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Delay in safe motherhood

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Chapter 1

Introduction

Maternal and neonatal death in international perspective

Pregnancy and childbirth is a life-event experienced by more than one hundred million couples all over the world every year. Most often things go well but sometimes complications occur. When this happens, the chances of a good outcome for the mother and her newborn will depend on the location where the woman is giving birth. Gross inequality exists in this world and the chance of a woman dying from complications related to childbirth is 100 times higher in resource-poor as compared to resource-rich settings.¹

Millenium Development Goals

At the dawn of the new millennium, world leaders of 189 countries came together and adopted the “United Nations Millenium Declaration”. It cited freedom, equality (of individuals and nations), solidarity, tolerance, respect for nature and shared responsibility as six values fundamental to international relations. In addition, it also identified eight clear objectives, the “Millennium Development Goals”(MDGs). The MDGs would lead to a world in which globalization becomes a positive force for all and in which benefits are evenly shared and cost evenly distributed. Two of these goals form the base of this thesis:²



MDG 4: Reduce the underfive mortality rate by two-thirds, between 1990 and 2015;



MDG 5: Reduce the maternal mortality ratio by three quarters, between 1990 and 2015, and achieve universal access to reproductive health by 2015.

In 2008, half way towards the target date, we were still far from reaching these goals.³ The underfive mortality rate per 1000 live births had decreased from 103 to 80 between 1990 and 2006, but this rate of decline is too slow to be able to reach the proposed millennium development goal. Thirty-seven percent of underfive deaths occur in the first month of life. Neonatal mortality lags behind more than infant mortality, pointing to complications of pregnancy and childbirth. Improving maternal and neonatal care might help to reduce these numbers.

For mothers the situation is worse. The Maternal Mortality Ratio (maternal deaths per 100.000 live births) for the developing regions decreased from 480 to only 450 between 1990 and 2006. In sub-Saharan Africa almost no progress has been made.¹ However, some progress has been made in the proportion of births

which were attended by a skilled birth attendant and in the proportion of women who receive antenatal care at least once during their pregnancy.³

Maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes (ICD-10). Most maternal deaths in low income countries occur as a result of a direct cause. The five most important direct causes are obstetric haemorrhage, hypertensive disorders of pregnancy, puerperal sepsis, abortion and obstructed labour.⁴ Most deaths seem to occur at the end of pregnancy or just after birth and a large proportion of these deaths take place in hospital. These deaths in hospital include the women who arrive there too late to be saved but it also includes women who could have survived with appropriate and timely intervention.⁵

Phases of delay

Most maternal deaths can be avoided if appropriate treatment is started in time. Delay in receiving appropriate care can, therefore, be considered as the main factor contributing to maternal mortality. However, delay can take many forms and has a wide range of causes. The causes are certainly not limited to the patient who is seeking care too late but may occur at any time between the onset of a problem and the outcome. With the aim of getting a better grip on these different causes Sreen Thaddeus and Deborah Maine describe a conceptual framework to classify delay. They distinguish three phases:⁶

- Phase one is the time it takes between the onset of a complication and reaching the decision, by the woman and/or her family, that transfer to a healthcare facility is necessary.
- Phase two is the time it takes between making the decision to seek care and reaching the health care facility.
- Phase three is the time it takes from reaching the health care facility and the initiation of the appropriate treatment.

These different delays have different underlying problems. Delay in the decision to seek care is influenced by the distance to the health care facility and to the cost of travelling there. In addition, it is related to the capability to recognize a problem and to the decision making power and capabilities of the women and their relatives. Lastly, the perceived quality of care will play a role. This is an important observation in the context of this thesis. While empowering women or

lowering transport cost will not be in the direct sphere of influence of a physician, improving quality most definitely is.

Delay in the second phase, reaching the hospital, occurs mainly due to transport issues. The availability of transport, length of the road and road conditions will all influence the time it takes to travel to a hospital.

Many deficiencies in the health care system may account for delay in the third phase, delay that occurs after a woman has reached a hospital. Shortage of equipment and drugs, shortage of staff, but also late recognition of symptoms and inadequate management of the woman and, lastly, the hospital administration as a whole may all contribute to maternal death. The three phases are not independent from each other. For instance, the decision to go to a hospital will be influenced both by a woman's previous experience in hospital and by the distance she will have to travel.

Reducing delay

To influence the prevalence of maternal and neonatal death, interventions must aim at these three different phases and it will depend on the local circumstances at which phase the most effective intervention must aim. In a resource poor environment it is likely that delay in all phases will play a role.

In countries in which resources are plentiful and healthcare is easily accessible, efforts predominantly have to focus on improving the quality of care, which on the other hand does not implicate that all women will arrive in hospital in time.

For the purpose of this thesis several interventions aimed at reducing the different phases of delay in different countries and under different circumstances were evaluated. Locations and circumstances were determined by the place of work and interests of the author. These interventions all have in common that they fall within the direct sphere of influence of the doctor. It is the doctor, either as a manager or as a clinician or a teacher who can make a difference. However, this does not mean he or she can do it alone. Provision of healthcare is teamwork in which every player is important.

Several questions form the basis of this thesis. These cover a range of interventions aimed at reducing delay. The first part of this thesis, chapters two and three, deal with the maternity waiting home. This is a facility close to a hospital where women can await labour at the end of their pregnancy. In Zambia, we tried to establish the effectiveness of the maternity waiting home at Nyanje Hospital. In this hospital based cohort we focussed on the difference between women delivering in hospital after labour had started elsewhere and compared

these to the women who had stayed in the maternity waiting home and, therefore, were in hospital when labour started.

Nyanje is a remote village in Zambia and what works in Nyanje will not necessarily work in other parts of the world. In chapter three we, therefore, examined the literature and tried to answer the same question in a broader sense: what is the effectiveness of maternity waiting homes and what are the barriers that may inhibit access to this service.

Once a woman is giving birth in hospital, complications may occur which need prompt intervention. These emergencies often occur unexpectedly. Healthcare workers need to be properly prepared to start appropriate and timely treatment. In chapter four and five interventions aimed to improve the provision of care in emergencies were evaluated. In chapter four the effect of training obstetric emergencies was examined. In Europe and North America, focussed training aimed at a structured approach towards emergency medical situations is increasingly popular. The effectiveness of such an approach for the treatment of obstetric emergencies in a low resource setting was examined. Do participants appreciate such a course, does their knowledge improve, do they learn the necessary skills and, most importantly, do women and their newborns benefit from this improvement? An alternative way to change behaviour is addressed in chapter five: the effect of a standardised evaluation and treatment form for the treatment of eclampsia in a high volume referral hospital in Lilongwe, Malawi, is examined. The aim of such a form is to remind health care staff of what is important in the management of eclampsia, with the ultimate aim of changing behaviour followed by quality improvement.

Chapters six and seven focus on improving peripartum care in the Netherlands. While the maternal mortality ratio is magnitudes lower as compared to sub-Saharan Africa, there still is room for major improvement. Also in the Netherlands, substandard care factors play a major role in cases of maternal mortality and morbidity.⁷⁻⁹ In Chapter six an attempt is made to establish whether there is a valid method to measure the skills to solve and treat shoulder dystocia and postpartum haemorrhage. Such an evaluation could be used to establish whether individual frontline providers during childbirth, such as midwives, residents or general practitioners, can safely be left in charge.

While it is doubtful that only deficient skills of these individual healthcare providers are contributing to the delivery of substandard care, teamwork, communication and situational awareness are now recognized to play a significant role. Video capture of the management decisions and execution in the labour room, especially in case of unexpected complications, may provide useful information and could be used for teaching and feedback purposes. In chapter

seven emotions and perceptions with regard to the use of video capture for quality of care purposes during the provision of care in the labour room were examined. A focus group discussion with labour room staff and patients was employed to gain insight in the advantages and barriers that may be present if such a project is to be started.

All over this world women are still dying as a result of pregnancy while many of these deaths could have been avoided. The interventions described in this thesis can hopefully contribute to improved care and a reduction in the maternal death rate.

Reference List

1. Hill K, Thomas K, AbouZahr C, Walker N, Say L, Inoue M et al. Estimates of maternal mortality worldwide between 1990 and 2005: an assessment of available data. *Lancet* 2007; 370(9595):1311-1319.
2. United Nations. United Nations Millennium Declaration. Resolution adopted by the General assembly, 55th. Session of the United Nations General Assembly. 55/2. 8-9-2000. New York.
3. Millenium Development Goals Report 2008. 2008. New York, United Nations Department of Economic and Social Affairs.
4. Khan KS, Wojdyla D, Say L, Gulmezoglu AM, Van Look PF. WHO analysis of causes of maternal death: a systematic review. *Lancet* 2006; 367(9516):1066-1074.
5. Ronsmans C, Graham WJ. Maternal mortality: who, when, where, and why. *Lancet* 2006; 368(9542):1189-1200.
6. Thaddeus S, Maine D. Too far to walk: maternal mortality in context. *Soc Sci Med* 1994; 38(8):1091-1110.
7. Zwart JJ, Richters JM, Ory F, De Vries JIP, Bloemenkamp KWM, van Roosmalen J. Severe maternal morbidity during pregnancy, delivery and puerperium in the Netherlands: A nationwide population-based study of 371 000 pregnancies. *BJOG Int J Obstet Gynaecol* 2008; 115(7):842-850.
8. Schutte JM, Schuitemaker NWE, van Roosmalen J, Steegers EAP. Substandard care in maternal mortality due to hypertensive disease in pregnancy in the Netherlands. *BJOG Int J Obstet Gynaecol* 2008; 115(6):732-736.
9. van Dillen J, Lim F, van Rijssel E. Introducing caesarean section audit in a regional teaching hospital in The Netherlands. *Eur J Obstet Gynecol Reprod Biol* 2008; 139(2):151-156.