



SAFE MOTHERHOOD



World Health Organization
Division of Family Health, Geneva

MEASURING REPRODUCTIVE MORBIDITY

REPORT OF A TECHNICAL WORKING GROUP
GENEVA, 30 AUGUST – 1 SEPTEMBER 1989



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RS NO 10 SH 118-PA

1. INTRODUCTION

The World Health Organization played a major role in bringing Safe Motherhood to the attention of the world. A new solidarity has emerged among the international agencies, academic institutions, professional societies and non-governmental organizations (especially women's groups) which joined together to address these crucial issues. Advocacy for safe motherhood requires knowledge. WHO helped provide the necessary knowledge about maternal mortality by sponsoring meetings and funding research on the question. In addition to continuing this sponsorship, WHO is now addressing the related question of maternal morbidity. This workshop was intended to stimulate research into morbidity related to pregnancy and childbirth by clarifying some conceptual issues, identifying crucial questions, and beginning to develop appropriate research methodologies to address those questions. Maternal deaths have been estimated at half a million per year. No similar estimate has been made of the number of women who suffer from illness and disability associated with pregnancy and childbirth. The number is thought to be large. Starting with this workshop, WHO is hoping to stimulate research into the nature and extent of both short-term and chronic maternal morbidity. This knowledge is essential to the development of interventions designed to improve maternal health care.

The agenda for the meeting is given in Annex I, and the list of participants is given in Annex II. The workshop brought together experts in research into maternal health (including those who have already conducted research intended to estimate the nature and extent of morbidity) with the following objectives:

1. to define reproductive morbidity
2. to explore the extent of knowledge of reproductive morbidity
3. to identify gaps in knowledge of reproductive morbidity
4. to review the experience of members of the group in measurement of such morbidity
5. to draft guidelines for research methodologies to measure reproductive health
6. to suggest areas for further research, and
7. to recommend specific actions to be taken by WHO and its collaborators.

2. DEFINITION OF REPRODUCTIVE MORBIDITY

The Working Group adopted a broad definition of reproductive morbidity: any morbidity or dysfunction of the reproductive tract, or any morbidity which is a consequence of reproductive behaviour including pregnancy, abortion, childbirth, or sexual behaviour. Morbidities may include those of a psychological nature. On occasion, reproductive epidemiologists will also concern themselves with morbid conditions which influence, but do not arise from, reproductive function.

Some researchers may prefer to view the question from a time perspective (analogous to the concept of perinatal or infant mortality and morbidity). Such a definition would define as obstetric morbidity any morbidity which occurs during pregnancy and the puerperium, and gynaecologic morbidity as dysfunctions of the reproductive tract to nongravid women. Both of these definitions are broad and the Working Group strongly recommended that individual researchers with narrower interests clearly specify exactly what types of conditions they include.

The Working Group defined three categories of reproductive morbidity:

- a) **Obstetric Morbidity.** Morbidity in a woman who has been pregnant (regardless of the site or duration of the pregnancy) from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. (Some participants thought that accidental and incidental causes should not be excluded.)
 - i. **Direct obstetric morbidity:** results from obstetric complications of the pregnant states (pregnancy, labour and the puerperium), from interventions, omissions, incorrect treatment, or from a chain of events resulting from any of the above. This can be temporary mild or severe conditions which occur during pregnancy and within 42 days of delivery (such as ante- or postpartum hemorrhage, eclampsia or sepsis) or permanent/chronic conditions resulting from pregnancy, abortion or childbirth (such as vesico-vaginal fistula (VVF) or recto-vaginal fistula RVF), urinary or fecal incontinence, scarred uterus, pelvic inflammatory disease (PID), dyspareunia, secondary infertility, obstetric palsy, Sheehan's syndrome. Some chronic conditions (such as anaemia or hypertension) may be caused by pregnancy and delivery but are equally likely to have other causes.
 - ii. **Indirect obstetric morbidity:** results from previous existing disease which was aggravated by the physiologic effects of pregnancy (such as malaria, hepatitis, tuberculosis, anaemia, malnutrition). Such morbidity may occur at any time and continue beyond the reproductive period.

iii. **Psychological obstetric morbidity:** this may include puerperal psychoses ("baby blues"), suicide, or strong fear of pregnancy and childbirth, and may be the consequence of obstetric complications, obstetric interventions, cultural practices (such as isolation during labour and delivery), or coercion (for example coercion to have abortion or denial of abortion).

b) **Gynaecologic morbidity:** The category includes any condition, disease or dysfunction of the reproductive system which is not related to pregnancy, abortion or childbirth, but may be related to sexual behavior.

Direct gynaecologic morbidity: includes the reproductive cancers, premenstrual syndrome (PMS), endocrinal disorders, bacterial or viral sexually transmitted diseases (STDs) and their sequelae (cervical cancer, PID, secondary sterility, AIDS), reproductive tract infection (RTI), coital injuries.

Indirect gynaecological morbidity: includes primarily traditional practices some of which are for the treatment of real or perceived conditions (such as circumcision, Gishiri cuts).

Psychological morbidity: psychological disorders associated with STDs, infertility, traditional practices, dyspareunia, fistulae.

c) **Contraceptive morbidity:** This category includes conditions which result from efforts (other than abortion) to limit fertility, whether they are traditional or modern methods. The Working Group did not pursue this category as it is well-studied by other groups within WHO.

Most members of the Working Group thought that the categorizing of reproductive morbidity into obstetric, gynaecologic and contraceptive (with subcategories of direct, indirect and psychological) was operationally the most useful, and served our varying needs the best. Nevertheless, the very broad interpretations defined earlier, including the time perspective, are useful conceptualizations to keep in mind.

3. KNOWLEDGE OF REPRODUCTIVE MORBIDITY

Some aspects of reproductive morbidity are relatively extensively researched (e.g. STDs, trophoblastic disease), while others (e.g. uterine prolapse, fistula) are virtually ignored. Previous work was examined to determine its extent rather than the specific findings. Most studies are hospital- rather than community-based, and most are retrospective rather than prospective. Virtually all research reports are characterized by absence of any discussion of research methods used. The geographic focus is uneven; West Africa (Nigeria, Ghana, the Gambia) is covered better than East Africa, work in Asia is largely limited to Singapore and Bangladesh, little work is reported from Latin America. The uneven geographic focus together with the uneven distribution of interest in particular morbidities leads to a skewed perception of incidence and prevalence. Research in this area is further hampered by the absence of clear definitions; for example, some researchers

study toxemia, while others concern themselves with preeclampsia or eclampsia, rarely are the differences defined. Validity of indicators is never addressed; are questions to the patient confirmed by clinical examination? Are only symptomatic patients included? A paper summarizing previous work, including a summary of findings of previous studies, is attached as Annex III.

Gaps in Current Knowledge

The Working Group concluded that very little rigorous research has been conducted in many areas of obstetric morbidity. One of the most conspicuous gaps in knowledge is in the area of chronic or permanent morbidities of the reproductive tract which are attributable to delivery, including such conditions as uterine prolapse, obstetric fistula, urinary/fecal incontinence, secondary infertility. Other reproductive morbidities are relatively well studied from the point of view of risk factors but relatively little is known about prevalence (e.g. STDs other than HIV/AIDS).

Exceptions are studies in India (Bang et al.) and Bangladesh (Wasserheit et al.) which both showed a high prevalence of gynaecologic infections. The Working Group therefore devoted much of its subsequent discussion to those conditions about which little is known.

4. EXPERIENCE ON APPROPRIATE RESEARCH METHODOLOGIES

Three members of the Working Group have undertaken research to determine the nature and extent of chronic reproductive morbidities; two of them (Drs Bang and Tahzib) have published their results. The third (Dr El Mouelhy) is in the pretest phase and the results of that pretest were reported. Another group member (Dr Fortney) is designing research to evaluate the extent of chronic morbidity of obstetric origin.

One group member (Ms Betania) has conducted research on women's perceptions of reproductive morbidity and health services to treat such morbidity. Dr Graham described the Sisterhood Method for estimating maternal mortality ratios. Some members of the Working Group reported on other research with which they were familiar.

The discussion centred round four major points: how to access women; how to ask questions; how to design studies; and how to interpret answers.

4.1. How to access women

Women's perception of morbidity often confounds access. Different morbidities are perceived differently, and whether treatment is sought, and the type of treatment sought, may depend on that perception. Many women consider most reproductive morbidities to be normal and a part of their destiny, and so may not seek treatment or may not report these symptoms or conditions to health care workers. If their conditions are perceived to be abnormal or pathological, they may be hidden out of guilt or shame. Sometimes they are believed to be punishment. On the other hand, since access to medical services is often limited, women may have no way of knowing that their conditions are defined as illnesses, many of which can be cured.

Dr Bang provided examples from Gadchiroli, India. Anaemia and even hypertension of pregnancy were considered normal. While women did know that vaginal discharge was abnormal, they did not know where to go for treatment. Because they knew that some vaginal discharge is caused by STDs, they were shy about discussing the subject. Women spoke of going to the "witch doctor" for treatment of sterility. Far from being seen as a problem, menorrhagia was considered beneficial because of its perceived cleansing properties. The community interprets illness too; a difficult labour is sometimes seen as a penalty for infidelity, hence help may not be sought until it reaches crisis proportions. (In parts of West Africa, an unfaithful wife is believed to cry out her lover's name at the moment of delivery; therefore her relatives may be reluctant to permit delivery in hospital where relatives will not be present to hear this confession.)

In Dr Bang's study, while 92% of women were found on examination to have a gynaecologic problem, only 55% reported having a problem. When Dr Bang offered health education through group discussions (with men and women separately), posters, or slide shows, the demand for services increased. Many of the educational programmes were offered in a festive atmosphere. In villages where there were educational programmes but no examination for gynaecologic infections offered, several groups of men demanded such services. Describing conditions in culturally appropriate and relevant language can facilitate learning; for example, menstruation was likened to rain - too much and too little are both bad for the crops.

Dr Tahzib described a survey in which not one of 800 women in Northern Nigeria reported gynaecologic morbidity. Nonetheless, women with severe problems would visit a traditional healer, and some would seek Gishiri cuts for the treatment of infertility and other ailments. Access to women in North Nigeria, as in many Moslem communities, is restricted by the practice of Purdah which confines women to their homes and forbids their being seen by men other than their husbands or family. The husband's permission is required to visit a clinic or hospital, and if the husband is absent, treatment may become impossible. Only after permission is received, therefore, do other access problems (such as transportation) become relevant. Usually the crisis must be severe before advice of male traditional healers will be sought.

One means of access to women with severe morbidity is through the traditional healers; Dr Tahzib has established such a relationship, has collected crude data from the healers and has begun to develop a referral system for some morbidities. A second means of access used in this area of Northern Nigeria is former patients. A woman whose fistula has been successfully repaired is often willing to name others with the same condition. Within just one kilometre of his hospital, Dr Tahzib found that 25% of women could name at least one woman with a fistula and all knew someone who had died in pregnancy or childbirth.

Language is a major impediment to access. This impediment is not limited to outsiders, but often extends to health providers who ostensibly speak the same language but are of a different social class. (This situation is not limited to developing countries.) The underlying system of beliefs of

patients often differs substantially from that of the provider which further impedes understanding. Both Drs Bang and Tahzib emphasized the importance of listening, but not always taking answers at face value. Dr Bang reported that women often said they had a "weakness" when they had a vaginal discharge. In Zimbabwe "heat in the abdomen" means the same thing.

Communication goes in both directions; Drs Bang and Tahzib both recommend explaining procedures, showing instruments (e.g. the stick for a cervical swab), and using models (or even other patients if this is acceptable). Understanding tests and examinations made women more confident and more relaxed and gave them a better perception of health and illness. But education alone is not enough. One should be careful not to create a demand that cannot be met. Investigators should be willing to offer treatment (gynaecologic and general) to both study participants and their families.

SOS Corpo in the Northeast of Brazil is a professional women's organization specializing in women's health issues. It is committed to enabling women to use the available health service to best extent possible. No services are provided; the emphasis is on knowledge of healthy bodies, and knowledge of health services. Most of the research done by this organization is for the purpose of developing educational materials.

Ms Betania described how in-depth interviews, and often repeated interviews, help to develop a rapport that enables the researcher to discuss women's reproductive lives and understand the taboos and psychological difficulties which impede access to health care.

Education of the respondent is an integral part of this interview process. Questionnaires are developed through these in-depth interviews. Women who have participated in these long interviews then form the nucleus of an action group in their areas of residence. SOS Corpo works through this action group to determine local sensitivities and the appropriate language to use in questionnaires for broader distribution. The action may also provide or recommend interviewers for educational or survey projects.

Like Drs Bang and Tahzib, Ms Betania emphasized communication. Feedback is important, and women who participate in research are provided with a report of the study. There is a radio talk show to provide information and answer call-in questions. Although no services are provided, women are referred to services that are considered to be of good quality, and told how to use them to their best advantage.

4.2. How to ask questions

A sub-group of the Working Group developed a series of questions to ask about specific morbidities. Their report is given in Annex IV.

Morbidities will be under-reported if they are perceived to be normal conditions, if they are associated with shame, or if they are asymptomatic. Understanding how conditions are perceived is, therefore, crucial to estimating prevalence. If the purpose of the study is to understand perceptions, then educational programmes should not precede the study. But

if the purpose is to estimate prevalence, education will enhance reporting. Under - and over-reporting of conditions seem to be at least partly culturally specific. For example, in Egypt women under-reported prolapse, while in Syria they over-reported it. A critical issue the researcher must address is validity. Which morbidities can be best estimated from self-reporting, and which require a physical examination? If a physical examination is not planned, then some conditions (e.g. mild prolapse) are automatically excluded.

To estimate this, Dr El Mouelhy is conducting a pilot study in the course of developing research on the prevalence of gynaecologic morbidity in Egypt. In order to bypass problems of access in the pilot study, she is interviewing women who attend her family planning clinic. Her results differ depending on how questions were asked. One hundred women were asked about their gynaecologic problems; anaemia (14%), backache (9%), headache (8%) and asthma were reported most frequently. However, when the women were asked about specific problems, then backache (47%), abdominal pain (42%), discharge (41%), prolapse (30%), and urinary tract infections (24%) were reported most often. The medical examination which followed revealed that prolapse was under-reported, and infections were over-reported.

Asking women to report any gynaecologic condition (i.e. as they define it themselves) tended to result in reporting fewer conditions than when women are asked about specific conditions, as the following table shows.

	Reporting spontaneously	Reporting in response to specific questions
Any problem	72%	84%
More than one problem	14%	55%

Focus groups are helpful in the development of valid questionnaires. The Centers for Disease Control used focus groups to develop a manual on cross cultural study of diarrhoea questions. Dr El Mouelhy is using focus group discussions to develop the appropriate language to ask questions. For example, women have many ways of referring to a prolapse. Also the focus groups helped to arrive at the following definition of severity of pain:

Mild	No activity stopped, no drugs taken
Moderate	No activity stopped, drugs taken
Severe	Bed-ridden, took drugs.

4.3 How to design studies

A sub-group of the working group developed a range of appropriate methodologies for research in maternal morbidity. Their report is given in Annex VI. Hospital studies have been used most commonly. They are cheap to conduct, patients are typically available to talk (although their receptiveness is questionable). But, for obstetric research in particular, hospital studies have two conflicting biases which can make them difficult to

interpret. They can, on the one hand, overestimate the prevalence of serious conditions because women with serious conditions are more likely than women with mild conditions to seek hospital treatment. On the other hand, they can underestimate the prevalence of serious conditions if, as is usually the case, low risk women are more likely to deliver in hospital.

Community studies are preferred although they necessarily exclude women who have died. Certain groups may be less willing than others to participate; e.g. women of lower socio economic status, postmenopausal women, women who are anxious to hide a pregnancy, unmarried women who do not wish their sexual activity to be discovered, or women with a disease that carries a social stigma such as VVF. While the Working Group recognized that an ideal study might be a representative random sample of the population of women as a whole, much very useful information can be gathered from more accessible groups of women, for example, by means of a snowball sample. A snowball sample is one in which each participant is asked to identify additional participants. Thus the sample is very small to begin with, starting with former patients, women attending family planning or immunization clinics, but continues to grow (like a snowball) until the investigator decides it is adequate.

Groups with access to a "captive audience," such as churches, mothers' groups, market women, factory workers or trade unions can survey their members. Waiting rooms for clinic attenders may be less than ideal, however, because of noise, lack of privacy and because women are often nervous under the circumstances. But very short, superficial questionnaires could be administered in waiting rooms, or busy places such as markets or factories. Dr Kwast reminded the Working Group that while antenatal records are often not well kept, gynaecologic clinic records are often better and can be used a source of participants.

Cross-sectional surveys (such as most community surveys are) have some drawbacks. If they are to cover only current morbidities, then the sample size must be very large. If they include past as well as current conditions then recall difficulties are such that they are more likely to pick up recently experienced morbidities than those which occurred further in the past. Researchers should consider asking about a limited period of time in the past (such as five years). Nevertheless, cross-sectional studies can be useful in determining trends, planning interventions, and monitoring and evaluating interventions.

Case-control studies can be used to evaluate risk factors (but not prevalence) for rare conditions. The selection of controls is difficult (and crucial), but such studies can help to identify hospital, as well as social and transport factors which contribute to morbidity. Other issues which the researcher must address include the age range of women to be included. Some conditions, such as prolapse, although usually caused by delivery, may not develop until after menopause. But the older the respondent, the more distant is her childbearing experience, and, therefore, the greater the recall problem.

The question of validity was touched on above. To address this question, a study in Ghana asked women who had delivered in hospital about the date of delivery, birthweight and gestational age. While the date was not accurately reported, other data were. The woman's level of education did not influence her ability to answer questions correctly. A similar study in Tanzania, however, found that women who had had severe hemorrhages during hospital delivery were not able to report this. Similar studies can be done with any factor which is (or could be) recorded by a clinic or hospital. The underlying assumption that data are correctly recorded by institutions is, however, not always warranted.

The question of sample size is an important one, and one which the Working Group was not able to adequately address. The required sample size is estimated based on the expected prevalence of a condition. However, in the area of maternal morbidity, there are insufficient data to be able to make even this estimate. Dr Fortney reported that Family Health International's planned studies use an estimate of ten serious morbidities for each mortality; this was based on an FHI hospital study in Côte d'Ivoire. A study in India found 16.5 morbidities for each mortality, but this was not confined to obstetric, or even reproductive, morbidity.

4.4 Interpreting answers - the validity of self-reported data

The Working Group returned again to the validity question and which symptoms/conditions can be measured accurately by interview alone, and which require a clinical examination. The Group questioned the extent to which variations in this are due to variations in women's perceptions, and how much is because of the way in which the question is asked. There is evidence from the Gambia that even poorly educated women can give very accurate accounts of their children's illnesses; mothers' reports matched clinical and laboratory data in 76% of cases.

The critical role of the interviewer or promoter is a second issue. Gender and social class of the interviewer is important. Many women will not go to, or will not trust, male physicians or interviewers. Dr Bang reported that she (a physician) and a social worker both asked women similar questions about their health perceptions. But they found that women often reserved some types of information for each of them. It may be important to consider what kind of information is better collected by a local interviewer, and what kind by an outsider. People are often more willing to discuss intimate details with a stranger than with someone they know. On the other hand, in India women often underreported their symptoms with the doctor because they assumed the doctor would already know them. Dr Bang also told the Working Group that women reported differently when in groups and when they were alone with the interviewer.

A third important issue is recall bias. It seems likely that different morbidities are remembered with different accuracy. Obstetric recall may vary with the outcome of pregnancy. (When mothers are recalling children's illnesses, they recall less well if the children died). An unwanted pregnancy may be recalled less well than a wanted one. Time since the pregnancy will affect recall. When Senegalese mothers were asked about children's deaths; the most accurate information on duration of illness and symptoms was obtained within 9 months of the death.

4.5 Helpful hints

Several "helpful hints" emerged from this distillation of experience.

- a. Choose communities with sympathetic leadership who can/will motivate women to participate in the study.
- b. Provide treatment for the conditions that are identified.
- c. Offer treatment to women's husbands and children for unrelated illnesses that may be identified.
- d. Minimize the inconvenience to participants; for example, by an appointment system if clinical examination is to be done.
- e. Include men in the study through health education as well as treatment.
- f. Provide health education to the participants about the reproductive process. This could include visual inspection of gynaecologic examination tools and of female anatomy through models or other women if acceptable.
- g. Go out of the clinic to areas where women congregate to provide education and to motivate study participation.
- h. Reduce the social distance between researchers and participants, for example, by wearing clothing of similar type or value.
- i. Avoid judgmental attitudes or remarks about the study participants' values or behaviour; for example, don't indicate disapproval of lack of chastity among unmarried women.
- j. Educate all members of the study team (including the driver) in the goals of the study and in basic health issues.
- k. Before starting, study local folk songs, stories, etc. for clues about customary sexual attitudes and behaviour.
- l. Treat study participants with respect, and do not assume they cannot learn new skills if properly educated (ignorance does not imply stupidity).
- m. Always try to understand the local perspective.
- n. Provide results of the study to the participants.
- o. Provide an "attention getting device" at the beginning of the study: a film, a theatrical event, a festival.

5. DRAFT GUIDELINES FOR RESEARCH INTO REPRODUCTIVE MORBIDITY

As experience accumulates, the following draft guidelines will be refined during further workshops. In the meantime, the Working Group recommended that a potential researcher should go through several steps in defining his/her research plans. Although there are many legitimate questions (and their associated methodologies) in reproductive research (e.g. a case-control study to determine risk factors for uterine prolapse; an evaluation of an intervention to prevent the development of fistula), the Working Group chose to focus on studies designed to estimate the extent of chronic conditions of the reproductive systems that are the sequelae of pregnancy, abortion and delivery. These guidelines follow. Guidelines for other kinds of research may be developed later.

Preparatory Phase

- a. Specify the morbidities of interest, and develop operational definitions for each.
- b. Find an entry point (e.g. women attending a family planning clinic, members of trade union) and decide how to sample them (random sample? first 100 clients? every third client?).
- c. Set up focus groups of 8-12 women to identify the appropriate vocabulary for questions, and to determine local sensitivities.
- d. With this knowledge, develop a questionnaire.
- e. Develop an educational programme ("consciousness raising") to make women aware of the existence of certain conditions, that they are pathological, and that they can be treated. Note that if the research includes plans to determine women's perceptions of morbidity, the "consciousness raising" must come after any survey to determine the perceptions.
- f. Decide whether validation of the questionnaire is necessary, desirable and feasible. Determine how validation will be done (e.g. pretest the questionnaire on women who can be examined for the condition perhaps because they are already undergoing a physical examination for a different reason such as IUD insertion).
- g. Pretest the entire research procedure, educational materials, questionnaire, sample selection, interviewers. Some items will require pretesting more than once.

Main Study Phase

- h. Hold an "attention getter" to draw attention to existence of planned research and to encourage participation. This can be film, a festival, a series of posters, etc.
- i. Hold the education programme.

- j. Collect the data.

From here, this research plan will follow conventional research design steps such as data cleaning, data entry, analysis, report writing and so on.

6. AREAS FOR FURTHER RESEARCH

The Working Group felt that the highest research priority is studies designed to determine the prevalence of chronic obstetric morbidity. The incidence of acute obstetric morbidity, and the prevalence and incidence of gynaecologic morbidity were thought to be of lower priority.

7. RECOMMENDATIONS FOR FURTHER ACTION BY WHO

- a. WHO should continue to encourage and sponsor research into reproductive morbidity. This includes improving the conceptualization of the research questions and development of appropriate research methodologies, as well as the identification of priority areas for research.
- b. WHO should develop standardized questionnaires which can be adapted to local needs. The questionnaires should include appropriate questions for the identification of specific morbidities and should be validated by multi-centre trials (4-6 centres) to determine whether specific morbidities can be identified by questionnaire only.
- c. Initiate a study in a community-based health project to determine how much women remember about acute delivery, abortion or postpartum problems such as postpartum or postabortion hemorrhage, sepsis, prolonged labour and eclamptic convulsions.
- d. Develop a series of "case histories," similar to those developed for maternal mortality, to illustrate the nature and severity of reproductive morbidity. Describe a Mrs. Y (sister to Mrs. X). Produce a pamphlet for distribution at Safe Motherhood Conferences and elsewhere which includes the case histories and the story of Mrs. Y. Make posters of the case histories for display at Safe Motherhood Conferences and elsewhere.
- e. Plan a meeting, to take place during 1990/91, similar to the one held in 1985 on the Prevention of Maternal Mortality.

ANNEX I

Agenda and Timetable

Wednesday, 30 August 1989

Opening and welcome
Introduction of participants
The WHO Maternal Health and Safe Motherhood Research Programme
Selection of Chairperson and rapporteurs
Introduction of agenda and objectives
Participants' presentations of their work on reproductive morbidity (30 mins each)

Dr Rani Bang, India
Ms Maria Betania, Brazil
Dr Mawaheb El Mouelhy, Egypt
Dr Judith Fortney, USA
Dr Wendy Graham, UK
Dr Margery Koblinsky, USA
Ms Laurie Liskin, USA
Dr Farhang Tahzib, Nigeria

Thursday, 31 August 1989

Objectives 1 and 2
What is meant by reproductive morbidity?
- from the medical point of view
- from women's perspectives
What do we know of the extent of such morbidity?

Objectives 3 and 4
How can the extent of such morbidity be measured?
Advantages and disadvantages of various approaches and information sources

Friday, 1 September 1989

Objective 5
Identify gaps in current knowledge in ways of measuring reproductive morbidity

Objective 6
Suggested areas for further research

Objective 7
Recommendations on specific actions to be undertaken by WHO and its collaborators

Closing

ANNEX II

List of Participants

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Dr Godfrey Walker, Manager, Safe Motherhood Research programme
Dr Barbara Kwast
Ms Erica Royston

ANNEX III

PREVALENCE OF MATERNAL MORBIDITY IN DEVELOPING COUNTRIES

By Laurie Liskin, Sc.M.

For many years maternal and child health research focused on the child, not the mother. Recently, more attention has turned to the risks of pregnancy and childbearing for women. This attention has centred largely on maternal mortality. Global estimates suggest that every year about 500,000 women die from the complications of pregnancy and childbirth.

Mortality statistics tell only half of the story. The incidence of maternal morbidity - both short and long-term - is unknown. The most commonly quoted estimate - sixteen episodes of illness for every maternal death - is based on a small study of about 270 women in one Indian village (Datta et al. 1980). That this document is the major source of information on maternal morbidity is a clear indication of the need for more intensive research.

In developing countries community surveys, the usual source of information on morbidity, rarely include questions on pregnancy. Most surveys have focused on childhood diseases and infectious diseases among adults. Many hospital studies have been published, but because relatively few women in developing countries give birth in hospitals, results may not be representative of the population. Moreover, hospital studies shed light only on the acute complications of pregnancy. Information on long-term consequences is missing from almost all research.

Defining maternal morbidity is one of the biggest problems in researching pregnancy-related illness. Misclassification is common. Many conditions that are obstetric in origin, such as ectopic pregnancy or vaginal fistulas, are categorized as gynaecologic problems. Illnesses are variously and inconsistently categorized as "conditions", "complications", or "complaints". Definitions and terminology for specific illnesses vary. For example, some researchers describe all hypertension in pregnancy as toxemia; others differentiate between preeclampsia and eclampsia. In any case, diagnostic criteria are rarely provided. Vague terminology for some illnesses, for example, "problems with lochia", is often used. Some researchers use ICD classification; others do not. The imprecise terminology limits comparisons between studies. Drawing conclusions for developing prevention strategies is difficult.

Furthermore, perceptions of what constitutes "morbidity" vary. Research tends to focus on complications that are measurable and potentially life-threatening such as hypertension or vaginal bleeding. The so-called "minor complaints" of pregnancy - nausea and vomiting, backache, fatigue and sleeplessness - are rarely addressed even though these conditions may significantly impair women's well-being and their ability to work. Conversely, women may not view some complications of pregnancy as illness. Swelling of the hands and face may be an ominous sign to health workers, but few women may regard such an occurrence as illness.

In many developing countries the majority of women go through pregnancy and childbirth without any assistance from formally trained health care providers. Thus, most illnesses, like most deaths, rarely come to the attention of health care providers. If, however, the much quoted estimate of maternal morbidity - sixteen illnesses for every death - is correct, then roughly 8 million women are experiencing nonfatal pregnancy-related complications every year. Such a large burden of illness - much of it preventable - calls for immediate attention.

Community Surveys

Three recent community surveys have estimated pregnancy-related illness. One study in Africa reported a very low rate of antenatal complications, but women were interviewed only once during pregnancy, and the study was not designed to evaluate maternal morbidity (Van Ginneken & Muller 1984). Another study in Egypt looked only at a small number of women (Mekhemar et al. 1984). The best of the three surveys, a 1982 retrospective survey in two Chinese communes, combined interviews of women with reviews of hospital records to determine complications (Li et al. 1982). Barefoot doctors provided names of all women in their communes who had been pregnant in the year before the survey. The barefoot doctors received special training in taking a pregnancy history and filling out questionnaires on complications. Of 962 pregnancies identified in the two communes, 917 women were interviewed.

According to this study, about 37 percent of the women experienced some illness during pregnancy, 21 percent had difficulties during labor, and 6 percent had postpartum complications. The most common antenatal conditions were preeclampsia and anemia. Almost one in every five women was anemic. Ten percent needed cesarean sections. Hemorrhage was the most frequent complication in the puerperium.

This study is not representative of women's experience in other developing countries. Probably all of the women in these two communes received antenatal care, and apparently all gave birth in health facilities. While over 70 percent were primigravidas, most were in their early 20s, the safest age to give birth. Thus, all complication rates and serious complication rates are low.

In other countries, particularly where women give birth at very young ages, where multiparity is the norm, and where antenatal care is limited, morbidity is more common. Hospital studies are the only source of information. One of the largest hospital studies, in Zaria, Nigeria, reports very frequent complications, particularly among "unbooked" women - those who received no antenatal care. With the exception of preeclampsia, various complications were two to five times more common among unbooked women than women who received antenatal care (booked women).

Incidence of Specific Illnesses

Pregnancy-related illness can be grouped into several categories: (1) short-term, acute complications directly related to pregnancy and the puerperium such as hemorrhage, obstructed labor, and infection; (2) chronic complications such as uterine prolapse, that may occur at the time of labor and

delivery or not for many years later; and (3) associated illnesses - malaria and non-A, non-B hepatitis - that either occur or progress rapidly because of reduced immunity in pregnancy. While little information on incidence is available for any of these conditions, data on long-term complications are particularly sparse.

Short-term complications

Pregnancy-induced hypertension. Assessing the incidence of preeclampsia is particularly difficult because definitions of the disorder and case identification vary widely. The most reliable information comes from a recent WHO collaborative study, which used a standardized diagnostic protocol to evaluate the incidence of preeclampsia and eclampsia among primigravidas in four Asian countries (WHO 1988). Clinical diagnosis of hypertensive disorders of pregnancy ranged from one percent in Viet Nam and Thailand to five percent in Burma and 31 percent in China.

Average diastolic blood pressure measurements among all women were remarkably similar during the first 16 to 21 weeks of gestation, thereafter the differences steadily increased, particularly in China, resulting in the greater risk of hypertension in the third trimester of pregnancy.

The incidence of eclampsia was much lower than that of preeclampsia - less than one percent of women. Still the differences between the four populations were statistically significant. The lowest rate, 0.1 percent, was found in China, and the highest, 0.9 percent, in Thailand. It is not clear why China, which had the highest rate of preeclampsia, would have the lowest rate of eclampsia. Many more of the women with preeclampsia in China received medical treatment than in other areas. This may have prevented progression of disease to eclampsia (Golding, personal communication).

Hospital studies reporting the incidence of preeclampsia vary widely. Rates of eclampsia, on the other hand, show less variation - one to two cases per 1,000 deliveries in Tanzania (Armon 1979), India (Basu 1977), and Kenya (Bansal 1985), and 5 per 1,000 in Jamaica (Hay et al. 1973). The highest rate 23 cases per 1,000 pregnancies - is reported in Zaria, Nigeria (Harrison 1985).

Like many other complications, eclampsia occurs most often among the youngest mothers. In a Tanzanian study of 2,800 primigravidas, the incidence of eclampsia was highest among women under 20. Twenty-six of the thirty-six cases occurred in this age group (Arkutu 1978). Similarly, among Nigerian primigravidas, girls younger than 15 were six times as likely to develop eclampsia as women aged 20 to 24 (Harrison 1985).

Ectopic Pregnancy. An ectopic pregnancy, implantation of a fertilized ovum outside of the uterus, is one of the most dangerous complications of pregnancy. Mortality is high because internal bleeding is often heavy and because the condition is frequently misdiagnosed, and appropriate treatment delayed. In the United States, for example, ectopic pregnancy is a major cause of maternal mortality, accounting for 11 percent of all maternal deaths in 198 (US National Center for Health Statistics 1987).

The incidence of ectopic pregnancy in developed countries is fairly well documented. Studies in the US and Europe suggest that rates have increased markedly since the 1970s (Beral 1975, Meirik 1981, Sivin 1985, Tuomivaara et al. 1986, Westrom et al. 1981). In the US reported cases increased from 17,80 in 1970 to 69,600 in 1983. The rate per 1,000 pregnancies rose threefold, from 4.5 to 14 (Atrash et al. 1986, Ellenbrock et al. 1987).

Much less information is available in developing countries. Several hospital studies suggest, however, that ectopic pregnancy is a serious problem in some areas and consumes a considerable amount of hospital resources. The highest rates are reported in African hospitals, ranging from 7.6 to 32.2 ectopic pregnancies for every 1,000 deliveries. In one Nigerian hospital ectopic pregnancy accounted for 6 percent of all gynecological admissions and 15 percent of all emergency admissions (Oronsaye & Odiase 1981). Somewhat lower rates of ectopic pregnancies are reported in Asia and the Middle East.

Postpartum Infection. Postpartum and postabortion infection are believed to be very common in developing countries, although few studies provide any data. In Nigeria and India from 2 to 5 percent of newly delivered women develop genital or urinary tract infection (Harrison 1985, Konar et al. 1980). In two Chinese communes where most women received antenatal care, only one percent developed infection after delivery (Li et al. 1982). In contrast, in a study in Kenya, by the seventh day postpartum 20 percent of women had upper genital tract infections (Plummer et al. 1987).

Complications during labor - obstruction, prolonged labor, premature rupture of membranes, as well as any kind of surgical delivery or use of instruments - increase the risk of infection after delivery. Sexually transmitted diseases, particularly gonorrhea and chlamydia infection, also are important risk factors. Studies in the US and Sweden report a four - to ten-fold risk of postpartum or postabortion infection among women with cervical chlamydial infection. Less information is available about whether gonorrhea increases risks of postpartum infection. In the Kenyan study cited above, however, women were tested for Chlamydia trachomatis and Neisseria gonorrhoeae. Women with gonococcal infections had a four - fold risk of developing upper genital tract infections; women with chlamydial infection faced a two-fold risk (Plummer et al. 1987). The prevalence of gonococcal and chlamydial infections was 7 percent and 23 percent, respectively (Plummer et al. 1987).

Other studies confirm the high rate of STDs in pregnant women in Africa. In various countries from 3 to 22 percent of pregnant and postpartum women have gonococcal infections and from 5 to 9 percent chlamydial infections (Lettenmaier et al. 1988).

Obstructed Labor. Prolonged or obstructed labor is a major cause of maternal death, particularly in Africa. In developing countries the three major causes of obstructed labor are: cephalopelvic disproportion, pelvic contraction from rickets, infection, or malnutrition; and abnormalities of the cervix or vagina, which are sometimes due to female circumcision (Lawson 1967)

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A large proportion of hospital deliveries are complicated by obstructed labor. Rates are particularly high in Africa. In two studies in Zaire 18 to 20 percent of women were diagnosed with obstructed labor. Roughly one of every 8 to 10 women delivering in hospitals in Bangladesh experienced obstructed labor. Similar rates are reported in Brazil and Jamaica.

Several risk factors for obstructed labor have been documented - young age, primiparity, and short stature. In Zaria, Nigeria, women younger than 15 are three times as likely to experience disproportion and more than two times as likely to labor more than 24 hours than women aged 20 to 24 (Harrison 1985). In Sierra Leone 13 percent of women shorter than five feet required cesarean section for disproportion, compared with only four percent of taller women (Aitken & Walls 1986). Several conditions prevalent in developing countries - poor nutrition, young age at marriage, and early childbearing - together lead to difficult labor and increased risks of postpartum infection and long-term complications.

Uterine Rupture. Rupture of the uterus occurs in one in 1,500 deliveries in the US (Eden et al. 1986). In contrast, it is a fairly frequent and often fatal complication of labor and delivery in developing countries. Reports from hospitals in Africa show rates as high as 11 cases of uterine rupture per 1,000 deliveries (Elkins 1985, Rendle-Short 1960). This complication appears to be less frequent in other areas, although one study in Papua New Guinea reported 7.5 cases per 1,000 deliveries. Mortality is high, in most studies ranging from 9 to 42 percent.

In King Edward VIII Hospital in South Africa, the rate of diagnosed cases of uterine rupture dropped from 2.7 per 1,000 deliveries in 1970 to 1973 to 1.1 per 1,000 in 1980 to 1983. Case-fatality rates dropped as well, from 12 to 3 percent (Lachman et al. 1985). A decline in the incidence of uterine ruptures also has been reported in a Cameroon hospital (Nash & Drouin 1978). Researchers in both hospitals attribute the decline to improvements in obstetric care, particularly better monitoring of labor with partograms, and to increased availability of services (Lachman et al. 1985, Nasah & Drouin 1978).

Uterine rupture often involves other injuries to pelvic organs, particularly the bladder. In one survey of 129 cases of uterine rupture, 15 percent experienced rupture of the bladder (Lachman et al. 1985). Vesicovaginal fistula also occurs but less frequently. After hysterectomy or surgical repair of the uterus, infection and other complications are common. In one Iranian study the average hospital stay for surviving patients was 15.5 days (Paydar & Hassanzadeh 1979).

Most uterine ruptures are caused by cephalopelvic disproportion and/or obstructed labor. Spontaneous ruptures - ruptures among women who have never had uterine surgery occurred in 20 to 75 percent of cases in the studies cited in Table 4. Rupture of a cesarean section scar is reported in 20 to 25 percent of cases in most studies. A surprisingly large percentage of ruptures from 3 to 23 percent are caused by interventions of health workers or traditional birth attendants. Use of forceps, internal version of the fetus, craniotomy, and, particularly, improper use of oxytocin are the procedures most often associated with uterine rupture.

Several traditional practices also have been implicated. In Uganda and Nigeria, for example, herbal medicines used by traditional birth attendants are reported to have oxytocic properties (Rendle-Short 1960). Also, packing the vagina with herbs can cause severe swelling of the cervix and vaginal stenosis thus prolonging labor and increasing the risk of rupture (Elkins 1985). Other practices to speed delivery such as pushing or standing on the abdomen and turning babies in the breech position also may rupture the uterus (Nasah & Drouin 1978). It is not clear how common these practices are, however.

Long-Term Complications

Uterine Prolapse. Uterine prolapse is one of several chronic gynecologic conditions that result from childbearing. This condition occurs when the pelvic ligaments supporting the uterus are stretched or injured. The uterus descends into the vagina. In severe cases the cervix or uterus may even protrude from the vagina. The bladder also may descend, pressing against the posterior or anterior vaginal wall. Although prolapse occasionally occurs in nulliparous women, it is most common among women who have had many children. The mechanical stress of repeated pregnancies and long labors are predisposing factors.

Women with prolapse experience a variety of symptoms ranging from mild to severe. In one Nigerian survey of 278 women with second or third degree prolapse, about one-third reported difficulties with urination pain, stress incontinence, and frequency. Backache and a sensation of pelvic pressure were very common. Other symptoms included constipation and pain on defecation (Otubu & Ezem 1982). When prolapse occurs during pregnancy or labor, women face increased risks of spontaneous abortion, retention of urine, urinary tract infection, and premature labor (Das 1971, Ogunbode & Aimakhu 1973).

Information on uterine prolapse in developing countries is scarce. The WHO Studies on Family Formation Patterns and Health in Colombia, Pakistan, Philippines, and Syria indicate that the condition is fairly common, affecting from 3 to 25 percent of women under 45. Prevalence increased with age and parity. In most countries women with 7 or more children were two to seven times as likely to have uterine prolapse as women with one or two children.

There are scattered reports on prolapse from other countries. One Indian hospital admitted a pregnant woman with uterine prolapse for every 572 obstetric cases. Repair of prolapse accounted for 75 percent of the major gynecologic operations in the hospital (Das 1971). A much lower rate was reported in a Nigerian hospital - one case for every 4,700 pregnancies (Ogunbode & Aimakha 1973). In the US prolapse in a pregnant woman is reported to occur in one in every 7,500 pregnancies (Omram et al. 1976). In Sao Paulo, Brazil, a gynecological screening program for outpatients attending the hospital clinic with nongynecologic complaints found a rate of 40.4 per 1,000 cases of "genital dystopia", that is, rectocele, cystocele, perineal rupture, or uterine prolapse (Pinotti et al. 1981).

Where marriage and childbearing begin early prolapse may affect many younger women. In a series of 278 cases in northern Nigeria, 29 percent of women were younger than 30 (Otube & Ezem 1982). In the WHO studies on Family Formation Patterns and Health from 2 to 10 percent of women younger than 25 were diagnosed with prolapse.

How frequently fistulas occur is unknown. In hospital studies in several Nigerian cities less than one percent of all deliveries were complicated by fistula (Elkins 1985, Groen 1974). It is likely that the condition is much more prevalent, however. Among 1,443 Nigerian fistula patients, the largest series reported, 64 percent, had given birth at home. In Zaria, Nigeria, alone, an average of 130 women per year had surgery to correct fistulas between 1969 and 1980 (Tahzib 1983). In Ethiopia an estimated 1,000 cases occur every year, and a small hospital has been built exclusively for fistula repair (Hamlin & Nicholson 1965). In Sudan 122 cases were treated at Khartoum Hospital in 20 months, comprising 16 percent of all major gynecological conditions (Mustafa & Rushwan 1971).

Fistulas are successfully closed by surgery in about 70 to 80 percent of first operations (Evoh & Akinla 19878, Kelly 1979, Wadawan & Wachi 1983). Stenosis of the vagina may occur, however, making intercourse painful or impossible. Women who become pregnant subsequently are at increased risk of urinary tract infections and, because they often undergo cesarean section, greater risk of complications during delivery and in the puerperium (Harrison 1985, Otubu et al. 1982). One study reports a higher rate of spontaneous abortion after fistula repair (Mati 1984). Fistulas reopened after childbirth in 15 percent of women in one small Nigerian study (Evoh & Akinla 1978).

Access to and better use of health services will prevent almost all cases of fistulas. Encouraging data from Zaria, Nigeria, suggest that as the obstetric services of the major hospital in the area became better known and more women came for antenatal care and delivery, the incidence of fistulas declined. Between 1970 and 1978 the number of patients delivering in the hospital increased four-fold. The number of cases of fistula doubled, but the number coming from within 50 kilometers of Zaria decreased steadily. By 1978 not one fistula patient came from Zaria. The number of cases from areas farther away increased sharply (Tahzib 1983).

Methodology

Measuring the extent of maternal morbidity is the first step to develop appropriate health interventions. It is not clear, however, what methodology is most appropriate for studying the short - or long - term risks of pregnancy. Three important issues, common to all research on morbidity are: defining the morbidities to be studied, determining the appropriate population and validating self-reported information.

Recent articles (Boerma 1987, Royston & Lopez 1987) have described the difficulties of studying maternal mortality. Studying morbidity involves many of the same problems and also others. A maternal death is dramatic and unambiguous. Morbidity often is not. While some illnesses - eclamptic fits for example are obvious and unmistakable, others are less easily distinguished. As noted above, case identification and diagnosis of some maternal illnesses vary widely. Accurately estimating edema or amount of blood loss after delivery is difficult. Also, some conditions such as uterine prolapse are obvious on physical examination but, in fact, may cause relatively few symptoms and so will be underreported by women. Finally, some conditions have multiple causes and cannot be directly attributed to pregnancy. Secondary infertility, for example, is caused by sexually transmitted diseases as well as by postpartum infection.

Getting a representative sample of the population and an accurate estimate of the incidence of morbidity in a community is not possible with in-hospital studies because many women deliver at home. On one hand, hospital studies may overestimate all morbidity and specific types of complications, such as obstructed labor, because proportionally more women with these conditions are likely to go to hospital. On the other hand, hospital statistics may underestimate some complications because women giving birth in hospitals are more educated and have better antenatal care than other women in the population.

Community - or population-based surveys of women are more representative. There are several problems, however. Surveys, by definition, exclude women who have died from pregnancy-related complications and so may underestimate many conditions, and particularly those like eclampsia that often are fatal. In a study of over 50,000 deliveries in 12 African hospitals, 94 percent of the women who died had experienced some antenatal problem and 27 percent had suffered/had pregnancy-induced hypertension. Among women who survived, the percentages were 10 and 4 respectively (Janowitz 1984).

To give the broadest possible picture of maternal morbidity in developing countries, community surveys should involve multiple countries, geographic regions, and racial, religious and ethnic groups. This may shed some light on several unanswered questions about risk factors. For example, do women who practice purdah, and so are rarely exposed to sunlight, have abnormal pelvic bone development and a greater risk of obstructed labor?

A third major problem with morbidity surveys - prospective or retrospective - is validating self-reported information. Retrospective survey data on pregnancy-related illnesses may be subject to recall bias. Women who have given birth to healthy children may be less likely to remember complications during pregnancy than women whose children died. Whether the mother wanted the child and how she feels about him/her also may bias her memory of pregnancy.

The time between the pregnancy and the survey also affects recall. A study in rural Senegal on causes of death among children found that parents gave the most complete information on duration of illness and specific symptom between three and nine months after the death (Garenne & Fontaine 1986). It is not clear whether this finding can be applied to surveys of women, however.

Cross-sectional studies show both underreporting and overreporting of illness. Several US national health surveys have found that adults consistently underreport chronic illnesses and hospitalizations (Lillienfeld 1976). In the WHO Studies on Family Formation Patterns and Health, in contrast, women overreported the prevalence of gynecologic illness. This study included gynecologic examinations as well as interviews of women. In most countries, however, less than half of the interviewed women agreed to be examined. Thus no valid comparisons could be drawn between the interviewed and examined groups. In Syria, in contrast, almost 70 percent of the interviewed women agreed to be examined. The results showed significant overreporting. In two of three geographic regions studied, two to three times as many women reported having a uterine prolapse as were confirmed on gynecologic examinations. The largest difference was found among nulliparous women (Omran & Standley 1981).

Recently a small study in the Gambia found that women were able to describe accurately symptoms of illness in their sick children when they were brought to the hospital for treatment. Diagnosis based on mother's history alone matched clinical and laboratory diagnoses in 76 percent of cases. The women also were able to give a very accurate description one month after the illness (Alonso et al. 1988). It is not clear whether women would be as accurate in describing pregnancy-related illness, however.

Probably the best way to overcome these difficulties is to combine different sources of information. Studies of maternal mortality using a variety of sources - hospital records, interviews with health workers, TBAs, and family members, have produced more information on maternal deaths than any one source alone. Similarly, morbidity surveys plus hospital records will give a better estimate of the numbers of women who experience any complication, the types of complication, and the major risk factors for serious morbidity and death.

Neither community surveys nor hospital studies give a complete picture of the true burden of maternal morbidity or mortality to the women, to their families, and to their communities. How can this be measured? Researchers from WHO and the Kaiser Foundation have developed a method for assessing the health impact of different diseases in developing countries. This method uses information on incidence rates, case-fatality rates, the extent and duration of disability from various diseases, and life expectancy to measure the number of healthy days of life lost through illness, disability, and death (Morrow et al 1980). When the method was used in Ghana, complications of pregnancy ranked sixteenth among other conditions in the number of days of healthy life lost. This method is child-oriented, however, because it ranks individuals in direct proportion to their life expectancy at age of onset of illness. Thus the death of a child is regarded as costing the community more than the death of an adult. This approach also ignores the impact of death or disability of an adult, particularly a pregnant woman, on the life expectancy of his/her dependents.

Another kind of methodology is needed to assess more accurately the true cost to society of maternal morbidity and mortality. Without accurate information effective prevention strategies cannot be developed. Nor is it likely that the needed resources will be allocated to fund these strategies and to shift the focus of research to a more even balance between mother and child

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Summary of Findings of Previous Studies

Table 1. Selected Obstetric Complications in Ahmadu Bello University Hospital, Zaria, Nigeria, 1976-1979
By Booking Status

	Booked Women With Complications		Unbooked Women With Complications	
	N	%	N	%
Disproportion and prolonged labour	827	5.6	2054	26.8
Preeclampsia	888	6.0	490	6.4
Eclampsia	135	0.9	389	5.0
Antepartum haemorrhage	228	1.5	547	7.2
Uterine rupture	26	0.2	177	2.3
Postpartum haemorrhage	255	1.7	390	5.0
Retained placenta	26	0.2	889	11.6
Caesarean section	941	6.2	1097	13.7

Source: Harrison, Brit J Obstet Gynaec, Suppl 5, 1985.

Table 2. Rates of Ectopic Pregnancy, Hospital Studies 1963-1982

Region and Country	Date	Ectopic Number	Pregnancies Rate	Reference
Africa				
Ghana	1963-67 1969	952	32.2	Ampofo. W Afr Med J 8(3)
Kenya	1967-68	119	7.6	Maley & Auma. Scott MedJ 1970; 15:172
Nigeria	1978-79	100	23.2	Oronsaye & Odiase. Trop Doctor 1981; 11:160
Tanzania	1971-77	251	10.3	Armon. Trans Roy Soc Med Hyg 1979; 73:284
Asia				
India	1964-73	500	4.4	Konar et al. J Ind Med Assoc 1980; 75(3):45-51
Singapore	1972-77	148	2.9	Chew. Singapore Med J 1979; 20:395-398
Singapore	1975-80	121	3.7	Atputharajah. Singapore Obstet Gynaec 1982; 13(1):78-81
Middle East				
Jordan	1976-82	75	6.2	Hasan. Europ J Obstet Gynec Reprod Biol 1983; 16(4):237-241

* Per 1000 deliveries

HK 5300 POL SF 17V

Table 3

Incidence of Obstructed Labour, Hospital Studies 1966-1986

Region and Country	Date	Obstructed N	Labour %	Reference
Africa				
Nigeria	1976-79	1239*	5.5	Harrison. Br J Obstet Gynaec 1985; Supp 5
Zaire	1981-82	319	17.8	Janowitz et al. (eds). FHI, 1984
Zaire	1984-86	740	19.5	Duale et al. FHI 1987
Asia				
Bangladesh	1976-80	1494	10.2	Begum. Asia & Oceania Congress of OB/GYN 1981
Bangladesh	1979-80	1494	11.5	Bhuiyan et al. gla- desch Fertility Res. Program. 1981;57-68
India	1977	128	2.9	Basu. Indian Fertility Research Program 1977.
Caribbean				
Jamaica	1966-69	225	11.3	Hay et al. Am J Obstet gynec 1973; 116(1): 34-38

* Prolonged labour

**Table 4. Incidence of Uterine Rupture and Case-Fatality Rates
Hospital Studies, 1952-1983**

Region and Country	Date	Cases	Rate*	% Died	Reference
Africa					
Cameroon	1973-76	70	1.9	9	Nasah & Druin. Trop Doct 1978; 8:127- 131
Kenya	1975	18	4.2	0	Walton. E Afr Med J 1978; 55:9-13
Malawi	1977	105	2.5	19	Bullogh. E Afr Med J 1981; 58:25-36
Nigeria	1978-83	65	10.8	20	Elkins. J Reprod Med 1985; 30:195-199
Nigeria	1974-80	106	6.7	42	Megafu. Int J Obstet Gynec 1985; 23:441- 530
Nigeria	1976-79a	203	9.0	14b	Harrison. Br J Obstet Gynaec 1985, Supp 5
	1967-74a	126	2.6	20	Obayemi. Nigerian Med J 1978; 8(5):433-437
Nigeria	1965-72	144	8.9	8	Groen. Obstet Gynec 1974; 44:682-687
South Africa	1980-83	129	1.1	3	Lachman & al. S Afr Med J 1985; 67:333- 335
South Africa	mid 1970s	?	2.7	12	Lachman & al, op cit
South Africa	1968-82	89	1.1	6	Van der Merwe & Ombelet Arch Gyn 1987; 240:159
Tanzania	1971-77	83	3.4	12	Armon. Trans Roy Soc Med 1979; 73:284-288
Uganda	1952-58	171	10.7	37	Rendle-Short. Am J Ob- stet Gynec 1960; 79: 1116-1120
Zambia	1958-78	105	6.7	28	Heij & al. Int J Obstet Gynec 1984; 22:415- 420

Table 4 continued

Asia and Pacific					
India	1964-73	106	0.9c	22	Konar. J Ind Med Assoc 1980; 75(3):48-51
India	1953-59	164	2.1	11	Krishna Menon. J Obstet Gynaec Brit Empire 1962; 69:18-28
Papua-New Guinea	1964-73	45	7.5d	29	Campbell. PNG Med J 1974; 17(4):335-341
Middle East and North Africa					
Libya	1977-80	96	1.7	5	Rahman & Al-Sibai. Acta Obstet Gynaec Scand 1985; 64(4):311-315
Iran	1967-77	64	1.4	9	Paydar & Hassanzadeh. Int J Obstet Gynec 1978; 15:405-409
Israel	1969-75	12	0.5	0	Fuchs & al. Int J Obstet Gynec 1985; 23:321
Jordan	1957-65	104	4.2	37	Akasheh. Am J Obstet Gynecol 1968; 101:406

* Per 1000 deliveries

a Both series from Ahmadu Bello University, Zaria, Nigeria

b Per 1000 live births

c Per 1000 confinements

How to ask questions.

**Report of sub-group A Meeting to Develop Specific Questions
About Three Chronic Obstetric Morbidities**

Members: Dr Bang, Dr El Mouelhy, Dr Kwast, Dr Tahzib

The sub-group looked at three obstetric morbidities: uterine prolapse, secondary infertility and puerperal sepsis.

There was remarkable agreement among the members despite the fact that their experience was in four different regions (India, Egypt, East Africa and Nigeria).

There was consensus on a number of points:

In devising questionnaires researchers should seek the input of social scientists familiar with the local customs.

Although some questions would have to be open-ended, many could be Yes/No questions.

Validation of questions pertaining to morbidities experienced during the puerperium could be done by comparing the responses given by patients who had delivered in hospital with their clinical records.

Validation of questions relating to other morbidities might necessitate comparing the answers to the questions with the results of clinical examinations.

1. Uterine Prolapse

The following words have been used by patients to describe a uterine prolapse. Which words are used in a questionnaire will depend on the culture in which it is being used. Discussion groups of women can be used to find the right words, although some clinicians will be familiar with them.

Uncomfortable down below	Something coming out, like an egg
Constipation	Burning during urination
Heaviness	Difficulty with intercourse
Swelling of lower body	Passing gas from vagina

Thus questions could include the following:

Do you feel anything coming out of your vagina?
Do you have pain or difficulty in urinating?
Is it uncomfortable down below?
Do you have a feeling of heaviness?
Do you feel any swelling down below when you urinate or move your bowels?
Do you need to manipulate it to urinate or defecate?
Do you have any difficulty with intercourse?

General questions that should be asked about any specific symptom include the following:

How long have you had it?

How old were you when you first noticed it?

How many babies had you had when you first noticed it?

(If postmenopausal) Did it appear before or after the menopause?

Was it related to any of your deliveries?

Did it start during or right after a pregnancy?

Which one? When during the pregnancy/delivery?

Was it a difficult (prolonged) labour?

Was there interference at the time of delivery?

The sub-group thought that these questions could identify 80-90% of moderate and severe prolapses, but a clinical examination would be necessary to identify most mild and some moderate prolapses. A clinical examination should include both a bimanual pelvic examination and inspection with a vaginal speculum. Any health worker could be trained to do such an examination.

In situations where all questions are answered negatively, but the clinical examination discovers a prolapse, women should be asked about their perceptions of this condition.

The sub-group noted that it is important to identify cases of mild prolapse (rather than assuming that asymptomatic conditions are not important) so that they can be prevented from progressing.

2. Secondary Infertility

The following symptoms have been reported by patients with secondary infertility. Which words are used in a questionnaire will depend on the culture in which it is being used. Discussion groups of women can be used to find the right words, although some clinicians will be familiar with them.

Childlessness	Abdominal pain
Psychological symptoms	Menstrual irregularities
Backache	(scant/irregular)
Sexual problems	Vaginal discharge

The questions should include the following:

How many pregnancies have you had?

When was the last pregnancy?

Contraceptive history since last pregnancy?

Complications of last pregnancy and delivery? (hemorrhage, infections including fever, discharge and pain, surgical delivery, abortion)

These questions are needed only if the investigator seeks to know the cause of the secondary infertility.

Frequency of sexual relations since last pregnancy?
Absence of husband during the last year?
Severe illness since last pregnancy?
(See above)
Medical history?
(See above)

Self-reporting is the only means of identifying this condition. Although clinical examination may identify the condition causing it, the condition may have been cured (spontaneously or with treatment) leaving only the sequela of infertility. By using these questions an accurate diagnosis of secondary infertility can be made. However, the far more difficult question of its cause will require a more complex investigation.

3. Puerperal Sepsis

The following symptoms have been reported by patients with puerperal sepsis. Which words are used in a questionnaire will depend on the culture in which it is being used. Discussion groups of women can be used to find the right words, although some clinicians will be familiar with them.

Fever	Lower abdominal pain
Smelly discharge	No lochia
Shivering	Hemorrhage, clots/pieces
Psychosis	General ill health

The questions should include the following:

When was your last delivery or abortion?
Did you have a fever within 2 weeks of last delivery or abortion?
Did you shiver or shake within 2 weeks?
Did you have a discharge within 2 weeks?
Did you have no discharge or bleeding at all?
Did you pass large amounts of blood with clots or pieces in it?
Did you have abdominal pain within 2 weeks? (pain below the umbilicus)
Were you depressed/anxious/mad within 2 weeks?
Duration of labour?
Type of abortion? (means of inducing)

Self-reporting is the only means of identifying this type of morbidity retrospectively. For prospective studies, combined questioning and clinical examination will increase the accuracy.

**Obstetric morbidities identified by question only
or which require clinical examination**

	Question only	Examination necessary
Vesico-vaginal fistula	yes	no
Recto-vaginal fistula	yes	no
Incontinence	yes	no
Scarred uterus	?	yes
Prolapse: mild	no	yes
moderate	?	yes
severe	yes	no
PID: chronic	no	yes
acute	yes	no
Dyspareunia	yes	no
Secondary infertility	yes	no
Obstetric palsy	yes	no
Vaginal stenosis	?	?

ANNEX V

Report of sub-group B Meeting to Discuss Appropriate Research Methodologies in Maternal Morbidity Investigations

Members: Ms Betania, Dr Fortney, Dr Graham,
Dr Koblinsky, Ms Royston .

This sub-group discussed guidelines for investigators undertaking maternal morbidity research.

Several entry points for access to (non representative) potential study participants were identified:

Local women's organizations (e.g. SOS Corpo, other similar groups in Santo Domingo, Costa Rica and Colombia, and several East African countries).

Church groups; the social room in the church or community organization is an excellent interview location.

Income generating organizations or collectives, Family planning clinics/ongoing programmes.

Women's paramedical associations, Nongovernmental organizations (NGOs), Private voluntary organizations (PVOs), Trade unions, tea/coffee plantations, factories, schools, parent/teacher associations, literacy programmes, child health clinics.

It is important to also have information collected in representative sample surveys. But these need not be fielded specifically for this purpose alone; modules of questions can be piggy-backed onto other questionnaires. Or the sampling frames of previous surveys can be used with a minimum of updating; a good example of national surveys would be the Demographic and Health Surveys (DHS), and for a regionalized survey, that fielded by Dr Kwast in Addis Ababa, Ethiopia. Ongoing prospective studies such as those run by the International Center for Diarrheal Disease Research (ICDDR) in Matlab Thana, Bangladesh, could also be used to collect additional data on this subject.

The sub-group offered some guidelines to investigators beginning this kind of research. WHO will, at some point, produce a book of guidelines similar to that produced for research into maternal mortality.

- a. Find entry point for access to participants
 - local partner
 - sample population
 - include some men
- b. Use discussion groups (focus groups) to
 - identify terminology
 - identify sensitivities
 - help with educational tools
 - help with introduction to study participants

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- start with physiology
- give solutions to problems so as not to induce fear

== == ==

Mr. Dyer, J. H. Dyer, Jr., & Co.