

Issue paper on

Maternal Health Care

Prepared by
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Sida

SWEDISH INTERNATIONAL DEVELOPMENT
COOPERATION AGENCY

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Social Development
Health Division

Sida's Health Division has during the period 1996–97 elaborated three policy documents.

These include;

- A Position Paper on Population, Development and Cooperation
- A Policy for The Health Sector
- A Strategy for Sexual and Reproductive Health and Rights

It was during this process that Sida commissioned a series of Swedish experts to formulate Issue Papers on specific areas as a basis for policy discussions. Considering that these papers are of interest to a wider audience the Health Division has now decided to publish some of them.

The views and interpretations expressed in this document are the authors, and do not necessarily reflect those of the Swedish International Development Cooperation Agency, Sida.

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The health challenge

The magnitude of the problem

Of an estimated world total of 2.8 billion women of all ages, about half are in the reproductive age range (12–49 years). About half of these women are estimated to lack access to modern health care during pregnancy and delivery. For sub-Saharan Africa, the estimate is 70%. This scarcity of health care resources is reflected in the fact that about 99% of the world's estimated 600,000 maternal deaths annually occur in low-income countries.

Maternal mortality is defined as deaths associated to pregnancy, childbirth and up until 42 days after birth, per 100,000 live births.

WHO's wishful prognosis of a 50% reduction in maternal deaths by the year 2000 is threatened by three circumstances:

1. Community-based studies consistently show gross under-registration of maternal deaths in governmental statistics, suggesting that actual levels may be much higher than 600,000.
2. Broad-based population pyramids in low-income countries imply that larger numbers than ever of young women will enter reproductive age resulting in more pregnancies.
3. The rapid spread of HIV infection is already aggravating the infection-related maternal mortality, particularly in low-income countries.

Acute morbidity may affect over 50 million pregnancies/deliveries each year, and severe chronic and long-term disabilities (such as fistulas and prolapses) affect an estimated 10 million women each year (1).

Maternal health affects the health of the Newborn infant. Of the estimated seven million annual perinatal deaths, 90% occur in low-income countries. Low birth-weight, also a reflection of maternal health and nutritional status, results in significant neonatal morbidity, of which a large proportion is neurological sequelae (2). About 95% of all low birthweight deliveries occur in low-income countries.

The individual risk of adverse maternal outcome of pregnancy is proportional to the number of pregnancies per lifetime. With high infant mortality, birth rates, and thus lifetime numbers of pregnancies and deliveries, remain high. The lifetime risk of death from pregnancy-related conditions is in the range of 1:10,000 in Scandinavia but 1:25 in Bangladesh, i.e. 400 times higher. In affluent countries, only a few per cent of deaths of women of reproductive age are maternal deaths, whereas in low-income countries this may reach 25–35% or even higher levels (2).

Adverse outcomes of pregnancy

The four main "killers" are haemorrhage (bleeding from the uterus), eclampsia (convulsions among women with elevated blood pressure), endometritis-myometritis (serious intrauterine infection as a result of delivery or abortion) and obstructed labour. In some settings viral hepatitis (inflammation of the liver with jaundice) is a predominant cause of maternal death. Though variable, the vast majority of maternal deaths (60–70%) occur after delivery. Excessive postpartum vaginal haemorrhage, childbed fever (endometritis-myometritis), and many ec-

lamptic cases occur after delivery. In some urban settings, post abortion septicaemia continues to be the most prevalent cause of death.

Whereas maternal mortality is the more visible tip of the iceberg, maternal morbidity with long-term complications is estimated to affect at least twenty times as many women. Such chronic disability includes tears in the genital tract tissues, resulting in fistulas (open communications between the bladder and the vagina or between the rectum and the vagina) with discharge of urine or feces through the vagina for the remaining part of a woman's life. These conditions frequently affect young women in their first delivery when the birth canal is not fully grown.

A maternal trauma frequently implies a corresponding new-born trauma. This may affect future neurologic development with the risk of cerebral palsy and other cerebral lesions, affecting more than one million children each year (3).

In addition to delivery-related adverse pregnancy outcomes, there is also a wide range of reproductive failures beforehand. These include early and late miscarriage resulting from maternal diseases that affect the fetus. Late fetal death can result from severe maternal disease, mainly syphilis and other intrauterine infections affecting the placenta, hypertension-related placental insufficiency, and premature detachment of the placenta from the uterine wall (placental abruption). Morbidity and mortality resulting from unsafe pregnancy interruption belong to this category as well.

Consequences of maternal disease and death

The consequences of the unmet need for maternal health care at the family and community levels are only partly known. It is estimated that as many as 30-40% of pregnant women in low-income countries are in need of medical treatment (4). The minimum proportion of caesarean sections to achieve safe motherhood in any community is 5-6%. To this figure should be added some 5% of pregnancy-related hypertension, a wide range of severe infectious complications (e.g. syphilis) and haemorrhage complications, mostly related to delivery. Anaemia is widespread and nutritional deficiency disorders are common.

Maternal death and disability have far-reaching consequences in most household settings, since the woman's role for family survival is crucial. Figures from Bangladesh indicate that 95% of infants who survive a maternal death die themselves before they are five years old. The same risk existed in Sweden 120 years ago (5). These findings clearly demonstrate the key role of mothers for the well-being of young children.

Possible actions/interventions

Women's empowerment

Illiterate women have more adverse pregnancy outcomes than literate ones. Mortality, morbidity and malnutrition levels are often higher among girls than among boys, particularly in Southern Asia (6). A recognition of these inequities and corresponding educational efforts to counteract them must be the base of any long-term intervention to enhance women's empowerment.

Specific health care interventions

Youth-friendly services

In many low-income countries, sexuality and gender education in schools is rudimentary. Clinics geared towards adolescents, as a complement to conventional family planning clinics, are also rare. Support to initiatives appropriately designed to meet the needs of teenagers should be given more attention. Such initiatives are cost-effective when midwives with appropriate preparation and training are given full responsibility for such clinics, with access to adequate referral facilities if needed. The impact of such clinics on maternal health may be especially great in urban areas.

Antenatal care

Recent research indicates that a simplified antenatal care routine, if linked to well functioning safe delivery facilities, leads to better outcomes and improved staff and client satisfaction (6). Early recognition of risk factors (previous Caesarean section, previous reproductive failure, physical risk factors, etc.) justifies the existence of and further development of antenatal care. However, the blunt character of the risk approach (see paragraph 4 below) renders this approach insufficient without access to safe delivery care.

A simplified and more efficient antenatal care run by duly re-trained midwives continues to be a most promising pregnancy care intervention. Maternal health education and early treatment of maternal disease constitute indispensable ingredients of antenatal care.

Among the most widespread problems are deficiency conditions such as malnutrition and anaemia. Up to 60% of women of reproductive age in South Asia are underweight and about 15% are stunted (7). More than half of pregnant women in some areas have severe anaemia (haemoglobin < 70 g/L) (8). The causes underlying these dramatic figures include poverty, inadequate food supply, inequitable distribution of food within the household, improper food storage and preparation, taboos against eating certain foods and lack of knowledge about nutritious foods (7).

Out-patient antenatal care needs to be linked to in-patient antenatal care of women in need of rest, or daily checks of fetal well-being, maternal blood pressure and similar parameters. Simplified in-patient antenatal care can be run by midwives.

Birthing care

Unlike infant mortality, which can be substantially reduced by means of low cost preventive measures, reductions of maternal mortality related to childbirth depend largely on the availability of birthing care, including emergency care. The main elements of appropriate maternal care were defined by The Safe Motherhood Initiative as follows:

Basic maternity care is defined as management of normal pregnancies and deliveries – antenatal care, clean and safe delivery and postpartum care. All pregnant women should receive basic maternity care.

Essential obstetric care (EOC) is management of pregnancy and delivery complications and special neonatal care. EOC comprises both planned interventions and emergency situations.

Emergency obstetric care, part of EOC, is defined as the management of unexpected complications during pregnancy, such as eclampsia, retained placenta or bleeding.

An estimated 15% of pregnancies in low-income countries thus require hospital support from “the first referral level” – EOC or emergency obstetric care – to achieve an uneventful outcome of pregnancy (4). In WHO terminology, the first referral level comprises “eight essential obstetric functions”:

- a) Surgery for Caesarean section and symphysiotomy
- b) Medical treatment for shock, eclampsia and sepsis
- d) Blood replacement facilities
- e) Manual and assessment functions (vacuum extraction, manual removal of placenta and application of partogram)
- f) Family planning functions
- g) Management of women at particular risk
- h) Neonatal special care (9).

In low-income countries, there is little hope that these first referral levels will be staffed by specialists or even generalist doctors. The probable solution will be staffing by nurses/medical assistants, re-trained to perform these eight obstetric functions. Life-saving skills that correspond to the predominant causes of maternal deaths in the area should be guaranteed at this first referral level.

Primary mother care at the community level can be linked to the lifesaving skills mentioned above only if well-functioning and affordable transport systems are available, making a jeep a key obstetric technology in places.

Postnatal care

The discontinuity of maternal health care is one of the most obvious drawbacks in conventionally tailored maternal health care systems in low-income countries. Interventions to shape continuous care over the whole period of women’s reproductive life should be given more attention. One example might be “reproductive health charts” allowing for early recognition of life-long risk factors and outcomes of each successful or unsuccessful pregnancy, including inter-pregnancy related issues like lactation and contraception. Often postnatal care is provided only in isolated “family planning clinics.” A broader concept of postnatal clinics would favour continuity, embracing all kinds of reproductive health care between pregnancies.

Midwifery training

In areas where a scarcity of trained midwives makes maternal health care unavailable, midwifery training is crucial to support. The role of midwives can be strengthened by supporting programs aiming at training paramedical health workers.

Cost-benefit aspects of possible interventions

Analyses of available alternative strategies for enhanced maternal survival indicate that the cost per averted maternal death varies greatly among different interventions. Maine and colleagues (10) are among those who have estimated costs and benefits of various alternative interventions as shown in Table 1.

Table 1- Cost of different program items for maternal mortality prevention (10)

Program	Estimated cost (USD) per maternal death prevented
TBA training	17 250
TBA new training	11 500
Prenatal care	17 692
Family planning	5 750
Health centres	4 098
Health centres with access to urban hospital	6 014
Health centres with access to rural hospital	3 735

These figures are at times based on simplistic assumptions, e.g. that family planning would prevent 20% of births. They reflect the fact that investments to enhance the capability of traditional birth attendants (TBAs) do not improve maternal mortality significantly. (TBAs, on the other hand, may be most valuable to reduce neonatal mortality due to improved management and hygiene of the delivery process proper.) Antenatal care, likewise, does not enhance maternal survival much, unless it is coupled to first referral level facilities (10).

The delegation of advanced decision-making, e.g. in Caesarean section or other invasive procedures in obstetrics, has important financial implications (11). Both the allocation of assistant medical officers and their sustainable function in rural areas will be crucial for the success of any first referral level strategy for improved maternal health care.

Controversies

Delegation of responsibility

In some African countries, medical assistants have been trained to become “assistant medical officers.” Such retraining programs take up to three years, after which they are capable of performing major surgery including Caesarean sections and other essential obstetric functions. A study of the capability of assistant medical officers in Mozambique was recently completed (11). Comprising almost 2000 Caesarean deliveries, it showed that assistant medical officers were as capable as specialists in obstetrics and gynaecology, including the performance of the most complicated interventions.

Such delegation of responsibility implies abolishing the conventional professional boundaries surrounding doctors’ traditional turf, which may generate wide-ranging conflicts. However, in Mozambique the initial hostility from the medical profession changed after some years to a fruitful collaboration with mutual recognition of new professional turfs.

Appropriate technology

There are many examples in maternal care of inappropriate technology (not adapted to prevailing circumstances). Just as staff allocation must reflect economic realities, scarcity-oriented and appropriate technologies are needed in

low-income countries. One example is symphysiotomy (cutting through the soft tissue in the anterior part of the bony pelvis in order to facilitate delivery of the baby), widely known to be an efficient alternative to caesarean section in selected cases. Symphysiotomy is not an alternative for all caesarean sections, but for a significant proportion in parturient women with limited cephalopelvic disproportion. The absence of well-controlled scientific studies have made influential circles reluctant to accept this technology, although there are virtually no alternative approaches in remote rural areas. A related controversy is the use of local anaesthesia for caesarean section, which can save lives in areas without access to general anaesthesia.

Retrospective case-by-case analysis of maternal health care management is controversial when non-confidential and open. Experience in Mozambique indicated that non-confidential audit in a supportive environment may give quite dramatic results, particularly in maternal and perinatal mortality (12). This could be extended to comprise even maternal delivery trauma and management of the new-born.

Therapeutic innovations may appear controversial. One example is the inexpensive antiulcer drug misoprostol (Cytotec®). Applied vaginally, it has been found to be remarkably efficient in inducing labour in high-risk cases, and provoking pregnancy interruption. The producer of this drug is reluctant to allow its use in obstetrics and gynaecology, however, fearing a boycott by “pro-life” movements. This potentially life-saving drug has therefore been withheld from several third world markets.

Risk screening versus life-saving strategies irrespective of risk

The focus on safe motherhood from the mid-1980s began with an emphasis on “the risk approach.” This approach assumed that risk screening would reduce maternal death rates by finding those women who ran a significant risk of the most adverse pregnancy outcomes. However, retrospective analysis of maternal deaths has shown that the risk approach, although necessary, is insufficient to reduce maternal mortality because the majority of maternal deaths occur in low risk women (5).

The dispute between those defending antenatal care and those defending hospital care seems to be declining, as each recognises the benefits of the other as complements in a broad approach to enhance maternal survival.

Research priorities

Quality of care and responsibility delegation in obstetrics

Prospective studies of professional competence in the performance of the eight essential obstetric functions would assist in deciding which doctor-oriented activities can be delegated to midwives, medical assistants and assistant medical officers. In addition, quality of midwifery care – irrespective of delegation issues – deserves further research attention. “Monitoring of quality of care” is an important challenge in operational and applied research.

Impact of improved sexual hygiene on pregnancy outcome

Intrauterine infections associated with adverse pregnancy outcomes (13) are often caused by bacteria that normally inhabit the ano-vulvar region. Research is

needed to elucidate possible interventions to improve sexual hygiene. Prospective studies could aim at both paternal and maternal health education with provision of clean water and cheap antiseptic soap. Research on vaginal microbicides, in addition to its relevance for HIV prevention, may be of importance for progress in this field.

Appropriate technology in the management of obstructed labour in remote rural areas

Obstructed labour, once diagnosed, must be managed within a limited number of hours. Sometimes Caesarean section is the only solution but in many cases symphysiotomy may work. Randomised comparisons between them are under way.

Intervention research on three important causes of maternal death: uterine bleeding after delivery, anaemia, and childbed fever.

Two thirds of all maternal deaths are estimated to occur after expulsion of the fetus and the placenta, mainly from uterine bleeding due to a non-contracted uterus and childbed fever. There are no functional risk factors nor do we have a basic understanding of the mechanisms provoking these two frequently fatal complications. In some areas severe pregnancy anaemia may affect 55% of all women (7). Interventional, case-control studies in low income countries could elucidate important risk factors, the recognition of which may be used in forthcoming management routines. Practical research is needed to determine why routine and commonly available iron supplementation programs are not more successful.

Discussion

Regional South-South dialogue

Exchange of experiences between neighbouring developing countries is extremely limited. Much accumulated empirical results remain unknown to neighbouring countries. This is partly due to financial constraints. Donors have failed to fully recognise the value of financing regional exchange across national boundaries. It would facilitate low-cost capacity-building by catalysing regional collaboration.

A regional south-south dialogue could also be instrumental in promoting several of the possible interventions addressed in section 2 and in facilitating a critical discussion of the controversies listed in section 3.

North-South Dialogue: Research

Low cost interventions have shown dramatic results (12,14) and research reports on them stimulate similar interventions in other settings. An enhanced North-South dialogue would improve such an exchange. Training programs often lead to interest in applied research, which can be carried out at low cost.

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