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# EVIDENCE BASED HEALTH CARE NEWSLETTER

AN OCCASIONAL PUBLICATION FROM THE DEPARTMENT OF CLINICAL EPIDEMIOLOGY & BIostatISTICS,  
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*Seasons Greetings  
from McMaster!*

The illustration shows a winter landscape with snow-covered mountains and a frozen lake. The text is written in a cursive font over the scene.

We hope you enjoy our annual newsletter, contributed to by a diverse group of evidence based practitioners, teachers, managers and administrators. Refinements to our ability to seek, appraise and understand research evidence are incorporated in these articles. Quests continue to ensure that high quality, clinically relevant research results are applied to individual patients and populations whenever possible. Systems-based, as well as patient-based approaches are needed to make substantial changes to the health care organizations in which we work. A growing number of initiatives reported in this newsletter suggest that we share these commitments with many international colleagues.

Happy Holidays to you and yours.

*Deborah Cook and Gordon Guyatt*  
Evidence Based Practice Office, McMaster University



**HOW TO TEACH  
EVIDENCE BASED  
CLINICAL PRACTICE**

**Sunday, June 13 to Friday, June 18, 2004**

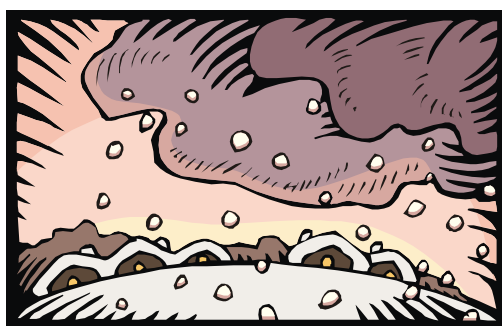
**Register Now! See the details on the last sheet of this Newsletter.**

Register online at <http://www.cche.net/ebcp/> or FAX the form on the back page of this Newsletter

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# A NEW LOOK AT COMPOSITE ENDPOINTS

Gordon Guyatt

During a recent mini-sabbatical I spent in Barcelona, a senior cardiologist, Gaieta Permanyer, and his junior colleague Ignacio Ferreira approached me to discuss their concerns regarding the recent epidemic of cardiology trials using composite endpoint (CEPs) as their primary outcome. The conversations have led to personal thoughts on the limitations of CEPs, and a research endeavor that we hope will produce both a contribution to the principles of appropriate CEP use, and empirical work describing the extent to which investigators are violating those principles. The research endeavor now spans 2 continents, with an expanded Barcelona team working in collaboration with McMaster University, where the key players include research fellows Jason Busse and Victor Montori with important input from Ed Mills, Dianne Jackowski, Elie Akl and PJ Devereaux.

CEPs have gained enormous popularity during the last decade as cardiology trialists have faced the dilemma of decreasing event rates and consequent increases in required sample sizes and study duration. CEPs avoid both the necessity for completely unfeasible sample sizes and, as currently practiced, the need for careful thought in interpretation of results. Critics, however, are beginning to question the assumptions underlying CEPs<sup>1</sup>.

Consider, for instance, the recent EUROPA trial which randomized 13,655 patients with low-risk coronary artery disease, of whom 64% had suffered a myocardial infarction, to perindopril or placebo<sup>2</sup>. After a mean follow-up of over 4 years, 9.9% of placebo-treated patients and 8.0% of perindopril-treated patients suffered the CEP that included cardiovascular death, myocardial infarction, and cardiac arrest (RRR 20%, 95% CI 9% to 29%).

In a simple-minded world in which we are ready to encourage patients already taking a statin, aspirin, and a beta-blocker to also take perindopril to reduce their 4-year absolute risk of something bad happening by 2% (NNT of 50), there is little problem with this approach.

But what if a patient, her pill-popping tolerance and pocket book already strained by the 3 medicines she is ingesting, asks the clinician what are these bad things that perindopril prevents, and what effects she can confidently expect. As it turns out the placebo and

perindopril event rates, and the associated RRR and 95% CI are: for cardiovascular death 4.1% and 3.5%, RRR 14% (- 3 to 28); non-fatal MI 6.2% and 4.8%, RRR 22% (10 to 33); and cardiac arrest 0.2% and 0.1%, RRR 46% (- 47 to 80).

*Patient: So, doctor, I can't really expect perindopril to reduce my risk of dying?*

*Doctor: Well, I certainly can't tell you that for sure.*

*Patient: But what you can say with reasonable confidence is that my risk of a non-fatal heart attack will decrease by 1.4% (NNT 70) if I take the drug for 4 years?*

*Doctor: Well, the confidence interval is still a little wide but, basically, yes.*

*Patient: Doctor, given I'm already on 3 of these prevention medicines, the heart attacks you are talking about won't kill me, and the absolute benefits are small, I think I'll pass.*

When the biological rationale suggesting that the intervention will have more or less the same magnitude of effect across components of the CEP becomes weaker; the gradient of importance across the component outcomes increases; and the difference in relative and absolute risk reductions across components increases, CEP use becomes increasingly problematic. The time for a reassessment of our enthusiasm for CEPs has arrived.

## References:

<sup>1</sup>Freemantle N, Calvert M, Wood J, Eastaugh J, Griffin C. Composite outcomes in randomized trials: greater precision but with greater uncertainty? *JAMA* May 21 2003;289(19):2554-2559.

<sup>2</sup>Fox KM. Efficacy of perindopril in reduction of cardiovascular events among patients with stable coronary artery disease: randomised, double-blind, placebo-controlled, multicentre trial (the EUROPA study). *Lancet* 2003;362:782-788.



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# HOW TO TEACH EVIDENCE BASED CLINICAL PRACTICE WORKSHOP 2003

**Deborah Maddock**

The Tenth Annual How to Teach Evidence Based Clinical Practice Workshop was held in June 2003. The workshop, sponsored by the Department of Clinical Epidemiology & Biostatistics, still continues to be successful and well attended. The enthusiasm to learn, share experiences, knowledge and skills in this area is clear. Even with the earlier doubt of SARS in the greater Toronto region, we were delighted to host 90 participants from locations such as Australia, New Zealand, Japan, and Israel. As with most years, our largest contingency was from Canada and the United States.

Objectives of the workshop are to advance critical appraisal skills and to learn how to teach EBCP using a variety of education models. The workshop is offered as a one week intensive course with participants learning in small groups led by clinical epidemiologists and practitioners from McMaster and other institutions. The structure of the workshop includes large and small group sessions, individual study time, and opportunities for each participant to lead teaching sessions using packages they have developed. This mixed format creates a productive and diversified learning atmosphere.

The tenth workshop was held in a new environment across campus at McMaster University rather than in the Health Sciences Center. The workshop administrative team provided the nucleus for all supportive activities and resources, also located in a more convenient area in a new modern setting.

The informatics stream, now a key component of the workshop, continues to be part of the learning experience, enhanced by a qualified librarian as part of each small group. The librarian stream has become a key addition, enhancing activities inside and outside the small group setting. The tutors, tutor trainees and librarians work together as a team to try to meet the needs of the participants. Searching strategies, both basic and advanced, are introduced as part of the small group process to show clinicians how to narrow the search and access the latest and best evidence. Informatics sessions with skilled technicians and librarians are also provided in a computer lab environment at the popular "hands-on" individual

sessions; some of these also occur in small group tutorials.

The tutor trainee programme, now a regular component of the workshop, is an essential part of the educational experience to become a full tutor in the future. More emphasis in recent years has been placed upon the tutors' exchange of new ideas, new teaching packages and innovative strategies for teaching EBP including a tutors' session at Deborah Cook's home on Sunday before the workshop.

Constructive feedback received from tutors and participants is always appreciated and a signature strength of the workshop, so that we can enhance the success of future workshops.

We are happy to announce that the dates of the 11<sup>th</sup> "How to Teach Evidence Based Clinical Practice" workshop at McMaster University are from Sunday June 13 – Friday June 18, 2004. The information on the workshop is attached to this newsletter detailing instructions for registration. As the workshop is very popular and always fully attended, "on-line registration" is highly encouraged and provided through the site address: <http://www.cche.net/ebcp/>. This is the fastest and most efficient method of registration. If you are eager to attend, please do not delay applying for a placement as registration does fill quickly. We are very much looking forward to seeing you at the scenic campus of McMaster University in June 2004.



## **LIBRARIANS AT THE 2003 EBCP WORKSHOP: A "LIVED" EXPERIENCE**

**Liz Bayley, Neera Bhatnagar**

For the past 3 years, librarians have been included in the small groups at the Evidence-Based Clinical Practice Workshop, held each June at McMaster. This year, we captured their experiences through an email survey. Of the newcomer librarians, 5 of 7 responded; of the veteran librarians returning to the workshop, 2 of 3 responded. The responses are summarized below.

Newcomers were asked:

1. What were your expectations coming to the workshop?
  - to be a resource to the group
  - to observe and learn how practitioners seek information
  - to see how experienced tutors and librarians facilitated the EBM process
  - to understand critical appraisal
  - to learn how to teach
  
2. What surprised you most about the experience?
  - how much more effective small group learning was compared to other approaches
  - the intensity of the week
  - how much more there is to learn
  - that the librarian's role was not standardized
  
3. What engaged you most?
  - the small group sessions
  - being part of the learning process
  - the excellence and commitment of the tutors, presenters, planners and librarians
  - seeing that a workshop could effectively operate on 3 levels - teaching how to be a more effective teacher, teaching effective EBP skills, while discussing clinical content
  - learning just how much knowledgeable librarians are needed!
  - the enthusiasm of the participants
  
4. What frustrated you most?
  - building a comfort with the tutors and the participants
  - defining the librarian's role and participation
  - the lack of Internet access in the small group rooms

The veterans were asked:

5. How did your experience this time differ from your first experience?

Respondents believed that although they were better prepared for the content and structure of the workshop, each year was a different experience, much of it influenced by the unique group dynamics within the small groups.

6. What advice would you pass on to newcomers?

We will be using responses to this question to prepare orientation material for the librarians participating in the 2004 EBCP Workshop.

## **EVIDENCE-BASED LIBRARIANSHIP: ANOTHER ADDITION TO THE EBP FAMILY**

**Liz Bayley, Ann McKibbon**

Health sciences librarians have long played an important role in evidence-based practice. However, while they were encouraging and supporting their users in its implementation, they weren't necessarily incorporating the principles into their own practice. There is now a growing movement to promote evidence-based librarianship (EBL).

Ellen Crumley and Denise Koufogiannakis, 2 health sciences librarians from Alberta, have defined EBL as "a means to improve the profession of librarianship by asking questions, finding, critically appraising and incorporating research evidence from library science (and other disciplines) into daily practice. It also involves encouraging librarians to conduct research."<sup>1</sup>

In the United States and Canada, EBL's founder was Jonathan Eldredge, then Chair of the Research Section of the Medical Library Association (MLA). In the UK, Andrew Booth, Chair of the Health Libraries Group Research Working Party was the prime mover. For the first time in 1997, Jonathan Eldredge described the development of the concept of EBL in an article in *Hypothesis*<sup>2</sup>, which is the journal of the Research Section of the MLA.

Two international Evidence-Based Librarianship conferences have been held. The first was held in Sheffield, England in 2001 (see Eldredge<sup>3</sup>, for a summary and abstracts). In June 2003, the authors both presented papers at the second conference in Edmonton, Alberta.

The challenges of EBL implementation mirror those of other areas of evidence-based practice:

- There is a shortage of valid, useful research evidence in librarianship.
- We must develop or adapt appropriate research methodologies.
- We must encourage and support the creation and utilization of library research, particularly outside the academic environment.
- We need to disseminate research results in a manner which makes them readily applicable to the practice environment.

- We need to apply research from other fields such as business and education.
- We need to get the word out!

**References:**

<sup>1</sup>Crumley, E., and Koufogiannakis D. "Developing evidence based librarianship in Canada: six aspects for consideration." Hypothesis. Fall 2001; 15: 9-10. Available from: <http://gain.mercer.edu/mla/research/hyp01v15n3.pdf>

<sup>2</sup>Eldredge, JD. "Evidence-based librarianship." Hypothesis. 1997; 11: 4-7. Available from:

<http://gain.mercer.edu/mla/research/hypo11-3.pdf>

<sup>3</sup>Eldredge, JD. First International Evidence-Based Librarianship (EBL) Conference. Hypothesis. Fall 2001; 15: 1,3. Available from:

<http://gain.mercer.edu/mla/research/hyp01v15n3.pdf>



## OSCAR CITIZENS: OPEN SOURCE WEB-BASED PERSONAL HEALTH RECORDS

**David Chan**

OSCAR (Open Source Clinical Application & Resources <http://oscarhome.org>) is a web-based Electronic Medical Record (EMR) system for primary care clinics, which was previously described in this newsletter. Several specialists have also implemented OSCAR in their offices. Their contribution to the Clinical Resource database (<http://oscarresource.org>) will be invaluable. Since its release on November 11, 2002, thousands of copies have been downloaded and new collaborators include programmers from Brazil and Canada. Successful installation and deployment have been reported from in Canada, United States, Brazil and Malaysia.

OSCAR Citizens is a companion Open Source software project to provide a secure web portal for citizens to access evidence resources as well as to interact with clinicians in health care facilities. Like the OSCAR EMR product, it is a secure integrated electronic health record and knowledge transfer system. The objectives of OSCAR Citizens include safeguarding personal health data, making key information available to selected clinicians, and access to customizable evidence based clinical resources relevant to the citizen. With OSCAR

EMR we have learned that Open Source development (<http://opensource.org/>) promotes rapid software innovation, adaptation, reliability and quality through open peer reviewed evidence based evolution of source code. It is our hope that OSCAR Citizens will undergo similar evolution after its release on January 1, 2004.

The current OSCAR Citizens functions include:

**Secure messaging:**

Patients can communicate with their clinicians via the secure portal. About two-thirds of US citizens desire to communicate with their family doctors via email. About 40% will change family doctors to have this capability. A recent study (RelayHealth) has suggested that providing email communication between patients and their physicians resulted in cost savings in 6 large managed care organizations. A small survey done in our clinic also showed overwhelming support. When patients were told that this would not be an insured service, almost all agreed to a small fee (\$20/year).

**Making appointment:**

Patients can view available appointment slots of their clinicians based on search criteria. They can then request appointments via the secure messaging system. The receptionist can confirm the appointment.

**Personal health records (PHR):**

Patients are provided a personalized environment to record aspects of their health. The standard categories are similar to the OSCAR EMR – Social and Family History, Past Health, Current Health Concerns, Medication History, Alerts, and Progress Notes.

**Decision Support:**

Based on the patients' self-assessment, specific guideline based checklist will be incorporated into the PHR. For example, if the patient has diabetes, a specific care plan will be listed. If the patient is pregnant, OSCAR will outline a 9 month care plan. Prevention and immunization reminders will also be customized to the patient's characteristics.

**Access to OSCAR EMR record:**

Patients can request a specific portion of the OSCAR EMR record. Clinicians can assess and review these records prior to sending them. Patients can store these pages in a special area of their PHR and can decide with whom these records can be shared. We have received a grant to study the effect of having access to antenatal records with the care planner

compared to usual care. Several other grant proposals have been submitted. The OSCAR EMR and OSCAR Citizen combination provide a wonderful laboratory where many interesting aspects of patient involvement in health care can be studied.



## EVIDENCE-BASED NURSING

**Donna Ciliska, Alba DiCenso**

We are beginning our 7<sup>th</sup> year of production of the Evidence-Based Nursing Journal. We continue to have over 8,000 subscribers around the world. While there are some formatting changes this year, each quarterly issue continues to include 24 abstracts of high quality research. In 2003, our lead editor Alba DiCenso, stepped down, and was replaced by Donna Ciliska. Andrew Jull of New Zealand has joined the co-editor group, and brings experience in Cochrane reviews, ability to clearly explain properties of diagnostic tests, and a great sense of humor! The web version currently has search capabilities for all published abstracts and enhancement is underway to have email notification of any new publication in a field, and to make the "other articles noted" more easily searchable. A huge advantage of the website is the repository of 6 years of content that meets minimum quality criteria. As such, it is a gold mine for speedy searches of relevant, high quality information.

Alba DiCenso has led a group of writers in the daunting task of rewriting Guyatt & Rennie's *Users' Guides to the Medical Literature for a nursing audience*. The target group for the text includes nursing faculty, graduate nursing students and advanced practice nurses. It will be published in 2004 by Elsevier and AMA and is entitled *Evidence-Based Nursing, A guide to clinical practice*.

We continue to host a nursing group at the annual "How to Teach Evidence-Based Clinical Practice" workshop. The 2002 group also included 3 librarian-learners who published their experiences of the workshop in the latest issue of *Bibliotheca Medica Canadiana* (Angers 2003). This workshop continues to be a source of EBN contacts with international nursing colleagues.

Liz Bayley of the Health Sciences Library has been very involved in teaching in the EBCP workshop and providing valuable assistance with on-line resources, to

the workshops and to students and faculty at McMaster. She and Alba DiCenso recently prepared a session for an international conference of the honor society, Sigma Theta Tau. Liz contributed the talks and resources to this website: <http://hsl.mcmaster.ca/stti/>

Finally, we have developed a graduate level course in Evidence-Based Health Care, which may be possible to do largely on-line. It is anticipated that the credit course will be done using initial and final face-to-face sessions, while the remaining sessions will be done via LearnLink. **Reference:**

<sup>1</sup>Angers V, Clar M, Pontbriand F. (2003). How to teach evidence-based clinical practice 2002 at McMaster University: Three librarian participants. *Bibliotheca Medica Canadiana* 2003;24(3):139-40.



## SOURCE EVIDENCE-BASED SURGERY PROGRAM UPDATE

**Sylvie Cornacchi, Ved Tandan**

Since last year's article, the Surgical Outcomes Research Centre's (SOURCE, McMaster University) Evidence-based Surgery (EBS) Working Group has continued to develop its "Users' Guide to the Surgical Literature" series that is currently being published in the *Canadian Journal of Surgery* (CJS). The series is intended to educate surgeons and residents on how to deal with evidence from the surgical literature to solve clinical problems. Our instructional articles start with clinical scenarios unique to the field of surgery, from various sub-specialties. At present, there are no other comparable evidence-based guidelines aimed specifically at surgeons. Currently 5 articles have been published in CJS and a sixth article is in press (visit [www.cma.ca/cjs](http://www.cma.ca/cjs) to obtain your free article copy). Watch for future articles on power issues, harm, prognosis and sub-group analyses.

SOURCE has also developed an interactive EBS Workshop based on the article series. The workshop consists of small group tutorials lead by trained surgeon tutors on the various topics covered in the EBS articles. SOURCE tutors (Ved Tandan, Charlie Goldsmith and Achilleas Thoma) will be teaching an EBS workshop on economic analysis at the "Current Problems in Urology" Conference in Quebec City, February 7, 2004. Drs. Tandan and Goldsmith also presented an EBS workshop

on diagnosis to SOURCE's members at SOURCE's Annual Research Retreat in February 2003. Ved Tandan, SOURCE Director, recently gave a talk on Evidence-based Surgery at the International College of Surgeons (ICS) Annual Congress in Montreal in July 2003.

To date, the EBS workshop has been targeted as continuing medical education for practicing surgeons. A new EBS workshop initiative is focused on providing EBS training for surgical residents. SOURCE was invited to teach a series of 9 EBS workshops over a 2 year period to the McMaster University junior surgery residents (July 2002-June 2004). To date, 6 EBS workshops have been presented to the residents. Training in EBS early in residency will provide a solid foundation, making EBCP an integral part of their practice in the next generation of surgeons.

For more information about SOURCE and the EBS article series and workshops, visit our website at [www.fhs.mcmaster.ca/source/](http://www.fhs.mcmaster.ca/source/) or contact Sylvie Cornacchi, Research Coordinator at [cornacs@mcmaster.ca](mailto:cornacs@mcmaster.ca), 905-522-1155 x 2411.

Special thanks to Dr. Gordon Guyatt and Dr. Charlie Goldsmith for lending their editorial expertise to our series articles. Our appreciation also goes to Dr. Deborah Cook for her kind encouragement.

Published articles in 2003:

1. Birch D, Eady A, Robertson D, De Pauw S, Tandan V. Users' guide to the surgical literature: How to perform a literature search. *CJS*. 2003; 46 (2): 136-141.
2. Bhandari M, Devereaux PJ, Montori V, Cinà C, Tandan V, Guyatt GH. Users' guide to the surgical literature: How to use a systematic literature review and meta-analysis. (*CJS*, in press)

Other articles have been submitted to *CJS* for review and publication in 2004:

1. Hong D, Goldsmith C, Tandan V. Users' guide to the surgical literature: How to use an article on health-related quality of life.
2. Thoma A, Farrokhvar F, Bhandari M, Tandan V. Users' guide to the surgical literature: How to assess a randomized controlled trial in surgery.
3. Birch DW, Tandan V. Users' guide to the surgical literature: Self-audit and practice appraisals for surgeons.

## **THE ECHO PROJECT (e-MAIL CONSULT HEALTH OUTPOST PROJECT)**

**John De Simone**

*"Clinical Informaticist + Clinical Informationist + e-mail Consult Service (ECS) + EBM Workshop"* is the formula synthesizing the elements inspiring a novel proposal, tentatively dubbed, "ECHO Project". The model ensues a low-cost, self-financing, organizational strategy for implementing clinical knowledge and, ultimately, disseminating the culture of evidence-based health care.

Briefly, it entails the enrolment of one or more Clinical Informaticists who receive, via e-mail, the spontaneous clinical questions of medical clients from a specific territory. The scheme proposes not only to intercept information needs by encouraging ad lib question generation, but also to survey and reinforce an active, problem-based approach to health care. The incoming queries will offer prompt feedback and a measure of participation and satisfaction. In proportion to funds (i.e. hours of work payable), few or many questions will be selected from the bulk of queries received. Those actually processed will be distributed to *all* participants, including bibliographic references and/or supporting documentation. The criteria for choosing which questions to address will take into account the general interests of patients and clients, and the methodological value of the evidence.

Given the current evidence gap in clinical practice, the objective is to multiply (echo) the potential benefits (evidence *fallout*) of the single search results through its distribution to the entire community of clients, whose information needs may be similar. Moreover, the problem-based virtual EBM workshop *environment* intends to provide a stable "observatory" of the underlying concepts, in addition to establishing lines of communication apt to convey other forms of high quality information (local guidelines and consensus statements, reminders, updates, audit, newsletters, etc).

"ECHO Project" aims to be user-friendly and low tech, with potential to eventually reach a vast public, especially one lacking formal training in EBP. The long-term goal is to help as many as possible become "evidence-based users" (if not "evidence-based practitioners")<sup>1</sup> capable of benefiting from the ever-growing, secondary sources of pre-appraised literature.

Regarding funding (and contemplating the absence of subsidies, grants, etc.), it is noteworthy that each autonomous ECHO unit may function with minimal initial investments and flexible costs. Existing non-profit organizations that pursue and/or patronize health promotion initiatives on a local/nationwide scale may agree to finance one or more units providing services for an acceptable end-user fee. The eventual success of the model may have significant ramifications, if adopted widely. Preliminary feasibility work through expert consultation has met favour and enthusiasm.

*“Given the complexity of improvement and change in patient care, it is not realistic to expect that one approach can solve all the problems in health care delivery. None of the popular models for improving clinical performance appear to be superior. Therefore, bridges must be built and models must be integrated to be truly effective.”<sup>2</sup>*

#### References:

<sup>1</sup>Guyatt GH, Meade MO, Jaeschke RZ, Cook DJ, Haynes RB. Practitioners of evidence based care: Not all clinicians need to appraise evidence from scratch but all need some skills. *BMJ* 2000;320:954-955.

<sup>2</sup>Grol R. Improving the Quality of Medical Care: Building Bridges Among Professional Pride, Payer Profit, and Patient. *JAMA* 2001;286: 2578-2585.



## SEARCH VIRTUAL LEARNING COMMUNITY

**Louisa Fricker, Steven Clelland**

Conducting and applying evidence in community health settings is an important part of an interwoven, effective health system. SEARCH (Swift, Efficient Application of Research in Community Health) is a 2 year partnership program to train people in applied health research and in the use of research evidence to make decisions about health services. Participants in the SEARCH Program are a broad network of experienced and skilled health professionals from a variety of disciplines and organizations. They learn a range of concepts and applications of evidence-based decision-making, within 2 themes:

#### Creating Evidence:

This theme addresses fundamentals of a broad array of research paradigms, including content areas such as research methods and analysis, data management, proposal development, and ethics.

#### Choosing Evidence:

This theme is about information literacy and understanding “what is known.” Topics include critical appraisal, research synthesis, health informatics, and health information systems and sources.

#### Using Evidence:

In this theme, participants learn the concepts and skills relating to the application of evidence in context, including dissemination, culture, collaboration, organizational change and change management, and policies and decision making.

Additionally, all participants undertake one individual and one group research project over the course of the 2 years.

Current program participants and faculty meet together 7 times during the program for 5 day residential “modules.” Each module is held in a different health region in the province. There are approximately 25 90-minute sessions in each module. Between modules, participants and faculty use the SEARCH “Desktop” to supplement learning and facilitate collaboration.

The SEARCH Desktop is a core element of the program’s virtual learning community. It is a private, shared, online workspace that integrates curriculum with community by linking learning concepts with interactive activities and project collaboration tools such as project groupware. These tools and resources support face-to-face and distance learning as well as project work. Discussion forums are used primarily to discuss and solidify concepts taught, complete assignments, and to collaborate on projects. Most sessions during the residential modules are supplemented on the Desktop with slide presentations, online readings, links to relevant resources, and an online note-taking tool.

To further foster the community aspect of the program, the SEARCH Desktop includes full contact lists with photos, a community board for notices and news, and integrated access to the SEARCH Light, the SEARCH Newsletter produced at the University of Calgary. The SEARCH Light is also available independently from the Desktop and is informally distributed across Alberta.

Currently, the SEARCH program is in its fourth iteration. 28 participants are accepted into the program in each 2 year cycle. All past participants also have access to the SEARCH Desktop and its resources to support their ongoing career growth, organizational capacity to apply what is taught, and to facilitate their participation in the SEARCH Network.

Each cohort that completes the program adds to the network of expertise within Alberta. The SEARCH Network builds on the connections and relationships made by present and past participants and their organizations through participation in SEARCH. The Network is a critical outcome of the program, identified by participants and organizations as unique and a highly valuable attribute of SEARCH.

The SEARCH program is run by the Alberta Heritage Foundation for Medical Research in partnership with the University of Alberta, the University of Calgary, Alberta's Regional Health Authorities, Alberta Health and Wellness, provincial boards, and physician groups. The SEARCH Desktop is produced by the Centre for Health Evidence at the University of Alberta. For more information on the program, visit <http://www.ahfmr.ab.ca/> or <http://search.cche.net/>.



## **CANADIAN DIABETES ASSOCIATION EVIDENCE-BASED CLINICAL PRACTICE GUIDELINES 2003**

**Hertzel Gerstein**

The Canadian Diabetes Association published their first evidence-based guidelines in 1998. These were the first diabetes guidelines in the world that explicitly ensured that every clinical practice recommendation could be traced to the evidence supporting the recommendation or to an explicit notation that the recommendation was based on the consensus of the guideline committee.

The mechanism by which this was accomplished was to insist that in the text, every recommendation not solely based on consensus had to be followed by the actual reference to the citation, in addition to the level of evidence assigned to the citation. For example, a therapy recommendation that was supported by a cohort study was assigned a level of 3; a therapy

recommendation that was based on a strong clinical trial was assigned a level of 1A. In addition to assigning a level of evidence to each citation, each recommendation was assigned a grade. Thus, a clinical practice recommendation based on a strong clinical trial that was cited in reference 3 would be followed by: "Grade A, Level 1A (3)". Recommendations that were supported by consensus would be followed by: "Grade D (Consensus)".

This approach has been universally accepted by the Canadian diabetes community and was replicated in the 2003 guidelines (to be published in December). However, ensuring that this occurs in a reproducible fashion is an arduous task that requires careful independent review of every single supporting citation. In many cases, this review generated discussion with the author of the recommendation and modification of the grade, level or wording of the recommendation. Nevertheless, everybody involved is very proud of the achievement.

Look for this document both in the December issue of the Canadian Journal of Diabetes Care as well as live, on the web after December 15 through the Canadian Diabetes Association website ([www.diabetes.ca](http://www.diabetes.ca)).



## **EVIDENCE-BASED DECISION-MAKING: BEYOND THE BASICS WORKSHOP, DECEMBER 2003**

**Ruth Gilbert, Melissa Harden**

The current trend in healthcare within the UK of guiding practice through the use of guidelines and care pathways has led to an increasing number of practitioners wishing to acquire skills in evidence-based decision-making in order to lead or contribute to these programs of work. A new workshop has been developed by the Centre for Evidence-Based Child Health in collaboration with the Centre for Evidence-Based Medicine, to help practitioners, researchers, managers, policy makers working in all areas of health and social care to learn about the synthesis of evidence for decision-making. The workshop aims to advance critical appraisal skills, develop participants' skills in incorporating patient values and preferences in decision-

making, and to raise awareness of the different approaches for synthesising evidence.

Over the 3 days of the workshop participants will develop their awareness and skills in:

- Defining questions and decisions
- Methods for integrating probabilities of outcomes with patients values
- How to apply evidence on interventions or diagnosis to individual patients.

A unique feature running through the workshop will be sessions on each day allocated to a group project allowing participants to put into practice the concepts and skills that they are learning in the plenary and small group sessions. The task for the group project will be to develop a guideline based on group work to scope the guideline, appraise the evidence, and present their guideline to the whole workshop.

So far, the workshop is proving popular with many different occupational groups from the UK and beyond signing up for the workshop. We plan to evaluate the course and if positive feedback is received we will run the course again in December 2004. For further information about the workshop and activities at the Centre please see our website:

[http://www.ich.ucl.ac.uk/ich/html/academicunits/paed\\_epid/cebch/about.html](http://www.ich.ucl.ac.uk/ich/html/academicunits/paed_epid/cebch/about.html)



## USERS' GUIDES INTERACTIVE

**Robert Hayward, Tanya Voth**

Since last year's article, there have been a number of refinements in our approach to developing the Users' Guides Interactive (UGI). Throughout the year, we conducted various pilot projects in order to help refine our approach. Based on user feedback and pilot project evaluations, we are moving forward with 2 main offerings:

### ***Users' Guides to the Medical Literature Web Site:***

We offer a full-text online version of the *Users' Guides to the Medical Literature: A Manual for Evidence-Based Clinical Practice*, plus access to interactive worksheets,

question builders, calculators, and sample critical appraisals.

### ***Users' Guides Interactive Desktop:***

This is a virtual classroom environment geared towards, learning, teaching or practicing evidence-based medicine. It includes multi-level curricular material and links to evidence-based resources. Groups can choose to customize the environment by creating additional content and/or linking to existing knowledge resource licenses.

The *Users' Guides to the Medical Literature* Web site is now available to the following groups: *JAMA* and/or *Archives journal* subscribers; educational institution subscribers; site licensees; American Medical Association members; *Users' Guides to the Medical Literature* book owners (for free trial period only).

During 2003 we provided different forms of the Users' Guides Interactive Practitioner and Teacher packages to groups hosting various evidence-based educational programs (workshops, courses, residency education, and faculty development). Overall, results indicated that the "desktop" approach was an effective method of organizing and delivering evidence-based curricula. Irrespective of educational program, participants were most satisfied with quick, integrated access to high quality sources of evidence (textbooks, databases, journals). Students participating in formal coursework and workshops found that the online classroom features enhanced their learning (interactive exercises/quizzes, electronic copies of presentations/readings, online discussion forums). Our experiences with the pilot projects identified that the needs of learners, practitioners and teachers were not as different as we originally thought and the key features that separated Practitioner and Teacher packages were insignificant to most users.

For more information, please refer to the Users' Guides Interactive Web site [www.usersguides.org](http://www.usersguides.org).



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## BRINGING EVIDENCE TO HEALTH INFORMATICS

**Anne Holbrook,  
for the COMPETE Team**

Health informatics, in its broadest definition of “the application of electronic systems to healthcare” appears to be taking over our daily professional lives. It is indeed ironic that these technologies, so pervasive and so heralded in health care, have received so little formal evaluation. For example, although sharable electronic health records (EHRs) are to be the information vehicle of the near future for Canada, the United States and much of Western Europe, not a single randomized trial describes a full cost-effectiveness evaluation of these very complicated and costly systems.

The COMPETE project group (Computerization of Medical Practices for the Enhancement of Therapeutic Effectiveness), based in the Centre for Evaluation of Medicines in St Joseph’s Healthcare and McMaster University, has no illusions of solving this crucial but very complicated issue in the near future. However, along with frontline physicians in primary care in the province of Ontario and collaborators in Hamilton, Sault Ste Marie, Ottawa, Montreal and Toronto, we are attempting to apply rigorous health technology assessment methods to the assessment of electronic health records and clinical decision support systems. COMPETE I, now completed, developed and published a rigorous EHR selection and successful implementation methodology, validated a comprehensive appropriateness of prescribing intervention and evaluation tool, and provided data on physician and patient views on computerization and health information privacy. COMPETE II, now nearing completion of follow-up, is a randomized trial of the effect of a Web-based, patient and provider-shared diabetes tracker plus automated telephone support, on access, quality, integration and satisfaction with care. As more senior informatics groups well know, this type of research is very akin to early drug development stages where a certain threshold of infrastructure, expertise and experience is required before the “pivotal” study can be carried out. In our case, COMPETE III will be the first application to formally include cost-effectiveness analysis as part of the trial.

While the patient safety agenda may push EHRs or some of their important components such as computerized physician order entry, into wide dissemination in hospitals and medical offices very soon,

clinicians interested in evidence-based practice should keep in mind these 3 “golden rules” of health informatics:

1. A computer allows you to make mistakes faster than ever before.
2. Although one computer can be a problem, a computer network can be a disaster.
3. The Internet is the world’s largest computer network.

... thus, our argument for rigorous evaluation before general dissemination in practice.



## PIO, PICO AND PICOT

**Roman Jaeschke, Sheri Keitz**

Many EBP teachers use the acronym PICO while explaining the principles of clinical question formulation. Recently, somebody introducing this term in a new environment asked for the original reference describing this concept. Our search was not successful.

Through personal communication (Guyatt) we understand that the concept of population/intervention/outcome (PIO) was may have originated with Andy Oxman. Through another personal communication (Oxman) we learned that he had referred to older texts (by Jackson, Feinstein and Light & Pillemer (details in Andy Oxman’s MSc thesis at McMaster University). Although the 1995 EBM article in , and subsequently major textbooks on the topic, described the method of defining the population (P), Intervention (I) or Exposure, Comparison (C), and outcome of interest (E), the actual acronym was not used. There is a reasonable amount of suspicion that the credit for PICO belongs to Scott Richardson, who used it while running a tutors meeting in New York. However, the written record is lacking.

Hence, the origin of this short letter – we would like to be able in future to quote an official and explicit source of the acronym!

There is, however, another reason - new letters are added and we better publish what we know (and believe is somewhere close to the truth) before it is too late. Recently Sheri Keitz generated an expanded term PICOT. T stands for the type of study best suited to answer the given clinical question. PICOT helps us to

focus on different types of studies needed to answer different questions (therapy vs. diagnosis vs. prognosis) and allows easy transition from question generation to the search strategy and ultimately, to the article and its critical appraisal. The story, however, does not end here as, according to Scott Richardson, the term PICOT might have been introduced in parallel by Rod Jackson of New Zealand. T denotes the time of the study (year of conduct, duration of the intervention, or duration of patient followup). We will try to provide an update on this topic in the next newsletter.

**Reference:**

<sup>1</sup>Richardson WS, Wilson MC, Nishikawa J, Hayward RS. The well-built clinical question: a key to evidence-based decisions. *ACP J Club* 1995; 123:A12-3.



## HAS THE PATIENT'S ASTHMA CONTROL CHANGED SINCE THE LAST VISIT?

**Liz Juniper, Anoop Chauhan,  
Edmund Neville, Anwesh Chatterjee,  
Klas Svensson, Ann-Christin Mörk,  
Elisabeth Ståhl**

Clinical research increasingly reports patients' self-reported symptoms or multidimensional health-related quality of life. Readers interested in these patient-centered outcomes will be interested to know that when patients complete transition rating questionnaires to indicate whether they feel better, worse or the same, their responses may be biased by their current health state, and not reflect the true change in status<sup>1</sup>. We evaluated the relationship between clinicians' estimate of change in asthma control between 2 consecutive clinic visits and asthma control measured at each visit with the Asthma Control Questionnaire (ACQ). 94 adults with inadequately controlled asthma received a full clinical consultation with an asthma specialist. Medications were adjusted according to clinical needs. 4 weeks later, the same clinician estimated change in asthma control on a 15-point scale (-7 = a very great deal worse, 0 = no change, +7 a very great deal better). Patients

completed the ACQ before each consultation but responses were not shown to the clinician. Clinicians consistently recorded that patients improved more than their change in ACQ scores suggested ( $p < 0.05$ ). Possible explanations for this bias include: 1) patients want to please their doctor, 2) clinicians expect patients treated with efficacious interventions to improve, 3) clinicians' transition ratings may reflect current asthma control more closely than change, 4) knowledge of the patients' clinical status prior to baseline may have influenced clinicians' estimate of change. In conclusion, when reading studies reporting whether patients feel better, worse or the same, readers should be aware of potential biases that may occur when estimating change in asthma control using transition ratings compared with measuring absolute status at each visit.

**Reference:**

<sup>1</sup>Guyatt GH, Norman GR, Juniper EF, Griffith LE. A critical look at transition ratings. *J Clin Epidemiol* 2002;55:900-908.



## THE ROLE OF REALITY IN TEACHING EBP

**Sheri Keitz**

**Teaching Principle:**

Case-based and reality-driven exercises offer an engaging platform for teaching the principles of evidence-based practice. The specific detail and context of a true case allow the learners to experience the full evidence cycle from question building to application.

**Stumbling Block:**

In certain learning settings, the 'reality' of the case may lead to distraction from the curricular agenda. For example, clinicians may focus on arguing about clinical details instead of the evidence cycle. Alternatively, the specificity of a case may not be engaging to some learners outside your specialty if you are presenting to a clinically diverse group.

## Teaching Strategy:

Find examples of questions that can be applied to everyday life. This can still allow for the engagement of a real scenario while avoiding the pitfalls associated with specialty specific questions.

## Scenario:

I had just returned home from a usual day at work and was contemplating a teaching session that I was planning for Duke's Workshop on EBM last spring. I was responsible for the session on risk and harm and had looked through case after case to try to find one that would be of general interest to the audience. Unsatisfied with any of my usual choices, I went into my kitchen to prepare dinner where my teenage son, Adam, joined me.

"Mom, you know I am about to get my driver's license. All my friends have hands-free cell phones. If I get a hands-free phone it is much safer than if I have just an ordinary one."

"No."

"Why not?"

"Because."

"Is that your answer?"

"Okay, you want a better answer? There is evidence in the medical literature that cellular telephone use while driving is associated with motor vehicle accidents. Data from a 1997 article published in the New England Journal of Medicine showed no safety advantage for hands-free units<sup>1</sup>. The bottom line is that you are not getting a hands-free cell phone."

"Do you know how weird it is that you quote the medical literature to us all the time? But since you do, let me ask you a *useful* question – about marijuana."

"Marijuana? What do you need to know about marijuana?"

"I have to write an article for the school newspaper about medical uses of marijuana. I thought we could reference some scientific data."

"Okay. Why not?" It sounded like a noble effort. In fact, thanks to ACP journal club it took me under a minute from the time I logged onto the OVID sign-on page to find a summary of a systematic review: *Cannabinoids control chemotherapy-induced nausea and vomiting but increase the risk for side effects*<sup>2</sup>.

Two weeks later, he produced the newspaper article for which I sought this reference. It was entitled *Faceoff: Decriminalize Marijuana*, part of a point, counter-point series on whether marijuana should be legal in North Carolina. Adam took a decidedly pro-marijuana position. Not exactly the use I envisioned for that particular piece of evidence!

## Resolution of teaching scenario:

The question of whether cellular phones are associated with increased risk of motor vehicle accidents became the substrate for the teaching exercise on risk. It provided a starting point for discussion on prospective study design, risk and odds ratios, and evaluating harm. The session was engaging for all our learners, despite the broad diversity of specialties represented.

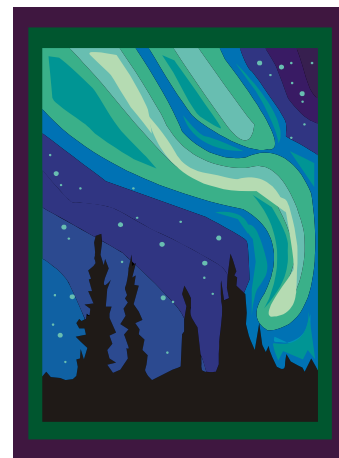
The second annual workshop for educators and practitioners of EBM: *Teaching, Leading, Practicing EBM* will be held at Duke from March 30- April 2, 2004. Who knows? Maybe next year, we'll have a session entitled: *The marijuana chronicles: uses and abuses in application of medical literature*.

Information on Duke's Program on Teaching Evidence-Based Practice can be found on-line at <http://www.mclibrary.duke.edu/limited/EBMworkshop/index.html>

## References:

<sup>1</sup>Redelmeier, DTibshirani, RJ. Association between cellular-telephone calls and motor vehicle collisions. *NEJM* 1997; 336: 453-458.

<sup>2</sup>Kinzbrunner, BM. Cannabinoids control chemotherapy-induced nausea and vomiting but increase the risk for side effects. *ACP J Club* 2002; 136:18-19.



## A CALL FOR THE FOURTH PILLAR!

**Jacek Mrukowicz, Jan Brozek,  
Roman Jaeschke, for the  
Polish Institute for EBM**

Formulating a precise and answerable clinical question poses frequently a lot of challenges, both in clinical practice, and in teaching EBHC concepts. Every so often, while seeing patients on the ward and trying to clarify a pertinent clinical question, we realize that each member of the team has something different on his/her mind, even after a long debate! Repeatedly, while going through teaching packages or reviewing an on a real patient's problem, we would like to begin talking about randomization, intent-to-treat analysis, number needed to treat, and generalization of the results, but instead we struggle to find out what it is exactly we want to ask. What is the article really about? Teaching in small or large groups alike, everyone expects that the concepts of confidence intervals and likelihood ratios require time to explain, but the amount of time necessary to build a proper clinical question is invariably underestimated.

One of the possible reasons for the above is that the importance of teaching question formulation is frequently not acknowledged, at least not explicitly so. For example, in *Users' Guides to Medical Literature* Gordon Guyatt states: "... this book teaches a systematic approach that involves three steps to using an article from the medical literature. The clinician should ask whether new information is likely to be true, what the information says about patient care, and how the information can be used ...these three steps provided the inspiration for the 3 pillars that you see on the front cover of this book".

The 3 pillars are (assessment of) validity, results, and applicability. We propose that a fourth pillar -- question formulation -- be given an equal recognition on the cover of the next edition of *Users' Guides*.

Adding a fourth pillar will also make a good economic sense by increasing the pillar-value of the book by 33% (Baseline Value = 3 pillars, ABI = 1 pillar, RBI = 33%). All that at no additional cost. We call for a fourth pillar!



## THE BERKELEY SYSTEMATIC REVIEWS GROUP

**Wayne Enanoria, Madhukar Pai,  
Michael McCulloch, Jack Colford**

Systematic reviews have become essential resources for clinicians and researchers who want to keep up with the ever-changing fields of medical and public health research. In the last several years, there has been an explosion in the number of published systematic reviews and meta-analyses in the health literature. Systematic reviews are often considered the best source of evidence for informing evidence-based public health and clinical practice. To utilize the information in a systematic review or meta-analysis, it is important to be able to critically assess the methodology upon which it is based.

The Berkeley Systematic Reviews Group consists of researchers who are interested in the methods of conducting systematic reviews in order to summarize epidemiologic research and influence public health and clinical practice. Our goals are: (1) to summarize epidemiologic research through systematic reviews and meta-analyses to inform evidence-based clinical and public health practices; (2) to conduct methodologic research in the field of systematic reviews and meta-analyses; and (3) to conduct training programs in systematic reviews in the United States and other countries. We have recently created a website that we hope will be useful to anyone who is interested in conducting a review or teaching systematic reviews methodology: <http://www.medepi.org/meta>.

The website contains guidelines for conducting reviews, formulating the research question, finding studies, quality instruments and checklists, methodologic research, announcements of trainings, links to software for conducting meta-analyses, sample data extraction forms, and links to other sites on systematic reviews and meta-analyses. In addition, we have included slide presentations that our group has used in teaching courses on systematic reviews and meta-analyses at the University of California at Berkeley, the University of Michigan, and the World Health Organization. By making these materials available on the web, we hope that researchers will find our site useful for obtaining information and guidance on how to conduct reviews as well as critically appraise them.

In addition to the materials produced by our group, we have also included many useful links and resources

created by other investigators involved in systematic reviews and meta-analyses. If anyone is interested in posting their materials on our website, please contact Wayne Enanoria, [enanoria@uclink.berkeley.edu](mailto:enanoria@uclink.berkeley.edu), or Madhukar Pai, [madhupai@uclink.berkeley.edu](mailto:madhupai@uclink.berkeley.edu). We have received many contributions such as software, sample data extraction forms, and guidelines from other investigators who have been very helpful in allowing us to share their material. We encourage others to do the same so that we can continue to share and exchange useful information in this growing field of research.



## EBM IN GASTROENTEROLOGY

**Philip Schoenfeld**

Since our last correspondence, the Evidence Based Gastroenterology Steering Group has continued to spread the EBM philosophy through multiple ventures, including workshops for gastroenterology fellows, training workshops for faculty, journal articles, guidelines and symposia.

In January 2004, the seventh annual EBM workshop for Gastroenterology fellows will held in Phoenix. This event gathers over 30 GI fellows from throughout the US to learn techniques for critical appraisal of the literature. To train faculty for these workshops, we sponsored a group of 8 GI faculty at the June 2003 workshop at McMaster. We thus continue to expand the core of GI faculty who are experienced EBM teachers. Pete Peterson has organized both of these events and should be congratulated for his commitment and enthusiasm!

The annual AGA/GRG Gastroenterology Outcomes Research Conference continues to highlight EBM topics through lectures and workshops. At this annual course, many of the GI learners from our previous McMaster groups, including Brooks Cash and Neena Abraham, speak on meta-analysis, research design issues, and critical appraisal. Jay Goldstein and Glen Eisen, who are past learners at the McMaster workshop, have organized this course for the past 5 years. During our international meeting, Digestive Disease Week, we continue to sponsor multiple symposia utilizing evidence-based approaches to address controversial topics such as management of NSAID-associated GI disorders, colon cancer screening, inflammatory bowel disease and many

other topics. Also, the World Congress of Gastroenterology will meet in Montreal in the autumn of 2005. The theme for the Postgraduate Course will be Evidence Based Gastroenterology under the supervision of course director Phil Schoenfeld.

Phil recently completed editing a series on EBM/critical appraisal of the medical literature for the American Gastroenterological Association's clinical journal, *Clinical Gastroenterology and Hepatology*. Finally, the GI societies are turning toward evidence-based guidelines. The American College of Gastroenterology has published evidence-based guidelines on irritable bowel syndrome and gastro-esophageal reflux disease and the American Gastroenterological Association is producing an evidence-based guideline on inflammatory bowel disease.

Many other EBM initiatives are on-going in GI. Richard Hunt, E. Jan Irvine and Brian Feagan should be congratulated on their Evidence Based Gastroenterology textbooks, and Paul Moayyedi is doing great work with the Cochrane Collaboration on GI topics. With these efforts, we hope that the EBP philosophy will continue to grow in the field of gastroenterology.



## EVIDENCE BASED PRACTICE CURRICULUM

**Elie Akl, Holger Schünemann**

Almost a year ago, the CRAP (Clinicians for the Restoration of Autonomous Practice) group unveiled one of the "most frightening discoveries" by their agents, "a modern form of trepanation, in which EBP cubes are



inserted in the heads of medical students"<sup>1</sup>.

This discovery unmasked a major problem of EBP teaching rituals in residency programs (besides the use of the trepanation): you can't insert cubes in trepanation holes! Using freestanding teaching strategies (i.e. separated from

patient care) and focusing on a high level of skills might be for EBP teaching what cubes are for wholes.

In spite of our greatest efforts, the teaching strategies we use to bring EBP closer to the matter beneath the trepanation wholes are often freestanding (as opposed to integrated), in the form of journal clubs, workshops or didactic lectures. Such strategies may not train residents to ask and answer most of their questions at the time that they emerge - during patient care. They also do not acknowledge the actual logistical problems and time constraints they face.

If we accept - by distinguishing the model of "evidence based practitioners" from that of "evidence based users" - that the level of EBP skills needed to provide best patient care can differ widely<sup>2</sup>, then most of residents may not be interested in becoming Evidence Based Practitioners and those who are, may not have time for it<sup>2</sup>. In addition, it is still unclear whether the size of benefit seen with critical appraisal teaching is of any clinical significance<sup>3</sup>.

We are proposing the concept of the "EBP elective rotation", as a new teaching strategy that is responsive to both integrating teaching with daily patient care and to different level of skills. It is intended to be an elective rotation during which the resident is assigned to a floor medicine team. Although the resident has no direct patient responsibilities during the rotation, she participates in the care and assists other team members in making evidence based clinical decisions. The EBP resident thus acts as an Evidence Based Practitioner, an experience that will help her to become a lifelong Evidence Based Practitioner. The team residents act as Evidence Based Users and are encouraged to become involved (e.g., by completing the rotation themselves).

We are proposing this concept, as a way to reshape the cube into a sphere, as an alternative for trepanation. Ultimately, whichever "rituals" EBP priests adopt<sup>1</sup>, they will need unified "scriptures" in the form of an explicitly written EBP curriculum which we are tackling with help from the EBP community.

#### References:

<sup>1</sup>Clinicians for the Restoration of Autonomous Practice Writing Group. EBM: unmasking the ugly truth. *BMJ* 2002;325(7378):1496-1498.

<sup>2</sup>Guyatt GH, Meade MO, Jaeschke RZ, Cook DJ, Haynes RB. Practitioners of evidence based care. *BMJ* 2000;320(7240):954-955.

<sup>3</sup>Parkes J, Hyde C, Deeks J, Milne R. Teaching critical appraisal skills in health care settings. *Cochrane Database of Systematic Reviews* 2003;3.

## THE IMPACT OF INFORMATION PRESENTATION ON MEDICAL DECISION MAKING

**Holger Schünemann, Cheryl Carling,  
Andy Oxman,  
for the HIPPO investigators**

Information about risk, uncertainty and the effects of healthcare is presented using a variety of terminologies, statistics and graphics that is often confusing for both the general public and healthcare professionals. Presenting the same information in alternative formats may affect decisions about healthcare<sup>1</sup>. We are currently completing an updated Cochrane Review on framing of statistical outcome measures and health related information<sup>2</sup>.

Very little is known about which ways best help people to make decisions that are consistent with their own values. Therefore, it is difficult to know which data presentation is best, unless it is based on the extent to which those presenting information want to influence people to do something, such as prescribing a drug<sup>3</sup>. The normative concept of expected utility maximization suggests that people should choose those options that give the highest expected utility. The expected utility for any choice can be calculated by multiplying the probability for each expected outcome by the utility for that outcome (scored between 0 and 1) and adding up the products. However, expected utility theory has been questioned for a number of reasons, including problems with how utilities are measured and observations that people often do not, in fact, choose to maximize their utilities<sup>4,5</sup>.

Nonetheless, it can still be argued that as the expected utility for a decision such as to take statins increases, increasing proportions of people will choose to take the pills, if they are well informed about the benefits and downsides of the treatment.

In other words, those who consider the relative importance of coronary heart disease to be higher and are less averse to taking and paying for pills should, on average, be more likely to choose to take statins. Those who consider the relative importance of coronary heart disease to be lower and are more adverse to taking and paying for pills should, on average, be more likely to choose not to take statins.

By measuring the relative importance of different outcomes for different people and then providing them

the same information in different ways, we expect to find out which ways of presenting information best help people to make decisions that are consistent with their own values. We are conducting a series of studies in the Health Information Project: Presentation Online (HIPPO). The first HIPPO study compares different ways of presenting the reduction in risk of heart disease to people who are asked to make a decision about whether to take cholesterol-lowering medication. A pilot study suggests that there are important differences in how the choice of a summary statistic influences people's decisions, consistent with the findings of previous studies. What is new is that we also found differences in the extent to which different summary statistics help people to make decisions that, on average, appear to be consistent with their own values.

By participating in the study you can help us to confirm these findings. We hope that EBP advocates around the world will also help us recruit participants for this study by inviting friends, family and colleagues. There are links on several websites to our study which you could consider adding to your website. For example, a link on [medscape.com](http://medscape.com) reads:

The HIPPO project (Health Information Project: Presentation Online) comprises a series of randomized trials on the Internet. Our aim is to find out which ways of presenting information about the effects of healthcare best help people to make choices that are consistent with their own values. You can help us find out how best to communicate information about the effects of healthcare. By participating you can also learn more yourself about different ways of presenting this information; receive reports of the results of this and future studies; and win an Amazon.com gift certificate for \$100. You can go directly to the HIPPO Web site by clicking [here](http://www.icru.no/cholesterol/hippo) or read more below. The study can be accessed at <http://www.icru.no/cholesterol/hippo>. We can send you additional information if you contact Holger Schünemann ([hjs@buffalo.edu](mailto:hjs@buffalo.edu)) or Cheryl Carling ([Cheryl.Carling@shdir.no](mailto:Cheryl.Carling@shdir.no)).

The members of the HIPPO research team include: Cheryl Carling, Andy Oxman, Holger Schünemann, Jeph Herrin, Jan Arve Dyrnes, Shaun Treweek, Doris Tove Kristoffersen, Elie Akl, Gordon Guyatt, PJ Deveraux and Victor Montori.

#### References:

<sup>1</sup>McGettigan P, Sly K, O'Connell D, Hill S, Henry D. The effects of information framing on the practices of physicians. *J Gen Intern Med.* 1999; 14:633-42.

<sup>2</sup>Schünemann H, Herrin J, Vist G, Oxman AD, Akl E. Interventions for improving the presentation of empirical evidence about health (in revision for Cochrane Library, Cochrane Database of Systematic Reviews)

<sup>3</sup>Skolbekken JA. Communicating the risk reduction achieved by cholesterol reducing drugs. *BMJ* 1998; 316:1956-8.

<sup>4</sup>Schoemaker PJH. The expected utility model: its variants, purposes, evidence and limitations. *J Economic Literature* 1982; 20:529-35.

<sup>5</sup>Frisch D, Clemen RT. Beyond expected utility: rethinking behavioral decision research. *Psychol Bull* 1994; 116:46-54.



## TEN ALLIANCE MEDICINE OUTCOMES PROJECT

**William Sibbald, Colleen McCarthy,  
Theresa Gernand**

The transfer of knowledge from the research community to the practitioner is complex and riddled with communication challenges. It can take many years for research knowledge to become common knowledge and even longer for it to be implemented into a practice change. Evidence-based practice has been an ongoing initiative for many years as individuals and health care institutions struggle to review, revamp and revitalize care practices to reflect the knowledge found from research.

Differences in outcomes for similar conditions characterized a hospital-focused utilization review in Departments of Medicine comprising the Toronto East Network (T.E.N.). While such differences created concern regarding variable quality of care, they also created an opportunity to implement evidence-based learning methodologies that could reduce costs and improve care. Although physicians are central to such initiatives, they have rarely been provided the tools needed to create and sustain such change.

The TEN Alliance Medicine Outcomes Project is a work in progress to examine the context in which physicians are able to implement evidence-based learning methodologies. It describes and evaluates a process of knowledge translation whereby a physician takes a well-defined clinical practice change based on a body of research back to their hospital to implement a change in practice.

The purpose of the TEN Alliance Medicine Outcomes Project is to cultivate educationally influential physicians, who will be provided the tools that promote the principles of evidence-based care and health services research. The physicians will then translate this knowledge into

professional practice. The physicians will be provided intensive educational support on evidence-based medicine, data utilization and knowledge translation to facilitate the effective and timely transfer of relevant research.

This will be the first inter-institutional project to make use of eCHAP, a secure web-based tool developed by CIHI with powerful query capabilities. eCHAP will provide the physicians with the capacity to quickly and easily drill down into their hospital's utilization data and carry out comparisons with TEN specific regional and national comparators. Members will be encouraged to share reasons for variation found, and will be given tools that could lead to improved utilization and quality (for example, validated clinical practice guidelines or care maps). The physicians will be assisted in creating practice changes in their respective hospitals, with the specific intention of reducing variation and outcome differences regionally among physicians and organizations.

When planning the curriculum a fluid framework was developed for designing and selecting educational interventions where gaps between evidence and practice were found. Theories of adult education were used in the learning methodologies as learning needs were assessed. Active learning and small group workshops included formal and informal learning opportunities. Where possible, hands on learning with immediate practice of new learning was used.

Experts have been drawn from across the fields of physician learning. These include evidence-base medicine, critical appraisal, knowledge transfer, adult education and data utilization. As the physicians have been learning, partnerships have been encouraged, such as; Librarians, Health Record Professionals, CHRA, Ovid Technologies, CIHI and Knowledge Translation Program at University of Toronto. Ovid Technologies enabled the Project to purchase palm pilots for all participating physicians. The palm pilots provided easy access to Ovid information systems, the GAC guidelines, and EBM.

Key to the overall success of this project has been the physician commitment, willingness to learn, and excitement about the opportunities to expand their knowledge and implement EBM ongoing.



## DISCONTINUATION OF CATHETER IRRIGATION AT CHEDOKE COMPLEX CONTINUING CARE

**Susan Swayze**

In November 2002, the staff on Ward I, Chedoke Complex Continuing Care (CCCC), reviewed the cost of catheter irrigation (including bowls, solution, syringes) and catheter changes (including catheters, trays, and urine collection bag), for budget purposes. We costed the process and learned that twice daily irrigation cost about \$3.20/day, and one catheter change was \$20.17 per change. Nursing Practice Committee members reviewed the catheter irrigation policies from St. Peter's Hospital, in Hamilton, Hamilton Health Sciences and Perry & Potter Clinical Skills & Techniques text. None of the documents promoted routine catheter irrigation as best practice.

The Nursing staff then reviewed catheter changes that occurred on Ward I at CCCC. One patient had been refusing the irrigation because he did not want the staff to "keep opening the system and flushing him out".

The Nursing Practice Committee at CCCC next did a chart review to determine what had been occurring with catheter irrigation over the past 6 months. Most catheter changes were scheduled for every 6 weeks, but in fact, were being done every 4 weeks, despite twice-daily irrigation. Care plans reflected strategies to prevent blockage or unblock catheters without irrigation, including: milking the tubing, releasing the balloon for 5 seconds then re-inflating, giving patients 2 liters of fluid per day with ½ being water only, and changing coffee to decaffeinated coffee for 2 patients. Large (2000 cc) urine collection bags were used over 24 hours for 2 patients, and one patient requested a leg bag during the day. Leg bags were used for community outings for esthetic reasons only.

After discussion and education of front line staff, and obtaining consent from the 3 patients on Ward I at CCCC, catheter irrigation was discontinued in February 2003. Nursing staff, on Ward I at CCCC, monitored how often the catheters were blocked and needed changing, from February to June 2003. The catheter changes did not increase in frequency, in fact remained at every 4 weeks. There were 1 or 2 changes outside the regular scheduled changes, and one patient remained at every 6 weeks.

We concluded that catheter irrigation does not seem to prolong the placement of a catheter. We found that it

was more cost effective to eliminate catheter irrigation. The cost of catheter irrigation and catheter changes for the 3 patients for the 4 months was approximately \$1,550.00; the cost after discontinuation of catheter irrigation was approximately \$266.52, a savings of approximately \$1,283.00.

While the study originally was budget driven, the nursing staff soon changed the focus to best practice. The benefits to the patient, perceived by the discontinuation of catheter irrigation, included: prevention of unnecessary opening of the closed system, and prevention of insertion of solution into the bladder that may cause sediment and backing of solution into the ureters and/or kidneys. No urinary tract infections were reported in any of the patients after the irrigation were discontinued.

As a result, the patients on Ward I, CCCC, do not have catheter irrigation done and therefore we continue to follow our newly developed best practice guidelines. The Nursing Practice Committee is investigating the use of silver or silicone catheters for patients to test the longevity of use and prevention of blockage by sediment. On Ward 2, CCCC, the same study is underway for catheter irrigation in a similar move toward best practice.



## ORGANISING MENTAL HEALTH KNOWLEDGE FOR UK HEALTH PROFESSIONALS

**André Tomlin**

The National electronic Library for Mental Health is now in its fourth year. The web site, which is freely available, is primarily aimed at answering the questions of mental health professionals by summarising and synthesizing the best available evidence. We have learned several important lessons in the last 4 years, and would like to share some of them with you.

**Information about healthcare must be relevant to the users' needs:**

This sounds obvious, but you'd be surprised how many web sites don't bother profiling their audience to find out

their information needs and information seeking behaviour. It's essential that we know what questions people need answering, but also the format in which they would like the answers. Cochrane systematic reviews and Clinical Evidence style summaries are wonderful but many clinicians prefer clearly written and easily digestible nuggets of knowledge.

**When it comes to navigation, question-driven generally works better than evidence-driven:**

How many web sites have you visited that fit this model? The site clearly has a huge amount of useful information. It appears to have a robust and reliable inclusion criteria for content, and has some lovely glossy pictures of big name professionals adding extra weight to the cause. However, it's almost impossible to find a straight answer to a straight question, without ploughing through page after page of challenging text.

The bottom line when it comes to designing the navigation system for your site is that it should meet the needs of the audience. Evidence-driven navigation that divides content under headings such as *evidence-based guidelines, systematic reviews, RCTs, care pathways and clinical audit*, just don't cut the mustard with many clinicians. Many of us think about our questions in terms of headings like *description of the condition, diagnosis, management, treatment*, and so navigation systems need to reflect this and become question-driven.

**Partnerships are the key to sustaining evidence-based web sites:**

The National electronic Library for Mental Health previously followed a content production model that cost around £40,000 (\$87,000 CD) to produce a single section of the site (e.g. depression). This was based on us writing all of our own content, to produce the definitive site to answer all depression-related questions. Although the final product received much critical acclaim, we soon realised that this kind of development model was unsustainable within the constraints of the UK health service funding. In July 2003 we released a new version of the site which incorporated all of our existing content, but also included content which had been donated to the library by a number of key professional societies and organisations, including as a matter of interest the Self Care Depression Program written by Randy Paterson and Dan Bilsker at the MHECCU (University of British Columbia, Vancouver). Of course, donated content must pass the robust and transparent quality and technical standards of the site, but if it is unbiased, we're happy to include it in the library.

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**Background content is as important as foreground content:**

We have always believed that offering evidence-based summaries which answer users' questions and then linking to the research (whatever it may be) is an essential function of the library. However, we have previously underestimated the importance of background content such as a news page which provides a list of the latest mental health guidance, or streaming audio interviews with the movers and shakers of the UK mental health scene. Web sites must ultimately be enjoyable to visit, as well as useful and relevant. We hope that we have begun to strike a balance with the new National electronic Library for Mental Health.

**Evaluate, evaluate, evaluate:**

You can never do enough evaluation. What do *you* think of the NeLMH site? We'd love to hear your views, and incidentally we're currently offering a digital camera worth £300 in a prize draw to anyone who sends us their feedback!



## **CMAJ TO HOST REVAMPED TEACHING TIPS PROJECT**

**Peter Wyer**

After a 2year delay, the evidence-based medicine teaching tips project (Evidence-Based Health Care Newsletter 2001) has been reactivated thanks to interest and support on the part of CMAJ. The principal mission of the project is to disseminate approaches to teaching key concepts of critical appraisal to clinical learners. The tips used in the series were developed and used over a period of years by established experts in evidence-based medicine. Examples of the target concepts include understanding relative and absolute risk reduction, clinical interpretation of confidence intervals, derivation and use of likelihood ratios. Teaching these concepts to clinicians poses special challenges. The teacher must be able to present them in 'digestible bites' in a context that makes evident their relevance to patient care. A seminar given by Gordon Guyatt as part of the tutor trainee program at the annual EBCP teaching workshop at McMaster originally focused attention on

the need for teaching guides in this area and spawned the tips project.

Gordon Guyatt is the originator of over half of the tips to be used in the first group of installments. After a set of related tips are selected and written up as 'scripts', a member of the tips project team under the supervision of Sheri Keitz conducts a 'field test' of the manuscript. Putting a written teaching script to use serves to unmask points needing clarification that might otherwise escape detection by means of standard manuscript review and proof reading. The field tests may similarly identify areas of implied prerequisite knowledge that might not have been evident to the authors. Finally, the field test of a script may serve to identify the kind of variations or adjustment of the approaches that occur when a teacher, previously knowledgeable in evidence-based medicine, uses an approach developed by someone else for the first time. The field test does not constitute, nor was it designed to provide, a formal validation of the effectiveness of the tips as teaching aides.

The CMAJ appeals to a wide audience of clinicians. To accommodate the needs of this readership, we have added a new element, a set of 'learners' versions' of the tips manuscripts which will appear in the print version of the journal. The learners' versions are being adapted directly from the manuscripts of the teachers' versions. There is explicit and abundantly annotated redundancy between the content of the learners' versions and the Users' Guides to the Medical Literature<sup>1</sup>. Many, but not all, of the tips presented in the components of the tips project were incorporated into that volume as print demonstrations. The rationale for the learners' series in the CMAJ is therefore not its content but rather the expanded interface between both clinicians and teachers and the resources that emerge from the teaching tips project.

As a result of the collaboration with CMAJ, the teaching tips project will unfold as a set of 3 parallel series'. The CMAJ print version of each manuscript will target the journals' clinician readership. The teachers version will be published electronically and will be directed at teachers already versed in evidence-based medicine. Such teachers remain the central target audience of the project as a whole. Finally, an interactive version will be developed and posted through the auspices of the Centres for Health Evidence at the University of Alberta, in partnership with the CMAJ. All three versions of the installments will be available online and both the learners' and teachers' versions will be free access items. The interactive tips will, in turn, be densely interfaced with the Users' Guides Interactive, a context that will provide the opportunity to develop expanded versions of the tips, including additional tips pertinent to the same content issue and variations on those already

published. Online video demonstrations of selected tips as used by their originators are also envisioned. The first series of 5 or 6 installments is expected to appear in consecutive issues of CMAJ in 2004.

**Reference:**

<sup>1</sup>Guyatt G, Rennie D. Users' Guides to the Medical Literature: A Manual For Evidence-Based Clinical Practice. Chicago: AMA Press; 2002.



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## EBCP MAILING LIST

We would like to keep our mailing list as up to date as possible. If you are planning to move, have moved, or know someone who once received the newsletter who has moved, please e-mail [dixond@mcmaster.ca](mailto:dixond@mcmaster.ca) or write your new address here and send to Doreen Dixon, CE&B, HSC 2C10, McMaster University Health Sciences Centre, 1200 Main Street West, Hamilton, ON L8N 3Z5, Canada. Thank you!

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## SIGN UP A COLLEAGUE!

If you would like to encourage a colleague to attend the workshop next year, please e-mail [dixond@mcmaster.ca](mailto:dixond@mcmaster.ca) or write the address here and send to Doreen Dixon, CE&B, HSC 2C10, McMaster University Health Sciences Centre, 1200 Main Street West, Hamilton, ON L8N 3Z5, Canada. Thank you!

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# USERS' GUIDES TO THE MEDICAL LITERATURE

A Manual for  
Evidence-Based  
Clinical Practice

The Evidence-Based  
Medicine Working Group

*Edited by*  
Gordon Guyatt, MD  
Drummond Rennie, MD

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# HOW TO TEACH EVIDENCE BASED CLINICAL PRACTICE

Sunday, June 13 to Friday, June 18, 2004

## What is Evidence Based Clinical Practice?

Evidence based clinical practice (EBCP) is an approach to health care practice that explicitly acknowledges the evidence that bears on each patient management decision, the strength of that evidence, the benefits and risk of alternative management strategies, and the role of patients' values and preferences in trading off those benefits and risks.

## Why Are Evidence and Values or Preferences Important?

Daily, clinicians confront questions about the interpretation of diagnostic tests, the harm associated with exposure to an agent, the prognosis of a disease in a specific patient, the effectiveness of a preventive or therapeutic intervention, and the costs and clinical consequences of many other decisions. Both clinicians and policy makers need to know whether the conclusions of a systematic review are valid, and whether recommendations in practice guidelines are sound.

The tradeoffs between risks and benefits are often finely balanced. Patients with differing values and preference will make different choices.

Members of the Department of Clinical Epidemiology and Biostatistics at McMaster University and elsewhere, trained in both medicine and in epidemiology and biostatistics, have developed a set of common sense strategies to assist in the critical appraisal of clinical data and biomedical literature, thereby encouraging the practice of EBCP. They have also developed approaches to explicitly considering values and preferences in clinical decision-making.

## Workshop Objectives

- To help participants advance their critical appraisal skills, and their skills in acknowledging and incorporating values and preferences in clinical decision making
- To help participants learn how to teach EBCP using a variety of educational models

## Workshop Format

The workshop is offered as a one week intensive course. Participants will be learning in small groups led by clinical epidemiologists and practitioners from McMaster and other institutions. The workshop will consist of small and large group sessions, individual study time and opportunities for workshop participants to lead teaching sessions using packages they have developed.

## Workshop Participants

Some course participants will come with a basic understanding of the principles of EBCP. These individuals will be as interested in deepening their understanding of these principles as they are in learning new teaching strategies. Other participants will have extensive experience and a deep understanding of the principles, and will be coming to advance their teaching skills. Still others will have intermediate skills. To accommodate everyone's needs, we will try to create a number of groups with different emphases.

## Workshop Materials

Prior to the workshop, participants will receive educational materials that include literature on teaching critical appraisal and EBCP, the small group learning format, and a set of clinical problems. We expect participants to familiarize themselves with this material in advance of the workshop and bring clinical scenarios and teaching challenges with them.

## Travel, Facilities and Accommodation

The workshop will be held in McMaster University's Health Sciences Centre. Upon confirmation of a definite placement in the workshop from the EBCP office, a letter accompanied by our Workshop Planning Guide will be provided with general information regarding specifics of the workshop, accommodation and travel. **TRAVEL AND ACCOMMODATION ARRANGEMENTS ARE THE RESPONSIBILITY OF THE REGISTRANT.** Modest accommodation is available on campus. Other accommodations are available in city hotels, 10-30 minutes away by foot, bus or car.

## Tutorial Group Selection Syllabus

The following will help you select the appropriate level of tutorial group for you:

### Category A

You feel there are important gaps in your understanding of the principles of critical appraisal. You often feel uncertain of yourself when teaching, and wonder whether you've got it right when you critically appraise an article or whether you've missed something important. You are looking for a tutorial group in which a substantial amount of the time is spent on understanding critical appraisal.

### Category B

You are comfortable with critical appraisal issues, but don't consider yourself expert. You have done a fair bit of teaching in the area, and are looking for a tutorial in which some time will

be spent on content issues, but the majority of the time will be spent on evidence based teaching techniques.

### Category C

You have lots of experience and expertise, perhaps with formal training in clinical epidemiology or a related field. You are looking for a tutorial in which the overwhelming proportion of the time is spent on teaching evidence based clinical practice.

### Registration

- The 2004 Evidence Based Clinical Practice Workshop will be held from Sunday June 13 to Friday noon June 18, 2004.
- Workshop tuition is \$2,900.00 (CDN) or \$2,230.00 (USD), which includes 7% General Sales Tax (GST # R119-035-988). Tuition includes all workshop materials, photocopying services, access to computer literature searching and dinner on the first and last evenings.
- Acceptance in the workshop will be **confirmed by letter**. If you have not heard about your placement by April 15, 2004 please contact our office.
- Deadline for registration is March 1, 2004. **PLEASE NOTE THAT THE WORKSHOP FILLS QUICKLY, SO REGISTER EARLY!**

Please do not make any travel arrangements until you have been officially notified in writing of your acceptance into the workshop. Thank you.

### Cancellation Policy

A refund will be returned, minus \$100.00 administrative fees for a cancellation up to May 13, 2004. There will be **NO** accepted refunds after May 13, 2004 (one month prior to the workshop).

Please return the completed application form and registration fee (North American registrants please send cheque or money order; non-North American registrants please send international money order drawn on a USA or Canadian bank).

### PLEASE MAKE THE REGISTRATION FEE PAYABLE TO McMASTER UNIVERSITY and send to:

Drs. Deborah Cook and Gordon Guyatt  
Co-Chairs, EBCP Workshop  
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1200 Main Street West  
Hamilton, ON L8N 3Z5 CANADA

Please direct any inquiries to:

Deborah Maddock and Karen Burns  
EBCP Workshop Coordinator and Registrar  
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**Registration can be done on-line at:**  
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### PLEASE TYPEWRITE OR PRINT CLEARLY

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### Please fill in the following essential information!

*Which Tutorial Group Would Best Meet Your Needs?*

- Category A:** A group focusing primarily on principles of critical appraisal and EBCP.
- Category B:** A group focusing more or less equally on principles of critical appraisal and on teaching EBCP.
- Category C:** A group focusing primarily on teaching EBCP.

*Language Comprehension:* In an effort to optimize your participation in the workshop, we would appreciate your response to the following questions. Please mark the paragraph that best applies to you.

- Highly fluent in English.** Can follow and participate fully in a conversation with many people when they are speaking quickly and interrupting one another.
- Fluent in comprehension and speech in English.** Can understand fully and speak fluently, but have some difficulty in a group when people are speaking quickly and interrupting one another.
- Fluent in comprehension in English,** except in groups when people are speaking quickly and interrupting one another. Some hesitation in expression, as English vocabulary is limited.
- Not completely fluent** in either comprehension or speaking in English.