

Evidence-led obstetric care

Report of a WHO meeting

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Contributors William Adu-Krow, Heather Brown, Guillermo Carroli, Paul Garner, Jeremy Grimshaw, Metin Gülmezoglu, Justus Hofmeyr, Ardi Kaptiningsih, Gunta Lazdane, Ana Langer, Therese Lesikel, Helen Lugina, Pisake Lumbiganon, Hatem El-Din N Hassan Mohamed, Andy Oxman, Helen Smith, Yvonne Thomas, Qian Xu.

Writing Group Helen Smith, Metin Gülmezoglu, Paul Garner

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Introduction

The present report is based on a meeting entitled “The RHL and beyond: influencing policy and changing practice”, held in Geneva on 28–30 January 2004 under the auspices of the Department of Reproductive Health and Research of the World Health Organization. The meeting focused on ways of promoting evidence-based care in the area of pregnancy and childbirth, using the *WHO Reproductive Health Library* (RHL) as a source of systematic review evidence. Researchers and clinicians attending this meeting analysed various approaches and projects which had been implemented to promote the RHL as a tool for policy-making and practice change. The meeting reviewed the lessons learnt from such experiences and strove to determine how they could be used to inform future strategy.

Meeting objectives

The meeting had three objectives: (i) to draw lessons from initiatives promoting evidence-based reproductive health in low- and middle-income countries; (ii) to combine these lessons with existing knowledge on effective behaviour change to guide future implementation initiatives; and (iii) to recommend strategies and tools for clinicians, administrators and policy-makers for introducing and sustaining evidence-based approaches.

Lessons about changing practice

Four dissemination and good-practice-promotion projects were discussed: (i) a multi-centred trial to evaluate teaching RHL using interactive workshops and training materials; (ii) a before-and-after evaluation of RHL training combined with an educational intervention in South Africa; and (iii) two before-and-after evaluations using a combination of audit and educational outreach focused on specific interventions.

The analysis revealed that there is insufficient evidence to recommend that the specific strategies used in the four projects be implemented at a national scale. Initiatives to change practice and improve health care outcomes often require integrated programmes designed to change both the health care system and organization of services, in addition to interventions targeting individual clinicians.

Lessons about changing policy

Three policy initiatives were also presented and analysed at the meeting: one sought to increase commitment to evidence-based approaches in China, and two involved promoting adoption of the new WHO antenatal care model in Thailand and Argentina. Meeting participants concluded that it is difficult to systematically evaluate the promotion of policy change due to its complexity, but that clear messages and effective dialogue can facilitate the translation of evidence into policy.

Recommendations and conclusions

To develop further and sustain the achievements already made in evidence-based reproductive health, providers should focus on behaviour-change strategies relevant to local settings. For example, accreditation may be an option in some contexts (South Africa), while reliance on formal, linear strategies to evaluate interventions aimed at changing clinician behaviour may be better in others. Some participants considered continuous, multi-faceted promotion of evidence-based care in undergraduate and continuing education programmes as an appropriate strategy (China, Thailand, the United Republic of Tanzania). Suggestions were made on how to increase political commitment and enlist the involvement of international donors.

1.1 Objectives

Research synthesis which provides a critical evaluation and summary of reliable research on the benefits and harms of health care interventions, constitutes a vital source of evidence-based knowledge.

The World Health Organization strives to promote evidence-based practices, particularly in the area of pregnancy and childbirth. As part of this effort, the WHO Department of Reproductive Health and Research has, in collaboration with the Cochrane Collaboration, developed the *WHO Reproductive Health Library* (RHL), and is working closely with institutions and collaborators throughout the world to promote the use of the findings of systematic reviews in clinical practice and policy.

In the light of the uncertainties around how best to introduce and mainstream evidence-based approaches at local and national levels, WHO held a meeting to consider and review some of the training and dissemination projects involving RHL. The meeting brought together people in the field working in these areas and evaluation specialists to analyse the activities to date.

The meeting had three objectives:

- To draw lessons from initiatives designed to promote evidence-based reproductive health in low- and middle-income countries.
- To combine these lessons with existing knowledge on effective behaviour change in order to guide future implementation initiatives.
- To recommend strategies and tools for clinicians, health administrators and policy-makers for introducing and sustaining evidence-based approaches.

1.2 Evidence-based reproductive health

Systematic reviews: The first systematic summaries of interventions tested in randomized controlled trials were in the area of pregnancy and childbirth. These summaries were published as the Oxford Database of Perinatal Trials, and served as the basis for *Effective Care in Pregnancy and Childbirth*,¹ the first textbook to draw almost exclusively on systematic reviews. The database and the book were very influential in high-income countries; for example, they were instrumental in the Government of the United Kingdom's decision to institute an evidence-based health service. This led to the creation of the Cochrane Centre, to the extension of the Oxford Database to other medical specializations, and, finally, to the establishment of the Cochrane Collaboration.

Changing practice: The principle of evidence-based health care policy and practice is disarmingly simple, but the reality of interpreting the evidence and using it to improve policy and practice is more complicated. Programmes to improve quality

Framework for dissemination and implementation of evidence-based medicine

Figure 1.1

Level 1	Awareness raising
Purpose	Increase awareness about effective interventions and the potential gains from using research based knowledge in policy and practice
Activities	<ul style="list-style-type: none"> ■ Produce and publish relevant systematic reviews in a variety of professional and consumer publications ■ Communicate potential relevance of systematic reviews to current practice, with examples through commentaries
Level 2	Targeting groups and individuals responsible for implementation
Purpose	Identify target groups and individuals with specific roles in implementing research-based knowledge in practice
Activities	<ul style="list-style-type: none"> ■ Identify target groups, such as health ministry policy-makers, donor aid advisers, professional groups, managers with responsibility for clinical and public health policy ■ Communicate results from systematic reviews and their implications for practice face-to-face and through short summaries ■ Give examples of how others have used systematic reviews combined with audit to change practice for the better in their own hospital or practice ■ Make people aware of the evidence base for effective practice change
Level 3	Pilot and innovation projects
Purpose	Support individuals in specific pilot projects to evaluate potential ways to implement change in practices that seem to run contrary to current, available evidence
Activities	<ul style="list-style-type: none"> ■ Identify collaborators engaged or interested in developing pilot projects to implement research findings and opportunities to make care more evidence based ■ Help them to stimulate change (such as by audit and feedback or by means of opinion leaders) to practices for which systematic reviews of effectiveness provide reliable evidence ■ Ensure collaborators monitor change in policy and practice
Level 4	National or institutional policies for evidence-based decisions
Purpose	Encourage national governments, institutions, or donors to commit to evidence-based approaches, with effective implementation and monitoring systems
Activities	<ul style="list-style-type: none"> ■ Work with government and donors in establishing or strengthening health technology assessment offices or similar bodies at national level ■ Encourage national policies for evidence-based guidelines, with management systems to ensure that guidelines are implemented and monitored ■ Help institutions to train doctors, nurses, and other health staff to deliver training in evidence-based approaches

Adapted from York Centre for Reviews and Dissemination

of care, clinical care guidelines and medical education curricula are now drawing on systematic summaries of reliable research about the benefits and harmful effects of interventions, yet the most effective way of bringing this information to bear is still being debated.²

Dissemination: For many health professionals in low- and middle-income countries, evidence-based approaches are something relatively new. Some Universities and leaders in their fields are avidly promoting evidence-based health care, but precisely how the concepts and information can be woven into day-to-day decision-making remains unclear. The dissemination process has several levels—simple, passive dissemination, targeted dissemination, and active demonstration projects to show change is possible. Similarly, the dissemination process can involve persuading individuals and institutions to adopt evidence-based approaches, leading to the embedding of this knowledge and its use for decision-making in mainstream medicine. All of this can be viewed as dissemination (Figure 1.1). However, there is no hierarchy to these levels, and highly motivated individuals or institutions often begin with projects aimed at developing capacity for changing practice.

The WHO Reproductive Health Library (RHL): The World Health Organization publishes and disseminates RHL, an electronic package of Cochrane Systematic Reviews in reproductive health of interest to low-income countries that includes commentaries by professionals working in low-income settings on the relevance of review findings, as well as training materials (Box 1). Its aim is to increase access to evidence and help promote change towards evidence-based reproductive health; over 32 000 copies are distributed annually.

The WHO Reproductive Health Library	
The <i>Reproductive Health Library</i> (RHL) is an annual electronic review journal that focuses on evidence-based solutions to reproductive health problems in low- and middle-income countries. RHL includes Cochrane reviews and corresponding commentaries with practical recommendations.	
Editorials	Provide information and expert views on reproductive health and evidence-based decision-making in developing countries
Beneficial and harmful care	Categorizes interventions according to the level of evidence, and helps policy-makers and clinicians make sound practical decisions
Expert commentaries	Comment on the relevance of systematic review findings, and practical aspects with management recommendations
Implementation aids	Materials designed to help health professionals use research evidence in practice
Research methodology series	Scientific articles on research synthesis methodology, which facilitate the interpretation of the results of systematic reviews and randomized controlled trials
Internet links	Links to evidence-based medicine web sites and a register of funding agencies, NGOs and other organizations in the reproductive health field

Box 1

The Department of Reproductive Health and Research at WHO has promoted a variety of approaches to encourage people to use the RHL as a driver for change in practice. These include formal multicentre trials to measure the impact of RHL training packages intended to support health professionals, small-scale demonstration projects to engage individuals on the potential value of systematic reviews to improve care, and simple observational studies documenting how obstetric practice in a particular setting may vary from what research evidence suggests is best practice.

1.3 Methods for increasing evidence-led obstetric care

Delineating the gaps

Sometimes clinical or public health practice is consistent with best available evidence. For example, a national caesarean section audit in England and Wales found prophylactic antibiotics were administered to 87% of women who delivered by emergency caesarean section.³

Clinical or public health practices which are not consistent with best available evidence do patients a disservice by providing care that may cause harm. For example, the systematic review of episiotomies suggests that women randomized to a policy of performing an episiotomy routinely have worse outcomes than those randomized to a policy of avoiding episiotomies when possible.⁴

Harmful practices also include giving patients a drug that has some benefit, but is not as effective as another treatment. For example, diazepam may be used to treat women with eclampsia, but is not as effective as magnesium sulfate in preventing further eclamptic fits⁵; clinicians giving diazepam but withholding a known, better treatment are actually harming women.

Interventions involving expenditure of considerable resources, but which are of little benefit, reduce the amount of resources available for other activities, which, from a public health viewpoint, is the equivalent of doing harm. This includes high technology interventions, for example, electronic fetal heart rate monitoring⁸ and frequent antenatal care visits. Research evidence shows that small reductions in the number of antenatal visits in favour of goal-oriented, evidence-based activities are compatible with similar good perinatal outcomes as in the standard model; services that routinely provide the higher number of visits for low-risk women are wasting resources that could be used elsewhere.⁹ Table 1.1 summarizes the systematic review findings for these interventions.

Identifying practices which are inconsistent with available evidence can help pinpoint areas in which professional changes are needed. Changing practices will benefit mothers and their infants, qualitatively in terms of better health and quantitatively, in terms of the number of women who had not been receiving optimal care.

Systematic review findings for selected obstetric interventions

Intervention	Question	Systematic review summary	Conclusions
Episiotomy for vaginal birth	What are the benefits and risks of restrictive versus routine episiotomy during vaginal birth?	Six trials (n=5000 women) Restrictive policy resulted in less perineal trauma (RR 0.88; 95%CI 0.84–0.92), less suturing (RR 0.74; 95%CI 0.71–0.77), and fewer healing complications (RR 0.69; 95%CI 0.56–0.85).	There is clear evidence to recommend restrictive use of episiotomy.
Magnesium sulfate for eclampsia	How effective is magnesium sulfate compared to diazepam or phenytoin for women with eclampsia?	Five trials (n= 1236 women) Magnesium sulfate was associated with a substantial reduction in recurrence of convulsions (RR 0.45; 95%CI 0.35–0.58). Maternal mortality was also reduced (RR 0.60; 95%CI 0.36–1.00).	For women with eclampsia magnesium sulfate, rather than diazepam or phenytoin appears more effective.
Routine perineal shaving	What are the effects of routine shaving compared to no shaving on admission in labour?	Two trials (n= 539 women) No difference in maternal febrile morbidity was detected (OR 1.26; 95%CI 0.75–2.12) In the smaller trial, fewer women who had not been shaved had Gram-negative bacterial colonisation (OR 0.43; 95% CI 0.20–0.92).	There is insufficient evidence to recommend routine perineal shaving on admission in labour.
Enemas during labour	What are the effects of enemas during first stage labour on maternal and neonatal outcomes?	Two trials (n= 665 women) No clear difference in infection rates for puerperal mothers (OR 0.61, 95% CI 0.36–1.04) or newborn children.	There is insufficient evidence to recommend the use of enemas during labour.
Routine antenatal care in low risk pregnancy	What are the effects of antenatal care visits for low-risk women?	Ten trials (n=over 60 000 women) A reduction in the number of antenatal visits was not associated with an increase in any of the negative maternal and perinatal outcomes reviewed.	Small reductions in the number of prenatal visits (two visits or fewer) are compatible with similar good perinatal outcomes as in the standard model.

Table 1.1

Changing practice

Changing the behaviour of health professionals is not easy, and a variety of strategies, such as continuing medical education or dissemination of printed materials, have been tested. It is important that clinical practice is based on the best available evidence, but it is equally important that interventions to change practice are based on evidence as to whether they are effective or not.

Systematic reviews available in the Cochrane Library summarize the effects of various interventions to change professional behaviour. In this section, interventions are categorized as likely to be beneficial, of unknown effectiveness, and as likely to be ineffective in changing health professional behaviour (see Boxes 2–4). Annex 1 contains summaries of the systematic reviews, with full references.

Clinical care decisions in obstetrics often involve an individual health professional making a personal decision about whether or not to do something, or a small team working within a health facility determining how they will manage care. However, implementing some interventions requires decisions to be made about how care is organized, and thus requires introducing changes in policy.

Box 2

Interventions likely to be beneficial	
Interactive workshops	A systematic review of the effects of continuing educational meetings (32 studies, 2995 health professionals) ¹⁰ found moderate or moderately large effects in six studies comparing interactive workshops with no intervention or control (all were statistically significant) and small effects in four (one was statistically significant).
Workshops combined with didactic presentations	The same systematic review ¹⁰ showed interventions that combined workshops and didactic presentations had moderate or moderately large effects in 12 comparisons (11 were statistically significant) and small effects in seven comparisons (one was statistically significant).
Opinion leaders	A systematic review (8 studies, 296 health professionals) of the effects of using health professionals nominated by their colleagues as “educationally influential” (local opinion leaders) ¹¹ found some improvement for at least one practice outcome variable (6/7 trials); in two of the trials, the results were statistically significant and clinically important. In three trials that measured patient outcomes, only one achieved a practically important impact on practice.
Audit and feedback	A systematic review of feedback to health professionals on their performance relative to their peers or accepted guidelines (85 studies, 3500 health professionals) ¹² found an absolute improvement in practice of -9%–70% (52 studies comparing audit and feedback with no intervention).

Interventions with unknown effectiveness	
Dissemination of printed materials	A systematic review of the effects of printed educational materials on health professional practice ¹³ needs updating and has been withdrawn from the Cochrane Library. The original review found only a small effect on practice in nine studies (mainly interrupted time-series) comparing the distribution of printed educational materials with no intervention.
Dissemination of practice guidelines	In a systematic review of 18 studies, 4 cluster-randomized trials showed improvements but with unit-of-analysis errors. The available evidence is sparse and generally poor quality.
Educational outreach	A systematic review of the effects of a personal visit by a trained person to a health-care provider in his or her own setting (18 trials, 1896 health professionals). ¹⁴ Targeted behaviours included prescribing (13 studies); preventive services (3 studies); general management of common problems (2 studies). Small-to-moderate effects on practice were observed in all the studies. Educational outreach is more likely to have an effect on prescribing practices; the effect on other aspects of practice is uncertain.

Box 3

Interventions likely to be ineffective	
Didactic lectures	A systematic review of the effects of continuing educational meetings (32 studies, 2995 health professionals) ¹⁰ found didactic lectures had no effect on practice (7 studies).
Continuous Quality Improvement (CQI) in clinical settings	A systematic review of continuous quality improvement efforts in clinical settings ¹⁵ found a positive effect in 41/43 before-and-after studies, but three randomized controlled trials showed no effect on clinical outcomes or organization-wide improvement in clinical performance.

Box 4

Influencing policy

Policy can be defined as “laws, rules, financial and administrative orders made by governments, nongovernmental organizations or private insurers that are intended to directly affect the use of a practice or form of care”.¹⁶ For example, to change from diazepam to magnesium sulfate for eclampsia treatment not only needs a clinician to be aware of its value and decide on its use, but requires, in the public sector, a change in policy so that it is included in the national essential drug list, and is purchased and distributed alongside other medical supplies.¹⁷ However, some decisions made by governments or other organizations involved in setting norms represent “non-binding recommendations” rather than specific policy changes. For example, government endorsement of a baby-friendly hospital initiative, without resource commitment, represents a decision to support an effective model of care, but does not constitute a policy change.

Policy also determines how care is organized in its own right. For example, WHO recently considered whether reproductive health services should be integrated, meaning contraceptive services, sexually transmitted disease care, antenatal and postnatal care could be provided together by the same health care worker at the same time. Research evidence around this is not strong, but demonstrates that there are both advantages and disadvantages to integration at the point of delivery.¹⁸

Influencing policy requires commitment on the part of national governments, institutions and donors to evidence-based approaches, through policy changes or “non-binding recommendations”. This can take the form of national policies for developing evidence-based guidelines, and management systems that ensure these guidelines are implemented and monitored. Sometimes an experimental design can be used to formally evaluate the way policies are implemented. In Nigeria, clinicians have teamed up with policy-makers in Cross River state to develop evidence-based guidelines using a multidisciplinary team approach; if the state-level evaluation demonstrates impact on practice, the strategy will be scaled up for use in other states. The decision to change policy or to make recommendations for the use of national evidence-based guidelines lies with the policy-makers involved.

Box 5

Health policy-makers perceptions of their use of evidence Systematic review; last updated 2002	
Question	What are the barriers and facilitators to the use of evidence by health policy decision-makers?
Summary of review findings	<ul style="list-style-type: none"> ■ 24 studies comprising 2041 interviews with policy-makers were included. ■ The studies were qualitative assessments that focused on hypothetical scenarios or retrospective perceptions. ■ Personal contact (13/24), clear recommendations from research (10/24), and timeliness and relevance of the research (10/24) were the three most frequently mentioned factors that facilitated use of research in policy. ■ Mutual mistrust (16/24), lack of timeliness or relevance (10/24), and power and budget struggles (8/24) were the three most frequently mentioned barriers to the use of research in policy decisions.
Reviewers conclusions	Strategies researchers can use that might increase the selective use of their research include: using personal and close two-way communication; writing brief summaries that include effectiveness data; and ensuring research is timely, relevant and of high quality. These strategies will often not be effective in increasing appropriate use of research evidence, and are difficult to implement and evaluate.
Reference	Innvaer S, Vist G, Trommald M, Oxman A. Health policy-makers's perceptions of their use of evidence: a systematic review. <i>Journal of Health Services Research and Policy</i> , 2002, 7(4):239–44.

A systematic review of observational studies examined the barriers to and facilitators of the use of research evidence by health policy-makers and identified strategies researchers can rely on to increase use of their research (see Box 5).

A number of observations about effective policy change, based on common sense and personal experience, were highlighted by meeting participants:

- Researchers could provide clear recommendations in brief summaries that include effectiveness data.
- Personal contact between researchers and policy-makers is important.
- The timeliness, relevance and quality of research outputs are important if research is to have an effect on policy decisions. Policy-makers often consult researchers in times of health crises; it is frequently important for researchers to make use of these “windows of opportunity” and to reflect candidly without risking premature public disclosures.
- Researchers are accountable in different ways to policy-makers; they are not responsible for policy-making, but can inform the judgements of policy-makers. It is important to be explicit about these distinct roles. Formal or informal contracts might be a useful way to define these roles, for example, to set mutually agreed-upon rules about such matters as confidentiality and communication; “The clearer the rules, the better”, and decision-making processes should be transparent to everyone.
- Even institutionalized decision-making processes established by legislation can be threatened by changes in government or by groups with vested interests; senior policy-makers are rarely in post for very long and researchers frequently move on.

No systematic reviews or trials were quoted or identified, but these were informed opinions made at the meeting from the experienced team present.

Summary

In changing the behaviour of individual practitioners, research evidence suggests:

- passive dissemination of evidence alone is often not effective in changing provider practice;
- compared with passive dissemination, interventions that promote active engagement of participants, such as through interactive workshops, audit and feedback, appear more likely to be effective, as does using opinion leaders to promote change. However, the magnitude of the effect depends on the clinical significance of the practice and its relevance to the specific setting.

In relation to policy, research evidence on effective practices is relatively weak; however the following factors were thought to facilitate uptake: a) providing clear, brief summaries with recommendations; b) personal contact between researchers and policy-makers; c) timeliness, with particular policy opportunity windows.

There is sparse evidence on the effect of teaching evidence-based medicine; training might influence knowledge, but the effect on practice is unclear.

2.1 The projects

Four projects that aimed to promote dissemination and use of systematic review findings from the RHL in individual health facilities were presented at the meeting; Table 2.1 summarizes the objectives, design, interventions and primary outcomes of each project.

Projects to change practice

	Country	Objectives	Design	Units	Interventions	Primary outcomes
RHL trial	Thailand and Mexico	To evaluate the impact of teaching RHL to health workers on obstetric outcomes	Cluster-randomized controlled trial	40 hospitals	Three interactive workshops over 6 months; RHL training materials	Clinical practice; user experiences
Labour support study	Johannesburg South Africa	To evaluate the impact of a staff directed intervention promoting childbirth companions	Before-and-after study	10 hospitals	Training in the use of RHL (10 sites), and an intervention promoting childbirth companions (5 sites)	Change in 4 obstetric indicators; number of women accompanied during labour
Better Births Initiative pilot project	Johannesburg South Africa	To test a set of training materials and explore change processes in ten hospitals	Before-and-after study	10 hospitals	Educational workshop (10 sites) and self-audit mechanism (5 sites)	Change in 7 marker practices; qualitative analysis of the change process
Position during labour study	Dar es Salaam United Republic of Tanzania	To evaluate a training package to influence position during labour	Before-and-after study	4 hospitals	Audit and feedback followed by an educational workshop	Change in practice rates for mobility and supine position

Table 2.1

See Annex 2 for project abstracts.

Formal evaluation of all studies is currently in progress or being written up (Annex 2). A summary of comments by investigators and meeting participants concerning those studies is given here.

RHL trial

The RHL could bridge the information gap for clinicians in low- and middle-income countries, but its dissemination alone is unlikely to lead to significant practice change. Behaviour change often requires managerial and organizational restructuring as well as interventions to motivate staff. This cluster-randomized trial evaluated a programme supporting health professionals in accessing and using evidence from the RHL. The programme consisted of a multifaceted intervention including three interactive workshops delivered by a specialist over six months, meetings with hospital directors, computer hardware placed in labour wards with an RHL resource person identified within the staff, and materials to promote awareness and use of the RHL in Thailand and Mexico.

Labour support study

The investigators of this cluster-randomized trial hypothesized that providing women with childbirth companions would improve the quality of care for women during labour, and providing staff with access to evidence would encourage them to implement best practice. The results showed no impact on the number of women accompanied during labour, and only one of four indicator practices (episiotomy) showed a (non-significant) change. The findings demonstrate that introducing childbirth companions is complicated due to infrastructure and organizational factors as well as barriers to changing individual practitioner behaviour; alternative strategies to help clinicians implement companionship as well as make their practice more evidence-based need to be tested. Participants found the RHL difficult to use and although prior computer training makes the database more accessible, merely providing access to this information does not directly influence practice.

Better Births Initiative pilot project

Building on the findings of the labour companions study, an international network of researchers developed a focused educational programme to communicate evidence-based approaches and disseminate best practice to obstetric staff in Johannesburg, South Africa. The Better Births Initiative (BBI) used printed and interactive materials to help clinicians compare current practice to evidence-based standards and identify ways to change practice. With regard to enemas and perineal shaving, this one-group, pre–post study showed some evidence of improved practice. Meanwhile, supine position, the use of oral fluids, and companionship during labour were less likely to have changed at follow-up. Qualitative findings reveal that behaviour change was more likely at hospitals where motivation among staff was high and social structures existed to support and maintain changes to practice. The study illustrates that clinician behaviour change happens incrementally; implementation trials with short follow-up for primary outcomes are unlikely to achieve the expected impact given the complexity of the change process.

Position during labour study

The Africa Midwives Research Network promotes evidence-based midwifery practice through regional and in-country workshops. Midwives in the United Republic of Tanzania identified a need to encourage mobility during labour, and delivery positions other than supine. The study used a one-group before-and-after design to evaluate the impact of an audit and feedback intervention combined with an educational workshop to promote

evidence-based practice standards in four Tanzanian hospitals. Following implementation of the workshops, practice changed significantly for mobility during labour at two hospitals; but supine delivery position remained routine practice at all hospitals. The study concludes that barriers to change are complicated and require providers to want to change, and women to be informed of alternative positions; practice change often involves additional resources.

2.2 Lessons learnt and implications for research

Lessons learnt

Workshop participants analysed the four projects and identified key lessons from each; these are presented below in terms of the context in which interventions were implemented, the design and the evaluation of interventions. Learning points are summarized at the end of the section.

- It is not realistic to expect health professionals to make decisions about changing clinical care on their own. The labour support and RHL trials found professionals often want recommendations to guide decision-making, and support from hospital management for practice changes.
- Attributes of the proposed practice changes determine the extent of clinician behaviour change. The labour support trial and position during labour study found that practices that have resource or infrastructure implications are less likely to change. Conversely, the Better Births Initiative study found that best practices that save time (for example avoiding enemas, episiotomy and shaving) were more readily implemented.
- Medical regulations in some countries are a constraint to implementing best practice in obstetric care. In China, under the recently introduced regulations penalizing medical accidents, third-degree perineal tears are considered a medical accident, and in South Africa, medical students are required to conduct several supervised episiotomies as part of their training. Such protocols may preclude the implementation of a restrictive policy for episiotomy.
- Overcrowding, poor working conditions and staff shortages often mean staff are demoralized and lack motivation to adopt new initiatives. The South African and Tanzanian case studies particularly highlighted the impact of human resource constraints on efforts to influence health-provider practice.
- Local ownership and demand creation (or provider buy-in) are important to the success of dissemination and implementation projects. A perceived lack of local “ownership” of the Better Births Initiative influenced providers’ willingness to participate in the programme. The Tanzanian study involved key hospital personnel and clinicians in the planning and facilitation of the intervention, and in the RHL trial, hospital directors were consulted and local clinicians trained to facilitate workshops; explicit local involvement can increase the likelihood of interventions being implemented.
- Staff turnover is a constraint to implementing initiatives to change clinical practice. The South African case studies found that very high staff turnover and frequent staff rotations have implications for the intensity of implementation, for example, the number of outreach visits conducted. Unless change interventions are repeated over time, as in the RHL trial, uptake of best practice by all health professionals in a given setting is unlikely.

- Providing practitioner access to evidence has limited effect on practice. The RHL trial trained practitioners to access and use the *Reproductive Health Library*; this alone seems unlikely to improve practice in the absence of specific management and organizational interventions to influence practitioners' decisions and mainstream evidence-based standards, and to monitor change over time.

Implications for research

- Interventions should be tailored to specific barriers or problems. Some interventions may strive to influence provider practice, while didactic lectures may have an impact on provider knowledge, but not necessarily on practice. The Tanzanian study consulted key stakeholders about the potential barriers to changing practice, but a more systematic assessment of barriers or constraints (for example clinician knowledge, organizational constraints or information access) would help to identify appropriate interventions to address them.
- There is sparse evidence about which interventions are most effective for which behaviours. The impact of interventions to change professional practice is usually small or moderate, and it is sensible to acknowledge the limitations of interventions when designing and implementing initiatives. Three of the projects to change practice (labour support, BBI and position during labour) relied on interventions likely to influence behaviour change including audit and feedback, the involvement of opinion leaders, and interactive workshops.
- Availability of materials in local languages helps. The RHL was used with more difficulty in the trial in Thailand due to the language barrier, but in some hospitals English-speaking staff translated key documents in order to facilitate dissemination of evidence.
- Change takes time, effort and resources. The BBI and labour support study findings suggest that implementation trials with short follow-up are unlikely to achieve the anticipated impact on practice, because behaviour change usually happens incrementally. Enthusiasts or local opinion leaders who maintain the momentum for change can be central to the success of interventions to change provider practice.
- Collaboration and a multidisciplinary approach are essential. None of the projects adequately involved consumers, for example, pregnant women or local women's groups. Similarly, hospital staff were not extensively involved in the design of interventions to change their practice, which led to a level of disconnect between the research team and participating staff.
- Model potential impact to improve "buy-in". One way to improve government and donor "buy-in" to initiatives for change is to model the potential impact of implementing the practice changes being promoted. By illustrating the impact on costs, the number of deaths, morbidity outcomes, and the number of near misses—for example, reducing the enema rate by xx% resulted in a saving of xxUS\$—would demonstrate potential and encourage support at the national level.
- Be realistic in terms of expectations of impact of interventions. The BBI pilot study aimed to test a programme to engage providers in evidence-based approaches and methods to implement changes; the intention was not to impact directly on practice.

Conversely, the RHL trial aimed specifically to evaluate the impact of an intervention on obstetric outcomes. Despite the rigorous design, however, it was difficult to detect any change in practice, and the intervention's impact was rather in terms of improved knowledge.

- Evaluation design depends on the effect sought. Before-and-after designs are useful for flag waving and engaging people, but they tend to overestimate the size of the effect on practice. The lack of a control arm also means any practice change detected cannot be attributed to the interventions used. The RHL trial was commended for its rigorous design.
- Two of the before-and-after studies provided good anecdotal evidence of impact on engaging people and on practice (the United Republic of Tanzania and BBI South Africa); the labour support trial showed evidence of no change. These three projects were initially to develop intervention approaches that could be used on a wider scale; the intention was not that they should be studies of the generalizability of these interventions to induce change nationally or more widely.
- Process evaluation is important. Variation in effects within and between study sites is common. Process evaluation, using qualitative research methods such as focus group discussions and in-depth interviews (as in the BBI study), can help to disentangle the effect of an intervention from the influence of contextual factors or existing individual and social processes of change. Without attention to these factors, it is easy to hypothesize about what is different, but it is difficult to tease out the factors responsible for the success, or failure, of interventions.
- Systematic approach to evaluation. Before scaling up to national level in any country, initiatives like the BBI programme should be implemented and evaluated at a larger scale, possibly as a cluster-randomized controlled trial or an interrupted time-series design (and outside of the South African setting). The design should incorporate careful selection of clinical outcomes, process evaluation, and cost-effectiveness.
- Implementation research requires long-term planning and design. Most of the case studies presented were conducted with limited resources over relatively short time periods. Long-term funding is necessary, especially in the planning and intervention design stages, to avoid the tendency to rush to demonstrate impact. Evidence of impact from large cluster-randomized trials or interrupted time-series designs will indicate whether a scale-up will work, but such projects require funding.

Implications for practice

- There is insufficient evidence that the specific strategies used in the four projects are effective in inducing clinician behaviour change to recommend their implementation by countries through national initiatives.
- Initiatives to change practice and improve health care outcomes often require more than interventions (single or combined) targeting individual clinicians. Integrated programmes aimed at both system and organizational change are more likely to achieve consensus on practice changes and consistent implementation of these changes. They are also more likely to generate long-term organizational support (in terms of resources, policies, commitment).

3.1 The initiatives

Three policy initiatives were presented that aimed to influence policy in relation to obstetrics and the adoption of specific evidence-based policies. Table 3.1 outlines the characteristics of each initiative.

Characteristics of initiatives to influence policy

	Objectives	Activities
China dissemination programme	<p>To increase commitment to evidence-led decisions by national institutions</p> <p>To communicate findings from selected systematic reviews</p> <p>To demonstrate potential impact on current obstetric practice</p>	<p>Presentations at national conferences and academic meetings on women’s health</p> <p>Evidence-based medicine incorporated into post graduate medical curricula (Shanghai)</p> <p>Evidence-based medicine introduced to health care managers (Shanghai)</p> <p>Translation of “Evidence Update” (summaries of Cochrane review evidence) into Chinese and dissemination at academic meetings</p> <p>Observational study of practices in major Shanghai hospitals (1999 and 2003)</p>
Promoting the new WHO antenatal care model in Thailand	<p>To promote national adoption of new guidelines for antenatal care visits</p>	<p>Engaged key stakeholders prior to completion of ANC trial</p> <p>Trial results approved by Royal Thai College of Obstetrics & Gynaecology and Ministry of Public Health</p> <p>Implementation of the new WHO ANC model in Khon Kaen province; including workshops for health professionals</p> <p>Press conference to publicize the new ANC model</p>

Table 3.1

	Objectives	Activities
Promoting the new WHO antenatal care model in Argentina	To promote national adoption of new guidelines for antenatal care visits	<p>Publication of trial results in Spanish language medical journals; publicized in national press and media</p> <p>Presentation of new model at national and international scientific meetings</p> <p>Modified existing national ANC guidelines</p> <p>Implementation of the new model in Corrientes province, including workshops and information dissemination</p>

China dissemination programme

The comprehensive dissemination programme in China demonstrated impact on childbirth policy both nationally and institutionally. At the national and provincial levels, the Women's Health Division of the Chinese Preventive Medicine Association now promotes evidence-based practice countrywide; several provinces have pioneered initiatives to reduce interventions during childbirth; and evidence-based medicine is the main topic of the next annual academic meeting of the Women's Health Care Association of China. At the institutional level, the observational study of obstetric practice in Shanghai showed some significant changes to obstetric indicators in the period 1999–2003. Although these changes cannot be attributed to the dissemination activities alone, the study demonstrates that the health system is responsive to evidence-based approaches. On the basis of these findings, WHO funded a study to promote evidence-based obstetric care in five cities in China*. The dissemination programme has also started to influence policy for medical education; the School of Public Health at Fudan University is running a postgraduate course in evidence-based health care (including critical appraisal and evidence-based decision-making) and a continuing medical education programme for practising professionals, conducted jointly with an affiliated hospital. In addition, translated materials such as Evidence Update, and discussion of evidence-based approaches at national academic meetings have improved access by health professionals to scientific evidence on obstetric practices.

Promoting the new WHO antenatal care model in Thailand

A systematic review published in the RHL shows that the number of antenatal care visits could be reduced without any increase in adverse maternal and perinatal outcomes; this new antenatal care model costs less to mothers and health services. In Thailand, researchers and clinicians experienced in evidence-based obstetrics used various activities to promote the new model in Khon Kaen province. Involving key policy-makers at an early stage helped to influence policy decisions at the provincial level; chief provincial medical officers and national policy-makers from the Ministry of Public Health were made aware of the new model and approved the implementation strategy. A high-profile press conference

*Strengthening maternal safety. Grant ID CHN/RPH/001 (2000-2002)

chaired by the chief provincial medical officer was used to inform the public about the new antenatal care model. The appearance of medical experts together with policy-makers helped reinforce the scientific message underpinning the new model and garner public support.

Promoting the new WHO antenatal care model in Argentina

A similar approach was used to promote the new antenatal care model in Argentina. Local publications and dissemination at scientific meetings helped to impress upon clinicians and policy-makers the evidence supporting reduced antenatal care visits. A key part of the strategy was modification and implementation of existing national guidelines in one province; this involved key representatives from the national health authorities. The opportunistic nature of the strategy was emphasized, and it was concluded that policy change and implementation at the local level is a complex process that has substantial time and funding implications.

3.2 Lessons learnt

Workshop participants analysed the strengths and weaknesses of each approach to influence policy; key learning points are outlined below:

- Influencing policy is opportunistic. The three initiatives show that it is difficult to plan a systematic approach to influencing policy, and that the process of engaging policy-makers is often opportunistic because research findings may or may not fit into the political agenda. The Thailand case study acknowledges this, and a key lesson is, “think big, start small, but start now!”. If researchers can demonstrate an intervention or practice change can be implemented easily and has clinical impact, it is more likely to be acknowledged and placed on the policy agenda.
- The relationship between researchers and policy-makers is important. Personal communication and good relations between them is a key part of initiatives to influence policy. In the Thai example, researchers had built up a relationship with provincial policy-makers over time, which facilitated the inclusion of the new model in policy. In China, the success of the dissemination programme was partly due to good relations between influential researchers and clinicians and policy-makers at provincial and national levels.
- Mutual understanding and acknowledgement of the respective roles and responsibilities of researchers and policy-makers for the consequences of the changes is important for policy change. The Thai example showed that the presence of researchers and politicians in support of the new antenatal care model at a press conference helped convey to the public the partnership between research and policy.
- Clear research messages are important. Translation into the local language of key messages and local dissemination of research findings can help convince policy-makers of the relevance of an intervention or practice locally. In China, translations of evidence summaries and materials promoting evidence-based obstetrics helped to improve the accessibility of scientific evidence underpinning proposed policy changes. In Argentina, local publication of the antenatal care trial results helped to raise political support for the adoption of the new model locally.

- The policy implications of research need to be considered. Dialoguing with policy-makers about a research project from the outset, and consideration of the policy implications up front can facilitate the translation of findings into policy and practice. The Thai and Argentinian projects are examples of how key decision-makers were consulted and involved in the planning of the trial, which inevitably influenced their decisions to approve the new model for provincial implementation.

The need for more rigorous evaluation of interventions to change professional behaviour should not deter individuals from promoting evidence-based reproductive health using existing knowledge of effective approaches. Some meeting participants were quite focused on behaviour change in localities, and others were concerned with wider promotion of evidence-based obstetric care.

4.1 Using accreditation

Accreditation systems, where institutions are rewarded for achieving certain levels of “good practice” (defined according to available evidence), appear to motivate health professionals to change their practice, especially when endorsed by international organizations.

The meeting participants highlighted the need for systematic review of accreditation as an approach for promoting evidence-based care. A logical starting point would be trials evaluating the Baby Friendly Hospital Initiative; there are at least three existing trials in this area.^{19,20,21} It was agreed that WHO and EHCAP would jointly identify and support someone to complete a Cochrane Review in this area in collaboration with the EHCAP group.

Accreditation may have varying effects, depending on the practices it is used to promote. To determine if accreditation has potential as a strategy for promoting evidence-based reproductive health, meeting participants proposed developing simple tools and piloting them at the provincial level in South Africa. If the approach and tools seem to work, the next step would be a more rigorous design with adequate comparisons for evaluation at the national level.

A plan was suggested for testing the approach in Eastern Cape Province, South Africa:

- Work with the provincial Department of Health to develop a set of verifiable standards for evidence-based obstetric care. For example: availability of magnesium sulfate and administration to >95% women with eclampsia; availability of oxytocin and administration to >95% women at delivery; episiotomy in <25% nulliparous women.
- Establish a provincial government “BBI Award” for achievement, or partial achievement of these standards. Design an evaluation tool to measure adherence.
- Continue running BBI workshops with achievement of the award as a motivation. Practice at each site could be evaluated before the workshop, so that they have a baseline from which to work.
- Define the success of the programme simply in terms of sites achieving and maintaining accreditation (acknowledging that this model will not provide a cause-and-effect relationship); WHO could facilitate this approach by endorsing the BBI Award.

4.2 Formal linear approaches

Most of the projects discussed in the workshop did not adequately assess barriers and opportunities for changing practice at the outset. This assessment is an important stage in the development of any strategy to influence provider practice, and frameworks exist to facilitate this process. The participants discussed the limitations of existing initiatives and, based on this, suggested the linear approach to implementation below, comprising several key stages (see Box 6). There was debate as to whether formal linear approaches with rigorous research evaluation are necessary before promoting an approach to change practice (such as continuing medical education). It was agreed that reliable research was extremely limited in these areas, and that it would be inappropriate to promote any proposal at national or regional levels that involved a major investment of staff and resources unless direct evidence that it worked was available.

4.3 Training

Priming health professionals with the principles of evidence-based medicine through undergraduate training and dissemination of training materials in local languages should be a long-term goal in all countries where this is not already in place. Examples of where training has been introduced and materials developed for local dissemination include:

Training on evidence-based medicine:

- In China, postgraduate courses at the School of Public Health at Fudan University in Shanghai now include critical appraisal training and an introduction to evidence-based approaches.
- Principles of evidence-based medicine are now taught in undergraduate and postgraduate curricula nationwide in Thailand.
- A module on the principles of critical appraisal is being developed for use in nursing and midwifery training in Dar Es Salaam, the United Republic of Tanzania.
- In South Africa, the University of Pretoria includes RHL training in obstetric modules.

Materials in local languages:

- In China, summaries of systematic reviews (Evidence Update) have been translated and posted on the Fudan University web site, and printed versions disseminated to hospital managers nationwide.
- The RHL is available in Spanish and is widely circulated in Latin America.
- The training manual for implementing the WHO antenatal care model is available in Thai and Spanish.
- The Better Births Initiative training materials are available in Thai.

4.4 Test evidence-based medicine teaching methods

Few trials provide evidence of the effect of teaching evidence-based medicine skills in health care settings. A systematic review that included one trial suggests teaching critical appraisal has positive effects on knowledge, but the effect on decision-making and patient outcomes is uncertain. The group discussed the possibility of developing a multicentre

Formal approach to changing practice	
1 Set priorities	
Activities	<ul style="list-style-type: none"> ■ Obtain consensus on priority areas in reproductive health and involve consumer and professional groups in priority setting. ■ Conduct a comprehensive needs assessment, including a situation analysis of the context of change, the resources, cost, time, staff involved, and the feasibility of implementation. ■ Assess barriers to, and opportunities for changing practice, using systematic methods to consider the practice environment, social context, attitudes and knowledge.²² Methods used to identify barriers include conducting informal meetings, consulting opinion leaders, and observation. ■ Relate barriers to individual practices and discuss problems and solutions.
2 Measure current practice	
Activities	<ul style="list-style-type: none"> ■ Measure practice rates and variation in hospitals where relevant. ■ Identify practice areas with good evidence, and assess gaps between evidence and practice. ■ Develop good evidence-based messages that target the right level—this may be the health care system, an organization, teams or individuals. ■ Consider the packaging of practice changes—where a “menu of change” is provided it may be useful to help health professionals pick and choose according to their needs and priorities of their setting.
3 Selected intervention based on priorities and barriers	
Activities	<ul style="list-style-type: none"> ■ Assess the need for guidelines. Can existing guidelines be adapted for local use? Challenge guidelines that are not evidence-based. ■ Tailor interventions according to barriers. ■ Is there a role for interventions based on regulation or incentives? ■ Empower women with information about best practice and informed choices. Consider the role of the media or women’s groups.
4 Evaluate interventions systematically	
Activities	<ul style="list-style-type: none"> ■ Decide on measurable outcomes. ■ Uncontrolled before-and-after studies, with qualitative components, may be useful for engaging staff in the change process. ■ Implement evidence using effective behaviour change interventions. ■ Evaluate impact on practice. ■ Controlled before-and-after, interrupted time-series, and cluster-randomized designs can be used to evaluate the effect on practice. ■ Include process evaluation and cost–effectiveness estimates. ■ Have realistic expectations of what can be achieved with the time and resources available. ■ Audit and feedback can be useful to engage practitioners in the quality improvement process.

randomized trial to assess the effects of teaching evidence-based medicine skills using existing tools developed by the group (Evidence Update, critical appraisal module). One hypothesis is that combining teaching of evidence-based medicine skills with training on identifying organizational constraints and establishing quality assurance would strengthen the likelihood of behaviour change.

A large multicentre trial to test these approaches could be developed within an existing programme in West Africa to promote access to, and use of, evidence: the Use of Scientific Evidence Initiative (USE-It), funded by the Department for International Development, United Kingdom. The USE-It network includes national and regional institutions with commitment to evidence-based approaches, many of whom would support further research into teaching critical appraisal and evidence-based medicine skills (West African Health Organization, West African College of Physicians, and the National Institute for Medical Research Nigeria).

4.5 Informal approaches

Where it is not possible to develop formal approaches to implement change interventions, persons working in institutions should be encouraged to develop ways to influence practice, starting with highly motivated individuals and advocates at the local level. Small-scale quality improvement projects, using the “plan-do-study-act” scheme, can test the effects of small changes by means of cycles of action and reflection.²³ First, changes are planned and agreed upon by all participants and baseline data are collected (plan), then small changes are carried out, the effects are noted and data collection is repeated (do). Lastly, the results of the changes and the change process itself are analysed (study), and changes that lead to improvement are implemented on a larger scale (act). The strength of the model lies in the reflection phase—learning from the process of implementing change. As with other quality improvement cycles, obstacles to the implementation of this model include lack of time, resources, commitment, and strong leadership to initiate programmes. Systematic review evidence suggests that clinician involvement, feedback from individual practitioners and a supportive organizational culture enhance the effectiveness of quality improvement programmes.¹⁵

4.6 Increase political commitment

- Researchers need to interact more with policy-makers and understand the way they function.
- National governments need to demonstrate their commitment to evidence-based health care by allocating funds for the training of young researchers and clinicians. For example, the Thai government has sponsored three PhD students to undertake training in evidence-based medicine at the Liverpool School of Tropical Medicine.
- National institutes need to be encouraged to give priority to research in evidence-based practice. For example, in Nigeria, the government-commissioned National Tropical Diseases Research Institute in Calabar has requested an evidence-based medicine office be located within the Institute.

4.7 Involve international donors

- Make the inclusion of policy and practice implications in funding applications mandatory. Researchers should make clear to what extent policy-makers will be involved with planning the research and propose methods to ensure the findings reach policy-makers.
- Make evidence of the impact of completed research on policy and practice a requirement in annual reports of major research programmes. However, dissemination of findings alone is insufficient to influence policy, and donors must insist on details of how researchers intend to interact with policy-makers. Target audiences for research findings should be identified before and during the research process, and dissemination outputs should reflect their needs.
- Only grant funds for scaling up implementation of interventions with good evidence of effect; establish a funding mechanism for implementation of practices that are shown to be evidence-based.
- Develop effective methods to keep abreast of knowledge programme outputs, particularly those with high impact, likely to have important policy implications. Researcher-produced policy briefings and fact sheets for decision makers, and “sound bites” for the media could facilitate this.

Evidence-based health worker behaviour change

Summaries of systematic reviews

Dissemination of printed educational materials	
Review withdrawn from the Cochrane Library; an updated version is in progress	
Question	Can dissemination of printed educational materials change health professional practice?
Systematic review summary	<ul style="list-style-type: none"> ■ 9 studies compared the distribution of printed educational materials with no intervention; mainly interrupted time-series ■ No difference between academic or glossy materials ■ Can affect knowledge and/or attitude
Reviewers conclusions	At best only likely to be a small impact on practice Improvement more likely in areas of low preference for mailed CME materials
Reference	Freemantle N, Harvey EL, Wolf F, Grimshaw JM, Grilli R, Bero LA. Printed educational materials: effects on professional practice and health care outcomes. <i>Cochrane Database of Systematic Reviews</i> , 2001, (2): CD000172.
Dissemination of practice guidelines	
Non-Cochrane systematic review; last updated 2004	
Question	How effective are different strategies for disseminating and implementing guidelines?
Systematic review summary	<ul style="list-style-type: none"> ■ 235 studies (73% of comparisons evaluated multi-faceted interventions). ■ Single interventions included reminders, educational materials, audit and feedback, and 23 comparisons of educational outreach. ■ The majority showed modest to moderate improvements in care.
Reviewers conclusions	Reviewers conclusions The evidence is sparse and generally poor quality. Educational materials may have a modest effect on guidelines implementation that is short lived.
Reference	Grimshaw JM, Thomas RE, MacLennan G, Fraser C, Ramsay C, Vale L et al. Effectiveness and efficiency of guideline dissemination and implementation strategies. <i>Health Technology Assessment</i> , 2004, 8(6).

Continuing medical education	
Cochrane Library, Issue 4, 2003; last updated 26 February 2001	
Question	<p>What are the effects of educational meetings (lectures or workshops) on professional practice and health care outcomes?</p> <ul style="list-style-type: none"> ■ 32 studies involving 2995 health professionals were included
Systematic review summary	<ul style="list-style-type: none"> ■ Interactive workshops (10 comparisons) showed moderate or moderately large effects in six studies (all were statistically significant) and small effects in four (one was statistically significant). ■ Interventions that combined workshops and didactic presentations showed moderate or moderately large effects in 12 comparisons (11 were statistically significant) and small effects in seven comparisons (one was statistically significant). ■ Didactic lectures (7 studies) showed no effect on practice.
Reviewers conclusions	Interactive workshops can result in moderately large changes in professional practice. Didactic sessions alone are unlikely to change practice. There is a need to determine which specific attributes of interventions (message, audience, size of group) contribute to effectiveness.
Reference	Thomson O'Brien MA, Freemantle N, Oxman AD, Wolf F, Davis DA, Herrin J Continuing education meetings and workshops: effects on professional practice and health care outcomes. <i>Cochrane Database of Systematic Reviews</i> , 2001, (2):CD003030.

Local opinion leaders	
Cochrane Library Issue 4, 2003; last updated 24 November 1998	
Question	<p>What are the effects of using health professionals nominated by their colleagues as "educationally influential" on professional practice and patient outcomes?</p> <ul style="list-style-type: none"> ■ Eight studies involving 296 health professionals were included.
Systematic review summary	<ul style="list-style-type: none"> ■ Six of seven trials that measured health professional practice demonstrated some improvement for at least one outcome variable, and in two trials, the results were statistically significant and clinically important. ■ In three trials that measured patient outcomes, only one achieved an impact on practice that was of practical importance.
Reviewers conclusions	Using local opinion leaders results in mixed effects on professional practice. It is not always clear what local opinion leaders do and replicable descriptions are needed. Further research is required to determine if opinion leaders can be identified and in which circumstances they are likely to influence the practice of their peers.
Reference	Thomson O'Brien MA, Oxman AD, Haynes RB, Davis DA, Freemantle N, Harvey EL Local opinion leaders: effects on professional practice and health care outcomes. <i>Cochrane Database of Systematic Reviews</i> , 1999, (1):CD000125.

Audit and feedback	
Cochrane Library Issue 4, 2003; last updated 25 August 2003	
Question	Does feedback to health professionals on their performance relative to their peers or accepted guidelines improve professional practice or health care outcomes? <ul style="list-style-type: none"> ■ 85 studies involving over 3500 health professionals were included.
Systematic review summary	<ul style="list-style-type: none"> ■ 52 studies compared audit and feedback (+ or – printed educational materials) to no intervention showed an absolute improvement in practice of -9%–70% (median = 0.07, inter-quartile range = 0.02–0.11).
Reviewers conclusions	Audit and feedback can be effective in improving professional practice. When it is effective, the effects are generally small to moderate. The absolute effects of audit and feedback are more likely to be larger when baseline adherence to recommended practice is low. The findings do not support the conclusions of previous reviews that multifaceted interventions are more likely to be effective than single interventions.
Reference	Jamtvedt G, Young JM, Kristoffersen DT, Thomson O'Brien MA, Oxman AD Audit and feedback: effects on professional practice and health care outcomes. <i>Cochrane Database of Systematic Reviews</i> , 2003, (3): CD000259.
Educational outreach visits	
Cochrane Library Issue 4, 2003; last updated 1 September 1997	
Question	Can a personal visit by a trained person to a health-care provider in his or her own setting improve professional practice or patient outcomes? <ul style="list-style-type: none"> ■ 18 trials involving 1896 health professionals were included.
Systematic review summary	<ul style="list-style-type: none"> ■ Targeted behaviours included prescribing (13 studies); preventive services (3 studies); general management of common problems (2 studies). ■ Small to moderate effects on practice were observed in all the studies.
Reviewers conclusions	Educational outreach visits can change health professional behaviour, especially prescribing; the effect on other aspects of practice is uncertain. Research is needed to identify key characteristics of outreach visits that are important to its success. The cost–effectiveness of outreach visits is not well evaluated.
Reference	Thomson O'Brien MA, Oxman AD, Davis DA, Haynes RB, Freemantle N, Harvey EL. Educational outreach visits: effects on professional practice and health care outcomes. <i>Cochrane Database of Systematic Reviews</i> , 2000, (2):CD000409.

Continuous quality improvement (CQI)	
Non-Cochrane systematic review; last updated 1998	
Question	Do continuous quality improvement efforts improve outcomes of care and reduce costs in clinical settings?
Systematic review summary	<ul style="list-style-type: none"> ■ 41/43 single-site before-and-after studies showed a positive effect. ■ Three randomized controlled trials showed no effect on clinical outcomes or organization-wide improvement in clinical performance.
Reviewers conclusions	Effectiveness of CQI is enhanced by clinician involvement, individual practitioner feedback and a supportive organizational culture
Reference	Shortell SM, Bennett CL, Byck GR. Assessing the impact of continuous quality improvement on clinical practice: what will it take to accelerate progress. <i>Milbank Quarterly</i> 1998, 76, (4):593–624.

Abstracts of RHL-related projects

Practice audit and national dissemination in China

Abstract from: Qian X, Smith H, Zhou L, Liang J, Garner P. Evidence-based obstetrics in four hospitals in China: An observational study to explore clinical practice, women's preferences and provider's views. *BMC Pregnancy and Childbirth*, 2001, 1:1 (16 May 2001).

Background: Evidence-based obstetric care is widely promoted in developing countries, but the success of implementation is not known. Using selected childbirth care procedures in four hospitals in Shanghai, we compared practice against evidence-based information, and explored user and provider views about each procedure.

Methods: Observational study. Using the Cochrane Library, we identified six procedures that should be avoided as routine and two that should be encouraged. Procedure rate was determined by exit interviews with women, verified using hospital notes. Views of women and providers were explored with in-depth interviews. The study sites were three hospitals in Shanghai and one in neighbouring province of Jiangsu. The study comprised 150 women at each centre for procedure rate, and 48 women and providers had in-depth interviews.

Results: Vaginal births were 50% (303/599) of the total. Of the six practices where evidence suggests they should be avoided as routine, three were performed with rates above 70%: pubic shaving (3 hospitals), rectal examination (3 hospitals), and episiotomy (3 hospitals). Most women delivered lying down, pain relief was rarely given, and only in the urban district hospital did women routinely have a companion. Most women wanted support or companionship during labour and to be given pain relief; but current practice is insufficient to meet women's needs.

Conclusion: Obstetric practice in the hospitals studied is not following best available evidence. There is a need to adjust hospital policy to support the use of interventions proven to be of benefit to women during childbirth, and develop approaches that ensure clinical practice changes.

Practice audit and educational intervention to influence practice in the United Republic of Tanzania

Abstract from: Smith H, Lugina H, Mlay R. Using an educational workshop to promote mobility during childbirth in government hospitals in Dar Es Salaam and the Coast region, Tanzania. Submitted to *East African Medical Journal*, 2004, 81(11): 603-608.

Introduction: “Evidence-based practice” is a term now frequently used in all health-related disciplines. Providing care according to the principles of evidence-based practice assumes ready access to relevant information sources, and an understanding of the approach, and skills to use the information. Access to up-to-date health information is improving, especially given the efforts of free-access initiatives, but acquiring the skills to understand and use evidence in practice is not straightforward.

Objectives: To evaluate the impact of an educational intervention to introduce the principles of evidence-based obstetric care and encourage mobility during labour in government hospitals in Dar es Salaam, and to explore the barriers and opportunities to implementing evidence-based practice.

Methods: The study used a before-and-after design with quantitative and qualitative methods. We documented practice rates for mobility during labour at baseline, conducted educational workshops with labour ward staff from four hospitals, and followed-up practice rates six to nine months after the workshop.

Results: Following implementation of the workshops, practice changed significantly for mobility during labour at the district and regional hospitals; midwives at these hospitals appeared to be aware of the benefits and were willing to encourage women to be mobile during labour. Practice changed little at the referral hospital, but most women delivering at this hospital are likely to have been transferred from regional or district hospitals with complications, which could explain why most women were confined to bed rather than ambulant.

Discussion: This small study demonstrates the potential of using educational workshops to change childbirth practice at the district and regional levels in the United Republic of Tanzania. Institutionalization of practice changes involves influencing policy-makers, engaging opinion leaders to disseminate evidence and advocate for change among their peers, as well as developing mechanisms to overcome barriers to practice change at the hospital level. Results from this study will feed into a project to develop evidence-based guidelines for childbirth care, involving policy-makers, practitioners and hospital managers.

Using a focused change programme (the Better Births Initiative) to influence practice in South Africa

Abstract from: Helen Smith, Heather Brown, G Justus Hofmeyr, Paul Garner. Evidence-based obstetric care in South Africa: influencing practice through the “Better Births Initiative”. *South African Medical Journal*, 2004, 94: 117–120.

Ensuring health professionals practice according to evidence-based standards is important, since it affects the quality and cost of care patients receive. The purpose of this research was to use a focused change programme (the Better Births Initiative) to influence obstetric practice at ten hospitals in Gauteng Province, South Africa. The findings show some important improvements in practice following the implementation of the BBI; providers at some sites reduced the use of enemas, shaving and episiotomy, and increased use of oral fluids and companionship during labour. Qualitative data suggest that an interactive approach to implementing evidence-based practice can influence health professionals’ decisions to change practice, and that good working relationships and enthusiastic staff are central to effective change.

Trial to evaluate a programme promoting evidence on the RHL in Mexico and Thailand

Abstract from: Gülmezoglu AM, Villar J, Grimshaw J, Piaggio G, Lumbiganon P, Langer A. Cluster-randomized trial of an active, multifaceted information dissemination intervention based on The WHO Reproductive health library to change obstetric practices: methods and design issues [ISRCTN14055385]. *BMC Medical Research Methodology*, 2004, 4:2 (15 January 2004).

Background: Effective strategies for implementing best practices in low- and middle-income countries are needed. RHL is an annually updated electronic publication containing Cochrane systematic reviews, commentaries and practical recommendations on how to implement evidence-based practices. We are conducting a trial to evaluate the improvement in obstetric practices using an active dissemination strategy to promote uptake of recommendations in the *WHO Reproductive Health Library* (RHL).

Methods: A cluster-randomized trial to improve obstetric practices in 40 hospitals in Mexico and Thailand is conducted. The trial uses a stratified random allocation based on country and size and type of hospitals. The core intervention consists of three interactive workshops delivered over a period of six months. The main outcome measures are changes in clinical practices that are recommended in RHL measured approximately a year after the first workshop.

Results: The design and implementation of a complex intervention using a cluster-randomized trial design are presented.

Conclusion: Designing the intervention, choosing outcome variables and implementing the protocol in two diverse settings has been a time-consuming and challenging process. We hope that sharing this experience will help others planning similar projects and improve our ability to implement change.

Trial to evaluate a programme to promote support for women during labour in South Africa

Abstract from: Brown H, Hofmeyr GJ, Nikodem VC, Smith H, Garner P. Survey of childbirth practices in South African state maternity services and a randomized trial of an intervention to promote childbirth companions. Paper in progress.

Background: Care for women during childbirth in South African state maternity units is not evidence-based and instances of poor quality of care such as shouting, slapping or striking of women occur. We hypothesized that by providing maternity staff with access to evidence-based information and an encouraging the use of childbirth companions the quality of care for women during childbirth would improve.

Methods: A cluster-randomized trial nested within a before-and-after design at ten maternity units in South Africa.

After carrying out a baseline survey of practice we provided access to evidence-based information for maternity staff in the form of the World Health Organization *Reproductive*

Health Library (RHL), computer hardware and training to all ten sites. Five hospitals were then randomly selected to receive an additional educational intervention to promote the implementation of childbirth companions.

Outcomes were change in the proportion of women who had a companion during childbirth (and other obstetric practices) and instances of poor quality of care measured by observations during the study and exit interviews with 2058 postnatal women at follow-up eight months after the intervention and compared to baseline results. The effect of access to the WHO RHL is reported separately.

Results: Despite an initial positive response from staff to the childbirth companion intervention, no difference on the proportion of women who had a childbirth companion, or on the quality of care was demonstrated. There was a reduction in episiotomy and women moving around during the second stage of labour at the intervention sites compared with control sites.

Conclusion: Introducing support for women during labour is difficult, particularly in under-resourced health care systems. Lessons learnt from this study contributed to the development of the Better Births Initiative, an international initiative aimed at providing humane and evidence-based care for women during childbirth.

Antenatal care policy change in Thailand and Argentina

Abstract from: Villar J, Ba'aqeel H, Piaggio G, Lumbiganon P, Miguel Belizan J, Farnot U, Al-Mazrou Y, Carroli G, Pinol A, Donner A, Langer A, Nigenda G, Mugford M, Fox-Rushby J, Hutton G, Bergsjö P, Bakketeig L, Berendes H, Garcia J; WHO Antenatal Care Trial Research Group. WHO antenatal care randomized trial for the evaluation of a new model of routine antenatal care. *Lancet*, 2001,19;357(9268):1551–1564.

Background: We undertook a multicentre randomized controlled trial that compared the standard model of antenatal care with a new model that emphasizes actions known to be effective in improving maternal or neonatal outcomes and has fewer clinic visits.

Methods: Clinics in Argentina, Cuba, Saudi Arabia, and Thailand were randomly allocated to provide either the new model (27 clinics) or the standard model currently in use (26 clinics). All women presenting for antenatal care at these clinics over an average of 18 months were enrolled. Women enrolled in clinics offering the new model were classified on the basis of history of obstetric and clinical conditions. Those who did not require further specific assessment or treatment were offered the basic component of the new model, and those deemed at higher risk received the usual care for their conditions; however, all were included in the new-model group for the analyses, which were by intention to treat. The primary outcomes were low birthweight (<2500 g), pre-eclampsia/eclampsia, severe postpartum anaemia (<90 g/L haemoglobin), and treated urinary-tract infection. There was an assessment of quality of care and an economic evaluation.

Findings: Women attending clinics assigned the new model (n=12 568) had a median of five visits compared with eight within the standard model (n=11 958). More women in the new model than in the standard model were referred to higher levels of care (13.4%

vs 7.3%), but rates of hospital admission, diagnosis, and length of stay were similar. The groups had similar rates of low birthweight (new model 7.68% vs standard model 7.14%; stratified rate difference 0.96 [95% CI 0.01 to 1.92]), postpartum anaemia (7.59% vs 8.67%; 0.32), and urinary-tract infection (5.95% vs 7.41%; 0.42 [1.65 to 0.80]). For pre-eclampsia/eclampsia the rate was slightly higher in the new model (1.69% vs 1.38%; 0.21 [0.25 to 0.67]). Adjustment by several confounding variables did not modify this pattern. There were negligible differences between groups for several secondary outcomes. Women and providers in both groups were, in general, satisfied with the care received, although some women assigned the new model expressed concern about the timing of visits. There was no cost increase, and in some settings the new model decreased cost.

Interpretations: Provision of routine antenatal care by the new model seems not to affect maternal and perinatal outcomes. It could be implemented without major resistance from women and providers and may reduce cost.

Meeting participants

Dr Heather Brown
Specialist Registrar
Obstetrics and Gynaecology
Princess Anne Hospital
Southampton, UK
Email: aheller@onetel.com

Dr Ana Langer (Chair)
Population Council
Panzacola 62
Int. 102, Colonia Villa Coyoacán
CP 04000
Mexico DF, Mexico
Tel: 52 55 5999 8630
Email: alanger@popcouncil.org.mx

Dr Guillermo Carroli
Centro Rosarino de Estudios Perinatales
San Luis 2493
2000 San Rosario
Argentina
Tel: 54 341 447 2625
Fax: 54 341 448 3887
Email: gcarroli@crep.com.ar

Dr Helen Lugina
Africa Midwives Research Network
C/o Faculty of Nursing
Muhimbili University College of Health
Sciences
PO Box 65004
Dar es Salaam, Tanzania
Tel/Fax: 255 51 153 506
Email: hlugina@muchs.ac.tz

Prof. Paul Garner
International Health Research Group
Liverpool School of Tropical Medicine
Pembroke place
Liverpool L3 5QA
UK
Tel: 44 151 795 3201
Fax: 44 151 705 3364
Email: pgarner@liv.ac.uk

Dr Pisake Lumbiganon
Khon Kaen University
Dept. of Obstetrics & Gynaecology
Faculty of Medicine
Khon Kaen
Thailand
Tel: 66 1 871 9039
Fax: 66 43 348 395
Email: pisake@kku.ac.th

Prof. Jeremy Grimshaw
Ottawa Health Research Institute
Clinical Epidemiology Program
1053 Carling Avenue C-403
Ottawa ON
K1Y 4E9
Canada
Tel: 613 761 5231
Fax: 613 761 5492
Email: jgrimshaw@ohri.ca

Dr Andy Oxman
Department of Health Services Research
Norwegian Directorate for Health and
Social Welfare
Pb 8054 Dep
0031 Oslo
Norway
Tel: 47 24 16 32 90
Fax: 47 24 16 30 11
Email: oxman@online.no

Prof. Justus Hofmeyr
Frere/Cecilia Makiwane Hospitals
P Bag 9047
East London 5200
Eastern Cape
South Africa
Tel/Fax: 27 43 709 2483
Email: gjh@global.co.za

Dr Helen Smith
International Health Research Group
Liverpool School of Tropical Medicine
Pembroke place
Liverpool L3 5QA
UK
Tel: 44 151 795 3201
Fax: 44 151 705 3364
Email: cjdhel@liv.ac.uk

Ms Yvonne Thomas
Policy Division
Department for International Development
1 Palace Street
London SW1E 5HE
UK
Tel: 44 20 7023 0557
Fax: 44 20 7023 0105
Email: Y-Thomas@dfid.gov.uk

Dr Qian Xu
School of Public Health
Fudan University
138 Yi Xue Yuan Road
Shanghai 200032
P R China
Tel/Fax: 86 21 641 741 72
Email: xqian@shmu.cn

WHO Regional Office representatives

Dr William Adu-Krow
WHO Office of Caribbean Program
Coordination (PAHO)
PO Box 508 Bridgetown
Dayrells Road & Navy Gardens
Christchurch, Barbados
Tel: 246 426 3860 ext: 5019
Fax: 246 436 9779
Email: adukroww@cpc.paho.org

Dr Therese Lesikel
WHO Regional Office for Africa (AFRO)
B P 6
Brazzaville
Republic of Congo
Tel: 47 241 391 44
Fax: 47 241 395 17
Email: lesikelt@afro.who.int

Dr Ardi Kaptiningsih
WHO Regional Office for the South-East
Pacific (SEARO)
World Health House
Indeaprastha Estate
Mahatma Gandhi Road
New Delhi 11000
India
Tel: 91 112 337 0804
Fax: 91 112 337 0197
Email: kaptiningsiha@whosea.org

Dr Hatem El-Din N Hassan Mohamed
WHO Regional Office for the Eastern
Mediterranean (EMRO)
Nasser City
Cairo 11371
Egypt
Tel: 20 2 670 2535
Fax: 20 2 670 2492
Email: nourh@emro.who.int

Dr Gunta Lazdane
WHO Regional Office for Europe (EURO)
8 Scherfigsvej
DK-2100 Copenhagen
Denmark
Tel: 45 3917 1426
Fax: 45 39171850
Email: GLA@euro.who.int

Secretariat WHO-HQ, FCH/RHR

Dr Metin Gülmezoglu
Mr Raju Khanna
Dr Lale Say
Dr Davy Chikamata
Dr Katherine Ba-Thike

Dr Enrique Ezcurra
Mrs Åsa Cuzin
Ms Harriet Kabagenyi
Mr Paulo Dos Santos

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Within the maternity unit there is a consultant-led obstetric unit (delivering approximately 80% of women) and an. 17. alongside midwifery unit (AMU) providing midwifery-led care where 20% of women deliver. In the obstetric unit there is a four bed obstetric HDU with anaesthetic support and ITU nurse presence. The staffing model arrived at required the appointment of an additional 10 Consultants, 26 in total. Consultants are divided into two groups with a group of 16 consultants dividing the night shifts between them and a second group of 10 consultants dividing the evenings and weekend day shifts between them. GENEVA -- On the International Day of Older Persons -- 1 October -- the World Health Organization (WHO) is launching a package of tools, including a digital application to help health and social workers provide better care for older people. The innovative interactive digital application known as . GENEVA -- On the International Day of Older Persons -- 1 October -- the World Health Organization (WHO) is launching a package of tools, including a digital application to help health and social workers provide better care for older people. The innovative interactive digital application known as New book from Louise Ansari, published by Green Tree -- Bloomsbury, gives the essential guide to making sure you have a fabulous later life. Geneva, Switzerland: WHO and UNICEF. 2010. Google Scholar. 4. UNICEF (2008) Fact of the week , http://www.unicef.org/factoftheweek/index_46985.html. 5. WHO (2009) Monitoring emergency obstetric care. A handbook. Who, unfpa, unicef & amdd. The evidence for emergency obstetric care. International Journal of Gynaecology and Obstetrics, 88, 181--193. PubMedCrossRefGoogle Scholar. 11. WHO. (2004). Making pregnancy safer: the critical role of the skilled attendant. A joint statement by WHO, ICM and FIGO. Geneva, Switzerland: WHO press. Google Scholar. 12. The state of emergency obstetric care services in Nairobi informal settlements and environs: Results from maternity health facility survey.