

Workload, interventions and outcome in general practice obstetrics:

An analysis of six and a half years of obstetric care

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ABSTRACT

Analysis of the outcome, workload, and interventions occurring in a period of six and a half years of general practitioner obstetrics is presented. Some comparison has been made with previous published audits of general practitioner obstetric care in New Zealand. Concern is expressed regarding the loss of general practitioner input in obstetrics.

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Introduction

General Practitioner Obstetrician (GPO) obstetrics has rapidly declined in recent years with the introduction of modular payments and midwife only Lead Maternity Carers (LMCs).¹ Many GPOs have chosen to leave maternity care because of the lack of financial reward and the feeling of being undervalued. I wanted to record the workload involved as a GPO and get a better idea of the degree of intervention and skill involved in a reasonably typical GPO's experience. It seemed likely that the workload was more involved than the

planners of the new scheme (section 51 the LMC system) had considered.

Ashburton Maternity Unit is a level one unit with the facility to have occasional emergency caesarean sections performed in the adjacent hospital by a General Surgeon. The nearest base Obstetric Hospital is Christchurch Woman's Hospital (CWH), 90km away or roughly one hour's ambulance travel. The maternity unit is served by four to five hospital midwives (HHS), with whom the local GPOs co-operate closely. These midwives have until recently not acted as LMCs.

Method

Significant features of pregnancy and delivery were collected and recorded in a database for all pregnancies that the author was involved in between October 1966 and March 2002 (six and a half years). This included pregnancies for which the author was LMC for the third trimester and labour and birth or had been LMC and had referred the patient to base hospital for secondary care and patients for whom he had acted as locum for other LMCs during their absence from town. The database has been analysed to assess

the obstetric load and to look at outcomes, problems arising, referrals, transfers, and complications.

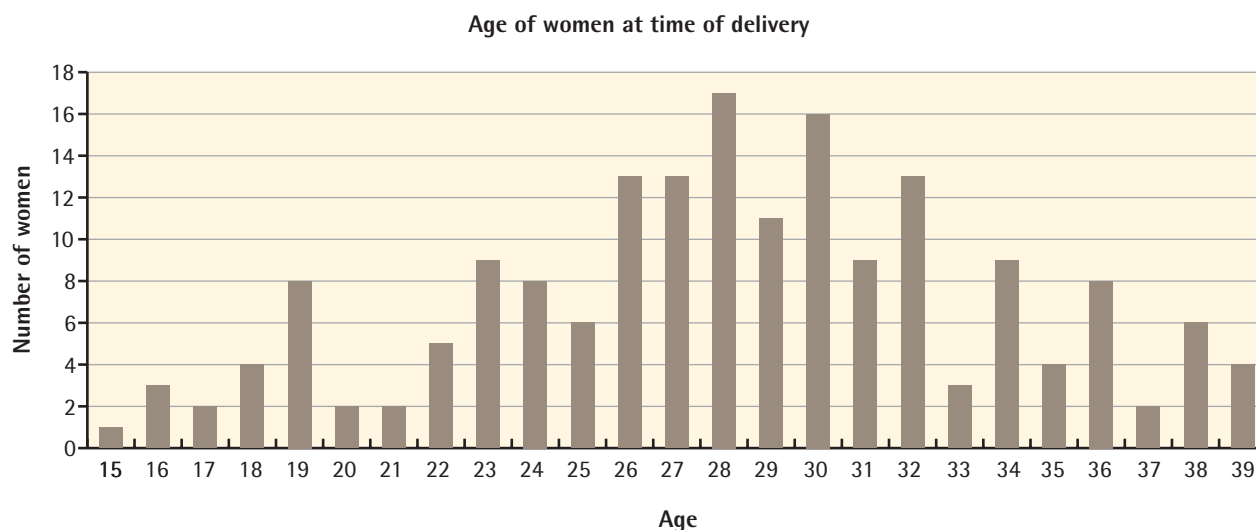
Results

Patient profile

Figure 1 shows the age profile of the women delivered. There were 18 women under 20 years of age and 20 women over 35 years old. The series involves a single pregnancy in 139 women, two pregnancies in 15 women, and three pregnancies in two women and one woman with four pregnancies making a total of 179 pregnancies in 157 women.

The women in the series had the following parity: Sixty-seven women (37%) were primipara, while 64 (36%), 28 (16%), 12 (7%) and 5 (3%) were delivering their second, third, fourth and fifth babies respectively. Two women were delivering their sixth baby and one her eighth. This last woman had an excellent obstetric history and a history of short labours and was allowed to labour in Ashburton as this was considered a safer option than travelling to CWH with the risk of a delivery in transit (Figure 2).

Figure 1. Patient profile



Antenatal visits

The author personally saw the women in this study for an average of six antenatal visits each (range 0–15). When those not choosing the author as LMC are removed from the calculation, the average goes up to eight antenatal visits per pregnancy. This does not include visits made to other GPOs in the author's absence or antenatal visits undertaken by the HHS midwives or base hospital specialists in shared-care arrangements. Such a calculation is likely to put the average antenatal visits per pregnancy nearer to 11 or 12 visits.

Delivering doctor

Of the 179 deliveries, the author performed 105 and was present for a further 18 delivered by a HHS midwife (a total of 69%). Other GPOs delivered a further six in the author's absence. There were five emergency Caesareans performed by the surgeons at Ashburton Hospital. Forty-two deliveries (23%) occurred at CWH. A further two women chose to deliver with a private specialist and one woman delivered precipitously at home. One hundred and thirty eight (77%) had booked the author as LMC. A further 14 (8%) were passed on to

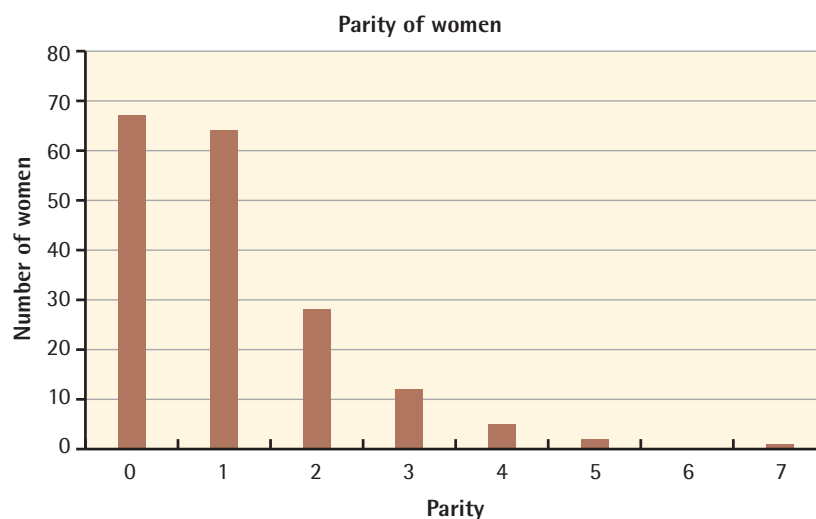
the author in the 3rd trimester by non-delivering colleagues, while 27 (15%) were attended in labour for fellow GPOs who were on leave. In turn, fellow GPOs delivered six of the author's patients while he was away. Effectively, excluding those patients referred to a specialist before labour, those delivered by fellow GPOs and those transferred to the base hospital in early labour, the author was responsible for supervising 138 labours.

Problems encountered

Premature delivery

Nine women delivered at less than 37 weeks gestation. Three were transferred in early labour with premature ruptured membranes and three had previously been booked at Christchurch because of a twin pregnancy, a suspected IUGR, and a previous Caesarean section. One woman with a history of two previous premature labours delivered a 32-weeks gestation infant in the ambulance close to the base hospital. Two women delivered in Ashburton because they were considered too far advanced in labour to be transferred. Both these women were at 36 weeks gestation and delivered babies weighing more than 2.5kg with good Apgar scores. Several of these premature babies developed jaundice and some required a period of phototherapy.

Figure 2. Patient parity



Babies weighing less than 2.5kg

There were nine babies who weighed less than 2.5kg. Four of these were under 37 weeks gestation and therefore come in the previous section. The remaining five ranged from 37.5 to 40 weeks gestation and weighed from 2 135 to 2 355gm. They all showed signs of Intra Uterine Growth Retardation (IUGR) which had been missed at antenatal assessment. One woman required augmentation because she failed to establish in labour. Two babies had assisted deliveries by vacuum extraction because of foetal distress and one had a Wrigley's forceps lift-out because of maternal exhaustion. All had Apgar scores of eight or more at one minute.

Apgar at one minute less than seven in babies delivered at Ashburton

There were eight babies whose Apgar score at one minute was less than seven. In five cases the score was five or six and the baby responded to stimulation and suction. Two remaining babies with scores less than five required oxygen and bagging, and one baby required intubation. One of the bagged babies was delivered by Caesarean section at 42 weeks gestation after induction for post maturity and evidence of foetal distress on monitoring. The other bagged baby delivered normally after a short labour and rapid second stage at 39 weeks gestation. The baby requiring intubation was delivered vaginally at 38 weeks in a Para 4 woman after a total labour time of less than one hour. This baby responded slowly with an Apgar of three at five minutes and seven at 10 minutes.

Inductions

The author induced a total of 27 labours. This constitutes 19% of the labours for which the author was responsible. The prime reason for induction was post maturity (23/27). Three women were induced between 38.5 and 40 weeks because of perceived reduced movements and fa-

vourable cervixes while one woman's labour was augmented after failing to begin labour at 38 weeks with spontaneous ruptured membranes. Of the 27 induced, 23 delivered vaginally in Ashburton, two required emergency Caesarean section in Ashburton and two were transferred in labour because of slow progress and went on to assisted vaginal delivery at CWH. The babies in both these transfers and in one of the Caesareans had a birth weight over 4kg while the other Caesarean weighed 2.8kg at 42 weeks gestation and must be considered to have the dual problems of post maturity and growth retardation. Overall, 13 of the 27 (48%) required assisted delivery or LSCS. In contrast, 12 of the 25 (48%) referred to CWH were induced while a further seven (28%) had an elective Caesarean section.

Assisted deliveries and malpresentations

Assisted delivery occurred in 27 of the author's deliveries. This includes 14 ventouse deliveries and 13 forceps deliveries. Six of these latter deliveries followed failed attempts at vacuum extraction while in seven forceps were used first off. The reasons for assistance were foetal distress (12 cases) and maternal tiredness or slow second stage in seven cases each. One woman suffered a third degree tear after forceps delivery. One baby suffered a large cephalohaematoma after a failed ventouse and follow on Neville Barnes forceps delivery. This baby was delivered in a persistent posterior presentation, as were two others who also had a failed ventouse and required forceps. One further persistent OP baby delivered with ventouse assistance, while three delivered without assistance. Apart from the above, a further three patients delivered at CWH were recorded as persistent OP presentation. Two of these delivered by Caesarean section and one with ventouse assistance. There may have been others delivering at CWH in the OP position,

which were not recorded, as the discharge summaries did not usually distinguish between OA and OP. The other malpresentations which occurred were four breech presentations and two transverse lies. Three with breech presentation were referred and delivered by elective Caesarean section while one presented unexpectedly in advanced labour at 37 weeks and was delivered in Ashburton. One woman, whose baby presented with a transverse lie, chose to attend a private specialist while the other presented in early labour with a high head and apparently transverse lie but changed to a vertex presentation during transit and delivered normally. One further patient was referred because of suspected face presentation at examination for induction but on arrival at CWH was considered to be normal vertex and proceeded to induction and delivery there.

Post-partum haemorrhage

Twelve women delivering in Ashburton had an estimated blood loss of 600 mls or more. Two of these had emergency Caesarean sections while one was the woman with the third degree tear. Of the remaining nine women, four had had a labour of less than six hours while in four labour was 14 hours or longer. One woman required a transfusion of two units of blood while one had a uterine evacuation after the bleeding remained heavier than expected following an overnight syntocinon infusion.

Caesarean sections

Five women had Caesarean sections in Ashburton performed by the local General Surgeon. In three cases this was due to foetal distress and it was considered that there was insufficient time to transfer the woman to CWH or it was considered that a Caesarean section would be needed anyway as the baby had shown signs of distress in early labour. The other two were booked for elective Caesarean at Ashburton because of having two

previous Caesareans. In both cases the women went into labour before the date of the planned procedure and had their Caesarean as an emergency. Eighteen of the 27 women referred to CWH or a private specialist delivered by Caesarean section. Nine of these were delivered as an elective procedure. Of the other nine, two were transferred in labour because of slow progress, four were sectioned because of slow progress after labouring in Christchurch, two babies developed distress and one woman did not establish labour after induction.

An overview of the problems encountered is presented in Figure 3.

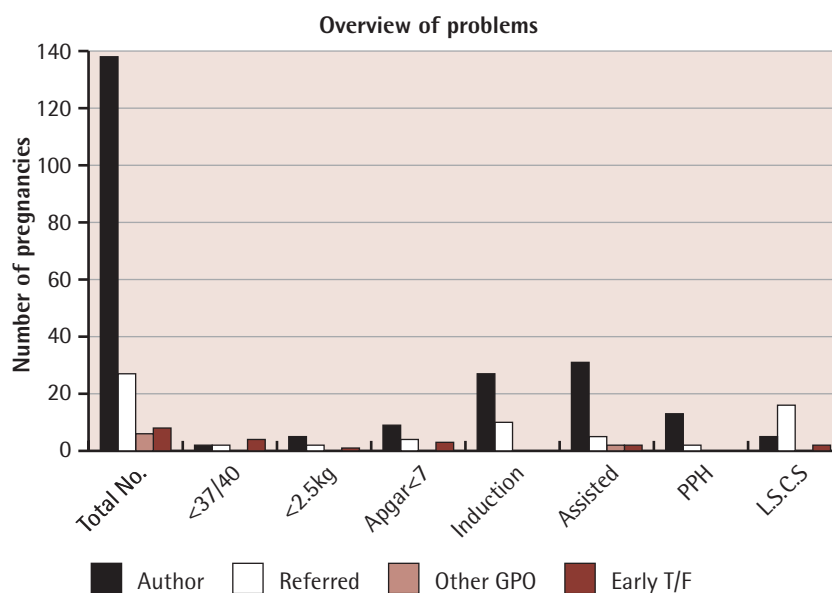
Referrals

Twenty-eight (15%) women were referred for specialist care before labour. The reasons for referral are shown in Figure 4 and are generally pregnancies at greater risk of complications and, as expected, required a considerably greater rate of intervention.

Transfers

Eighteen patients (10%) were transferred to Christchurch. Eight of these were transferred in early labour and

Figure 3. Obstetric problems encountered

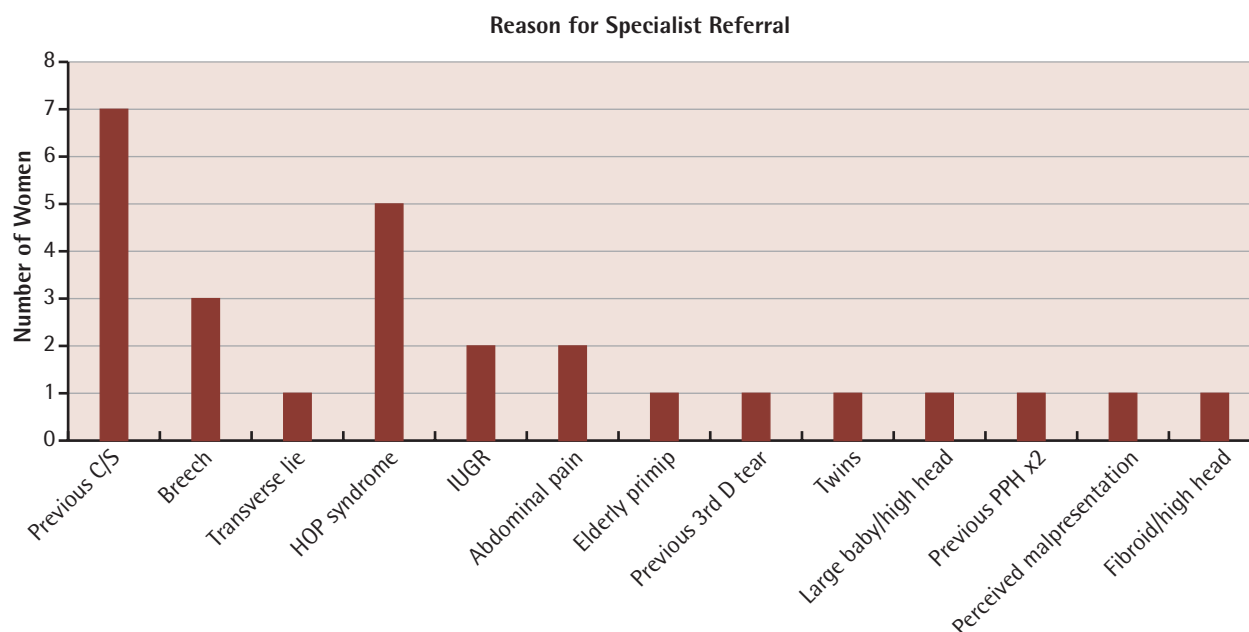


10 in established labour. The reasons for transfer in early labour are shown in Figure 5.

Seven of the ten transferred in established labour were sent because of slow progress in the first stage of labour. One of these and an eighth patient also had meconium without other evidence of foetal distress. One of the remaining two was an

unbooked patient who appeared to have a small baby while the final patient had been booked to deliver in CWH but had established in labour in Ashburton and needed assessment to see if she could safely get to CWH. Of these ten, four delivered without further intervention, six had epidurals, four were augmented with syntocinon, four had ventouse

Figure 4. Referrals

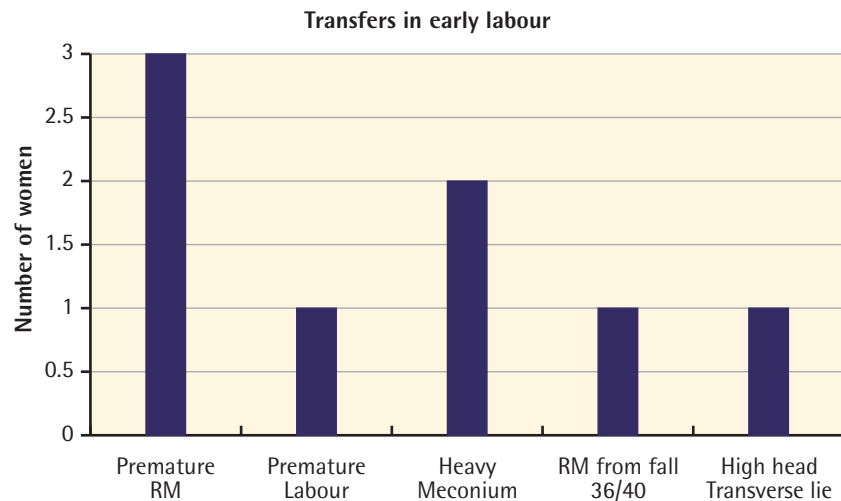


assistance, and two had forceps following ventouse and two delivered by Caesarean section.

Discussion

The database was started to assess the workload involved in General Practice Obstetrics. The belief was that the designers of Section 51 did not understand or account for the skills required or the interventions undertaken by a GPO. Such interventions, in general, would be beyond a midwife's skills and in the absence of a GPO would require specialist care. It was also clear that six years of data warranted analysis and thus an audit of the author's maternity care provided a chance to look at areas which might be improved. Just on 25% of the women were referred or transferred. Of the remaining 75% more than one in six (18%) required significant intervention. A similar proportion underwent induction of labour. With regard to improving outcomes there are two areas where possible improvement in care might occur. These are

Figure 5.



the detection of babies with IUGR and the assessment of the mother with a large baby who is likely to have a difficult labour and delivery.

A review of the literature revealed three previous New Zealand GPO maternity audits, all of much larger size than the current analysis.^{2,3,4} These previous studies look at trans-

fers, interventions and perinatal mortality rather than obstetric workload but do give some degree for comparison. The table below compares the current study with those previously published.

Overall the table displays the increasing trend to ensuring a favourable outcome with increased per-

Table 1. Comparison of maternity audits at Ashburton, Hokianga, and Tuatapere

	ASHBURTON 1996–2002		HOKIANGA 1974–86 *		TUATAPERE 1977–84 **	
Total pregnancies managed	179	100%***	813	100%	500	100%
Delivered at GPO Unit	133	74.3%	722	88.8%	420	84%
Normal deliveries	100	55.9%	656	80.7%		
Breech deliveries	1	0.6%	5	0.6%		
Instrument deliveries	27	15.1%	51	6.3%		
Twin deliveries	0		4	0.5%		
LSCS deliveries	5	2.8%	6	0.7%		
Patients transferred for delivery	46	25.7%	91	11.2%	80	16%
Arranged transfers	28	15.6%	59	7.3%	48	9.6%
Transfers in labour	18	10.1%	32	3.9%	32	6.4%
OUTCOME of transferred patients						
Normal delivery	17	9.5%	34	4.2%		
Breech delivery	0		2	0.2%		
Instrument delivery	11	6.1%	5	0.6%		
LSCS delivery	18	10.1%	50	6.2%		

* The smaller report from Hokianga covers 1974–79 and presumably is included in the larger study.

** Only the last (third) from this study has been displayed. A further 1 000 deliveries were presented from the period 1964–76.

*** All percentages relate to the Total Pregnancies Managed.

centages of referrals and interventions both in terms of assisted deliveries and Caesarean sections in those transferred. It may also relate to the accessibility of Base Hospital obstetric services and the ethnicity of the different populations involved. The numbers from Ashburton are small but I believe show a reasonable comparison with the earlier studies considering the changes in women's expectations of outcome.

Outside New Zealand, The National Birth Centre Study⁵ authors considered that of the 11 814 low risk pregnancies in its study, 7.9% of women or babies suffered complications deemed serious or potentially life threatening. In the current study the rate of serious emergency complications is similar at 12.3% (12 foetal distress, two PPH requiring transfusion or transfer, and three infants requiring resuscitation. There were no cases of prolapsed cord, eclampsia or severe shoulder dystocia). Some would say that such complications could be prevented by earlier referral to a base obstetric unit but the consensus of a report on rural obstetrics in British Columbia⁶ points out that '*women in rural communities achieve better outcomes when*

cared for by local intrapartum programmes'. Indeed Nesbitt and others⁷ have shown increased frequency of small premature infants and maternal and newborn complications where a community has lost its maternity capability and become known as a 'high outflow community'. This can lead to increased costs both in terms of hospital care and specialist utilisation apart from the increased cost and inconvenience of travel and work loss to the family involved. Klein and co-authors⁸ have pointed out the cascade of events in such a situation, with reduced maternity services leading to reduced medical services and increased difficulty replacing medical personnel, which makes the community less attractive to workers and ultimately ends with reduced community sustainability.

Conclusion

Problems arise in a substantial number of pregnancies even with good antenatal screening. The practising GPO has acquired a wide range

of skills that allow for intervention and the achievement of a satisfactory outcome in a significant proportion of such labours and thus reduces the need for specialist intervention or travel away from the home locality. Particularly in rural areas it is important that there is continuing cooperation and support between GPOs and midwives. The introduction of the LMC system and midwife only care has led to a substantial loss of GPO skills to New Zealand's obstetric workforce. Not having a GPO available at labour and delivery has the potential to significantly increase the risk for mothers and babies.

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