence-based topics. Sources indexed by TRIP include the Cochrane Database, the Canadian Clinical Practice Guidelines Infobase, and the evidence-based healthcare journal *Bandolier*.

Searching this database to find evidence and best practice for the care of patients with prostate cancer I was pointed to ten relevant studies including the 'Prostate Cancer Review' published in *Bandolier*, the NHS Centre for Reviews and Dissemination *Effectiveness Matters Bulletin* on 'Screening for prostate cancer' and the POEMS (Patient Oriented Evidence that Matters) resource 'Conservative treatment of prostate cancer' (Figure 3).

Health Services Technology Assessment Text (HSTAT)

<http://text.nlm.nih.gov/>

A similar resource to TRIP, though one with an exclusive emphasis on US resources, is the Health Services Technology Assessment Text database. This resource enables the clinician to search several full-text databases simultaneously, including the *Evidence Reports* from the Agency for Health Care Policy and Research (AHCPR), the *NIH Consensus*

Development Reports and Statements and the Public Health Services *Guide to Clinical Preventive Services*. When I searched this database for publications on cystic fibrosis, the resources included an *NIH Consensus Statement* entitled 'Genetic testing for cystic fibrosis' and an AHCPR Technology Assessment report on 'Single and double lung transplantation'.

EndPiece

When presenting a paper or giving a lecture many health professionals use Microsoft PowerPoint or Harvard Graphics presentation software. Though both these products are good, the clip art graphics that are supplied with these applications are fairly predictable and very limited when it comes to medical images. Try the Medical Clip Art site on the Internet (<http://www.geocities.com/HotSprings/2497/>). This single site has over a hundred medical clip art images including 'taking a tea-spoon of medicine', an 'asthma inhaler' and a 'happy doctor'. Providing you are not going to use these images commercially, you can save any image and import it directly into your presentation.

Note Robert Kiley is editor of *He@lth Information on the Internet*, a bimonthly newsletter for health professionals (RSM Press).