Maternal Deaths in 1990 at Kamuzu Central Hospital

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What are the main causes of maternal death in Malawi, and can we prevent these deaths? With this question in mind the maternal deaths that occurred at the Kamuzu Central Hospital in Lilongwe during the year 1990 have been analyzed. The results show that the majority of women died as a direct result of complications of pregnancy. Education is of prime importance in preventing these deaths, and it is vital that men are included in the education process. Adequate staffing of all health facilities dealing with the care of women in labour is mandatory.

Introduction

Maternal death is the death of a woman during pregnancy or within 42 days of the ending of a pregnancy.

The cause of death may be direct or indirect. A direct cause is one which can be attributed to an obstetric complication of pregnancy, labour or the puerperium. An indirect cause is one attributable to previously existing disease or disease that developed during the pregnancy, which was aggravated by the physiological effects of pregnancy.

WHO has estimated that there are approximately 640 maternal deaths per 100,000 live births in Africa [1]. During the triennium 1985-1987 the rate in the U.K. was 7.6 per 100,000 total births [2]. There is thus an enormous disparity between rich and poor nations. We cannot accurately assess the rate in Malawi, because many of the deaths are not reported and the total number of births is not known. However it is clear that the rate is very high. By looking at the causes of these deaths in detail we will be in a better position to consider ways of improving the situation.

The following is an analysis of the maternal deaths at the Kamuzu Central Hospital in Lilongwe during the year 1990. The women died either at the Bottom maternity hospital, where all the non-paying patients deliver, or on the gynaecology ward of the Kamuzu Central Hospital. There were no deaths on the paying maternity ward.

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Methods

This was a retrospective study. The records of all maternal deaths that take place in the Bottom hospital are kept aside by the ward clerk. The gynaecology ward has a 'death book' that is filled in by the nurse on duty when a patient dies. Through this book the case files of the patients were traced.

As much information as possible was then extracted from the notes.

Results

The records of 74 maternal deaths were available.

Table Maternal Deaths Kamuzu Central Hospital, 1990

	Direct	Indirect	Total
Total	60	14	74
Deaths Under 28 weeks:	15	9	24
of which: after abortion	14	2	
ectopic	1	0	
undelivered	0	7	
Deaths from 28 weeks gestation to 6 weeks postpartum	45	5	50
of which: Undelivered	6	3	
Delivered	39	2	

The patient's age was either unknown or not recorded in over half of the cases, however it is of interest that 10 women were aged between 16 and 19 years. Of these 4 were indirect deaths and 6 were direct deaths.

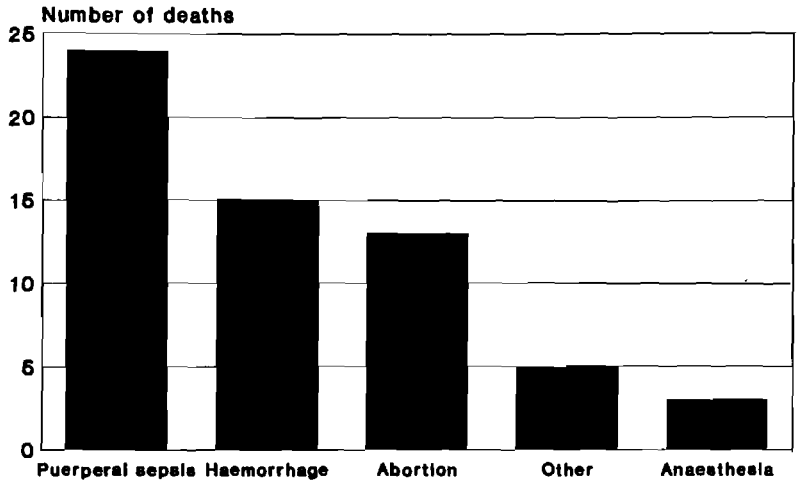
Analysis by parity showed 21 deaths were para 1, 28 were para 2-5, and 17 were para 6-10. Parity was unknown in 8 cases.

DIRECT DEATHS

The causes of death are shown in the figure.

Only 23 women (38%) were documented as having received some antenatal care. This may be an underestimate, but women are usually good at

Causes of direct maternal deaths
Kamuzu Central Hospital, 1990



bringing their antenatal records with them to hospital.

Transport delays were noted in 8 (13%) cases. However documentation was often poor and it is likely that this was a relevant factor for many more women.

21 women (35%) developed complications after either delivering, or attempting to deliver, in the village. 4 had been under the care of Traditional birth attendants (TBAs).

31 women (52%) died within 24 hours of admission, and of these 24 died within 4 hours.

In 10 cases (17%), management of labour at either health centres or hospitals could have been improved upon.

21 (35%) women had complications directly attributable to prolonged labour. This is likely to be an underestimate, as details were not always available in the notes.

A) *Deaths from puerperal sepsis, excluding abortion* - There were 24 (40%) deaths from puerperal sepsis. 15 women delivered vaginally, 7 delivered by Caesarean section, and two died undelivered.

12 of the vaginal deliveries occurred in the village, 1 at a health centre and 2 in hospitals. Of those delivering in the village, 5 admitted that labour had been prolonged, but for the others no information was given. One patient had delivered on the day of admission, the others were at least 48 hours postpartum and 3 were in their third postpartum week. In one case there was evidence of traditional medicine in the vagina. 5 died within 24 hours of admission. These facts illustrate that delay in seeking medical help was common.

The woman delivering at a health centre was referred 3 days later, and a ruptured uterus was diagnosed. Hysterectomy was undertaken, she died almost 4 weeks later.

Of the hospital deliveries, one was referred because of a transverse vaginal septum,(which probably delayed the diagnosis of labour), severe anaemia and an intrauterine death. Vaginal delivery was achieved, but she did not survive the overwhelming septicaemia. She received 2 units of blood. The other patient was referred 2 weeks after delivery. She developed puerperal sepsis and her relatives decided to try a traditional healer. She returned to hospital terminally ill having developed septic arthritis and pneumonia. 7 women died from sepsis following caesarean sections, of which 5 were for obstructed labour. Two of these had delayed in labour at home, but 3 had suffered prolonged labours at health institutions, where warning signs were ignored. In one case there had been inappropriate and prolonged use of pitocin for a retained second twin. These latter 3 cases all required hysterectomy because of peritonitis and necrosis of the uterus, and in two cases a bladder injury unsuspected at the time of caesarean section was found. 2 caesareans were for other reasons. One was for a transverse lie with premature rupture of the membranes in early labour. The patient was pyrexial and the liquor offensive. A transverse incision was made in the lower segment, and a traumatic delivery ensued, necessitating the conversion of the incision to an inverted T. The baby died. The increased blood loss was not replaced and peritonitis with overwhelming septicaemia rapidly followed. The remaining caesarean was performed for an antepartum haemorrhage (APH) due to placenta praevia at 32 weeks gestation. The patient was discharged from hospital but was readmitted 3 weeks later with septicaemia and peritonitis. At laparotomy a bladder injury was found, partially sealed by omentum.

These cases illustrate that a caesarean section can be technically very difficult. Although the cause of death in each was primarily due to septicaemia, the increased blood loss from the difficult deliveries undoubtedly contributed to the deaths.

Of the 2 patients who died undelivered, one had an intrauterine death, complicated by prolonged rupture of membranes. Labour had been aug-

mented with pitocin, but delivery did not ensue. She was kept 2 days before being referred to the KCH, and died soon after arrival. It is possible this lady had an unsuspected ruptured uterus.

The other patient had been in labour for a long time at home. She was admitted moribund with septicaemia.

B) *Deaths from haemorrhage* - There were 15 deaths (25%) directly attributable to haemorrhage. 4 were from APH: 3 due to placenta praevia (one dying undelivered) and 1 abruption, 4 from postpartum haemorrhage (PPH), 5 from ruptured uterus and 2 from traumatic caesarean sections.

12 women died within 24 hours of admission, of which 9 died within 4 hours, 4 before they could be delivered. Blood was found for only 5 women, and no one received more than one unit. 9 of the women were para 6 or more, 2 were primigravidae.

In the PPH group, 3 women delivered at home, and one delivered on her way to hospital.

Of the cases of ruptured uterus, 1 had been in labour for a long time at a TBA and the remaining 4 had been referred late from Health Centres. 3 died undelivered.

The traumatic caesarean sections were both for obstructed labour, and excessive haemorrhage resulted from tears in the uterus and vagina. One patient had been kept too long at a health centre, and the other had stayed too long at home.

C) *Deaths following abortion* - There were 13 direct deaths (22%) from complications of abortion. 11 died from sepsis and 1 from haemorrhage, and of these, 8 were known cases of induced abortion. There was one sudden unexplained death in a patient admitted with an incomplete abortion.

D) *Anaesthetic related deaths* - There were 3 deaths which occurred between 30 and 60 minutes after completion of caesarean section. All were in satisfactory condition prior to surgery, but were deeply unconscious when they arrived on the ward afterwards, and never regained consciousness. The indications for surgery were fetal distress, cephalo pelvic disproportion and polyhydramnios with delay in labour. In one case blood loss was more than average, but haemostasis had been achieved and there was no evidence of either external or internal bleeding when she died. Post mortems were not performed in any of these cases, so the precise cause of death is not known. The absence of a recovery area in the Bottom hospital, and shortage of nursing staff, are not conducive to the proper care of patients after major surgery especially in such a busy unit.

E) *Deaths from other causes* - There were 5 deaths from other causes. These included a ruptured ectopic, renal failure following eclampsia that developed after a home delivery, and renal failure and emaciation following hyperemesis gravidarum. The latter patient had been admitted 1 month previously with hyperemesis and was readmitted after aborting at home. She had obviously stayed in a poor condition at home for some time. The abortion was considered to be secondary to her illness, and not the main cause of death.

2 women died from hepatic failure in the third trimester. Both were admitted semiconscious, 1 had a history of convulsions at home, the other was noted to be "irritable" on admission. Both delivered soon after arrival and died within 24 hours. They have been included in the direct maternal deaths, (eclampsia, acute fatty liver of pregnancy) but it is also possible that they were indirect deaths (fulminating liver failure from hepatitis). Unfortunately insufficient information was available.

INDIRECT DEATHS

A) *Deaths due to anaemia* - Six women died from anaemia in pregnancy. One was 16 weeks gestation, and the others were all between 24 and 28 weeks. Two were primigravidae. Five women died without receiving any blood and the other patient only received one pint.

B) *Deaths from other medical causes* - There were 8 deaths in this category. One death was from cardiac disease, 2 were from meningitis, and 4 were from pneumonia. There was one death from haematemesis from oesophageal varices.

Discussion

It is clear that most of these deaths resulted from very basic problems, and not from a lack of "high technology". The majority were direct deaths, and of these 52% arrived in such poor condition that they died within 24 hours, and half of these died from haemorrhage. The availability of blood is poor in all hospitals because the general public is not prepared to donate. Plasma expanders are not always available. Thus all patients have to find their own donors. Traditionally it is an elderly female relative who accompanies a pregnant woman to hospital. This must be changed so that it is the husband who travels with his wife. He will then be immediately available to donate blood if the need arises. The female guardian can come later.

Puerperal sepsis was the commonest cause of death, and over half of the cases had delivered or attempted to deliver in the village. Lack of transport is an important factor, but often the patient states that her relatives made her stay at home. The

hospital is perceived as the last resort. More health education at village level is necessary, not only of TBAs but of the whole community.

Of prime importance is improving both the nourishment and education of girls. These are the mothers of the future. They must be encouraged to go to school, and to complete their education. Obstructed labour is less likely when a woman has reached her full growth potential, and the educated woman is more likely to understand the importance of health care. She will be better equipped to deny those aspects of tradition that militate against a healthy delivery.

Deaths from induced abortion are obviously completely preventable! However, this requires the ready availability of contraception for all women who need it. Unwanted pregnancy leads either to induced abortion or to the birth of a child that is perceived as a punishment and is thus under-privileged from birth. Although always a controversial subject, it has been shown that the legalisation of abortion for women who find themselves unacceptably pregnant causes an immediate fall in maternal mortality [6].

17% of women died after suboptimal management at either health centres or hospitals. Usually this was because signs of abnormal labour were ignored. The labour graph is designed to prevent prolonged labour. One centimetre an hour is the slowest acceptable rate of cervical dilatation [3]. When slower than this a woman should be transferred from a health centre to a hospital for delivery. In hospital a decision must be made immediately as to why labour is abnormal, and appropriate action taken.

Difficult caesarean sections were a contributory cause of death for many women. The caesarean section done for obstructed labour is always difficult. Blood loss may be excessive, and the patient will be at great risk from puerperal sepsis. Uterine and vaginal tears are inevitable unless a generous incision in the lower segment is made, with scissors and not by digital tearing [4]. The latter inevitably leads to extensions of the tear into the uterine vessels and/or vagina when the baby is extracted. Using scissors the incision can be directed upwards at each angle, so giving more room and avoiding the uterine vessels. To aid delivery an assistant should push the presenting part out of the pelvis just before the uterus is opened. A vertical incision should sometimes be made in the lower segment rather than a transverse one.[4,5] This is mainly used for cases of transverse lie, when the membranes are already ruptured and the baby is alive. It allows extension into the upper segment if necessary, and does not always imply tubal ligation.

Decision making in obstetrics is not easy. There should be someone in every hospital experienced in obstetrics, who can perform destructive operations, symphysiotomy and emergency hysterectomy. Labour wards need enough trained midwives to cope with the workload, otherwise it is impossible for them to identify abnormalities in time. All health centres must have ready access to transport. Unfortunately the Central hospital often does not have transport either. A dedicated obstetric ambulance may be a solution.

Women can only be expected to deliver in our health institutions if they can see that the outcome for themselves and their babies is better than in the village.

This article has looked at maternal death. We must not forget the many women who are maimed by childbirth, those that suffer the indignity of a vesico vaginal fistula, and those who are rendered infertile from puerperal sepsis. Many are teenagers.

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