International Society for Evidence-Based Health Care
23rd Newsletter Edition, 2016

Mission

The mission of the International Society for Evidence-Based Health Care is to develop and encourage research in evidence-based health care and to promote and provide professional and public education in the field.

Vision

The society is inspired by a vision to be a world-wide platform for interaction and collaboration among practitioners, teachers, researchers and the public to promote EBHC. The intent is to provide support to frontline clinicians making day-to-day decisions, and to those who have to develop curricula and teach EBHC.

Key objectives of the Society

- To develop and promote professional and public education regarding EBHC
- To develop, promote, and coordinate international programs through national/international collaboration
- To develop educational materials for facilitating workshops to promote EBHC
- To assist with and encourage EBHC-related programs when requested by an individual national/regional organization
- To advise and guide on fundraising skills in order that national foundations and societies are enabled to finance a greater level and range of activities
- To participate in, and promote programs for national, regional and international workshops regarding EBCP
- To foster the development of an international communications system for individuals and organizations working in EBHC-related areas
- To improve the evidence systems within which health care workers practice.

Evidence-Based Clinical Practice Office
McMaster University, Canada

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SUBSETS AND STATISTICAL INTERACTIONS

Samuel A Berkman

A randomized blinded trial is usually a phase 3-study addressing whether a comparator drug brings added benefit versus a control drug. The control drug would either be placebo or the standard of practice drug for the condition being studied. Even if the trial does not show overall superiority or non-inferiority, certain subsets of patients may benefit from the intervention.

For example, in the four atrial fibrillation trials of the direct oral anticoagulants {DOACs} versus Coumadin RELY, ROCKET, ARISTOTLE or ENGAGE, an overall outcome was reported for both efficacy and safety in each trial. In addition, the results of numerous subsets of patients were reported. These subsets were examined only after the end of the study, a process called "post hoc analysis" to try to identify a particular group where the comparator drug might work particularly well or poorly in comparison to the control drug.

Such an analysis is felt to be hypothesis generating. In other words, if one observes a positive result for a certain subset, that observation might make a good subject for a new trial based on the subset. However, such a result should not be taken as evidence that the drug should be used in that subset, if it is not effective in the overall trial. This is because a positive finding in a post hoc analysis may well be simply the play of chance.

There may be as many as 20 subsets in a study. Covariates such as age, sex, whether they have renal disease or liver disease etc. are scrutinized after the results of the entire study are tabulated. One wants to see if there is a statistical interaction between each subset and the other patients who participated in the trial.

So what is a statistical interaction? Statistical interactions are different from drug interactions. A drug interaction usually involves 2 drugs such as Amiodarone and Coumadin, where amiodarone potentiates Coumadin. By contrast, statistical interactions, otherwise called effect modification, means that the treatment works different relative to control in patients with different characteristics.

In the above-mentioned ARISTOTLE trial, the subset of patients who had diabetes was found to have the same amount of major bleeding with Apixiban or Coumadin. By contrast, those who did not have diabetes had significantly less bleeding with Apixiban than Coumadin. In exploring this potential interaction – the hypothesis that Apixaban versus Coumadin may have a different effect for diabetics and non-diabetics - there are four entities. These are a) diabetics who received Coumadin, b) diabetics who received Apixiban, c) non-diabetics who received Coumadin and d) non-diabetics who received Apixiban.

To check for a statistical interaction one then uses a formula to calculate a p value for the comparison of how the group with diabetes did with Apixiban versus Coumadin versus how the group that did not have diabetes performed. If the calculated p value is less than .05 then – at least according to the threshold most commonly used = a statistical interaction is identified. Values above 0.05 indicate no interaction.

While the overall ARISTOTLE trial showed Apixiban to have to have a significant decrease in major bleeding versus Coumadin, this did not appear to be true in diabetic patients. Because only 25% of the people in the trial had diabetes, this subgroup was not numerous enough to eliminate the apparent difference between the drugs in the overall trial's finding of superiority of Apixiban versus Coumadin in major bleeding. However, If 40% had had diabetes, as in the corresponding ROCKET trial with Rivaroxaban, then they may not have observed a decrease in major bleeding - such was the case in ROCKET.

This example illustrates the limitations of indirect comparisons, and why one must be extremely cautious in making inferences regarding the relative effectiveness of Apixiban and Rivaroxaban on the basis of the ROCKET and ARISTOTLE results. Claims that Apixiban is associated with less major bleeding than Rivaroxaban are based on indirect comparisons with a common comparator drug Coumadin. However, the different patient populations in the two studies highlight the limitations of such a comparison.

The effect modification associated with diabetes in the ARISTOTLE trial thrusts this point into high relief. Differences in populations, rather than differences in the drugs, may be responsible for the apparent differences in drug effect in ARISTOTLE and ROCKET.

Therefore, the statement that one drug causes less major bleeding than the other and is consequently safer, because it is based on an indirect comparison in studies with different populations, constitutes only low quality evidence.

Cultural barriers to apply evidence based medicine: Beyond validity and results

Ramón Puchades

In terms of clinical practice point of view, EBM represents a systematic and critical approach to medical literature as well as to daily clinical practice[1]. Concretely, the focus of EBM is associated with the rational explanation of diagnosis, treatment and prognosis. At this point, it reveals the crucial connection between research and clinical activity, with a high impact on patient outcomes.

When a question emerges on the bedside, clinicians may conduct a search to find the best evidence to address the problem. Evaluation of that evidence involves addressing risk of bias (validity), results and applicability[2]. Issues of context, and cultural or social customs or norms, as well as person and factors, become particularly relevant when one considers issues of applicability.

Considering this issue of local context raises possible barriers to EBM that may be specific to certain cultures or jurisdictions. These include:

-Traditional vision of learning: in cultures in which the dominant approach to learning is passive, it may be difficult to build a more active model for learning.

-Social environment: This will depend on the philosophy of a concrete organization (University, Hospital, Department etc…). The new flow of knowledge will deal with structural and functional aspects of these institutions, which may often present obstacles.

-Personal attitude: The predisposition to be critical involves the capacity to listen and maintain an open mind. The social and workplace environment will often have an influence on personal attitudes.

The obstacles above may be particularly relevant in the critical appraisal process when one considers issues of applicability.

Finally, there are yet other barriers that may obstruct the progress of EBM. For example, in Spanish "evidence" has the connotation of secure knowledge, “without doubts”, which seems exactly the opposite of what EBM represents, a critical approach to observations. This is one example of how cultural issues may result in the misunderstanding, misinterpretation and misconception of EBM[3].

1. Sackett DL, Straus SE. Finding and applying evidence during clinical rounds: the "evidence cart".JAMA. 1998 Oct 21;280(15):1336-8.
2. Users' Guides to the Medical Literature: A Manual for Evidence-Based Clinical Practice, 3rd ed. Gordon Guyatt, Drummond Rennie, Maureen O. Meade, Deborah J. Cook
3. Straus SE, Haynes B, Glasziou P, Dickersin K, Guyatt G. Misunderstandings, misperceptions, and mistakes. ACP J Club. 2007 Jan-Feb;146.

Perceptions and Attitudes of Medical Students towards Evidence Based Physical Examination Teaching: A Qualitative Study

Ruiz Juan Ignacio, Navar Sofía M,
Failo Agustina, Catalano Hugo Norberto.

Introduction:

The clinical examination is critical towards facilitating diagnostic and therapeutic decisions; however, the concept of using evidence to inform physical examination procedures was only proposed 20 years ago. In 2016, the academic hospital unit of the German Hospital of Buenos Aires, launched a class focused on evidence-base physical examination for medical students taking Semiology and Internal Medicine courses. We concurrently initiated a qualitative study to explore students’ perceptions and attitudes towards this course.

Materials and methods:

We invited all students (n = 30) in the 4th and 5th year studying Medicine A (semiology) and B (Internal Medicine) of the German Hospital academic unit a week after they had completed their courses to participate in focus groups. A moderator with training in qualitative research facilitated all 5 of the focus groups. The meetings were audio-recorded and transcribed *verbatim.* Two authors (JR and SN) read the transcripts independently and in duplicate to identify categories and emergent primary and secondary themes. The same reviewers discussed the results to achieve consensus.

Results:

22 of 30 students agreed to participate; focus groups sizes ranged between 4 and 5 students. The 3 main themes that emerged from analysis of transcripts were: 1) advantages and disadvantages of evidence-based physical examination, 2) facilitators for implementation of the program in other hospital academic units, and 3) barriers to program implementation in other hospital academic units. Two subthemes that emerged were: 1) applicability in clinical practice, and 2) integration of other elements of evidence based medicine to the teaching program.

Students perceived teaching of evidence-based physical examination as useful to improve the efficiency of the patient encounter, and they supported integration of this course into their medical curriculum. Students endorsed that leadership and enthusiasm among instructors were important facilitators for implementing the program in other academic units. Lack of knowledge and motivation to change were perceived as barriers to extend the program. Medical students, particularly those in their final (5th) year, suggested integrating evidence-based medicine (e.g. literature search, critical reading, recognition of risk of bias) to other medical courses.

Conclusion:

Medical students in Buenos Aires were highly supportive of a new course teaching evidence-based physical examination. Leadership and enthusiasm among instructors was felt to be a key component for scalability.

How Much Is A Randomized Clinical Trial?

Matthias Briel for the MARTA
(Making Randomized Trials More Affordable) investigators

Rigorously conducted randomized clinical trials (RCTs) produce the most reliable evidence regarding the benefits and harms of therapeutic interventions, but they are expensive and time-consuming endeavors. During the last two decades, a number of initiatives and regulations have been implemented to improve research quality and increase participant protection; however, these changes have also increased the complexity and administrative burden of RCTs and possibly overall costs. In addition, medical progress in some fields (e.g. cardiology) has led, over time, to smaller beneficial effects of interventions being tested in RCTs requiring larger sample sizes; i.e. this development also increases costs of RCTs further aggravating the problem of scarce resources for academic clinical research. There is some evidence to suggest that the number of published RCTs has been decreasing; [1] moreover, a substantial proportion of RCTs are prematurely discontinued due to organisational and recruitment problems [2]. Efforts to make RCTs more cost-effective are urgently needed. A pre-requisite for the development of new approaches to budgeting and conducting RCTs at lower cost, is a detailed and systematic analysis of the cost structure and relative weights of specific cost items of RCTs in order to identify suitable lever-points.

A systematic search on PubMed for any kind of cost assessment for RCTs showed that there are practically no empirical data on resource use and costs of investigator-initiated RCTs in the medical literature. We therefore conducted a pilot study on resource use and costs of two investigator-initiated RCTs and initiated a larger project that aims to systematically collect resource use and costs of RCTs in various clinical disciplines. If we want to make RCTs more affordable and thereby more feasible, we need to know about cost ranges for specific tasks in the planning and conduct of RCTs, identify areas of excess, and design and test approaches to reduce costs where possible.

1. Bosch X (2005) Europe's restrictive rules strangling clinical research. Nature Medicine 11:1260.
2. Kasenda B, von Elm E, You J, Blumle A, Tomonaga Y, et al. (2014) Prevalence, characteristics, and publication of discontinued randomized trials. Jama 311:1045-1051.

Making sense of patient-reported outcomes when making recommendations

Tahira Devji, Gordon Guyatt

Applying results of clinical trials in the context of making treatment recommendations presents many challenges. In this article, we describe how we addressed the challenge of interpreting results in a guideline addressing arthroscopy in patients with degenerative knee disease.

Investigators increasingly rely on patient-reported outcomes (PROs) as key endpoints in clinical trials. Although PROs provide patients' experience of the impact of disease and treatment on their health status, challenges in interpreting changes in PRO scores can limit their usefulness in informing patient-centered care.

A key issue for those making recommendations on the basis of clinical trials using PROs is how patients value the outcomes: where in the continuum between trivial and very important will patients place observed improvements in PROs such as pain or physical function? Knowledge of the minimal important difference (MID), the smallest change that patients perceive as important, either beneficial or harmful, facilitates an understanding of the magnitude of intervention effects in randomized trials.

The MAGIC, non-profit research and innovation programme – representing patients, front-line clinicians, researchers, and guideline experts (www.magicproject.org) has recently partnered with the BMJ to publish trustworthy recommendations in response to potentially practice changing evidence: BMJ Rapid Recommendations[1]. BMJ Rapid Recommendations panels, as in any guideline, require appropriate interpretation of the importance of effects when moving from evidence to recommendations – judgments that should reflect patients' values and preferences. The panel responsible for creating the second BMJ Rapid Recommendation, addressing the impact of arthroscopic surgery versus non-operative management in patients with degenerative knee disease, faced challenges in interpreting the significance of apparent treatment effects on critical outcomes of interest: pain, function, and quality of life (QoL).

To address this challenge, we conducted a systematic review to identify the most trustworthy MID estimates for the PROs used in trials comparing arthroscopic surgery to conservative management.

We identified 13 studies, many of which suffered from serious methodologic limitations, that reported on 95 empirically estimated anchor-based MIDs for 8 PRO instruments and/or their sub-domains that measure knee pain, function or QoL. We identified credible MIDs for the Western Ontario McMaster Arthritis Index (WOMAC), Knee injury Osteoarthritis Outcome Score (KOOS) and the EuroQol five dimensions questionnaire (EQ-5D).

Our systematic review showed that MIDs may vary substantially by estimation method, population and context. We were able to distinguish between more and less trustworthy MIDs and provide best estimates for key instruments that informed evidence presentation in the associated systematic review of treatment effects, and judgments in the Rapid Recommendation. The panel, aware through use of the MID that benefits associated with arthroscopy were very small, made a strong recommendation against knee arthroscopy.

Though we were able to distinguish the more or less trustworthy MIDs, the range of estimates among those deemed credible was still very wide. At the time of writing, we are in negotiation with the BMJ regarding the fate of our review of MIDs, the associated systematic review, and the recommendation itself.

Our study provides a model for applying the MID concept to aid in the interpretation of evidence, and the formulation of recommendations for clinical practice guidelines, and highlights the challenges when trustworthy MIDs are not available.

Our group is currently conducting several projects to advance MID methods including the development of a definitive credibility instrument and testing its reliability, a comprehensive systematic survey of the MID methods literature, a systematic review to identify anchor-based MIDs for all known PRO instruments and, in collaboration with the Cochrane PRO methods group, a systematic survey of PRO aggregation methods employed in Cochrane reviews. We welcome collaboration by anyone interested in this work.

1. Siemieniuk RA, Agoritsas T, Macdonald H, et al. Introduction to BMJ Rapid Recommendations. *BMJ (Clinical research ed)* 2016;354:i5191. doi: 10.1136/bmj.i5191 [published Online First: 2016/09/30]

Using the GRADE Approach to Support the Development of Public Health Policies: an Innovative experience from Argentina

Ruiz JI, Izcovich A, Gonzalez Malla C, Esandi ME, Raineri F, Chapman E, Catalano HN.

In 2015, there were more than 3,100 newborns in the province of Buenos Aires, Argentina, who weighed less than 1,500 grams at birth. Until recently, there was no program in Buenos Aires that ensured high risk preterm newborns would be included in follow-up programs once they were discharged from hospital (UNICEF 2010). In 2016, however, the ministry of Health of Buenos Aires implemented the first state program for high risk newborn follow-up, which included home visits.
Our group supported this initiative by identifying and summarizing the best available evidence regarding the design and impact of follow-up programs for high risk newborns, as follows:

1. We identified the following questions to guide our literature searches, together with the Health Ministry officials: 1) What is the effectiveness of home visits programs to decrease the morbidity and mortality and to improve the cognitive and motor development and the home environment among high risk, low-birth weight newborns?, 2) What are the barriers and facilitators for the implementation of home visits programs for high risk

newborns?, 3) What is the effect of the different components of the intervention on the effectiveness of the program (i.e. number and frequency of home visits, timing of the first visit [prenatal vs postnatal], and visitor´s level of education [professionals vs para-professionals]).

2. First we searched for systematic reviews and clinical practice guidelines that could address our research questions. We complemented our searches by constructing evidence matrixes in Epistemonikos.org in order to identify other relevant systematic reviews that we may have missed. Finally, we searched for primary studies that were not included in the systematic reviews and guidelines that we identified.
3. Using all identified primary literature, we used the GRADE approach to summarize and rate the quality of evidence on an outcome-by-outcome basis, and built Summary of Findings tables using the Guideline Development Tool (GDT) software. We also provided plain language summaries of our results.
4. We discussed the results of our analysis in multiple meetings that included all relevant stakeholders (i.e. those in charge of designing the policy, those in charge of applying the policy, and those in charge of giving support to the policy).

We identified 3 systematic reviews and included 48 primary studies for our analysis. The evidence suggests that home visits have an impact on the improvement of motor and cognitive development at 2, 3, 4, 7, and 9 years of age. Moreover, both the home environment and the infant-parental interaction was improved in those families that participated in follow-up programs for high risk newborns. Finally, we found that home visits prolong the breastfeeding period for newborns. We identified several barriers that might affect the effectiveness of programs: cultural and linguistic conditions of the community, urgent social issues to solve in the family, overcrowded houses, and uninteresting content of the program. The main facilitator was the trustful relationship between the mother and the visitor conducting home visits.This innovative approach for the development of evidence based health policies was useful to clarify the effectiveness of follow-up programs for high risk newborns, and to identify components that influence effectiveness. Our findings proved useful to inform the stakeholders, researchers and policy makers about different barriers and facilitators for the implementation of home visits programs through a deliberative dialogue. Our experience highlights feasibility of using a systematic and transparent evidence-informed approach to guide the development of public health policies.

How much can we trust health related information provided by mass media in Argentina? A comparison of media statements with evidence based recommendations.

Ariel Izcovich, Juan Martín Criniti, Federico Popoff, Carlos González Malla, Hugo N. Catalano.

We recently completed a study to evaluate the concordance between healthcare recommendations provided by mass media in Argentina and evidence-based recommendations. We compared the strength and direction of recommendations from the mass media with those developed by evidence based decision making (EBDM) experts following the GRADE approach. We considered the EBDM expert's recommendations as the Gold Standard and classified media recommendations as appropriate or inappropriate following the matrix presented in table 1.

Table 1. Recommendation assessment matrix

		EVIDENCE-BASED RECOMMENDATIONS			
		Strong Against	**Weak Against**	**Weak in Favor**	**Strong in Favor**
MEDIA RECOMMENDATIONS	**Strong Against**	Concordant	Inappropriate	Inappropriate	Inappropriate
	Weak Against	Reasonable	Concordant	Reasonable	Inappropriate
	Weak in Favor	Inappropriate	Reasonable	Concordant	Reasonable
	Strong in Favor	Inappropriate	Inappropriate	Inappropriate	Concordant

We identified 81 media statements that provided healthcare recommendations, and the same number of recommendations were developed by EBDM experts. The certainty in the evidence supporting experts' recommendations was judged as high in 15, moderate in 18, low in 30 and very low in 18. Only 53% (95% CI 42% to 64%) of mass media recommendations were concordant with experts' recommendations in direction (for or

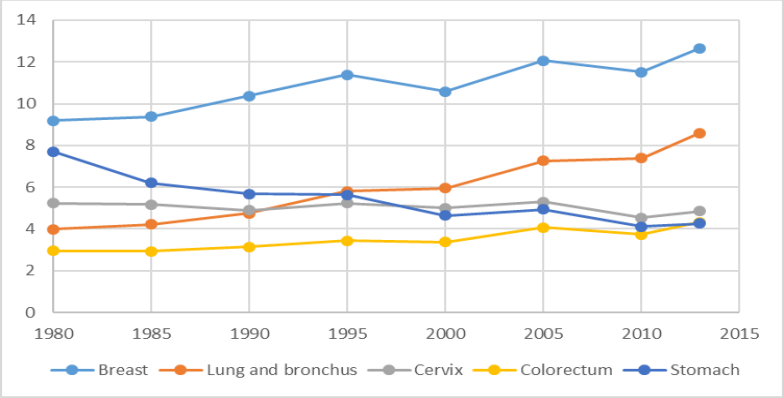
against), and 28% (95% CI 18 – 39%) were classified as inappropriate (discrepancies both in direction and strength or media's strong recommendations in the context of expert's weak recommendations). When restricted to healthcare providers speaking to media, recommendations suggested greater consistency with expert's in direction (71%; 95% CI 56% to 86%); and fewer recommendations were classified as inappropriate (17%; 95% CI 6 % to 33%). In an adjusted analysis, however, recommendations by healthcare providers speaking to the media were not significantly less likely to be inappropriate compared to recommendations in mass media by non-healthcare workers (OR = 0.35; 95% CI 0.1 to 1.1). We concluded that healthcare information provided by mass media in Argentina is often unreliable. Strategies to improve the concordance between healthcare recommendations made by the media and evidence-based recommendations are urgently needed.

Evidence Based Cancer Screening Programs in Brazil

Maria Elisa Cabanelas Pazos; Alfredo Scaf

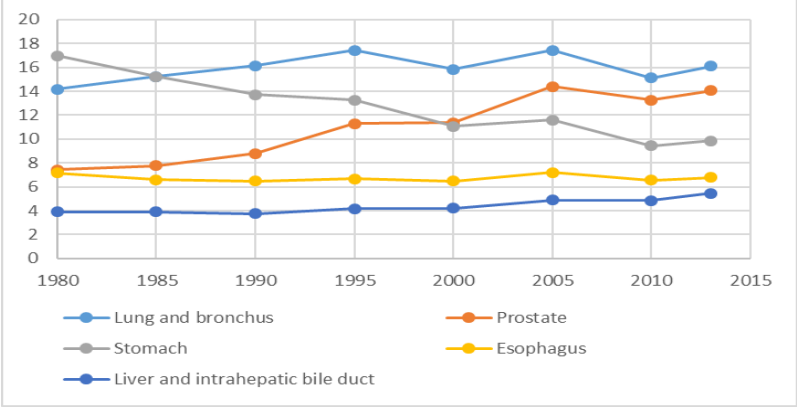
The incidence of cancer in Brazil is a large and growing public health concern. After non-melanoma skin cancer, the most prevalent form of cancer among Brazilians are breast, prostate, cervix, lung and colorectal cancers. The rates of late diagnosis and mortality are high. The implementation of population-based risk screening programs with evidence-based protocols is part of the strategy advocated by the Supplementary Health Regulatory Agency (ANS) in its new model of oncology care in Brazil.

Mortality rates of the 5 most frequent primary sites of women, in 2013, adjusted for age, by the world population, per 100,000 women, Brazil, between 1979 and 2013.



Source Instituto Nacional de Câncer, 2016

Mortality rates of the 5 most frequent primary sites in men in 2013, adjusted for age, by the world population, per 100,000 men, Brazil, between 1979 and 2013.



Source Instituto Nacional do Cancer, 2016

In October 2016 the ANS launched the Oncorede project - a new cancer care model. Implementation of these cancer screening policies by both ANS and the Ministry of Health, however, remains challenging. Barriers include economic, management (access, processes, flows), quality, and cultural issues – as well as concerns regarding the optimal balance between underdiagnosis / undertreatment and overdiagnosis / overtreatment.
Population screening protocols for different types of cancer have been proposed based on evidence regarding the sensitivity and reproducibility of tests, their negative predictive value, and evidence that the potential benefits of screening outweigh the physical and psychological harms. Specific to breast cancer screening, one of the major challenges is the conflicting evidence regarding at what age screening should begin in order for the benefits to outweigh the harms.
The results of the Oncorede project intend to be tracked with epidemiological surveys. Moreover, a national registry has been proposed for patients managed through the private health system to track concordance with the ANS recommendations, and the results of care.

Preventing research waste: towards evidence-based outcome selection.

LB Mokkink, CAC Prinsen, CB Terwee, HCW de Vet

Evidence obtained from rigorously conducted meta-analysis of clinical trials provides high quality evidence for the assessment of the effectiveness and safety of interventions (given that adverse events are not extremely rare). Statistical pooling of data across trials, however, is greatly facilitated when similar outcomes are measured and valid and reliable instruments are used. Many Cochrane reviews have highlighted challenges presented by the lack of uniformity in outcomes selected in the primary literature, and the use of poor quality instruments used to measure outcomes. The quality and impact of systematic reviews and meta-analyses could be substantially improved by standardization of outcomes and outcome measurement instruments, according to specific fields of study.

Accordingly, methodologists have called for the development of Core Outcome Sets (COS), which are a standardized set of outcomes that should be measured and reported, as a minimum, in all clinical trials in a specific disease or trial population [1]. A COS facilitates meta-analyses by ensuring that a common set of outcomes are measured across clinical trials. The COMET (Core Outcome Measures in Effectiveness Trials) initiative aims to bring together researchers who are interested in the development and application of standardized outcomes. COMET is developing a guideline to support COS developers in defining which outcomes are most important to patients.

Once consensus has been reached on ‘what’ to measure, it should be decided ‘how’ core outcomes should be measured (i.e. which outcome measurement instruments should be used). A consensus-based guideline was recently published that supports COS developers in the selection of instruments for outcomes included in a COS.[2] This guideline recommends selecting one ‘best’ outcome measurement instrument for each core outcome, taking into account the evidence on the quality of the instruments and feasibility aspects.

The COSMIN (COnsensus-based Standards for the selection of health Measurement INstruments) initiative[3] is an international multidisciplinary team of researchers who aim to improve the selection of outcome measurement instruments in research and clinical practice. COSMIN has developed tools for selecting the ‘best’ available outcome measurement instruments.[3] These tools include guidance on how to perform systematic reviews of outcome measurement instruments in order to find the ‘best’ instrument for a specific purpose; a search filter for finding studies on measurement properties in PubMed; and the COSMIN checklist for evaluating the quality of the included studies on measurement properties.[3]

Using consensus-based core outcomes that matters to patients, captured with high quality instruments, will facilitate higher quality systematic reviews and meta-analyses. This will lead to a stronger evidence-base for the effectiveness and safety of interventions, decrease research waste, and increase more ethical and efficient research practices.

1. Williamson PR, Altman DG, Blazeby JM, Clarke M, Devane D, Gargon E, Tugwell P. Developing core outcome sets for clinical trials: issues to consider. Trials. 2012 Aug 6;13:132.

2. Prinsen CAC, Vohra S, Rose MR, Boers M, Tugwell P, Clarke M, Williamson PR, Terwee CB. How to select outcome measurement instruments for outcomes included in a "Core Outcome Set" - a practical guideline. Trials. 2016 Sep 13;17(1):449.

3. www.cosmin.nl

McMaster Optimal Aging Portal: Providing access to the best evidence to foster healthy aging

Steven Lott

The public, particularly those over the age of 65, are increasingly turning to the Internet for health information.

"There are many websites that deal with health and aging, but what sets the McMaster Optimal Aging Portal apart, is the emphasis on using the latest scientific evidence to provide credible insights on healthy aging," says Dr. Anthony Levinson, one of the Portal Leads.

The McMaster Optimal Aging Portal leverages the University's three world-class evidence research databases (McMaster PLUS for clinical evidence, Health Evidence for public health evidence, and Health Systems Evidence for evidence about health-system arrangements and implementation strategies) to bring together for citizens the best available scientific evidence about optimal aging and common health conditions. Clinicians, public health professionals and policymakers can benefit from the sophisticated search engine that allows professionals to skim through masses of health research.

During the development of the Portal, the research team identified four common frustrations experienced by older adults looking for health information online:

- there's too much scientific research coming out every day, it's often overhyped and can conflict with existing research, and much of it is difficult to understand;
- scientific research often only partly answers one question among the many older adults may have about aging;
- the Internet is full of free health resources but it's hard to know which are worth a closer look; and
- news outlets cover lots of health stories but the emphasis is usually on drama, not substance.

The Portal features three distinct types of content to address the first three frustrations: Evidence Summaries to address the first frustration, Blog Posts to address the second, and Web Resource Ratings to address the third. The Portal also features an innovative use of social media to address the fourth.

The Portal's Evidence Summaries outline – in plain language - the key messages from recent scientific research that older adults and their caregivers can act on. These summaries draw content from the three best-in-class one-stop shops for research evidence.

Blog Posts provide easy-to-understand information based on the best available and most recent scientific evidence on a variety of health topics. The blogs are written by a professional writer or expert on the topic, and then assessed for accuracy by content experts to ensure scientific rigor. Each blog is also edited by a professional editor, and includes bottom-line recommendations for older adults (and their caregivers) based on the best available scientific evidence.

The Portal's Web Resource Ratings help assess the quality of other patient-focused online health content (articles, videos, fact sheets, etc.) based on a 5-star rating system which considers how each resource performs with respect to three criteria:

- whether the resource is evidence-based (e.g., assessing whether the information is reliable and based on scientific research);
- whether the resource is transparent (e.g., assessing whether it is clear who developed the resource and how; and
- the usability of the resource (e.g., assessing whether the information is easy to understand and to use)

The Portal's 'Hitting the Headlines' strategy shares and comments on news about aging. The Twitter account @Mac_AgingNews tweets about the day's media coverage of aging topics and the evidence behind the stories. The Portal team is also active on Facebook and works to share key health news and related resource in weekly Hitting the Headlines articles.

To expand on the evidence and resources currently available, the Portal team is also working to incorporate a fourth database featuring information on, and ratings of, patient decision aids. These are tools that help patients, caregivers and families become involved in decision-making around difficult healthcare issues. These tools are designed to complement, rather than replace, the advice given by a healthcare practitioner.

To stay engaged and to ensure that they are apprised of the best available and most recent evidence about optimal aging, Portal users can subscribe to four types of email alerts (for citizens, clinicians, public health professionals, and policymakers) to receive emails of the latest evidence on specific topics of interest.

The McMaster Optimal Aging Portal is part of McMaster's Labarge Optimal Aging Initiative, which has been funded by a donation from retired businesswoman Suzanne Labarge, Chancellor of McMaster University, who is personally committed to improving the lives of older adults by offering access to trusted informational resources for Canadians, as well as by funding a series of research projects on optimal aging.

The Portal is relevant not only for older adults, but also for caregivers and anyone interested in healthy aging. To learn more, visit mcmasteroptimalaging.org or email info@mcmasteroptimalaging.org.

SOURCE Evidence-Based Surgery Program Update

Achilles Thoma and Jessica Murphy

The Surgical Outcomes Research Centre (SOURCE, McMaster University) Evidence-based Surgery (EBS) Working group continues to develop its "Users' Guides to the Surgical Literature" article series that is being published in the Canadian Journal of Surgery (CJS). Each article is prefaced with a surgical scenario, and the series is intended to educate surgeons, surgical fellows, and residents on how to find, appraise and incorporate evidence from the surgical literature into surgical practice. Currently 17 articles in this series have been published in CJS. To a great decree they imitate the Users' Guides to the Medical Literature published in JAMA, which, can be difficult to follow by surgeons because of their subject matter. The EBS articles use clinical scenarios and content relevant to surgeons. The latest articles published are:

- Thoma A, Kaur MN, Farrokhyar F, Waltho D, Levis C, Lovrics P, Goldsmith CH. (2016). Users' guide to the surgical literature: how to assess an article about harm in surgery. *Can J Surgl 59(5):351-7*
- Waltho D, Kaur MN, Haynes RB, Farrokhyar F, Thoma A. (2015). Users' guide to the surgical literature: how to perform a high-quality literature search. *Can J Surg;* 58(5): 349-58

EBS Workshops for McMaster Surgery Faculty- *Hamilton, ON, Canada*
SOURCE has developed an interactive EBS Workshop based on the article series. The workshop consists of small group tutorials led by trained surgeon tutors addressing various topics covered in the EBS article series. Our past tutors have included: Dr. Achilles Thoma, Dr. Luis Braga, Dr. Michelle Ghert, and Dr. Forough Farrokhyar. Our most recent workshop in February of 2016 focused on Systematic Reviews and Meta-Analyses, and was attended by more than 25 McMaster faculty members.

Our next SOURCE workshop for surgeons will be held on February 15th 2017, at Juravinski Hospital, and will cover the issue of harm in surgery (how to appraise an article that deals with harm in surgery). The specific article that we have chosen deals with iatrogenic ureteral damage.

Upcoming SOURCE Workshop for Family Physicians- *Hamilton, ON, Canada*
In response to a request received by SOURCE, this year (on February 1st, 2017) we will be hosting our first workshop for Family Physicians in Hamilton, Niagara, Kitchener-Waterloo areas. This half-day workshop will focus on interpreting and appraising Systematic Reviews, Meta-Analyses, and Randomized Controlled Trials. Our tutors for this workshop will include Dr. Thoma, Dr. Braga, Dr. Farrokhyar and Dr. Sheila Sprague. Clinical topics will include prostate cancer screening for all males over 40, and hormone-replacement therapy for recently post-menopausal women.

If you are interested in either of our upcoming SOURCE events, please contact Jessica Murphy at murphj11@mcmaster.ca

GRADE Evidence to Decision (EtD) frameworks: a systematic and transparent approach to making well informed healthcare choices

Pablo Alonso, Jenny Moberg, Andy Oxman.

Decision-makers do not have an easy job, as they need to consider the evidence for multiple factors (criteria). Doing this in a systematic and transparent manner can reduce the chances of overlooking relevant factors, giving undue weight to some factors, or not considering the best available evidence to inform each judgement.

To facilitate a systematic and transparent consideration of the key factors that determine healthcare decisions, the GRADE Working Group has developed evidence to decision (EtD) frameworks. These frameworks build on the GRADE Working Group's approach for moving from evidence to clinical recommendations (1,2). They were developed iteratively as part of the DECIDE project (http://www.decide-collaboration.eu); informed by reviewing the literature, brainstorming, stakeholder feedback, application to real-life examples, and user testing (3).

Different types of decisions require different considerations (4). Consequently, specific sets of criteria were developed for clinical recommendations from an individual patient perspective (5), clinical recommendations from a population perspective, coverage decisions, recommendations and decisions about tests (6), and health system or public health recommendations and decisions.

The structure of the frameworks

Question formulation

This section includes information about the question, including the problem, intervention, comparison, and outcomes (PICO). It also includes the perspective that is taken; i.e. that of an individual patient or a population perspective, such as that of the Ministry of Health or a societal perspective. In addition to determining what economic consequences are considered, this can affect the weight given to different outcomes, and equity, acceptability and feasibility considerations.

Assessment

This section includes explicit criteria used to assess interventions, judgments about each criterion (Table 1), and the research evidence and additional considerations used to inform each judgment.

All five sets of criteria include questions about whether the problem is a priority, the magnitude of the desirable and undesirable effects, the certainty of the evidence, consideration of how patients (or others affected) value the main outcomes, the balance between desirable and undesirable effects, resource use, acceptability and feasibility. All the frameworks that take a population perspective also include consideration of impacts on equity.

Drawing conclusions

In this section panels review their assessment, consider the implications of their judgments about each criterion for the recommendation or the decision, and draw conclusions. The conclusion section also includes other considerations, such as implementation considerations, recommendations regarding monitoring and evaluation, and research priorities.

Preparing and using EtD frameworks

Typically, technical teams prepare the EtD frameworks with the help of free, web-based software solutions like the GRADEPro Guideline Development Tool (GRADEPro GDT) (www.gradepro.org), the interactive EtD tool (http://ietd.epistemonikos.org/), and interactive Summary of Findings (iSoF; http://isof.epistemonikos.org/). These solutions can also facilitate preparation for panel meetings, online meetings, and face-to-face meetings. The iEtD and iSoF are integrated in other alternative authoring and publication tools like MAGIC (www.magicapp.org). These tools also support the development of tailored presentations for target audiences, including clinicians, patients and the public, and policymakers.

References

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5. Schünemann HJ, Mustafa R, Brozek J, Santesso N, Alonso-Coello P, Guyatt G, et al. GRADE Guidelines: 16. GRADE evidence to decision frameworks for tests in clinical practice and public health. J Clin Epidemiol. 2016;76:89-98.

Table 1. Criteria for EtD frameworks for five different types of decisions

<table>
<tr><th></th><th>Clinical recommendations - individual perspective</th><th>Clinical recommendations – population perspective</th><th>Coverage decisions</th><th>Health system and public health recommendations</th><th>Diagnostic, screening and other tests</th></tr>
<tr><td>Priority of the problem</td><td colspan="4">Is the problem a priority?</td><td>Is the problem a priority?</td></tr>
<tr><td>Test accuracy</td><td colspan="4">Not applicable</td><td>How accurate is the test?</td></tr>
<tr><td rowspan="2">Benefits & harms</td><td colspan="5">How substantial are the desirable anticipated effects?</td></tr>
<tr><td colspan="5">How substantial are the undesirable anticipated effects?</td></tr>
<tr><td>Certainty of the evidence</td><td colspan="4">What is the overall certainty of the evidence of effects?</td><td>What is the certainty of the evidence of:
. test accuracy
. for any critical outcome, direct benefits, adverse effects or burden of the test?
. effects of management that is guided the test result?
How certain is the link between test results and management decision?
What is the overall certainty of the evidence of effects of the test?</td></tr>
<tr><td>Outcome importance</td><td>Is there important uncertainty about or variability in how much people value the main outcomes?</td><td>Is there important uncertainty about or variability in how much people value the main outcomes?</td><td>Is there important uncertainty about how much people value the main outcomes?</td><td>Is there important uncertainty about or variability in how much people value the main outcomes?</td><td>Is there important uncertainty about or variability in how much people value the main outcomes, including adverse effects and burden of the test and downstream outcomes of clinical management that is guided by the test results?</td></tr>
<tr><td>Balance</td><td colspan="4">Does the balance between desirable and undesirable effects favour the intervention or the comparison?</td><td>Does the balance between desirable and undesirable effects favour the test or the comparison?</td></tr>
</table>

	Clinical recommendations - individual perspective	**Clinical recommendations – population perspective**	**Coverage decisions**	**Health system and public health recommendations**	**Diagnostic, screening and other tests**
Resource use		How large are the resource requirements (costs)?			
		What is the certainty of the evidence of resource requirements (costs)?			
	Does the cost-effectiveness of the intervention (the out-of-pocket cost relative to the net benefits) favour the intervention or the comparison?	Does the cost-effectiveness of the intervention favour the intervention or the comparison?	Does the cost-effectiveness of the intervention favour the intervention or the comparison?	Does the cost-effectiveness of the intervention favour the option or the comparison?	Does the cost-effectiveness of the test favour the test or the comparison?
Equity		What would be the impact on health equity?			
Acceptability	Is the intervention acceptable to patients, their caregivers and healthcare providers?	Is the intervention acceptable to key stakeholders?	Is the intervention acceptable to key stakeholders?	Is the option acceptable to key stakeholders?	Is the test acceptable to key stakeholders?
Feasibility	Is the intervention feasible for patients, their caregivers and healthcare providers?	Is the intervention feasible to implement?	Is the intervention feasible to implement?	Is the option feasible to implement?	Is the test feasible to implement?

English	French
New tool from the National Collaborating Centre for Methods and Tools (NCCMT)!	**Nouvel outil du Centre de collaboration nationale des méthodes et outils (CCNMO)!**
How NCCMT resources support the Core Competencies for Public Health	**Comment les ressources du CCNMO favorisent les compétences essentielles en santé publique**
What knowledge, skills and attitudes do you need to be a successful public health practitioner?	De quelles connaissances, compétences et attitudes avez-vous besoin pour exercer en santé publique avec succès?
The Public Health Agency of Canada (PHAC) (http://www.phac-aspc.gc.ca/index-eng.php) has outlined what they call the "basic building blocks of public health education and professional development" in their Core Competencies. The National Collaborating Centre for Methods and Tools (NCCMT) (www.nccmt.ca) has created a new online tool to help busy practitioners find the many resources available from the NCCMT that can support PHAC's Core Competencies for Public Health in Canada. This tool helps individuals and organizations find NCCMT resources related to each competency so they can plan professional development activities tailored to their own needs or those of their team. More on PHAC's Core Competencies for Public Health in Canada can be found on the PHAC website: http://www.phac-aspc.gc.ca/php-psp/ccph-cesp/about_cc-apropos_ce-eng.php Click here to see how NCCMT resources map to the Core Competencies: http://www.nccmt.ca/resources/phac-mapping	L'Agence de la santé publique du Canada (ASPC) (http://www.phac-aspc.gc.ca/index-fra.php) a exposé dans leurs grandes lignes ce qu'elle appelle les « éléments des programmes d'enseignement et de perfectionnement professionnel en santé publique » dans ses compétences essentielles. Le Centre de collaboration nationale des méthodes et outils (CCNMO) (www.nccmt.ca/fr/) a créé un nouvel outil en ligne pour aider les professionnels occupés à trouver les nombreuses ressources qu'offre le CCNMO et qui peuvent favoriser les compétences essentielles en santé publique au Canada. Cet outil permet aux particuliers et aux organismes de trouver les ressources du CCNMO qui concernent chaque compétence afin qu'ils puissent mieux prévoir des activités de perfectionnement professionnel qui correspondent à leurs besoins ou à ceux de leur équipe. Il est possible d'en savoir plus sur les *compétences essentielles en santé publique au Canada* sur le site Web de l'ASPC : http://www.phac-aspc.gc.ca/php-psp/ccph-cesp/about_cc-apropos_ce-fra.php Cliquez ici pour voir comment les ressources du CCNMO cadrent avec les compétences essentielles : http://www.nccmt.ca/fr/ressources/phac-mapping

EN	FR
Call for abstracts! Share your EIDM story with NCCMT! Have you incorporated evidence-informed decision making (EIDM) into your public health practice? Has a specific method or tool proven to be helpful for promoting the use of research where you work? If so, the National Collaborating Centre for Methods and Tools (NCCMT) (www.nccmt.ca) would love to hear from you! The NCCMT is currently collecting success stories related to EIDM in public health. Any individual or team with a story to share is encouraged to submit a 300- to 500-word abstract describing their efforts to incorporate EIDM into public health practice and/or policy. **Details about abstract submission can be found here:** http://www.nccmt.ca/resources/user-story/evidence-informed-decision-making-casebook-project. Selected abstracts will be developed into 3-5 page stories and included in an online casebook that will help illustrate what EIDM looks like across Canada. Authors of selected stories will be eligible to participate in a proposed panel presentation at CPHA 2017, including up to $1,500 in sponsorship toward attendance. Selected stories will also be included in an article to be submitted to the Canadian Journal of Public Health. **The deadline for abstract submission is December 23, 2016.**	Appel de résumés! Partagez votre histoire de PDFDP avec le CCNMO! Avez-vous intégré la prise de décision fondée sur des données probantes (PDFDP) dans votre pratique de santé publique? Y a-t-il une méthode ou un outil en particulier qui a été utile pour promouvoir l'utilisation de la recherche où vous travaillez? Si tel est le cas, le Centre de collaboration nationale pour les méthodes et outils (CCNMO) (www.nccmt.ca/fr) aimerait recevoir vos commentaires! Le CCNMO recueille actuellement des histoires de réussite liées à la PDFDP en santé publique. Toute personne ou équipe qui désirent partager leur expériences sont encouragées à soumettre un résumé de 300 à 500 mots décrivant leurs efforts pour intégrer la PDFDP dans leur pratique et / ou politique de santé publique. **Vous trouverez des détails sur la soumission des résumés ici :** http://www.nccmt.ca/fr/evidence-informed-decision-making-casebook-project. Les résumés choisis seront élaborés pour devenir des histoires de trois à cinq pages et seront inclus dans un recueil en ligne qui aidera à illustrer l'aspect de PDFDP au Canada. Les auteurs des histoires choisies seront admissibles à participer à une présentation proposée à l'ACSP 2017, y compris un maximum de 1 500 $ en commandite pour la participation. Les histoires choisies seront également incluses dans un article à soumettre à la Revue canadienne de santé publique. **La date limite de soumission des résumés est le 23 décembre 2016.**

ENGLISH	FRENCH
A survey of evidence-informed public health services in Canada	Un sondage des services de la santé publique fondée sur des données probantes au Canada
Contribute to a study of Canadian public health practices	Contribuez à l'étude des pratiques de santé publique au Canada
The National Collaborating Centre for Methods and Tools (NCCMT) (www.nccmt.ca) is conducting a survey of the various services that public health decision makers in Canada use when making evidence-informed decisions. Such a study is crucial because the services used by the group in question—which includes frontline service providers as well as senior management—may differ greatly depending on location, type of decision and skills/needs they target.	Le Centre de collaboration nationale des méthodes et outils (CCNMO) (www.nccmt.ca/fr) mène une enquête sur les services que les autorités de santé publique du Canada utilisent pour éclairer leurs décisions grâce à des données probantes. Une enquête comme celle-ci est importante car les services qu'utilise ce groupe (qui comprend des fournisseurs de services de première ligne aux membres de la haute direction) peuvent varier selon le lieu, le type de décision, et les compétences ou les besoins qu'ils visent. Nous souhaitons en savoir plus.
Your answers to this survey will help us develop a localized list of services provided by Canadian institutions. The results will also aid us in identifying the accessibility of these resources for various professions and regions, as well as their usefulness, their conceptual overlap and potential duplication of efforts, and ongoing gaps.	Vos réponses à ce sondage nous aideront à développer une liste localisée recensant les services fournis par des établissements canadiens. Les résultats nous aideront aussi à identifier leur accessibilité pour différentes professions et dans diverses régions, leur utilité, leurs chevauchements conceptuels, les risques de dédoublement des efforts qu'ils présentent ainsi que les lacunes qui perdurent.
Please click here to start the survey: https://nccmt.co1.qualtrics.com/jfe5/form/SV_af98wifZLIJanIN.	**Cliquez ici pour accéder au sondage :** https://nccmt.co1.qualtrics.com/jfe5/form/SV_af98wifZLIJanIN
The survey will take about 15 minutes to complete. Upon completion, you will be invited to enter a draw to win a $50 gift certificate from Chapters/Indigo. One gift certificate is available in each region in Canada (east, Ontario-Quebec, central and west).	Répondre à ce sondage vous prendra une quinzaine de minutes. Après l'avoir fait, vous pourrez vous inscrire au tirage d'un chèque-cadeau de 50 $ chez Chapters/Indigo. Un chèque-cadeau sera remis dans chaque région du pays (l'Est, l'Ontario–le Québec, le Centre et l'Ouest).
If you have further questions about the purposes of the study and how its results will be used, please contact Reza Yousefi Nooraie (r.yousefinooraie@utoronto.ca).	Si vous avez des questions au sujet des objectifs de l'étude et de la manière dont ses résultats seront utilisés, veuillez communiquer avec Reza Yousefi Nooraie (r.yousefinooraie@utoronto.ca).
The survey will close on **December 30, 2016**.	**Le sondage prendra fin le 30 décembre 2016.**

Internal Medicine Evidence Based Practice projects

Roman Jaeschke, Akbar Panju, Piotr Gajewski, Paul O'Byrne

We are a working group committed to expanding the impact of evidence-based clinical practice for Internal Medicine practitioners. Two of our major initiatives, which we have been working on over the last 3 years, are a **McMaster Textbook of Internal Medicine** (www.mcmastertextbook.com) and a **McMaster International Review Course in Internal Medicine** (www.mircim.eu) .

The McMaster Textbook of Internal Medicine was inspired by the availability of a popular Polish language textbook. After translation, this textbook was provided to McMaster faculty for extensive editing and updating, supplemented by GRADE-d recommendations and published online (www.mcmastertextbook.com). Added features include McMaster-associated lectures, interviews on current clinical topics (McMaster Perspective), and publications of the week.

We have developed the McMaster Textbook of Internal Medicine with the users in mind. Specifically, we have prioritized ease of use, affordability and access to verified, evidence-based knowledge. Our future plans include adding a drug database, information packs for patients, and decision-support tools.

Our second initiative is a **McMaster Review Course in Internal Medicine (MIRCIM)**, which is modeled after Hamilton's Review Course in Internal Medicine. The upcoming 2017 course will involve presenters from Canada, USA, Great Britain, Germany, Poland, Belgium and Ireland, and we hope to welcome participants from over 20 countries. This year, the conference will involve a full day dedicated to Evidence Based Healthcare, practice guideline development, and the GRADE system of rating quality of evidence. Please visit our site for more details on this event: www.mircim.eu

$200 DISCOUNT IF REGISTERED BEFORE Dec. 31, 2016. DETAILS INCLUDED

McMaster EVIDENCE-BASED Clinical Practice Workshops

EBCP WORKSHOP

McMaster Evidence-Based Clinical Practice Workshops

To experience the BEST in EVIDENCE-BASED Health Care Education at McMaster University

Monday, June 5th — Friday, June 9th, 2017

Come to McMaster, the birthplace of evidence-based health-care, to join in one of two closely related workshops.

The first caters to clinicians who wish to improve their clinical practice through enhanced skills in reading, interpreting, and applying the medical literature.

The second is designed for clinician educators interested in enhancing their skills for teaching the principles of evidence-based practice to others.

Both workshops are tailored to faculty and community internists, hospitalists, and senior and incoming chief residents.

WHAT IS EVIDENCE-BASED CLINICAL PRACTICE / EVIDENCE-BASED MEDICINE?

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?

Clinicians are confronted daily with 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 relative costs and benefits associated with these decisions. Both clinicians and policy makers need to know whether the conclusions of a primary study or a systematic review are valid, and whether recommendations in clinical practice guidelines are sound.

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

WORKSHOP OBJECTIVES

Both streams: To help participants advance their skills in critically appraising the literature, and their skills in acknowledging and incorporating values and preferences in clinical decision making

Improve your practice stream: To acquire an understanding of common epidemiological concepts (e.g. interpreting hazard ratios, confidence intervals, critical appraisals of a systematic review) and advance their skills in using the literature for quality assurance, improving practice, and judging comparative effectiveness of health care interventions.

Teaching stream: To help participants learn how to teach EBCP using a variety of educational models in different settings, with different types of learners.

WORKSHOP FORMAT

The workshop is offered as a one-week intensive course.

Participants will be learning in interactive 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, for the teaching stream, opportunities for workshop participants to lead teaching sessions using their own ideas, materials, and reflecting their own experiences.

WORKSHOP MATERIALS

Prior to and at the workshop, participants will have access on-line to educational materials that include literature on critical appraisal and EBCP, the small group learning format, a set of clinical problems, JAMA evidence, and a variety of other EBCP aids.

WHY COME TO MCMASTER UNIVERSITY?

McMaster University is not only the birthplace of evidence-based medicine, and has produced the definitive evidence-based health care texts. We also continue to lead the world in innovation and advances in EBHC practice and teaching. McMaster's workshop, running for more than 25 years, has provided the model for EBHC workshops throughout the world. over this time, we have developed a cadre of the best EBHC educators in North America who return to the workshop year after year because of the intensely stimulating and educational environment. Come to experience the best in EBHC education!

TRAVEL, FACILITIES AND ACCOMMODATION

The workshop will be held at McMaster University. Upon confirmation of a definite placement in the workshop, you will receive a formal letter, access to the website and background and introductory materials 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.

REGISTRATION FEES

$200 DISCOUNT IF REGISTERED BEFORE **Dec 31, 2016**

REGISTRATION FEES	Canadian $	
One member from an institution	$2800	PLUS 13% Harmonized Sales Tax
Two members from an institution	$2500 each	PLUS 13% Harmonized Sales Tax
Three or more members from an institution	$2200 each	PLUS 13% Harmonized Sales Tax

PLUS 13% Harmonized Sales Tax (HST # R119-035-988). Tuition includes all workshop materials, photocopying services, access to computer literature searching and dinner on the first and last evenings.

REGISTRATION ON-LINE AT:
http://ebm.mcmaster.ca/registration_online.htm

Please reference your registration number on all correspondence.

NOTE: CREDIT CARD PAYMENT IS NOT ACCEPTED.

Please complete and return the application form with the registration fee, **(cheque Only)** payable to MCMASTER UNIVERSITY, and send it to:

Regular Mail

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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 maddock@mcmaster.ca or write your new address here and send to Deborah Maddock, CE&B, HSC 2C12, McMaster University Health Sciences Centre, 1280 Main Street West, Hamilton, ON L8S 4K1, Canada. Thank you!

NAME: _____

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POSTAL CODE: _____

COUNTRY: _____

TELEPHONE: _____

FAX: _____

E-MAIL: _____

SIGN UP A COLLEAGUE!

If you would like to encourage a colleague to attend the workshop next year, please e-mail maddock@mcmaster.ca or write the address here and send to Deborah Maddock, CE&B, HSC 2C12, McMaster University Health Sciences Centre, 1280 Main Street West, Hamilton, ON L8S 4K1, Canada. Thank you!

NAME: _____

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E-MAIL: _____

RECOMMENDED BY: _____