Development Process

1. Introduction

In accordance with WHO’s mandate and comparative advantage, the Department of Making Pregnancy Safer (MPS) has developed generic standards for maternal and neonatal care, with the purpose of providing countries and the international community with a tool for establishing evidence-based national standards of care. Where appropriate, MPS will assist countries and partners to develop and implement their own standards based on this generic tool. This work is one of the strategies to improve health service provision for women and newborn babies and complements other Integrated Management of Pregnancy and Childbirth (IMPAC) clinical and managerial tools.

2. Process

2.1 Overall process

In order to appropriately reflect the diversity of expert opinion and disciplinary perspectives, a systematic consultative process was used in the development of these standards. A Steering Committee and a Standards Development Advisory Group were established, whose composition and functions are described in Section 3. Drafts standards were developed internally by the technical staff in MPS in consultation with additional experts from the Department of Reproductive Health and Research (RHR) and experts external to WHO. These drafts were then shared with other relevant departments, including Child and Adolescent Health and Development (CAH); Stop TB; Global Malaria Programme (GMP); HIV/AIDS; Nutrition for Health and Development (NHD); Immunization, Vaccines and Biologicals (IVB); Technical Cooperation for Essential Drugs and Traditional Medicine (HTP/TCM); Essential Health Technologies; Health Policy, Development and Services (HDS); and Human Resources for Health (HRH) for ensuring technical accuracy and consistency with other WHO programmes. Starting from their early development stage the drafts were also shared with WHO Regional offices and Making Pregnancy Safer country focal points, to gather input on their applicability in different contexts. Additional inputs have been requested from external experts and institutions throughout the entire development process.

The Clinical Standards were reviewed in a technical consultation in Geneva, 14-16 October 2002, where as the Health Service Delivery Standards were reviewed in a technical consultation in Geneva, 26-28 October 2004.

2.2 Methodology

In the selection of the list of topics for the standards, the following principles have been used:

- public health relevance as a major cause of maternal, fetal or neonatal mortality and/or morbidity;
- feasibility of implementation at first level facilities in settings with limited resources, both from the health service delivery and community perspective;
- cost implications, such as cost-effectiveness (where information was available).
Development process

After having agreed on the standards’ framework and having defined the list of standards based on established guiding principles, the following process was applied for the development of each standard:

- Refinement of the questions to be addressed in each standard.
- Undertaking of a systematic review, critically appraise, synthesize and grade the evidence. All evidence, including that on safety, to be clearly laid out in an evidence table. Meta-analysis to be done when the data permitted.
- Development of model standard recommendations, including criteria for the implementation of the standard and suggested indicators for audit, and description of the application in different scenarios.
- Peer review held by widely circulating the standard to experts, professional organizations, regional offices and target audiences in countries.
- Dissemination plans made, including plans for contextualisation and evaluation, within an agreed standard setting framework.
- Completion of documentation of the standard development process.
- Submission to the Steering Group for reviewed approval of draft version, a well as to the Director of the Department for final approval.

2.3 Source of evidence

To develop the standards, a systematic process and methodology for gathering and summarizing the evidence was developed. The search for evidence followed a sequential process, beginning from higher level evidence (systematic review, randomized controlled trials) and included observational studies whenever randomized controlled trials or systematic reviews were not available.

The basic search strategy was developed using the National Library of Medicine medical Subject Headings (MeSH) key word nomenclature developed for each of the databases used. The initial search was performed in The Cochrane Library using the identified term both as a MeSH and as a free term. Clinical evidence was always consulted as a second step to update the Cochrane search results. When insufficient evidence was found, a further step was designed to search in MEDLINE (and then to duplicate the search in EMBASE and CINHAL). Selection was limited to human subjects. No time limits were applied. Three different specific search filters, as developed by Scottish Intercollegiate Guidelines Network (SIGN), were used to progressively identify Systematic review and Metaanalysis, Randomized Controlled Trial and all other studies. The filters are more sensitive and less specific than the ones developed and used by the Cochrane Collaboration. For the purpose of our search higher sensitivity was preferred; and a second phase based on hand selection of all the studies retrieved was successively performed.

Finally, a free search was performed in Tripdatabase to identify any further important article. When the same authors or group of authors published more than one article on the same topic and with the same conclusion, the most recent one was reported. Relevant studies not selected through the filters but known by the standards development group or identified among the references of other studies were also included.

In summary, for the Clinical Standards, the following sources were used: Medline, Embase, and Cinhal (Silverplatter platform), The Cochrane Library, and the WHO Reproductive Health Library, WHO publications based on technical working groups and expert reviews, and a number of articles and websites based on the review of references lists and WHO guidelines. In addition, for the Health Service Delivery Standards the search included: PubMed, Sciedirect, EconLit, Interscience, Popline, IDEA, and ECONbase, as well as the databases of relevant organizations, departments, and institutions, such as the World Health Organization, the World Bank, Save the Children and others as identified by the standards development subgroup.
2.4 Presenting the evidence

The evidence in support of the standards is presented in three ways: a narrative section named *efficacy and effectiveness*, which describes the importance of the recommendations and the evidence in support of the specific standard; a list of references; and a table of evidence, which summarized the most relevant articles, their quality, the population considered in the studies, including the population specific baseline risk and an estimate of the efficacy of the intervention for major outcomes (benefits and harms).

<table>
<thead>
<tr>
<th>Study (Type &amp; Level of evidence)</th>
<th>Population &amp; Setting</th>
<th>Objective &amp; Intervention</th>
<th>Outcomes linked for the Standard</th>
<th>Results</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prendville 2003</td>
<td>6477 women. 5 studies, 3 in UK 1 in Ireland, 1 in United Arab Emirates. In three studies only low risk women. All maternity hospitals. Baseline risk=11-14%</td>
<td>To assess the effects of active* versus expectant** management of the III stage of labour.</td>
<td>Moderate PPH</td>
<td>Active vs. Expectant</td>
<td>Low risk women 11 (9-14) 3 studies 3616 women</td>
</tr>
<tr>
<td>Systematic review 1++</td>
<td></td>
<td></td>
<td>Severe PPH</td>
<td></td>
<td>Two out of five studies included are not clear about the three components included in “active management”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Blood transfusion</td>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>

*Active management of the third stage of labour, which is here defined as the package of interventions comprising:
(i) administration of a prophylactic oxytocic with or immediately after delivery of the baby and usually;
(ii) early cord clamping and cutting (only in two studies); and
(iii) controlled cord traction to deliver the placenta.

**Expectant management of the third stage of labour which is here defined as a ‘hands off’ policy, where signs of separation are awaited and the placenta allowed to deliver spontaneously or with the aid of gravity or nipple stimulation. The components of active management described above are not routinely employed.

To facilitate the interpretation of the evidence, the identified articles relevant for the standard contents were tabulated as follows:

- In the first column, we indicated the author and publication year, the *Study type and level of evidence*. Level of evidence assignment is based on SIGN methodology. In case of a systematic review from The Cochrane Library, we report the year of most recent substantive amendment.
- In the second column, we described the *Study population and setting*. We decided to have this specific column to give as much information as possible on population and setting of the considered studies (if possible, the baseline risk of the condition under study in the given population is reported), to allow comparison and proper decision making since the standard will be used in different settings and with different health priorities (external validity of the studies retrieved and reproducibility).
- The third column reports *Objectives and Intervention* as described in the study.
- In the fourth column, *Outcomes relevant for the standard* are selected. In some cases, especially when reporting the results of a systematic review, the reported outcomes are not the whole set of outcomes under study; and as a consequence the population for the specific outcome can differ from the one presented in the systematic review. Number of studies and specific population for the outcome selected are therefore reported in the next column, under *Results*. 

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**Expectant management of the third stage of labour which is here defined as a ‘hands off’ policy, where signs of separation are awaited and the placenta allowed to deliver spontaneously or with the aid of gravity or nipple stimulation. The components of active management described above are not routinely employed.*
- The fifth column reports Results for each of the selected outcomes. We decided to present the results, whenever possible and adequate, as Number Needed to Treat (NNT) and/or Number Needed to Harm (NNH), with 95% CI, since this will enable policy-makers to choose whether to introduce the intervention in their programmes and make recommendations as part of the localization process of the standard.
- Comments on the importance and relevant aspects of each study with respect to the standard revised are finally presented in the last column.

The level of evidence presented in the clinical standards is based on the SIGN methodology which uses a scale from 1 to 4 as shown in the table below.

<table>
<thead>
<tr>
<th>Levels of evidence</th>
<th>Description</th>
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<tbody>
<tr>
<td>1++</td>
<td>High quality meta analyses, systematic reviews of RCTs, or RCTs with a very low risk of bias</td>
</tr>
<tr>
<td>1+</td>
<td>Well conducted meta analyses, systematic reviews of RCTs, or RCTs with a low risk of bias</td>
</tr>
<tr>
<td>1 -</td>
<td>Meta analyses, systematic reviews of RCTs, or RCTs with a high risk of bias</td>
</tr>
<tr>
<td>2++</td>
<td>High quality systematic reviews of case-control or cohort studies</td>
</tr>
<tr>
<td>2+</td>
<td>High quality case-control or cohort studies with a very low risk of confounding, bias, or chance and a high probability that the relationship is causal</td>
</tr>
<tr>
<td>2 -</td>
<td>Well conducted case control or cohort studies with a low risk of confounding, bias, or chance and a moderate probability that the relationship is causal</td>
</tr>
<tr>
<td>3</td>
<td>Case-control or cohort studies with a high risk of confounding, bias, or chance and a significant risk that the relationship is not causal</td>
</tr>
<tr>
<td>4</td>
<td>Non-analytic studies, e.g. case reports, case series</td>
</tr>
<tr>
<td></td>
<td>Expert opinion</td>
</tr>
</tbody>
</table>

Given the nature of the Health Service Delivery Standards, the studies related to health service delivery issues mostly fell in categories 3 and 4. Therefore, the decision was made by the technical consultation in October 2004 to use an alternative system scale for this group of standards. The scale is rated from 1 to 5 (1 = not very relevant and 5 = very relevant evidence as it relates to standard). Each standard is completed by a list of references used in its development and a list of links and additional readings which can be used to facilitate the implementation and auditing process.

3. Organizational structure, roles and responsibilities

The development of the Standards for Maternal and Neonatal Care (SMNC) was guided by an overall Steering Committee, composed mainly by WHO staff, who gave direction to and had responsibility for the entire process from development to implementation. A technical Standards Development Advisory Group, composed by WHO staff and external experts from different fields, was also established with the responsibility of developing the standards and provide advice on technical issues. This group was organized in three main subgroups, focusing on maternal, neonatal and health service delivery issues respectively. While the main responsibility of each subgroup was to develop the standards related to their area of expertise, members of the other subgroups were also acting as advisory body for the review of the standards developed by the other subgroups. Whenever necessary, the Standards Development Advisory Group was complemented by Technical Resource Persons who were identified within WHO or externally to provide technical inputs on specific issues, and the formulation of Task Forces to undertake systematic reviews of the evidence or conduct consultation with experts if evidence was lacking.

Finally, managerial and administrative support was provided by WHO secretariat.
3.1 SMNC Steering Committee

The Steering Committee was an in-house group composed of WHO technical experts with the general function of overseeing each step of the development process of the standards.

3.1.1 Functions

The Steering Committee was charged with the following functions:

- Define the general parameters of the SMNC.
- Draft broad guidelines for the Standards Development Advisory Group (SDAG), subgroups and appropriate task forces.
- Select the chair and members of the SDAG and task forces.
- Orient the SDAG to the specific TOR and the process of development of the SMNC.
- Regularly monitor the development of the SMNC.
- Ensure all processes are in place to comply with the WHO guidelines for guidelines (http://whqlibdoc.who.int/hq/2003/EIP_GPF_EQC_2003_1.pdf)
- Ensure a rigorous external review of each of the standards.
- Review the final draft of the standards for approval by the Assistant Director-General of the Family and Community Health Cluster in WHO.

3.1.2 Composition

- Chair: Paul Van Look, Director Reproductive Health and Research Department (RHR)
- Coordinator: Ornella Lincetto, Medical Officer, Making Pregnancy Safer Department (MPS)
- Members: 6 persons from within the MPS team who together had the following skills and expertise:
  a) Expertise in guidelines development and evidence-based methodologies
  b) Familiarity with implementation of programmes in developing countries in the area related to the SMNC
  c) Knowledge of the subject/topic/content of the guideline, such as midwifery services and training (Della Sherratt), Obstetric Care (Luc de Bernis and Rita Kabra), Neonatal Care (Ornella Lincetto), Health Service Delivery (Helga Fogstad), and Health Promotion (Annie Portela).
- At least 1 member from outside the MPS team who has expertise in developing evidence based guidelines (Nicola Magrini, Director of CeVEAS – Centre for evaluation of effectiveness of health care)

3.2 Standards Development Advisory Group (SDAG)

The Standards Development Advisory Group was a large multidisciplinary group, organized in three subgroups according to three main areas of work: maternal (coordinated by Della Sherratt), neonatal (coordinated by Ornella Lincetto) and health delivery system (coordinated by Helga Fogstad), with the responsibility of developing the SMNC, in-line with guidance from the Steering Committee.

3.2.1 Functions

- Define the specific issues to be addressed by each of the standards.
- Provide technical advice on topics/areas on which additional expertise is required.
- Undertake a systematic search for evidence.
- Review the evidence available.
- Develop recommendations linked to the strength of the evidence.
- Draft and review the standards.
- Discuss and incorporate, where relevant, comments of external reviewers.
- Draft the final version of standards.
• Make recommendations on standards setting process and dissemination strategy.
• Document the process of guideline development.

3.2.2 Composition
• Coordinators: Della Sherratt, Ornella Lincetto and Helga Fogstad
  Criteria for selection of the coordinators:
  - Be credible and command respect in the field/subject area.
  - Have experience in guideline development.
  - Expert in the field of Maternal and Neonatal or Health System for MNH.
• 8-12 members representing multidisciplinary background, including:
  - Professionals (experts in maternal or neonatal health and health systems);
  - Methodologists; and
  - Stakeholders.
• At least 1 member from each of the Regional Offices (MPS regional coordinators):
  - MPS Coordinator AFRO, Seipati Mothebesoane-Anoh;
  - MPS Coordinator AMRO, Vicky Camacho;
  - MPS Coordinator EMRO, Ramez Mahaini;
  - MPS Coordinator EURO, Alberta Bacci;
  - MPS Coordinator SEARO, Ardi Kaptiningsih; and
  - MPS Coordinator WPRO, Ruyan Pang/Khine Sabai Latt.
• At least 1 member from each of the Regional Offices as it relates to MNH health system issues:
  - Head of Reproductive and Child Services, Ministry of Health, Tanzania, representing AFRO, Catherine Sanga;
  - Head of Women’s Health Program Ministry of Health, Chile, representing AMRO, Rene Castro;
  - Health Care Delivery Regional Adviser, representing EMRO, Ahmed Abdel Latif;
  - Health Systems Expert, Switzerland, representing EURO, Gelmius Siupsinskas;
  - Nursing and Midwifery Regional Adviser, representing SEARO, Duangvadee Sungkhobol; and
  - Health Systems, Maternal and Child Medical Research Centre, Mongolia, representing WPRO, Dashzeveg Natsuvd.
• All external technical advisers were asked to sign a declaration of interest form (attached as Annex 1).

3.3 SMNC Technical Resource Persons
There were additional resource persons either within WHO or externally, who were identified by the Steering Committee and/or SDAG to provide technical input on specific issues.

3.3.1 Functions
• Provide input on specific technical issues as requested by the SDAG or Steering Committee.
• Partake in technical discussions with SDAG and Steering Committee.
• Review specific parts of the draft document and provide comments as requested by the Steering Committee or SDAG.

3.3.2 Composition
• Dependent on the specific needs as identified by the Steering Committee or SDAG.
• All external technical experts involved in the guideline development process were requested to sign a declaration of interest form (attached as Annex 1).
3.4 Taskforces

Taskforces were established by the SDAG as needed to undertake systematic reviews of the evidence or conduct consultations with experts when evidence was lacking.

3.4.1 Functions

- Undertake systematic reviews if and when appropriate.
- Review and synthesize the evidence for possible standards as agreed by SDAG.
- Draft recommendations on evidence using the agreed process.
- Revise draft standard based on feedback and recommendations from the SDAG. All external technical advisers involved in the guideline development process were requested to sign a declaration of interest form (attached as Annex 1).

3.5 Secretariat

The managerial and administrative support to the Steering Committee and the SDAG were provided by WHO staff of the Department of Making Pregnancy Safer (MPS).

3.5.1 Functions

- Assisting in the planning of activities and monitoring progress according to plans.
- Providing relevant background information and materials to the SDAG and the Steering Committee.
- Organizing the necessary reviews of drafts provided by the SDAG.
- Assisting in organizing necessary meetings and workshops in Geneva.
- Liaising with the RHR documents committee.

3.5.2 Composition

- Coordinators of the SDAG: Ornella Lincetto, Della Sherratt, Helga Fogstad
- WHO administrative support: Catherine Legros, Shamilah Akrams, Nini Zotomayor
Annex A: DECLARATION OF INTERESTS FOR WHO EXPERTS

Title of meeting or work to be performed, including description of subject-matter, substance (compounds and organisms), technology or process to be considered:______________________________

Public health considerations have a primary importance in all WHO technical work. Measures need to be taken to ensure that the best possible assessment of scientific evidence is achieved in an independent atmosphere free of either direct or indirect pressures. Thus, to assure the technical integrity and impartiality of WHO’s work, it is necessary to avoid situations in which financial or other interests might affect the outcome of that work.

Each expert is therefore asked to declare any interests that could constitute a real, potential or apparent conflict of interest, with respect to his/her involvement in the meeting or work, between (1) commercial entities and the participant personally, and (2) commercial entities and the administrative unit with which the participant has an employment relationship. “Commercial entity” refers to any company, association (e.g., trade association), organization or any other entity of any nature whatsoever, with commercial interests.

In addition, as a result of WHO’s strong stance against tobacco use, it is considered relevant for the Organization to know whether experts working with it have, or have had, any relationship with any part of what may be called “the tobacco industry”. Nevertheless, declaration of such an interest would not necessarily be considered a reason to disqualify an expert.

What is a conflict of interest?

Conflict of interest means that the expert or his/her partner (“partner” includes a spouse or other person with whom s/he has a similar close personal relationship), or the administrative unit with which the expert has an employment relationship, has a financial or other interest that could unduly influence the expert's position with respect to the subject-matter being considered. An apparent conflict of interest exists when an interest would not necessarily influence the expert but could result in the expert's objectivity being questioned by others. A potential conflict of interest exists with an interest which any reasonable person could be uncertain whether or not should be reported.

Different types of financial or other interests, whether personal or with the administrative unit with which the expert has an employment relationship, can be envisaged and the following list, which is not exhaustive, is provided for your guidance. For example, the following types of situations should be declared:

1. a current proprietary interest in a substance, technology or process (e.g. ownership of a patent), to be considered in - or otherwise related to the subject-matter - of the meeting or work;
2. a current financial interest, e.g. shares or bonds, in a commercial entity with an interest in the subject-matter of the meeting or work (except share holdings through general mutual funds or similar arrangements where the expert has no control over the selection of shares);
3. an employment, consultancy, directorship, or other position during the past 4 years, whether or not paid, in any commercial entity which has an interest in the subject-matter of the meeting/ work, or an ongoing negotiation concerning prospective employment or other association with such commercial entity;
4. performance of any paid work or research during the past 4 years commissioned by a commercial entity with interests in the subject-matter of the meetings or work;
5. payment or other support covering a period within the past 4 years, or an expectation of support for the future, from a commercial entity with an interest in the subject-matter of the meetings or work, even if it does not convey any benefit to the expert personally but which benefits his/her position or administrative unit, e.g. a grant or fellowship or other payment, e.g. for the purpose of financing a post or consultancy.

With respect to the above, an interest in a competing substance, technology or process, or an interest in or association with, work for or support by a commercial entity having a direct competitive interest must similarly be disclosed.
How to complete this Declaration: Please complete this Declaration and submit it to the Secretariat. Any financial or other interests that could constitute a real, potential or apparent conflict of interest should be declared (1) with respect to yourself or partner, as well as (2) with respect to the administrative unit with which you have an employment relationship. Only the name of the commercial entity and the nature of the interest is required to be disclosed, no amounts need to be specified (though they may be, if you consider this information to be relevant to assessing the interest). With respect to items 1 and 2 in the list above, the interest should only be declared if it is current. With respect to items 3, 4 and 5, any interest during the past 4 years should be declared. If the interest is no longer current, please state the year when it ceased. With respect to item 5, the interest ceases when a financed post or fellowship is no longer occupied, or when support for an activity ceases.

Assessment and outcome: The information submitted by you will be used to assess whether the declared interests constitute an appreciable real, potential or apparent conflict of interest. Such conflict of interest will, depending on the situation, result in (i) you being asked not to take part in the portion of the discussion or work affecting that interest, (ii) being asked not to take part in the meeting or work altogether, or (iii) if deemed by WHO to be appropriate to the particular circumstances, and with your agreement, you taking part in the meeting or work and your interest being publicly disclosed.

Information disclosed on this Form may be made available to persons outside of WHO only when the objectivity of the meeting or work has been questioned such that the Director-General considers disclosure to be in the best interests of the Organization, and then only after consultation with you.

Declaration: Have you or your partner any financial or other interest in the subject-matter of the meeting or work in which you will be involved, which may be considered as constituting a real, potential or apparent conflict of interest?
Yes:  No:  If yes, please give details in the box below.

Do you have, or have you had during the past 4 years, an employment or other professional relationship with any entity directly involved in the production, manufacture, distribution or sale of tobacco or any tobacco products, or directly representing the interests of any such entity?
Yes:  No:  If yes, please give details in the box below.

<table>
<thead>
<tr>
<th>Type of interest, e.g. patent, shares, employment, association, payment (including details on any compound, work, etc.)</th>
<th>Name of commercial entity</th>
<th>Belongs to you, partner or unit?</th>
<th>Current interest? (or year ceased)</th>
</tr>
</thead>
</table>
Is there anything else that could affect your objectivity or independence in the meeting or work, or the perception by others of your objectivity and independence?

I hereby declare that the disclosed information is correct and that no other situation of real, potential or apparent conflict of interest is known to me. I undertake to inform you of any change in these circumstances, including if an issue arises during the course of the meeting or work itself.

______________________________  _________________________________
Signature                          Date

______________________________  _________________________________
Name                               Institution