

CHAPTER 6

OTHER INTERVENTIONS IN CHILDBIRTH

6.1 Despite widespread publicity and concern about the increasing number of Caesarean sections being performed in Australia, more than three-quarters of all Australian babies are born by vaginal delivery. However, only a small proportion of these are totally 'natural' births, in the sense that they are free from any form of intervention. In Dr Fisher's Melbourne study (referred to earlier) for example, only nine of the 272 women who participated had no intervention of any kind, although some of the interventions were quite modest. Figures from Victoria for 1988 and 1989 showed that 61% of women went into labour spontaneously but two thirds of these had either an episiotomy or a tear repaired by stitches. Only 11% had a spontaneous labour and a spontaneous delivery without an epidural or a tear requiring stitches. Almost three quarters (71%) had some form of pain relief.¹

6.2 Each of the commonly performed interventions in vaginal delivery is discussed in this chapter.

Induction

6.3 Induction is the process of initiating labour by artificial means. It is usually carried out by rupturing the membranes (amniotomy) then waiting for labour to begin. If it does not do so after some hours (the period varying according to the custom in individual hospitals rather than any agreement on the optimum period to wait) then a drip is given containing syntonin or prostaglandin, both synthetic forms of natural hormones.

6.4 In 1996, 22.2% of women had their labour induced. The figure has increased slightly, but not dramatically over the last 30 years. In 1991, for example, the national average was 19.5%.² The current rate is more than double the World Health Organisation goal of 10%.

6.5 There is significant variation in induction rates between States. Western Australia had consistently higher rates than any other State in each of the last five years for which figures are available, varying from 24.9% in 1991 to 27.9% in 1996. Tasmania had the lowest induction rate in 1996, when it was 16.6%.

6.6 It has not been possible to ascertain differences nationally according to the insurance status of the mother but, given that data on all other forms of intervention

1 Health Department of Victoria. *Having a baby in Victoria. Final Report of the Ministerial Review of Birthing Services in Victoria*, Melbourne 1990, p.91.

2 These and other figures in the following paragraphs are from Submission No. 170, p.2 (Australian Institute of Health and Welfare) and Submission No. 97, p.19 (Department of Health and Aged Care).

consistently indicate higher rates for privately insured women, this is also likely to be the case for induction. It is certainly suggested in statistics provided to the Committee from individual hospitals. The Mater Misericordiae Mothers' Hospitals in Brisbane, for example, advised the Committee that in the year ending 30 June 1999 the induction rate was 24% for public patients and 31% for those with private insurance.³

6.7 There are significant variations between hospitals in the number of inductions performed. The induction rate is lower in birthing centres and smaller hospitals than in large tertiary hospitals. This can be at least partly explained by the larger number of high risk women in the latter institutions, but it is not possible to determine whether this factor alone accounts for the variation. The Committee was advised by Women's Hospitals Australia, for example, that the average induction rate in each of its hospitals in 1998-99 was 27.22%, with a range from 20.6% to 36.12%, a difference from the national average which it said could 'probably be largely explained' by the tertiary nature of its member hospitals.⁴

6.8 Information on induction rates in New South Wales hospitals however suggests that type of hospital is not the only factor influencing the rate of induction.

The induction rate for NSW in 1997 was 21.8% with rates varying from a low of 9.3% in one of the largest, highest risk referral hospitals (King George V) to over 30% in some private hospitals.⁵

6.9 Induction of labour may be indicated in a number of circumstances, the most common being extension of pregnancy significantly beyond the due date, which can increase the possibility of foetal death. Prolonged pregnancy was the reason cited by practitioners in the 1997-98 casemix data as the principal reason for induction of labour in 22.4% of all inductions. It was cited as a secondary reason in 9.26% of cases. Other factors influencing a decision to induct may include hypertension in the very late stage of pregnancy or failure of labour to begin after natural rupture of the membranes (either prematurely or at term). Induction may also be performed in cases in which mothers are awaiting the birth of their babies far from home.

6.10 Evidence to the Committee however suggests that induction may often take place for convenience, either of the clinicians or of the woman and her family, rather than for medical reasons.

One of the reasons that our other witness was not here today...is that it is Friday. Friday is induction day...doctors try to keep it within hours so that they can have a rest of life.⁶

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3 In an attachment to Submission No. 78, p.13 (Mater Misericordiae Mothers' Hospitals, Brisbane).

4 See Submission No. 69, p.16 (Women's Hospitals Australia and Australian Healthcare Association).

5 Submission No. 38, p.7 (NSW Midwives Association).

6 *Committee Hansard*, 27.8.99, p.40 (Women's Electoral Lobby).

...in our hospital, nearly half of the inductions are for non-medical reasons. Women want induction because they are fed up or because of family reasons eg. Husband works away from home 2 weeks out of 4). Is this best practice for that family or not?⁷

6.11 A number of problems are associated with induction of labour. The first is the possibility of an error in calculating the due date so that an induction could be performed before the woman's body is ready for birth. In these circumstances where the membranes have been ruptured but labour does not begin there is a risk of infection to the baby and to the mother. This may necessitate a Caesarean section which could have been avoided had labour been allowed to proceed naturally.

6.12 The birth is often more painful when it is triggered through the administration of synthetic hormones because the contractions develop more rapidly and are stronger than when birth develops naturally. To counteract this pain the woman may require an epidural anaesthetic. This in turn may slow labour and a woman's ability to push during its later stage, leading to the use of forceps or vacuum extraction (discussed later). In this sense induction is often said to lead to a 'cascade of intervention' which in many cases might have been avoided were the birth allowed to begin naturally.⁸

6.13 A number of submissions referred to the 'cascade of intervention' and the need to educate women about the possible flow on effect from one intervention to the next.

6.14 When oxytocin is administered it suppresses the production of the naturally occurring hormone, both in the mother and in the baby. This might have long term adverse consequences on the bonding of mother and infant, according to one witness, although such a link has not been positively established.

...the surge of [naturally produced] oxytocin that the mother experiences is a critical part of her "bonding" to her baby, and the baby is also, in these critical moments, laying the foundation of his/her capacity to love via the 'setting' of oxytocin levels and patterns of release. When this hormonal balance is not as nature intended, (ie disrupted by the oxytocin that crosses the placenta, activating the baby's negative feedback system and reducing its own oxytocin production) there is the risk that the baby's capacity to love will be impaired.⁹

Augmentation of labour

6.15 Augmentation is a process in which oxytocin or prostaglandin is administered to a woman whose labour has commenced naturally but is proceeding slowly.

7 Submission No. 5, p.2 (Dr B.R. Pridmore, Queen Elizabeth Hospital, Adelaide).

8 See Submission No. 154, p.6 (Professor M Chamberlain & Ms Janine van der Klei, University of Sydney).

9 Submission No. 110, p.11 (Dr Sarah Buckley, Qld).

6.16 According to the Australian Institute of Health and Welfare in 1996, 67% of births began spontaneously in Australia and of these 21.5% were augmented during labour.¹⁰ Rates of augmentation varied widely between States, from 12.6% in Victoria to 29.9% in Queensland. Rates also varied significantly between hospitals, at least in New South Wales, the only State for which this information is publicly available. In 1997, for example, augmentation took place in 13.3% of spontaneous births at Westmead Hospital and in 7.5% of births at Parkes Hospital. Rates were highest at Tweed Heads Hospital, at 34.9%.¹¹

6.17 The Committee has been unable to obtain a more detailed analysis of these figures to show variations between public and private health status. It is likely that augmentation rates are higher for privately insured women, since their labours tend to be shorter than those of public patients. Some of these labours are shortened by resort to Caesarean section. The proportion shortened by augmentation has proved impossible to determine.

6.18 Both augmentation and induction have been encouraged by the 'active management of labour' approach to birth pioneered in Dublin in the 1970s. The intention there was, through the use of induction (especially amniotomy) and augmentation (especially the administration of high doses of oxytocin when the progress of labour slowed to a dilation of the cervix of less than 1 cm an hour) to speed up the labour and reduce the need for forceps and ventouse delivery and for Caesarean section.

...the Dublin obstetricians were so confident in their regimen that they gave women an undertaking that labour would be terminated by caesarean section if it lasted longer than 12h.¹²

6.19 The active management of labour approach has been widely adopted, including in Australia, but only certain aspects of the approach are generally used. These include amniotomy and augmentation but not the special labour preparation classes, psychological support in labour and regular supervision of the delivery area by senior staff which were all intrinsic to the original Dublin model. Consequently, many of the objectives, especially lower Caesarean rates, have not been achieved.

6.20 Assessments by the Cochrane Collaboration in Oxford suggested:

...that psychological support in labour lowered the caesarean section rate in those settings where partners were not usually present, but did not suggest

10 Australian Institute of Health and Welfare. *Australia's mothers and babies 1996*, p.68.

11 New South Wales Health Department. *New South Wales Mothers and Babies 1997*, Sydney 1998, pp.85-86. The document lists all hospitals with more than 200 deliveries annually.

12 Thornton Jim G. *Active management of labour*, Current Opinion in Obstetrics and Gynaecology, vol. 9, no. 6, December 1997, p.366.

that routine amniotomy, or oxytocin either alone or combined with amniotomy, reduced caesarean delivery.¹³

6.21 One submission commented on the active management approach in Australia:

One main success of active management (and the original reason for its development) has been to improve the throughput, and therefore 'efficiency' of the labour ward.

It is interesting to note that many studies show midwifery can lead to equally low CS rates, but also with low rates of amniotomy and augmentation. This has not been taken up with the same enthusiasm as Active Management.¹⁴

Epidural anaesthesia

6.22 Epidural anaesthesia is becoming the preferred choice for pain relief during labour in Australia. It is used in both Caesarean sections and during vaginal births. Normally it is injected through the lower back into the epidural space around the spinal cord. It numbs the nerves in the uterus and birth canal when used during vaginal delivery. When used as an alternative to general anaesthetic during Caesarean section it has the advantage of allowing a woman to see her baby being born and of holding the baby immediately after birth.

6.23 The use of epidural anaesthetic varies from State to State, but has been increasing everywhere.

In 1990, 17% of women used epidural anaesthesia for pain relief during vaginal delivery. In 1997-8, 19.7% of women used epidural for pain relief during vaginal delivery...there are significantly different rates of epidural use between states - 33% in South Australia versus 15-16% in Tasmania and Victoria...¹⁵

6.24 Epidural anaesthesia must be administered by an anaesthetist. For this reason it is not generally available outside major centres. Women who consider they may benefit from an epidural block therefore tend to arrange for confinement in large tertiary hospitals. In these circumstances one would expect variations in the rates of epidural use according to the size of the hospital. In fact however there are wide variations even between hospitals of similar size, at least in respect to use during vaginal delivery. Rates for Caesarean section are more uniform.

Epidural anaesthesia was recorded for 90.4% of women delivered by caesarean section [in Western Australia] and there is no doubt that this is the preferred method for that procedure. However during 1997/98, the usage

13 Ibid, p.367.

14 Submission No. 110, p.12 (Dr Sarah Buckley, Qld).

15 Submission No. 97, p.19 (Department of Health and Aged Care).

rates among women who delivered vaginally vary between 8.8% and 44.1%.¹⁶

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Analgesia in labour is used widely in Australian hospitals. For example, in major public hospitals in NSW the epidural rate was between 34 and 43% and between 58 and 66% in some private hospitals in 1997.¹⁷

6.25 As with other interventions, the use of epidural block is more common among privately insured women than others, at least in respect to vaginal deliveries.

Women with private accommodation status are also about twice as likely to receive an epidural block for pain relief during vaginal delivery than public patients. States with the highest rates have high rates for both public and private patients.¹⁸

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The use of epidural anaesthesia/analgesia for women admitted as public and private patients delivered by caesarean section [in Western Australia] was more equitable at 87.7% for public patients and 94.9% for private patients. However the use of epidural analgesia during labour and vaginal delivery among women admitted as public patients was 26.2% compared with 50.3% for private patients.¹⁹

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Epidural anaesthetics for pain relief in labour are given to more women in private hospitals [in NSW] (44%) than to women in public hospitals (21%). While epidural is a highly effective form of pain control, it may still carry a risk of more operative deliveries. It is possible that despite the increasing use of narcotic epidurals and the practice of allowing the dose to wear off for the 2nd stage of labour, the higher rates of epidural in the private sector may be associated with the higher rates of other childbirth interventions noted.²⁰

6.26 Epidural is safe and effective but has significant drawbacks which, it seems, are not always well understood by women requesting epidural assistance during vaginal delivery. Epidural anaesthesia slows down the birth process because it numbs the nerves which control the pelvic muscles and legs (as well as the uterus and birth canal). A woman may therefore be given an oxytocin drip to speed up the labour. She

16 Submission No. 179, p.2 (Health Department of Western Australia).

17 Submission No. 51, p.6 (Midwifery Practice and Research Centre, NSW).

18 Submission No. 97, p.20 (Department of Health and Aged Care).

19 Submission No. 179, p.3 (Health Department of Western Australia).

20 Submission No. 109, p.8 (NSW Pregnancy and Newborn Services Network and Centre for Perinatal Health Services Research).

cannot push during the second stage of labour (because of the effect of the epidural) and thus it may become necessary to use forceps or vacuum extraction to remove the baby, or to perform a Caesarean section. This is a further example of the 'cascade of intervention' referred to earlier. It is estimated that an epidural used during vaginal birth reduces the chance of a normal delivery to less than 50% and doubles a woman's chance of Caesarean section for dystocia.²¹

6.27 Some of these adverse effects have been limited through continuous administration of low doses of epidural anaesthetic rather than, as previously, providing intermittent large doses. In the former case, women's movements are less restricted and so they are better able to contribute to the birth, overcoming the slowing down in labour associated with the latter approach.

6.28 There are serious side effects in a small number of epidural cases such as permanent nerve damage, cardiovascular and heart and breathing difficulties (1 in 20,000 cases). Since epidural anaesthetic is absorbed by the baby when it is in utero there are concerns about its effects on the infant, but few studies have been conducted to determine the extent of such effects, or indeed whether there is a measurable impact.

6.29 A recent review of available research by the Cochrane Collaboration has provided some indication of the costs and benefits of epidural anaesthesia for the mother, but not for the baby.

With regard to the use of epidural anaesthesia the Cochrane review (27/9/1997) showed that epidural anaesthesia was more effective than non-epidural methods in providing pain relief, and was associated with motor blockade. Adverse effects suggested by the rather small trials reviewed include longer first and second stages of labour, increased oxytocin use, instrumental delivery and caesarean section. The study concluded that epidural analgesia is an effective method of pain relief during labour. Further research is needed to define the adverse effects more accurately particularly the long term adverse effects and to evaluate different regional analgesia techniques.²²

6.30 The Cochrane findings have been disputed by American researchers who concluded, after reviews of seven randomised clinical trials and five observational studies conducted in the United States that 'Epidural analgesia... may increase the risk of oxytocin augmentation but not that of caesarean delivery'.²³

21 See Buckley, Dr Sarah. *Epidurals – real risks for mother and baby*, Australia's Parents Aug/Sept 1998, entitled *All about epidurals*.

22 Submission No. 17, p.6 (Royal Australian College of Obstetricians and Gynaecologists).

23 Zhang Jun et al. *Epidural analgesia in association with duration of labour and mode of delivery. A quantitative review*. American Journal of Obstetrics and Gynaecology, vol.18 (4) April 1999, p.970.

6.31 Given these conflicting views it seems imperative that more research is conducted into the long term effects of epidural anaesthesia, particularly in view of the continuing expansion in its use in Australia.

6.32 Other commonly used analgesics for vaginal delivery include nitrous oxide and narcotics, chiefly pethidine. Nitrous oxide has been considered effective and safe because of its short half life. However, there is some evidence that it can lead to a reduction in the oxygen level of the baby. Pethidine is less effective as a pain killer, has a range of side effects on the mother (such as nausea and vomiting) and may result in breathing difficulties for the baby. Some overseas research postulates a link between nitrous oxide or pethidine use during birth and later drug dependency in children of these births.²⁴ Other research suggests a link between in utero exposure to oxytocin and an increased likelihood of autism in the exposed offspring.²⁵

Forceps delivery

6.33 Forceps is one of two forms of operative vaginal delivery. The other is by suction cup or vacuum extraction (described in the next section). The forceps, a pair of curved blades, is applied to the baby's head as it emerges during vaginal birth, usually to hasten delivery but occasionally to slow it down, for example when delivering the after coming head in a breech delivery. Forceps are normally used to hasten birth where there is foetal or maternal distress during the second stage of labour or where there is failure of the labour to progress during the second stage.

6.34 The use of forceps has declined in Australia as the use of Caesarean section (and to a lesser extent vacuum extraction) has risen. In 1985, 14.9% of vaginal deliveries involved the use of forceps. By 1996 the figure had dropped to 7.4%.

6.35 Comparisons by State or by the insurance status of the mother are difficult to obtain. However, data supplied for Victoria by the Victorian Branch of the Australian College of Midwives indicate that forceps deliveries accounted for approximately 8% of births in public hospitals in Victoria in 1998. The figure for privately insured women was approximately 12%.²⁶ In New South Wales, forceps delivery accounted for 13.4% of deliveries in private hospitals in 1996 and for 5.8% of deliveries in public hospitals.²⁷

6.36 An episiotomy is normally required before a forceps delivery is performed. A forceps delivery requires skill on the part of the doctor, may be traumatic for the mother and frequently results in tearing of the perineum. More rarely, forceps delivery

24 Jacobsen B. et al *Opiate addiction in adult offspring through possible imprinting after obstetrical treatment*. British Medical Journal, 10 Nov 1990, vol.301, pp.1067-70.

25 Haire, Doris. *Medications used in Labour and their effects on Mother and Newborn*. Paper presented at UNICEF Birth without Boundaries conference, Chiang Mai, Thailand, 1 March 1997.

26 Submission No. 14, Appendix 2 (Australian College of Midwives Inc, Vic).

27 Shorten Allison and Shorten Brett. *Episiotomy in NSW hospitals 1993-1996: Towards understanding variations between public and private hospitals*. Australian Health Review, Vol.22, No. 11, p.25.

may damage the vagina or bladder. It can cause haematoma in the foetal scalp or, if performed without the necessary skill, intracranial haemorrhage.

Vacuum extraction

6.37 Vacuum extraction is generally less used by Australian doctors than forceps. Indications for use are similar. Extractors are applied where there is failure of the labour to progress during its second stage or where the mother is tired. Extractors are of metal or plastic. They are cup shaped and applied to the emerging foetal skull to which they adhere through negative pressure, normally supplied by a vacuum pump.

6.38 In 1996 only 4% of births in Australia involved the use of vacuum extraction. Again, vacuum extraction is more often used in private than in public hospitals. In New South Wales in 1996, for example, 8.8% of births in private hospitals involved vacuum extraction. The figure for public hospitals was 4%.²⁸

6.39 Vacuum extraction often requires an episiotomy to be performed on the mother. It requires less maternal analgesia and causes less maternal trauma than forceps delivery but scalp trauma is increased in the baby.²⁹ If performed without the necessary skill damage can occur to the cervix and to the vaginal wall.

6.40 The use of vacuum extraction is more widespread in Europe and the United States than in Australia. In the United States its use has increased significantly in some hospitals, perhaps because of the pressure to reduce the rate of Caesarean delivery. While generally safe, increased use of vacuum extraction has resulted in an increased incidence of neonatal injury in the hospitals concerned. As a result, a protocol has been developed specifying the selection of women for this procedure, the supervision to be provided by physicians and technical aspects of the use of the extractor.³⁰

6.41 Both forceps and vacuum extraction have significantly greater adverse long term effects than do spontaneous vaginal births.

Compared with spontaneous births, women having forceps or Venthouse extraction had increased odds of perineal pain, sexual problems and urinary incontinence. These differences remained after adjusting for infant birth-weight, length of labour and degree of perineal trauma.³¹

28 Ibid, p.25.

29 See Chamberlain Geoffrey and Steer Philip. *Operative delivery*. British Medical Journal, vol. 318, May 1990, pp.1260-1264.

30 See Sachs B.P. et al. *The Risk of Lowering the Caesarean-Delivery Rate*, New England Journal of Medicine, 7 Jan 1999, vol. 340 pp.54-57.

31 Submission No. 97, p.23 (Department of Health and Aged Care). Refers to a study by Brown S. and Lumley J. *Maternal health after childbirth: result of an Australian based survey*. British Journal of Obstetrics and Gynaecology, February 1998, 105 (2), pp.156-161.

Episiotomy

6.42 An episiotomy is an incision of the perineum in order to enlarge the vaginal opening, lessen the curvature of the birth canal and facilitate the birth of the baby. It is necessary because the perineal skin does not stretch as well as the vagina and is subject to tearing during delivery. An episiotomy is also performed in cases where perineal tearing can be anticipated.

6.43 In some countries episiotomies are routinely performed during vaginal deliveries. This is not the position in Australia.

About 22% of Australian women have an episiotomy associated with delivery. This includes forceps and vacuum extraction deliveries. A woman is least likely to receive an episiotomy if she delivers in Queensland or the Northern Territory and most likely in South Australia. Repair of laceration was recorded in 10% of vaginal deliveries with an episiotomy but in 44% of vaginal deliveries without an episiotomy.³²

6.44 As with other forms of intervention, rates of episiotomy are generally much higher for women with private insurance than for those without it.

Episiotomy rates also vary markedly by accommodation status. A woman who elects private accommodation status on admission is almost twice as likely to receive an episiotomy than a woman with public accommodation status. The data for repair of perineal lacerations and, in the long term, for incontinence or uterine prolapse is not available by insurance status at delivery.³³

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Analysis of vaginal births from the above database [NSW Midwives Data Collection] does, indeed, confirm that episiotomy rates were substantially higher in private than in public hospitals throughout this period...In fact, episiotomy rates were around 10 to 13 percentage points higher in private hospitals. Given that episiotomy rates in public hospitals were of the order of 20%, this translates to a substantially higher probability (50-60% higher) of experiencing episiotomy when delivering vaginally in a NSW private hospital. Moreover, whilst [the figures] suggest a clear downward trend in the use of episiotomy in the public sector, perhaps in response to dissemination of current scientific evidence, consumer demand, or both, no such trend is evident in the private sector.³⁴

6.45 The picture is not uniform however. In Western Australia episiotomy rates in public hospitals are much higher than in some private ones.

32 Ibid, p.19.

33 Ibid, p.20.

34 Shorten Allison and Shorten Brett. *Episiotomy in NSW Hospitals 1993-1996: Towards understanding variations between public and private hospitals*. Australian Health Review, vol. 22, no.1 1999, p.22.

Episiotomy is not routine in the private health sector (eg 27% of women having deliveries at St John of God Health Care had an episiotomy in 1997-98)...The West Australian figures indicate that 42% of vaginal deliveries have an episiotomy.³⁵

6.46 There appear to be wide variations between hospitals. Women's Hospitals Australia advised the Committee that the average rate in its hospitals was 13% with a range between 4% and 27.7%.³⁶ In New South Wales rates varied from one health service area to another.

The episiotomy rate for NSW in 1997 was 19.3%. Rates varied in area health services from 3.2% in the Far West to 29.1% in Northern Sydney, to as high as 40% for some individual private hospitals. Women giving birth in private hospitals in NSW have a 50-65% higher chance of receiving an episiotomy than those in public hospitals.³⁷

6.47 Episiotomy has significant and long term effects on the mother. It is painful, can cause serious blood loss and dyspareunia. It may result in sphincter damage, although planned episiotomies are generally performed to reduce the damage associated with a large perineal tear which might occur if no episiotomy were performed.

6.48 Evidence considered by the Cochrane Collaboration in 1998 suggests that a conservative approach to episiotomy should be adopted.

The Cochrane Review (Carroli, Belizan & Stamp, 1989) comparing routine versus restrictive use of episiotomy states that restrictive use reduces rates of posterior perineal trauma, reduces the need to suture and has reduced associated healing complications by the seventh day postnatal. There was no evidence of increased pain, dyspareunia, urinary incontinence or severe vaginal or perineal trauma. Whilst anterior trauma was increased the evidence clearly supports a restrictive policy.³⁸

Interventions in childbirth – conclusions

6.49 Some of the interventions performed during childbirth are minimal, but evidence to the Committee suggests that close to 90% of all births in Australia include some form of intervention. The Committee was advised that once an intervention occurs it is likely to be followed by others as a consequence of the 'cascade of intervention' referred to earlier.

6.50 The culture of intervention in childbirth is now so pervasive that, it was suggested to the Committee, women requesting an intervention free birth were likely

35 Submission No. 89, p.7 (Catholic Health Australia).

36 See Submission No. 69, p.16 (Women's Hospitals Australia and Australian Healthcare Association).

37 Submission No. 38, p.7 (NSW Midwives Association).

38 Ibid, p.7.

to receive a much less sympathetic hearing than those who requested some form of intervention.

6.51 Patient demand/request, which is said to be a factor in Caesarean section, was rarely mentioned in connection with other interventions except with respect to epidural anaesthesia and, to a lesser extent, to induction.

6.52 High rates of intervention are associated with private health insurance and the size and style of the hospital in which birth takes place. Although the high rate of intervention among privately insured women can be partly explained by the older age of women in this group it does not fully explain the differences, given that such women are generally healthier and better prepared for the birth. Similarly, the concentration of women at high risk of developing complications in large tertiary hospitals can partly account for the higher rates of intervention in those institutions but it does not fully explain it.

6.53 The most significant determinant of intervention in childbirth is the type of care provided during birth and the background of the principal carer. For every form of intervention, rates are lowest where midwives are the principal carers, higher where general practitioners are the principal carers and highest where specialist obstetricians have this role. Again, the differences can be partly explained by the nature of the client group. Specialists attend women at highest risk and midwives those at least risk. Even allowing for these differences however, there is a clear association between type of carer and number of interventions.

6.54 Irrespective of the background of the principal carer, continuity of carer during the antenatal period and throughout the birth appears to be a significant contributor to low rates of intervention.

6.55 Some interventions are life saving, either for the mother or for the baby or for both. Others greatly reduce trauma, suffering and long term adverse consequences to mother and child. However, many appear to be almost routinely undertaken without any scientific evidence of their benefits as against their costs, in terms of perinatal and maternal morbidity. Factors other than objective clinical guidelines appear too often to influence the decision to intervene.

6.56 In these circumstances the Committee considers it imperative that evidence based research be undertaken on the costs and benefits of commonly performed interventions and on other routine practices in antenatal care and childbirth. Such research could then form the basis of best practice guidelines.

6.57 These issues are discussed in the following chapter.