ACCOUNT OF 1,000 CONSECUTIVE DELIVERIES IN A GENERAL PRACTICE BASED ON A TYPE OF MATERNITY UNIT*

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"The College policy on this matter is that the specialist, the general-practitioner obstetrician, and the midwife 'will be brought into close relationship with each other and in the fullest sense work together as a team.'—From the report of a Committee appointed by the Royal College of Obstetricians and Gynaecologists to make recommendations on General Practitioner Maternity Units (*B.M.J.*, 1962, 1, 391).

The facilities available in the Wallasey area provide the ideal arrangement by which this co-ordination might be achieved under the prevailing conditions of the Health Service. Support is given to this statement by the results shown in the present survey of our obstetric practice:

Total population of practice	..	..	6,000
Period	..	..	1948-59
Births	..	..	1,000
Primigravidae	..	..	429
Deliveries in the unit	..	..	626

The hospital unit, which has 47 beds, covers a population of 104,000 and provides the fifty or so general-practitioner obstetricians in the area with full facilities for the delivery of a high proportion of their patients. Three consultant obstetricians provide continuous cover and routine out-patient supervision, as well as having theatre facilities for caesarean sections. A premature-baby unit is supervised by a consultant paediatrician and a clinical assistant. The selection committee includes the matron, medical officer of health, chairman of the house committee, and one general practitioner, who meet once a month to decide admissions on domestic grounds for residual beds after priorities have been allocated.

During the post-war years we have found that the virtual elimination of the risks of puerperal fever, post-partum haemorrhage, and inhalation anaesthesia (with the advent of local analgesia for forceps delivery) has removed much of the anxiety and morbidity from general-practitioner obstetrics. Adequate antenatal supervision remains the greatest safeguard against anaemia, toxæmia, and other preventable risks.

From the point of view of the patient, continuity of supervision by the same doctor, from early in pregnancy to the post-natal examination and beyond, seems most desirable. In preparing her for what should be an exhilarating experience, confidence is gained by careful antenatal organization, together with the reassurance of the doctor's attendance at delivery—normal or abnormal. We believe the personal relationship thus developed encourages the relaxed state of mind and body most favourable to a successful labour. This is further reinforced by the knowledge that consultant

opinion and help are readily available when required, without the need for transfer to a completely strange environment, except on rare occasions.

In developing this personal relationship, we hold a weekly antenatal clinic attended alternately by each of us, so that every patient is known to each doctor. The clinic is run on the appointments system and patients are referred to it after initial attendance during normal consulting hours, when the pregnancy is confirmed, personal and obstetric history noted, and a general examination made. Experience has shown that much time is spared and many errors are avoided by the handing out, on this occasion, of a typewritten sheet giving certain information, developed over the years, which is much appreciated by the patient. The information is briefly stated under the following headings: (1) place and time of weekly clinic and alternation of attending doctor; (2) delivery of urine specimen; (3) blood-group cards; (4) necessity for continuous supplementary iron; (5) entitlement to poliomyelitis inoculation; (6) telephone numbers of doctors, ambulance, and maternity hospital; (7) notification of commencement of labour; and (8) timing of post-natal examination.

Primigravidae are also given a copy of the excellent *Family Doctor* booklet "You and Your Baby." These are not only helpful to the expectant mother but anticipate many of the time-wasting questions asked during consultation.

The patient is invited to ring the doctor when she thinks labour is starting—at any time of the day or night. Not many, in fact, ring during the night for this purpose, but it is the type of call which reassures the anxious patient, enables a decision to be taken, and may make the doctor even thankful at not having to leave his bed.

The record card is on routine lines but remains as simple as possible to enable the accustomed user to make a rapid appraisal of the case. These cards are stored in a wooden box which is easily portable and always available to the doctor on duty.

Conditions Occurring in Pregnancy

Anaemia

By using a Sahli haemoglobinometer, which takes only a few minutes, the haemoglobin is checked early in pregnancy and again at 36 weeks, a full count being arranged when considered necessary. Compound ferrous sulphate tablets are prescribed routinely throughout the pregnancy, a suitable warning being given to prevent access to children. The patient is held responsible for maintaining her supply by requesting repeat prescriptions.

The ease with which some patients will discontinue the tablets without informing the doctor is somewhat surprising.

Case 1.—One patient, after a normal but premature fourth delivery, sustained an estimated blood loss of 1 pint (570 ml.) followed by profound shock, and a subsequent haemoglobin estimation showed a reading of 35%. We discovered that the iron prescribed had upset her digestion and she had simply left it alone. Earlier pregnancies had ended in abortions or premature deliveries and were associated with a degree of ill-health and exhaustion accepted as normal for pregnancy but no doubt related to a chronic anaemic state. During subsequent pregnancies, which have all reached term, she has required intravenous iron to maintain

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a satisfactory haemoglobin level—no oral preparation being acceptable; there has been a great improvement in her general health.

Case 2.—In another case, where the iron tablets had been taken conscientiously, the haemoglobin remained at 60% despite adequate folic acid and an injection of vitamin B₁₂ given on separate occasions as therapeutic tests. The haemoglobin, however, rose to 95% within nine days after delivery without any form of therapy. In this case the level seemed too low to be explained on the basis of a physiological haemodilution of pregnancy, and was probably due to poor absorption of folic acid.

In recent years much work has been published on the subject of anaemia in pregnancy, as a result of which routine folic acid is supplied at or about the 30th week (5 mg. b.d. for seven weeks). This has been found to yield a significant increase in haemoglobin levels in pregnant women and should prevent macrocytic anaemia of pregnancy. We are aware that this procedure may mask the rare case of an undiagnosed pernicious anaemia, but the earlier general examination provides some safeguard against this possibility, while the burden placed on the laboratory services by routine full counts would render such a procedure impracticable.

Haemorrhagic Disease of the Newborn

In order to prevent the occurrence of this disease—estimated to lie between 1 in 600 and 1 in 200 births—routine vitamin K is prescribed at 36 weeks (5 mg. b.d. for 12 days). This should avoid the necessity to inject the affected infant with vitamin K, and also the associated risks of too large a dose being given this way. Patients are encouraged to regard the various tablets as essential food additives rather than medicines.

Toxaemia

Careful antenatal supervision probably serves its greatest purpose in the early detection and treatment of toxaemia, in which two lives are at stake, not one. Undue increase in weight may well be the first indication of its onset. In this series we found the average gain in weight to be in keeping with the accepted level of 1 lb. (450 g.) a week. Of 15 women whose weight increased by more than 42 lb. (19 kg.) after the 12th week, three had the full picture of toxaemia, while another, a primigravida aged 31, having marked oedema but no other signs or symptoms of toxaemia, gained 13½ lb. (6.1 kg.) in the 39th and 40th weeks. Her blood-pressure was 120/80 in the 41st week and 160/90 in the 42nd week, when delivery followed artificial rupture of the membranes. The importance of the gain in weight will be realized when it is stated that she had two fits during the puerperium—the only fits encountered in the series. Other patients, however, having no oedema or undue gain in weight, can develop a meteoric rise in blood-pressure, with increasingly severe albuminuria and changes in the fundi. Most of the 60 cases of toxaemia were of mild degree and easily controlled by the routine measures of reduced fluids and salt, with increased rest.

The introduction of diuretic and hypotensive drugs has now provided us with potent weapons which promise to reduce still further the demand for hospital beds in the management of this condition.

Period of Gestation

There were 58 premature deliveries (before the 38th week), the impression being that toxaemia, ante-partum haemorrhage, and maldevelopments occurred in what

might be termed their expected proportions. We are convinced that the anticipation of prematurity is a clear indication for delivery in the unit, where adequate facilities and specialist care are provided. Post-maturity, however, always brings the problem of intervention. In the light of experience, we gradually adopted the non-intervention policy, provided the pregnancy seemed otherwise normal. This is not surprising when one considers Table I.

TABLE I.—*Post-maturity (Over 14 Days)*

Total No.	77	
Recorded maximum	31 days	2 cases
Intervention	6 cases	4 medical induction 1 surgical induction (26 days) 1 surgical induction (caesarean section 25 days)
Foetal loss	1	+ 15 days. Multiple congenital abnormalities

The two cases reaching 31 days after term appeared to have convincing evidence of their extended gestation and both went into spontaneous and uneventful labour. Current opinion, however, has led us to change our policy to a trial of medical induction at 42 weeks, failing which consultant opinion is sought. This takes into account placental insufficiency, increasing size of the foetus, and parental anxiety.

X-ray examination was carried out in 94 cases, the usual indications being suspected foetal abnormality, disproportion, and placenta praevia, and occasionally to confirm maturity and position. Subsequent leukaemia was not encountered, although in one case, where x-ray examination was not undertaken, the child died of acute leukaemia at the age of 6 years.

Results

Table II compares two interesting but larger surveys with the present one, and with the figure for England

TABLE II.—*Comparison of Results*

	Hammer-smith Hospital	England and Wales	C.G.P. Obstetric Survey	Present Survey
	1956	1959	1957	1948–59
Total deliveries	2,224		4,277	1,000
Foetal loss per 1,000	37	36.7	34	22

and Wales. The foetal loss of 22 includes 13 stillbirths and 9 neonatal deaths—all of which occurred in the first week.

Attendance During Labour

From the earliest days of the period of this review it has been our policy, whenever possible, to maintain a personal watch over the labour. This was to become one of the important recommendations of the Cranbrook Report on the basis of safeguarding the mother and baby against unforeseen emergencies, giving confidence to the mother, and, incidentally, maintaining the doctor's experience.

The times when visits are most advantageous for the normally progressing labour are in early labour, at full dilatation, and at delivery. The first allows opportunity to determine the side on which the back is descending, an observation which can be of great value later in labour when vaginal diagnosis is difficult owing to the development of a large caput. The second is the occasion when vaginal diagnosis is made with the

greatest ease. The third encompasses most of the dramas associated with obstetrics in which the general practitioner can play an important part given good conditions in which to work. He must, however, retain a clear appreciation for the cues which point to the need for specialist aid.

The conditions requiring action most often were prevention and treatment of post-partum haemorrhage, manual removal of placenta, episiotomy, forceps delivery, and repair of the lacerated perineum.

The management of spontaneous delivery has become increasingly the prerogative of the midwife during the eleven years of this survey, and rightly so. Our realization of this fact, while remaining in full control of the case, has developed slowly as the "old order" changeth, yielding place to new.

When acting as obstetrician, the family doctor has, through his personal relationship with his patient, advantages which are shared by no one else. This establishment of mutual understanding and confidence is an emotional matter, but its existence yields very practical results. The course of labour during the late first and second stages can be smoothed out by the presence of one who knows the patient as a personality in contrast to just knowing her as a case. The mother feels she has an ally, someone on her side. In certain instances the travail is rendered less laborious, and our experience would suggest that the doctor's presence has reduced the incidence of forceps deliveries.

Intravenous Ergometrine.—Security against post-partum haemorrhage is an important service rendered by the doctor. We developed a more frequent use of ergometrine as a prophylactic shortly after the crowning of the head. In 32 instances it was carried out as a definite treatment for established bleeding. The decision to do this when the placenta remains in the cavity of the uterus has been one of the greatest life-saving measures of obstetrical practice evolved in recent years. Hypofibrinogenaemia was not encountered, but one case of post-partum haemorrhage failed to respond to all routine measures and a post-partum hysterectomy revealed a tumour within the uterus. Its identity was never agreed upon by the pathologists.

Manual Removal.—This operation, thanks to preliminary ergometrine, can now be planned and is no longer a bloody drama. It was carried out nine times with various forms of anaesthetic and on one occasion without any.

Episiotomy.—In vertex deliveries which were not assisted by forceps, episiotomy was performed to aid delivery in 54 instances. The repair, in which lacerations of the perineum can be included, was carried out by varying techniques. The final decision to carry this out solely with deep silkworm (or braided nylon) mattress sutures under local anaesthesia has been a contradiction of some earlier teaching. Without entering into the arena of argument on this matter, we have yet had no cause to regret this policy nor have we been convinced by any argument which condemns it.

Forceps Deliveries

Among the 1,000 cases there were 46 forceps deliveries—34 by the general practitioner and 12 by the consultant. Among the 43 primigravidae the forceps rate varied from 0% for those under 20 years to 28.6% in those aged 35–39. We think that the generally low

rate results from a combination of the policy of honouring an undertaking to be present at the birth, the free use of episiotomy, and, in the early years, a fear of the dangers of general anaesthesia on the unprepared patient. Toward the end of the series the last-mentioned factor was removed by the advent of pudendal block analgesia, which is now practised in all cases. It has been a revolutionary step for the general practitioner, and when carried out single-handed can still be further increased in safety by inserting a Gordh needle into a vein on the dorsum of the hand before starting. Through this a nurse attendant can administer ergometrine at any given moment. Local anaesthesia, so used, did undoubtedly increase the forceps rate a little. A single but unexpected complication occurred in the form of a massive haematoma in the posterior vaginal wall which presented as a low-grade pyrexia until its cause was detected and the blood evacuated by incision.

Rotation of the foetal head by forceps, Kielland or otherwise, was regarded as a specialist manoeuvre and not undertaken by us. Similarly, we never undertook forceps deliveries by ourselves unless the largest diameter of the head had passed the level of the ischial spines.

Calling the Consultant

General-practitioner obstetrics cannot be regarded in isolation. It is only possible to practise it effectively if the general practitioner, however competent, regards himself as a member of a team. This spirit is greatly enhanced by an obstetric unit where all members of the team play an active and well-defined part. The general practitioner has the role of personal obstetrician, which is backed up by his consultant colleague the specialist obstetrician.

The support and advice meted out during formal and informal consultations throughout pregnancy contribute considerably to the efficiency of the team-work. Calling the consultant for complications in labour is an integral part of general-practice obstetrics. Discrimination and nicety of timing are a matter of experience which improves with practice.

The attitude to calling for aid is influenced by a review of cases such as the present one on which our remarks are based. This is illustrated by the policy of version for all mobile breeches, which resulted in a total experience of breech delivery, for two general practitioners, amounting to 14 cases in 11 years. Where difficulty with any of these might be expected, such as in the elderly primigravida, there seemed an absolute indication for specialist help, as general-practitioner dexterity could never reach a high order with such sparse experience.

In contrast to antenatal care, wherein lies the golden opportunity for the general practitioner toward continued improvement, conduct of the labour places certain well-defined limitations upon him in dealing efficiently with abnormalities. This has been succinctly expressed by saying that one lifetime of general practice cannot provide enough material for it to be otherwise.

Naturally, full responsibility is accepted by the consultant for cases of caesarean section, of which there were 26 in the series, 21 being planned and 5 classed as "emergency." The factors which lead up to the operation, the procedure itself, and the aftercare are, however, all shared with the general practitioner, which

helps to widen his field of view—obstetrically speaking. In addition to the five emergency sections, which should be classed as specialist aid during labour, there were an additional 17 deliveries during which the consultant was called, and in every instance the delivery was completed by him. Thus in a total of 22 instances we required consultant help during labour.

Transfer to Specialist Hospitals.—Sixteen patients from the practice were transferred to specialist hospitals for delivery (Table III). These cases accounted for two of the foetal deaths occurring in this survey.

TABLE III

Reason	No.
Disproportion	5
Ante-partum haemorrhage	4
Rhesus incompatibility	4
Primary inertia (with haematemesis)	1
Placental insufficiency	1
Diabetes (severe)	1

Intravenous Infusion

It has always been our custom to carry intravenous infusion fluid and giving-sets in our motor-car. Infusions followed by blood transfusions have been carried out on seven occasions for cases delivered in the unit. As only one domiciliary case has required this, a high degree of credit must go to the principles adopted for the selection of cases. Further emphasis is given to this aspect of organization by noting that, excluding cases of premature labour, only three mothers booked for domiciliary delivery were transferred to the unit after the onset of labour. Of the 1,000 cases, 374 were delivered elsewhere than in the unit. Apart from a handful, these were all domiciliary deliveries. We would be pleased to see this figure further reduced if accommodation could be expanded, but we do believe that some place still remains for the home confinement. The strongest supporting factor for this is the wish of the expectant mother, balanced with her personality.

The Infant

Apart from the facilities for resuscitation of the baby, such as the mucus-extractor, intragastric oxygen apparatus, and even more specialized equipment such as an infant laryngoscope, there is the "premature baby" unit. This fully equipped section, presided over by a consultant paediatrician and a general-practitioner clinical assistant, greatly enhances the value of the unit. Shocked babies and neonatal abnormalities, as well as premature babies, find their way there, so that informal consultation with the paediatricians can take place under the same roof as the deliveries.

Not only do the mothers and infants stand to benefit by the comprehensive layout of the unit, but the general practitioner, who has much to do with it, finds himself enjoying a continuous and selective form of postgraduate education. We believe also that the consultants derive certain advantages from this closely knit collection of obstetricians, paediatricians, general practitioners, and midwives.

Conclusion

The maternity service described above provides the general-practitioner obstetrician with a high degree of satisfaction in the part which he is expected to play. All those cases which could be anticipated to harbour troubles are booked for delivery in the unit. The list of obstetrical criteria for admission includes all those that

are generally accepted as desirable for institutional delivery throughout this country. Those cases which have no such obstetrical feature but have some strong personal or domestic reason are also accepted. All accepted cases are seen at least twice by the consultant in the antenatal period, and one of these instances is at 36 weeks. There is always the opportunity for general practitioner and consultant to enter into discussion on problems of clinical or administrative practice. There is therefore the comfort of antenatal check by a specialist as well as ease of access to him for advice or aid during pregnancy and labour.

The general practitioner works in an intensely obstetrical atmosphere where all manner of cases are dealt with, where he has skilled midwife assistance, the best modern equipment, and specialist help for the baby as well as for the mother. He has a degree of responsibility and clinical freedom which is commensurate with his training and experience. If he enjoys maternity work—and he should not be a general-practitioner obstetrician if he doesn't—then he is a satisfied individual.

The foetal-loss figures indicate that a desirable standard of work is attainable. Fortunately there was no maternal mortality.

The consultant's view is not here under discussion. However, viewed from our angle, and bearing in mind the 22 cases which required his help during labour, we feel that his specialized skill was not exploited, and, having regard to the conditions for which he was called but which are not enumerated in this paper, we believe he would agree that in the majority of cases his journey was really necessary.

The general-practitioner maternity unit, as outlined by the Committee appointed by the Council of the Royal College of Obstetricians and Gynaecologists, is regarded by us as a step in reverse. The rigorous selection of cases is the main disagreement. With due respect, we submit that such a selection might apply to a unit manned by midwives only. To the general-practitioner obstetrician the removal of all possible variations from the strictly normal would stifle his enthusiasm and incentive. The acceptance of such a policy would undoubtedly stultify the creation of the general-practitioner obstetrician and thereby contradict the recommendations of the Cranbrook Report.

We are grateful to Professor T. N. A. Jeffcoate for much valuable guidance during the preparation of this paper, to Mr. S. B. Herd for his obstetric advice and encouragement in his capacity as consultant to the unit during the years of our survey, to our other consultant colleagues, to all midwife members of the team, and to our hard-worked secretaries.

"Last year 14,001 Europeans, 810 Asians and Coloureds, and 57,903 Africans, a total of 72,714, were treated as in-patients in Nyasaland. The total number of out-patient visits, excluding all African rural services, was 16,390 Europeans, 7,658 Asians and Coloureds, and 1,658,628 Africans. Including African services in rural areas, the total number of out-patient visits made throughout Nyasaland last year was 6,012,160. Last year the Federal Government's allocation to Nyasaland for health services was £1,088,097. Almost half of this was spent on wages and salaries, and more than £380,000 on recurrent expenses—drugs and medicines." (Rhodesia House, August 20, 1962.)