

# PRACTICE OBSERVED

## *Practice Research*

### Are isolated maternity units run by general practitioners dangerous?

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#### Abstract

A retrospective survey was carried out of women admitted in labour to an isolated maternity unit run by general practitioners in Penrith. In the five years 1980-4, 1267 women began labour in Penrith, of whom 1153 (91%) never required help from a consultant unit. Ninety required transfer during labour. Ten mothers and four neonates required transfer during the early puerperium, all to one receiving unit in Carlisle. There were six perinatal deaths during the five years; five occurred in babies delivered after transfer. The perinatal mortality was 4.7/1000.

The low mortality, the low level of intervention, and the preference of women all support the retention of isolated units.

#### Introduction

Obstetrics was once seen as a vital part of British general practice. Yet in 1979 less than one third of general practitioners offered intrapartum care. This decline has resulted from a sharp decrease in the number of home births since the war and the disappearance of isolated units. According to figures for 1985 issued by the Department of Health and Social Security only 120 such units now remain in Britain. There has been a slight resurgence of interest because of the use of general practitioner units attached or integrated into consultant units, but Marsh *et al* have shown that greater use is made by general practitioners of isolated units than of attached units.<sup>1</sup>

The reduction in care offered by the general practitioner during birth seems to have occurred because of beliefs that such care is dangerous and that isolated units are expensive. Recent evidence, however, suggests that women prefer care given by their general practitioner.<sup>2</sup> Because of the continuing threat to isolated units I thought that it was important to examine one closely. I do not consider the financial aspects here, as two papers have already concluded that delivery in an isolated unit is much cheaper.<sup>3,4</sup> Instead, because difficult cases are transferred during labour, I examined the records of all women who were transferred during labour to a consultant unit and all women or neonates who were transferred immediately after birth (before they would otherwise have gone home). Such a survey has not, to my knowledge, been done before.

#### The unit

Penrith Hospital serves the southern part of east Cumbria. Women are referred from an area of roughly 330 square miles, requiring them to travel possible distances of up to 30 miles from the eastern limit. There are two—occasionally three—trained midwives present during the day, but only one at night. All 11 Penrith general practitioners and one general practitioner seven miles to the east attend births. Other outlying general practitioners refer women, who are attended by the Penrith general practitioners on a rota.

The population is almost entirely white. The social distribution is about normal, perhaps with classes I and V underrepresented. The general health of the population is above average. All women are seen by a midwife at their first appointment and again at 20 and 35 weeks. In addition, women regularly visit their general practitioner for antenatal care. All three consultants from Carlisle visit on a weekly rota and see patients booked for delivery in Carlisle and any patients booked for delivery in Penrith who are causing concern. Mothers who are booked for delivery in Penrith are not routinely seen by a consultant despite the recommendation in the Short report.<sup>5</sup> There are booking criteria for the unit in Carlisle (see table), though these are sometimes broken, generally after approval by the consultant. Happily, the consultants are on good terms with the general practitioners,

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allowing the intended place of delivery to be altered easily if necessary as pregnancy progresses. The consultants all support the unit.

Carlisle lies 19 miles to the north. Transfer takes 30 minutes, but if an ambulance has to be brought down from Carlisle it may take up to one hour. Penrith Hospital has a semiautomated pump for intravenous infusion of oxytocin, Neville Barnes forceps, and equipment for general anaesthesia. Only two general practitioners are competent to administer a general anaesthetic. Blood transfusion services are not available, and there are no continuous monitoring facilities. A flying squad is available, but it was not called during the study.

#### Booking criteria for consultant unit

##### Criteria

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Age under 18 years  
 Primipara over 30 years  
 Multipara over 35 years  
 Height under 150 cm  
 Parity four or more  
 Relevant obstetric history, especially previous caesarean section  
 Medical history—for example, hypertension, diabetes

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## Methods

I searched the admission book at Penrith Hospital and noted all the transfers and perinatal deaths for the years 1980-4. I then examined the notes of these patients and recorded name, age, parity, antenatal history, gestation, time in labour in Penrith and in Carlisle, method of delivery, condition and weight of the baby at birth, and subsequent puerperal or neonatal problems (details from Carlisle and Penrith are kept in the same volume of notes).

## Results

During the five years 1980-4 there were 2183 births in the catchment area of Penrith, of which 1585 (73%) were booked for delivery in Penrith. The table shows the booking criteria for the 27% booked for Carlisle.

Three hundred women had their bookings changed to Carlisle, and a further 18 went into labour before 36 weeks. Both of these groups were delivered in Carlisle and did not receive any intrapartum care in Penrith. They are not considered further.

Of the 1585 original bookings for Penrith, 1267 women (80%) began labour there. The outcomes for these 1267 women were: full care at the isolated unit (1153 women (91%)), transferred during labour (90 (7%)), mother transferred after delivery (10 (1%)), and neonate transferred after delivery (14 (1%)).

The reasons for the mothers being transferred during labour were: delay in the first stage (33 women (37%)), delay in the second stage (11 (12%)), fetal distress (17 (19%)), hypertension induced by pregnancy (10 (11%)), undiagnosed breech (6 (7%)), and others (13 (14%)). I shall examine each of these groups more closely here.

### WOMEN TRANSFERRED DURING LABOUR

#### Reasons for transfer

**Delay in labour**—I have not defined delay, but no increase in cervical dilatation between two vaginal examinations four hours apart would have indicated delay in the first stage. A second stage lasting longer than one hour in a primipara and 30 minutes in a multipara would have indicated a delay in the second stage. The 44 women in these two groups made up almost half of the transfers before delivery. All were given oxytocin, and their outcomes were: normal delivery (18 women (41%)), low forceps delivery (10 (23%)), ventouse or rotation forceps delivery (3 (7%)), and caesarean section (13 (29%)). Only four in this group had received oxytocin at the isolated unit and all four needed caesarean section. There were no perinatal deaths, though three babies required intubation. Greater use of oxytocin by the isolated unit might have reduced the number of women who had to be transferred in this group.

**Fetal distress**—The fetus was taken to be in distress if the fetal heart rate was repeatedly less than 100 beats/min or greater than 160 beats/min on auscultation or if meconium staining was present. There were 17 transfers in this group. Four of these had caesarean sections 2½, 6, 3½, and 12 hours

after transfer. There were no perinatal deaths, but one baby needed intubation.

**Hypertension induced by pregnancy**—Ten women were transferred because of a combination of proteinuria and a diastolic blood pressure greater than 100 mm Hg. All 10 had had normal blood pressures at the antenatal clinic one to two weeks before labour. On arrival at Carlisle one was given a hydralazine infusion, one an epidural, and one both. None of the 10 babies required resuscitation at birth.

**Undiagnosed breech**—Six women were discovered to have breech presentations during labour. All six were missed at the first vaginal examination during labour. Two were delivered by caesarean section. One of the babies delivered vaginally was stillborn (see below).

**Others**—Thirteen other women were transferred before delivery. Two had face presentations and were delivered by caesarean section. Two were thought to have transverse presentations but delivered normally. Two were found to have a high head in labour but delivered normally after transfer. One woman was found to have a cord prolapse on arrival at Penrith and was transferred very rapidly; a healthy boy was delivered by caesarean section. One woman with a placenta praevia was diagnosed at Penrith and transferred for immediate caesarean section; both the mother and her son were healthy after delivery. She had had a slight spotting at 30 weeks, but an ultrasound scan was reported to show a normal fundal placenta. Three women were transferred because of intrauterine death (see below).

### Perinatal deaths

One woman had refused antenatal care. She arrived in labour with a compound presentation. She delivered a stillborn anencephalic baby in the ambulance. Her mother had also had an anencephalic baby.

One woman was admitted in early labour, but no fetal heart beat was heard. She was transferred and delivered a fresh stillborn baby weighing 2.94 kg. There were two true knots in the cord.

Two women were admitted 14 days beyond term for induction. (The standard policy is to allow a woman to go up to 14 days beyond term provided that there are no other indications for induction; dates are confirmed by a routine scan at 16 weeks.) In one no fetal heart beat was heard. In the other the heart beat disappeared overnight before induction the next morning. Necropsy showed that both were well formed babies weighing 4.15 kg and 3.5 kg, respectively. Neither placenta showed infarction.

One primipara was found to have a breech presentation at 5 cm dilatation and was transferred. The cervix was dilated by 8 cm on arrival at Carlisle. Vaginal delivery was chosen, but the fetal heart stopped beating during the assisted second stage.

### Effect of age and parity

There was no great preponderance of any age group in those women who were transferred.

Five hundred and seven primiparas began labour in the isolated unit, and 443 (85%) delivered and stayed there. Of 760 multiparas starting labour in the isolated unit, 720 (95%) remained there. There was therefore a preponderance of primiparas in the transferred group, especially in the group who suffered from delays in labour (35 of 44) and in the group suffering from hypertension induced by pregnancy (nine of 10).

### MATERNAL TRANSFERS AFTER DELIVERY

Ten mothers were transferred after delivery. Two mothers with retained placentas needed them manually removed under general anaesthetic on arrival in Carlisle. Two mothers had perineal haematomas, which were explored under general anaesthesia. Three had anaemia: two were treated by transfusion and one with oral iron. One mother with abdominal pain was thought to have a broad ligament haematoma and was transfused. Two mothers needed admission to a mental hospital because of puerperal psychoses; both had had similar illnesses after the births of their first babies.

### NEONATAL TRANSFERS

Fourteen babies were transferred in the first few days. None died in the perinatal period. Four babies were dysmature. Two babies were born before 36 weeks, labour being too advanced for transfer before delivery. Four babies had cyanotic attacks: one died aged 5 months, but the findings at necropsy were inconclusive. There were single cases of tachypnoea, "snuffles," and hypoglycaemia. One baby who had severe respiratory

problems was sent to Carlisle, where it was found to have a diaphragmatic hernia and was rapidly moved to Newcastle. The repair was successful.

#### WOMEN REMAINING IN ISOLATED UNIT

Of 1267 women starting their labours in the isolated unit, 1152 (91%) delivered and remained there. The perinatal mortality for births actually taking place at Penrith over the five years was 0.87/1000; one baby died during delivery. The 27 year old mother was having her second baby. Labour proceeded normally until meconium staining was noticed at full dilatation. An hour later a stillborn baby was born, the fetal heart beat having stopped minutes before birth. The results of necropsy did not point to any particular cause.

In 1984 the episiotomy rate was 13%. The tear rate was 42%, leaving 45% with intact perineae. Two thirds of the mothers were breast feeding when discharged.

#### Discussion

Isolated units have come under attack from many directions, though interestingly not from consumers. When the committee that produced the Short report asked the Royal College of Midwives if small general practitioner hospitals were dangerous the college replied, "Yes, indeed they are."<sup>6</sup> In the same report the Royal College of Obstetricians and Gynaecologists described isolated units as "virtually obsolete in respect to meeting the sort of requirements you refer to."<sup>7</sup>

The Royal College of Obstetricians and Gynaecologists need not have qualified its remark. Isolated units are now virtually extinct; only 4.4% of births occur in them. Such units seem to have been driven out of British obstetrics by much unfounded belief in their danger. I can find no evidence to back up this belief except anecdote. A survey of over 100 isolated units in England and Wales showed an overall perinatal mortality of 1.1.<sup>8</sup> This survey, however, did not include transfers during labour, and the authors themselves suggested that "it is more logical to focus attention on the reasons for outside help being required."

My attention was focused by my two first obstetric patients at the unit as a principal in general practice: one with a prolapsed cord and one with a placenta praevia. Both babies were born alive and did well; now I see them occasionally riding their bicycles. At the time, however, I was seriously alarmed and decided to examine the outcome of all of those starting their labour in the unit.

I found a perinatal mortality of six in 1267 (4.7/1000). I have not concentrated on the deaths as this ignores the greater proportion of babies (>99.5%) who lived. Such deaths are, however, the only firm measure of obstetric outcome (there were no maternal deaths). The perinatal mortality for babies born after transfer was high (five in 114), but in only one case would the outcome probably have been happier if the isolated unit had never been there (in the opinion of one of the local obstetricians). I believe that I have shown that our isolated unit is not dangerous. Indeed, of 114 transfers, only 53 in the event needed help that was not available at the isolated unit. Ninety one per cent of women who began labour at the unit never needed a consultant unit.

The safety of isolated units depends on close and free liaison with the consultant obstetricians. The two groups of doctors must trust each other and understand each other's working methods.

Klein *et al* showed that a group of women at low risk (using much the same booking criteria as the Penrith isolated unit) delivered under care supervised by general practitioners suffered from less intervention than a matched group under specialist care.<sup>9</sup> The caesarean section rate for those starting labour in Penrith was 23 of 1267 (2%). A further 58 (5%) required forceps. I do not use this as an argument for closing consultant units, but I believe that the overall perinatal mortality of 4.7/1000 for babies whose mothers started labour in our unit supports the retention of such isolated units, given the low level of intervention and the preference of the women delivering there. Such a conclusion is important, as it coincides with

considerable pressure from consumers to restore childbirth as a natural process rather than one requiring interference.

A recent paper has shown that women wish for more care by general practitioners throughout pregnancy and during birth.<sup>4</sup> This probably reflects the different approach of the midwives in isolated units, where an attitude of helping the mother with her delivery and increasing her own self confidence is taken. Such an attitude cannot be so easy to take by midwives who see many obstetric difficulties and perhaps expect even more. If intrapartum care by general practitioners is to take place only in units attached to consultant units only women living in urban areas and their general practitioners will get their wish fulfilled.

In addition, Marsh *et al* have shown that the use of isolated units by general practitioners is higher than their use of integrated units.<sup>1</sup> I do not find this surprising—I feel more satisfied working in an isolated unit myself. I feel more responsible knowing that help is not available just next door, and more responsibility often brings more satisfaction. I have to think harder when making obstetric decisions.

The figures and comments contained in this paper may also be relevant to home deliveries of selected women at low risk because of the fewer facilities available at the isolated unit described. Much current obstetric practice needs to be re-examined, particularly in the light of the consumers' suggestions. If this does not happen the consumer will be left without any choice. Isolated units should remain one option.

I thank all the Penrith midwives for their practical help, especially Sisters Anne West and Angela Colls, the consultant obstetricians in Carlisle, especially Tony Brown for his encouragement and Willie Reid for his advice, and Mrs Veronica Eglin for typing.

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(Accepted 11 February 1987)

#### 100 YEARS AGO

While the attention of the civilised world is directed to the magnitude of the Forth Bridge undertaking, and while many thousands of visitors have inspected its progress, the town of South Queensferry beside it might be pointed to as one of the very worst, if not the worst, as regards water supply. How such a condition of matters would affect any outbreak such as that of cholera it is almost impossible to conjecture. The water supply (if such a miserable *fiasco* as at present exists can be termed such) gave out long ago; the water was then brought into the burgh and hawked about the street in carts, and Messrs. Tancred, Arrol, and Co., the constructors of the Forth Bridge, employed a steamer in bringing water from Starleyburn, on the opposite side of the Firth of Forth some miles distant, so that the sufferings of the inhabitants were to some extent mitigated. This week the "water supply" has again given out, and the inhabitants are dependent on the primitive method of carting it, and the importation of it from Starleyburn by the steamer, and the kindness of the Forth Bridge constructors. (*British Medical Journal* 1887;ii:733.)