

CHAPTER 11

OBSTETRIC ARGUMENTS ABOUT THE DIRECT CAUSES OF MATERNAL DEATH AND THE RISK OF ENCOUNTERING THEM

11.1 CAUSES OF DEATH AND DIFFERENCES OF MEDICAL OPINION ABOUT THEM

The international breakdown of direct obstetric deaths, that is deaths of women from conditions directly related to pregnancy and birth are these:

haemorrhage - 28%
induced abortion - 19%
hypertension - 17%
other - 15%
infection - 11%
obstructed labour - 11%

(Kwast, 1991a)

As we have seen, one school of thought about maternity services argues that these cannot be predicted while another school argues that prediction, and early treatment are possible. The second school comes closest to mainstream obstetric thinking about complications and about the risk of those complications arising, a perspective which can be summarised as ‘no birth is normal except in retrospect’. This is the core assertion of the medical model of birth. But even within mainstream obstetrics, there is no consensus about what is ‘normal’ and how complications arise. This chapter sets out the main lines of argument about the complications which kill women.

Obstetricians do not necessarily agree with one another about how and why these complications occur and how they should be treated. One reason for this level of disagreement is the rapid evolution of practices from experimental, small-scale efforts to standard widespread use without evaluation. There may well be two or three standard approaches to a problem or complication but none of these will have been submitted to rigorous testing, and neither perspective agrees with the other. We must understand the range of their arguments in order to begin to reach any reasonable conclusions about what are or are not appropriate birth practices. In reviewing the principal complications of pregnancy and birth, we have drawn on standard obstetric teaching texts, including the north American text, *Williams Obstetrics*, which is

widely used for teaching in Bolivia. We have also used the ongoing evaluation study that originated in the National Perinatal Epidemiology Unit in Oxford, England known as *Effective care in pregnancy and childbirth* which is updated on the Cochrane database (see footnote 10 p. 251). For the sake of convenience of the reader who may not have access to the Cochrane database, all references to this body of work are drawn from the latest published summary in hard copy, *A Guide to Effective Care in Pregnancy and Childbirth*, Second Edition, by Enkin et al. (1995).

11.2 OBSTETRIC HAEMORRHAGE

In the public health literature on maternal mortality, obstetric haemorrhage is isolated as the greatest single factor which contributes to an estimated 150,000 maternal deaths worldwide annually (Kwast, 1991b: 64). Obstetric haemorrhage can be divided into two categories, haemorrhage before birth (antepartum) and haemorrhage after birth (postpartum haemorrhage or PPH).

11.2.1. Antepartum haemorrhage

There are three major causes for antepartum haemorrhage in the latter half of pregnancy:

- (a) Placental abruption - where the placenta accidentally detaches and there is an external or concealed haemorrhage. A concealed haemorrhage where the blood is retained between the detached placenta and the uterus is especially hazardous for the woman, as the existence of haemorrhage may go completely unrecognised. The frequency of placental abruption varies in relation to the criteria for diagnosis but on average is 1 in 150 births or 0.66%. It may be associated with increasing age and parity and with pre-eclampsia or eclampsia, although the primary cause is unknown. It appears to be most common in African-American women, least common in Latin-American women (Cunningham, 1993: 826-8).
- (b) Placenta praevia —which is thought to occur in slightly under or slightly over 0.5% of pregnant women (Cunningham, 1993: 836; Enkin et al., 1995: 137).
- (c) Bleeding of uncertain origin.

In all three instances, there are increased probabilities of infant death. Although the frequency of occurrence is very small, under 2% for placental abruption and placenta praevia, perhaps 3% for all forms of antepartum haemorrhage (Silverton, 1993: 203),

maternal death can be an outcome where there is massive bleeding and the woman has no access to hospital facilities. Treatment is blood replacement therapy and prompt delivery of the baby (the latter should not automatically mean a Caesarean section because a section may lead to further blood loss for the mother, compromising her well-being, but it is the most common approach —see Cunningham, 1993: 832-3). Maine (1991: 42) estimates that in the case of a serious antepartum haemorrhage, where the mother is badly compromised by blood loss, there is a 12-hour interval, on average, between its onset and death.

11.2.2 Postpartum haemorrhage

Postpartum haemorrhage or PPH is the greatest single cause of death in childbirth world-wide. And, even though there is no firm statistical breakdown of maternal deaths in Bolivia, there are several studies at local and regional level which point to PPH as a substantial contributory factor in women's deaths (Howard-Grabman, 1993: 9,71; Solle de Hilari, 1994: 19; ILCA, 1995b: 12-13). One regional hospital has cited retained placenta/PPH as being the greatest single observable reason for maternal deaths in the northern Chayanta province (see above, Chapter 9.4). Therefore it is important to have a full understanding of the current debate about postpartum haemorrhage in obstetric and public health literature.

The definition of PPH, a blood loss of 500 ml., is the accepted WHO definition although there are several problems associated with it:

- (a) It is very difficult to estimate blood loss and estimates are necessarily arbitrary;
- (b) Although 500 ml. can be a tolerable blood loss for a woman who has excellent general health, the woman who is severely anaemic, or who has already had an antepartum haemorrhage or prolonged labour, eclampsia or sepsis, may suffer a threat to her health and life with a blood loss as little as 250 ml. (Kwast, 1991b: 65).

In her overview of maternal mortality, Kwast has gathered all available data from review studies on the reasons for PPH and presents the following breakdown of causes:

- 47% - uterine atony, where the uterus is too flaccid to contract effectively
- 18% - retained placenta or placental tissue fragments
- 18% - vaginal or cervical lacerations
- 12% - episiotomy
- 5% - ruptured uterus

(Kwast, 1991b: 66)

This breakdown is based on a large-scale Nigerian study and illustrates one of the principal difficulties in accounting for PPH and, on that basis, designing effective strategies (see also Chapter 10). The percentage of women experiencing deliberate vaginal lacerations, for example, in addition to tears during the course of labour which can also cause major bleeding, may well represent cultural practices that are limited to particular geographical areas. Practices such as the '*gishiri*' cuts are commonplace in western Africa, but are not part of the contemporary cultural practices in the Bolivian Andes and are thus not a contributory factor to PPH.

Kwast argues in favour of the risk approach to identify predisposing factors to PPH and includes the schedule which the WHO argues are broadly predictive. Firstly, she notes that morbidity and mortality rates are higher among women of lower socio-economic status. Women from this group are far more likely to experience severe anaemia for instance and thus are more likely to be severely affected by PPH.¹ More specifically, the major predisposing factors are primiparity, grand multiparity (here defined as more than 5 children), and anaemia. The most likely antenatal factors are large baby, placenta praevia, previous Caesarean section, or an intrauterine death. However, Kwast does say that many of these are not specific enough for the purposes of screening. Hibbard (1988: 676) says of a similar list of predisposing factors that they are seldom present in more than a third of women who experience PPH. On the other hand, Kwast argues that a previous third stage complication seems to create a risk of a postpartum haemorrhage two to three times greater than that of women without this history (Kwast, 1991b).

Other factors which can contribute to PPH that Kwast cites are traditional belief systems such as a flow of blood being seen as a way to rid the body of bad blood and therefore not being recognised as PPH, and practices such as the manual removal of the placenta, cord-pulling, pressure on the abdomen with a broom, and making the woman gag to get the placenta to deliver. However, none of the data she draws on

¹ It is argued that almost half of the women who give birth vaginally and almost all who have Caesarean sections lose at least 500 mls. and more of blood without any great decrease in postpartum haemocrit and thus with no especial risk to their health or lives (Cunningham et al., 1993: 819) but this is within hospital settings in developed countries where the incidence of seriously anaemic women will be reduced anyhow. However, this is a contested area of research findings. Cunningham et al. (1993) suggest that there can be a protective effect for women with lower than average haemoglobin levels in dealing with postpartum haemorrhage as do Enkin et al., (1995: 29-30). The latter comment that 'except for genuine' anaemia, women with lower haemoglobin levels may do better in birth and that routine iron supplementation is not justified. Although there are changes in the blood in the early stages of pregnancy that lead to reduced levels of haemoglobin anyhow, the difficulty is in separating the real instances of anaemia and which undoubtedly prevail in populations marginalised by poverty. The rule of thumb policy in the hospital sector in Bolivia is that every woman with a haemoglobin level <10 should receive a transfusion although this is not necessarily carried out due to lack of blood supplies and lack of money. During fieldwork in Sucre, an exchange was observed between doctors and the family of a Quechua woman who had given birth the previous day and whose baby had died. The woman was told she needed this transfusion but there was no money to pay for it. Her husband begged that his blood be used, he was told that wasn't possible (Murphy-Lawless, Fieldwork Notes, 6th April, 1995)

comes from the Andean context and most of the practices she lists are not in use in the Andes (see Chapter 13.4.3 below). Also, it is impossible to know whether some of the practices of themselves actually precipitate PPH. Making the woman gag, by using a wooden spoon down a woman's throat or by blowing on a gourd or by inhaling pepper all indeed do lead to a strong downward movement of the diaphragm but this may actually be on a par with urging women to push in hospitals and may be less harmful than the fundal pressure regularly employed in hospitals.²

On the whole, then, Kwast's analysis brings us back to considering Maine's thesis, that although basic factors, such as increasing parity, resulting in an overstretched uterus, or previous third stage problems can indicate who might be at risk, PPH will also affect women who fall outside these parameters and this fact reduces their effectiveness as a screening mechanism.

Does the obstetric literature throw any greater light on PPH and why it occurs?

Certainly, how biomedical practitioners define the major causes of postpartum haemorrhage has a major influence in turn on how the third stage of labour is handled. In recent years, there has been an extensive debate on this part of labour care. From the viewpoint of national and international programmes to deal with maternal well-being, it is important to review this debate because obstetric theory has such a dominant influence on possible intervention programmes.

Broadly speaking, there are two schools of thought, the active management of the third stage of labour and physiological management.

Proponents of the active management of the third stage act to minimise what is seen as the risk of postpartum haemorrhage for all women, regardless of their obstetric history. In some ways, then, they run parallel to the argument that because the risk of morbidity and mortality cannot be predicted, state health care services must reflect this reality. Active management is a series of practices underpinned by the availability of an oxytocic drug which is injected prophylactically into the labouring woman to speed contraction of the uterus and therefore prevent the possibility of haemorrhage arising.³

² These are techniques which were common in early modern Europe before birth was hospitalised so completely and which can also be found in early obstetric texts. See Gelis (1991) and Murphy-Lawless (1989).

³ Here I am defining prophylactic use of oxytocic drugs as the routine administration of these drugs to all women, before there is any indication of heavy bleeding or haemorrhage. This routine administration may be carried out at a number of points during labour, from before delivery of the anterior shoulder to after the placenta is expelled. Oxytocic drugs can also be used therapeutically to arrest heavy bleeding or haemorrhage once such an event occurs once the placenta has been expelled. The significant difference is that their use at that point is not premised on the risk of that event but on its actual occurrence.

The three principal elements of active management are:

- (a) The use of prophylactic oxytocic drugs;
- (b) Early cutting and clamping of the umbilical cord;
- (c) Controlled cord traction.

(Gyte, 1994: 183)

It can also entail fundal pressure. In the most rigorous application of active management of the third stage, an oxytocic drug, most usually syntocinon or ergometrine (the former may be preferred to the latter, which is known to cause nausea, vomiting and a significant increase in blood pressure) is injected as a prophylactic, either intravenously or intramuscularly while the anterior shoulder of the baby is delivered (primigravidae) or as the head of the baby is crowning (multigravidae). It is claimed that this method shortens the third stage and reduces maternal blood loss. Once the placenta separates from the uterine wall, it is then delivered with the woman lying flat on her back while controlled cord traction is applied and the uterus is pushed first gently upwards and then downward until the placenta is expelled (Lewis and Chamberlain, 1994: 170-1).

A more modified form of active management is to routinely administer an oxytocic drug, when the anterior shoulder is delivered or as soon as possible thereafter, to cut and clamp the cord early and to use controlled cord traction while manual pressure is applied above the symphysis pubis to the uterus with each uterine contraction until the placenta is expelled (Hibbard, 1988: 468-9).

In a third variant, health personnel deliver the baby, cut the cord almost at once and then wait for signs of placental separation, urging the woman to bear down. If these efforts fail to deliver the placenta, they then apply pressure to the uterus, lifting it, while the cord is held tautly. Fundal pressure may also be exerted through what is termed uterine massage. Whether expression of the placenta has been used or not, an oxytocic drug is routinely injected as soon as the placenta has been delivered as a preventative measure to counteract a possible PPH (Cunningham et al., 1993: 384-5).

In these main variants, there is an assumption that the woman is:

- (a) Giving birth in hospital or within reach of hospital facilities;
- (b) In a supine or semi-sitting position.

Medical authorities differ on the time frame after which difficulties are assumed to arise that might require further intervention. Fifteen minutes after the birth of the baby is one definite time limit, beyond which, treatment for retention of the placenta and excessive bleeding are taken together as the same problem, with responses ranging from massage of the uterus, additional ergometrine or oxytocin, bimanual compression of the uterus and manual removal of the placenta (Hibbard, 1988: 469, 678). Other practitioners write that in the absence of bleeding, there is no definite time limit that can be set before proceeding with manual removal of the placenta. However, they state that the practice of doing manual removal sooner and more frequently now than in past decades is a correct approach. This is the position in the latest edition of *Williams Obstetrics*, for example, (Cunningham et al. 1993: 385) which is one of the key teaching texts in Bolivia. Estimates of what can be considered a worrying maternal blood loss in relation to placental delivery ranges from 350 ml. (Hibbard, 1988: 469) upwards but it is also acknowledged that actual measuring of blood loss is subject to wide variation and problems with observer bias (Bloomfield and Gordon, 1990, cited in Gyte, 1994: 186).

A critical variable in all the active management approaches is that cutting and clamping the umbilical cord before the placenta is delivered is seen, on the one hand, as an unquestioned routine practice. Early cord-cutting is central to the technique of controlled cord traction, if that is being employed. On the other hand, *when* the cord is cut and clamped is seen as a process largely independent in its effects to that of the placenta separating and being expelled. One common recommendation is to cut the cord, once it has stopped pulsating after the baby's birth, approximately three minutes, during which time the baby is held at or below the level where the placenta is presumed to be attached to the uterine wall.

However, the use of oxytocic drugs before the placenta is delivered leads to much stronger uterine contractions. This can and does lead to overtransfusion of blood to the baby (Inch, 1989: 151-2) so that practitioners may have to make a decision about when to cut the cord, choosing between that outcome and the value to the baby of an extra 50 millilitres of blood (if over transfusion does not occur). It is thought that early cord-clamping can lead to feto-maternal transfusion, a complication that is especially grave for Rhesus-negative women (Inch, 1989: 164-5; Gyte, 1994: 194). Early cord-cutting has also been associated with an increase in blood loss and a longer third stage of labour and may predispose to retained placenta and postpartum haemorrhage (Botha, 1968; Enkin et al., 1995: 239).

Proponents of physiological management cite other risks attached to active management. If oxytocic drugs are injected before the placenta is delivered, the latter must be delivered within approximately seven minutes of the injection before the drug induces contractions of the lower segment of the uterus and of the cervix. This is because the impact of the oxytocics is to close them down, with the effect of either trapping the placenta or leading to its partial separation. This may itself lead to increased maternal blood loss and/or the need for manual removal of the placenta. If ergometrine is used, one of the negative outcomes is a rise in maternal blood pressure which can be a serious complication for women who have had high blood pressure and/or toxæmia during their pregnancy (Inch, 1989: 151-3; Begley, 1990: 4). In addition to the nausea and vomiting linked to the use of ergometrine —mentioned above— there are also reported side effects of ergometrine and Syntometrine (when the latter is given intramuscularly). These negative outcomes include: uterine cramping, dizziness, headaches, tinnitus, retinal detachment, and coronary artery spasm. Intracerebral haemorrhage has also been attributed to the use of ergometrine (Begley, 1990: 4-5). Active management of labour, where oxytocic drugs are used, has also been implicated in a greater incidence of the uterus not contracting well and of secondary post-partum haemorrhage, that is a haemorrhage occurring 24 hours or more after a baby has been born (Cunningham et al., 1993: 616).

Arguments in favour of the physiological management of the third stage have arisen in response to these risks and negative effects of oxytocic drugs. These arguments have come in large measure from midwives who have been dissatisfied with the routine use of oxytocics. They have rejected the use of other routine procedures such as: early cutting and clamping of the cord with its problems of disturbing the distribution of blood volume; controlled cord traction, which can pull out a placenta that has not completely separated or even lead to inversion of the uterus; and fundal pressure, which is painful, can bruise the uterine wall and can lead to partial separation of the placenta, provoking the haemorrhage it is meant to prevent (Inch, 1989; Davis, 1992).⁴ Midwives and other concerned practitioners have sought to put together a package which considers all the elements that might affect the third stage as interdependent.

Based on their considerations, the recommendations for a physiological management of the third stage are:

- (a) No prophylactic use of oxytocic drugs;
- (b) No fundal pressure;

⁴ This last point is also made by Cunningham et al. who observe that it can result in incomplete placental separation (1993: 616).

- (c) No clamping and cutting the cord until the placenta has been delivered;
- (d) No controlled cord traction;
- (e) Using maternal effort and gravity to help deliver the placenta;
- (f) Once the cord has stopped pulsating, putting the baby to the breast to stimulate the release of physiologically produced oxytocin.

(Gyte, 1994)

This last technique is recommended by many professional midwives (Gaskin, 1980: 368) but is rarely considered when reviewing methods that support a reduction in maternal blood loss (Begley, 1990: 16).

Proponents of a physiologically-managed third stage point out that, although labour is taught as a process that can be divided into three stages, in fact each 'stage' is a progression from the previous one. Therefore aspects of management in the first two stages can affect the third stage of labour. So, for example, oxytocin used to initiate or accelerate labour or oxytocic administration as part of first stage labour or at the point when the anterior shoulder is delivered may impact on the placenta as well as practices such as analgesia in labour. But these elements have not necessarily been considered in studies on the third stage of labour (Gyte, 1994: 184).

A complete physiological third stage would be where the woman has had a labour free of all interventions, including drugs; has given birth in an upright position or with the trunk of the body on a vertical axis (as in squatting); where the baby has been held at or below the level of the placental site until the cord stops pulsating; where the cord is not cut until after the placenta has been expelled; where the baby is put to the breast when the cord does stop pulsating; where there is absolutely no interference with the fundus or touching or pulling on the cord. This would give the woman all the benefits of the process whereby the placenta peels off the uterine wall, aided by uterine contractions, themselves stimulated by oxytocic release mechanisms such as suckling at the breast,⁵ by the interplay between blood volume, maternal venous circulation, and the distribution of blood between the mother and the baby via the still pulsating cord; and the action of the muscle fibres or ligatures that surround maternal blood vessels where the placenta has been attached (Inch, 1989: 161-2).

⁵ Another oxytocic release mechanism is the stretching of the perineum during the crowning of the baby's head (Newton, 1978), the value of which is lost if an episiotomy is performed instead of allowing the perineum to fully stretch.

It is amazingly difficult to achieve this complete package in practice within the context of hospital practice and there is very little data outside hospital domains. Botha, in his study on the third stage, claimed that among a Bantu population of 26,000 women whom he attended in a non-hospital context, where the women were accustomed to no interference, he rarely saw a retained placenta. Over a ten year period, he never had to use a transfusion to deal with a postpartum haemorrhage (Botha, 1968: 30). Trying to test these approaches in a controlled study has not proved easy. Begley notes that in the Dublin hospital study of 1429 women, 724 women of whom received physiological treatment, the 'ideal management' of the upright position, delivery by maternal effort and delayed cord-cutting and clamping had to be combined with a policy that midwives would use. In practice, midwives need a great deal of training and support to conduct a purely physiological third stage because their training runs counter to it (Begley, 1990: 4-5, 14). In fact, 89% of the physiological group were in a supine position at the time of the third stage, 58% had the cord cut at delivery, and 66% had controlled cord traction (Begley, 1990: 9). So although oxytocic drugs were not a feature of their management, the women did not receive all the possible elements of the physiological approach and therefore did not receive all the posited benefits.

With no agreement amongst medical experts about how people can best be trained to handle the third stage, those involved in programmes to reduce maternal mortality face a huge problem because it is the single most common cause of death. Ultimately, the availability of oxytocic drugs, training in bi-manual compression, sterile conditions for manual removal of a retained placenta and blood transfusion facilities can save the lives of women who have postpartum haemorrhage. Yet we also need to know what preventative actions, if any, during third stage will help reduce the incidence of women having postpartum haemorrhage and whether the efficacy of prophylactic oxytocic drugs is as great as its proponents claim. Gyte (1994: 191; 194), in her meta-analysis of combined results from all third stage controlled trials to date, concludes that there is too broad a generalisation in the claims that active management reduces PPH and she argues that there is an urgent need for studies to be undertaken which assess women's responses to a physiological third stage, where the whole of labour is undertaken differently to current medical management strategies.⁶ There are many questions that remain unanswered about active management regimes, too many in Gyte's judgement, to export active management policies to non-developed countries where there are already major differences in respect of women's general health, place of birth, birth attendants and training and

⁶ Induction of labour with oxytocic drugs is one example of a birth practice that carries an increased tendency to postpartum haemorrhage (Inch, 1989: 65).

facilities (ibid.). Before doing so, we have to be certain we fully understand all the interdependent variables of the third stage and the impact of active management on them.

The importance of this assessment is underscored by data from maternal health projects like the Bullough study. The basis of this study was a randomised controlled trial to examine whether immediate suckling after birth reduced postpartum haemorrhage in a non-hospital setting where births were attended by traditional birth attendants (Bullough et al., 1989). The study findings are very problematic. In 2104 births where there was early suckling, the frequency of postpartum haemorrhage (blood loss greater than 500 ml.) was 7.9% compared with a rate of postpartum haemorrhage of 8.4% in the late suckling group. The practice was therefore seen to be of limited or no value. A significant sentence in the authors' report says that traditional birth attendants were instructed to cut and divide the cord three minutes after the baby was born, that is, when the cord was presumed to have stopped pulsating. Moreover, the mother was not in a vertical position for delivery; the instructions were that she was to be helped to a sitting position so that gravity could assist her. This was not a valid controlled trial of the possible advantages of postpartum suckling because the protocols did not promote a physiological third stage. The single most serious deviation was cutting the cord before the placenta was delivered which would have impacted adversely on placental separation. However, the validity of the study may well be accepted by most medical doctors and programme managers who are not familiar with the elements of a physiological third stage thereby discarding a support for women which has great potential value.⁷

There are similar questions with the MotherCare Project in Grenada where, with 59% of all births taking place in a hospital setting, and a maternal mortality rate of 130 per 100,000 births, postpartum haemorrhage was a feature of 7.7% of births between 1987-89. This is a high rate of incidence for a setting where there was a policy of routine active management with an oxytocic drug.⁸ The researchers suggest this was possibly due to high levels of anaemia amongst the women (MotherCare, 1991b: 3). In relation to the complex issues about the third stage management revealed by the current debate, what else can this figure mean?

⁷ Curiously the authors questioned whether the outcome might have been different if trained nurse midwives rather than TBAs were in attendance. But the first problem that needs attention is their teaching on third stage, whether they are teaching midwives or TBAs.

⁸ This 7.7% can be compared with a rate of 2% in the Dublin trial of active management, for example, where an oxytocic drug was also used (Begley, 1990: 9).

- (a) Was this high prevalence simply a function of how postpartum haemorrhage is defined —500 mls. or more?
- (b) Were women who experienced these levels of over 500 mls. less able to deal well with the blood loss because they were anaemic? The report findings do not say how many women received transfusions;
- (c) Could blood loss over 500 millilitres be due to routine prophylactic use of oxytocin injected at the delivery of the head (MotherCare, 1991b: 15) and the associated practice with this form of active management of early cord-cutting and clamping?
- (d) Was it the practice to put the baby to the breast before the placenta was delivered so that women could benefit from the oxytocic stimulus of breastfeeding?

There are so many variables about the third stage that are not fully documented in the highly-research conscious setting of north Atlantic obstetric medicine. What we do know is that women in good health can and do sustain a blood loss of more than 500 mls. with little difficulty. We also know that the socio-economic status of those women dying from postpartum haemorrhage is very low, that severe anaemia and high parity are too frequent features of their health profiles. Therefore, it might be far wiser to encourage physiological third stage policies which at least will not make matters worse by interrupting an already compromised health status and will support non-activist interventions outside the hospital setting where so many women give birth. When dealing with a population of women where overall health and nutrition are less than adequate throughout their reproductive lives, in settings where there are problems of facilities, training and access, active management policies in the third stage seem unwarranted and non-intervention a more sensible rule of operations unless or until there are clear criteria for intervening to deal with observable complications.

However, there are considerable problems in securing alternative approaches, not least because of the unevaluated nature of medical information which gets put into place. The extent of this problem is evident in a close reading of the WHO consultative paper, *The Prevention and Management of Postpartum Haemorrhage* (1990) which sought to draw together what is 'definitely known about the prevention and management of PPH', and to make recommendations about dissemination of this knowledge and about issues for further research.

This consultative working party came down firmly in favour of the full active management package of third stage, stating that their strong recommendation was that routine prophylactic use of oxytocics should be used down to the lowest possible level of the state maternal health care system in third world countries. This was despite the fact that the consultants acknowledge that the influential study on which it based its conclusions, the Bristol study, was flawed insofar as both midwives and obstetricians were not familiar with protocols for physiological management (WHO, 1990: 26).

Moreover, in the Bristol study and in the review of ten controlled trials of third stage management policies carried out by the authors of the Bristol study for the Cochrane data base, there is a claim about the percentage of women who will be prevented from experiencing PPH as a result of active management, reducing the risk by 60% (Enkin et al., 1995: 237). Gyte (1994: 187, 192-3) in her meta-analysis questions this claim and comments that as the claim is based on discrepancies of practice and protocols, it needs further discussion and comment because the clinical data does not necessarily support the overall conclusions. This needs to be done before the practice becomes part of international recommendations.

However, the WHO paper reiterates the claim about percentage reductions of PPH with routine oxytocic management as part of active third stage management (WHO, 1990: 3). Other misconceptions are taken up in the WHO paper. The group, which reviewed the Bullough study quoted above, among others, argues that no method of third stage management has been shown to reduce the percentage of retained placentas in the childbearing population (WHO 1990: 20). The authors do not deal at all with the evidence that active management, unless fully carried through in all its particulars, is known to increase retained placentas (Inch, 1989). The working party acknowledges that there is indeed a pressing research need for physiological management but also say that active management has been shown to be safer than non-intervention in a professional health care setting (WHO, 1990: 10, 26). Very interestingly, although they speak of the need to investigate the timing of cord-cutting and clamping, no mention is made of the possible connection between this and the placenta detaching from the uterine wall (*ibid.*).

The report calls for an audit of PPH in various settings in developing countries to document precise causes, the number of fatalities occurring in various settings, the types of PPH and the avoidable factors which can be identified. Another very important research recommendation is for a close examination of the methods used by

empirical midwives (TBAs) to deal with the third stage about which so little is known in local cultures.

It is of utmost importance that all these dimensions to the problem, including the use of active management of the third stage be put to the test. An accurate study of physiological management might or might not show reductions in post-partum haemorrhage and retained placenta. It might discover sustainable rates of blood loss with beneficial effects further enhanced by the avoidance of episiotomy, early suckling, and the support of a skilled birth attendant when there is a problem.

This would shift the focus of state health care policies back to training and to solving existing problems with the provision the emergency care facilities to deal with PPH, either because women lack access to them or access to immediate or relevant care when they reach them (Kwast, 1991b).

As Gyte points out, before active management becomes the recommended norm for government health care services in third world countries, we need answers about whether it will increase the level of retained placenta which at present appears to be low in at least some non-western settings and we will also need to evaluate which is the riskier: straightforward PPH or PPH associated with retained placenta (Gyte, 1994: 195)

The implications of these perspectives in relation to local practices in the Bolivian research setting are explored in Chapters 3.1.5, 5.2.5, 7.2.5 and Chapters 13.4.3 and 14.11 below. The issue is whether there are ways to reinforce or strengthen practices within and outside the hospital setting to deal with postpartum haemorrhage when women do not have optimal health profiles.

11.3 OBSTRUCTED LABOUR

The problem of obstructed labour, which is thought to be responsible for 11% of maternal deaths world-wide, is even more difficult to quantify than other causes of maternal death because it can itself precipitate sepsis, postpartum haemorrhage and obstetric shock, leading to death. Therefore, it may be seen as possibly contributing to 17% of maternal deaths in all world-wide (Kwast, 1992: 3).

Obstructed labour, that is, when labour is impossible without 'further assistance' (ibid.) may include the following circumstances:

- (a) Cephalopelvic disproportion —this is a factor where a very young woman, in her adolescence, gives birth before her pelvis has fully grown or where a woman has experienced stunted growth as the result of long-term malnutrition;
- (b) Malpresentations such as:
 - (i) Transverse lie —strongly associated with multiparous women with an overstretched uterus and weak abdominal muscles; also with foetal abnormalities or a low-lying placenta;
 - (ii) Breech position.
- (c) Shoulder dystocia - where the head has been delivered but the shoulders are stuck.

An extremely dangerous complication of obstructed labour is uterine rupture, a complication which is more common for multiparous women, possibly because the muscle fibres of the uterus are replaced by fibrous tissue with each successive pregnancy although there are also the contributory factors of neglected labour, and absence of skilled help in settings outside the developed countries (Silverton, 1993: 423-4).

With cephalopelvic disproportion and transverse lie, the problem of obstructed labour can become a problem of prolonged labour which leads to the possible complications of septicaemia due to factors such as the growth of anaerobic bacteria where there has been prolonged pressure on cervical and vaginal tissue or rupture of the membranes. The most favoured clinical option for dealing with these problems in the past two decades has been Caesarean section. But the growing clinical recourse to elective Caesarean section for cephalopelvic disproportion, breech and transverse lie, has been criticised and reviewed and on the basis of current evaluations, what is recommended is a trial of labour and/or external version in early labour and Caesarean section only when the former have not been successful (Enkin, et al., 1995: 140-147).

What is important from the viewpoint of this study is that external version is making a 'comeback' so to speak, and it is being acknowledged that it is a technique which has had little attention in medical literature. This is despite the evidence that it has been used with success by traditional birth attendants, midwives and doctors (*ibid.*). It is now being recognised that in the case of breech birth, a policy of total elective Caesarean section will lead to the self-fulfilling prophecy that breech presentations can only ever be handled this way, because practitioners will lose the skill to deal with them (*ibid.*).

Yet manual skills, such as version, with which to deal with problems that may lead to obstructed labour are taught in limited ways within conventional hospital settings, not least because of the way the female body is thought about in obstetric writing (Murphy-Lawless, 1998a). The current debate about external version, used at the very end of a pregnancy but before a woman has gone into labour, centres on its efficiency in contributing to a dramatically reduced level of Caesarean sections. Whether the efficiency of external version is enhanced by the use of pharmacological muscle relaxants (tocolysis), thereby leading to greater success is also part of this debate (Cunningham, 1993: 588; Enkin et al., 1995: 144-5).

In contrast, midwives who are currently writing about manual techniques emphasise the importance of working with the woman at many levels to achieve total relaxation, using massage and a sure sense of touch as part of external version (Gaskin, 1980; Davis, 1992). They are also advocating a pelvic tilt position or a crawling technique, both of which a woman can do herself and which have been found very useful in facilitating breech babies to turn after 30 weeks gestation (*ibid.*; Flint, 1986, Machover, 1995). A radically different style of management with shoulder dystocia has also emerged from this quarter. It is now acknowledged that there are no reliable predictive factors of the condition during the antenatal period, including that of a larger than average foetal size. In almost half of the cases of dystocia which occur, the babies weigh under 4000 grams (Enkin, et al. 1995: 142). Therefore a policy of referral for elective Caesarean section is untenable and the emphasis has to be on skill during delivery. But the current obstetric approach entails the lithotomy position and knee flexion for the woman, a very large episiotomy and downward traction (Cunningham, 1993: 511-513) which can occasionally also mean an accidental or deliberate fracture of the baby's clavicle (cleidotomy) and associated nerve damage (Glynn and Olah, 1994: 109).

An alternative to this procedure and to operative procedures such as cleidotomy and symphysiotomy,⁹ has come from the midwives who are working to develop a more physiological management of birth. Their contribution is based on the successful utilisation of female pelvic anatomy, by shifting the woman to a position on all-fours. This maximises pelvic diameters and can frequently accomplish delivery with no further intervention. However, if further intervention is needed, the extra room along the curve of the sacrum permits a hand to be inserted so as to manoeuvre the posterior shoulder which is the one most often stuck (Gaskin, 1988b; Davis, 1992; Glynn and Olah, 1994). Moreover, this can very often be done without recourse to episiotomy at all, about

⁹ Symphysiotomy is the operation for obstructed labour where the pubic symphysis or joint is cut to enlarge the pelvic outlet for the baby.

which there is no hard evidence that it contributes to a better outcome in the management of shoulder dystocia anyhow (Nocon et al., 1993).

The importance of understanding and valuing these techniques becomes clearer when faced with instances of obstructed labour where the woman is far distant from hospital facilities. Maine (1991: 42) estimates that there is an interval of three days between the onset of obstructed labour and death, and in that interval, some of these techniques may well be life-saving. In the preliminary stage of this project, during an in-depth interview with a number of Irish midwives who had direct experience of working with communities in settings where the hospital base was remote from the locality, one midwife gave an instance of internal version which proved life-saving for both the woman and her baby. The setting was central Australia in a community of native Australians. The woman had a twin pregnancy and in accordance with the strict criteria laid down by the health authorities, should have been referred to the hospital in the late stages of pregnancy for delivery there. But she was frightened of the hospital setting and hid until she was in established labour, seeking out the midwife when she was 8 centimetres dilated. The first twin was born with no problem but the second twin was in a transverse lie. Because the membranes had ruptured, external version was not a possibility but the midwife did manage to do internal version, having the baby's heartbeat checked as she went, and the baby was born alive and well (Midwives' interview tape, 9/8/94).

The example is telling, not least for what it reveals about the lack of confidence women have in western style facilities where health care staff are not sympathetic to women from other cultures. This same problem of lack of confidence has come up consistently in the fieldwork settings for this project—see for example, Chapter 5.4.1. But more important still is the invaluable contribution that existing manual skills and practices make to a woman who is in serious difficulty with obstructed labour.

Of course, obstructed labour as a category cannot be dealt with through solely physiological approaches. The availability of antibiotics, rehydration and transport to hospital facilities where operative midwifery and transfusion are available are essential resources to establish. But it is important to understand that these other approaches can be evaluated and can have a significant impact for the good concerning women's well-being, especially if they are reinforced through the transmission of skills and supported by state health care authorities. And, even if they were relevant for, say, as few as 10% of cases of obstructed labours, the other cases requiring Caesarean section, it would still be worth supporting and encouraging practices

similar to these, especially when they already have great salience in the Andean context. This is also analysed in detail in Chapters 3.1.4.4 and 3.3.6.

11.4 PUERPERAL SEPSIS AND SEPTICAEMIA

It is estimated that puerperal sepsis kills 11% of the 500,000 women who die each year as a result of childbirth (Kwast, 1991c). Septic infections are rare in a spontaneous labour with no other problems and most common where there are complications in labour. The main sites for infection are the placental site, incisions, and lacerations, and places where prolonged pressure on the birth canal has opened up a site for anaerobic bacteria to attack vaginal and cervical tissue. Left untreated, these can lead to septicaemia, cellulitis, thrombophlebitis and peritonitis. Another major source is genital infection introduced manually by someone attending the birth. Caesarean section also presents a major hazard around uterine infection. With prolonged and/or obstructed labour, sepsis can be the result of either prolonged pressure on the tissues and/or interventions to deal with obstructed labour which introduce infection genitally (Kwast, 1991c). The treatment of sepsis and septicaemia, depending on its severity, is antibiotics and the transfusion of fresh blood to replace fibrinogen and clotting factors.

It is argued that women beset by anaemia and malnutrition are especially badly affected. So, if obstructed labour is neglected, and a woman who has been anaemic throughout her pregnancy then has the added complications of multiple effects of exhaustion and dehydration as a result of her difficult labour, these will render her extremely susceptible to infection (Kwast, 1991c). This point of view is contested within obstetric writing insofar as it is argued that it has not been possible to establish direct causal links (Cunningham et al., 1993: 628). But this line of argument links back to the problem of nutrition in general and a deep reluctance on the part of obstetric medicine to confront this issue which so clearly has to do with the allocation of basic resources such as food (see above, Chapter 10.2). Although there may well be compensatory actions in women's bodies where anaemia is a persistent feature, which have anti-bacterial effects (Cunningham et al., 1993: 628), the overall health profile is inevitably damaged by moderate to severe anaemia.

What is important to note in relation to infection is that when the international figures for death from sepsis are broken down by region, 80% of these deaths occur in Asia and a further 17% in Africa (Kwast, 1991c). In other words, death from sepsis is not a major factor for maternal death in Latin America. The reason for this becomes very clear in relation to traditional Andean practices.

The Bolivian national and regional health authorities have mounted a strong campaign for '*parto limpio*' or clean birth. Yet unclean birth through genital contamination is not a common feature of births taking place outside the health services sector, whether women are attended or giving birth on their own. When women give birth in their homes, they are only ever touched near the genital area by a family member or partera if there is a retained placenta and even in those circumstances, this appears to be an unusual practice. The practices around birth that might or might not give rise to infection are discussed in Chapters 3.1.4, 5.1.2 and Chapter 13.4.3 below.

11.5 HYPERTENSION, PRE-ECLAMPSIA AND ECLAMPSIA

The hypertensive disorders of pregnancy account for 17% of maternal deaths each year as a result of severe pre-eclampsia and eclampsia. Kidney failure, very high blood pressure, fits and coma are the extreme consequences which can lead to death if untreated. There are problems with the classification of hypertensive disorders, especially trying to distinguish between pregnancy-induced hypertension and chronic hypertension which predates the pregnancy. Also, it is difficult to establish prevalence and geographical distribution (Kwast, 1991d: 156). It is even more difficult to explain why they happen. Pre-eclampsia is thought to be especially frequent among first-time mothers, but also among older multiparous women. Pre-existing hypertension, diabetes, a twin pregnancy and hydramnios may also be associated with pre-eclampsia (*ibid.*). Family susceptibility, excessive hormonal alterations and immunological reactions of the woman's body to the pregnancy itself have also been suggested (*ibid.*; Cunningham et al. 1993: 767-8). However none of these associations has any firm predictive outcome.

Most importantly from the viewpoint of this study, are the observable links with social class. Poverty is clearly implicated but researchers are not sure how. Instances such as the Netherlands during the 1939-45 war, when there was widespread starvation and malnutrition, and an increase in eclampsia, suggest basic nutrition as one source of the problem (Kwast, 1991d).¹⁰ The fall in rates of maternal death from this disorder in north Atlantic countries over the last thirty years has been attributed to an improvement in general living conditions, better basic health, and better basic health care (Lewis and Chamberlain, 1990: 342) but it is perhaps important to note the rejection of such social factors in *Williams Obstetrics* which is probably the most

¹⁰ There is higher perinatal mortality with untreated hypertensive disease that includes proteinuria (Silverton, 1993: 176). And, it is notable that during those same years, 1939-45, rates of perinatal mortality dropped in England and Wales, a drop which was attributed to the government programme of prioritising food coupons and supplements for pregnant women.

medicalised basic teaching text in obstetrics (see Cunningham et al., 1993: 768). The *Williams* text is a typical example of the thesis that these problems can only be solved through medical approaches. Antenatal care is seen as the principal approach and all obstetric teaching promotes antenatal care along the lines of the biomedical model favoured by western obstetrics.

The very lack of understanding about the causes of pre-eclampsia and the lack of clearcut and reliable predictive factors about the pre-pregnant woman who might experience this disturbance of pregnancy, gives great cogency to the argument that if women can be seen throughout their pregnancy, this greater coverage will have some efficacy. The mainstay of antenatal care is still the two diagnostic tests, taking blood pressure and the test for protein in the urine. Examination for oedema used to be the third test and although it is still being used, it has been evaluated as being of no value as an indicator about pre-eclampsia. This is because there is a problem isolating physiological oedema affects 50-80% of normal pregnant women and oedema when it occurs in the 85% of cases of pre-eclampsia. (Enkin et al, 1995: 55). There are also problems with the accuracy of blood and urine tests, especially for blood pressure for reasons that have to do with how measurements are made and when they are made but nothing to do with ill-health per se (Enkin et al., 1995: 53-5).¹¹ Moreover, they are not wholly predictive of those women who will develop eclampsia which can develop without warning during labour or immediately after birth.

So the screening potential of antenatal care remains limited. There is the major additional problem that outside the context of a north Atlantic setting, there are too many structural and cultural factors to overcome in order to achieve comprehensive ongoing antenatal coverage of each woman. Realistically, antenatal care cannot form a major component of a policy to deal with pre-eclampsia.

On the other hand, once symptoms become evident, then treatment depends on the recognition and interpretation of those symptoms, and the seeking of skilled help in the case of the most serious symptoms: convulsions. There is a limited range of therapeutic treatment that obstetric medicine can offer while the woman is still carrying the baby and the only 'cure' for eclampsia is the birth of the baby (Kwast, 1991d). It has been argued that 'no medical or other manoeuvre has been shown to prevent or significantly alter the course or decline of the disease' (Redman, 1982: 193). Anti-hypertensive drugs and anti-convulsive drugs and, if the foetus is viable, a Caesarean

¹¹ Checking for oedema is no longer considered a relevant clinical sign as the majority of women will have some oedema as part of a physiological adaptation to pregnancy anyhow.

section to bring the pregnancy to an end are treatments which realistically have to be offered through a hospital or health centre or by enabling health centre personnel to go out to sites where women are.

Of particular concern with a malnourished population is the fact that the symptoms of severe anaemia, pallor, headaches, and oedema, can mimic those of pre-eclampsia and thus what are accepted as common occurrences during pregnancy may in fact be pre-eclampsia. Equally, severe anaemia carries very real health problems for women within the Bolivian Andes, where there are indications of a growing problem of under and malnutrition, in at least some localities, as well as a pattern of earlier and longer childbearing (see Chapter 9.2 above and Arnold and Yapita, 1994).¹²

Given the extent of poverty and concomitant ill-health on the one hand, and on the other hand, the limitations of screening for purposes of prediction and treatment, the argument that better basic health is important in dealing with levels of incidence is worth exploring further. But, as noted above (Chapter 10.2), there has been very little work done on nutrition itself in relation to women's well-being during pregnancy.

A long-term study with North American pregnant women living in poverty who were put on nutrient-rich diets, leading to a radical reduction in the rates of pre-eclampsia was reported in the late 1960s (Brewer, 1970) and nutritionists and midwives have used protein and vitamin-rich diets to prevent pre-eclampsia and deal with some of the symptoms should it occur (Davis, 1972; Davis, 1992). Gaskin (1980: 474) reports that in 1,000 births, the incidence of pre-eclampsia was only two women or 0.2%. In Aberdeen, Scotland, between 1975 and 1982, the incidence of pre-eclampsia fell in line with other measures of improved general health and independent of any changes in antenatal care (Hall et al., 1985). But there have been very few of the large randomised controlled trials on nutrition and pre-eclampsia within the obstetric profession. Such trials are influential in changing practice and reviewers for the Cochrane database have called for this approach with two specific interventions. There have been six controlled trials of calcium supplementation, one of which was done amongst an Andean population with a profile broadly similar to the profiles of women from the Bolivian Andes. In this controlled trial, women from the Equadorian Andes who were young, first-time mothers with poor nutritional status, factors associated with an increased frequency of pregnancy-induced hypertension and, consequently, higher maternal and perinatal mortality rates, were given calcium

¹² In the province of northern Chayanta, between 1993 and 1994, there were 21 recorded deaths from anaemia and 113 recorded deaths from nutritional deficiencies. These unfortunately are not broken down by sex but combined rank as the fifth most common reason for death, the first being digestive tract diseases. See *Informe Anual*, 1993, *Secretaria Regional de Salud Potosí*.

supplementation from 28 weeks to delivery. This produced a much lower actual frequency of hypertension than expected. The women on calcium also had longer pregnancies and higher birthweights (Lopez-Jaramillo et al., 1990: 293). Given the well-designed nature of the trial which was based in the *Hospital Gineco-Obstétrico Isidro Ayora*, Quito, the results have been evaluated as very promising (Enkin et al., 1995: 30-1). However, in calling for further trials, the authors of the review studies state unequivocally that ‘hungry women cannot wait for the results of such studies’ (ibid.) Optimal nutritional status should be a fundamental priority for women in planning health care programmes, a priority that can only bring benefits.

Additionally, because the issue around pre-eclampsia/eclampsia has to do with identifying signs and symptoms and responding to those signs, what is needed is a far closer working relationship on the part of western-style obstetric medicine with existing social systems of medicine and medical interpretation. If a woman is having convulsive eclamptic fits, her family must be reassured that seeking the assistance of the local health centre or *posta* will be genuinely helpful. Equally, if communities have found herbal remedies and mates that give relief, it is important for health care personnel to work with these treatment options also.¹³

11.6 CONCLUSION

What we have looked at is the current thinking and analyses of the main reasons for maternal mortality and morbidity as they are debated within obstetrics and within public health programmes. We have argued that:

- (a) These debates are characterised by a wide range of interpretations which are often contradictory, and which suggest that there are significant gaps in knowledges about these major complications;
- (b) Interpretations of the complications of labour and birth have most often come out of and relied on a western-style hospitalised context. Professional midwives and practitioners concerned with evaluating interventions have challenged the way these interpretations lead to increased medical intervention. While such interpretations offer important insights, they are also limited by a paradigm of childbirth which has been progressively medicalised. The biomedical model therefore carries with it an inability to see other possible sets of connections which might have relevance for women living outside the western models of biomedical health care;

¹³ Treatment of hypertension with herbal remedies has finally found its way into western practices but it has been through independent midwifery texts. For example, Davis, reports using tincture of hops, a strongly sedative herb, to bring down high blood pressure successfully (1992: 106).

- (c) The notion of risk and risk prediction are imprecise instruments on which to try and develop public health policies in a third world context. They are used uncritically and with virtually no reference to specific local social, economic and cultural patterns which impact on maternal health;
- (d) We have seen that there is far too little extant research on nutrition, the adequacy of general health and health profiles, and the connections with good maternal health. Little has been done in western settings and almost none within third world settings;
- (e) There is a bare minimum of research on whether local practices are health-enhancing and life-preserving. What studies have been carried out have often been flawed by an adherence to specific models of practice within obstetrics which themselves are not validated by hard research findings. Yet these perspectives influence the way studies on local practices are set up and viewed.

Participants in the 1979 Symposium on maternity services in third world settings (Philpott, 1980) repeatedly stated that western medical training systems are flawed. The lessons, the perspectives the actual hands-on teaching and training about obstetric complications ill-equip doctors to work anywhere but in a well-laid out maternity unit with access to current technologies (Philpott, 1980, *passim*; see also footnote 5 p. 261). One participant gave as an example the expanding criteria for Caesarean sections in instances of breech or other malpresentations. Doctors taught to carry out Caesarean sections as a first resort are at a loss in instances where there is no access to a fully-equipped hospital operating theatre and they must instead use older, 'outmoded' practices which have been discarded from teaching syllabi (Philpott, 1980: 122). The message is that obstetric thinking needs to be far more flexible in and outside the hospital. We will encounter this issue again in Chapters 13 and 14 below. It is also pertinent to the issue of empirical midwives.

