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# Reproductive Health Indicators for Global Monitoring

Report of the Second Interagency meeting

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Family and Community Health  
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## EXECUTIVE SUMMARY

During the international conferences of the early and mid-90s, such as the International Conference on Population and Development (ICPD), countries endorsed a number of global goals and targets in the broad area of sexual and reproductive health. A proliferation of indicators to monitor these goals ensued, proposed by a range of agencies. In 1996, the World Health Organization (WHO) took the lead in organising an interagency technical process that led to the selection of 15 global indicators for monitoring reproductive health targets. During this process additional areas for further research were proposed and strategies for implementation were suggested.

A review and appraisal process of progress in implementation of the ICPD recommendations took place in 1999 (ICPD + 5). It culminated in a Special Session of the United Nations General Assembly in July 1999, which identified key actions needed for further implementation of the ICPD Programme of Action and new benchmarks for measuring progress towards ICPD goals.

In December 1999, the Coordinating Committee on Health, which is composed of Executive Board members of WHO, the United Nations Children's Fund (UNICEF) and the United Nations Population Fund (UNFPA),

WHO to convene a technical consultation on the benchmark indicators on reproductive health, involving all other partners, particularly representatives from developing countries. This led to the planning of the Second Interagency Meeting on Reproductive Health Indicators for Global Monitoring. Some 40 participants attended the meeting from country level, United Nations and partner agencies, and donor organizations.

The purpose of this meeting was to review experience with the existing common set of Reproductive Health Indicators for Global Monitoring and to meet the following **objectives**:

1. Reach consensus on the inclusion of two HIV/AIDS indicators in the list
2. Develop a plan of work for further research on reproductive health indicators for global monitoring and their collection in relation to the benchmarks agreed at the Special Session of the United Nations General Assembly on ICPD+5 and the recommendations made at the 1997 interagency technical meeting.
3. Develop a plan of work to provide guidance and technical assistance to countries in order to strengthen their capacity to collect and report on these indicators.
4. Agree on how jointly to implement such a plan of work.

The meeting arrived at the following **conclusions and recommendations**:

1. Include the proposed HIV/AIDS indicators in the short list of global indicators for reproductive health monitoring. A suitable skills or behaviour indicator should be added to the short list or replace the knowledge indicator as soon as one is identified.
2. Review experience with the current 17 indicators and present the results to an interagency technical meeting before ICPD+10.

- Further experience and research are especially needed for the two “Essential Obstetric Care” indicators and the “Infertility” and “Urethritis” indicators.
  - The “WHO Toolkit for collecting and using the reproductive health indicators on the interagency short list” should be finalised by the middle of 2001.
3. The research on indicators for additional reproductive health areas should be prioritised according to existing mechanisms in the WHO Department of Reproductive Health and Research.
- Research for indicators to measure “Quality of Care” and “Prevention” should be addressed for each area of reproductive health.
  - An additional indicator needs to be developed to monitor the ICPD target of “Comprehensive Sexual and Reproductive Health Care”.
4. The process of collecting, analysing and disseminating data for global monitoring should be useful on global level as well as on regional, country, and local levels and should contribute to developing national ownership of the short-listed indicators.
- The short list should be presented to country and regional levels through a series of workshops.
  - National capacity to collect and analyse the indicators and to use the results should be increased by providing technical support.
  - There is a need for capacity building for research at country level.
  - Resources are needed to support implementation at country level and for global monitoring of the short-listed indicators.
5. All agencies involved in global monitoring of reproductive health should coordinate their efforts in using the same set of indicators. This coordination should comprise of:
- Standardised gathering of indicators.
  - Compilation of the indicators at the global level by various organisations.
  - Developing a composite report of the various organisations’ global datasets for the 17 indicators.
  - Dissemination and feedback of the results to all levels through international conferences, journals, the web, and professional meetings.

## BACKGROUND

The early and mid-nineties was the era of the international conferences where reproductive health was defined as a right and a matter of choice for individuals, rather than a demographic goal. Notable among these international meetings were the International Conference on Population and Development (ICPD) in Cairo, 1994 and the Fourth World Conference for Women (FWCW) in Beijing, 1995. During these conferences, countries endorsed a number of global goals and targets in the broad area of sexual and reproductive health. This subsequently led to a proliferation of indicators, proposed by a range of agencies, for monitoring these goals.

In October 1995, the ACC\* established the Task Force on Basic Social Services for All (BSSA) to help coordinate the response of the United Nations system to the recommendations of the conferences. The unifying theme of the action plan, on which the Task Force is based, is the provision of assistance to countries for a concerted attack on poverty.

In May 1996, WHO convened a meeting of technical experts and national health managers, which led to the development of a guide for district managers on selecting reproductive health indicators<sup>1</sup>.

In September 1996 the Working Group on Reproductive Health of the ACC Task Force on Basic Social Services for All held a meeting to facilitate interagency dialogue and cooperation on the issue of reproductive health indicators. WHO, in its role as the lead agency for the Working Group, was asked to convene a number of technical meetings of United Nations agencies concerned in the global follow-up to the reproductive health aspects of the international conferences. During these meetings (1996 and 1997), criteria for strong indicators were developed, existing reproductive health indicators were examined, and a consensus was reached on a short list of reproductive health indicators for global monitoring (indicators 1–15 in Annex 1).<sup>2,3</sup>

A review and appraisal process of progress in implementation of the recommendations of the ICPD (ICPD + 5) took place in 1998 and 1999. The review process was characterised by United Nations systemwide participation and the involvement of a wide range of civil society organisations. It included reports on national implementation efforts, global expert meetings and an International Forum in The Hague. It culminated in a Special Session of the United Nations General Assembly in July 1999, which identified key actions needed for further implementation of the ICPD Programme of Action and new benchmarks for measuring progress towards ICPD goals (Annex 2).

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*\*The Administrative Committee on Coordination (ACC) was established in 1946 as a standing committee that supervises the implementation of the agreements between the United Nations system organizations, the Specialized Agencies, WTO and the Bretton Woods institutions. Its mandate is to promote cooperation within the system in the pursuit of the common goals of Member States. The committee meets twice a year and is chaired by the Secretary General of the United Nations. It has an extensive machinery consisting of subcommittees and subsidiary bodies.*



In October 1999, an Ad-Hoc meeting of the ACC Task Force on Basic Social Services for All asked WHO to take the lead in revising the Task Force's Guidelines on Reproductive Health (written by WHO in 1997 as guidance for the Resident Coordinators). In particular, the revised Guidelines should identify indicators of reproductive health, which could be used to monitor the relevant benchmarks agreed at the Special Session on ICPD+5.

In December 1999, the Coordinating Committee on Health, which is composed of Executive Board members of WHO, UNICEF and UNFPA, asked WHO to convene a technical consultation on the benchmark indicators on reproductive health, involving all other partners, particularly representatives from developing countries. The objectives of the meeting would be to: (i) agree on a common set of indicators for reproductive health, (ii) develop a plan of work to provide guidance and technical assistance to countries in order to strengthen their capacity to collect and report on these indicators, and (iii) agree on how jointly to implement such a plan.<sup>4</sup>

The recommendations from these last two meetings led to the planning of the Second Interagency Meeting, which took place from 17 to 19 July 2000 in Geneva. Some 40 participants attended the meeting from country level, United Nations and partner agencies, and donor organizations (Annex 4).

## **OBJECTIVES AND PURPOSE**

The purpose of this meeting was to review experience with the existing common set of 15 Reproductive Health Indicators for Global Monitoring and to meet the following objectives:

1. Reach consensus on the inclusion of two HIV/AIDS indicators in the list.
2. Develop a plan of work for further research on reproductive health indicators for global monitoring and their collection in relation to the benchmarks agreed at the Special Session of the United Nations General Assembly on ICPD+5 and the recommendations made at the 1997 interagency technical meeting.
3. Develop a plan of work to provide guidance and technical assistance to countries in order to strengthen their capacity to collect and report on these indicators.
4. Agree on how jointly to implement such a plan of work.

## PROCEEDINGS

### *Session I: Review*

During the first half day of the meeting the participants reviewed the proceedings and results of the first interagency technical process in 1996 and 1997, which led to the short list of 15 national and global reproductive health indicators.<sup>3</sup>

These 15 indicators were discussed in detail. An expert committee clarified the definition of each individual indicator and the criteria and justification for placing it on the short list, and discussed the limitations of the chosen indicators.

### *Discussion*

The discussion focused on the advantages and limitations that the indicators present in terms of programming. It became clear that, although there is a great deal of experience in collecting and analysing several of the indicators, a number of them have not been used long enough to make a judgement on their usefulness for global monitoring.

### *Conclusion*

The session concluded with a consensus on the following statement: “Considering the goals and targets agreed by the member countries at ICPD Cairo, 1994 and ICPD+5 in New York, USA, 1999, the participants noted that the proposed indicators may be the best alternative we have at this point in time. However, further research and field-testing needs to be carried out to assess the quality of some of the indicators. This review should be based on discussion on the strengths and weaknesses of this list as it is implemented and lessons are learned.”

### *Session II: Inclusion of two new HIV/AIDS indicators in the short list*

Two new indicators in the field of HIV/AIDS were proposed for global monitoring and inclusion in the short list. These indicators were selected by an expert group out of the UNAIDS list of 57 indicators for 14 HIV/AIDS programming areas.<sup>5</sup> Annex 3 outlines the criteria and justification on which the choice of these indicators was based. The two proposed indicators are:

- **HIV prevalence in pregnant women**

*Percentage of pregnant women (15–24 years) attending antenatal clinics, whose blood has been screened for HIV, who are sero-positive for HIV.*

This indicator is most suitable from the point of view of estimating incidence, since prevalence in this age group reflects infections that have occurred most recently and concerns about differential mortality and fertility are not likely to be of major concern. In mature epidemics, it is in this age group that most new infections occur.

- **Knowledge of HIV-related prevention practices**

*The percentage of all respondents who correctly identify all three major ways of preventing the sexual transmission of HIV and who reject three major misconceptions about HIV transmission or prevention.*

Information on knowledge and behaviour related to HIV/AIDS is essential, to identify populations at risk for HIV infection and to assess changes over time as a result of prevention efforts. Most AIDS programmes targeting the general population promote abstinence, mutual monogamy and condom use as the primary ways of avoiding HIV infection. This indicator provides information related to people's access to information and services that is needed to help reduce their vulnerability to HIV infection, as required in ICPD+5.

### ***Discussion***

The meeting participants discussed whether the “knowledge” indicator is an appropriate proxy for behaviour change. It became clear that, although the UNAIDS list of indicators includes a number of “behaviour” indicators, a suitable indicator for global monitoring of behaviour change is not available.

### ***Conclusion***

The meeting reached consensus on the inclusion of the proposed two HIV/AIDS indicators in the short list of global indicators for reproductive health monitoring. It was recommended, however, that a “behaviour” indicator should replace the “knowledge” indicator or be added to the list as soon as possible. Field-testing and further research need to be carried out on the available “behaviour” indicators in the UNAIDS list.

### ***Session III: Agency experience with the short-listed indicators***

Several agencies are active in collecting, analysing and disseminating data related to the global reproductive health indicators. The agencies presented their experience with the short list during the meeting. A brief summary of the presentations follows:

#### ***UNFPA***

UNFPA has developed a logframe for the use of indicators. The logframe is a methodology that can be used for preparing country programmes, sub-programmes and component projects. Indicators are identified for the following four levels: activity, output, purpose and goal. Activity and output indicators measure programme performance, whereas purpose and goal (outcome and impact) indicators measure changes in behaviour.

Of the short-listed indicators UNFPA collects at:

- Level 1 (goal), Maternal Mortality Ratio (MMR) and Total Fertility Rate (TFR)
- Level 2 (purpose), Contraceptive Prevalence (CP), births attended by skilled staff, HIV/AIDS/STD prevalence
- Level 3 (output), knowledge of safe sexual practices
- Level 4 (activity), none of the global indicators fits in this level.

#### ***WHO case study***

A WHO country case study was undertaken in five countries (Colombia, France, Islamic Republic of Iran, Senegal and Zimbabwe). The objectives of the case study were to:

- Learn how the concept of “reproductive health” is operationalized nationally
- Document the collection of reproductive health indicators, feedback mechanisms and flow of information
- Assess the implications for future work on reproductive health indicators.

The main findings of this study were:

- In each country a large number of indicators is collected routinely
- There is no feedback to those who complete the forms. These people do not always know the purpose of data collection
- There were concerns about the completeness and quality of indicators collected
- The collected data are under-utilised
- The concept of reproductive health is defined differently in different settings and the availability of services may provide a deceptive view of its “holistic” nature.

The main lessons learned from this study are:

- A short list that is universally applicable remains elusive
- An assessment of the country health information system and situation is a prerequisite before implementing indicators
- More attention needs to be given to improving health information systems than to introducing new “lists”
- There needs to be a focus on reducing the burden of data collection
- Feedback mechanisms need to be strengthened
- Greater use of available data needs to be emphasised
- Coverage and quality of data collected needs to be improved.

### *MEASURE Evaluation*

MEASURE (Monitoring and Evaluation to Assess and Use Results) is comprised of a group of initiatives involved in monitoring and evaluation. It consists of MEASURE DHS+, MEASURE Evaluation, MEASURE Communication, the CDC Division of Reproductive Health, and the Bureau for the Census (SCILS).

The aim of MEASURE Evaluation is to improve performance of monitoring systems, to identify and test indicators and establish data systems, to develop tools and methods for evaluating interventions and their cost-effectiveness, to conduct evaluations of programme effectiveness, and to build capacity for monitoring and evaluation.

The focus of the project is on health facilities, family planning, HIV/AIDS and STDs, maternal health, infectious diseases and nutrition, for national and sub-national assessment and monitoring. The assessments are done through a variety of instruments, such as the Service Provision Assessment (SPA) and the Quick Investigation of Quality (QIQ).

The project has also undertaken research on alternative methods of collecting data (measuring the MMR via a census) and developing new indicators for global monitoring (using birth registers for monitoring maternal health and the “all contraceptive method” discontinuation rate as an indicator of quality of care).

### *Demographic and Health Surveys (DHS)*

The DHS questionnaires collect data for 10 out of the 17 indicators either in all or in some countries.

- **Total Fertility Rate**

This indicator is included in all DHS surveys and is calculated for the three-year period before the survey. The indicator is based on complete birth history for women aged 15–49 in ever-married samples, it is assumed that no childbearing takes place outside of marriage.

- **Contraceptive Prevalence**

This indicator is included in all DHS surveys and includes all methods in the definition, modern, traditional, and folkloric methods. It is usually tabulated for currently married women, aged 15–49. However, in most countries it can be tabulated for sexually active, fecund, non-pregnant, non-amenorrhoeic women. DHS also calculates unmet need for spacing and limiting births separately.

- **Maternal Mortality Ratio**

This indicator is only collected in countries that use the maternal mortality module and is usually based on the sisterhood method. The disadvantage is that there are fairly large confidence intervals with this indicator. Therefore, DHS does not recommend measuring MMR more than once in 10 years.

- **Antenatal Care Coverage**

The DHS survey collects data on the last birth in the last five years. The term health professional in the DHS definition of this indicator is defined as doctor, nurse/midwife, or auxiliary midwife. The response categories can vary by country, but the major category of health professional is fixed.

- **Births Attended by Skilled Attendants**

The survey collects data on births in the last five years. Multiple responses are allowed for persons assisting delivery. For this indicator the same response categories are used as for antenatal care, plus an additional category of friend/relative. It is usually tabulated as the percentage of deliveries assisted by a health professional.

- **Perinatal Mortality Rate**

This indicator is calculated over the five years before the survey. DHS has information on deaths up to seven completed days of life. DHS asks about non-live births by the number of months pregnant when pregnancy ended (a stillbirth is defined as a pregnancy which lasted more than seven months).

- **Prevalence of Low Birth Weight**

Data for this indicator is collected on children born in the last five years. The weight is recorded from the health card (if available) or from the mother's recall. DHS tabulates the percentage of births <2500 grams. A weakness of this method is that births with known weight may not be representative of all births.

- **Prevalence of Anaemia in Women**

This indicator is now standard part of DHS surveys. DHS has conducted more than 200,000 tests by using the portable HemoCue instrument, which gives digital results in less than 1 minute in the field. The results are also given to the woman, so she can seek treatment if necessary.

- **Reported Prevalence of Female Genital Mutilation (FGM)**

An FGM module is included in the DHS surveys in appropriate countries. The indicator includes prevalence and reported type of FGM. DHS has improved the FGM questions based on a qualitative study that was conducted in Guinea.

- **HIV Knowledge**

DHS surveys include specific questions on whether or not people can protect themselves from getting the AIDS virus by having just one sex partner who has no other partners, by using a condom every time they have sex, or by not having sex at all. The survey also includes questions on whether people can get the AIDS virus from mosquito bites or sharing food with a person who has AIDS, and whether it is possible for a healthy-looking person to have the AIDS virus.

DHS surveys are usually conducted every four or five years, with interim surveys done on demand. The countries for the surveys are selected based mainly on USAID funding or occasionally on funding from other agencies or on country needs and desire.

### *WHO e-mail consultation*

This informal e-mail-based consultation was designed to:

- Increase awareness of the work conducted on global reproductive health indicators to date
- Share basic information on available indicators, and criteria/background information used for selection
- More widely involve those with experience in/responsibilities for reproductive health
- Experiment with electronic communications as a means to research and disseminate information.

An open invitation was issued to over 7600 people networking through electronic discussion groups and professional contacts in reproductive health. A total database of 449 persons, coming from a broad range of backgrounds (government, donor, United Nations, non-governmental organization, data collection, research, service, other areas) and working within reproductive health programmes, research and/or data collection, was ultimately compiled for this consultation. These persons were sent detailed information on the history of this initiative and were asked to comment on the results to date. Fifty-one out of 449 persons (11%) responded with suggestions for improving existing indicators and recommendations for deletions and substitutions.

The feedback raised many points previously discussed by the experts in defining the current list. It is likely that many of the concerns raised could be successfully reduced through further sharing of the rationale used to derive these indicators and the compromises already considered. There is a considerable need for detailed information-sharing in this field to enhance awareness of the minimum list.

### *The World Bank*

The work with indicators is important for The World Bank, especially for its operational work with client countries, for three reasons:

1. Within The World Bank and its client countries, there has been over the last five to ten years a shift in culture to emphasize outcomes and results rather than inputs. In addition, both The World Bank and its client countries have stressed the need for “results on the ground” (to that effect, The Bank has decided to relocate more and more of its staff to the field). Indicators are therefore crucial to monitor the outcomes of these efforts. The World Bank is particularly interested in indicators (that should be available on a short-time period) to help monitor operational effectiveness.
2. There has also been a shift in attention from freestanding projects to a programme approach. For example, there are more and more countries involved in health sector reforms, which require longer-time programming as well longer lending schemes. Now the funding cycle is no longer five years but often 10 to 12 years. A new lending instrument is the Adaptable Program Lending (APL), in which trigger indicators help decide on the release of the next tranche of funds. The World Bank needs indicators for interim reviewing of such long-term and wider programmes.
3. The International Monetary Fund (IMF) and The World Bank are also involved in a large effort to help countries develop Poverty Reduction Strategy Papers (PRSP). This effort, which will be conducted in about 80 countries around the world, is linked to The World Bank’s Highly Indebted Poor Country (HIPC) initiative. Through the latter effort, part of a country’s public debt is written off, provided the funds made available are invested in the social sectors (mostly education and health). Again, sound indicators are needed to monitor this process especially at the decision and completion points of the HIPC.

The challenge for The World Bank will now be to better integrate this work on indicators in its lending operations and policy dialogue with client countries. One can propose several ways to do so:

- To foster ongoing collaboration on indicator work between agencies through meetings, exchange of information, and/or secondment of staff.
- To educate World Bank staff, especially the Task Team Leaders, on existing indicators and their optimal use in operations and strategic documents.
- To consistently use the indicators in The World Bank’s work, especially in the PRSPs and in the Country Assistance Strategies (CAS). To that effect, the new World Bank Population Strategy Note has proposed a CAS Watch List in which a set of key indicators help flag countries with particular needs in the areas of population and reproductive health.
- To empower client countries in the area of indicators through capacity building and proper training.



*WHO, Department of Child and Adolescent Health and Development*

As a follow-up to the World Summit on Children (WSC) in 1990, the United Nations General Assembly will convene a Special Session on Children (and Adolescents) in September 2001.

The objective of this Special Session is to review the implementation of the Plan of Action adopted by the WSC and to identify what needs to be done to accelerate future progress in the 21<sup>st</sup> century.

One component of the future agenda is the adolescent component. Its aim is to:

- Ensure participation of adolescents in activities and decisions that affect their lives
- Develop capacities and values with information, growth and nutrition, life skills, livelihood skills, parenting skills, physical skills
- Make available basic services and opportunities in education, health, recreation and leisure, livelihoods
- Provide safety and support through the immediate environment of parents, peers, service providers, and the wider environment of policies and legislation, juvenile justice, social values and norms.

WHO, UNICEF and UNFPA are jointly working on a project “*Programming for Adolescent Health and Development, What should we measure and How*” that addresses the measurement of these issues listed above. The project is being implemented in partnership with seven countries around the world (Bangladesh, Brazil, Egypt, Malaysia, Sri Lanka, Thailand, and Uganda) and an international network of researchers, for a period of two years from May 1998 to December 2000. One of the aims is to develop (and modify when necessary) indicators for adolescent health and development that are relevant and feasible for use in countries. The project has developed a programming and measurement framework linking risk behavioural outcomes for adolescents to common antecedents, protective and risk factors, that are in turn linked to interventions for improving adolescents’ access to health services, their life skills, and their participation in society. The outcomes to be measured include behavioural outcomes (risky sex, substance use, and violence) and health outcomes (prevalence of unwanted pregnancies, abortions, STDs and HIV, and injuries). As part of the common antecedents, measures defining the safe and supportive environment of adolescents are also being developed.

In support of the Special Session on Children in 2001, a list of targets were considered. At present, while work is still in progress in this area, the target that has been agreed upon in the area of sexual and reproductive health for adolescents is:

- Reduce HIV infection rates in young persons aged 15–24 years by at least 25 per cent in the most affected countries that by 2005, and by 25 per cent globally by 2010. (ICPD + 5)

Discussions are in progress on agreement on indicators for measuring this target.

### *United Nations Population Division*

The United Nations Population Division currently maintains databases on two of the 17 indicators: Total Fertility Rate and Contraceptive Prevalence.

- **Total Fertility Rate**

Data for the estimation of fertility rates come from civil registers, censuses and nationally representative surveys. For most developing countries, estimates are derived from censuses or sample surveys. The Population Division evaluates all available estimates of TFR for a country before establishing trend information. The final results are presented for five-year intervals comparable across all countries. Estimates are updated once every two years.

- **Contraceptive Prevalence**

Data are compiled from nationally representative surveys based on samples of women of reproductive age. In some surveys, questions are asked of all women regardless of marital status, while in others they are asked only of married women. Comparative data are more readily available for the base population of married women. For Africa, the developed countries and some countries of Latin America and the Caribbean, data are available for unmarried women as well. “Married” includes those in consensual or common-law unions.

Data are currently available for 142 countries or areas, which constitute 92 per cent of the world’s population.

### *WHO data bases*

Databases maintained by WHO’s Department of Reproductive Health and Research were initiated more than a decade ago after an international request to monitor the Safe Motherhood initiative. Currently the databases cover eight of the 17 indicators: maternal mortality, perinatal mortality, coverage of antenatal care, coverage of delivery care, anaemia, low birth weight, unsafe abortion, and infertility.

A limited time of monitoring caesarean section rates will start shortly, to evaluate the “epidemic” of caesarean sections in certain regions. However, it is not intended that this indicator will be developed as a global monitoring tool.

The rationale of the databases is to give an up-to-date summary of prevalence/incidence of important reproductive health problems at global, regional and national levels. These data are used to inform and assist researchers, staff members and policy-makers and they are fed into other relevant activities, such as the WHO’s Global Burden of Disease study and various departmental research projects.

### ***Discussion***

In the discussions that followed the presentations, concern was raised that indicators should not become a “vertical” intervention, but that countries should develop ownership of the indicators they collect.

Feedback on the indicators is a problem for both developed and developing countries. In most countries the results do not get fed back to the primary level of care, where these results are most needed for making improvements. It is generally difficult to assess whether and how the collected information has been used for policy-making. It is also unclear how the agencies act in reaction to a change of indicator (redirection of funds, intensified or decreased technical support?). How much can be done also depends on available resources.

### ***Conclusion***

The meeting recommended that all agencies should coordinate their efforts in using the agreed set of 17 global indicators for monitoring progress, especially in view of the current developments towards greater coordination of agency-efforts, such as the United Nations Development Assistance Framework (UNDAF), the Common Country Assessments (CCA), and the Sector Wide Approaches (SWAP) for governments. There should be a central compilation of the various databases for the 17 indicators.

### ***Session IV: Working groups***

During the last day of the meeting the participants worked in three smaller groups to define future work needed to implement the 17 global indicators for reproductive health monitoring at global and national levels.

The three working groups were asked to develop workplans with the following objectives:

*Working group 1:* To arrive at a comprehensive short list of indicators for global monitoring of reproductive health

*Working group 2:* To recommend strategies for effective global collection, analysis and dissemination of the 17 short-listed indicators

*Working group 3:* To recommend strategies that will ensure that countries collect, analyse and report data for the global reproductive health indicators from the short list in a standardised manner.

The working groups were asked to determine from the agency presentations and the background material the gaps that exist in achieving the objectives and to give recommendations about the strategies and activities needed to achieve the objective, a time-frame in which these activities can be completed, and an indication of which (United Nations) agency would be the most appropriate to support the work defined

The conclusions and recommendations of the working groups are given below.

#### ***Working group 1***

To arrive at a comprehensive short list of indicators for global monitoring of reproductive health, the group stressed that a refinement of definitions and further experience and research are needed for the existing indicators. The group arrived at four overriding considerations in their deliberations:

1. It is important to use a multilevel (“bottom-up”) approach. All collected data should be useful at local level. There is a need for capacity building at national level.
2. The global indicators do not explain what goes on in regions and districts. Specific indicators for equity may be needed at these levels (gender, age, rural/urban, sexual education).
3. The method of collection should reflect that data are interlinked. Therefore, functional integration of data collection is needed to avoid confusion.
4. It is important to review how the indicators have been used to arrive at policy-making and outcomes.

Of the areas marked for development of additional indicators for global monitoring (Table 1), the group felt that research into indicators for the areas of “quality of care” and “prevention” should be addressed under each of the 17 existing indicators.

> Abortion	> “Male factor”
> Violence against women	> Reproductive health policy
> Access to care	> HIV/AIDS
> Quality of care	> Reproductive tract infection
> Antenatal care	> Preventative behaviour
> Postpartum care	> Cervical cancer
> Adolescent reproductive health	

Table 1. Thirteen areas flagged as priorities for further indicator development (from WHO/RHT/HRP/97.26)

Suggestions for research strategies for under-represented areas included the following:

- *Violence*: Follow-up on the WHO multicountry study on violence against women
- *Postpartum care*: Pilot studies and operational research on alternative models
- *Adolescent reproductive health care*: Pilot studies and operational research on alternative models
- *Reproductive health policy*: Inventory of reproductive health policies and case studies on how these policies are put into place
- *Cervical cancer*: Surveys among women and an assessment of screening technologies
- *Male involvement*: Research into male involvement in women’s reproductive health issues as well as men’s own reproductive health concerns.

The group added “*Comprehensive Sexual and Reproductive Health Care*” as an ICPD target area needing global monitoring and requiring further research to identify a suitable global indicator.

Prioritisation of this work should be done through the existing mechanisms in WHO’s Department of Reproductive Health and Research.

### *Working group 2*

The group recommended the following strategies to reach the objective of effective global collection, analysis and dissemination of the 17 short-listed indicators:

- Improve the methodologies for data collection, analysis and interpretation of indicators
  - Finalise the WHO toolkit after review of current practices. Adapt the language to be used at country level.
  - Review current experience and future plans of other agencies and organisations and summarise what is being done.
  - Review surveys to determine if and how the indicators are collected.
  - Consider new methods and approaches to data collection.
  - Identify research needs for the indicators where there is limited experience in collecting and analysing (Essential Obstetric Care, Syphilis, Abortion, Infertility, and Urethritis).
  - Standardise and improve database management.
- Coordinate collection of data for global monitoring
  - Establish a process for the compilation of indicators at global level.
  - Coordinate data gathering between agencies.
- Develop effective mechanisms for disseminating and using the indicators
  - Establish a central database.
  - Publish in peer-reviewed journals and make available on the web.
  - Introduce in the agenda of professional meetings.

### *Working group 3*

The group recommended the following strategies to achieve standardised collection, analysis and reporting of data for the indicators from the short list at country level:

- Present the minimal list of 17 indicators to countries through
  - Regional and national workshops, which explain and inform on the definition of particular indicators, the periodicity and source of collection, and the analysis, interpretation and use of the data.
- Increase national (country) capacity to plan, collect, analyse, report, disseminate and utilise the indicators
  - Strengthen existing Health Management Information Systems
  - Train national technical persons at each stage of DHS surveys – particularly data analysis and interpretation of results.
  - Provide technical support (equipment /software, quality assurance, use of data for planning for reproductive health at national level).
  - National governments should take leadership in defining a national list of indicators to be used by all agencies and initiatives.

- Streamline and utilise existing United Nations coordination mechanisms for use of reproductive health indicators with a clear definition of roles and responsibilities of agencies and national counterparts.
- Develop a reproductive health theme group (government/United Nations/donor/non-governmental organizations) to coordinate selection, implementation and monitoring of reproductive health indicators.
- Address funding requirements.
- Standardise, strengthen and support the process for collection of facility based indicators (HIV prevalence, syphilis serology, abortion care/admissions)
  - Review and identify how well the current system of collecting and reporting is functioning.
  - Adapt guidelines and mechanisms for country-level data collection.
- At global level, ensure coordination of and between agencies and donors [including The World Bank and the Development Assistance Committee (DAC)], with clear definitions and delegation of roles and responsibilities for planning, technical assistance, collection, analysis, reporting, dissemination/utilisation of the 17 indicators.

### ***Discussion and conclusions***

In the discussions that followed the presentations of the working groups several issues were raised:

- *In terms of further research*

The existing indicators should be reviewed and research should be carried out on some of them to see if they are realistic. However, in terms of timing, training and national capacity building should come first and the review of existing indicators after this. There should be another meeting when sufficient experience has been collected with the short list, before 2004.

- *In terms of national implementation*

It is important that countries accept ownership of indicators, this will also improve the quality of reporting. Research capabilities at national level need strengthening. The data used to calculate global indicators need to be available to populations to assess improvement and change and it should be stressed that process indicators should be added at field level to complement the global indicators.

It is important not only to strengthen the National Health Information Systems, but also the private sector and to review how the private sector can contribute information.

Several countries are unable to implement ICPD goals because no funding is available. A solution has to be found to support these countries. It is necessary to determine in which and how many countries the training process can be started.

- *In terms of coordination*

WHO should coordinate with all other involved agencies and initiate activities. The time frame of the recommended activities is important and needs to be finalised. Timing should be before ICPD+10. Resources need to be found to undertake the tasks.

## RECOMMENDATIONS AND CONCLUSIONS

The meeting stressed that the list of global indicators is only a component in the overall monitoring and evaluation strategy. Other complementary methodologies are needed for reproductive health monitoring and evaluation at country and programming levels.

The following recommendations were put forward by the meeting.

- **The two proposed HIV/AIDS indicators should be included in the short list of global indicators for reproductive health monitoring.**
  - A skills or behaviour indicator would be more valuable in monitoring HIV/AIDS prevention. Once such an indicator is available, it should be added to the short list or replace the knowledge indicator.
- **In preparation for ICPD+10, experience with the current 17 indicators should be reviewed.** The results of this review and a refined version of the short list should be presented to an interagency technical meeting before the end of 2003.
  - Further experience and research is especially needed for the two “Essential Obstetric Care” indicators and the “Infertility” and “Urethritis” indicators.
  - The “WHO Toolkit for collecting and using the reproductive health indicators on the interagency short list” should be finalised by the middle of 2001.
- **The research for indicators in additional reproductive health areas should be prioritised according to existing mechanisms in the WHO Department of Reproductive Health and Research.**
  - Research for indicators to measure “Quality of Care” and “Prevention” should be addressed for each area of reproductive health.
  - An additional indicator needs to be developed to monitor the ICPD target of “Comprehensive Sexual and Reproductive Health Care”.
- **The process of collecting, analysing and disseminating data for global monitoring should be useful on global level as well as on regional, country and local levels.** This process should contribute to developing national ownership of the short-listed indicators.
  - Present the short list at country and regional levels through a series of workshops.
  - Increase national capacity to collect, analyse and use the indicators by providing technical support.
  - There is a need for capacity building for research at country level.
  - Resources are needed to support implementation at country level and for global monitoring of the short-listed indicators.

- **All agencies involved in global monitoring of reproductive health should coordinate their efforts in using the same set of indicators.** This coordination should comprise of:
  - Standardised data gathering for the indicators.
  - Compilation of the indicators at the global level by various organizations.
  - Developing a composite report of the various organisations' global datasets for the 17 indicators.
  - Dissemination and feedback of the results to all levels through international conferences, journals, the web, and professional meetings.



## Annex 1

## ICPD AND ICPD+5 REPRODUCTIVE HEALTH GOALS AND THE 17 INDICATORS<sup>6, 7, 8</sup>

<i>Global indicator</i>	<i>ICPD goal</i>
<b>1. Total fertility rate</b>	<p>While the Programme of Action does not quantify goals for population growth, structure and distribution, it reflects the view that an early stabilisation of world population would make a crucial contribution to realising the overarching objective of sustainable development</p> <p style="text-align: right;"><i>ICPD+5 ,21<sup>st</sup> Special Session, Agenda item 8, §7</i></p>
<b>2. Contraceptive prevalence</b>	<p>Assist couples and individuals to achieve their reproductive goals and give them the full opportunity to exercise the right to have children by choice</p> <p style="text-align: right;"><i>ICPD Principle 8, 7.12, 7.14(c), 7.16</i></p> <p>Provide universal access to a full range of safe and effective family planning methods, as part of comprehensive sexual and reproductive health care</p> <p style="text-align: right;"><i>ICPD 7.2, 7.4, 7.6, 7.14 (a)</i></p> <p>By 2005, 60 % of primary health care and family planning facilities should offer the widest achievable range of safe and effective family planning methods</p> <p style="text-align: right;"><i>ICPD+5 ,21<sup>st</sup> Special Session, Agenda item 8, §53</i></p>
<b>3. Maternal Mortality Ratio</b>	<p>Countries should strive to effect significant reductions in maternal morbidity and mortality by the year 2015: a reduction in maternal mortality by one half of the 1990 levels by the year 2000 and a further one half by 2015. Disparities in maternal mortality within and between countries, socio-economic and ethnic groups should be narrowed</p> <p style="text-align: right;"><i>ICPD 8.21</i></p>
<b>4. Antenatal care coverage</b>	<p>Expand the provision of maternal health services in the context of primary health care. These services should offer prenatal care and counselling, with special emphasis on detecting and managing high-risk pregnancies</p> <p style="text-align: right;"><i>ICPD 8.17, 8.22</i></p>
<b>5. Births attended by skilled health personnel</b>	<p>All births should be attended by trained persons</p> <p style="text-align: right;"><i>ICPD 8.22</i></p> <p>All countries should continue their efforts so that globally, by 2005 at least 80% of all births should be assisted by skilled attendants, by 2010, 85%, and by 2015, 90%</p> <p style="text-align: right;"><i>ICPD+5 ,21<sup>st</sup> Special Session, Agenda item 8, §64</i></p>
<b>6. Availability of basic essential obstetric care</b>	<p>Expand the provision of maternal health services in the context of primary health care. These services should offer adequate delivery assistance and provision for obstetric emergencies</p> <p style="text-align: right;"><i>ICPD 8.22</i></p>
<b>7. Availability of comprehensive essential obstetric care</b>	<p>By 2005, 60 % of primary health care and family planning facilities should offer, directly or through referral, essential obstetric care</p> <p style="text-align: right;"><i>ICPD+5 ,21<sup>st</sup> Special Session, Agenda item 8, §53</i></p>
<b>8. Perinatal mortality rate</b>	<p>Within the framework of primary health care, extend integrated reproductive health care and child health services, including safe motherhood, child survival programmes and family planning services, particularly to the most vulnerable and under-served groups</p> <p style="text-align: right;"><i>ICPD 8.17</i></p>

<b>9. Low birth weight prevalence</b>	<p>To improve the health and nutritional status of women, especially of pregnant women, and of infants and children</p> <p>Interventions to reduce low birth-weight should include the promotion of maternal nutrition and the promotion of longer intervals between births <i>ICPD 8.15(b), 8.17, 8.20 (b)</i></p>
<b>10. Positive syphilis serology prevalence in pregnant women</b>	<p>Prevent and reduce the incidence of, and provide treatment for, sexually transmitted diseases, including HIV/AIDS <i>ICPD 7.29</i></p> <p>By 2005, 60 % of primary health care and family planning facilities should offer prevention and management of reproductive tract infections, including STDs and barrier methods to prevent infection <i>ICPD+5 ,21<sup>st</sup> Special Session, Agenda item 8, §53</i></p>
<b>11. Prevalence of anaemia in women</b>	<p>Countries should implement special programmes on the nutritional needs of women of childbearing age, and give particular attention to the prevention and management of nutritional anaemia <i>ICPD 8.24</i></p>
<b>12. Percentage of obstetric and gynaecological admissions owing to abortion</b>	<p>Women should have access to quality services for the management of complications arising from abortions <i>ICPD 8.25</i></p>
<b>13. Reported prevalence of women with FGM</b>	<p>Countries should take steps to eliminate violence against women Governments should prohibit female genital mutilation wherever it exists and give vigorous support to efforts among non-governmental organisations and religious institutions to eliminate such practices <i>ICPD 4.4(e), 4.22</i></p>
<b>14. Prevalence of infertility in women</b>	<p>Prevent and reduce the incidence of, and provide treatment for, sexually transmitted diseases, including HIV/AIDS, and the complications of sexually transmitted diseases such as infertility, with special attention to girls and women <i>ICPD 7.29</i></p> <p>By 2005, 60 % of primary health care and family planning facilities should offer prevention and management of reproductive tract infections, including STDs and barrier methods to prevent infection <i>ICPD+5 ,21<sup>st</sup> Special Session, Agenda item 8, §53</i></p>
<b>15. Reported incidence of urethritis in men</b>	<p>Prevent and reduce the incidence of, and provide treatment for, sexually transmitted diseases, including HIV/AIDS <i>ICPD 7.29</i></p> <p>By 2005, 60 % of primary health care and family planning facilities should offer prevention and management of reproductive tract infections, including STDs and barrier methods to prevent infection <i>ICPD+5 ,21<sup>st</sup> Special Session, Agenda item 8, §53</i></p>
<b>16. HIV prevalence in pregnant women</b>	<p>HIV infection rates in persons 15-24 years of age should be reduced by 25% in the most affected countries by 2005 and by 25% globally by 2010 <i>ICPD+5 ,21<sup>st</sup> Special Session, Agenda item 8, §70</i></p>
<b>17. Knowledge of HIV-related prevention practices</b>	<p>By 2005 at least 90% of young men and women, aged 15-24, should have access to the information, education and services necessary to develop the life skills required to reduce their vulnerability to HIV infection <i>ICPD+5 ,21<sup>st</sup> Special Session, Agenda item 8, §70</i></p>

*Table: ICPD and ICPD+5 benchmarks and the relevant reproductive health indicator from the interagency's short list which can be used (some as a proxy) to measure progress towards the global target*

## Definitions<sup>3</sup>

### 1. Total fertility rate

*Total number of children a woman would have by the end of her reproductive period if she experienced the currently prevailing age-specific fertility rates throughout her childbearing life.*

### 2. Contraceptive prevalence (any method)

*Percentage of women of reproductive age\* who are using (or whose partner is using) a contraceptive method\*\* at a particular point in time.*

\*Women of reproductive age in this indicator refers to all women aged 15–49, who are at risk of pregnancy, i.e. sexually active women who are not infecund, pregnant or amenorrhoeic.

\*\*Contraceptive method includes female and male sterilisation, injectable and oral hormones, intrauterine devices, diaphragms, spermicides and condoms, natural family planning and lactational amenorrhoea where cited as a method.

### 3. Maternal mortality ratio

*The number of maternal deaths per 100 000 live births.*

### 4. Antenatal care coverage

*Percentage of women attended, at least once during pregnancy, by skilled health personnel\* (excluding trained or untrained traditional birth attendants) for reasons relating to pregnancy.*

\*Skilled health personnel refers to doctor (specialist or non-specialist), and/or persons with midwifery skills who can manage normal deliveries and diagnose or refer obstetric complications. Both trained and untrained traditional birth attendants are excluded.

### 5. Births attended by skilled health personnel

*Percentage of births attended by skilled health personnel\* (excluding trained or untrained traditional birth attendants).*

\*Skilled health personnel refers to doctor (specialist or non-specialist), and/or persons with midwifery skills who can manage normal deliveries and diagnose or refer obstetric complications. Both trained and untrained traditional birth attendants are excluded.

### 6. Availability of basic essential obstetric care

*Number of facilities with functioning basic essential obstetric care\* per 500 000 population.*

\*Basic essential obstetric care should include parenteral antibiotics, oxytocics and sedatives for eclampsia and the manual removal of placenta and retained products.

### 7. Availability of comprehensive essential obstetric care

*Number of facilities with functioning comprehensive essential obstetric care\* per 500 000 population.*

\* Comprehensive essential obstetric care should include basic essential obstetric care plus surgery, anaesthesia and blood transfusion.

**8. Perinatal mortality rate**

*Number of perinatal deaths\* per 1000 total births.*

\* Deaths occurring during late pregnancy (at 22 completed weeks gestation and over), during childbirth and up to seven completed days of life.

**9. Low birth weight prevalence**

*Percentage of live births that weigh less than 2500 g.*

**10. Positive syphilis serology prevalence in pregnant women**

*Percentage of pregnant women (15–24) attending antenatal clinics, whose blood has been screened for syphilis, with positive serology for syphilis.*

**11. Prevalence of anaemia in women**

*Percentage of women of reproductive age (15–49) screened for haemoglobin levels with levels below 110 g/l for pregnant women and below 120 g/l for non-pregnant women.*

**12. Percentage of obstetric and gynaecological admissions owing to abortion**

*Percentage of all cases admitted to service delivery points providing in-patient obstetric and gynaecological services, which are due to abortion (spontaneous and induced, but excluding planned termination of pregnancy).*

**13. Reported prevalence of women with FGM**

*Percentage of women interviewed in a community survey, reporting to have undergone FGM.*

**14. Prevalence of infertility in women**

*Percentage of women of reproductive age (15–49) at risk of pregnancy (not pregnant, sexually active, non-contracepting and non-lactating) who report trying for a pregnancy for two years or more.*

**15. Reported incidence of urethritis in men**

*Percentage of men (15–49) interviewed in a community survey, reporting at least one episode of urethritis in the last 12 months.*

**16. HIV prevalence in pregnant women**

*Percentage of pregnant women (15–24) attending antenatal clinics, whose blood has been screened for HIV, who are sero-positive for HIV.*

**17. Knowledge of HIV-related prevention practices**

*The percentage of all respondents who correctly identify all three major ways of preventing the sexual transmission of HIV and who reject three major misconceptions about HIV transmission or prevention.*

## Annex 2

### BENCHMARK TARGETS ADOPTED AT THE ICPD+5 REVIEW\*

The ICPD Programme of Action recommended a set of interdependent quantitative goals and objectives. These included universal access to primary education, with special attention to closing the gender gap in primary and secondary school education; universal access to primary health care; universal access to a full range of comprehensive reproductive health care services, including family planning; reductions in infant, child and maternal morbidity and mortality; and increased life expectancy. After reviewing progress in these areas, the 1999 General Assembly Special Session agreed on a set of benchmarks to monitor progress towards these goals:

- (a) The 1990 illiteracy rate for women and girls should be halved by 2005; and by 2010, the net primary school enrolment ratio for children of both sexes should be at least 90 per cent;
- (b) By 2005, 60 per cent of primary health care and family planning facilities should offer the widest achievable range of safe and effective family planning methods, essential obstetric care, prevention and management of reproductive tract infections, including sexually transmitted diseases, and barrier methods to prevent infection; 80 per cent of facilities should offer such services by 2010, and all should do so by 2015;
- (c) At least 40 per cent of all births should be assisted by skilled attendants where the maternal mortality rate is very high, and 80 per cent globally, by 2005; these figures should be 50 and 85 per cent, respectively, by 2010; and 60 and 90 per cent by 2015;
- (d) The gap between the proportion of individuals using contraceptives and the proportion expressing a desire to space or limit their families should be reduced by half by 2005, by 75 per cent by 2010, and by 100 per cent by 2015. Recruitment targets or quotas should not be used in attempting to reach this goal;
- (e) To reduce vulnerability to HIV/AIDS infection, at least 90 per cent of young men and women, aged 15–24, should have access by 2005 to preventive methods—such as female and male condoms, voluntary testing, counselling, and follow up, and at least 95 per cent by 2010. HIV infection rates in persons 15–24 years of age should be reduced by 25 per cent in the most affected countries by 2005 and by 25 per cent globally by 2010.

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\* United Nations General Assembly, fifty-fourth session, Agenda item 99 (h), *Twenty-first special session of the General Assembly for an overall review and appraisal of the implementation of the Programme of Action of the International Conference on Population and Development, Report of the Secretary-General, III B 24*, 5 October 1999, United Nations A/54/442

**Annex 3****THE 17 INDICATORS — ISSUES IN THE APPLICATION OF SELECTION CRITERIA AND JUSTIFICATION FOR SELECTION**

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## THE SELECTION CRITERIA

### **Is the indicator ethical?**

An ethical indicator is one for which the gathering, processing and presentation of the data it requires are ethical in terms of the rights of the individual to confidentiality, freedom of choice in supplying data, and informed consent regarding the nature and implications of the data required.

Reproductive health encompasses many sensitive issues and the data needed to reflect these issues also require a level of sensitivity, particularly during the collection process. For example, indicators of infertility, or on urethral discharge, run the risk of being unethical if the information was sought through coercion of individuals or without their full (informed) knowledge of its collection, or where their privacy was not maintained during the gathering or analysis of the data. Judging whether an indicator is ethical or not thus depends not only on an understanding of the process of generating the basic data, but also of the context in which this will take place and the safeguards to preserve the rights of individuals. Surveys on sexually transmitted infections, sexual behaviour and HIV require special attention to issues of informed consent and confidentiality. When using survey methodologies, efforts should be made to ensure that the interviews or observations take place privately and that the information revealed by respondents or health personnel is not shared by anyone from the local community. Where an indicator requires screening for a condition e.g. for cervical cancer, this may also be regarded as unethical if there are no resources available for follow-up and treatment, since the data collection is unlikely to have secured informed consent.

### **Is the indicator useful?**

If the principal use of a national level indicator is as a 'marker of progress' towards improved reproductive health status, an indicator that is either a direct or proxy measure of impact, would be the most useful. However, many of the suggested impact indicators are measures of mortality and, in missing important variations in reproductive morbidity, may be of limited use as measures of change in overall reproductive health status as defined by ICPD. Serious difficulties in the collection of reliable data for impact measurement also limit their utility for national monitoring.

Direct and intermediate output indicators are often more readily available and may be more sensitive to change. They can act as valid proxies for impact indicators only when there is an established causal link with outcome. Unfortunately the efficacy of many health interventions, and not just those directed at reproductive health, have not yet been proven. Thus the usefulness of output indicators for monitoring health outcomes lies primarily in hypothesised effects.<sup>9</sup>

Where there is a known or projected link between the intervention and outcome, the indicators measuring performance further along the 'causal chain' (i.e. the intermediate output indicators of service utilisation and practice) are stronger proxy indicators of outcome than those earlier in the intervention pathway (i.e. the input and direct output indicators of availability / physical accessibility and quality of care) whose influence on eventual outcome will be mediated by intervening factors.

The lists reviewed for this report included indicators that had been suggested for use at programme and district level and, in that context, many of the input and direct output indicators have much potential utility in planning follow-on action. However, at the national level, few direct output indicators were deemed useful as markers of progress towards reproductive health.

Without proof of a direct connection with outcome, an output indicator may, nonetheless be useful at national level, simply as a direct marker of progress towards a specific process goal of Strategies for Health for All by the Year 200 (HFA), the World Summit for Children (WSC) or the International Conference on Population and Development (ICPD).

Contributing to the usefulness of an indicator as a “marker of progress” is the availability of baseline or historical data to allow comparisons over time. Obviously this is not an absolute requirement since it would imply that new indicators could never be developed. However, when suggesting replacements or modifications to an established indicator, the added benefits must justify the loss of the potential to assess secular trends.

Since computation of national level indicators usually requires aggregation of data collected at a local level, the data should also be useful locally; local follow-on action should be immediately apparent. Impact indicators of mortality, disease or fertility rates may not be useful at a local level if the numbers involved are too small to reliably detect change and if they do not provide specific information from which to plan follow-on action. However, reviewing individual cases of a specific outcome such as maternal or perinatal deaths may still be helpful for identifying specific problems in care provision and leading to targeted recommendations for improvement at the local level.

### **Is the indicator valid?**

A valid indicator is one which actually measures the issue or factor it is supposed to measure. Therefore an essential starting point is to establish exactly what the indicator is supposed to be measuring.

Many of the impact indicators are measures of risk — of death, disease or pregnancy — and it is important to consider the group to which this risk applies when assessing the validity of the indicator as a reflection of the reproductive health status of the whole population. For example the maternal mortality ratio is only a measure of risk of maternal death for those women already pregnant — a women’s overall risk of maternal death is also affected by her risk of getting pregnant. The lifetime risk of maternal death or the maternal mortality rate are therefore more valid measures of overall risk.

As a measure of attainment of a specific process goal of HFA, WSC or ICPD or at the local programme planning level, an output indicator that is simply a true measure of the output factor under consideration can be accepted as valid. However, an output indicator’s validity as a marker of progress towards reproductive health also depends on the strength of the link with outcome. For example, the indicator “proportion of pregnant women attended at least once during pregnancy” is not valid as a true measure of coverage of pre-natal care since it does not specify attendance for reasons related to pregnancy. The same indicator modified to include only attendance related to pregnancy is valid as an output indicator reflecting utilisation of prenatal



care (and therefore as a marker of progress towards the goal of universal access to prenatal care). However, it remains of questionable validity as a proxy impact indicator) since there is no proven link between one pre-natal visit (with care of unknown quality) and outcome.

### **Is the indicator specific?**

A specific indicator is one that *only* reflects changes in the issue or factor under consideration. Observed differences in the values of an indicator may not reflect true differences in reproductive health status but may be influenced by a number of other artifactual or confounding factors. For example, observed changes may be due to improvements in the ascertainment of deaths with the development of better reporting systems over time (e.g. for maternal mortality ratio (MMR) and perinatal mortality rate (PNMR) estimation), or may be due to differences in the case-mix characteristics of the population under study (e.g. differences in the population age/sex case mix for crude birth rates or in the severity of cases presenting for facility-based case fatality rates).

If the causal link with outcome is not strong for an output indicator acting as a proxy measure of impact, differences in the values of the output indicator may not specifically reflect changes in health status (e.g. observed variations in the proportion of all births attended by trained health personnel, including traditional birth attendants (TBAs), is a less specific proxy measure of outcome than when TBAs are excluded from the numerator).

### **Is the indicator sensitive?**

A sensitive indicator is one which has the ability to reveal changes in the issue or factor of interest.

At a national level the issue of interest is overall reproductive health status — ‘complete physical, mental and social well-being and not just the absence of disease or infirmity’ (ICPD, Programme of Action §7.2). Impact indicators concentrating on mortality rates have low sensitivity to changes in overall reproductive health status since there may be large shifts in the burden of reproductive morbidities before this is reflected in changes in mortality rates. Where relatively small numbers are involved, there will be wide random variation in values and wide confidence intervals. Measures of more common events (e.g. maternal morbidities or near-miss episodes) would be more sensitive to change but still present measurement challenges.

For the output indicator acting as a proxy impact measure, its sensitivity will depend on the importance of the measured output in determining the outcome relative to other determinants. For example, in a developing country exclusive breastfeeding until 4 months is one of the most important factors influencing infant health and therefore the exclusive breastfeeding rate can be taken as a sensitive proxy indicator of infant well-being. In an industrialised country breastfeeding is a much less important determinant and therefore will be a less sensitive measure of outcome.

### **Is the indicator reliable?**

A reliable indicator is one which would give the same value if its measurement was repeated in the same way on the same population and at almost the same time.

For indicators dependant on vital registration, routine reporting or health service statistics the main challenge to reliability is inaccurate or incomplete reporting. For example, it is very difficult to get accurate community data on the proportion of low birth weight deliveries. For indicators relying on special surveys, the reliability may be compromised by response bias. For example the reliability of survey results attempting to access knowledge, attitudes and practice relating to prevention of sexually transmitted infections (STIs) may be affected by normative response or recall bias.

### **Is the indicator representative?**

A representative indicator is one which adequately encompasses all the issues or population groups it is expected to cover.

At the national level, the group of interest is the whole population including minority groups and adolescents.

The representativeness of a given indicator will be compromised if there is selection bias either in the denominator as defined for the indicator or in the source of the data used to generate the indicator. For example, because STIs may lead to infertility, pregnant women cannot be regarded as representative of all women of reproductive age. Therefore the measure of positive syphilis serology prevalence in pregnant women may not be representative of the situation for all women of reproductive age.

Community-based surveys can provide more representative information depending on the size and sampling technique. If the survey involves potentially sensitive issues non-response bias may distort the results.

Any indicator aggregated at national level obviously presents an average picture and this may hide wide differentials between areas or population groups. Therefore this average will not be truly representative of all districts or people and there is a case for disaggregation to district level and presentation of the range of results.

### **Is the indicator understandable?**

To be understandable an indicator must be simple and unambiguous to define and its value must be easy to interpret in terms of reproductive health status.

All terms used in the description of the indicator must be explicitly defined. Confusion may be introduced by the use of ambiguous terminology; for example, the measurement of the proportion of women receiving “community support/advice on breastfeeding” is open to wide variations in the interpretation of what constitutes community support. There is still some ambiguity surrounding what constitutes basic and comprehensive essential obstetric care.

Confusion in the interpretation of the result may be introduced if the indicator is a composite measure of a number of factors and if all the “positive” factors do not act in the same direction. For example, “the proportion of sexually active persons who perceive themselves at risk but do not report regular condom use or monogamy” is a composite measure of knowledge and attitudes

(perceptions of risk) and of practice and the final result can be difficult to interpret as a measure of unmet need for the practice of safe sex.

**Is the data for the indicator accessible?**

An accessible indicator is one for which the data required are already available or relatively easy to acquire by feasible survey methods that have been validated in field trials.

Sources of information include:

- vital registration
- routine health services data
- health services surveys
- population-based surveys and surveillance

Indicators generated by routinely collected data are usually the most readily accessible but there may be serious problems with the representativeness and reliability of the data.

More reliable information for input and direct output indicators (availability) are generally available from health service records; for example administrative records of the number of condoms or range of drugs supplied to a health centre. As discussed earlier, using routine data to generate measures of intermediate outputs (coverage and practice) and impact is more difficult because of problems with the accuracy and completeness of attendance records and the unrepresentativeness of the group of people attending health facilities.

Population-based surveys require more resources and will need to be repeated if the information is to be used to mark changes over time. However, this may not be feasible. The benefit gained from the more reliable and representative information gathered from surveys must outweigh the costs.

## THE 17 REPRODUCTIVE HEALTH INDICATORS

### TOTAL FERTILITY RATE (TFR)

**Total number of children a woman would have by the end of her reproductive period if she experienced the currently prevailing age-specific fertility rates throughout her childbearing life**

Proposed by:

*WHO, 1993 – CFM3 “Third monitoring of progress in the implementation of strategies for HFA”*  
*THE EVALUATION PROJECT, 1996 – “Short list of the Subcommittee on Family Planning”*

#### Useful

- as a measure of poor physical reproductive health since high parity births (>5) are high risk for maternal morbidity and mortality.
- for international comparisons and for monitoring secular trends as it is unaffected by differences in the age-sex composition of the population.
- requires the calculation of age-specific fertility rates (ASFR) — the number of live births occurring to women within a specific age range per 1000 women in that age range.
- ASFRs are useful in reflecting the age pattern of fertility, particularly in the high risk groups of adolescents (see below) and older women.
- used in the estimation of women’s lifetime risk of maternal death (see maternal mortality ratio).

#### Scientifically robust

- valid only as a hypothetical measure of expected total number of births per woman since it assumes constant ASFRs over time.
- observed changes in the TFR are not a specific reflection of changes in effective family planning but may be due to changes in the incidence of early pregnancy loss (including induced abortions), to shifts in the age-specific fertility distribution, to differences in the proportion of women "at risk" of pregnancy or due to other socio-economic factors.

#### Understandable

- as a hypothetical concept, the TFR may be confusing.
- it uses the term “fertility” as understood by demographers — a measure of live births *not* of conceptions.
- ambiguity remains over inclusion of live births only.

#### Accessible from:

- civil registration — but potential problems with underreporting of births.
- population census — but potential problems with misclassification of age.
- population-based surveys — but potential problems with response bias and misclassification of age.

#### Justification for selection

A complementary indicator is contraceptive prevalence.

TFR was selected because of the lack of feasible alternatives and because it is important in contributing to the estimation of lifetime risk of maternal death.

The crude birth rate was proposed by a number of initiatives but differences in the age/sex mix of the populations of interest make valid comparisons difficult.

A proposed impact indicator aiming more specifically to reflect unmet need was “the proportion of total births that are to unmarried mothers” but this may not be a valid reflection of unmet need where births outside marriage are wanted.

## CONTRACEPTIVE PREVALENCE (CP)

### Percentage of women of reproductive age (15–49) who are using (or whose partner is using) a contraceptive method at a particular point in time

*Contraceptive methods include female and male sterilisation, injectable and oral hormones, intrauterine devices, diaphragms, spermicides and condoms, natural family planning and lactational amenorrhoea where cited as a method.*

Proposed by:

*WHO/UNICEF, 1993 – “Indicators for monitoring health goals of the World Summit for Children”*

*WHO, 1993 – CFM3: “Third monitoring of progress in the implementation of strategies for HFA” EVALUATION PROJECT, 1996 – “Short list of the Subcommittee on Family Planning”*

*WHO, 1996 – “Catalogue of indicators for health monitoring”*

*UNFPA, 1998 – “Indicators for population and reproductive health programmes”*

#### Useful

- useful as an intermediate output measure of utilisation of contraception methods.
- the contraceptive prevalence (CP) provides no information on the context or appropriateness of the method of contraception and is therefore a weak proxy measure of reproductive “physical health”. Contraception can only reduce reproductive morbidity and mortality where it is appropriate and safe. Its strongest impact on reproductive health is when it is used to prevent pregnancies that are too early, too close, too late and too many.
- the CP provides no information on individual choice, as included in the definition of reproductive health: “the capability to reproduce and the *freedom to decide* if, when and how often to do so” (ICPD Programme of Action §7.2), which means the selection of a contraceptive method is by free and informed choice of the individual.

#### Scientifically robust

- valid only as a measure of utilisation of contraceptives by all women between 15 and 49, irrespective of their “risk” of pregnancy or need for contraception.
- can be made more specific by confining to women currently married or in a stable union, and at risk of pregnancy (i.e. those who are fecund, are sexually active and not already pregnant).

#### Representative

- depends on the representativeness of the survey sample.
- national measures may hide wide differentials.

#### Understandable

- needs a clear definition of contraceptive methods — female and male sterilisation, injectable and oral hormones, intrauterine devices, diaphragms, spermicides and condoms, natural family planning, and lactational amenorrhoea method.
- interpretation is greatly enhanced where data are available on the unmet need for contraception.

#### Accessible from:

- population-based surveys (may be included in a Demographic and Health Survey) — takes into account all sources of supply of contraceptives but potential problems with normative response bias.
- routine service-based data — but potential problems with incomplete and inaccurate data collection, double counting, inaccurate estimates of the denominator and missing contraceptives acquired outside health facilities.

#### Justification for selection

The CP is a complementary output indicator to the TFR.

Proposed direct output measures of physical accessibility of family planning services have the advantage that the information is usually more accessible from health service records but effective utilisation is mediated by many factors of economic, administrative, cognitive and socio-economic accessibility.

Indicators encompassing issues of need may be seriously compromised by potential difficulties in reliable data collection.

## MATERNAL MORTALITY RATIO (MMR)

### The number of maternal deaths per 100 000 live births

#### Proposed by:

*WHO/UNICEF, 1993 – “Indicators for monitoring health goals of the WSC”*

*WHO, 1993 – “Indicators to monitor maternal health goals”*

*WHO, 1993 – CFM3 “Third monitoring of progress in the implementation of strategies for HFA”*

*UNICEF, 1995 – “Maternal mortality: Guidelines for monitoring progress”*

*EVALUATION PROJECT, 1996 – “Short list of the Subcommittee on Safe Pregnancy”*

*WHO, 1996 – “Catalogue of indicators for health monitoring”*

*UNFPA, 1998 – “Indicators for population and reproductive health programmes”*

#### Useful

- useful at a national level as a direct measure of health status.
- aggregated from data useful at local level where each maternal death should be reported and reviewed to provide information for programme planning.

#### Scientifically robust

- valid only as a measure of risk of pregnancy-related death once pregnant.
- including only those pregnancies resulting in a live birth in the denominator, will result in an overestimation of the risk for all pregnancies.
- observed differences in the maternal mortality ratio may not be specific to improved maternal health status but may be due to changes in the reporting system and ascertainment of maternal deaths, or to the wide random variation resulting from the small numbers of events.
- sensitivity to overall changes in reproductive health status may be low, there may be large changes in the burden of morbidities before this is reflected in changes in maternal mortality ration (MMR).
- the small numbers involved result in wide confidence intervals and difficulties in reliably detecting change.

#### Representative

- a national “average” may hide wide differentials between areas or population groups.

#### Understandable

- sometimes mistakenly known as “rate”, it is a ratio — includes some women in the numerator who are not included in the denominator (i.e. those maternal deaths for which there was an abortion or stillbirth).

#### Accessible from:

- civil registration — but potential problems with differential non-response, underreporting and misclassification of maternal deaths.
- routine service-based data — but potential problems with unrepresentativeness of sample.
- population surveys — direct estimation methods need very large sample sizes to produce stable estimates, and indirect estimation (sisterhood method) produces retrospective figures.

#### Justification for selection:

Despite major problems with reliable data collection and its low sensitivity to change in overall reproductive health status, the MMR was selected because it is now widely utilised and, with the TFR, is needed for the estimation of a lifetime risk of maternal death. Any alternative outcome indicators for maternal health have similar problems with reliable data collection.

## PERCENTAGE OF WOMEN ATTENDED AT LEAST ONCE DURING PREGNANCY BY SKILLED HEALTH PERSONNEL FOR REASONS RELATING TO PREGNANCY

**Percentage of women attended at least once during pregnancy, by skilled health personnel (excluding trained or untrained traditional birth attendants) for reasons relating to pregnancy**

*Skilled health personnel refers to doctor (specialist or non-specialist) and/or persons with midwifery skills who can manage normal deliveries and diagnose or refer obstetrics complications. Both trained and untrained traditional birth attendants are excluded.*

Proposed by:

*EVALUATION PROJECT, 1996 – “Short list of the Subcommittee on Safe Pregnancy”  
WHO, 1996 – “Catalogue of indicators for health monitoring”*

### Useful

- as an intermediate output measure of utilisation, it is a marker of progress towards the process goal of universal access to prenatal care.
- weak proxy measure of outcome, no proven link between one prenatal visit (with care provision of unknown quality) and outcome.
- usefulness would be improved if also available disaggregated by number and timing of visits.

### Scientifically robust

- reflection of utilisation of prenatal care.
- over-estimation of coverage results from the use of live births only in the denominator (there are suggestions to apply a “raising” factor of 15%, estimated pregnancy loss, to the live births to estimate the true population in need, but this is inconsistently applied).
- observed differences in coverage may be due not to true changes in coverage of all pregnancies, but to differences in the stillbirth and abortion rates.

### Representative

- depends on representativeness of sample.
- national measure may hide wide differentials.

### Understandable

- if standard definition of trained health personnel is applied.
- may be confusing as it is not a true proportion but a ratio — the numerator may include women not included in the denominator (i.e. those attended in the prenatal period but not resulting in a live birth).

### Accessible from:

- routine service-based data — provides information on the numerator, but there are potential problems with incomplete records.
- civil registration and population census — provide information for estimation of denominator, but potential problems with incomplete reporting.
- population-based surveys — provide most reliable information, but there may be problems with recall bias.

### Justification for selection

This is an output indicator that, if there *is* a link between one prenatal visit and outcome, may be complementary to MMR.

Although there is no proven strong link with outcome it is useful as a reflection of the utilisation of routine outpatient-based reproductive health services. An earlier indicator including any clinic visit during pregnancy in the numerator is not a specific measure of coverage of prenatal care.

The indicator “proportion of pregnant women immunised against tetanus” was considered as an alternative output measure since it has the advantage of reflecting not only the accessibility of prenatal care, but also the quality of care received. However, there are more problems with reliable data collection and it may be a non-specific reflection of reproductive health services (where observed differences are due to the effectiveness of the expanded programme of immunization (EPI)).

## PERCENTAGE OF BIRTHS ATTENDED BY SKILLED HEALTH PERSONNEL

### Percentage of births attended by skilled health personnel (excluding trained or untrained traditional birth attendants)

*Skilled health personnel refers to doctor (specialist or non-specialist) and/or persons with midwifery skills who can manage normal deliveries and diagnose or refer obstetric complications. Both trained and untrained traditional birth attendants (TBAs) are excluded.*

Proposed by:

WHO, 1996 – “Catalogue of indicators for health monitoring”

UNFPA, 1998 – “Indicators for population and reproductive health programmes”

#### Useful

- as an intermediate output indicator it is a marker of progress towards the process goal of universal access to intrapartum care.
- as proxy impact indicator — link between attended delivery and improved outcome.

#### Scientifically robust

- valid as a measure of intrapartum care coverage.

#### Representative

- depends on the representativeness of the survey sample.
- a national level measure may hide wide differentials.

#### Understandable

- if standard definition of trained health personnel is applied, but ambiguity may remain on the inclusion of trained TBAs and inclusion of private and public providers.
- ambiguity remains as to the denominator — sometimes includes only live births (leading to overestimation of coverage) and sometimes refers to all births.

#### Accessible from:

- routine service-based data — provide information on the numerator, but there are potential problems with incomplete records and may miss data from private providers.
- civil registration and population census — provide information for estimation of denominator, but potential problems with incomplete reporting.
- population-based surveys — provide most reliable information, but there may be problems with recall bias.

#### Justification for selection

It is an output indicator for intrapartum care that, if there is a link with outcome, may be complementary to the MMR.

An earlier indicator measuring coverage of intrapartum care included all TBA attended deliveries in the numerator and therefore was a less specific reflection of *effective* intrapartum care and a less strong proxy of impact.

Alternative proposed output indicators for intrapartum care included those related to facility-based quality of care which, while potentially useful at the local level, are difficult to aggregate across facilities to produce a useful national measure.



## NUMBER OF FACILITIES WITH FUNCTIONING BASIC ESSENTIAL OBSTETRIC CARE PER 500 000 POPULATION

### Number of facilities with functioning basic essential obstetric care per 500 000 population

*Basic essential obstetric care should include parenteral antibiotics, oxytocics, and sedatives for eclampsia and the manual removal of placenta and retained products.*

Proposed by:

*WHO/UNICEF, 1993 – “Indicators for monitoring health goals of the World Summit for Children”*

*WHO, 1993 – “Indicators to monitor maternal health goals”*

*WHO, 1993 – CFM3 “Third monitoring of progress in the implementation of strategies for HFA”*

*UNICEF, 1995 – “Maternal mortality: Guidelines for monitoring progress”*

*EVALUATION PROJECT, 1996 – “Short list of the Subcommittee on Safe Pregnancy”*

*WHO, 1996 – “Catalogue of indicators for health monitoring”*

*UNFPA, 1998 – “Indicators for population and reproductive health programmes”*

#### **Useful**

- as a direct output measure of availability of basic essential obstetric care (EOC) — a marker of progress towards the process goal of universal access to basic EOC.
- as a proxy measure of impact — direct link between available basic EOC and health outcomes of mothers and newborns.
- useful at a local level for programme planning.
- usefulness would be improved if also available disaggregated by rural and urban location of facility per 500 000 rural or urban population.

#### **Scientifically robust**

- valid as a measure of availability to general population, but may not reflect true differences in the availability to the population in need (i.e. pregnant women) where there are differences in the proportion of women of reproductive age in the population and their fertility rates. A measure of availability per 500 000 women of reproductive age may be a more useful indicator.
- it is not necessarily a reflection of accessibility of facilities because contains no information on the geographical distribution, referral systems, transport or cultural and economic accessibility nor on the uptake of this care.

#### **Representative**

- national level measure may hide wide differentials between areas.
- must also include facilities available from the private sector.

#### **Understandable**

- need standard definitions of what constitutes basic EOC, but there has been confusion with changing terminology, from “essential” and “emergency” obstetric care to “basic” and “comprehensive” essential obstetric care.

#### **Accessible from:**

- routine service-based data — for the numerator, need evidence that the facilities are functioning, (this should not be a measure of theoretical capacity to provide basic EOC).
- population census — for information for the denominator.

#### **Justification for selection**

As a direct output indicator for basic EOC it is complementary to the MMR.

The information required is relatively easily accessible.

With alternative proposed output measures of EOC there are difficulties in calculating the denominator, e.g. “the proportion of women estimated to have obstetric complications seen in EOC facilities”.

## NUMBER OF FACILITIES WITH FUNCTIONING COMPREHENSIVE ESSENTIAL OBSTETRIC CARE PER 500 000 POPULATION

### Number of facilities with functioning comprehensive essential obstetric care per 500 000 population

*Comprehensive essential obstetric care should include basic essential obstetric care plus surgery, anaesthesia and blood transfusion.*

Proposed by:

*WHO/UNICEF, 1993 – “Indicators for monitoring health goals of the World Summit for Children”*

*WHO, 1993 – “Indicators to monitor maternal health goals”*

*WHO, 1993 – CFM3 “Third monitoring of progress in the implementation of strategies for HFA”*

*UNICEF, 1995 – “Maternal mortality: Guidelines for monitoring progress”*

*EVALUATION PROJECT, 1996 – Short list of the Subcommittee on Family Planning*

*WHO, 1996 – “Catalogue of indicators for health monitoring”*

*UNFPA, 1998 – “Indicators for population and reproductive health programmes”*

#### Useful

- as a direct output measure of availability of comprehensive essential obstetric care (EOC) — a marker of progress towards the process goal of universal access to comprehensive EOC.
- as a proxy measure of impact — direct link between available comprehensive EOC and outcome.
- useful at a local level for programme planning.
- usefulness would be improved if also available disaggregated by rural and urban location of facility per 500 000 rural or urban population.

#### Scientifically robust

- valid as a measure of availability to general population, may not reflect true differences in the availability to the “population in need” (i.e. pregnant women) where there are differences in the proportion of women of reproductive age in the populations and their fertility rates. A measure of availability per 500 000 women of reproductive age may be a more useful indicator.
- it is not necessarily a reflection of accessibility of facilities because contains no information on the geographical distribution, referral systems, transport or cultural and economic accessibility.

#### Representative

- national level measure may hide wide differentials between areas.
- need to include private facilities.

#### Understandable

- with standard definitions of what constitutes comprehensive EOC, but there has been confusion with changing terminology, from “essential” and “emergency” obstetric care to “basic” and “comprehensive” essential obstetric care.

#### Accessible from:

- routine service-based data — for the numerator, need evidence that the facilities are functioning, not a measure of theoretical capacity.
- population census — for information for the denominator.

#### Justification for selection

As a direct output indicator for comprehensive EOC it is complementary to the MMR.

The information required is relatively easily accessible.

There are serious problems with alternative proposed output measures of comprehensive EOC, for example – “caesarean sections as a proportion of all live births in a population” — problems with estimation of the denominator and, where the result lies within the “normal” range of 5–15%, difficult to interpret if the sections were appropriate. “The proportion of all births that occur in facilities with EOC” present similar problems of defining what is acceptable and if those that are attended to in these facilities are the appropriate deliveries.

## PERINATAL MORTALITY RATE (PNMR)

### Number of perinatal deaths per 1000 total births

*Perinatal deaths are deaths occurring during late pregnancy (at 22 completed weeks gestation and over), during childbirth and up to seven completed days of life.*

Proposed by:

WHO, 1993 – Draft list suggested in “Elaboration of indicators for maternal health”

EVALUATION PROJECT, 1996 – “Short list of Subcommittee on Safe Pregnancy”

#### Useful

- as an impact indicator it is a direct measure of perinatal health status and a marker of progress towards improved perinatal health.
- potential as a proxy measure of maternal health status.
- at the local level, useful to record each perinatal death and to review circumstances of the event — leading to specific recommendations for programme planning.
- usefulness would be improved if also available disaggregated by: a) source of data: facility- versus community-based, and b) fresh and macerated stillbirths.

#### Scientifically robust

- a valid measure of risk of fetal or neonatal death in the perinatal period — defined as from 22 weeks of gestation (WHO ICD10, 1992) until seven completed days after delivery.
- observed differences in the perinatal mortality rate (PNMR) may not be specific to improved health status but may be due to changes in the reporting system for ascertainment of perinatal deaths.
- specificity as a proxy measure of maternal health may be low where observed differences in the PNMR primarily reflect changes in neonatal care.
- as a more common event than maternal deaths, potential as a more sensitive measure than the MMR of changes in overall maternal health status

#### Understandable

- ambiguity remains over the definition of a stillbirth (vs. a spontaneous abortion). ICD 10 now defines the perinatal period as commencing at 22 weeks; any fetus delivered beyond this gestation, or with a birth weight over 500 g, is therefore included in the perinatal statistics. However, for international comparisons a birth weight of at least 1000 g is recommended.<sup>10</sup> Presentations of PNMR must always specify the birth weights included in the statistics.
- interpretation can be enhanced using indicator on the percentage of births attended by trained health personnel.

#### Accessible from:

- civil registration — but potential problems with underreporting of births, differential non-response for deaths and misclassification of perinatal deaths (as abortions or late neonatal deaths).
- routine service-based data — but potential problems with unrepresentativeness of sample.
- population surveys — but potential problems with recall bias and differential misclassification.

#### Justification for selection

Despite major problems in reliable data collection for the PNMR it is included in this list as an impact indicator that has great potential as a sensitive indicator of maternal and neonatal health status.

As perinatal death is a more common event than maternal death, the PNMR has potential as a more sensitive measure of change. Ascertainment of perinatal death is less problematical than ascertainment of maternal morbidity, which has been suggested as a more sensitive alternative measure of maternal health status. At the local level, reviews of perinatal deaths provide more opportunity for examination of quality of care issues than the rarer maternal death reviews.

Alternative measures of newborn health status include the infant mortality rate (IMR). An estimated 40% of infant deaths occur in the first week.<sup>10</sup> However, observed changes in the IMR are not specific to changes in reproductive health status and reductions in IMR over the last decade largely reflect a reduction in post-neonatal mortality.

## PERCENTAGE OF LIVE BIRTHS OF LOW BIRTH WEIGHT

### Percentage of live births that weigh less than 2500 g

Proposed by:

*WHO, 1993 – Draft list suggested in “Elaboration of indicators for maternal health”*

*WHO, 1993 – CFM3 “Third monitoring of progress in the implementation of strategies for HFA”*

*WHO, 1996 – “Evaluating the implementation of the strategy for Health for All by the year 2000”*

#### Useful

- as an impact indicator — a direct measure of newborn health and chance of survival, and therefore a marker of progress towards improved newborn health.
- as a proxy indicator of maternal health status.
- useful to collect data on birth weights at local level — to inform individual case management.

#### Scientifically robust

- valid as a measure of prevalence of live births with birth weights under 2500 g — either due to intrauterine growth retardation, premature delivery or genetically small stature.
- specificity as a measure of health status and chance of neonatal survival is compromised in populations of genetically small stature, where birth weights below 2500 g are normal and not associated with increased risk.

#### Representative

- routine data will provide an unrepresentative sample.

#### Accessible from:

- routine service-based data — but potential problems with unrepresentativeness of sample — has potential for monitoring trends, but increasing prevalence of low birth weight (LBW) births in health facilities may reflect improved access for women in need.
- population-based survey — problems with incomplete recording of birth weights in the community and recall problems, in special surveys can use a proxy measure of LBW, e.g. chest circumference, which may be easier to measure.

#### Justification for selection

As a measure of newborn risk it is complementary to the PNMR; as a reflection of maternal health status it is complementary to the MMR.

Despite major problems with reliable data collection this indicator was selected owing to its multiple potential: as a measure of newborn health status and chance of survival and as a proxy measure of maternal health. As it is of multiple aetiology, it can be regarded as an efficient marker of health status of the mother — a high LBW prevalence reflects a number of negative factors.

While reliable population level estimates may not be feasible, monitoring of changes in the data that are available (i.e. health service data) gives an indication of trends.

In areas of small genetic stature a lower cut-off for definition of low birth weight would be more appropriate as a reflection of health status and chance of survival.

## **POSITIVE SYPHILIS SEROLOGY PREVALENCE IN PREGNANT WOMEN ATTENDING FOR ANTENATAL CARE**

**Percentage of pregnant women (15–24) attending antenatal clinics,  
whose blood has been screened for syphilis, with positive serology for syphilis**

Proposed by:

*WHO, 1996 – “Catalogue of indicators for health monitoring”*

### **Ethical**

- routine screening for syphilis during pregnancy is ethical if women are informed of the screening, give their consent to be screened, and their individual results are kept confidential.

### **Useful**

- as a direct impact indicator – sexually transmitted infections (STIs) are directly injurious to health and therefore this is a measure of reproductive health status of pregnant women.
- as a proxy indicator of the burden of STIs in the general population and therefore as a marker of progress towards reducing the burden of STIs and HIV/AIDS.

### **Scientifically robust**

- valid as a measure of the prevalence of positive syphilis serology in women attending for prenatal care at facilities that have resources for routine syphilis screening for all women.
- will not be specific as a proxy indicator of overall burden of STIs, where there has been a targeted campaign against syphilis.
- as a proxy indicator of overall burden of STIs, will not be sensitive to changes where prevalence of syphilis is low.

### **Representative**

- pregnant women are not representative of all women. Lower fertility amongst those women who have had STIs may lead to an underestimation of the STI prevalence in all women. Conversely, since non-pregnant women include those who are not sexually active and therefore are not at risk of STIs, the prevalence amongst pregnant women may be an overestimation of the prevalence in all women.
- not representative of all pregnant women — only of women self-selected to attend for antenatal care.
- only representative of this group of women where there is screening of all pregnant women and not just those deemed at high risk.

### **Accessible**

- routine health service data including private health facilities.

### **Justification for selection**

Despite problems with the low representativeness and sensitivity of this indicator, it has been selected because it is among the most readily accessible and ethically acceptable of the impact indicators suggested for STIs/HIV.

Population-based surveys leading to estimation of other proposed impact indicators, such as “estimated prevalence of STIs in a defined target population” or “estimated prevalence of HIV” present major ethical problems in the data collection methods and follow-up.

Information for direct output indicators for STI/HIV programmes (e.g. condom availability) is readily accessible but the impact of condom availability on outcome is mediated by many other factors and therefore it is not useful as a marker of progress towards improved health status.

## PERCENTAGE OF WOMEN OF REPRODUCTIVE AGE SCREENED FOR HAEMOGLOBIN LEVELS WHO ARE ANAEMIC

**Percentage of women of reproductive age (15–49) screened for haemoglobin levels with levels below 110 g/l for pregnant women, and below 120 g/l for non-pregnant women**

Adapted from:

*WHO/UNICEF, 1993 – “Indicators for monitoring health goals of the World Summit for Children”*

*WHO, 1993 – CFM3 “Third monitoring of progress in the implementation of strategies for HFA”*

*WHO, 1996 – “Catalogue of indicators for health monitoring”*

### Useful

- as a direct measure of health status — anaemia is directly injurious to health.
- as a proxy measure of general nutritional status.
- at the local level, useful for individual case management and planning of resources.
- usefulness improved if also available disaggregated by: a) severe, moderate, mild anaemia; b) pregnant, lactating, non-pregnant/non-lactating women; and c) source of screening (e.g. prenatal clinics, postnatal services, etc.).

### Scientifically robust

- valid as a measure of the prevalence of haemoglobin levels as defined, since no single level will separate all “anaemic” (those whose health is compromised by their haemoglobin level) from “non-anaemic” people. A focus on severe anaemia (e.g. haemoglobin levels under 7 g/dl) may be a more valid and specific reflection of poor health status.
- low specificity as proxy measure of general nutritional status; there may be a targeted programme of iron supplementation, or a low haemoglobin may be due to too short birth intervals, blood loss or illness unrelated to poor nutrition.

**Representative** — depends on the source of the data:

- if from routine screening during prenatal care, those attending for prenatal care are a self-selected group and not representative of all pregnant women.
- if from a population-based survey — depends on representativeness of sample.

**Accessible** from:

- routine service-based data — the facility must carry out routine screening of haemoglobin levels for all women and not just those at risk. Potential problems with unrepresentativeness of sample and incomplete record keeping.
- population-based surveys — need facilities for follow-up and treatment.

### Justification for selection

As a complementary indicator to MMR, PNMR and prevalence of low birth weight births.

Although there are problems with estimation of true population values for this indicator and it may not be a specific reflection of overall nutritional status, it was selected because anaemia is an important contributor to morbidity and mortality and the data are readily accessible.

The “proportion of malnourished women (non-pregnant and non-lactating) as defined by body mass index” or “proportion of women with low breast-milk Vitamin A2 have been proposed as alternative impact measures of nutrition but require expensive population surveys and may not be very sensitive to change in overall nutritional status.

## **PERCENTAGE OF OBSTETRIC AND GYNAECOLOGICAL ADMISSIONS OWING TO ABORTION**

**Percentage of all cases admitted to service delivery points, providing in-patient obstetric and gynaecological services, which are due to abortion (spontaneous and induced, but excluding planned termination of pregnancy)**

Proposed by:

*EVALUATION PROJECT, 1996 — “Short list of the Subcommittee on Safe Pregnancy”*

### **Useful**

- as an intermediate output (process) measure of the utilisation of services in cases of abortion.
- in most settings, the majority of these admissions will be cases with post-abortion complications.

### **Scientifically robust**

- valid as a measure of case-load on obstetric and gynaecological services owing to complicated abortions.
- trends in percentages are sensitive to changes in admission patterns for other obstetric and gynaecological cases.
- for reliable and comparable measures, need to include all abortion cases who present to secondary and tertiary health facilities within a prescribed area, including private facilities (must be careful to avoid double counting of cases referred from secondary to tertiary level care).

### **Representative**

- representative of those abortion cases admitted to health facilities.
- depends on completeness of coverage of relevant facilities.
- problems in comparing between facilities and across districts; national measure may hide wide differentials.

### **Understandable**

- need to define which levels of service delivery points are to be included.
- need a standard definition for classification of abortion cases, must be based on objective clinical findings — irrespective of alleged history.
- interpretation of trends may be difficult owing to variation in the balance between spontaneous and induced abortions.

### **Accessible** from:

- health service records — but potential problems with underreporting (i.e. omission of cases not admitted to facilities) and misclassification.

### **Justification for selection**

It is complementary to the direct output indicators measuring availability of EOC (which includes services essential for effective life-saving post-abortion care).

There are no feasible data collection methods that can reliably measure the overall burden of abortion in the population.

Although it presents some difficulties in reliable data collection and is facility-based, this indicator was selected from the few proposed relating to abortion care because it is the most readily accessible and is a useful measure of utilisation of services.

**REPORTED PREVALENCE OF WOMEN WITH FEMALE GENITAL MUTILATION****Percentage of women interviewed in a community survey,  
reporting themselves to have undergone FGM**

Adapted from:

*UNFPA, 1998 – “Indicators for population and reproductive health programmes”*

**Ethical**

- indicators from community surveys of female genital mutilation (FGM) may not be regarded as ethical if adequate safeguards are not in place to preserve confidentiality during the process of data collection.

**Useful**

- as a direct impact indicator, FGM has direct injurious effects on reproductive health, therefore decreasing prevalence is a marker of progress towards improved reproductive health.
- reflection of changing attitudes to women’s reproductive health.
- may not be relevant in many areas of the world where FGM is not practised.
- usefulness is improved if age-specific prevalence is available.

**Scientifically Robust**

- valid only as a measure of the reported prevalence of genital mutilation in women.
- age range of women to be included needs careful consideration; a wide age range may be preferable, e.g. 10–49 years.

**Representative**

- depends on the representativeness of the sample used in the community survey, and on the representativeness of the women willing to respond to the question on FGM.

**Understandable**

- with standard definitions of FGM.

**Accessible from:**

- community-based surveys.

**Justification for selection**

This was adapted from one of only two proposed indicators relating to FGM (the other being a reflection of policy).

While it may not be relevant in many parts of the world it is included because of its importance in those areas in which FGM is practised. Not only is it a direct measure of women’s reproductive health (which is directly injured by FGM) but it is also a reflection of changing attitudes to women’s well-being.

While this may not be representative of the overall burden of the problem, repeated surveys would be able to detect trends.



## **PERCENTAGE OF WOMEN OF REPRODUCTIVE AGE AT RISK OF PREGNANCY WHO REPORT TRYING FOR A PREGNANCY FOR TWO YEARS OR MORE**

**Percentage of women of reproductive age (15–49) at risk of pregnancy (not pregnant, sexually active, non-contracepting and non-lactating) who report trying for a pregnancy for two years or more**

Adapted from:

*EVALUATION PROJECT, 1996 – “Short list of the Subcommittee on STD/HIV”*

*UNFPA, 1998 – “Indicators for population and reproductive health programmes”*

### **Ethical**

- data collection may involve questions that are culturally sensitive.

### **Useful**

- as a measure of reproductive morbidity it is a useful marker of progress towards improved reproductive health defined as “the capability to reproduce and the freedom to decide if, when and how often to do so” (ICPD Programme of Action § 7.2).
- useful as a proxy measure of the long-term sequelae of sexually transmitted infections (STIs).
- usefulness improved if also available disaggregated by: a) age group of woman; b) if ever been pregnant; and c) for how long trying to get pregnant.

### **Scientifically robust**

- valid as a measure of the burden of the problem of “failure to conceive” in 15–49 year olds.
- may not be valid as a measure of unmet need for reproduction — does not reflect problems related to early pregnancy loss.
- higher levels — above the 5% which is expected in all populations due to “inherent reproductive abnormalities” — may be a reflection of infertility due to the effects of chronic pelvic inflammatory diseases, chronic STIs or genital tract injuries secondary to complicated deliveries, unsafe abortions or female genital mutilation.
- reliability of data may be compromised by misclassification of early pregnancy loss as “no pregnancy”.

### **Representative**

- depends on representativeness of sample used in community survey.

### **Understandable**

- uses the term “fertility” as understood by clinicians, i.e. “capacity to conceive” — not as used by demographers — where “fertility” rates are measures of live births.

### **Accessible from:**

- community surveys — but potential problems with response biases. May be logistically difficult — needing large sample sizes to reliably detect change.

### **Justification for selection**

As a complementary indicator to “prevalence of positive syphilis serology in pregnant women attending for prenatal care”. While infertility and its emotional and social consequences can have a serious negative effect on reproductive health status, available treatment is expensive and may not be appropriate where there are resource constraints. Prevention of infertility — through effective safe motherhood (to avoid uterine rupture and sepsis) and STI programmes — is usually the more appropriate intervention.

This indicator is an adaptation of the only two indicators proposed in the reviewed lists relating directly to infertility. Two years was chosen because 90% of “normal” sexually active couples conceive within two years.

## REPORTED INCIDENCE OF URETHRITIS IN MEN

### Percentage of men aged (15–49) interviewed in a community survey reporting episodes of urethritis in the last 12 months

Adapted from:

WHO, 1996 – “*Catalogue of indicators for health monitoring*”

#### **Ethical**

- data collection will involve questions that may be culturally sensitive and which need to be asked in privacy. Confidentiality of men’s reports needs to be assured in order to obtain reliable data.

#### **Useful**

- as a measure of reproductive morbidity it is a useful marker of the impact of treatment and preventive services for sexually transmitted infections (STIs).
- usefulness improved if also available disaggregated by age group.

#### **Scientifically robust**

- valid as a measure of reported prevalence of a major symptom of STIs in men.
- need for clear definition of urethral discharge and whether pain during urination is also to be included as a major symptom.

#### **Representative**

- depends on representativeness of sample used in community survey.
- large sample sizes may be needed in some populations to arrive at estimate of point prevalence, and period prevalence (e.g. discharge in the last month) may be more feasible in these circumstances.

#### **Understandable**

- if standard definition of urethral discharge is applied.

#### **Accessible** from:

- community surveys, but may present difficulties during data collection (i.e. need for male interviewers, privacy to conduct interview, guarantee given of confidentiality).

#### **Justification for selection**

As a complementary indicator to “prevalence of positive syphilis serology in pregnant women attending for prenatal care”, it gives some indication of the felt burden of STIs on the adult male population. Not all STIs manifest themselves by urethral discharge, but this indicator has major advantages over the alternatives in terms of feasibility of data collection and representativeness of findings.

## HIV PREVALENCE AMONG PREGNANT WOMEN

### Percentage of pregnant women (15–24) attending antenatal clinics, whose blood has been screened for HIV, who are sero-positive for HIV

Proposed by:

UNAIDS, 2000 – “National AIDS programmes: A guide to monitoring and evaluation”

#### **Ethical**

- only the results of unlinked, anonymous screening of blood taken for other purposes should be used in calculating this indicator of HIV prevalence, even where programmes exist that simultaneously offer counselling and voluntary HIV testing for pregnant women to reduce mother-to-child transmission. Refusal and other participation bias are considerably reduced in unlinked anonymous HIV testing.

#### **Useful**

- prevalence data are of limited value in evaluating changes in the course of the epidemic since they reflect infections acquired over a number of years. Incidence is estimated from prevalence data in young women; prevalence in this age group reflects infections that have occurred recently and there are fewer concerns over differential mortality and fertility.

#### **Scientifically robust**

- relatively large sample sizes are needed to ensure adequate precision of the estimates.
- estimates of prevalence should be given with confidence intervals.

#### **Representative**

- levels of HIV infection in pregnant women do not reflect levels among women who are not having sex, among women who are infertile, who are systematically using contraception, including barrier methods such as condoms which also prevent HIV transmission, or among men.
- the usefulness of antenatal clinic data for HIV screening depends on the degree of representativeness of pregnant women attending antenatal care relative to the general population. Selection biases may vary over time, complicating the analysis of trends. Studies are needed to measure the relative importance of factors leading to selection biases.
- as a consequence of the modes of transmission of HIV, urban and periurban areas tend to have higher HIV prevalence than rural areas, surveillance may be focused on capital cities and major urban and periurban areas.
- changes in the prevalence in the immediately post-pubertal age group closely reflect changes in the incidence in that age group. However, it may not be appropriate to extrapolate this hypothesis to a 10–year age band. For this reason, it is recommended that data are collected by single years of age for women aged 15–24 years so that more accurate incidence calculations can be carried out.

#### **Understandable**

- if applied appropriately according to definitions and methodology cited.

#### **Accessible** from:

- routine sentinel surveillance from the national sentinel surveillance system for HIV.

#### **Justification for selection**

This indicator gives a good idea of relatively recent trends in nation-wide HIV infection in countries where the epidemic is heterosexually driven. Even in areas where the bulk of HIV infection remains confined to subpopulations with high-risk behaviours, it should be monitored since it serves as a warning of the expansion of the epidemic into the general population. Antenatal sentinel surveillance continues to represent the most important component of HIV surveillance in areas where the epidemic is established. Continuing surveys of other groups (for example, sex workers or intravenous drug users) are likely to be needed in certain settings.

## **KNOWLEDGE OF HIV-RELATED PREVENTION PRACTICES**

**The percentage of all respondents who correctly identify all three major ways of preventing the sexual transmission of HIV and who reject three major misconceptions about HIV transmission or prevention**

*The three major ways of preventing transmission of HIV are: having no penetrative sex, using condoms, and having sex only with one faithful uninfected partner.*

Adapted from:

*UNAIDS, 2000 – “National AIDS programmes: A guide to monitoring and evaluation”*

### **Ethical**

- data collection may involve questions that are culturally sensitive.

### **Useful**

- knowledge of preventive practices in HIV/AIDS is a prerequisite for behavioural change.

### **Scientifically robust**

- relatively large sample sizes are needed to ensure adequate precision of the estimates.
- estimates of prevalence should be given with confidence intervals.
- the indicator is a compilation of the UNAIDS knowledge indicators 1 and 2 and is derived from two questions. One question relates to the correct answers given for all three primary sexual prevention methods following prompted questions in a survey and the second to correctly rejecting the two most common local misconceptions about AIDS transmission or prevention and knowing that a healthy-looking person can transmit AIDS. Not counted in the numerator of the indicator is someone who gives correct answers on fewer than three ways of prevention or who does not reject both misconceptions and knows that a healthy-looking person can transmit AIDS. All respondents are included in the denominator, regardless of whether they have ever heard of AIDS or not. The precise wording of the prompted questions must be given careful thought in each linguistic and cultural context.

### **Representative**

- if random sampling is used in a population survey, the data should be representative of the general population.
- in view of the importance of adolescent knowledge and behaviour, care should be taken to ensure adequate representation of young people of both sexes and of social and economic conditions.
- in most countries the score on this indicator will be high, but disaggregation of the indicator by residence, gender or age group may provide useful pointers to gaps in information flows.

### **Understandable**

- if applied appropriately according to definitions and methodology cited.

### **Accessible**

- from cross-sectional household surveys such as: UNAIDS general population survey; Demographic and Health Surveys AIDS module; UNICEF Multiple Indicator Cluster Surveys; Family Health International's Adult and Youth Behavioral Surveillance Surveys

### **Justification for selection**

Information on knowledge and behaviour related to HIV/AIDS is essential for identifying populations at risk for HIV infection. It is also critical for assessing changes over time as a result of prevention efforts.

## Annex 4

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