Science-driven innovations for combating maternal and perinatal ill-health:

The G.R.E.A.T. project

Guideline development,
Research priorities,
Evidence synthesis,
Applicability of evidence,
Transfer of knowledge

2010
BACKGROUND

It is widely accepted that policies, programmes and practices in global health care need to be based on the best available scientific evidence. However, in practice it has been difficult to get evidence-based knowledge implemented in all settings, and there remain large gaps in knowledge on how to overcome this problem. The international health community is concerned by the slow progress in achieving universal access to sexual and reproductive health-care services. Based on the assumption that "technology" exists to solve most of the common health problems (high maternal mortality, unsafe abortions, and unwanted pregnancy) that still persist in low- and middle-income countries, there is much expectation of being able to deal with global health-care problems quickly. But the ground reality continues to stifle those expectations. For example: (i) researchers argue that more research is needed to develop evidence-based solutions to specific problems, whereas programme managers say that vital time is being lost in waiting for more research to come up with solutions; (ii) a considerable proportion of the guidance available is for facility-based care, but there is a dearth of evidence-based guidance for community-level action; and (iii) the focus of guidance has often been on clinical practices and improving health systems, but guidance on how to implement interventions continues to lag behind. Such challenges have led to fragmentation of efforts and funding, resulting in inefficiency and delays.

So what can be done?

Identification of problems and their articulation into questions that can be answered through known scientific methods lies at the heart of problem-solving in health care. For some problems, the solutions may be already available in existing knowledge sources (published research literature, guidelines, experts, etc.), but for some others new solutions will need to be found through appropriate research. In the context of health care, experience shows that implementation of research-based knowledge in real life (outside the confines of the laboratory) is complex and riddled with barriers. Therefore, available research data need to be synthesized and the resulting knowledge contextualized prior to implementation. Moreover, interventions to introduce evidence-based knowledge in practice may need to be tailored to overcome specific local barriers. Knowledge generation (for problem-solving) for health care and implementation of existing and new solutions is an intricate cyclical process that has been well summarized by Graham et al.† (Figure 1) as "knowledge to action" framework. For the process to run efficiently, it is imperative to remain vigilant to problems (gaps in knowledge) at each stage of the knowledge generation, synthesis and exchange framework and document the problems (in reports, discussion forums, clinic logs, research papers) in a way that they can be channelled to those (researchers, experts, institutions, etc.) who can identify a solution. For example, gaps in knowledge are identified by researchers at the stage of research itself. They can also be identified during the process of knowledge synthesis and exchange⁸ and guidance development (when the robustness of available knowledge is analysed using evidence-grading systems). Alert programme managers can identify barriers to implementation of knowledge in their practice environs, and so on. Because both contextualization of solutions and their implementation are done in the context of an ever-changing world, there is a need to
remain continuously vigilant for identification of emerging problems. However, regardless of the nature of problems, the best chance of solving them lies in systematic process of knowledge generation and its synthesis.

**The specific context of maternal and perinatal health**

One of the most challenging problems in sexual and reproductive health is how to lower the stubbornly high rates of maternal and perinatal mortality and morbidity, especially in low-income settings in sub-Saharan Africa and South Asia. A key strategy that is being employed to deal with this and other sexual and reproductive health problems is provision of universal access to sexual and reproductive health-care services, as reflected in the Millennium Development Goal No. 5 target of achieving "universal access to reproductive health"[iii]. To achieve this target, many countries are adopting policies aimed at encouraging women to deliver at health-care facilities. But, access to effective care - the ultimate goal of skilled birth attendance - goes beyond childbearing in health-care facilities. Access to effective care for all women requires expansion of coverage of health-care facilities and improvement of quality of care provided by the health system, all the way from the community to the highest-level health-care facility. Achieving access to good quality care is key for the attainment of MDG No. 4 that targets improving infant health as well.

Expansion of sexual and reproductive health-care services has its own challenges, not least the issue of quality of care. This issue is firmly linked to the capacity of health systems to adopt evidence-based practices, in both clinical practice and organization and implementation of interventions. A key priority therefore has to be the transfer of evidence based knowledge (in the form of guidelines) to health systems along with well-researched and synthesized knowledge about ways of implementing interventions.

**A new knowledge-synthesis-and-exchange-based approach to address maternal and perinatal health**

The UNDP/UNFPA/WHO/World Bank Special Programme of Research, Development, and Research Training in Human Reproduction within the WHO Department of Reproductive Health and Research and its partner institutions have developed a new approach for research on, and implementation of, interventions to improve global maternal and perinatal health in the context of existing international goals. This new approach is based on the knowledge to action framework mentioned above and several ongoing initiatives within and outside WHO in the past decade. The framework serves primarily as a marker for both ensuring that, on the one hand, appropriate knowledge is generated, synthesized and implemented in a systematic manner to improve maternal and perinatal health, and opportunities for identifying researchable problems are not missed at each stage, on the other.

**Efficient partnership is critical for the success of the G.R.E.A.T. project**

In order to implement an effective global programme on knowledge synthesis and exchange to reduce maternal and perinatal death and morbidity an international partnership is essential. Such a partnership will ensure that both the technical and financial resources can be generated and utilized. It is envisaged that the partnerships will evolve as new activities are prioritized and implemented. HRP/RHR will work with its donors and collaborating institutions to develop and strengthen this partnership. Institutions and organizations that showed interest in partnering HRP/RHR in the G.R.E.A.T. project until April 2010 are listed at the end of the document.
ACTIVITIES

The project has three distinct tracks. Some of the activities will be coordinated and run from HRP/RHR while others will be decentralized and will be run by project partners. The guideline activities will include various technical 'nodes' who will take on specific components.

I. Identifying priority problems / uncertainties

II. Guidelines

III. Implementation

I. Identifying priority problems / uncertainties:

HRP/RHR will initiate a multi-pronged process to identify country and regional needs. This process will look into all major causes of maternal and perinatal mortality and will guide other knowledge to action framework activities such as clinical guidelines and their implementation. Several research priority setting studies have been published. The focus in this project is on identifying the guidance needs (from WHO or internationally) by the countries and regions. To achieve this stake-holders at the country, regional and international levels will be contacted using various approaches. It is anticipated that the first five activities will be completed in 2010.

1. Survey of ministries of health and WHO country offices

The survey will focus on strategies to reduce maternal and perinatal deaths at the facility and community level keeping in mind the steps in the knowledge transfer and exchange process.

2. E-discussion using the Implementing Best Practices Knowledge Gateway (IBP-KG)

The IBP-KG is a frequently used platform by various communities concerned with sexual and reproductive health. These moderated discussions will capture input from programme managers, researchers and policy-makers.

3. HRP/RHR meetings

The survey questionnaire will be used at meetings such as the meetings of reproductive health advisors, regional advisory panels and the scientific and technical advisory group to get feedback from experts.

4. EVIPNET workshop

Evidence Informed Policy Networks are regional networks bringing together researchers, policy makers and programme managers. These workshops are useful in identifying local policy and practice issues as well as identifying local evidence. One workshop will be conducted in Africa.

5. Reproductive Health Library - Blog

6. Uncertainties in maternal and perinatal health care web portal
A web portal of uncertainties in maternal and perinatal health will be developed. The portal will include research priorities identified in Cochrane reviews, RHL commentaries, WHO guidelines and will be linked to a maternal and perinatal health search function in the International Clinical Trials Registry portal.

**Deliverables:***

1. **Synthesis of country, regional and global needs for WHO guidance will determine the guideline priorities for RHR**
2. **Scientific paper to be published in peer-reviewed literature**
3. **Online forum for continued input from stake-holders either as individuals or groups**
4. **Web site for research priorities developed and kept up-to-date.**

**II. Guidelines**

Since 2007 HRP/RHR is developing evidence-based guidelines in sexual and reproductive health using the GRADE approach for appraising the quality of evidence and determining the strength of recommendations. Guidelines on postpartum haemorrhage prevention (2007) and management (2009) were recently completed. WHO guidance is a unique mandate for setting standards internationally. Hence, guideline development and related knowledge exchange are key components of the project. Ongoing guideline activities will be completed and, following the needs assessment new guideline projects will be initiated accordingly. In particular, HRP/RHR will focus on providing relevant guidance on how best to deliver care at the primary health care and the community level.

Guidelines will be conducted in collaboration with technical nodes that will take on responsibility for certain tasks and will be operationalized using an online content management system. The following flow chart is a simplified illustration of how guideline development process is anticipated to happen.

1. **Ongoing guidelines**
   - Labour induction guideline: This guideline focuses on indications for labour induction and methods of induction. It will be finalized in April 2010 and published later in 2010.
   - Hypertensive disorders of pregnancy: This guideline is currently at the scoping stage. It will cover preventive interventions such as calcium and low-dose aspirin and magnesium sulfate for prevention and treatment of eclampsia. The panel meeting and the guideline publication is anticipated in 2011.
   - RHR/MPS IMPAC Guidelines working group: RHR and MPS are

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**Task**  | **Responsible**  | **Others involved**
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Scoping  | HRP/RHR  | Stakeholders, RHR/MPS WG
Search  | Cochrane group  | HRP/RHR
Synthesis  | Technical node  | Cochrane groups
Appraisal, GRADE  | Technical node  | HRP/RHR
Peer-review  | HRP/RHR  | Stakeholders
Technical consultation  | HRP/RHR  | Technical node
Guideline publication  | HRP/RHR  |

**Proposed flow of activities**
working together on updating the IMPAC guidelines, primarily the Managing Complications of pregnancy and Childbirth book which was published in 2000. Currently, the antepartum haemorrhage section is being updated.

2. **New guidelines**

- WHO recommendations on the use of lay health workers and task shifting for improving maternal and perinatal health care:

  The guideline will target policy-makers and other decision-makers regarding the effectiveness of lay health workers and task shifting to improve delivery of effective interventions. Task shifting (or sharing) refers to a process whereby specific tasks are moved, where appropriate, to health workers with shorter training and fewer qualifications. There will be an initial stakeholder meeting supported by an online consultation to agree on the scope of the guideline with clear, focused questions and endpoints. It is anticipated that the overall question will be covered in several guidelines.

**Deliverables:**

1. **Scoping and plan for guidelines on health systems strengthening and lay health workers for the next 5 years.**
2. **Development of clear research priorities based on the guidelines and posted on the research portal**
3. **Policy briefs together with each full guideline**
4. **Guidelines on labour induction and hypertensive disorders of pregnancy published.**

### III. Implementation

HRP/RHR has been working with country partners and UNFPA in implementing the Strategic Partnership Programme (SPP) for the past couple of years and has published a document to be used in guideline adaptation and implementation. However, most of that work has involved family planning and sexually transmitted infection guidelines. In the G.R.E.A.T. project implementation activities will include two distinct paths. First, acknowledging the large gaps in our knowledge of how to get knowledge utilized to make a difference in health outcomes; special emphasis will be put on conducting research that will evaluate promising strategies to improve knowledge utilization. Second, in partnership with organizations at the country level, UNFPA, UNICEF and WHO regional and country offices implementation activities that will aim to operationalize WHO guidelines will be conducted.

1. **Implementation research**

   There is a critical need to increase the number of high quality systematic reviews on the effectiveness of implementation strategies, and in particular on topics that are relevant to developing country needs. The Effective Practice and Organization of Care group (EPOC) is the organization within the Cochrane collaboration that coordinates the conduction of systematic reviews on complex interventions. EPOC reviews have already provided insight into the effectiveness of an array of implementation strategies on improving service delivery and accessibility. For example, it is now clear that many of the commonly used strategies for the diffusion of evidence-based practices among health professionals have very limited impact. One example is the small or inconsistent effect of the passive dissemination of information through clinical practice guidelines on provider behaviours. EPOC has also identified a number of strategies that are potentially relevant to maternal and child health, including audit and feedback, selection and empowerment of opinion leaders, conditional cash incentives, educational outreach visits, and substitution of doctors by nurses or midwives.
However, in its current state, the usefulness of the EPOC database of reviews for policy makers in developing countries is limited. A critical drawback is the small number of research studies and systematic reviews with direct relevance to low and middle-income country settings. It has also being suggested that improvements can be made to the GRADE system for selecting studies for inclusion in the reviews and guidelines. There is on-going work to improve the methodologies for using GRADE in health systems evidence being undertaken by WHO and the Alliance for Health Systems and Policy Research and the results will be released at the 2010 Global Symposium on Health Systems Research. Additional actions include strengthening research designs and data collection methods, as well as the development of system-wide research studies that provide comprehensive evidence across each of the health system building blocks.

- Evaluation of interventions to strengthen community capacity to reduce maternal mortality
  Approaches that strengthen health systems are likely to be more effective than those focusing on one complication, one intervention, one professional cadre, or on one level of the health system. A tailorable implementation strategy aimed at the strengthening of district health systems has to be mounted and assessed, including community-based actions, improvements in access to care and in the referral process, and the strengthening of health facilities. In this research, it is essential that the primary endpoint is reduction in maternal deaths.

- Implementing evidence-based antenatal care programme in Mozambique
  HRP obtained funding from the Government of Flanders to support a four-year project to evaluate a strategy to increase the delivery of evidence-based practices included in the ANC package by midwives (and other health professionals), and promote the integration of key interventions into routine antenatal care. The ultimate goal of the project is to improve maternal and newborn outcomes as well as the detection, treatment and prevention of major health-related conditions in pregnant women (e.g., anaemia, and infectious diseases such as HIV/AIDS, malaria, and congenital syphilis).

- Delivery strategy to increase the use of antenatal corticosteroids in developing countries – A cluster randomized trial
  HRP, in collaboration with the Institute for Clinical Effectiveness and Health Policy, Argentina and the US NICHD Global Network for Women’s and Children’s Health Research, will conduct a cluster randomized trial to test whether a multi-component intervention designed to increase the use of antenatal corticosteroids among mothers at risk of preterm birth in African, Asian and Latin American countries is safe and will reduce neonatal mortality in comparison to the existing standard of care.

2. Implementation of WHO guidelines
Building on the success of SPP project HRP/RHR will seek opportunities with partners to implement recommendations that are included in existing guidelines. Currently, the H4 (UNICEF/UNFPA/World Bank/WHO) platform is working on supporting countries in implementing evidence-based policies and practices. The G.R.E.A.T. project could provide the monitoring and evaluation framework for country implementation projects.

- Ethiopia: Implementing misoprostol outreach for use by health extension workers
  Community based distribution of misoprostol is an initiative of the Ethiopian government to reduce mortality and morbidity due to postpartum haemorrhage. The H4 partners will aim to implement the knowledge to action framework action cycle steps used in the G.R.E.A.T. project to monitor the safety and efficacy of this nationwide programme.
Deliverables:

1. Research publications in peer-reviewed journals
2. Implementation of WHO Guidelines to be published on G.R.E.A.T. project website
PROJECT PARTNERS

The following organizations and focal persons have shown interest, contributed through meetings to the G.R.E.A.T. project and continue to be involved in further contributions to the project.

**Organization**  
CEMICAMP, Campinas, Brazil  
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2. In 2009, a "Knowledge Synthesis and Exchange" working group was established in the Department of Reproductive Health and Research. This group has defined knowledge synthesis as follows: **Knowledge synthesis is the process of aggregation of existing knowledge related to a question. The process involves transparent application of explicit and reproducible methods to identify, appraise, and synthesize data (using meta-analysis and meta-synthesis) from as many studies as possible that have been deemed to be relevant to a specific well-defined question.** **Knowledge exchange** has been defined as “collaborative problem-solving between researchers and decision-makers…”