

AN INSTANCE OF EXCEPTIONALLY LOW MATERNAL MORTALITY IN LONDON, AND SOME COMMENTS ON THE CIRCUMSTANCES IN WHICH IT HAS BEEN SECURED

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MY attention having been drawn to the East End Maternity Hospital, Commercial Road, London, E. 1., as an institution in which an exceptionally low rate of maternal mortality in parturition has been experienced, I visited this institution on June 29, 1929, and made a careful examination of its record, the results of which and some observations thereon, are embodied in the following pages.

This institution was founded in 1884, the "Home" having seven beds at a house in Shadwell. After an experience of 427 confinements with one death,

the institution was removed in 1890 to its present address, and then had thirteen beds.

During the years 1890-1897, there were 1,629 confinements with 12 deaths. The number of beds was then increased to eighteen or nineteen including one isolation bed, and two labor beds, and during 1898-1902, 1,278 confinements occurred, with 2 deaths. In 1903, the number of beds was increased to twenty-seven (including one additional labor bed); and during 1903-1907, there were 1,966 confinements and 6 deaths. An additional neighboring house was acquired in 1908, with an increase of available beds to thirty-three.

No further increase of beds occurred until 1921. The period 1908-1921 may be conveniently divided into two, the first the pre-war 1908-1913, the second 1914-1920. In the period 1909-1913, 2,823 confinements oc-

curred with 6 deaths; in the period 1914-1920, 4,970 confinements with 10 deaths. Then a new ward was opened and there were now thirty-eight beds, increased soon afterwards to forty-one, and in 1921-1926, there were 6,373 confinements with 7 deaths.

The beds were next increased to fifty-six, and in 1927-1928, there were 2,517 confinements with 3 deaths. The maternal mortality per 1,000 births

among the patients confined in the Hospital or at home under the care of its staff, during its history, is shown in Table 1.

Thus during the entire experience of the Hospital, deaths of mothers have occurred at the rate of 2.1 per 1,000 infants born in the Hospital, and at the rate of 0.74 per 1,000 infants born in the home practice of the Hospital, or 1.35 per 1,000 infants born in its entire experience.

Table 1. Maternal mortality per 1,000 births among in-patients and out-patients of the East End Maternity Hospital, 1884-1928.

| PERIOD | NUMBER OF MOTHERS ADMITTED | NUMBER OF DEATHS | DEATHS PER 1,000 BIRTHS |
|------------------------------|----------------------------------|---------------------|----------------------------|
| A. HOSPITAL PATIENTS | | | |
| TOTAL | 22,383 | 47 | 2.10 |
| 1884-1889 | 427 | 1 | 2.34 |
| 1890-1897 | 1,629 | 12 | 7.37 |
| 1898-1902 | 1,278 | 2 | 1.57 |
| 1903-1907 | 1,966 | 6 | 3.05 |
| 1908-1913 | 3,223 | 6 | 2.13 |
| 1914-1920 | 4,970 | 10 | 2.01 |
| 1921-1926 | 6,373 | 7 | 1.10 |
| 1927-1928 | 2,517 | 3 | 1.19 |
| B. PATIENTS ATTENDED AT HOME | | | |
| TOTAL | 27,184 | 20 | 0.74 |
| 1884-1889 | | | |
| 1890-1897 | 1,548 | 3 | 1.94 |
| 1898-1902 | 1,530 | 5 | 3.27 |
| 1903-1907 | 2,384 | 1 | 0.42 |
| 1908-1913 | 5,597 | 1 | 0.18 |
| 1914-1920 | 7,490 | 8 | 1.07 |
| 1921-1926 | 7,027 | 2 | 0.29 |
| 1927-1928 | 1,608 | 0 | 0 |

As this mortality is only about one-third that of the metropolis as a whole, it is desirable to examine its record somewhat critically.

If there were marked superiority in the work of the Hospital, one would at first blush expect this to manifest itself in its interne experience, but in this the death rate is more than double that experienced in the home work of the Hospital. If one limits the comparison to the period 1914-1928, the same superiority of home over hospital experience is shown (1.45 as against 0.51). In both instances it probably does not represent any inherent superiority of parturition at home over parturition in hospital under reformed midwifery conditions, but only that more difficult cases are picked out for hospital treatment, as well as cases in which home conditions are specially unfavorable to successful lying-in.

But is the total experience of the Hospital, interne and externe (1.35 deaths per 1,000 births), comparable with the puerperal death rate for London as a whole for the single year 1928, which was 3.09 per 1,000 births?

The metropolitan figures in-

clude deaths due to complications in all stages of pregnancy, including abortion, whereas those for the East End Hospital refer particularly to births after the seventh or eighth month of pregnancy. How much does this affect the comparison?

There are no available English statistics as to deaths due to pregnancy, classified according to its stage; but it is known that the number of deaths occurring in the first seven months of and due to pregnancy weighs lightly in the total result.

In 1911-1920 in England and Wales, 3,235 deaths were returned as due to "accidents of pregnancy" out of 32,971 from all accidents of pregnancy and childbirth. A mental allowance must be made for the possibility that the total national and the metropolitan experiences are handicapped slightly in comparing with the experience of the East London Hospital.

It is quite certain, however, that only a relatively small change would be effected in the compared rates if full allowance were made for the unstated complications of earlier pregnancy in the hospital experience.

Of the births in the Hospital,

| | IN THE HOSPITAL | IN PATIENTS' HOMES | ENGLAND AND WALES |
|--|--------------------|-----------------------|----------------------|
| Births | 4,889 | 2,643 | |
| Stillbirths | 144 | 69 | |
| Deaths during the first fortnight after live birth | 71 | 28 | |
| Stillbirths per 100 births | 2.95 | 2.62 | 3.30 (1926) |
| Deaths in first fortnight after birth per 1,000 births | 14.5 | 10.7 | 26.5 (1927) |

Table 2. Deaths of infants in the hospital practice of the East End Maternity Hospital during 1925-1928, inclusive.

310 in 1927, and 384 in 1928, were of Poplar inhabitants, and many Poplar women are attended from the Hospital in their own homes. The total Poplar births in the four years 1925-1928 were 14,026, and the puerperal deaths were 42, equal to a rate of 2.95 per 1,000 births. As there is no reason to doubt that the factors favoring a low puerperal death rate in those women attended from the Hospital occur equally in the experience of Poplar, one cannot avoid the conclusion that in Poplar, as in the rest of London, serious causes of excessive puerperal mortality exist and continue, which are avoidable, because in the experience of the East End Maternity Hospital they are being avoided.

In confirmation of the conclusion that a real saving of ma-

ternal life—and with it of much suffering short of a fatal result—is being experienced in the work of this institution is the collateral experience of stillbirths and of deaths within a fortnight after live birth, in the hospital practice. A summary of this experience is shown in Table 2.

It will be seen that the more favorable mortality in mothers is associated with a somewhat lower proportion of stillbirths and with a remarkably low death rate in infants while under the care of this charity.

It is scarcely possible to avoid the conclusion that, *given equal care in the entire community, the infant death rate in this most lethal period of infancy might be halved.*

It may be added that in 1928 the proportion of primiparæ in

the experience of the Hospital was 43 per cent of the total births, which does not support the view that multiparous births are more frequent in this charity than elsewhere.

The number of attendances at the antenatal clinic averaged three and one-third for every mother. One-fifth of these attendances were made to the medical officer's clinic.

In the same year the total original breech presentations were 104, cephalic version being successfully performed in 48, and attempted unsuccessfully in 17 cases. In 12 other such cases the condition was not discovered before birth, and in 27 for various reasons version was not attempted. In 3.2 per cent of the total cases, forceps were applied. The proportion of forceps cases in externe cases was 1.65 and in interne cases 4.31 per 100 patients.

The preceding analysis of the mortality experience of this institution, and a comparison of its figures with those for the whole country, for London, and for one of the two metropolitan boroughs in which the work of the institution lies, makes it practically impossible to avoid the conclusion that—

allowing for all causes of accidental variation—the favorable experience of the East End Maternity Hospital must, in the main, be *the result of work of a more efficient character than that in the general community*. If so, the causes of the difference deserve careful study.

Some of these may be gathered from the following description of the working of the charity. There is continued oversight and care for the mother throughout pregnancy from the moment she registers for midwifery attendance; also in parturition; and for her infant and herself for a fortnight afterwards. The women attended are all married. They are all poor, and I am informed that even when the pecuniary Maternity Benefit under the National Insurance Act is forthcoming, the managers of the Hospital seldom feel justified in claiming part of it. Commonly ten shillings is paid for maintenance in hospital during two weeks, and twenty-one shillings for primiparæ. The total amount received from patients was £1,291 in 1928, the total expenditure for the year being £7,640.

Patients book for maternity attendance usually in the sixth

or seventh month of pregnancy. Out of over 2,000 patients in 1928 only about a dozen had failed to book. This implies that the first condition of successful midwifery is secured in most of the cases attended by this institution.

Each primiparous expectant mother is expected to attend and does attend an antenatal consultation at the Hospital. A fortnightly consultation is held at which all primiparae and other pregnant women with an unfavorable history in previous pregnancies are required to attend. Other multiparae are seen and examined three times during pregnancy.

These fortnightly consultations are held four times each week, and a fifth weekly consultation is also held by Dr. W. H. F. Oxley, the honorary visiting officer of the institution, to whose skill and constant care the institution owes much. The first named consultations are held by the assistant matron, specially skilled in this work, which she has carried out for many years. Any patient found by her to have even a trace of albuminuria, or to present a malpresentation of the foetal head, or any other abnormality, is always referred to the

medical clinic. The principle claimed for this scheme is that a skilled nurse with many years' experience of midwifery and antenatal work can be trusted to pick out the patients who should consult with the medical officer. There is the closest cooperation between the assistant matron and the doctor; and in the circumstances of this institution the economical system here adopted works admirably.

A seriological blood test for syphilis is not made as a routine; it is only made when symptoms or the history of the patient indicate its desirability. All patients with syphilis are referred to the special venereal disease clinic at St. Bartholomew's Hospital, where they can have treatment without delay or waiting. Such cases are very few in number in the experience of the lying-in hospital. Such patients are attended for parturition by this institution and come into the general statistics.

In discussing the carrying on of the antenatal clinic in ordinary cases without medical aid, the very competent assistant matron was confident that this arrangement in experienced hands was the best. Dr. Oxley,

I gathered, shared her view that for the doctor to see the patient once or twice or even three times during pregnancy gave a false and misleading sense of security. It may be added that its expense might shipwreck a general scheme for the poor. The nurse should know enough to insure immediate reference to a doctor whenever required.

In the lying-in hospital are employed five midwives and one relieving sister. In the district work two sisters and eight midwives are employed, who live in the Hospital.

The discovery of wrong presentations is an important part of the antenatal work. The midwives are trained to recognize these, and version for breech presentations are usually carried out in the thirtieth week of pregnancy. This has been done for the last fifteen years, and it partially accounts (by preventing "breech" births) for the low infant mortality in the experience of the institution. The midwife is encouraged under the doctor's guidance to perform these versions. If she does not succeed at the first attempt, it is then done by the doctor.

As pregnancy approaches its

term, determination of the position of the foetal head, and of its size in relation to that of the pelvis, becomes an important part of the skilled midwife's work, as determining the line of procedure to be adopted.

The urine is tested in every case fortnightly from the time of booking, which is usually early in the seventh month. Any case with the slightest albuminuria is referred to Dr. Oxley. One of the midwives or midwife-pupils visits the patient weekly, and reports whether the albumen has disappeared under dietetic treatment. If not, the patient is usually admitted to the Hospital, and if the albuminuria then continues, labor is commonly induced, as otherwise chronic nephritis may follow.

As for other complications, the main indication is to prevent their occurrence. Eclampsia occurs chiefly in patients who have not come under supervision. In the experience of this charity the last death from this cause occurred in 1919, since when 20,000 patients have been attended. During the last four years only one slight case of eclampsia has occurred among 8,000 patients, and this patient had neglected

to come for antenatal examination for three weeks.

A few of the midwives are able to make blood pressure tests; but as high pressure is rare apart from albuminuria, the test is rarely needed except as a prognostic guide.

The detection of vaginal discharge is an important part of the antenatal work. This is treated at the Hospital, the patient sometimes being admitted for this condition.

Dental caries, if considerable, is treated, patients being referred to other centers.

The methods of dealing with other complications of pregnancy and parturition need not be detailed.

General Observations. The preceding details give only a partial possible explanation of the favorable experience of the Maternity Hospital. But there can be no question as to the importance of the rigidly required and cheerfully accepted antenatal supervision. For:

(1) It is the beginning of the system of supervision and preventive action characterizing the entire work of the institution.

(2) The doctor and matron alike are confident that the consistently good results are due

to three factors, all operating as the result of the remarkable spirit of service and devotion characterizing the staff. (a) The patient is quickly made to realize that a deep interest is being taken in her welfare. (b) The patient almost without exception obeys in every detail the instructions given to her. (c) These instructions are reduced to their utmost possible simplicity.

Not too much is asked, from the nurse or the patient. An impossible asepticism is not aimed at, but the utmost cleanliness of hands, mackintosh, et cetera, is required. Lysol and other antiseptics, which in adequately strong solution will be uncomfortable for the nurses' hands, are eschewed, and mercuric chloride solution is always used after previous soap and water. There is no prohibition of vaginal examinations.

About 7 per cent of the cases attended at home are seen also by the doctor, called in by the midwife. It will be borne in mind that the home-attended cases have been partially "weeded" of patients likely to need medical aid.

It would carry us too far afield to discuss the general

problem of excessive puerperal mortality in the light of this striking local experience. But a few observations may be made, reserving more general inferences until the experience in this respect in several countries is analyzed.

A large part of the excessive puerperal mortality prevalent in many countries must be ascribed to the ignorance and unwitting neglect of the mother herself. The entire machinery of the East End Maternity Hospital is calculated to overcome this ignorance and neglect. Sympathetic cooperation of a high order between doctor, midwives and patients is secured, and maintained.

The dangers of malpresentation, of contracted pelvis, of antecedent disease are reduced to an apparent minimum. The care given in parturition secures relative immunity from sepsis, which is perhaps most frequently due to trauma.

It is highly probable that much of the excessive puerperal mortality in private medical practice is due to delay in institutional treatment when this is found by the doctor to be needed. It is much more, probably, a question of the condi-

tions under which institutional treatment can be secured than of the actual deficiency of beds, though this occurs in some extra-metropolitan areas.

If the patient is sent by the private doctor to an institution (e. g., for severe albuminuria or for narrow pelvis, et cetera), the doctor loses his prospective fee for the case. Perhaps as important as this is the fact that he loses prestige in his practice by sending a patient to a hospital. These human factors need to be weighed and provided for in securing safer parturition.

A further difficulty, becoming greater year by year is that, with the increasing practice of midwifery by midwives, private medical practitioners become less experienced in this branch of their work. If this work is not, on the merits, to fall gradually into the hands of specialized obstetricians, who could not always be available in scattered rural communities, every effort is needed to continue the link between midwifery and medicine; and to this end the increased provision of post-graduate medical education in midwifery would be a valuable contribution.

