Audit of 26 years of obstetrics in general practice

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Abstract

To assess the feasibility and quality of general practitioner obstetrics an audit of 1223 consecutive obstetric deliveries over 26 years was carried out with standard clinical records. The perinatal mortality of 9.0 per 1000 births was significantly better than the national average of about 19.0 per 1000 for the overall period. During the audit home deliveries virtually stopped. The proportion of consultant bookings and deliveries more than doubled because of more stringent booking arrangements despite relocation of the previously isolated general practitioner unit to beneath the consultant unit. Abnormal deliveries also rose significantly. A "steady state" was achieved during the final 11 years in which 73% of women booked to be delivered by their general practitioner, 64% were admitted to the general practitioner unit, and 54% were delivered by their general practitioner. Though this is enough to sustain obstetric experience, the proportion might safely be increased.

Introduction

Obstetric care by general practitioners has long been controversial, with obstetricians criticising general practitioners for not producing adequate data. General practitioners, however, can and do have active roles in obstetric care and deliveries. To overcome the lack of available data and to support the role of general practitioners we carried out an audit of 26 years' obstetric care. We measured the quality of the outcome and the changes in the process of care and assessed whether an audit of this type was feasible and worth while.

Our practice had five partners during the period studied. The social class distribution of the 15 000 patients approximates to the national average, and there are no sizable ethnic minorities. Each doctor has a personal list. Obstetric care used to be provided by a triad of doctor, nurse, and receptionist, but in the past decade a comprehensive primary health care obstetric team has developed.¹ The team provides antenatal care and a postnatal examination of all mothers, irrespective of their delivery arrangements, though those booked for specialist care also attend hospital clinics, usually two or three times.

During 1962-8 home deliveries were fairly common, and other general practitioner cases were delivered in an isolated general practitioner maternity unit. Bookings were left to the general practitioner's discretion, but a specialist attended the unit once a week to see any problem patients. Difficulties during labour entailed transporting the patient by ambulance to a special unit 11 km away.

In mid-1968 the general practitioner maternity unit closed and resumed its function on one floor of a new hospital with other floors housing specialist units. General practitioners' bookings for the unit are

Reasons for general practitioner being present during labour

- Provides continuity and confidence
- Confirms normality with midwife
- Deals with minor problems
- Takes responsibility for referral to specialist
- Supports relatives (who are probably the general practitioner's patients)
- Encourages and assesses bonding
- Provides skilled hands in an emergency
- Enjoys it

assessed by a consultant, who refers any whom he or she thinks might be too high a risk to a monthly booking committee comprising two general practitioners, one consultant, and senior midwifery staff. A consensus view decides where the women are ultimately booked. The general practitioner unit also provides an early discharge unit to which suitable patients expressing this preference may be booked for discharge a few hours after delivery.

Each doctor, or a partner, is available 24 hours a day for his or her own bookings. The practice's policy has always been that, regardless of off duty hours and weekends, the partner who has given the antenatal care undertakes care in labour. Hence the normal off duty rota excludes obstetrics unless the doctor concerned is actually away. All partners believe that they should visit during the first stage of labour and be present at delivery, not only lest problems occur but also to continue the psychological and clinical support provided antenatally (box).

Throughout the paper the patients referred to were those of GNM.

Method

We analysed 1215 consecutive pregnancies of more than 28 weeks' gestation on GNM's list during 1962-88. The data were abstracted from standard clinical records into a register. Initially, interim totals and percentages were readily calculable; later a simple database on a home computer was set up for counting and statistical testing by two tailed χ^2 tests. To examine time trends the audit was retrospectively divided into four periods: the six years up to the opening of the new maternity hospital (1962-8) (350 pregnancies); the next eight and a half years (1968-76) (363 pregnancies); the next five years (1977-81) (264 pregnancies); and the next six and a half years (1982-8) (238 pregnancies).

Results

Of the 1215 pregnancies, 481 (39.6%) were first pregnancies (compared with 42.2% in England and Wales in 1980²); 1223 babies were delivered, including

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eight sets of twins. Seven stillbirths and four neonatal deaths occurred, giving an overall perinatal mortality of 9.0/1000. The scatter and low number of these deaths precluded the detection of any underlying trend in perinatal mortality. The overall rate, however, was less than half the average perinatal mortality for England and Wales (19.0) and for the Northern region (estimated 20.0) during 1962-87 ($p < 0.01$ in both cases).^{3,4}

Table I shows the results of the audit in the four periods and the significance of the differences found. Between the first and second periods (1962-8 and 1968-76), coinciding with the opening of the new district maternity hospital, the number of home bookings and deliveries fell significantly. A small proportion of women who would otherwise have been booked to deliver at home took advantage of the early discharge facility. Consultant bookings doubled from 10% to 20% and consultant deliveries from 20% to 40%. The proportion of spontaneous vertex deliveries fell from 92% to 85%, forceps deliveries increased from 4% to 9%, and caesarean sections also increased. Smaller but still significant changes in the same direction occurred between the second period (1968-76) and the third and fourth periods combined (1977-88). The number of consultant bookings and deliveries increased again. The proportion of spontaneous vertex deliveries fell, whereas that of forceps deliveries and caesarean sections trebled compared with the first period. The proportions in the third and fourth periods, totalling

11 and a half years, were similar, suggesting the attainment of a steady state.

Table II shows the general practitioner unit's share of hospital bookings, admissions, and deliveries for the steady state period of the audit (1977-88). These are contrasted with figures from an Oxford hospital in 1987 and the combined NHS hospitals in England and Wales in 1980.²

Table III compares the deliveries by type during 1977-88 with those nationally in 1980.² As the total distributions were so similar the considerably higher proportion of abnormal deliveries in the audit's consultant unit (compared with the national average for consultant units) was directly attributable to the much lower proportion of the total deliveries undertaken in that unit.

Discussion

LONG TERM AUDIT

Continuity of care is considered the hallmark of good general practice; I (GNM) now have the pleasure of delivering the babies of many women whom I delivered a generation ago. Thus the successful results of this long term audit have been personally gratifying. Several preconditions allowed the audit to be done.

Standard, carefully completed working records were used; there was therefore no extra research strain within the practice. The obstetric record card of the Royal College of General Practitioners was used

TABLE I—Bookings and deliveries and their outcome, 1962-88. Figures are numbers (percentages) unless stated otherwise

	Time period				Total	Significance of change (p value)	
	1962-8	1968-76	1977-81	1982-8		1962-8 v 1968-76	1968-76 v 1977-88
No of years in study	6	8.5	5	6.5	26		
No of pregnancies	350	363	264	238	1215		
No of babies	354	363	264	242	1223		
No of pregnancies/year	58.3	42.7	52.8	36.6	46.7		
<i>Place where delivery booked to occur</i>							
Home	126 (36.0)	12 (3.3)	1 (0.4)	16 (6.7)	139 (11.4)	<0.001	<0.01
Early discharge unit	NA	35 (9.6)	8 (3.0)	15 (6.3)	59 (4.9)	<0.001	<0.01
General practitioner unit	187 (53.4)	240 (66.1)	183 (69.3)	157 (66.0)	767 (63.1)	<0.001	
Consultant unit	37 (10.6)	76 (20.9)	72 (27.3)	65 (27.3)	250 (20.6)	<0.001	<0.05
<i>Transfer to consultant care</i>							
In pregnancy*	25 (8.0)	39 (13.6)	20 (10.4)	21 (12.1)	105 (10.9)	<0.05	
In labour*	10 (3.2)	29 (10.1)	25 (13.0)	22 (12.7)	86 (8.9)	<0.001	
In puerperium*	2 (0.6)				2 (0.2)		
<i>Place of delivery</i>							
Home	116 (33.1)	17 (4.7)	2 (0.8)	1 (0.4)	136 (11.2)	<0.001	<0.001
Early discharge unit	NA	27 (7.4)	7 (2.7)	15 (6.3)	49 (4.0)	<0.001	
General practitioner unit	162 (46.3)	175 (48.5)	135 (51.1)	114 (47.9)	587 (48.3)		
Consultant unit	72 (20.6)	143 (39.4)	120 (45.5)	108 (45.4)	443 (36.5)	<0.001	
<i>Type of delivery</i>							
Spontaneous vertex	322 (92.0)	307 (84.6)	201 (76.1)	184 (77.3)	1014 (83.5)	<0.01	<0.01
Forceps	13 (3.7)	33 (9.1)	38 (14.4)	30 (12.6)	114 (9.4)	<0.001	<0.001
Breech	6 (1.7)	6 (1.7)	5 (1.9)	4 (1.7)	21 (1.7)		
Caesarean section	9 (2.6)	17 (4.7)	19 (7.2)	18 (7.6)	63 (5.2)	<0.001†	
Other			1 (0.4)	2 (0.8)	3 (0.2)		
<i>Outcome</i>							
Alive at 7 days	350 (98.9)	361 (99.4)	260 (98.5)	241 (99.6)	1212 (99.1)		
Stillbirth	3 (0.8)	1 (0.3)	2 (0.8)	1 (0.4)	7 (0.6)		
Neonatal death	1 (0.3)	1 (0.3)	2 (0.8)		4 (0.3)		

*Percentages are of non-consultant bookings. Four women booked to deliver in general practitioner unit were admitted to consultant ward in error; two women booked to deliver in consultant unit were delivered by general practitioner because of precipitate labour.
†1962-8 v 1982-8.

TABLE II—Comparison of general practitioner unit's share of hospital bookings, admissions, and deliveries in present audit, Oxford, and England and Wales. Figures are numbers (percentages) of women

	Present audit (steady state), 1977-88 (11.5 years)*			Oxford, 1987† (n=2058)	England and Wales, 1980‡ (n=58 352)‡
	Primiparous (n=202)	Multiparous (n=299)	Total (n=501)		
Booked into general practitioner unit	160 (79.2)	204 (68.2)	364 (72.7)	973 (47.3)	NA
Admitted to general practitioner unit	137 (67.8)	185 (61.9)	322 (64.3)	821 (39.9)	6594 (11.3)
Delivered to general practitioner unit	108 (53.5)	163 (54.5)	271 (54.1)	705 (34.3)	6010 (10.3)

*Figures include early discharge unit.

†M J V Bull. GP maternity unit: report for 1987. Oxford: John Radcliffe Hospital, 1988.

‡Hospital In-Patient Enquiry (one in 10) sample; figures exclude 2058 cases in which ward of admission and delivery was not known.

TABLE III—Comparison of deliveries by type in general practitioner and consultant units in present audit and England and Wales. Figures are numbers (percentages) of women

	Present audit (steady state), 1977-88 (11.5 years)			England and Wales, 1980 [*]		
	General practitioner unit† (n=271)	Consultant unit (n=228)	Total (n=499)	General practitioner unit (n=6025)	Consultant unit (n=52 327)	Total‡ (n=60 410)
Spontaneous vertex	246 (90.8)	136 (59.6)	382 (76.6)	5 829 (96.7)	39 531 (75.5)	46 920 (77.7)
Forceps	24 (8.9)	44 (19.3)	68 (13.6)	177 (2.9)	6 402 (12.2)	6 841 (11.3)
Ventouse extraction	1 (0.4)	2 (0.9)	3 (0.6)	12 (0.2)	372 (0.7)	395 (0.7)
Breech extraction		9 (3.9)	9 (1.8)	7 (0.1)	725 (1.4)	748 (1.2)
Caesarean section		37 (16.2)	37 (7.4)		5 253 (10.0)	5 460 (9.0)
Other					44 (0.1)	46 (0.1)

*Hospital In-Patient Enquiry (one in 10) sample.

†Figures include early discharge unit.

‡Total figures include 2058 deliveries in which ward of delivery was not known.

throughout and extracted from the patient's total record at the postnatal examination. If the mother did not attend for a postnatal examination the data were extracted when the family practitioner committee's claim form was submitted. I had an open list and took my fair share of newly registering families across the entire period. This minimised the problem of the aging list of the aging doctor and maintained a sufficient number of obstetric cases. Also, the audit was carried out on my personal list of patients, hence reducing recording by partners less committed to the data. Finally, help from a sophisticated primary health care team enabled me to sustain a list of 3000 to 3500 patients across the entire period. Small list sizes reduce clinical experience in this as in other aspects of clinical work. I have been attending 20-40 deliveries and doing two or three low forceps deliveries each year, which is quite enough to keep a trained, adequately refreshed general practitioner in practice. My 9% rate of transfer in labour—effectively three women a year—has given me adequate experience of the onset of difficulties.

OUTCOME

Perinatal mortality is the customary measure of outcome of obstetric care. At 9.0 per 1000 births this was significantly better than the national and regional rates across the whole period (19.0 and 20.0 per 1000 respectively). If the rate had equated with that for England and Wales 12 more perinatal deaths would have been expected, and if it had equated with the Northern region's 13 or 14 more deaths would have been expected. This system of care, with about 60% of babies being delivered under the care of their general practitioner, thus gave excellent results.

CHANGES IN PROCESS OF CARE

Certainly the most important change during the 26

years was the virtual disappearance of home deliveries. Although during 1962-76 I concurred with the prevailing view of obstetricians that home deliveries could be dangerous, since that time I have not dissuaded low risk mothers in their second or subsequent pregnancies from having a home delivery. In the event there has been only one such request, possibly because of our offer of care by their own doctor and midwife in a nearby, familiar hospital with the expressed aim of a normal physiological birth. In addition, mothers have been permitted to choose their duration of stay in hospital. During 1982-8 only 6.3% chose early discharge, but discharge at 48 hours has become virtually the norm for normal mothers and babies. Largely because of this a puerperal ward has closed.

One of the paradoxes of this survey is that when the site of general practitioner deliveries was moved from an isolated unit 11 km from specialist facilities to the floor beneath them the proportion of consultant bookings actually increased from 11% to 21% and in the later periods to 27%. Yet, despite this, transfers in pregnancy also increased from 8% to 14%, ultimately settling at around 12%. I believe that the rigorous criteria of booking and the high rates of transfer for fairly minor problems were due to obstetricians assuming a responsibility for all obstetric work within their district and being anxious about the newly available data on district perinatal mortality.

The significantly higher rate of transfer in labour, from 3% to about 12%, once the units were in the same building arose largely from this ease of access as well as a greater belief in technology (such as intravenous drips, monitors) for even minor problems in virtually normal labours. In addition, general practitioners think that prolonged and often painful labours previously tolerated by women may be avoided by judicious use of oxytocic drugs and by using epidural analgesia when more normal methods are proving inadequate.

CURRENT METHOD OF CARE

The results show that after major changes in the first two periods studied there were virtually no differences between 1977-81 and 1982-8. In this practice 73% of women are booked for the general practitioner unit, 64% are admitted in labour, and 54% deliver there. The Oxford general practitioner unit, which is integrated with its consultant unit, has equivalent average figures of 47%, 40%, and 34%. The variation among practices in Oxford is, however, extreme, and in 1987 only two practices booked and delivered a higher proportion of women than I did. Whether our unit was alongside or integrated seems to have had little effect on the proportion of women delivered by their general practitioner compared with the effect of the individual general practitioner's enthusiasm. In recent years a steady state has been achieved, yet almost 60% of the women in our practice who delivered in the consultant unit had a spontaneous vertex delivery; perhaps the time has come to review booking criteria

Perinatal mortality over 26 years of general practitioner obstetrics compared with national and Northern region rates

so that more of those women may be given the opportunity of obstetric care by their own general practitioner and midwife.⁵ The latest data on predicting risk should facilitate that process.⁶

The higher proportion of total deliveries that I undertake in the general practitioner unit lowers my rate of spontaneous vertex deliveries to 91% because I inevitably get more low forceps deliveries. Also those of my patients delivered in the consultant unit have a high proportion of abnormal deliveries (40%), including forceps deliveries (19%) and caesarean sections (16%); these are considerably higher proportions than the average for consultant units in England and Wales. Thus increased participation of general practitioners in normal care would leave the work of a consultant unit more relevant and specialised. It should make such units more attractive to specialist obstetricians in training, although conversely senior house officers doing the obstetric component of their training to be general practitioners will need to be made aware of the normal work going on in the associated general practitioner unit.

For the 60% of women who had spontaneous vertex deliveries in our consultant unit the close presence of a general practitioner unit was important. The philosophy of general practitioner obstetrics and the fastidious care of normal deliveries has spread to the specialist unit, largely by midwives who move from one to the other. Avoiding shaves and enemas, encouraging mobility in the first stage, emphasising the role of the companion in labour, softening the surroundings (with pictures, music, frequent baths), reducing the use of intravenous drips and monitors and other "technology" in normal deliveries, encouraging free choice of position in labour, avoiding episiotomies, and attending to measures of bonding are among the

changes that have been absorbed across the years by the consultant unit and ultimately implemented in their normal deliveries.

FUTURE AUDITING

Now that national perinatal mortality has fallen to such a low rate and must eventually level off broader measures of care are needed. In the 1990s the process of care should be more rigorously scrutinised, aiming at lowering unnecessary interventions such as inductions, intravenous treatment, episiotomies, forceps and ventouse deliveries, and caesarean sections. In terms of outcome the aims should be a smaller proportion of low birthweight babies, improved Apgar scores, lower rates of transfer to special care baby units, and a higher proportion of breast fed babies. Assessing maternal satisfaction with labour must not be forgotten. Good practices and hospital units will have started such auditing already.

I thank my partners for their skill over the years when they have deputised for me; the consultants, registrars, and senior house officers for their care of the abnormal patients in my series; and Mrs K McFarlane for her careful assemblage of the records and secretarial skill.

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