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Maternity waiting homes – an effective instrument for global maternal health

GLOBAL HEALTH

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Around half of the births in Nepal take place with no trained birth attendant present. Maternity waiting homes, where mothers with high-risk pregnancies can stay during the final period before their due date, can make it practically possible for more of them to give birth in hospital. The measure is particularly beneficial for young, primiparous women.

Is it medically prudent to give birth at home? This topic was recently debated in the Journal of the Norwegian Medical Association (1). In this article I wish to provide some perspectives from a rural district in Nepal. Viewed from here, the issue looks quite different.

Mother and child mortality is on a downward trend in most low- and middle-income countries. In Nepal, both maternal mortality and infant mortality have also been reduced. In 2015, they stood at 258 per 100 000 births and 21.9 per 1 000 live births, respectively (2). These levels are still high, so further efforts in these areas must be prioritised. Almost half of all births in Nepal still take place with no trained birth attendant present (3), and two-thirds of maternal deaths occur outside of health institutions (4). It is therefore essential to work towards enabling more births to take place in health institutions under the supervision of qualified personnel.

Nepal is among the world's least developed countries. Total health spending per inhabitant in 2014 amounted to USD 137, while the corresponding figure for Norway was USD 6 347 (5). With so little money available, it is even more important to find cost-effective health measures.

The small Okhaldhunga Community Hospital in Eastern Nepal (6) is situated in rural surroundings with scattered settlements (Fig. 1). I have worked here for the last 14 years. The hospital now sees well over one thousand births per year, but we still see disastrous effects resulting from pregnant women failing to obtain qualified assistance in time. Much of the problem has been that they have relied on a home birth. Heavy postpartum haemorrhage alone causes 25–30 % of maternal deaths here in Nepal (7), about the same as in most poor countries in Asia and Africa (8). In a population of more than 250 000 people in Okhaldhunga District, this alone represents a number of deaths annually. Obstructed labour due to mechanical anomalies or an undiagnosed abnormal fetal position is also common. For those who fail to reach the hospital in time, this may lead to ischaemic injury with lifelong sequelae in the child or fetal death, possibly also uterine rupture and risk to the mother's life. This brings us to the heart of the matter: In a part of the world where maternal mortality is high and transport is slow and costly, how can we ensure that women in labour reach the hospital in time?

Figure 1 Okhaldhunga Community Hospital is situated on the side of the valley with terrace cultivation all around. Settlements here are scattered, but the hospital serves a population of more than 250 000 people. Photo: Erik Bøhler

In the last ten years the number of hospital births has increased from 211 to 1 126 (Fig. 2). There are several reasons for this. Firstly, the district gained a permanent road connection to the outside world around eight years ago, and the number of roads increased and improved. Secondly, until five years ago women in labour had to pay for maternity care at the hospital themselves. There is also reason to believe that the increase is partly attributable to the offer

to stay at a maternity waiting home close to the hospital in the final days or weeks before the due date. We have recently reviewed the experiences gathered from this home. Since maternal healthcare work is a high priority for Norwegian development assistance for health, these experiences may also be relevant to other places.

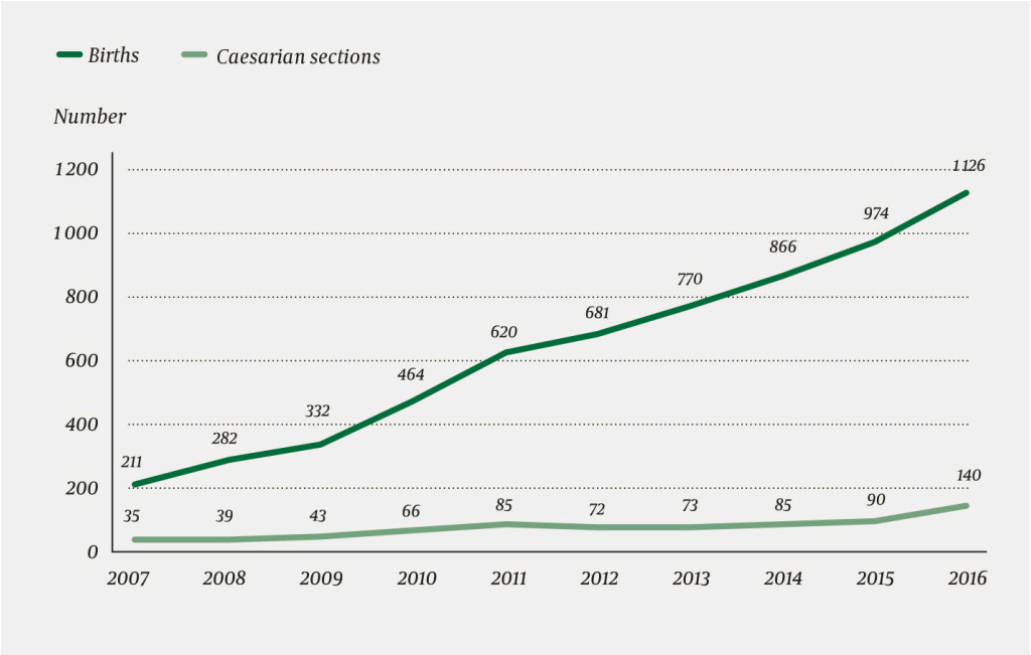

Figure 2 The number of births at Okhaldhunga Hospital has increased more than fivefold in the last decade, while the number of caesarian sections has quadrupled

The maternity waiting home in Okhaldhunga

Okhaldhunga Community Hospital serves the population in Okhaldhunga District, but because several of the neighbouring districts lack a functioning hospital (defined as a place where there is continuous emergency preparedness for caesarian section), it also serves large sections of the population there. Officially the hospital has only 50 beds, but last year the average number of hospitalised patients was 63.5, meaning an average patient occupancy rate of 127 %.

The hospital is owned and run by the international missionary organisation United Mission to Nepal. Normisjon, a Norwegian missionary organisation, has made a significant contribution to extending and refurbishing the hospital in recent years. The hospital management and 95 of the 97 employees are Nepalese. Currently eight doctors (five in training positions and three consultants) and 39 medical care workers (nurses, nursing assistants and care assistants) work at the hospital.

The hospital runs the maternity waiting home. Only one employee, an Auxiliary Nurse Midwife (ANM), is attached to this. The residents receive simple foods such as rice, oil and vegetables free, and cook for themselves. The ANM performs a daily routine check-up of all the pregnant women, and teaching on health is provided every morning, attended by both the women and their relatives. Topics are generally related to pregnancy, birth and the neonatal

period, or to family planning. Close contact is established with the residents of the maternity waiting home. At the end of their stay there, when the new mothers have returned home with their newborn infants and need advice, it is often the maternity waiting home that they turn to, as they are familiar with it. The short stay in the maternity ward is often more impersonal. Last year, a total of 441 pregnant women were admitted to the maternity waiting home, amounting to 3 953 patient days, plus an equal number of days for accompanying relatives.

Pregnant women undergoing high-risk pregnancies who live far from the hospital are invited to stay at the maternity waiting home for up to two weeks before their due date. The maternity waiting home is situated in the hospital grounds, but those staying there are not defined as having been admitted to the hospital. They stay there free of charge. The definition of high-risk pregnancy is broad, and includes for example all primiparous women. They must all have a companion who can function as their next of kin during labour. Last year, pregnant women from areas outside Okhaldhunga District constituted 27 % of the women admitted to the maternity waiting home (Nirmala Shrestha, ANM in the maternity waiting home, private communication). None of the neighbouring districts have maternity waiting homes.

The users of the maternity waiting home

From September 2016 to February 2017, a survey was conducted among the 201 pregnant women who were admitted to the maternity waiting home in that period. Of these, 195 later gave birth at the hospital. Of the six who did not give birth at the hospital, two gave birth at other hospitals and four travelled home before the birth.

All of the 195 women who gave birth at the hospital were interviewed twice, first upon admission to the maternity waiting home, and then at discharge from the hospital after the birth. Participation in the survey was voluntary and informed consent was obtained first. The survey was commissioned by the hospital's Internal Management Committee, based on a wish to quality-assure the activity at the maternity waiting home.

Altogether 69 % were primiparous. The users had an average age of 22.8 years. The two youngest were 16 years old. A total of 32 % were under 20 years of age, while only 10 % were over 30 years.

The average travel time to the hospital was 3.9 hours. Altogether 16 women had spent eight hours or more on the journey. The journey to the hospital cost an average of 1 496 rupees (= NOK 120) and was mostly made by bus, jeep or motorcycle. A little less than one-third of the women walked a significant part of the way on foot. One woman had spent 12 000 rupees to reach the hospital – a journey of 12 hours by jeep.

The women staying at the maternity waiting home must be accompanied by a relative to provide help and support, also in the event of complications arising. Most often they were accompanied by their husband (two-thirds), 11 % by their

mother-in-law and the remainder by another female relative. Only one of the pregnant women had no relative accompanying her during her stay.

The women were transferred from the maternity waiting home to the hospital's maternity ward at the onset of labour. In a few cases, such as in connection with acute complications during the pregnancy (for example, severe preeclampsia), this occurred earlier. The duration of stay at the maternity waiting home was on average 8.6 days (distribution 1–36 days). Of the 195 births, 24 were caesarian sections, approximately the same percentage as for all the births at the hospital in that year. Of the remaining births, 20 were vacuum deliveries. Postpartum haemorrhage requiring treatment was registered for nine of the vaginal births, three of which needed blood transfusions.

Cost-effective birth assistance

A large number of the women who availed themselves of the maternity waiting home were young, one-third were teenagers and more than two-thirds were primiparous. This group is especially important to reach, as teenage mothers may easily fall outside the sphere of organised maternity care. As many as 58 % of teenage mothers in Nepal give birth with no trained birth attendant present. This is higher than for other age groups (2). The maternity waiting home can most likely reduce this percentage for the youngest and most vulnerable pregnant women.

Even though the journey was planned and therefore most often by bus, many had a long way to travel and considerable travel expenses (average travel costs of 1 496 rupees represent a major expense when a daily wage is around 400 rupees). The alternative is not to begin the journey until labour has started. Then it is more urgent, and the women must frequently rent a private jeep or ambulance. These are much more expensive and often very difficult or impossible to get hold of, for example at night.

In 2016, a little more than 40 % of the women who gave birth in Okhaldhunga Community Hospital came from the hospital's maternity waiting home. Most of these were young, primiparous women. Many had additional risk factors, but not all. Presumably very many of them would have given birth at home in their villages had it not been for the offer to stay at the maternity waiting home. In that case they would have been deprived of life-saving obstetric assistance, for example surgical deliveries and treatment for postpartum haemorrhage, preeclampsia and infections. A recently published study from the hospital concluded that the rate of caesarian sections was low, and that there were no signs of unnecessary use of caesarian section (9). There is therefore reason to assume that these procedures were necessary.

Total costs of running the maternity waiting home throughout the year amounted to NOK 103 000, equivalent to NOK 234 per birth. Of these costs, NOK 56 000 was spent on food and 47 000 on the nursing assistant's salary. In areas with scattered settlement and poor infrastructure, the maternity waiting

home is a cost-effective method of improving the availability of birth assistance at the hospital. Our experience shows that the effect may be particularly great for young, primiparous women.

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