

# Strengthening evidence-based healthcare in Africa

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10.1136/eb-2012-101143

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## The importance of evidence-based practice in Africa

A Collaboration for Evidence Based Healthcare in Africa (CEBHA) has been established with partners from eight sub-Saharan African countries, Ethiopia, Uganda, Rwanda, Burundi, Tanzania, Malawi, Zimbabwe and South Africa. The aim of the Collaboration is to facilitate the provision of patient care based on evidence-informed decisions using context specific current best evidence; and to build capacity and sustainable structures of Evidence Based Healthcare in Africa.

We believe that access to equitable and effective healthcare should be a right for people in all countries. Irrespective of where one lives, the need for valid evidence determining the efficacy of healthcare interventions is essential. Where the unmet needs for health services are most prominent, it is essential to adopt practices that have proven to be beneficial and not harmful or ineffective to ensure scarce resources are not wasted. Incorporating Evidence-Based Health Care (EBHC) into the African context means setting priorities, developing evidence summaries and guidelines and implementing research findings relevant for African countries to support healthcare for all. Contextualising evidence relates to several issues, including the lack of evidence available for an African setting. The effectiveness of an intervention in Africa may be different from that found in studies elsewhere because of factors such as: later presentation, co-infections, malnutrition, higher levels of self-medication and use of traditional remedies, reduced level of resources, including human resources for basic healthcare, and political instability. In addition, effective interventions, as determined by many systematic reviews, may not be available or affordable in most African settings. This means that Africa needs valid and Africa-specific research and that authors of systematic reviews should take this into account by avoiding over-generalisation when making conclusions.

EBHC extends the application of the principles of evidence-based medicine (EBM) as defined by Sackett *et al*,<sup>1</sup> to all healthcare professionals. Evidence-based public health can be defined as 'integration of the best available evidence with the knowledge and considered judgments from stakeholders and experts to benefit the needs of a population'.<sup>2</sup> Judged by the number of publications, guidelines, textbooks and references made to the term EBM, few, if any, innovations have probably had a greater impact on healthcare over the last decades than the introduction of the methodologies and practice of EBM.<sup>3</sup> 'The Cochrane Collaboration is an enterprise that rivals the Human Genome project in its potential implications for modern medicine' wrote David Naylor in *The Lancet*.<sup>4</sup> The application of evidence-based methods has become state of the art for clinical and public health decision making in most European countries, Australia and in the USA.

Up to now these innovations have not been widely utilised and implemented in African health systems<sup>5</sup> and among the partners of the CEBHA, only South Africa has established centers for EBHC, the South African Cochrane Centre and the Centre for EBHC at Stellenbosch University. Capacity and organisational structures for the development and delivery of contextualised EBHC are lacking in most African countries, but several existing research initiatives and projects for EBHC and policy-making have been identified, among them SURE (Supporting the Use of Research Evidence for policy in African health systems) and REACH (Regional East African Community Health) which have developed tools for evidence-informed policy-making and shown ways of working together internationally.<sup>6</sup> The Effective Health Care Research Consortium (<http://www.evidence4health.org/>) has developed evidence summaries relevant to infectious diseases in African contexts. However, for many prioritised areas of public health in low-income and middle-income countries, systematic reviews have not been carried out and there is a lack of contextualised research evidence.<sup>7-8</sup> The highest rates of child mortality continue to be found in sub-Saharan Africa, where, in 2008, one in seven children died before their fifth birthday.<sup>9</sup> Currently, maternal death rates are almost 200 times higher in sub-Saharan Africa than in high-income countries.<sup>10-11</sup> Sub-Saharan Africa can increase its pace towards achieving health Millennium Development Goals only if efforts to prevent death and disability are tailored to local conditions and if choices of health interventions and policies are based on solid scientific evidence.<sup>12</sup> At the same time there is a growing technical revolution occurring in Africa, which yields a vast array of opportunities. Internet access and the number of mobile telephones, many of which have internet access, have increased exponentially, with four of five people in Africa now having access to mobile phones.<sup>13</sup>

## Explorative workshop

In November 2011, CEBHA arranged a workshop with the partners in the Consortium (see acknowledgement) with the objective to explore the needs of the different countries and to set priorities for the collaboration. In addition, the Centre for EBHC at Stellenbosch University systematically assessed training initiatives in the African region in 2011 by contacting medical schools, organisations, institutions and known experts in the field via email; and searching the internet for relevant training activities. In total, 40 EBHC training programmes were identified. These were presented by 8 universities and 10 other organisations, and 20 of them (50%) were offered in South Africa. The EBHC training programmes were offered to various healthcare professionals (students, doctors, nurses and others) and consisted of 3 postgraduate degrees; 9 modules within university degrees;



19 short courses ( $\leq 1$  week) and 8 intensive courses ( $\geq 2$  weeks). Of these, four were e-learning courses with no face-to-face lectures; and three consisted of both e-learning and face-to-face components. The results of this survey show that EBHC capacity development programmes are concentrated in South Africa and that there is a need to further expand training to other African countries (see online supplementary table S1, web only file).

Some of the main challenges regarding implementation of EBHC in Africa identified by the participants of the workshop include the lack of adequate information and communication technology equipment and human resources in health facilities. Health information systems are underdeveloped and there is a lack of coordinated structures for translation of health research findings into policy and practice. There is also a lack of understanding of the importance of EBHC among policy-makers and healthcare professionals and several guidelines lack background evidence. Medical research is underdeveloped and not yet integrated into the medical culture, limiting options for disseminating research findings. Additionally most African countries face problems with the provision of health workers in rural areas as they are often reluctant to work in these areas.

### Establishment of CEBHA and strategies developed

To address these challenges and based on a needs assessment prepared by eight sub-Saharan African countries, supported by WHO, Liverpool School of Tropical Medicine and the Royal Tropical Institute in Amsterdam, the CEBHA has been established. The overall aim of this collaboration is to facilitate the attainment of the Millennium Development Goals 4, 5 and 6 (reducing child death rates, improving maternal health and combating HIV/AIDS, malaria and other serious diseases); and to encourage healthcare practice based on evidence-informed decisions, ultimately leading to equitable and effective healthcare for all. To achieve these goals a focus on reducing the burden of non-communicable diseases in Africa is also needed.

The following priorities for action were formulated in the 2011 workshop in Kampala:

- Building a sustainable collaboration for EBHC between researchers, policy-makers and clinicians—that will lead to the establishment of Centers for EBHC and satellite offices in at least eight African countries.
- Increasing the clinical and operational research to have more African-specific data integrated into the development of recommendations.
- Strengthening capacity in EBHC by training researchers, healthcare workers, policy-makers and librarians in finding, assessing and applying the best available evidence to improve health—that will lead to a sustainable training programme and key health personnel trained in EBHC.
- Developing and integrating courses in EBHC into the curriculum of the universities and schools of health education in Africa—to secure future knowledge uptake and transfer to the hospitals and primary health services.

- Establishing an African electronic library for health together with the WHO Evidence-Informed Policy Network (WHO-EVIPnet) and the HINARI (Access to Research in Health Programme) portal—that will provide free access to EBHC resources for all health personnel in Africa in a user friendly format.
- Conducting systematic reviews and encouraging development, adaption and implementation of guidelines relevant for the healthcare settings in African countries—that will create a resource base of African contextualised evidence.
- Developing strategies for dissemination and implementation of evidence at all levels of the healthcare system—that will facilitate the delivery of relevant knowledge at the right level of the healthcare system.
- Conducting research on dissemination and implementation strategies by using valid monitoring and evaluation indicators—that can continuously monitor the effect of the different strategies and allow for adjustments.
- Communicating and advocating EBHC to create links with other networks and projects—that will give strength and sustainability for the CEBHA in Africa.

### Discussion

This Collaboration aims to harness South-South cooperation and networking to ensure local relevance and sustainability. For EBHC to improve local healthcare, research priorities must address the disease burden of the African continent. Severe health problems in the face of scarcity of resources underscore the need for drawing upon interventions that have been shown to work and will have maximum impact. There is thus little room for error when determining which interventions to implement in practice.<sup>7 8</sup>

Organisational structures of EBHC should be integrated at the level of universities and ministries of health in sub-Saharan Africa. At present, there is a paucity of EBHC training in sub-Saharan Africa and integration into curricula is limited. There is therefore a need to strengthen both undergraduate and postgraduate teaching and training in EBHC for all healthcare workers and at African universities, and to use innovative strategies to reach out to other African countries. Stellenbosch University in Cape Town, South Africa, constitutes an exception and an example of the development of curricula and courses for EBHC.

Strong monitoring and evaluation programmes are needed within the collaborating EBHC network in Africa. We aim to initiate studies that analyse different context-specific implementation strategies and the impact of EBHC on policy and practice in Africa.

In collaboration with universities in Rwanda, Zimbabwe, Malawi, Ethiopia and Uganda the first courses in EBHC have been arranged. The first Annual Symposium for EBHC in Africa was arranged with 80 participants in Kampala Uganda in 2011, and the second was arranged in Kigali Rwanda in December 2012 with 100 participants. The project is sponsored by the Royal Tropical Institute in Amsterdam and has also received a grant from the Elsevier Foundation. Further funding is needed. In October 2012 a 5-day training of the trainers workshop for librarians and information specialists in

EBM literature searching was arranged in Addis Ababa with 24 participants from eight countries. These librarians will train doctors and nurses in literature search strategies at national EBHC courses. A website with the latest information about the project has been established (see <http://www.cebha.org>).

All authors contributed to the scientific content of the paper through discussions, data collection, writing and reviewing.

**Collaborators:** All partners of the CEBHA workshop in Kampala 23rd of November 2011 are listed: Professor Joseph Ntaganira and Dr Sanctus Musafiri, National University of Rwanda Faculty of Medicine, Rwanda; Dr Jaffu Chilongola, Tumaini University, KCM College, Kilimanjaro Christian Medical Center, Tanzania; Dr Tamara Kredo, South African Cochrane Centre; Dr Charles Okwundu Ms Anke Rohwer, Centre for Evidence-Based Health Care, Stellenbosch University, South Africa; Professor Gabriel Ndayisaba, National University of Burundi, Faculty of Medicine; Dr Twungubumwe Novat, National Public Health Institute, Burundi; Professor Harriet Mayanja-Kizza, Makerere University, College of Health Sciences, Uganda; Professor Exnevia Gomo, Zimbabwe University, Faculty of Medicine, Zimbabwe; Dr Gertrude Kalanda, University of Malawi, College of Health Sciences, Malawi; Professor Admasu Tenna, Dr Ephrem Abebe and Dr Omar Abdulwadud, Addis Ababa University, Faculty of Medicine, Ethiopia; Ms Isabelle Wachsmuth-Huguet, WHO, Evidence Informed Policy Network, Cluster for Innovation, Evidence, Research and Communication, Switzerland; Dr Kimberly Boer, Dr Masja Straetmans and Dr Frode Forland, Royal Tropical Institute (KIT), The Netherlands.

**Funding** The workshops in Uganda and Rwanda were funded by the Royal Tropical Institute in Amsterdam.

**Competing interests** None.

**Correction notice** This article has been corrected since it was published Online First. 80 has been corrected to

8 in the sentence 'These were presented by 80 universities...'.  
 ► Additional material is published online only. To view please visit the journal online (<http://dx.doi.org/10.1136/eb-2012-101143>).

## References

1. Sackett DL, Rosenberg WM, Gray JA, *et al.* Evidence based medicine: what it is and what it isn't. *BMJ* 1996;312:71–2.
2. European Centre for Disease prevention and Control, ECDC. *Evidence-based methodologies for public health*. Stockholm, Sweden: Technical Report, 2011.
3. Hooker RC. The rise and rise of evidence-based medicine. *Lancet* 1997;349:1329–30.
4. Naylor CD. Grey zones of clinical practice: some limits to evidence-based medicine. *Lancet* 1995;345:840–2.
5. Law T, Lavis J, Hamandi A, *et al.* Climate for evidence-informed health systems: a profile of systematic review production in 41 low- and middle-income countries, 1996–2008. *J Health Serv Res Policy* 2012;17:4–10.
6. Oxman AD, Lavis JN, Lewin S, Fretheim A. *SUPPORT Tools for evidence informed health Policymaking (STP)*. Oslo: Norwegian Knowledge Centre for the Health Services; 2010, Report no 4–2010.
7. McMichael C, Waters E, Volmink J. Evidence-based public health: what does it offer developing countries? *J Public Health (Oxf)* 2005;27:215–21.
8. Chinnock P, Siegfried N, Clarke M. Is evidence-based medicine relevant to the developing world? *PLoS Med* 2005;2:e107.
9. UN. Fact sheet, UN millenium goals, Target 4, Reduce child mortality. New York, 9 September 2010.
10. UN. Fact sheet, UN millenium goals, Target 5, Improve maternal health. New York, 9 September 2010.
11. United Nations. Department of Economic and Social Affairs. *The millennium development goals report 2010*. New York: United Nations Department of Economic and Social Affairs, 2010.
12. Wiysonge CS, Young T, Volmink J. Achieving the millennium development goals in sub-Saharan Africa. *S Afr Med J* 2007;97:802–4.
13. Yonazi E, Kelly T, Halewood N, Blackman C. *The transformational use of information and communication technologies in Africa*. . Washington: The World Bank and the African Development Bank, with the support of the African Union, 2012.

Table 1: EBHC training activities in the African region (2011)

Country	Name	Course name	Course length	Type of course	Participants/Qualifications	Type of learning
Cameroon	Centre for the Development of Best Practices in Health (CDBPH)	Introduction to Systematic Reviews and Meta-analysis Workshop	4 days	Short course	Deans of the Faculties of Medicine in Buea, Yaounde and Douala; other potential authors of systematic reviews	Face-to-face
		Systematic Reviews and Meta-analysis Follow-up Workshop	2 days	Short course	Participants of a previous workshop held in 2009	Face-to-face
Ethiopia	American International Health Alliance - HIV/AIDS Twinning Centre	Evidence-based Practice Workshop	1 day	Short course	Senior programme managers from several organisations	Face-to-face
Kenya	The Association for Health Information and Libraries in Africa (AHILA)	Introduction to Evidence-based Medicine		Topic as part of a 2 day workshop	Librarians, other healthcare information professionals	Face-to-face
Kenya	University of Nairobi	Postgraduate Diploma in Research Methodology	2 years part time	Postgraduate diploma	Bachelor's degree in medical field	Face-to-face
		Evidence -based Medicine Module	2 months	Module for registrars in Ophthalmology	Master's of Medicine (usually registrars in Ophthalmology)	Face-to-face
		Introduction to Research Methodology	2 weeks	Intensive course	Master's of Medicine - all MMed registrars attend this course on admission to MMed	Face-to-face
Malawi	College of Medicine, University of Malawi	Master's in Public Health	3 years part time	Module in postgraduate degree	Students doing Master's in Public Health	Face-to-face
Nigeria	Nigerian Branch of the South African Cochrane Centre	Evidence-based Medicine/Systematic Review Workshop	2-3 days	Short course	Healthcare workers with interest in EBM and systematic reviews, policy makers	Face-to-face
		Reviews for Africa - Cochrane Protocol Development	2 weeks	Intensive course	Nigerians within Nigeria with a registered Cochrane review title	Face-to-face
		Reviews for Africa - Review	2 weeks	Intensive course		Face-to-face

		Completion				
South Africa	South African Cochrane Centre (SACC)	Reviews for Africa Programme (RAP): Protocol Development	4 weeks	Intensive course	African healthcare researchers who have a registered title for a Cochrane systematic review	Face-to-face
		Reviews for Africa Programme (RAP): Review Completion	3 weeks	Intensive course		Face-to-face
		Cochrane Review Protocol Development and RevMan	5 days	Short course		Face-to-face
		Systematic Review Training for Evidence-based Health Care Practices	2 to 3 days	Short course	Postgraduate students, researchers and healthcare practitioners	Face-to-face
		What's so special about a Systematic Review?	2 hours to full day	Short session on request of special interest groups e.g. Universities	Undergraduate and postgraduate students	Face-to-face
South Africa	Stellenbosch University (SU)	MSc Clinical Epidemiology	2 years part time	Postgraduate degree	Bachelor's degree in medical field	Blended
South Africa	Stellenbosch University (SU)	Evidence-based Medicine (EBM)	12 weeks	Module in postgraduate degree (MMed Family Medicine)	Postgraduate MMed (Family Medicine) students	E-learning
South Africa	University of Cape Town (UCT)	Evidence-based Health Care	1 semester; part-time	Module of Master's in Public Health	Bachelor's degree in medical field	Face-to-face
		The South African Infectious Disease Clinical Research Training Program (SAIDCRTP) Summer Institute in Clinical Trials Research Methods	2 weeks	Intensive course	Bachelor's degree in medical field, basic knowledge of clinical research methods	Face-to-face
South Africa	Programme for Support to Pro-poor Policy-Development (PSPPD)	Rapid Evidence Assessments – a Method for Systematic Capturing of Evidence for Policy-making	3 days	Short course	Researchers, policy analysts, policy makers	Face-to-face
South Africa	University of the Witwatersrand	N/A	1 week full time	Joanna Briggs Institute: training	Staff with Master's degree	Face-to-face

				for staff		
		Evidence-based Health Care	1 year	Module in undergraduate programme, Bachelor of Dentistry	Students doing Bachelor of Dentistry	Blended
		Evidence-based Health Care	1 year	Module in postgraduate programme, MDent (community dentistry)	Students doing Master's of Dentistry	Blended
South Africa	University of Pretoria	MSc Clinical Epidemiology	2-3 years part time	Postgraduate degree	Bachelor's degree in medical field	Face-to-face
		Evidence-based Medicine	Module	Module in final year of MB,ChB	MB,ChB students	Face-to-face
South Africa	Effective Care Research Unit (ECRU)	Research Methods Course	4 days	Short course	Medical doctors and other healthcare professionals intending to undertake a randomized clinical trial or a Cochrane systematic review	Face-to-face
South Africa	Health Economics and HIV/AIDS Research Division (HEARD) University of KwaZulu-Natal	Research Synthesis Course	2 days	Short course	Researchers and postgraduate students of the university	Face-to-face
South Africa	University of KwaZulu-Natal	B.Pharm		Module within undergraduate degree	Students doing the B.Pharm course	Face-to-face
		M.Pharm/M.HSc		Module within postgraduate degree	Students doing M.Pharm/M.HSc degree	E-learning

<b>Twinning Centre Project Countries: Zambia, Ethiopia</b>	AIHA (American International Health Alliance)	Evidence-based Patient Education Materials: How to find, adapt and develop your own.	6 weeks	Intensive course	Healthcare/medical professionals with good knowledge of English and internet and computer skills	E-learning
		Introduction to Evidence-based Practice	6 weeks	Intensive course		E-learning
<b>Twinning Centre Project Countries: Zambia, Ethiopia, Uganda</b>		Introduction to Evidence-based Practice	4 days	Short course	Healthcare/medical professionals with good knowledge of English and computer skills	Face-to-face
<b>Uganda</b>	Makerere University	Applied Clinical Research and Evidence-based Medicine		Master's programme		
<b>Various</b>	WHO/RHL	Making Evidence-based Decisions in Reproductive Health: A Training Course	3.5 days	Short course	Clinicians (doctors, midwives), managers in reproductive health, medical administrators, teachers	Face-to-face
<b>Various</b>	CEBHA (Collaboration for Evidence Based Healthcare in Africa)	Overview of Evidence-based Medicine	5 days	Short course	Mixed staff	Face-to-face
		Introduction to Evidence - based Medicine	3 days	Short course	Mixed staff	Face-to-face
		Evidence-based Medicine and Clinical Decision Making	2-3 days	Short course	Medical staff	Face-to-face
		Evidence-based Diagnostics	3-5 days	Short course	Medical staff	Face-to-face
		Developing a Systematic Review	2 days	Short course	Medical research staff	Face-to-face