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SAFE MOTHERHOOD

Maternity Waiting Homes: A review of experiences

MATERNAL AND NEWBORN HEALTH/
SAFE MOTHERHOOD UNIT
DIVISION OF REPRODUCTIVE HEALTH (TECHNICAL SUPPORT)
WORLD HEALTH ORGANIZATION
GENEVA

The World Health Organization is a specialized agency of the United Nations with primary responsibility for international health matters and public health. Through this organization, which was created in 1948, the health professions of some 189 countries exchange their knowledge and experience with the aim of making possible the attainment by all citizens of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life.

By means of direct technical cooperation with its Member States, and by stimulating such cooperation among them, WHO promotes the development of comprehensive health services, the prevention and control of diseases, the improvement of environmental conditions, the development of health manpower, the coordination and development of biomedical and health services research, and the planning and implementation of health programmes.

These broad fields of endeavour encompass a wide variety of activities, such as developing systems of primary health care that reach the whole population of Member countries; promoting the health of mothers and children; combating malnutrition; controlling malaria and other communicable diseases including tuberculosis and leprosy; having achieved the eradication of smallpox, promoting mass immunization against a number of other preventable diseases; improving mental health; providing safe water supplies; and training health personnel of all categories.

Progress towards better health throughout the world also demands international cooperation in such matters as establishing international standards for biological substances, pesticides and pharmaceuticals; formulating environmental health criteria; recommending international non-proprietary names for drugs; administering the International Health Regulations; revising the International Classification of Diseases, Injuries, and Causes of Death; and collecting and disseminating health statistical information.

Further information on many aspects of WHO's work is presented in the Organization's publications.

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S A F E M O T H E R H O O D

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INTRODUCTION

On average, somewhere in the world a woman dies during or as the result of pregnancy or childbirth, every minute of every day. Of the more than 580 000 maternal deaths which occur each year, 99% occur in the developing world. The target for the Safe Motherhood Initiative, set in Nairobi in 1987, is to reduce the annual number of maternal deaths by half by the year 2000.

Today, three-quarters of maternal deaths result from the direct obstetrical complications of haemorrhage, sepsis, obstructed labour, hypertensive disorders of pregnancy and septic abortion. The technical means to prevent the overwhelming majority of maternal deaths from these causes have been known for many decades. What is lacking, in many areas of the world, is the ability to bring the necessary technical skills - economic, geographic, operational - to the women in need of help. In much of the developing world, barriers to health care are so great that many women do not benefit at all from the health-care system. Studies of maternal mortality in developing countries have shown that making pregnancy and childbirth safer means ensuring that women have access to a continuum of care, including appropriate management of pregnancy, delivery and the postpartum period together with access to life-saving obstetric care when complications arise. Access to such care is a crucial component of the Safe Motherhood Initiative.

There are currently three possible ways to improve access to obstetrical services when complications arise:

1) Bringing medical services to women in need - "flying squads"
2) Bringing women who need them to medical services - emergency transport
3) Decentralization of care so that women have easy access to skilled obstetric care; this would require provision of obstetric facilities close to every community.

The third solution, which is available in much of the developed world, is not a viable option, in the foreseeable future, for most of the developing world. Some countries have developed maternity waiting homes as an alternative to decentralization of essential obstetric services. Maternity waiting homes are residential facilities, located near a qualified medical facility, where women defined as "high risk" can await their delivery and be transferred to a nearby medical facility shortly before delivery, or earlier should complications arise. Many consider maternity waiting homes to be a key element of a strategy to "bridge the geographical gap" in obstetric care between rural areas, with poor access to equipped facilities, and urban areas where the services are available. As one component of a comprehensive package of essential obstetric services, maternity waiting homes may offer a low-cost way to bring women closer to needed obstetric care.

While anecdotal evidence indicates that maternity waiting homes are successful in reducing maternal mortality, little quantitative research has been conducted to prove their efficacy. Utilization rates and user satisfaction are also insufficiently documented. The definition of what constitutes a maternity waiting home varies greatly from country to country. What population of women are referred to these homes and how are they "referred?" What services are offered? How are maternity waiting homes managed? What are the financial considerations? These are some of the questions examined in this document.

The first part of this report provides information on the history, purpose and crucial elements of maternity waiting homes and presents several case studies. Part Two describes issues to be considered when establishing a maternity waiting home.

PART ONE - WHAT ARE MATERNITY WAITING HOMES?

History of maternity waiting homes

The idea of homes for pregnant women with obstetric and social problems is not new. For many centuries, voluntary organizations in Europe have provided shelters for single mothers in an effort to reduce abortion and infanticide. Since the beginning of the 20th century, waiting homes have existed in Northern Europe, Canada and the United States to serve women in remote geographic areas with few obstetric facilities[1]. At present in European countries with remote communities (e.g. Finland) nurses' dormitories have been converted to "patient hotels" for the same purpose.[2]

In Africa one of the early experiments with maternity waiting homes (known as "Maternity Villages") was in Eastern Nigeria in the 1950s.[3] The rural nature of the population meant that a trip to the hospital during labour often entailed a journey of many miles, usually on foot. In maternity waiting areas that had been developed in small buildings adjacent to a district hospital high-risk women were housed for the last 2-3 weeks of pregnancy. Such homes helped to reduce maternal mortality in hospitals from ten to less than one per 1000 deliveries and the stillbirth rate from 116 to 20 per 1000 in Ituk Mbang, Eastern Nigeria.[4] In Uganda where similar houses were instituted in the 1960s recorded maternal deaths in one remote area fell by half once such a maternity waiting area was instituted.[5] Cuba built its first maternity waiting home in 1962. By 1984 there were 85 such homes in the country and 99% of babies were delivered in hospital. Maternal mortality fell from 118 to 31 per 100 000 live births. Today various forms of maternity waiting homes have been documented in 18 countries.

Purpose of maternity waiting homes

The purpose of maternity waiting homes is to provide a setting where high-risk women can be accommodated during the final weeks of their pregnancy near a hospital with essential obstetric facilities. Some maternity waiting homes have expanded their purpose to include not only decreased maternal mortality but also improved maternal and neonatal health. In these homes additional emphasis is put on education and counselling regarding pregnancy, delivery and care of the newborn infant and family.

The first maternity waiting homes were intended for women with major obstetric abnormalities for whom operative delivery was anticipated but whose homes were in remote and inaccessible rural areas. Gradually the concept has been enlarged to include "high risk" women, including those expecting their first delivery, women with many previous births, very young women, older women, and those identified as having problems such as high blood pressure during pregnancy.

Maternity waiting homes - some examples

The literature contains many documented examples of maternity waiting homes, some launched as a result of government initiatives (e.g. Mongolia, Cuba) and others created by medical/academic and community groups (e.g. Colombia, Indonesia). Because there have been no specific guidelines regarding the development of such homes, each appears to be slightly different in terms of both its creation and the services which are provided. While this

has allowed maternity waiting homes to respond to diverse environmental and cultural needs, it has created some confusion regarding the crucial elements of maternity waiting homes. In addition, the lack of formal evaluation of existing maternity waiting homes jeopardizes the future of this alternative solution to problems of access to emergency obstetric care for high-risk pregnant women. Although anecdotal accounts provide a favourable impression, operations research is needed to determine the impact of maternity waiting homes on maternal mortality. Women's perceptions of maternity waiting homes should also be explored before final conclusions are drawn.

The following examples from Africa, South America and the Caribbean, provide an overview of the types of maternity waiting homes which currently exist.

Ethiopia[3]

Attat Hospital, a 55-bed rural community-based hospital in Central Ethiopia, is 17 km from the nearest town with a post office, petrol station and school. The two nearest hospitals are 115 km to the south-east and 180 km to the north-west. The immediate catchment area contains 300 000 people who are about one to two days' walk from an all-weather road where transport to the hospital can be obtained in the event of an emergency.

Because of the difficult journey to hospital and the high number of obstetric emergencies, a maternity waiting home or "tukul" was opened in 1976 for pregnant women identified as being at high-risk. Built in the style of a local house, close to the delivery unit, the "tukul" provides temporary quarters where women can be observed prior to delivery. The cost of construction was US$ 1000 and all the labour and most of the materials were provided by village communities.

Annual overheads amount to US$ 500 for a watchman's wages, the washing of blankets, and maintenance. Women using the facility are accompanied by a relative: they supply their own food and buy firewood locally. There are 15 beds. The average length of stay is 15 days, during which the women attend the Attaat Hospital's antenatal clinic. A nurse from the hospital visits the "tukul" once a day.

Traditional birth attendants (TBAs) and village health workers, selected by the local people and by community development committees, have been trained and are working in village health posts within the hospital's catchment area. Outreach antenatal clinics are conducted by nurse midwives from the hospital together with the TBAs, and pregnant women at high risk are thereby identified. Advice is given to these women on referral to the "tukul" some two weeks before the expected date of delivery. Primary maternity care is thus organized so that there is access to a referral hospital.

In 1987, 151 pregnant women were admitted to the "tukul," the majority of them at high risk.[a] Of the 72 women with an unfavourable history, four stillbirths did occur (in two cases intrauterine death had occurred before arrival), and there was one neonatal death. There were 13 maternal deaths among women admitted directly to hospital, but none among women who

[a] 19 nulliparae, 79 para 1-4, 53 para 5 and above. 72 had unfavourable obstetric history, 39 had complications, 40 were not necessarily high risk but wished to be near the hospital.

first entered the tukul. The stillbirth rate among the direct hospital admissions was ten times higher than among the "tukul" admissions. Of the 45 mothers with stillborn infants who presented at the hospital with a ruptured uterus, only one had received antenatal care.

Cuba[6]

Cuba's national health system was established in 1961, since which time all health activities have been the responsibility of the Ministry of Public Health. Maternal and child health care has been a priority from the outset, and special programmes have been carried out in this area. A striking aspect of the improvement in the general level of health over the past quarter century has been the fall in maternal mortality from 118 to 31 per 100 000 live births between 1962 and 1984. In order that delivery could occur in health institutions, a network of hospital services for the entire population was established. Special attention was given to rural areas where access was difficult because of poor routes of communication. Existing hospitals were enlarged and new ones were built in the rural areas. Maternity homes were set up in the vicinity of hospitals so that women from areas that were remote and/or difficult to access could be accommodated during the last two weeks of pregnancy.

The function of the homes was intended to go beyond the solutions that could be provided by obstetric hospitals. The majority of women using the maternity homes were drawn from classes where they were subject to an immense burden of work and responsibility during their pregnancy. These homes, with their technically qualified staff and sanatorium features, immediately placed the women in an environment with many positive factors which also helped to reduce their workload.

At present the family physician who provides prenatal care refers the women to a maternity home. The criteria for referral are flexible. In rural areas, where transport is difficult, all women are referred in the 34th week of gestation. Elsewhere, women are referred on the basis of risk factors which include primiparity, grand multiparity, poor obstetric history, age below 20 or over 38 years, and poor nutritional status. Social risk factors include unmarried status, lack of social support, and inadequate living conditions.

There is considerable variation in the organizational structures of maternity homes. The first were invariably attached to a local hospital, and this is still the case in most rural areas. The homes, averaging 15-20 beds, were mostly set up in medium-sized buildings built for other purposes. Delivery does not occur in the waiting homes, and all women are transferred to the hospital. Basic economic considerations, including food, supplies and medical personnel are fully provided by the hospital institution. The homes, however, exercise a degree of autonomy, they have free visiting hours and their own kitchens and dining rooms. Many also have a common room used for educational activities and entertainment (usually television). Some of the newer waiting homes are not directly attached to a hospital, but are within reasonable distance and have assured transport and communication facilities.

In Cuba, each waiting home is staffed by four health workers for every five beds (0.8 health workers per bed). Other personnel includes cooking, cleaning and maintenance staff. The director is usually appointed by the local authorities and may or may not be a health professional. Some waiting homes have one or more full-time physicians and/or midwives on their staff, while others share medical and midwifery personnel with the local hospital.

Nursing care is available on a 24 hour basis. Care of pregnant women in the waiting home includes daily measurement of vital signs and blood pressure, and a twice weekly obstetric checkup by the physician.

During their stay women are offered a range of educational activities, including a preparatory course for childbirth. Considerable attention is paid to diet, and the women are provided with a well balanced diet and daily supplementation of iron and Vitamin C. Their weight is checked and recorded systematically, and special attention is paid to women who fail to gain sufficient weight. They also receive education on nutrition and child care. This is provided by both waiting home staff and external teachers. Handicrafts and some cultural activities are also organized.

Each pregnant woman has a record of her prenatal visits, including relevant background information and results of laboratory tests. Data recorded in the waiting home are added to this record, and the completed clinical record accompanies the women to the hospital at delivery.

Each maternity home submits a quarterly report of activities to the Ministry of Health. By 1990 there were 150 maternity homes with a total of 2365 beds distributed throughout Cuba. In 1989 45 465 pregnant women (nearly 30% of all deliveries) used a maternity home. There are no data on the number of women who do not comply with the referral to a maternity home. However, it is reported that in 1988, 9% of the women left the facility before delivery.[7] The majority of women, however, are generally satisfied with the arrangement, and feel that staying in the waiting home enhanced their chances of having a normal delivery and a healthy baby.

One important feature of Cuban maternity waiting homes is their character as a community service, eligible for the attention and support of many different community organizations. Community groups such as the women's federation, the local political organization and the agricultural unions participate in their management and contribute to the construction and maintenance costs. Agricultural cooperatives donate food, and women's organizations provide volunteer fund raising and child minding during the women's stay.

Although the results of maternity homes have been empirically rated as positive, they have not been adequately evaluated in spite of the fact that more than 25 years have elapsed since their establishment. On the other hand, they have undoubtedly helped to raise the rate of institutional delivery in Cuba, which has attained a level of 98% of all births since 1973.

Nicaragua[8]

The *Casa Materna* (Maternity House) was inaugurated at the end of 1987 when local women activists from AMNLAE, the Nicaraguan Women's Organization, decided to address the high incidence of maternal and infant mortality in rural areas. They discovered that many women with high-risk pregnancies did not travel to the hospital to deliver because they did not have a place to stay in the city. With a grant from Sweden and a building supplied by the Nicaraguan government, the *Casa Materna* opened its doors to pregnant women. Since then additional financing has been provided by other international organizations.[9] The workers at the *Casa* do not receive a salary. According to the director, the goal of *Casa Materna* is "to achieve women's full potential through a learning process focusing on reproduction and reproductive freedom. We hope to reduce maternal-infant mortality and help women to freely decide when they want to have children."

The *Casa Materna* has two separate centres - the Center for High Risk Pregnancies and the Continuing Education Center. The Center for High Risk Pregnancies serves rural women who have been diagnosed by local health authorities as being high risk, offering them a place to stay before they go to the hospital to give birth. The women come approximately one week before their due date with their health records stating that they are high risk and have been vaccinated against tetanus. When a woman goes into labour, she is walked to the hospital, some twenty blocks away, by one of the *Casa's* workers (the *Casa* does not own a vehicle). After giving birth, the women return to the centre with their newborns for four to six days to rest and learn more about newborn care. During their stay, a bed, two sets of sheets, two gowns, diapers and baby clothes are assigned to them. Upon their departure, they return the goods, clean and ready for the next woman. There is no cost for any of the services at the *Casa Materna*.

The *Casa* has twenty beds, nine to fourteen of which are usually occupied. None of the mothers at the *Casa* have died in childbirth-related illnesses. Women who are classified as high risk include the very young or very old, women with high blood pressure, those who have had five children or more, cases of twins or triplets, or women with a history of miscarriages or stillbirths. Women who plan to be surgically sterilized after delivery can also stay at the *Casa.*

Although initially many women found out about the *Casa Materna* through their local health centres or radio announcements, word of mouth is now the *Casa's* main form of advertising. The majority of women who stay at the *Casa* are peasants from agricultural cooperatives. Many of them are refugees from war and live in resettlement cooperatives.

While at the centre, the pregnant women help with the cleaning, cooking, washing and gardening, as well as helping the *Casa* generate income through a sewing cooperative. Using Swedish donations of sewing machines and old clothes, the sewing cooperative remakes clothes to make them adequate to Nicaragua's culture and climate. As part of the educational aspect of the women's stay, the *Casa* offers on-going courses on diarrhoea prevention, breast-feeding, nutrition, and family planning. A problem the volunteers at the *Casa* face is the pregnant women's damaging beliefs or myths. The discussion of beliefs is considered to be the trickiest part of the *Casa's* work in educating women.

The main problem of the *Casa* is lack of financing which has prevented the *Casa* from responding to women throughout the country who have asked them to help start similar centres. The mothers who stay at the *Casa* say their only problem is that they miss and worry about their children at home. Although visiting is permitted, most families live too far away to come.

What are the crucial elements of a maternity waiting home?

These examples demonstrate the diversity of maternity waiting homes. The positive aspects of this diversity (e.g. adaptation to the local cultural environment and available resources) should not be lost. But some guidance as to what constitutes a maternity waiting home is needed.

At first glance, the concept of maternity waiting homes is attractive in many ways. It does not require high technology; it relies mostly on human resources already present in many communities; and it can serve as a practical way to meet the needs of pregnant women. However, one must remember that maternity waiting homes **are not merely physical facilities and they cannot function effectively in a vacuum. Rather, they are a link in a larger chain of comprehensive maternity care, all the components of which must be available and of sufficient quality to be effective and linked with the home.** Success in actually safeguarding pregnant women's health depends largely on what happens outside the maternity waiting home. A maternity waiting home is not a stand-alone intervention, but rather serves to link communities with the health system in a continuum of care. The level of success in reducing maternal and infant mortality will depend on the following factors:

1) definition of risk factors and selection of women;
2) viable community level health service necessary for referral to occur and women's compliance with the referral;
3) skilled obstetric services (including capacity to handle obstetric emergencies); and
4) community and cultural support.

These constitute the essential elements of a maternity waiting home. Careful consideration of these crucial elements raises a number of problems and issues which must be resolved before setting up a maternity waiting home.

Definition of risk and selection of women

The concept of maternity waiting homes has been based on the premise that it is possible to identify pregnancies likely to develop complications and need skilled obstetric care. With experience, however, it has become clear that the "risk approach" may not be able to deal adequately with the issue of identification. First, many obstetric complications are unpredictable and second, most complications which do occur are among women with no apparent risk factors. For example, a study in the United States which examined the rate of serious complications found that in spite of intense scrutiny to screen out all possible high risk cases, nonetheless, nearly 8% of "low risk women" developed serious complications. Moreover, half of the women who did, in fact, have complications had no medical or obstetric risk factors[10].

The reduction of maternal mortality from obstetric complications cannot be addressed unless women experiencing such complications receive timely and adequate obstetric care. Many countries using maternity waiting homes have progressed from medical definitions of what constitutes high risk pregnancy, towards a broader concept based on a combination of distance, socioeconomic and medical risk factors. Gradually in some instances (e.g. Cuba) maternity waiting homes have become a proxy for institutional delivery.

But is this an appropriate utilization of maternity waiting homes? Do all women need to deliver institutionally? Should all women be referred, thus overburdening the service? Or should only some women be referred at the cost of neglecting those with no apparent risk factors who may later develop complications? What are the potential cost considerations if all births take place in institutions? Are surgical interventions always necessary (e.g. caesarean

sections) or does their increased use put women at risk for other complications (e.g. infections)?

What are the factors which need to be considered?

The answer to these questions will clearly depend on the objectives of each individual programme. If the objective is to guarantee adequate delivery care in an institutional setting, *all* women with limited access to such a setting, should be referred to a waiting home. But this approach may not be feasible or desirable in the majority of countries. Where choices have to be made, some form of identification of pregnancies most likely to require obstetric care will have to be undertaken.

The success of using the risk approach depends on two factors: the correct identification of risk factors, and the ability of the health system to provide care to the women so identified. Also of significance is the frequency of a risk factor within a given community. Identifying and caring for women with relatively common risk factors (medical or socioeconomic) will have a positive impact on the health of the whole community, especially if the factor is strongly associated with mortality and morbidity. Thus, a very important question to consider before developing a maternity waiting home is "**which women will derive the most benefit and what intervention is most needed in this community to reduce maternal mortality.**"[b]

The criteria for selecting women at high obstetric risk *must be defined locally* and will depend on the available resources and local risk factors. Difficult questions such as "is this a risk factor where skilled care will benefit the user?" will need to be asked. Identifiable conditions, predictive of complications, include poor obstetric history (for example previous stillbirths, operative deliveries), high parity, age (extremes of youth or age) low stature, malnutrition, anaemia, high blood pressure, malpresentation etc. Other factors might include distance and transportation to qualified obstetric care, and other socioeconomic and cultural conditions such as religious beliefs, limited education etc.

Community Level Health Service - Responsibility for Identification and Referral

The previous section addressed the need for defining and selecting women at risk for pregnancy complications. Once the definitions have been made these women need to be *identified and referred* to maternity waiting homes if the system is to function effectively. While some women may "refer themselves" (based on word of mouth or other information, education, communication (IEC) campaigns), the majority will come from referrals within the health care system. Without some form of viable community health care system, this crucial "referral link" will be missing from the chain of comprehensive maternity services.

Trained health professionals, capable of identifying high risk pregnancies, are often unavailable. In addition many of the tools necessary for accurate assessment of risk (e.g. blood pressure equipment, weighing scales, reagents for urinalysis etc.) may not be readily available in many community settings. Therefore, accurate history-taking (both medical and

[b] A "community needs assessment" will be a crucial part of the preliminary research necessary prior to creating maternity waiting homes.

socioeconomic), together with symptomatic assessment become crucial elements for the accurate identification of high risk women.

Prenatal care services in some areas are delivered by trained nurses and midwives. These health care professionals possess the knowledge and skills for making risk assessments and referrals. In addition, in some countries, trained TBAs are offering some prenatal care services. While their contribution to prenatal care may be significant, TBAs in particular may be less than enthusiastic about advocating institutional deliveries and referring their clients to maternity waiting homes if, by so doing, they reduce their own responsibility and earnings. In an attempt to overcome this problem, a number of countries (Colombia, Brazil, Pakistan) have encouraged collaborative work between government health ministries and local TBAs. For example, in Cali, Colombia and Faisalabad, Pakistan local TBAs who refer their high risk patients have been integrated into the formal health service to the extent that they are permitted to accompany their clients to the delivery room and remain there if they wish. This has enhanced the prestige and remuneration for many TBAs. It also shows that the development of a network of health workers (with technical capability, credibility and the respect of the community) whose role it is to identify and refer pregnant women, is a crucial element to the operation of an effective maternity waiting home.

Another important facet of the referral element is the need for clear and concise documentation of the woman's prenatal medical and treatment history. Utilization of a "patient-based record-keeping system" (i.e. one that the woman carries with her) is crucial where patients move from one part of the health care system to another.[11] Pictorial forms which women can clearly understand can also empower women to self refer when certain symptoms (e.g. prolonged labour or bleeding) appear. A woman who appears at a maternity waiting home without the necessary documentation may be subjected to unnecessary testing and delay, resulting in increased costs and decreased satisfaction.

An effective community level health service which refers high risk women does not guarantee that the women themselves will comply. The timing for such referrals, e.g. 2, 4, 6 or however many weeks prior to the anticipated delivery date, needs to be determined by the local community depending on the prevailing conditions. Reasons for noncompliance vary and will need to be explored and considered. User satisfaction, including community and family support of the homes are additional important factors impacting on the referral system. IEC campaigns may play a valuable role in addressing these issues.

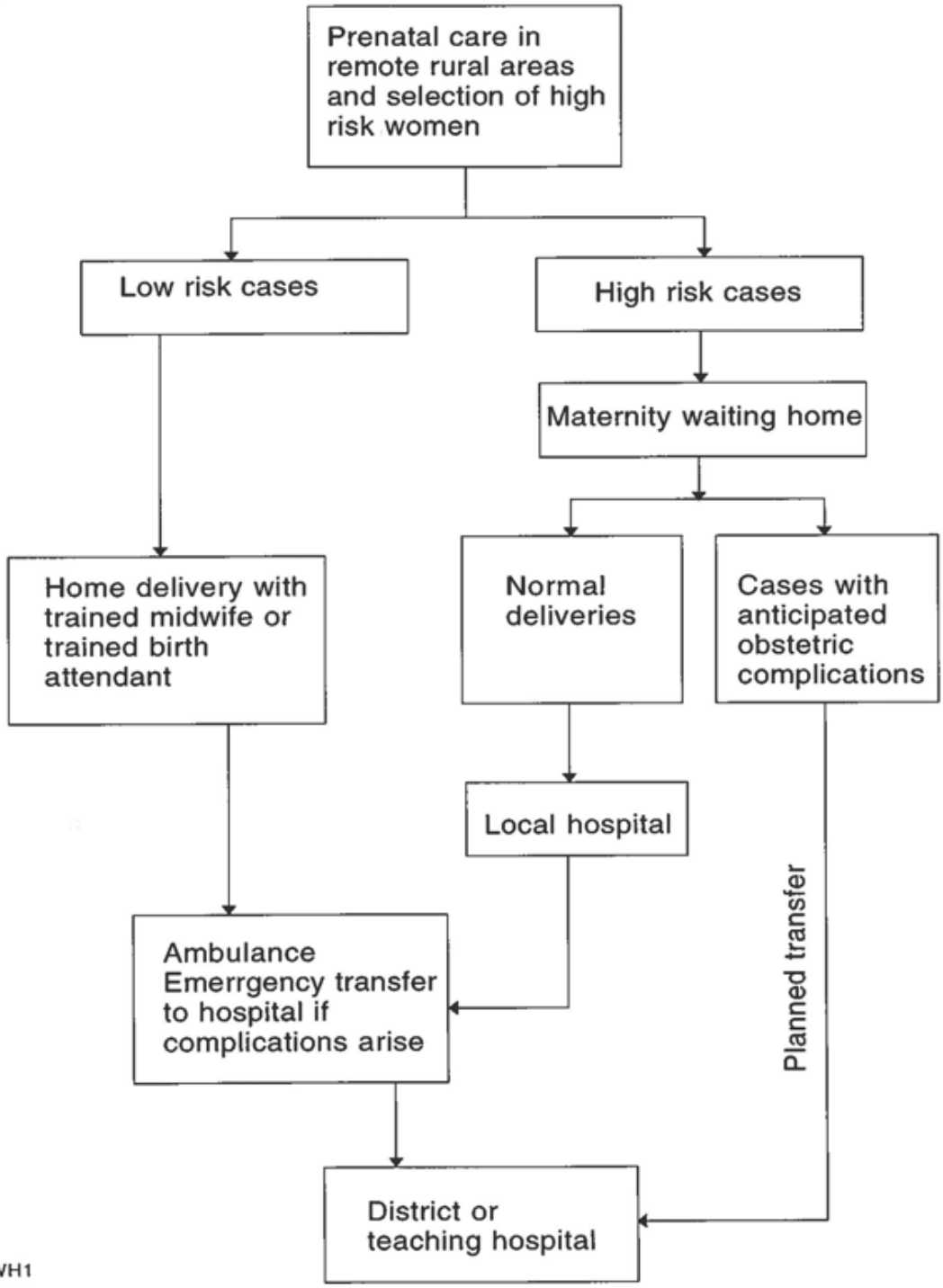
Skilled Obstetric Services

A crucial element of an effective maternity waiting home is its access to qualified obstetric services.[c] Waiting homes have been set up near hospitals with no facilities for operative deliveries, or near district or teaching hospitals with operative facilities. In Cuba and in Colombia rural maternity waiting homes are set up near primary level hospitals, but the access to the district or to the teaching hospital by ambulance is easy and rapid. In other cases, especially in Africa, maternity waiting homes are near a district or teaching hospital, where deliveries (both normal and complicated) take place. The set-up chosen will depend on the

[c]Some questions exist as to the exact definition of "qualified obstetric care."

local situation, resources and attitudes of the community. In most cases it is assumed that delivery should not take place in the maternity waiting home.

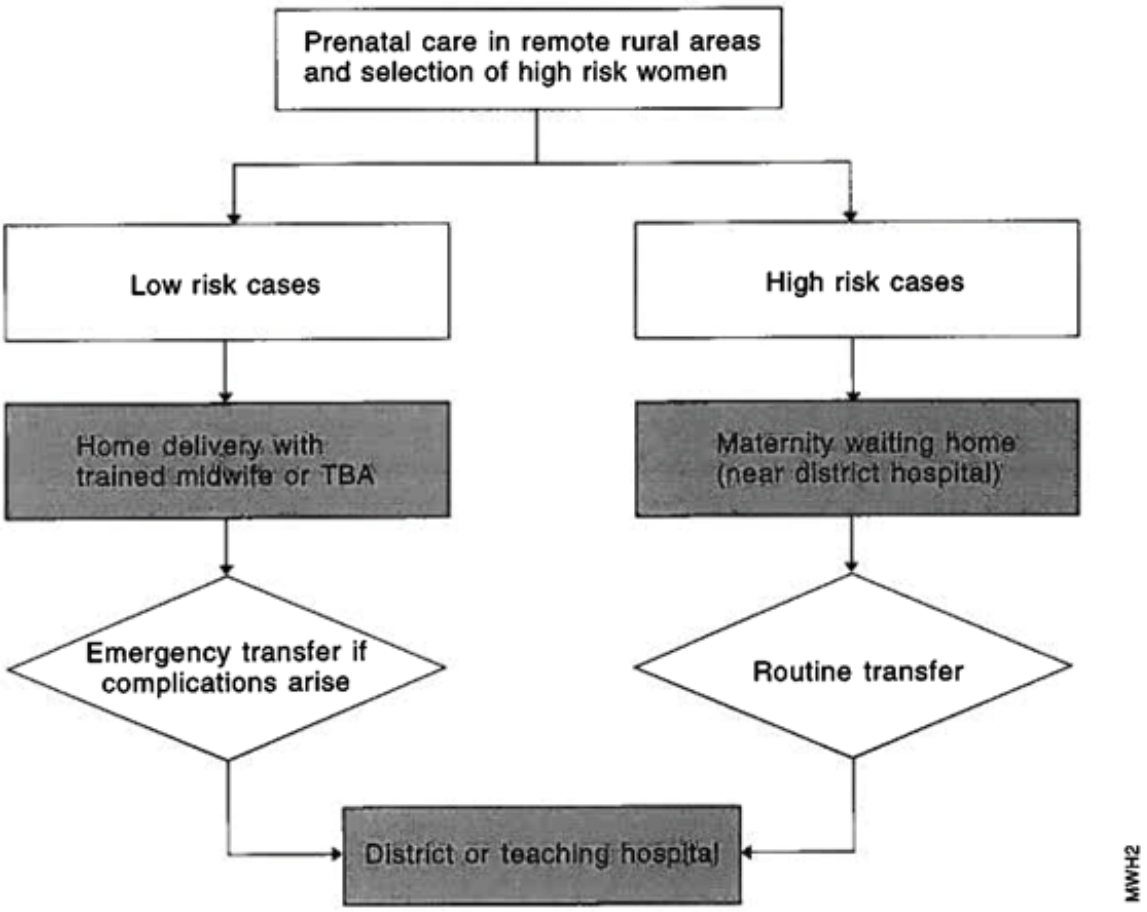
Figure 2.



Figures 2 & 3 outline alternative solutions to the problem of access through the use of maternity waiting homes. Any solution which permits immediate transfer of the pregnant women to a facility that can handle complications (i.e. surgical capacity 24 hours per day, blood bank or ability to type, cross match and transfuse) is acceptable.[d]

In Figure 2 the waiting home is close to a hospital or health centre which can handle normal deliveries with the assistance of a trained midwife and/or a physician, but which has no facilities for operative deliveries. Women with complications such as preeclampsia, previous caesarean delivery, etc. can be transferred on a planned basis from the maternity waiting home to the next level hospital. Women expected to have uncomplicated deliveries can go to the hospital when contractions start. If a complication develops an ambulance should be at hand for an emergency transfer to the next level hospital.

Figure 3.



In Figure 3, the waiting home is near a district or teaching hospital equipped for operative deliveries. All deliveries are transferred there as soon as labour starts. The ambulance service,

[d]Careful consideration must be given to possible overburdening of these hospitals. If the referral system uses a very sensitive risk assessment the hospital will be over-utilized by "high-risk" women having uncomplicated deliveries to the point where the hospital may be unable to deal with actual emergencies.

if available, should provide emergency transfer to women who might develop complications during home delivery.

The main advantage of Figure 2 is that services are brought closer to the women's community, and only those with exceptional risk are referred to the next level hospital. The main advantage of Figure 3 is that women from the maternity waiting home are offered obstetric care because they are all delivered in the nearby hospital with all essential obstetric services.[e]

The distance between the maternity waiting home or local hospital and the next level of referral is very important. The time it takes to reach the referral hospital may vary according to traffic and road conditions. The possibility of unforeseen delays has to be considered in setting up the referral system. A compilation of the literature on the problem of "distance" as a factor contributing to maternal mortality[12] has shown that death may be the result not only of delayed transfer, but of inadequate response to the emergency in the hospital. Bureaucratic and even financial barriers may hinder rapid response and treatment. The availability of blood and drugs is also frequently a problem. Because most pregnancy complications can be successfully treated if skilled medical intervention starts within a few hours, the availability of qualified obstetric care is a crucial element to the establishment of a successful maternity waiting home. In addition, the hospital must be committed to accepting patients from maternity waiting homes, and to treating them adequately and without delay.

Community and cultural support

The final crucial element to a successful maternity waiting home is the acceptance and participation of community and cultural institutions. In communities where the objectives of the maternity waiting home are consistent with those of people in the community, utilization and satisfaction will be greater than where the maternity waiting home is perceived as a more or less pleasant para-hospital, where some women are persuaded to await hospital delivery.

Maternity waiting homes are the kind of health service that is best organized by communities using their local resources. Even in situations such as Cuba and Mongolia, where the state operates the maternity waiting homes, communities where local support was greater have been able to sustain their activities despite the reduction of state support.

Credibility of the maternity waiting home is a critical factor because women and their families may not be easily convinced to move away from home before their expected delivery date. For example, in Colombia rural women were initially reluctant to use the maternity waiting home which they conceived of as an ordinary hospital. Because institutional delivery is still unacceptable among women in the area, the flow of patients only increased slowly as women returned to their villages after delivery with favourable reports about the maternity waiting home. "Word of mouth" has in fact, been shown to be the best way to increase the acceptability and use of health services. User satisfaction and women's perceptions about maternity waiting homes will be crucial elements to the success or failure of these homes.

[e]Notions of "quality" will vary and may not be "guaranteed" just because essential obstetric services are available.

In some settings, for example where purdah is practised, the introduction of a waiting home has implications for highly sensitive cultural traditions regarding confinement and childbirth. For some women, hospital births are considered unacceptable. Reasons given include: separation from family, lack of modesty, fear of painful and humiliating procedures, etc. Only through careful planning and the involvement of local women, communities and institutions can maternity waiting homes be successful.

PART TWO : ESTABLISHING A MATERNITY WAITING HOME

Introduction

There is relatively little information available on the establishment and management of maternity waiting homes. This is due to the lack of formal evaluation of any existing maternity waiting homes. However, general principles for the planning and management of any community health service can apply in this context.

The most important principle to remember is that planning any community health service starts with a problem, not with a solution. Maternity waiting homes are a solution to a specific problem - geographic inaccessibility to skilled obstetric care. Only communities with this particular problem should consider establishing maternity waiting homes.

Part Two will focus on the major components of establishing a maternity waiting home. Because *every situation and community will vary* the discussion will focus on the broad rather than specific elements which must be considered in planning a maternity waiting home. This is not in any way intended to be a "how to" manual, but will rather attempt to describe and discuss the most salient issues which need to be considered when establishing a maternity waiting home. The steps to be discussed include: conducting a needs assessment, development of evaluation criteria, community involvement and participation, management of the maternity waiting home, identification and referral of women, transfer from maternity waiting home to hospital, and follow-up of families.

Conducting a needs assessment

Before planning a maternity waiting home, the level of "the problem" must be determined by conducting a "needs assessment". Does a geographic inaccessibility to qualified obstetric care exist? What health services exist within the community? Are these health services being used? If not, why not? Does transportation exist? Are the necessary resources (both financial and human) available? Will a maternity waiting home be able to address the problem?

The common causes of maternal and neonatal mortality and morbidity in the local community must first be identified. Not all types of maternal morbidity and mortality can be influenced by ready access to obstetric care alone. For example, deaths from unsafe abortion will not be reduced. On the other hand, mortality and morbidity due to complications such as eclampsia and anaemia can be prevented by access to skilled obstetric care in a timely fashion. It is in these circumstances that the use of maternity waiting homes could be of greatest benefit.

A crucial element of the "needs assessment" will include determining the level of existing health services and whether or not women currently use these health services. Constraints to their use (e.g. socio-cultural, financial, transportation etc.) must be identified before planning a maternity waiting home. Remember, maternity waiting homes are merely *one link in a chain of comprehensive obstetric services*. Any weakness in one link will effect the strength of the entire chain and, as a result, yield little impact on maternal mortality.[f]

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[f]For a comprehensive discussion of these issues, see:

Maine D, McCarthy J. A framework for analyzing the determinants of maternal mortality. *Studies in Family Planning*. Vol 23, No.1, January/February 1992, *and*

Aday Lu Ann, Anderson R. A framework for the study of access to medical care. *Health Services Research*. Fall 1974 pp.208-220

Local transportation and infrastructure capacity (e.g. roads, vehicles, telephones etc.) will also need to be determined. This will be important for deciding on "risk factors" for the specific communities served by the maternity waiting home. Local socio-cultural customs and resources (both financial and human) should also be identified as part of this preliminary planning phase, and it will also be important to determine the level of community support. The majority of anecdotal evidence indicates that community participation is crucial to the long term utilization and sustainability of maternity waiting homes.

The development of evaluation criteria

How successful is the maternity waiting home? On what criteria is success based? Is the service worth the cost? This crucial element of "evaluation" has been overlooked by the vast majority of maternity waiting homes, and should be rectified in all future maternity waiting homes. By identifying, during the initial planning phases, the desired outcomes of a maternity waiting home, the effectiveness or success of the home can be demonstrated in both a quantifiable and qualitative manner.

Evaluating the success or impact of any project requires comparison. While this is not intended as a discourse on evaluation research, some basic premises need to be discussed. The three basic study designs which can be used to draw comparisons are:

1) Before and after comparisons - where health indicators are measured before and after the intervention
2) Cross comparisons - where health indicators are measured in a community that has a certain facility and compared with those in a similar community without the facility
3) Health status indicators - where survival or health status of those using the facility are compared with those with similar health needs who do not use it.

In theory, each of these methods could be used to evaluate the impact of maternity waiting homes; in practice, however, there are significant problems which render these methods difficult.

One major difficulty is the lack of data on maternal and child health indicators (e.g. perinatal mortality and morbidity) especially in those communities where the need for a maternity waiting home is most pronounced. A possible solution to this problem is the determination of baseline data, as recommended in the previous section about "needs assessment." Pre and post intervention evaluation can then be done, but a second difficulty still remains.

The second major difficulty with evaluating the success or impact of a maternity waiting home is that it is impossible to attribute changes in health indicators to a specific intervention such as a maternity waiting home alone. Maternal and child health indicators may be improving for a variety of reasons including changes in income level, general economic development and improvements due to increasing education. Cross comparison of communities with and without a maternity waiting home may be an alternative approach. But this too poses problems because in practice no two communities are alike. However, this method may still be considered if a completely new service (such as a maternity waiting home is to be established. Using a *quasi-experimental* design, and conducting baseline studies in both, comparison would be feasible.[g]

Box 1. OUTCOME INDICATORS

Maternal mortality and morbidity
Perinatal mortality and morbidity
Neonatal mortality and morbidity
Delivery factors (presentation, type of delivery, duration of ruptured membranes and delivery, incidence of obstetric complications, weight gain, breast-feeding)
Newborn factors (gestational age, weight, apgar, congenital defects, reanimation, illness in first week of life, need for treatment)
Duration of hospitalization

"Outcomes" of education programme
Utilization and satisfaction

In most instances, the desired outcomes for maternity waiting homes will be a reduction of maternal, perinatal and neonatal mortality and morbidity. But maternity waiting homes can also provide an excellent setting for other types of health care, and additional project outcomes such as improved nutrition and increased family planning, can be defined and built into the planning and evaluation process.

In evaluating the effectiveness of maternity waiting homes, there are several reasons why care has to be taken in selecting the indicators used to measure progress. First, maternal deaths are relatively rare events and changes may not be indicative of real improvement. Second, even when the numbers are sufficient for statistical evaluation, outcome data alone cannot demonstrate the strengths and weakness of the service, nor how it may be improved. Third, as mentioned previously, the reduction of mortality may be attributed to the comprehensive package of obstetric services (i.e. antenatal care, referral, essential obstetric services) or other socio-cultural factors, and not solely to one intervention such as a maternity waiting home. It is therefore recommended to use combinations of outcome and process indicators for a thorough

Box 2. PROCESS INDICATORS

Level and type of community participation
Effectiveness of referral system
Functioning of maternity waiting home
Efficiency of transfer system
Quality of the referral hospital
Coverage of high risk deliveries
Technologies required for each level (referral, MWH, hospital)
Health professional attitude and involvement
Interdisciplinary approach (composition of health team, interaction, roles
Intersectional collaboration (transportation, city planning, health)
On-going evaluation - community needs

[g] A number of possible research methodologies exist, but because maternity waiting homes can only be viewed as one component of a comprehensive package of essential obstetric services, evaluation methodologies must be carefully developed. National research institutes should be consulted for further assistance in this matter.

evaluation of maternity waiting homes. Some possible indicators are presented in Boxes 1 and 2 but they can, and should, be adapted to each individual setting. More comprehensive descriptions of these indicators can be found in Appendix 1. Some items will be discussed in more detail in the following sections.

From the above it is clear that the evaluation of maternity waiting homes will not be an easy process and will require data from a number of different sources (see Appendix 2). Routine statistics can, in theory, provide information on trends of maternal and perinatal mortality. Unfortunately, areas in need of maternity waiting homes are likely to be those with little or no vital registration and thus poor information about maternal and perinatal mortality. Community surveys, focus group discussions and participant observation are all valid means of obtaining the data necessary for evaluation. All of these factors, crucial to the evaluation of maternity waiting homes, must be taken into consideration early in the planning process.

Community involvement and participation

To be successful, maternity waiting homes should be planned and implemented with community involvement and support. Decision makers in the community, whether they are the husbands, local religious leaders, teachers, politicians, and women themselves, should be involved in both the establishment and daily operations of the maternity waiting home.

The following example of a maternity waiting home, *Casa Hogar,*[13] in Jamundi, Colombia[h] provides some valuable insights as to how the process of community involvement can be accomplished.

The *Casa Hogar* is a community strategy to facilitate care at delivery in accordance with risk; to overcome the geographical difficulties and transport problems faced by pregnant women in the rural areas; and to generate behaviour conducive to better maternal and neonatal health.

Development of the *Casa Hogar* was accomplished in stages and included the following components:

- Establishment of a steering group composed of representatives of the local hospital, the educational unit, the Mayor's office, community action councils and the Faculty of Health of the University of Valle.
- Workshops and meetings were held with community groups to study the problem, put forward proposals for the maternity home strategy and elicit opinions and suggestions. Similar meetings were held with the Mayor's Office, the City Council and the local health team.
- Plans for building construction were submitted to a local charitable organization with an application for funding.
- Drafts of legal statutes for the *Casa Hogar* were drawn up through consultations with leaders and lawyers, and were then discussed and adopted at three assemblies attended by 40 community leaders.

[h] Jamundi is a town, 26 km from the city of Cali with a population of 42 000. 28 000 reside in the town and the remainder in the surrounding plain and mountainous areas.

- Equipment and furnishings were determined by the steering committee and community members in light of the fact that the *Casa Hogar* was considered a special "home" for the community. Support was sought from various charitable and commercial organizations.
- Operational decisions including issues of staffing, criteria for identification and referral of women, fees, conditions of accommodation, activities of pregnant women at the maternity home, health education activities, etc. were studied with the local health team (doctors, nurses, promoters, birth attendants) and with representatives of the community.
- Information and public relations activities were carried out to inform and involve secondary school students, teachers, birth attendants, police inspectors and promoters in the preparation of written materials (newspaper), illustrative materials, posters, leaflets etc.

For each maternity waiting home, the local community should seek those solutions that best fits its own circumstances and the needs of the population. Numerous possibilities exist for both the establishment and management of a maternity waiting home. The physical plant needed is basic and can be set up with volunteer labour and donations of materials. Existing structures located near the hospital can often be converted and the private sector may provide materials for construction and other supplies. Teachers, youth or elderly groups and women's organizations can help with the education and recreation activities, provide furnishings, raise funds, assist with food production and preparation and organize income generating activities. The government might assign extra health workers for the initiative. In addition, all cost factors (including cost of stay, transfer and hospital care) must be considered and decided by the local community.

Management of maternity waiting homes

The management of maternity waiting homes is highly dependent on the specific objectives established for the home and the availability of local resources. Therefore, there is no single "blueprint" which can be provided to describe what the management should entail.[i] Instead, this discussion will focus on the primary factors that need to be considered for effective management of a maternity waiting home These include:

- Services to be offered
- Liaison with community health services and hospital obstetric services
- Administration and staffing requirements (including record keeping)
- Equipment and supplies
- Cost considerations

Services to be offered

A review of data on maternity waiting homes indicates that the services provided range from all prenatal and obstetric services, plus health education and recreational activities, to being merely a shelter in close proximity to a hospital. It is evident that the management and organization of the maternity waiting home will need to reflect and correlate with the services

[i]The examples contained in the boxes further describe some of the salient management issues.

that are offered. The entire physical plant, including the number of rooms, baths, kitchen and recreational facilities will also dictate many managerial issues (e.g. staffing, maintenance etc.).

A study of four maternity waiting homes in Tanzania indicates that user satisfaction and utilization is highly dependent upon the services that are provided. For example, in three of the maternity waiting homes food was provided and prepared by the women themselves. They stated that their expenditures on food were too high, and in the one case where food was provided, the women complained that this food was unacceptable, both in terms of quantity and quality. In all four homes management was reported to be poor.[14]

Box 3. MATERNITY WAITING HOME SERVICES

Health Services
Pre and Postnatal Care
Physician exams
Laboratory tests
24 hour nursing care
Treatment of illness
Uncomplicated delivery
Education
Childbirth classes
Newborn care + breast-feeding
Nutrition
Family planning
Literacy
Skills training
Other services
Food & laundry
Recreational activities (TV, games)
Child care
Ambulance service
Income generation

Liaison with community health services and hospital obstetric services

The link, or liaison, between existing community health services (required for appropriate referrals) and hospital obstetric services (necessary for transfer in case of complications) are crucial to the establishment of a maternity waiting home. Access to both of these services is imperative if women are to be identified and referred to the maternity waiting home and then transferred to obstetric facility. No matter how good, or how poor the management and services of the maternity waiting home, if high risk women are not referred to the facility the maternity waiting home will not function effectively. Equally, women who are transferred in timely fashion from the maternity waiting home to the hospital, but who do not receive appropriate treatment at the hospital, can be at even greater risk for complications and/or dissatisfaction. Therefore, an integral part of the management responsibility of a maternity waiting home is this "liaison" between the two referral services.

The establishment of a maternity waiting home requires local availability of both community health services for the identification and referral of women at risk, and qualified emergency obstetric services. Without these two crucial links, the chain, or package of comprehensive obstetric services, does not exist. Maintaining smooth and harmonious working relations between these services will be an important management responsibility of the maternity waiting home.

Administration and staffing requirements (including record keeping)

Administration and staffing requirements are dictated by the services offered, the physical plant, and the available financial resources. A number of maternity waiting homes are administered by a voluntary board consisting of community leaders. Others are administered by paid professionals, government representatives, or by the referral hospital.

Staffing ranges from full-time medical staffing to visiting para-medical support and a watchman. Like the objectives of the maternity waiting home the roles and responsibilities of staff members should be clearly defined and stated by the administration. A number of maternity waiting homes report daily or weekly midwife visits and some are staffed by local volunteers. The women themselves are sometimes responsible for housekeeping duties (cleaning, food and laundry), and visiting teachers or health workers provide the educational and recreational activities.

Record keeping also varies greatly from one maternity waiting home to another. Some keep admissions records, attendance book, bank books, account ledgers etc. Each maternity waiting home should maintain those records and documents which are necessary for its daily operation and evaluation. The need for such documents should be established in the early planning phases and developed accordingly. The use of a "patient based record keeping system" is advised, but for evaluation and management purposes some of the relevant data (e.g. prenatal history, weight, blood pressure etc.) will need to be duplicated.

Equipment and supplies

The physical plant, equipment and supplies will depend both on the services to be offered and on the available resources. Maternity waiting homes supported by government services (e.g. Cuba) may be as well equipped and supplied as some local hospitals. For management, the most important factor is to be equipped and supplied in such a way as to provide high quality services. For example, if regular prenatal care is part of the package of services then the minimum equipment for providing those services (e.g. sphygmomanometer, urinalysis, stethoscope etc) is necessary. Equally if bedding and food are part of the services then these also should be readily available.

Cost considerations

Maternity waiting homes, like any profit, or non-profit business, should operate with a clearly defined annual budget. Once again, this budget must be an accurate reflection of the services to be provided (including staffing and supplies) and of the financial resources available. Depending on the local situation, maternity waiting homes should determine, at the outset, their income and cost structures. Will women be charged a fee for services? Can all the services be provided free of charge, or will some, such as food be contributed? Are free services readily accepted within the community, or are they considered to be of lower quality? What community resources exist for supporting the maternity waiting home? Is an income generation project realistic for this maternity waiting home?

Using once again as an example the four maternity waiting homes in Tanzania the variability of financial structures becomes evident. See Table 1 below:[14]

Table 1. Maternity waiting home financial considerations

	MAKAMBI	VITUS	CHIGONELLA	VANYOFILA
OWNERSHIP	Hospital	Diocese	Private & hospital	Hospital
SOURCE OF INCOME	Hospital funding	Dutch sisters	Community in Italy + local community	Italian Cooperation for Development in Health (CUAM)
USER FEES	Free	Free	Free	Free
ITEMS OF EXPENDITURE	Water, light, painting once in 2 years, insecticide spray each year	No records - part of total hospital expenditures	Salary for watchman, minor repairs	Everything goes to the hospital bill, only buy fertilizer and seeds for the garden

To conclude this brief section on management, the success of a maternity waiting home will be highly dependent on efficient and capable management. When establishing a maternity waiting home it will be imperative that the majority of management or daily operating issues be addressed. By matching the local needs of the community with the available human and financial resources, well-managed maternity waiting homes can make strides toward reducing maternal mortality in geographically remote areas.

Identification and referral of women

The effectiveness of maternity waiting homes depends on the ability to recognize and refer women at risk, and the utilization of the maternity waiting home by such women. This identification and referral is dependent on an effective system of community health services, staffed by providers who have been specifically trained in the identification and referral of high risk pregnancies. As mentioned previously, an important role of management for the maternity waiting home will be working in cooperation with these community health services.

Recent work conducted in Zimbabwe[15] indicates that the effectiveness of maternity waiting homes in reducing maternal mortality and morbidity depends on the validity of the criteria used to identify women at risk for complications; the effectiveness of screening and referral by health workers; and the acceptance and use of maternity waiting homes by the women who are identified as being high obstetric risk. 4488 women constituted the study population, which comprised 1573 women who were maternity waiting home users (MWH users) and 2915 who stayed at home and self-referred or were referred to the hospital by a traditional midwife during labour (MWH non-users). The risks of assisted delivery and the risks of obstructed labour, ruptured uterus and maternal death were compared between the MWH users and non-users.

The results of this study indicated that risk factors were more common among the MWH users. They also received antenatal care more frequently and presented at an earlier stage of labour than the MWH non-users. The MWH non-users were 16 times more likely to have obstructed labour than the users overall. Among the non-users, 0.3% of the women suffered a ruptured uterus compared with none of the MWH users. There were two maternal deaths among the MWH non-users (one death due to ruptured uterus and the other due to puerperal sepsis following caesarean section) and there was one maternal death among the MWH users (due to post-caesarean section haemorrhage).

In this hospital-based study, 17% of the women had dystocia. Only 0.3% of MWH users had obstructed labour despite their slightly higher risk of dystocia, compared with 1% of non-users. All the antenatal risk factors used for screening, (see Box 4 for antenatal risk factors) except parity >6, were associated with increased risk of dystocia during delivery. Primiparity was the most sensitive risk factor, and one in five primiparas had dystocia. However, by including primiparity with the risk criteria, the specificity was significantly reduced and nearly 50% of pregnant women were considered at risk.

Box 4. ANTENATAL RISK FACTORS

parity 0 or >6
hx of perinatal death
hx of operative or complicated delivery
height <150cm
hypertension
heart disease
diabetes
anaemia
hydraminos
preeclamptic toxaemia (PET)
non-cephalic presentation
multiple pregnancy

Unless other risk factors which will improve the specificity of the risk criteria without reducing its sensitivity are identified, the proportion of women classified as high risk will be high, and thus a maternity waiting home to accommodate all women identified may not be affordable or realistic. Although the maternity waiting home itself is inexpensive, referral of 50% of pregnant women for hospital delivery could overstretch the capacity of the hospital maternity services. As this example has shown, the identification of "risk factors" for any given community will be an important consideration in establishing a maternity waiting home.

Once appropriate risk factors have been identified, the effectiveness of the screening and referral will be dependent on the team of community health care providers, or on a highly effective system of IEC. The same study in Zimbabwe indicated that the utilization of the maternity waiting home, even among women who delivered at the hospital, was low. Only a third of those with risk factors had stayed at the maternity waiting home, despite 98% having attended antenatal clinic at least once. The degree to which community health workers recognize high risk women and the advice that they give to women about staying at the maternity waiting home will require careful evaluation. The role of barriers to the use of hospital-based obstetric services, including societal expectations, physical and cultural distances between health facilities and communities, and the perceived quality of care[16] are all factors which will need to be considered. In Zimbabwe, for example, where women are advised to stay at the maternity waiting home for four weeks because of the difficulties in estimating the date of delivery, duration of stay was observed to be a possible barrier to use.

Transfer from maternity waiting home to hospital

The availability of efficient emergency obstetric services is another crucial factor to the effectiveness of maternity waiting homes. The most critical decision, however, remains the direct responsibility of the maternity waiting home - i.e. deciding *when* to transfer a women from the waiting home to the hospital. The transfer requires consideration of the following components: decision making, transportation and distance from the home to the hospital, and rapid access to emergency hospital care.

The presence of trained medical staff at the maternity waiting home will greatly facilitate the appropriate and timely transfer of women in labour to the referral hospital. If only a watchman is present, and during the night women have to refer themselves, this may be appropriate for overcoming geographical barriers, but may do little to decrease the risk of childbirth for many women. Once again, each community must make determinations about its own needs and available resources regarding this matter.

To be effective, maternity waiting homes should be connected to some type of alarm system and should have transportation available. A number of the examples indicate that this is not the case in many maternity waiting homes. But, in all instances, careful provisions must be made for the efficient and timely transfer of women in labour or in case of complications. Ambulances or other vehicles often break down or become unserviceable because of lack of spare parts or resources, so alternative transport systems should be considered in the early planning stages. In a number of countries, ambulances, even with sirens, are rarely allowed to pass through heavily congested areas because people assume that it's just another politician who wants to pass, rather than a dying mother. Therefore, distance, road, traffic and weather conditions must all be considered when setting up the transfer systems.

When the woman arrives at the hospital her admission should follow a smooth and standard transfer procedure which has been prearranged between the maternity waiting home and the referral hospital. The necessary documentation should already be available and prepared so that little time is lost with bureaucratic formalities. Where alarm or communications facilities exist, hospitals can be given the details and needs of a case before the woman arrives so that the necessary blood, supplies, or operating theatres can be prepared. Hospital staff should be able to rely on the information and medical details provided by the maternity waiting home and not have to initiate unnecessarily repetitive examinations and procedures. This type of smooth transfer will be readily appreciated by the women and may even lead to increased use of the maternity waiting home.

Follow-up of families

A final step to consider when establishing a maternity waiting home is the "follow-up" of women who have used the facility. The purpose of this activity is not just for evaluation purposes, but also for the promotion and sustainability of the maternity waiting home.

As discussed above, the evaluation of maternity waiting homes is a critical factor for determining the strengths, weaknesses and outcomes of the service. Especially in those maternity waiting homes where education services are provided, it will be important to follow the women into their home to see if, for example, newborn health has improved. Do children whose mothers use maternity waiting homes have a better rate of immunization? Do the women use family planning? These and many other questions can provide invaluable information about the effectiveness of the services and education offered at the maternity waiting home. But they can only be obtained once the women have left the maternity waiting

home which means that a system for follow-up must be determined from the outset. In many instances, this can be well coordinated with existing community health services, but the mechanisms for communicating the necessary information must be developed.

Another important factor to consider when women leave the maternity waiting home is that each user or client, should be viewed as a potential "ambassador" of the maternity waiting home. Word of mouth, in much of the world, is still one of the most effective and compelling means of communication. Women who are satisfied with the care and services they received at the maternity waiting home will encourage their family, friends, and neighbours to use the service. Women who are dissatisfied, will have the opposite effect, and the best identification and referral system of women at risk may be rendered totally ineffective if the negative publicity is such that women decide not to utilize the maternity waiting home. The power of women to determine their own needs and seek their own solutions should not be underestimated. For this reason, their support and participation as involved partners in maternity waiting homes and the other affiliated health care services, must be considered in the planning stages of all community health services.

CONCLUSION

The primary objective of the Safe Motherhood Initiative, decreased maternal mortality, can be best achieved through the development and implementation of a National Safe Motherhood Programme. "Building blocks" or sets of activities, such as the "Mother-Baby Package" provide needed interventions that are simple, attainable and cost effective. But even these activities, implemented within the framework of a National Safe Motherhood Programme, may vary from country to country and health care setting to health care setting. In regions where access to essential obstetric services is limited, maternity waiting homes may be an intervention to consider.

Limited access to essential obstetric services continues to endanger the lives of many women. Treatable emergencies occur in environments where the necessary resources are not available. These are preventable deaths, and maternity waiting homes can be viewed as one possible option for these areas. As this document has demonstrated, multiple models of maternity waiting homes exist. Although there has been no quantitative evaluation of their effectiveness, their continuing existence indicates local sustainability. The importance of community participation and the development of culturally appropriate maternity waiting homes which meet local needs is crucial to successful implementation and long-term sustainability.

The successful implementation of maternity waiting homes, or any other safe motherhood option within a national framework, should include careful prioritization of activities with emphasis on the practical issues. The critical links for maternity waiting homes are:

- the capacity for identification and referral of high risk women and
- proximity to a hospital with essential obstetric services including surgical and transfusion capacity.

Practical issues include location, physical space, services to be offered and cost factors. Attention to these crucial links and practical details will contribute to the effectiveness of the maternity waiting home.

Most pregnancy-related complications can be effectively prevented or managed without recourse to sophisticated and expensive technologies or drugs. Experience has shown that maternal and neonatal mortality can be reduced when communities are informed about danger signs and symptoms, and quality health services are available and accessible including a referral system to manage complications at a higher level of the health care system[10]. Maternity waiting homes should be considered as part of a comprehensive safe motherhood programme.

The Maternal and Newborn Health/Safe Motherhood unit of WHO urges anyone considering establishment of a maternity waiting home to include evaluation as a critical part of safe motherhood activities. All activities (planning, implementation, monitoring, evaluation) should be well documented.

CASE STUDIES

A shelter that saves mothers' lives - Malawi[17]

In recent years, maternal mortality in the rural area covered by Ekwendeni Hospital, Malawi, has been reduced to zero, partly because women have been persuaded to use an antenatal shelter situated about 50 metres from the delivery ward. The shelter is a house with three shared bedrooms, a kitchen, a toilet, a shower and clothes-washing facilities. Each woman brings her own food and cooking utensils, and may be accompanied by a helper.

The main problem has been to encourage mothers at risk to attend hospital prior to going into labour so that during all stages of childbirth they are under supervision. This allows intervention to take place in good time if necessary.

Although Ekwendeni Hospital is private, no charge is made for the use of the shelter. Between 5 and 25 women reside there every night. The duration of their stay depends on the kind of referral, their knowledge of their expected date of delivery, and the distance they have to travel. Most referrals are from medical units where there are trained birth attendants but no surgical facilities; a few women refer themselves to the shelter. The length of stay tends to be relatively short for women who know their expected date of delivery, live nearby and are referred from another medical unit. The women who stay longest are self-referred and come from places at least 250 kilometres away.

Maternal emergencies should be a thing of the past because today there is much wider coverage than formerly through static and mobile antenatal clinics. Only rarely do we see a woman who has been in labour in the bush for two or more days, with all the associated complications. Perhaps once a year we have to deal with a ruptured uterus. Maternal mortality has declined because it is now possible to identify at-risk mothers and persuade them to attend hospital at an early stage and stay at the antenatal shelter if this seems desirable.

Letter to World Health Forum, Vol. 9 1988 from J.K. Knowles, Ekwendeni Hospital

Maternity villages in Zimbabwe[18]

The Evangelical Lutheran Church in Zimbabwe owns and runs four hospitals in the rural areas. At all the hospitals maternity villages are integrated parts of hospital services offered to the community.

Mnene, the largest hospital, was founded in 1915 by a Swedish sister who was joined in 1925 by the first doctor. Since then the hospital expanded rapidly with simple huts (machacha) erected for out-patients coming from the remote villages. Then, as today, there are no means to come to hospital once labour has started. The mothers' village is thus as old as the hospital.

The community has long realized the advantages of hospital deliveries where around 70% deliver. Nearly all women have their first baby in one of the hospitals. In 1990, 1100 mothers were registered. There is no charge for services. High risk pregnancies like twins, history of previous complicated deliveries (caesarean section, vacuum extraction, severe bleeding) and grand multiparae are also advised to deliver at the hospital.

The original simple huts were long ago replaced by a big brick roundovel and two smaller huts. More than 100 mothers can be housed in these huts. The women bring bedding, pots and food, and cook for themselves in a special kitchen. In the evenings much time is spent singing. The time at the maternity village is for many the only "holidays" in life.

A nurse-midwife is employed at the mothers' village as a health educator. Three days a week lectures are given on a broad variety of topics including the development of the fetus, infant development, labour/delivery, breast-feeding and care of the newborn, family planning, immunization, ORT, AIDS, alcohol abuse, home accidents and trying to spread the use of wood-saving stoves. One session on relations within the family is especially appreciated by the women. There is active participation both in the hours in the special classroom and during cooking demonstrations. Once a week mothers attend the ANC for examination. The midwifery students are responsible for the teaching there.

One of the local concerns about mothers' villages is that the weeks mothers spend there would mean increased risks for the previous child to become malnourished. In Zimbabwe this has not been the case because as soon as the mother stops breast-feeding, after discovering that she is pregnant, the baby is usually handed over to another relative. The mean time spent at the maternity village is 18 days.

Personal Communication,
K. Dahlin M.D., Mnene Hospital, Mberengwa, Zimbabwe

A 1987 study conducted in another rural hospital in Zimbabwe using birthweight, perinatal mortality and degree of obstetrical intervention as outcome measurements, found that women who stayed in the antenatal village experienced better pregnancy outcomes than women admitted directly from the community. Birthweight was greater, perinatal mortality lower, and obstetrical intervention were required less often.[19]

Bangladesh - the need for evaluation[20]

The World Mission Prayer League of LAMB Hospital, Dinajpur, has a small facility where mothers who have been identified as high risk at one of their antenatal clinics can come to await delivery at the hospital. In 1990 they ran 11 village antenatal clinics (10 monthly and one weekly) with an average monthly attendance of around 600 total visits. They also conduct daily antenatal clinics in the hospital compound with an average monthly attendance of around 300 visits.

Women who are high risk (pre-eclampsia, malpresentation, poor OB history) are encouraged to come to the waiting facility 2-4 weeks before their due date depending on their condition and their home situation. There is no system for monitoring what portion of those mothers who are referred to the hospital actually use the waiting facility or deliver in the hospital.

The facility itself is a small room at the end of the nutrition centre building. The room contains four wooden beds and a couple of bamboo racks for the women's personal effects. The women are not charged for room or board - which consists of chappatis twice a day and rice once daily with lentils and vegetables. In between meals they are fed snacks of milk and boras (high protein balls made of lentils, spinach and spices fried in oil). In addition three times a week they have either fish (from our pond) or an egg (from our ducks) with their rice.
The nutrition centre staff monitor the ladies' blood pressure and fetal heart tones daily and send them to the LAMB antenatal clinic weekly for a regular check-up. The women also benefit from the health teaching done at the nutrition centre and the family atmosphere where all the women help with cooking and cleaning. The waiting facility is only a stone's throw from the hospital so the women have ready access should any problems arise.

In 1989, 70 mothers who stayed in our waiting facility delivered at Lamb Hospital. Of the 70 mothers there were 69 live births. Unfortunately, the records for these mothers were poorly kept, and little information is available. Since January 1990 the mother's reason for admission to the waiting facility, plus all delivery information has been entered onto computer using the EPI Info programme. It is hoped that this will facilitate an evaluation of waiting homes and help to demonstrate their value in other parts of the world.

Personal communication,
Stacy Roettger, Nursing Superintendent

Maternity rest homes in Mongolia - problems of transition[21,22]

The maternity rest homes in Mongolia - Ekhyn Amrah Bair - were first established in 1979, when a joint decision was taken by the Mongolian Women's Federation, the Ministry of Health, the Ministry of Agriculture and the former Supreme Council of the Union of Cooperatives. The rest homes were set up with the following objectives:

- providing pregnant women with access to medical assistance for preventing complications during and after delivery of children;
- providing training to mothers about sanitary and hygienic practices during pregnancy and delivery and after delivery, including feeding practices for the newborn;
- increasing women's knowledge and understanding on childbirth and healthy behaviour during pregnancy.

The rest homes are attached to somon (district) hospitals and are provided with 2 to 6 beds. Pregnant women come to the rest homes two weeks prior to delivery for rest, nutrition supplement, medical check-up and treatment. In the past, the costs of food and transport were provided by the state farms and agricultural cooperatives. Staying at maternity rest homes ensured close medical supervision during and after childbirth. The rest homes were supplied with newspapers, journals, books and sometimes clothing for the newborn babies. Mothers were given consultations on health promotion activities.

A 1986 study showed that reduced perinatal mortality and maternal mortality and morbidity was associated with the maternity rest homes. Utilization of maternity rest homes is usually expected from women from the remote areas. But, since 1990, the rest homes in many somons in Mongolia have not been functioning. A 1993 study showed that in 1992 out of 287 maternity rest homes only 52 were operating. This was attributed to privatization of the cooperatives and deterioration of the overall economic situation.

Many rest homes have been converted into private business centres or other profit-making enterprises. The privatization of state-run farms resulted in discontinuation of food and transport support to the maternity rest homes. At this time the critical issue is that under the highly decentralized administrative system of the country, adequate support from the local governments must be generated to revive the collapsing maternity rest homes. Operations research for evolving an appropriate mechanism for the involvement of the local governments and the required operational procedures is urgently needed.

Zahidul Huque & D. Olonchimeg
Safe Motherhood Newsletter, Issue 1, Oct-Dec.1993

Mozambique - Some constraints to success[23]

Casa de Espera (waiting home) is a house in the immediate vicinity of each rural and provincial hospital that can lodge selected at-risk pregnant women with timely referral. At these houses, pregnant women in their third trimester of pregnancy and with pathologies such as placenta previa, hypertension, high multiparity, etc may remain. The women rest there, visited as necessary by a doctor, until the onset of labour. Being very close to the hospital, in the eventuality of any obstetric emergency, they have access to immediate care and the necessary interventions, such as caesarian section or blood transfusion.

The *Casa de Espera* does not need any special fixtures or equipment. Any house with a reasonable number of rooms to lodge those referred women will do. This should be a responsibility of the local community, with the help of the respective districts. The women lodged here may have the responsibility for the daily domestic tasks, food, cleaning, clothing, etc., in this way contributing to the house's maintenance. They may dedicate their time to handicrafts, dress-making and food processing activities. Their products can be marketed in order to get funds for the maintenance of the *Casa de Espera.*

In Mozambique waiting houses have been part of the Ministry of Health strategy for years, but have had little impact, especially in the present political situation. Political support and community mobilization have been identified as indispensable if *Casa de Espera* are to serve their intended function. It has been recommended that clearer guidelines be established on the localisation, use and support of the *Casa de Espera*.

Grand multiparas, family planning and maternity waiting homes Papua New Guinea[24]

Milne Bay Province, Papua New Guinea, is made up of numerous tropical islands and mountains. Most villages are small and roads are few. Transport is mainly by foot, by boat, or by small aircraft. The majority of women still deliver their babies at home attended by family members. Maternal mortality is high, estimated to be approximately one maternal death for every one hundred village births. Many of these deaths occur in grand multiparas. Women are encouraged to deliver in the health centre or hospital, but seldom do. Grand multiparas, especially those who have had several normal village confinements, seldom see the necessity for hospital delivery.

Village people were found to be intensely interested in family planning, especially when it was presented together with a discussion of obstetric hazards and child spacing. Rural health workers were encouraged to refer any pregnant grand multiparas who wanted tubal ligation to the hospital a few weeks before the delivery so that they could deliver in the hospital and then have a postpartum tubal ligation. This has resulted in increasing numbers of grand multipara having hospital deliveries. Many of these women had never had a previous hospital delivery. They would probably not have chosen hospital delivery, except for the reason that they wished a postpartum tubal ligation.

A large ten room house on stilts, with verandah and kitchen, has been constructed of local materials on the hospital grounds for multiparas to stay in. Patients go daily to the obstetric ward for checkups by the staff. They are admitted to the ward when they go into labour, or if an antenatal complication occurs. One of the disadvantages of the home reported by multiparous women is the difficulty of organizing someone to care for their large families during an absence in a far away hospital.

With a policy of referral of grand multiparas 2 to 4 weeks before the expected confinement, and with many grand multiparas undergoing tubal ligation, the annual number of emergency obstetric evacuations decreased from 25 in 1979 to 9 in 1982. There was also a striking reduction in the number of obstetric horrors arriving late at the hospital.

Birthing huts in Indonesia : findings and future directions - A MotherCare Project[25]

While Indonesia has been successful in lowering fertility through family planning, the maternal mortality ratio remains high at about 450/100 000 live births. A study conducted in the West Java subdistrict of Tanjungsari (Bandung) in 1988-89 revealed that most maternal deaths occurred due to delays in obtaining services for obstetrical emergencies.

The University of Padjadjaran (in Bandung) developed an operations research project to address these issues of referral and attendance for emergencies. In the intervention area ten birthing huts (polindes) were established at the village level. Here women could go for prenatal care screening, referral and deliveries.

Some birthing huts were established in TBAs' homes, some stood alone, while others were attached to the home compound of a village leader. All huts provided improved communication (a two-way radio) with higher levels of obstetrical emergency care - three health centres and a referral hospital - but no other essential obstetric equipment or supplies. An ambulance was also maintained at the health centre in readiness to provide transport from the birthing huts to health centres or the hospital. The birthing huts were visited on a routine basis by a midwife and were maintained and informally staffed by village TBAs.

Women were found to be somewhat ambivalent towards the birthing huts. The huts were valued for their regular provision of prenatal care and for offering emergency access to a midwife or doctor. But a number of women were uncomfortable with the placement of some of the huts in the home compound of the village leader or TBAs other than their own because of the implications for personal as well as financial indebtedness. The small size of the huts prohibited a family from attending the birth. Beds in the huts were unfamiliar to women in delivery because a mat and the squatting position is the more common means of delivering. In addition, the placement of birthing huts on roadways in order for ambulances to have access to them, did not necessarily make the huts more accessible to the community.

Costs for using birthing huts were not standardized. Some village leaders charged for using the hut and TBAs managing the hut also charged for their attendance, as did the pregnant woman's own TBA who would accompany the woman to the hut. Midwives in attendance or called in an emergency also added to the payment schedule, making the cost of a birth hut on occasion more expensive than using the services of a more distant health service, but one with emergency equipment, supplies and staff.

The significant findings and future directions from this project include:

- The community needs to be involved in the design, placement and costing of community-based birthing huts. The community will not only feel a sense of responsibility toward maintaining the birthing hut, but will also be more inclined to use it.
- Health communication campaigns designed to increase knowledge and attitudes toward birthing huts will not increase use if the birthing huts do not conform to the needs of pregnant women.
- Birthing huts as designed cannot compete with the value associated with home delivery.
- TBAs and the community need to be reassured that referral is life-saving and is a very respectable decision on the part of the TBA.

Waiting homes in Malawi - some constraints

Observations of 8 Malawian Hospitals revealed that each had a maternity waiting ward. Women identified as high risk, particularly those exhibiting signs of malnutrition or those who had previous complications during delivery, were referred to the hospital three to four weeks prior to the expected delivery. Nurses reported that many of the women will not wait the entire three to four weeks. They tend to run away after a week or so because they are bored and because they are anxious to return home to their children who are usually left in the care of relatives, friends or husbands.

Another reported constraint is related to hospital regulations which require that any one who is admitted to the hospital must bring a relative along to attend to their needs. This regulation is due to staffing shortages (doctors, nurses and cleaning personnel). This creates an imposition on the relatives because they are expected to buy their own food although the hospital provides sleeping and cooking quarters for those who live far away. Also, for women exhibiting advanced malnutrition the hospitals are unable to supplement their diet with adequate proteins because the only food which the hospital provides is cooked beans. Most government hospitals are free of charge but they lack basic commodities and materials: sheets, blankets, medical supplies, drugs, adequate food and medical staff.

Another major problem reported by the nurses working in the maternity wards is the increased number of complications during deliveries related to taking drugs to hurry the delivery. Many women use pitocin to induce their labour so they won't have to wait for weeks at the hospital. Women reported that they drink herbal teas bought from traditional healers and from TBAs to induce the delivery. However, some of these deliveries are induced too early and often cause the uterus to rupture during the strong contractions. Because of the lack of doctors, surgeons and medical technology this creates additional problems for the medical staff.

Personal communication,
Dr. Gisele Maynard-Tucker, Health Service Specialist
Malawi, Feb/March 1995

APPENDIX 1 : PROCESS INDICATORS[j]

Community participation and involvement

- knowledge of the existence of the maternity waiting home
- sources of information about maternity waiting home
- attitudes towards the maternity waiting home
- understanding the value of the maternity waiting home
- numbers of women who have used the service
- levels of satisfaction with the service
- reasons for non use of the maternity waiting home
- reasons for non-compliance with referral to maternity waiting home by health workers

Effectiveness of Prenatal Referral System

- criteria for definition of high risk pregnancies
- number of appropriate referrals to the waiting home
- number of inappropriate referrals
- number of women with high risk pregnancies not referred
- costs incurred by women in the maternity waiting home
- knowledge of maternity waiting homes among health workers, particularly TBAs in remote areas
- understanding by health workers of the objectives and role of the maternity waiting home
- attitudes of health workers to the maternity waiting home
- extent of follow-up by health worker of women referred to ensure compliance
- extent of, and reasons for, non-compliance by women referred

Functioning of the maternity waiting home

- indicators related to women using the service:
  - age, parity, marital status, socio-economic condition, employment, literacy, educational level
  - reproductive history
  - distance from their home
  - level of satisfaction with services

- indicators for health workers providing the service:
  - sociodemographic
  - numbers, levels of skills and roles of different categories
  - division of labour and team work
  - attitudes and satisfaction of health workers

[j] This should *not* be viewed as a comprehensive listing of all the process indicators, but rather as guidelines for the definition of outcome and process indicators applicable to any individual maternity waiting home.

- indicators of efficiency and cost:
  - number of beds
  - ratio of beds to population in catchment area
  - bed occupancy rate
  - drop out rate (women who discharge themselves prior to delivery)
  - mean duration of stay
  - health personnel employed
  - ratio of health personnel to beds
  - other personnel employed
  - operating costs
  - average daily cost per woman per day
  - marginal cost per woman per day

Efficiency of the transfer system

- availability of a health worker qualified to make the decision to transfer at all times
- availability of transport (and driver) on a 24 hours a day, 7 days a week basis
- condition of the ambulance(s)
- responsibility for maintenance of the ambulance(s)
- communications with referral hospital
- road conditions in all seasons
- distance to the higher level referral hospital, in kilometres and hours

Quality of obstetric services at the referral hospital

- admissions procedures for emergency referrals from the waiting home
- financial barriers to admission at the referral hospital
- availability of skilled staff on a 24 hour a day, 7 day a week basis
- availability of operative facilities, drugs, equipment, blood etc
- availability and use of guidelines for treating obstetric emergencies
- collaboration between obstetric and emergency ward staff
- condition on arrival of women referred from waiting home

APPENDIX 2 : EXAMPLE OF DATA NEEDED FOR THE EVALUATION OF MATERNITY WAITING HOMES AND POTENTIAL SOURCES OF INFORMATION

Table 2. Data sources

Type of data needed	Routine data collection (hospital or community)	Ad hoc community surveys	Focus group discussion	Participant observation
Maternal/ perinatal				
• mortality	+	+		
• morbidity	+	+		
Prenatal referral data from:				
• women		+	+	
• health workers		+	+	
Maternity waiting home data on:				
• women	+	+	+	+
• health workers		+	+	+
Transfer and referral system	+		+	+
Community attitudes			+	+
Costs	+		+	

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