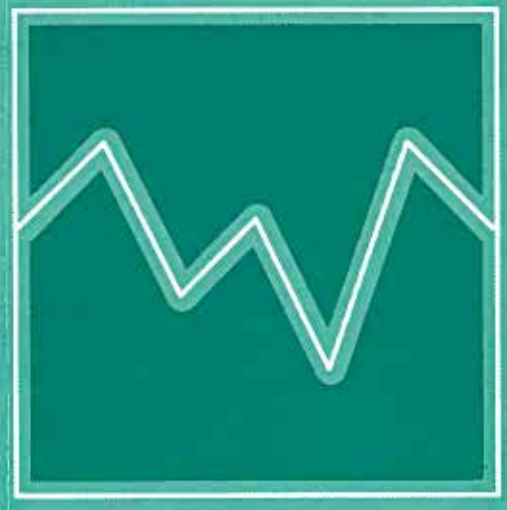

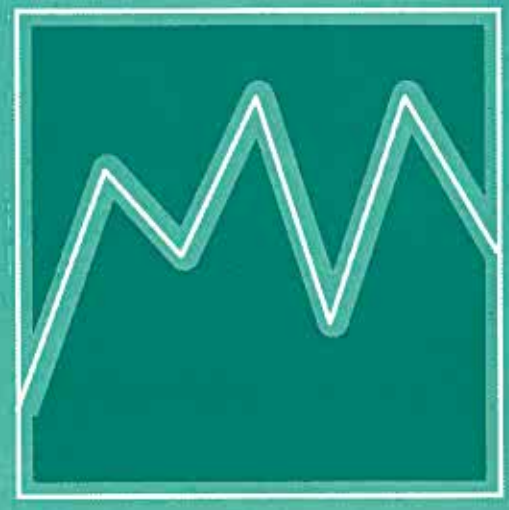

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CONTENTS

PREFACE

The aim of this report is to describe the process and outcome of selecting a short list of reproductive health indicators for use at national and global levels. Over the last few years there has been a huge amount of work on the development of reproductive health indicators, particularly since the International Conference on Population and Development (ICPD) in 1994. At the local level it has been recommended that countries should select indicators most appropriate to their needs and capacity for data collection (Graham and Macfarlane, 1997). However, if international agencies do request countries to collect information for international comparability and global monitoring, there needs to be consensus on an accepted minimal list. Many of the previous initiatives have generated compilations of indicators without any clear description of how selection criteria were used. Instead of adding yet more indicators to these already extensive listings, here we review previous initiatives and, through the application of objective selection criteria and an expert review process, derive a set of the most preferable indicators.

Indicators are statistics selected from a larger pool because they have the power to summarise, to represent a larger body of statistics, or to serve as indirect or proxy measures for information which is lacking.
(Murnaghan, J.H. 1981)

EXECUTIVE SUMMARY

This document describes a process for the selection of a minimal list of reproductive health indicators for use at national and global levels. It does not aim to present a comprehensive set of indicators for programme monitoring and evaluation. Rather, the objective is to identify a limited number of indicators that can offer a general overview of the reproductive health situation in a given setting. The indicators described here are the result of the application of objective selection criteria and an expert review process to derive the most appropriate set of indicators from extensive lists that have been proposed.

The process leading to the selection of the final short list of indicators involved the following steps; these steps are discussed in detail later in the report:

- Identification of existing lists of proposed indicators for reproductive health
- Aggregation of the proposed lists - with identification of commonalities, overlaps and gaps
- Identification of the 'strong' indicators - by a process of elimination.
- Identification of gaps in the coverage by the strong indicators, and identification of the least problematic of the 'weak' indicators proposed for these programme areas
- Production of a preliminary short list by prioritisation of the selected indicators, avoiding overlaps
- Review of the preliminary short list by an expert panel and generation of final selection.

The selection process resulted in a final short list of 15 indicators, as shown in Box 1.

Box 1: Proposed short list of reproductive health indicators

1. Total fertility rate
2. Contraceptive prevalence rate
3. Maternal mortality ratio
4. 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
5. Percentage of births attended by skilled health personnel (excluding trained and untrained traditional birth attendants)
6. Number of facilities with functioning basic essential obstetric care per 500 000 population
7. Number of facilities with functioning comprehensive essential obstetric care per 500 000 population
8. Perinatal mortality rate
9. Percentage of live births of low birth weight (<2500 g)
10. Positive syphilis serology prevalence in pregnant women (15-24)
11. Percentage of women of reproductive age (15-49) screened for haemoglobin levels who are anaemic
12. Percentage of obstetric and gynaecology admissions owing to abortion
13. Reported prevalence of women with FGM
14. Percentage of women of reproductive age (15-49) at risk of pregnancy who report trying for a pregnancy for two years or more
15. Reported incidence of urethritis in men (15-49)

While each indicator in Box 1 has individual weaknesses, many are complementary and, in combination, they encompass the measurement of outputs and impacts for a range of reproductive health programme areas; in other words the sum is greater than the individual parts. The aim was to present a 'package' of indicators that go some way towards a reflection of the totality of reproductive health. However, the application of explicit selection criteria also highlighted a lack of acceptable indicators in some key areas which should not be lost sight of in the creation of a short list. These thirteen priority areas for indicator development therefore need to be flagged alongside any discussion of the 15 selected indicators, and are highlighted in Box 2.

Box 2: Priority areas for indicator development

- ⇨ Abortion
- ⇨ Violence against women
- ⇨ Access to care
- ⇨ Quality of care
- ⇨ Antenatal care
- ⇨ Postpartum Care
- ⇨ Adolescent reproductive health
- ⇨ 'Male factor'
- ⇨ Reproductive health policy
- ⇨ HIV/AIDS
- ⇨ Reproductive Tract Infections
- ⇨ Preventative behaviour
- ⇨ Cervical cancer

An additional indicator, *HIV prevalence in pregnant women aged 15-24*, was discussed. This indicator has been proposed by UNAIDS where it has been under development.[1] The group felt that there are a number of problems with this indicator which are described later in this document. Nonetheless, in some settings, particularly where HIV prevalence is high, it may be considered important to collect this information. Where this is the case, extreme caution is urged, both with regard to the operational aspects and to issues of interpretation (see Annex 5).

[1] World Health Organization, (1994) Global Programme on AIDS. *Evaluation of a national AIDS programme*. WHO/GPA/SEF/94.1.

INTRODUCTION

Following recent international conferences, such as the International Conference on Population and Development (ICPD) in Cairo, 1994, and the Fourth World Conference for Women (FWCW) in Beijing, 1995, countries endorsed a number of global goals and targets in the broad area of sexual and reproductive health. Many of these goals and targets have been formulated as explicit, quantifiable, time-limited objectives and adopted by countries as part of their national health-related policies, programmes and services. Multi-lateral and bilateral agencies and NGOs have similarly internalised the goals and targets in their own technical support and implementation activities.

In order to assess the degree to which countries are able to achieve these gaols it is necessary to establish systems for monitoring and evaluation. This generally involves the definition of essential indicators and guidelines on how to collect them. With the expansion and evolution of services addressing reproductive health there has been a massive growth in the number of potential indicators. Demand for indicators has generally outstripped the supply of necessary data and few developing countries have the data generation capabilities required to report on many of the indicators currently defined for monitoring reproductive health status and progress.

In a context defined by a general shortage of health information, particularly at community level, the proliferation of reproductive health indicators is a matter of concern to the extent that it tends to impose unwelcome reporting burdens on national data collection systems. The indicators proposed are not necessarily appropriate or feasible, and often result in unrealistic requirements for data collection, particularly at a district level.

Concern about the proliferation of indicators and their implications at national level led WHO to initiate a series of activities designed to strengthen national capacities to identify and generate reproductive health indicators. As a first step in the work, in May 1996, WHO convened an informal meeting bringing together technical experts in the field of reproductive health indicators with national health managers who have particular responsibilities in monitoring and evaluating reproductive health programmes. A first outcome of the meeting was the development of a short guide for national and district level programme managers and health planners to assist them in selecting which indicators they will monitor from the vast array currently proposed. The guide lists a series of criteria which should be applied to any indicator before it is selected for monitoring.[2]

Subsequently WHO, in its role as the lead agency for the Working Group on Reproductive Health of the ACC Task Force on Basic Social Services for All (BSSA) convened two meetings of the UN agencies concerned in the global follow up to the reproductive health aspects of recent international conferences to examine the issue of reproductive health indicators and to reach consensus on a short list for global monitoring.[3] This document describes the outcome of those meetings.

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2 World Health Organization, Division of Reproductive Health (1997) *Selecting reproductive health indicators: A guide for district managers.* Field-Testing Version, WHO/RHT/HRP/97.25.

3 World Health Organization, Division of Reproductive Health (1997) *Reproductive Health Indicators for Global Monitoring - Report of an Interagency Technical Meeting* (9-11 April 1997)

THE SELECTION PROCESS

STEP 1: Identification of existing lists of proposed indicators for reproductive health

The following sources were included in the review:

WHO and UNICEF (1993) - Column A, Annex 1

Following the World Summit for Children (WSC) in 1990 WHO and UNICEF produced a list of goal-orientated, national level indicators aiming to monitor progress towards the specific targets set at the summit. Eleven of the indicators are related to reproductive health and have been included in the aggregated list for review - five relating to safe pregnancy, two to family planning, one to maternal nutrition and three to newborn health (WHO/UNICEF, 1993).

WHO (1993) - Column B, Annex 1

In 1993 the indicators recommended in 'The Common Framework for the Third Monitoring (CFM3) of Progress of Strategies for Health For All by the year 2000' (WHO, 1993a) included the eleven recommended for monitoring the WSC and also eight further indicators related to maternal nutrition, STD/HIV, breastfeeding and fertility. In November 1993 a WHO Technical Working Group met to review the suggested maternal health indicators, they endorsed the five safe pregnancy indicators and recommended three further pregnancy related indicators for immediate implementation (WHO, 1994a). A longer list of possible indicators for use at district and programme level was also presented at the November 1993 workshop (WHO, 1994a) and have been included in the aggregated list for analysis.

The Evaluation Project (1995) - Column C, Annex 1

USAID funded the Evaluation Project to coordinate multi-disciplinary working groups in the review of existing indicators and the development of new indicators to monitor all components of reproductive health as suggested by the ICPD. The sub-committees were asked to produce short lists of key indicators for each programme area and only the 59 indicators from the 'short lists' have been included here in the aggregated list. The sub-committee for Family Planning did not produce a short list, stating that the choice of key indicators for evaluating family planning programmes world-wide 'depends entirely on the purpose of the evaluation' (Bertrand, J.T. *et al*, 1995). Therefore of the 95 family planning indicators they discuss, only the seven also suggested by other groups have been included in this review.

UNICEF (1995) - Column D, Annex 1

The second edition of the UNICEF document 'Maternal Mortality: Guidelines for Monitoring Progress' (Maine *et al*, 1995) reviews ten indicators related to safe pregnancy. It discusses four impact indicators and also endorses six previously suggested process indicators for provision, utilisation and quality of essential obstetric care. It is based on the rationale that the most effective way to reduce maternal mortality is the provision of accessible basic and comprehensive essential obstetric care.

WHO (1996) - Column E, Annex 1

The 'WHO Catalogue of Indicators for Health Monitoring' was produced by The Strengthening Country Health Information Unit of WHO (WHO, 1996a). It provided a brief description of health indicators currently recommended by the technical programmes of WHO, each apparently 'proven to be operationally useful and feasible for monitoring and managing health services.' Of the 21 indicators relating to reproductive health, 12 had been recommended in the CFM3 (with important modifications to those related to prenatal care and delivery attendance), the additional eight included five new indicators related to STD/HIV proposed by the Global Programme on AIDS (WHO, 1994b).

UNFPA (1996) - Column F, Annex 1

Since 1994 UNFPA's Technical and Evaluation Division have worked on the development of a list of indicators aiming to cover all areas of reproductive health as defined at ICPD. The list of 69 indicators includes suggestions for programme level monitoring and for national level use.

STEP 2: Aggregation of the proposed lists with identification of commonalities, overlaps and gaps

A total of 148 different indicators were identified from these six lists and they were grouped according to the programme area they related to and the type of indicator (Annex 1).

Eleven programme areas relating to reproductive health were defined (Box 3).

Box 3: Reproductive Health Programme Areas

- Family Planning
- i) Safe motherhood - general
  ii) Safe motherhood - pre-natal care
  iii) Safe motherhood - intrapartum care
  iv) Safe motherhood - essential obstetric care
  v) Safe motherhood - post natal care
- Maternal Nutrition
- Newborn health and breastfeeding
- STD/HIV/AIDS
- Abortion care
- Adolescent reproductive health
- Female Genital Mutilation
- Violence Against Women
- Reproductive Tract Cancers
- Infertility

Given the history of programme development it is not surprising that the majority of the indicators proposed by earlier initiatives relate to the first five areas. There is less experience in monitoring the last six programme areas and the 33 indicators identified for these newer fields have only been developed since ICPD.

An indicator can also be classified according to the type of phenomenon it aims to reflect.

The attainment of reproductive health by populations requires:

- an enabling environment
- empowerment of individuals to promote their own reproductive health
- the provision of accessible and effective health care.

Indicators which reflect progress in all three areas are needed to present a complete picture of all factors contributing to reproductive health status.

The four categories of indicators defined by WHO for monitoring progress towards Health For All (HFA) include indicators that reflect elements of an enabling environment, individual empowerment and health services provision (Box 4, WHO, 1981).

Box 4: Types of indicators defined to monitor HFA

- Health policy indicators.
- Social and economic indicators related to health.
- Indicators of the provision of health care.
- Health status indicators.

The development of suitable indicators of policy is problematic. The 12 policy indicators included in the aggregated list produced for this review were all proposed by sub-committees of the Evaluation Project or by UNFPA (Box 5).

Box 5: Policy indicators proposed by the evaluation project or UNFPA

1. Existence of a policy development plan for family planning
2. National policy for the provision of contraceptives at nominal cost or without charge
3. Legislation or policy that prohibits provision of family planning to persons (i) unmarried or (ii) below a given age
4. Existence and implementation of a safe pregnancy strategic or operational plan
5. National breastfeeding policy and plan
6. National strategic plan to control reproductive tract infections (RTIs) and sexually transmitted diseases (STDs), including HIV/AIDS
7. Provision to protect the basic rights of HIV positive persons with reference to employment, marriage and travel
8. Existence of service and administrative policy on the elements of post-abortion care
9. Existence of government policies, programmes or laws favourable to adolescent reproductive health
10. Age at first marriage by sex - does a legal minimum age exist? what is the legal minimum age? is it enforced?
11. Existence of women's nutrition as a policy priority
12. Implementation of policy measures to eliminate (i) female genital mutilation (FGM) (ii) prenatal sex selection

All these policy 'indicators' require qualitative information on the existence, or not, of policy statements or legislation in support of reproductive health goals. As such they present measurement problems, particularly with respect to their potential to act as markers of change over time. Their status as 'indicators' is open to debate and further research is needed in the development of effective indicators for measuring the 'enabling environment'.

Social and economic indicators can be assumed to be monitored already as part of general health monitoring. They are not specifically mentioned in most of the proposed lists for reproductive health indicators and therefore have not been included in this review.

The majority of the proposed indicators considered here are measures of health care provision and health status. These can be further categorised into the sub-groups suggested by Payne's Logical Framework Approach (Box 6, Payne, 1985).

Box 6: Types of indicators defined according to the logical framework approach

- Input indicators
- Direct output indicators - availability, accessibility, quality of care
- Intermediate output (process) indicators - service utilization, knowledge and practice
- Impact indicators - measures of health status

Indicators in the aggregated list for this review included those that had been proposed for programme, local and national level use and therefore a range of types of indicators for provision and impact are included (Annex 2).

STEP 3: Evaluation of each indicator using objective selection criteria

Throughout the developmental work on indicators there has been a general consensus on the requirements of an effective indicator. Ideally the indicator should be ethical, useful, scientifically robust, representative and accessible (Graham and Macfarlane, 1997). Unfortunately no indicator has been identified in this report that complies with all these criteria and 'their scientific respectability therefore needs to be tempered by a certain humility' (WHO, 1981). Inevitably there are a number of 'trade-offs', such as representativeness versus accessibility, and specificity versus sensitivity. Given that it may not be feasible to develop an 'ideal' indicator fulfilling all the criteria, there have been suggestions that the criteria could be 'weighted'. However, a rigid hierarchy was not thought practical since the importance of each of the criteria is not absolute but changes with the type of indicator and the context in which it is being used. That it should be ethical and useful were, however, taken as essential criteria for selection of an indicator for use at national and global levels.

Criteria used:

To be **ethical** an indicator must require data which are ethical to collect, process and present 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.

To be **useful** at the national and international level, an indicator must be able to act as a 'marker of progress' towards improved reproductive health status, either as a direct or proxy measure of impact or as a measure of progress towards specified process goals. Since computation of national level indicators usually requires aggregation of data collected at a local level, the data should also be useful locally, i.e. follow-on action should be immediately apparent.

To be **scientifically robust** an indicator should be a valid, specific, sensitive and reliable reflection of that which it purports to measure. A **valid** indicator actually measures the issue or factor it is supposed to measure. A **specific** indicator only reflects changes in the issue or factor under consideration. The **sensitivity** of an indicator depends on its ability to reveal important changes in the factor of interest. 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.

To be **representative** an indicator must adequately encompass all the issues or population groups it is expected to cover; for national and global level indicators the group of interest is the population as a whole including minority groups and adolescents.

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

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

More detailed discussion on issues raised when applying these criteria to national and global level indicators is presented in Annex 3.

STEP 4: Identification of the 'strong' indicators - by a process of elimination

No indicator was identified that managed to fulfil all the criteria. However, by a process of elimination, it was possible to identify a number that could be described as performing more adequately when subjected to scrutiny using the criteria (Box 7).

STEP 5: Identification of gaps in the coverage by the strong indicators, and identification of the least problematic of the 'weak' indicators proposed for these programme areas

The list of 'strong' indicators fails to provide a full picture of a population's reproductive health status because there is inadequate reflection of maternal nutrition, newborn health, complications of unwanted pregnancies, female genital mutilation, violence against women, cancer of the reproductive tract, adolescent health or infertility.

Proposed indicators relating to these programme areas were therefore reviewed again and the least problematic chosen for further consideration (Box 8). No suitable indicator relating to violence against women was identified.

Box 7: 'Strong' indicators

1. Total fertility rate
2. Crude birth rate
3. Fertility rate of 15-19 year olds
4. Contraceptive prevalence rate
5. Maternal mortality ratio
6. Maternal mortality rate
7. Percentage of women attended at least once during pregnancy for reasons related to pregnancy
8. Percentage of pregnant women immunised against tetanus (TT2)
9. Percentage of births attended by trained health personnel (excluding trained and untrained traditional birth attendants)
10. Number of health centres per 500 000 population with functioning basic essential obstetric care (basic EOC)
11. Number of hospitals per 500 000 population with functioning comprehensive essential obstetric care (comprehensive EOC)
12. Proportion of women estimated to have obstetric complications seen in EOC facilities
13. Proportion of babies under four months old exclusively breastfed
14. Proportion of adults practising low risk behaviour for STD/HIV
15. Syphilis serology positive prevalence in pregnant women attending for prenatal care
16. Reported prevalence of male urethral discharge

Box 8: Least problematic indicators related to underrepresented programme areas

1. Percentage of all women of reproductive age who are anaemic
2. Proportion of malnourished women (defined by body mass index)
3. Perinatal mortality rate
4. Percentage of live births that are low birth weight
5. Number, type and geographic distribution of service delivery points (SDPs) that have commodities, equipment and transport for post abortion care
6. Proportion of obstetric and gynaecological admittances/outpatients due to abortion complications
7. Facility-based case fatality rate for post-abortion complications
8. Percentage of adolescents who used protection at first/most recent sexual intercourse
9. Reported prevalence of women with genital mutilation
10. Proportion of service delivery points offering PAP smear testing
11. Proportion of women aged 35-39 examined at least once for cancer of the cervix
12. Proportion of sexually active, non-contracepting women of reproductive age (15-45) at risk of pregnancy, who have not had any pregnancies in the previous five years
13. Percentage of women aged 20-44 years who want to become pregnant, are not using contraception and have not become pregnant during the last two years

STEP 6: Production of a preliminary short list by prioritisation of the selected indicators, avoiding overlaps

From the total of 29 indicators mentioned on the two lists in boxes 7 and 8, a preliminary short list of 17 (Box 9) were selected by the elimination of overlaps where similar indicators aim to measure the same phenomenon; for example, total fertility rate was chosen over crude birth rate, and maternal mortality ratio was selected rather than maternal mortality rate.

STEP 7: Review of short list by expert panel and generation of final selection

The selection criteria and process, and the resulting preliminary short list of 17 indicators, were intensively reviewed at a 3-day meeting (WHO, 1997), attended by a wide range of individuals encompassing expertise in reproductive health programming, health information systems, and monitoring and evaluation at national and global levels. Each of the 17 indicators were scrutinised and group consensus was reached on whether the indicator should remain unchanged, be modified, or be deleted from the short list. In the case of deletions, the expert panel then considered whether an alternative indicator should be introduced which met the original selection criteria, or whether the area should be flagged for indicator development.

The outcome of the review process was the retention of 12 of the preliminary 17 indicators, the deletion of 3 indicators, the modification of 2 indicators, and the introduction of 1 new indicators. The rationale for each of these changes to the preliminary short list is given in Annex 4.

The review process yielded a revised and final list of 15 indicators, shown previously in Box 1. Annex 5 presents more detailed discussion on the definitions and performance of each selected indicator when subjected to the criteria, its relative strengths and justification for selection.

Box 9 : Preliminary short list of national level reproductive health indicators

1. Total fertility rate
2. Fertility rate of women 15-19 years old
3. Contraceptive prevalence rate
4. Maternal Mortality Ratio
5. Percentage of women attended at least once during pregnancy for reasons related to pregnancy
6. Percentage of births attended by trained health personnel (excluding trained and untrained traditional birth attendants)
7. Number of health centres per 500 000 population with functioning basic essential obstetric care (basic EOC)
8. Number of hospitals per 500 000 population with functioning comprehensive essential obstetric care (comprehensive EOC)
9. Proportion of babies under four months old who are exclusively breastfed
10. Perinatal mortality rate
11. Percentage of live births of low birth weight
12. Positive syphilis serology prevalence in pregnant women attending for prenatal care
13. Percentage of pregnant women routinely screened for haemoglobin levels who are anaemic
14. Facility-based case fatality rates for post-abortion complications
15. Reported prevalence of women with genital mutilation
16. Proportion of service delivery points offering PAP smear tests
17. Proportion of women aged 20-44 years who are sexually active, are not using contraception or lactating, who want a pregnancy and have not become pregnant during the last two years

CONCLUSION AND RECOMMENDATIONS

The principal use of a national or global level indicator is as a 'marker of progress' towards improved reproductive health, 'being merely a reflection of a real thing' or 'a partial measure of a complex situation' (WHO, 1981). Within countries the measurement of indicators is but one component in the overall monitoring and evaluation strategy. Indicators aim to reflect elements in the situation but can never provide a complete picture, and other complementary methodologies, such as local audits, are also needed.

This report has made explicit the process of selecting a short list of reproductive health indicators for national and international use. The need for a complementary set of measures which encompasses the totality of reproductive health has only partially been met with the 15 indicators on the short list, since there are some programme areas underrepresented. Thirteen broad areas were flagged earlier (Box 2) as priorities for indicator development.

The process of identifying preferred indicators is, of course, not an end in itself, and there are three main recommendations for specific follow-on activities:

1. the 15 short listed indicators need to be reviewed to identify opportunities for refinements and improvements to their definition, and to consider issues of disaggregation, periodicity of presentation as well as interpretation of indicator levels and trends

2. a strategy needs to be devised for new indicator development, and to enhance coordination between initiatives and agencies involved in promoting the use of health indicators and specifically those related to reproductive health

3. an agreed set of reproductive health indicators needs to be put into practice at both national and international levels. In the first instance it would be useful to establish the extent to which existing data sets, such as those held by WHO (WHO, 1991; WHO, 1993d; WHO, 1996c) can provide figures for the proposed indicators, both cross-sectionally and over time. Clearly, the indicators need also to be assessed for their acceptability and availability within specific national settings. This could be achieved through case-studies of a small group of countries attempting to generate the short listed indicators and including a review of the training needs in country, both to gather the necessary data to construct the indicators as well as to interpret the findings.

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ANNEX 1
AGGREGATED LIST OF PROPOSED REPRODUCTIVE HEALTH INDICATORS

Includes indicators proposed by :

Column A - WHO/UNICEF (1993): 'Indicators for monitoring health goals of World Summit for Children'

Column B - WHO (1993) : Technical Working Group workshop on indicators to monitor maternal health goals, main list taken from the draft report on 'Elaboration of Reproductive Health Indicators'

* selected as 8 core indicators for immediate implementation and included in 'Indicators to Monitor Maternal Health Goals' (WHO/FHE/MSM/94.14)

bold are core set included in the list of indicators recommended in 'Common Framework (CFM3). Third monitoring of Progress of Implementation of Strategies for Health for All (Draft 2)'

Column C - EVALUATION PROJECT (1995): Short lists of indicators from the Subcommittees of the Reproductive Health Indicators Working Group

Column D - UNICEF (1995): 'Maternal Mortality: Guidelines for Monitoring Progress'

Column E - WHO (1996): 'Catalogue of Indicators for Health Monitoring '

* are the core set included in the list of indicators for the third 'Evaluating the Implementation of the Strategy for Health for All'

Column F - UNFPA (1996): 'Indicators for measuring the performance of reproductive health programmes - Draft report'

* are included in the core list of indicators used by UNFPA for 'decision making in allocation of resources to UNFPA country programmes'

Abbreviations use in Annex 1

Acc	Measure of accessibility
Avl	Measure of availability
Imp	Measure of impact
Inp	Measure of inputs
Intermed output	Intermediate (process) output indicator
K/A	Measure of knowledge or attitude
Pract	Measure of practice
Pol	Reflection of policy
QoC	Measure of quality of care
Utl	Measure of utilisation

1 : FAMILY PLANNING

		A	B	C	D	E	F
Policy Pol	Existence of a policy development plan for family planning			y			
Pol	National policy for the provision of contraceptives at nominal cost or without charge						y
Pol	Legislation or policy that prohibits provision of family planning to persons (i) unmarried or (ii) below a given age						y
Provision Avl	# of contraceptive methods available at primary health care centres			y			y
Direct output Acc	% of population within 2 hours walk from a SDP providing family planning						y
Acc	Number of SDPs located within a fixed distance or travel time of a given location			y			
Acc	% of family planning clients who are (i) adolescents (ii) men						y
QoC	% of women up to 6 weeks postpartum offered family planning						y
QoC	% of clients asked about their (i) reproductive intentions (ii) concerns about contraceptive methods						y
Intermed. output Utl	Proportion of WRA currently using modern contraceptive method / Contraceptive prevalence rate (by method)	y	y	y		y *	y *
Utl	% of WRA who want to postpone or stop childbearing who are not currently using any contraception						y
K/A	Average number of children desired			y			y
Impact	% of total births to unmarried women						y
Imp	Crude birth rate		y	y		*	
Imp	Total fertility rate		y	y		*	

2.i: SAFE MOTHERHOOD - General

		A	B	C	D	E	F
Policy Pol	Existence and implementation of a safe pregnancy strategic or operational plan			y			
Provision Avl	Provisions for: (i) enquiries into maternal deaths (ii) special measures to reduce maternal mortality						y
QoC	% of maternal mortality cases reported		y				
QoC	% of maternal deaths investigated		y				
QoC	% of women receiving maternal services expressing satisfaction with prenatal, delivery and postnatal services						y
Impact Imp	Maternal Mortality Ratio	y	y *	y	y	y *	y *
Imp	Annual number of maternal deaths	y	y *				
Imp	Maternal Mortality Rate			y	y		
Imp	Lifetime risk				y		
Imp	Maternal deaths as proportion of all deaths among WRA				y		
Imp	Number of deaths from maternal tetanus		y				

2.ii: SAFE MOTHERHOOD - Antenatal Care

		A	B	C	D	E	F
Provision Direct outputs QoC	Proportion (%) of antenatal clinic clients immunised against tetanus		y				
QoC	% of pregnant women attending antenatal clinic who receive iron/folate						y
QoC	% of ANC clients who have had an RPR done		y				
QoC	% correct use of the home-based maternity record or the antenatal clinic record		y				
Intermed. output Utl	Proportion of women attended at least once during pregnancy by trained health personnel for reasons related to pregnancy			y		y *	
Utl	Proportion of pregnant women attended at least once by trained health personnel	y	y *				y
Utl	% of first antenatal clinic visits before quickening/1st trimester/before 16 weeks' gestation		y				
Utl	% of 'unbooked' deliveries		y				
Utl	Proportion (%) of pregnant women immunised against tetanus (TT2 or booster)			y		y *	y
K/A	% of all adults knowledgeable about maternal complications of pregnancy and childbirth			y			

2.iii: SAFE MOTHERHOOD - Intrapartum Care

		A	B	C	D	E	F
Provision Inputs	Number of 'clean delivery kits' replenished from stores		y				
Inp	% trained TBAs recently refreshed		y				
Inp	% trained TBAs regularly supervised		y				
Inp	Number of institution personnel refreshed in past 12 months		y				
Direct Outputs Acc	% women who were in prolonged labour (>24hrs) before arrival in hospital		y				
Acc	Proportion of all hospital deliveries that are births on way to hospital		y				
QoC	% of labours which were induced/augmented		y				
QoC	% of labours in which the partogram was used correctly		y				
QoC	% of women with obstetrical complications treated within 2 hours of presentation at a health facility			y			
QoC	Number of referrals to a higher centre		y				
Intermed. outputs Utl	% births attend by trained health personnel (incl TBAs)	y	y *				
Utl	% births attend by trained health personnel (excl TBAs)					y *	y *
Utl	% of institutional deliveries (i) health centre (ii) hospital (iii) home		y				

2.iv: SAFE MOTHERHOOD - Basic and Comprehensive Essential Obstetric Care

		A	B	C	D	E	F
Provision Input Inp	Availability of in-service training programmes on life saving skills for midwives, nurses and paramedics						y
Direct outputs Avl	# health centres per 500 000 population able to provide basic essential obstetric care	y	y *	y	y	y	y
Avl	# district hospitals per 500 000 population able to provide comprehensive essential obstetric care		y *		y	y	y
QoC	% of women who received blood transfusion		y				
Intermed output Utl	Proportion of women estimated to have direct obstetric complications that are seen in EOC facilities		y *	y	y		
Utl	Proportion of all births that occur in facilities with EOC				y		
Utl	% of district hospital deliveries considered high risk		y				
Utl	Caesarean sections as a proportion of all live births in the population		y *		y		y
Impact	Case fatality rates for direct obstetric complications (facility-based)		y	y	y	y	

2.v: SAFE MOTHERHOOD - Postnatal care

		A	B	C	D	E	F
Provision Inputs	% of service providers trained to use family planning delivery protocol for breastfeeding women			y			
Util	Contraception rate among nursing mothers			y			

3: MATERNAL NUTRITION

		A	B	C	D	E	F
Policy Pol	Existence of women's nutrition as policy priority			y			
Provision Direct output Avl	% of SDPs with adequate supplies of mineral/vitamin supplements			y			
Intermed output QoC	% of pregnant clients receiving treatment for hookworm			y			
Pract	% of programme participants who practice key nutrition behaviours promoted by the programme			y			
Pract	% of households using iodised salt		y	y		y	
Pract	% of women consuming vitamin A rich foods			y			
Impact Imp	% of women with low breast-milk vitamin A		y	y			
Imp	Proportion of all WRA anaemic(<12 g/dl) and proportion pregnant women who are anaemic (<11 g/dl)	y	y			y *	
Imp	% of malnourished women (by body mass index)	y		y			

4: HEALTH OF THE NEWBORN AND BREASTFEEDING

		A	B	C	D	E	F
Policy Pol	National breastfeeding policy and plan			y			
Provision QoC	% of perinatal deaths investigated		y				
QoC	% of neonatal tetanus cases delivered in institutions		y				
QoC	% of neonatal tetanus cases delivered by trained TBAs		y				
Avl	% of service providers trained in breastfeeding counselling			y			
Intermed. output Utl	% of mothers of <6/12 olds who have received support/advice re breastfeeding from community member			y			
Utl	% of target audience exposed to information, education and communication messages on breastfeeding			y			
Pract	% of children 20-24 months who are breastfeeding			y			
Pract	Proportion exclusive breastfeeding up to 4 months		y			y	
Pract	Timely complementary feeding rate - the % of infants 6-9/12 receiving complementary foods according to breastfeeding status		y	y			
K/A	% of all adults knowledgeable about neonatal complications			y			
Impact Imp	% of newborns weighing at least 2500 g at birth					*	
Imp	% low birth weight	y	y				
Imp	Survival rate of low birth weight babies		y				
Imp	Fresh/macerated stillbirth ratio		y				
Imp	Neonatal mortality rate		y				
Imp	Perinatal mortality rate		y	y			
Imp	Infant mortality rate	y	y			y	y *
Imp	% of perinatal deaths contributed by stillbirth and early neonatal death			y			
Imp	Neonatal tetanus incidence rate		y			y *	
Imp	Neonatal tetanus mortality rate		y				
Imp	<5 mortality rate (by sex)	y	y			y	y

5: PREVENTION AND MANAGEMENT OF STDS/HIV/AIDS

		A	B	C	D	E	F
Policy Pol	National strategic plan to control reproductive tract infections (RTI) and STDs, including HIV/AIDS						y
Pol	Provision to protect the basic rights of HIV+ persons with reference to employment, marriage and travel						y
Provision Input Inp	Availability of in-service training about RTIs for health providers						y
Direct outputs Avl	% of SDPs stocked with condoms and educational materials			y			
Avl	% of SDPs offering condoms for prevention of STDs						y
Avl	% of FP/SDPs with provision of RTI/STD services						y
Acc	Proportion of people (15-49) who can acquire a condom					y	
QoC	% of SDPs offering diagnosis and treatment of (i) syphilis, (ii) gonorrhoea (iii) chlamydia						y
QoC	# of condoms distributed			y			
QoC	Proportion of individuals presenting with STD in health facilities who are assessed and treated in an appropriate way			y		y	
QoC	% of clients screened appropriately for RTIs before intra-uterine contraceptive device insertion			y			
QoC	% of clients expressing satisfaction with RTI services						y
Interned output Utl	% of family planning clients who accept condoms			y			
K/A	Prop 15-49 yrs citing 2 protective measures against HIV					y	
Pract	% of adults practising care-seeking behaviours that reduce STD/RTI infection			y			
Pract	% of target population with unmet need for protection - i.e. % of sexually active persons who perceive selves at risk but do not report regular condom use or monogamy			y			
Pract	Prop 15-49 yrs use of condom in last non-regular sexual intercourse		y			y	
Pract	% of adults practising low risk behaviour for STD/HIV			y			
Impact Imp	Estimated prevalence of syphilis and/or gonorrhoea (by sex)						y
Imp	Prevalence of STDs in defined target population			y			
Imp	HIV prevalence pregnant women		y			y	
Imp	Prevalence RPR +ve in pregnant women					y	
Imp	Reported prevalence male urethral discharge					y	
Imp	Estimated prevalence of HIV among adolescents						y
Imp	Ectopic pregnancy rate						y

6: MANAGEMENT OF COMPLICATIONS OF UNWANTED PREGNANCIES

		A	B	C	D	E	F
Policy Pol	Existence of service and administrative policy on the elements of post-abortion care			y			
Provision Inputs Inp	Availability of in-service training on post-abortion family planning counselling for health providers						y
Direct outputs Avl	Number, type and geographic distribution of SDPs that have commodities, equipment and transport for post abortion care			y			
Qoc	% of women referred for family planning counselling after (i legal abortion (ii) treatment for complicated abortion						y
QoC	Proportion of women who come to a medical facility for post-abortion care who were given sufficient information to make a voluntary choice to undergo treatment and/or family planning options			y			
QoC	Compliance with provisions for maintaining confidentiality			y			
QoC	Percentage of post-abortion care clients who receive counselling and referral or accept a family planning method at the time of the service			y			
QoC	Case fatality rates for post-abortion complications			y			
Intermed Outputs Utl	% of obstetric and gynaecological admittances/outpatients due to abortion complications						y
Utl	Total number of admissions for post-abortion complications			y			
K/A	% of women with knowledge that post-abortion care is available, % that say it is accessible, % that they would use it			y			
Impact Imp	Annual number of (i) legal abortions (ii) estimated illegal abortions						y

7: ADOLESCENT REPRODUCTIVE HEALTH

		A	B	C	D	E	F
Policy Pol	Existence of government policies, programs or laws favourable to adolescent reproductive health			y			
Pol	Age at first marriage by sex - does a legal minimum age exist?, what is the legal minimum age? is it enforced?						y
Pol	Legislation or policy that prohibits provision of family planning to persons (i) unmarried or (ii) below a given age						y
Provision Direct output Avl	% providers who have successfully completed training on adolescent health services			y			
Avl	% participants competent in communication with adolescents in reproductive health issues			y			
Acc	# of SDPs serving adolescents that are located within a fixed distance or travel time of a given location			y			
Intermed. output Utl	Total # of contacts with adolescents			y			
Utl	% of family planning clients who are (i) adolescents (ii) men						y
K/A	% adolescents who know of at least one source of information and/or services for sexual and reproductive health			y			
K/A	Adolescent's knowledge of reproductive health (composite index)			y			
Pract	% adolescents who used protection at first/most recent sexual intercourse			y			
Pract	Adolescent contraceptive user and/or non-user characteristics			y			
Impact Imp	Fertility rate of women 15-19 years	y	y				
Imp	Adolescent (<20) fertility rate by year of age						y
Imp	Proportion of births to adolescent women that are wanted			y			

8: FEMALE GENITAL MUTILATION

		A	B	C	D	E	F
Policy Pol	Implementation of policy measures to eliminate (i) female genital mutilation (ii) prenatal sex selection						y
Impact Imp	Estimated prevalence of women who have been genitally mutilated						y

9: VIOLENCE AGAINST WOMEN

		A	B	C	D	E	F
Impact Imp	Sex ratio of births (M:F >107:100 - ? prenatal sex selection)						y

10: SCREENING AND TREATMENT OF CANCERS OF THE REPRODUCTIVE TRACT

		A	B	C	D	E	F
Provision Avl	% of SDPs (i) offering PAP testing						y
Intermed Output Utl	Proportion of women aged 35-59 examined at least once for cancer of the cervix					y	

11: INFERTILITY

		A	B	C	D	E	F
Impact Imp	Proportion of sexually active, non-contracepting WRA (15-49) at risk of pregnancy who have not had any pregnancies in the previous 5 years			y			
Imp	% of women 20-44 who want to become pregnant, are not using contraception and have not become pregnant during the last 2 years						y

ANNEX 2

PREVIOUSLY PROPOSED* INDICATORS - GROUPED BY PROGRAMME AREA AND TYPE OF INDICATOR

	Policy	Inputs	Direct Outputs			Intermediate Outputs			Impact	TOTAL
			Avail-ability	Access-ability	QoC	Util-isation	Know-ledge	Pract-ice		
Family Planning	3		1	3	2	2			2	213
General safe motherhood	1		1		3				6	11
Prenatal care					2	5	1			10
Intrapartum care		4		2	4	3				13
EOC		1	2		1	4			1	9
Postnatal care		1				1				2
Maternal nutrition	1		1		1			3	3	9
Newborn / Breastfeeding	1		1		3	2	1	3	11	22
STD HIV/AIDS	2	1	3	1	5	1	1	4	7	25
Post abortion care	1	1	1		4	2	1		2	12
Adolescent health	3		2	1		2	2	2	3	15
FGM	1								1	2
Violence									1	1
RT cancers			1			1				2
Infertility									2	2
TOTAL	**13**	**8**	**13**	**7**	**27**	**23**	**6**	**12**	**39**	**148**

* Proposed by : WHO/UNICEF, 1993; WHO, 1993; Evaluation Project, 1995; UNICEF, 1995; WHO, 1996; UNFPA, 1996

ANNEX 3

THE SELECTION CRITERIA - KEY ISSUES IN THEIR APPLICATION TO NATIONAL LEVEL INDICATORS

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 (Graham and Filippi, 1994).

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 HFA, WSC or 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 attendances 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 MMratio and 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 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, 1994). 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 STDs 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 STDs 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.

ANNEX 4

RATIONALE FOR REVISIONS TO PRELIMINARY SHORT LIST (BOX 8) TO CREATE FINAL LIST

Indicator	Change	Rationale
Fertility rate of women 15-19 years old	Deleted	By itself not a useful indicator of adolescent health (needs single year age breakdown) nor of the impact of family planning programmes.
Proportion of babies under four months old who are exclusively breastfed	Deleted	As a point prevalence measure of breastfeeding, it is not intuitively easy to understand, and its usefulness as an indicator of reproductive health is questionable.
Proportion of service delivery points offering PAP smear tests	Deleted	In the absence of additional indicators on the uptake of tests, it is not useful and needs to be defined strictly in terms of functioning facilities (i.e. those with equipment and appropriately skilled personnel for smear collection, with access to competent diagnostic facilities and effective communication in reporting results).
Percentage of pregnant women routinely screened for haemoglobin levels who are anaemic	Modified to: Percentage of women of reproductive age screened for haemoglobin levels who are anaemic	More useful if expanded to cover WRA, and then broken down into those pregnant, those lactating, and those non-pregnant/non-lactating.
Facility-based case-fatality rates for post-abortion complications	Modified to: Percentage of obstetric and gynaecology admissions owing to abortion	Case-fatality rates present interpretative problems, and proposed alternative gives clearer indication of case-load on reproductive health services.
Reported prevalence of urethral discharge among men aged 15-49 years	Added	Valid measure of self-reported morbidity in men, relevant to assessing the burden of sexually-transmitted disease. Understandable and direct indicator of the male dimension of reproductive health.
HIV prevalence among pregnant women aged 15-24 years	Discussed - considered important where HIV prevalence is high	UNAIDS advises that this is the most appropriate indicator of prevalence currently available.

ANNEX 5

THE INDICATORS - ISSUES IN THE APPLICATION OF SELECTION CRITERIA AND JUSTIFICATION FOR SELECTION

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

Proposed by*:*

WHO, 1993 - CFM3 'Third Monitoring of Progress of 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 women 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 livebirths *not* of conceptions.
- ambiguity remains over inclusion of livebirths only.

Accessible from:

- vital 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

Complementary indicator is the contraceptive prevalence rate.
It 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 RATE (CPR)

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 WSC'
WHO, 1993 - CFM3:'Third Monitoring of Progress of Implementation of Strategies for HFA'
EVALUATION PROJECT, 1996 - 'Short list of the Subcommittee on Family Planning'
WHO, 1996 - 'Catalogue for Health Monitoring'
UNFPA, 1996 - 'Indicators for measuring the performance of reproductive health programmes - draft report'

Useful

- useful as an intermediate output measure of utilisation of contraception methods.
- the CPR 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 CPR provides no information on choice - it could only act as a valid proxy measure of other aspects of reproductive health - whose definition includes 'the capability to reproduce and the *freedom to decide* if, when and how often to do so' (ICPD POA, 1994), where the contraceptive method is by the 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 DHS) - 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 CPR 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)

Annual 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 of 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 for Health Monitoring'
UNFPA, 1996 - 'Indicators for measuring the performance of reproductive health programmes - draft report'

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 MMratio.
- 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:
- vital 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 MMratio 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 TBAs are excluded.

Proposed by:
EVALUATION PROJECT, 1996 - 'Short list of the Subcommittee on Safe Pregnancy'
WHO, 1996 - 'Catalogue 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 pre-natal 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.
- vital registration and population census - provide information for estimation of denominator, but potential problems with incomplete reporting.
- population-based surveys - provide most reliable information, 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 MMratio.
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 EPI programme).

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 TBAs are excluded.

Proposed by*:*
WHO, 1996 - 'Catalogue for Health Monitoring'
UNFPA, 1996 - 'Indicators for measuring the performance of reproductive health programmes - draft report'

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.
- vital 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 MMratio.
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 WSC'
WHO, 1993 - 'Indicators to Monitor Maternal Health Goals'
WHO, 1993 - CFM3 'Third Monitoring of Progress of 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 for Health Monitoring'
UNFPA, 1996 - 'Indicators for measuring the performance of reproductive health programmes - draft report'

Useful
- as a direct output measure of availability of basic 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 newborn.
- 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 WRA in the population and their fertility rates. A measure of availability per 500 000 WRA 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 terminology, 'basic' and 'comprehensive' essential obstetric care, 'essential' and 'emergency' 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 MMratio.
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 EOC plus surgery, anaesthesia and blood transfusion.

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 of 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 for Health Monitoring'
UNFPA, 1996 - 'Indicators for measuring the performance of reproductive health programmes - draft report'

Useful

- as a direct output measure of availability of comprehensive 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 WRA in the populations and their fertility rates. A measure of availability per 500 000 WRA 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 'basic' and 'comprehensive' essential obstetric care to 'essential' and 'emergency' 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 obstetric care it is complementary to the MMratio.
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 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 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 days after delivery.
- observed differences in the 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 MMratio 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 (WHO, 1996c). 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:

- vital 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 (WHO, 1996). 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 weight less than 2500 g

Proposed by:
WHO, 1993 - 'Elaboration of Indicators for Maternal Health - Draft list'
WHO, 1993 - CFM3 'Third Monitoring of Progress of Implementation of Strategies for HFA'
WHO, 1996 - 'Evaluating the Implementation of the HFA'

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 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 MMratio.
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 PRENATAL 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 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 - STDs 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 STDs in the general population and therefore as a marker of progress towards reducing the burden of STDs 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 STDs, where there has been a targeted campaign against syphilis.
- as a proxy indicator of overall burden of STDs, 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 STDs may lead to an underestimation of the STD prevalence in all women. Conversely, since non pregnant women include those who are not sexually active and therefore are not at risk of STDs, 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 pre-natal 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 STDs/HIV.
Population-based surveys leading to estimation of other proposed impact indicators such as, 'estimated prevalence of STDs 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 STD/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. It is difficult to collect reliable and unbiased data for the intermediate measures of knowledge, attitude and practice relating to prevention and control of STDs and HIV.

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 120 g/l for non-pregnant women

Adapted from:
WHO/UNICEF, 1993 - 'Indicators for monitoring health goals of the WSC'
WHO, 1993 - CFM3 'Third Monitoring of Progress of Implementation of Strategies for HFA'
WHO, 1996 - 'Catalogue 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 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 pre-natal 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 survey - need facilities for follow-up and treatment.

Justification for selection
As a complementary indicator to MMratio, 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 A' 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 post-abortion complicated cases.

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 FGM

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

Adapted from*:*
UNFPA, 1996 - 'Indicators for measuring the performance of reproductive health programmes - draft report'

Ethical
- indicators from community surveys of female genital mutilation 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 representativity of the sample used in the community survey, and on the representativity 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 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, 1996 - 'Indicators for measuring the performance of reproductive health programmes - draft report'

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 physical reproductive health defined as 'the capability to reproduce and the freedom to decide if, when and how often to do so' (ICPD).
- useful as a proxy measure of the long term sequelae of STDs.
- usefulness improved if also available disaggregated by a) age group of woman b) if ever been pregnant 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 STDs or genital tract injuries secondary to complicated deliveries, unsafe abortions or FGM.
- 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 STD programmes - is usually the more appropriate interventions.
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 2 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 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 STD treatment and preventive services.
- usefulness improved if also available disaggregated by age group.

Scientifically Robust
- valid as a measure of reported prevalence of a major symptom of STDs 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 STDs on the adult male population. Not all STDs are manifest 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 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

Adapted from:
WHO, 1996 - 'Catalogue for Health Monitoring'

Ethical
- data collection should be through an unlinked anonymous serological screening.
- a necessary precondition is that it should be accepted antenatal care practice in the country to screen all pregnant women for syphilis sero-positives. The blood for HIV testing is "leftover" blood originally collected for syphilis screening of pregnant women.

Useful
- for evaluation of HIV trends in the general population, the use of 15-24-year-old HIV sero-prevalence in antenatal clinic attenders is subject to problems of bias because of exclusion of certain groups of women (in particular, the infertile) and because of the changing age structure of the infection over time.

Scientifically Robust
- relatively large sample sizes (minimum of 3000 individuals aged 15-24) are needed to ensure adequate precision of the estimates.
- estimates of prevalence should be given with confidence intervals.

Representative
- weak representatives of the general prevalence of HIV in the population because antenatal care attenders are generally not considered high risk for HIV infection.
- as a consequence of the modes of transmission of HIV, urban and periurban areas tend to have higher HIV prevalence than rural areas. This should be allowed for by oversampling urban and periurban areas.
- for a predominantly sexually transmitted infection such as HIV, 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.

Understandable
- if applied appropriately according to definitions and methodology cited.

Accessible from:
- cross-sectional sero-surveys among women aged 15-24 year attending antenatal clinics.

Justification for selection
Only justifiable in certain settings to due to the operational complexity of the measuring the indicator, its relative lack of sensitivity in detecting changes in HIV prevalence and the inherent biases involved in sampling only women attending antenatal care clinics.