

is a hopeful one and that it is much less open to criticism than the injection of attenuated living organisms. The use of the vaccine should not be widespread until many more children are inoculated under the most careful supervision."

The public health attitude in the United States has been to withhold any general use of vaccination of infants until experimental data have been sufficient to establish both its harmlessness and its protective value. Pending the accumulation of more data, it seems a sound policy to continue to emphasize the prompt isolation of the infant exposed to contagion in the tuberculous family.

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MATERNAL MORTALITY IN ROCHDALE

A SUCCESSFUL community effort to reduce the death rate among mothers during childbirth has been reported from Rochdale, a county borough in Lancashire, England. The analysis of the experience in this area which was published¹ in the *British Medical Journal*, February 16, 1935, deserves the careful consideration of public health and medical groups generally. The maternal mortality rate in Rochdale had averaged 8.33 per 1,000 live births for the five years 1925-1929 and was one of the highest in England and Wales. For the three years during which "a deliberate effort to recast the maternity service" has been made, 1932-1934, the maternal death rate was 2.99.

A new local medical officer of health, Dr. Andrew Topping, assumed duty in October, 1930, and is credited by the authors of the report with having initiated the administrative program which has been followed. His successor, Dr. John Innes, has guided the program since 1932. A study of the clinical records for women who had died from puerperal causes led Dr. Topping to the conclusion "that the factors contributing to the fatalities could, in the main, be divided into two groups: (a) those which arose from imperfect supervision of pregnancy, so that women with complications failed to receive treatment sufficiently early to safeguard them against danger; and (b) those which arose from inadequate obstetric care during the course of labour. It was found, for example, in Group *a* that deaths were oc-

¹ Oxley, W. H. F.; Phillips, Miles H., M.D.; and Young, James, M.D.: Maternal Mortality in Rochdale, An Achievement in a Black Area. *British Medical Journal*, February 16, 1935, No. 3867, pp. 304-307.

curing from toxæmia, ante-partum bleeding, pelvic contraction, et cetera, in women whose abnormality was allowed to progress to the point of danger before the institution of adequate therapeutic measures. In Group *b* there were cases in which ineffectual and damaging attempts at instrumental intervention had been made, and in which, on review, it was clear that a greater regard for safety would have led to the withholding of such artificial intervention altogether, or, in those comparatively few cases showing evidence of potential or actual obstruction to labour, to an early removal to hospital, where the necessary treatment could have been carried out under conditions of safety difficult to attain in an ordinary home."

The steps taken to obtain the necessary cooperation and interest in a plan to improve the maternity services are described thus:

With the help of the chairman and secretary of the local Division of the British Medical Association, meetings of the general practitioners in the area were held at which the facts were freely and frankly discussed. The interest and support of the medical profession and of the midwives were thus enlisted at the outset and, as will become apparent in the course of this statement, to this must be ascribed a large measure of the success that attended the subsequent efforts.

The next step was, by means of all available agencies, such as the platform, the pulpit, and the Press, to awaken the community to an interest in the subject. By the use of appropriate propaganda, in which the Health Week was utilized, the people of Rochdale were informed in a manner that was throughout frank, but at the same time tactful, of the medical facts. It was represented that to safeguard themselves the women should make use of the ante-natal clinics; they should at once report to their doctor or to the clinic at the first sign of abnormality; and they should refrain from attempting to coerce the doctor or the midwife to adopt measures to hurry the process of labour in a manner of which their judgment disapproved. We have ascertained that in this propaganda campaign the local press and those religious and other societies which had a platform to offer, such as the churches, the factories, et cetera, all played an important and willing part.

The authors of this report on the results of the maternity program in Rochdale carried out a personal investigation in January, 1935,

YEARS	LIVE BIRTHS REGISTERED	MATERNAL DEATHS BY OFFICIAL TABULATION		DEATHS ASCRIBED TO PREGNANCY BY INVESTIGATION	
		Number	Rate per 1,000 Births	Number	Rate per 1,000 Births
1929-1931	3,691	33	8.90	37	10.0
1932-1934	3,335	10	2.99	13	3.9

Table 1. Maternal mortality in Rochdale, Lancashire, England, prior to and after special efforts to improve maternity services.

which consisted chiefly of interviewing those "intimately engaged in carrying out the maternity services" and in studying "the circumstances leading up to the deaths" that occurred during the three years prior to the special effort, 1929-1931, as well as those that occurred during 1932-1934. Deaths during pregnancy and childbirth which had been classed by the Registrar-General as due to some intercurrent disease were also considered. The maternal death rates in each three-year period according to the official classification and according to the authors' classification are shown in Table 1.

The decline in maternal deaths is very striking and is statistically significant.² Furthermore, as the authors point out, the number of deaths from each important cause declined; there were fewer deaths from sepsis, toxæmias, eclampsia, obstetric shock, and ante-partum and post-partum bleeding.

Other significant findings reported were that "there had been a marked general reduction in the number of cases admitted (to the local maternity hospital) late in labour;" and that "women with complications noted during pregnancy and labour were being sent, in increasing numbers, to hospital at a stage when the condition was capable of being treated with greater safety." There was little change in the number of births in the hospital, but the mortality among hospital births showed a marked decline; there were 16 deaths among 1,927 births during 1929-1931 and 6 out of 1,800 births in hospital during 1932-1934.

"A considerable part of the success of the effort is to be traced to the improved practice of the doctors and midwives of the area," is the conclusion of the authors. "In greatest measure, we believe," they

² The difference between the rates in the two periods, based on the authors' classification, is more than four times its probable error, 6.1 ± 1.32 .

write, "that the change had its origin in the anxiety of those concerned to review in the frankest possible manner the principles which had previously guided their practice after their attention had been directed to the causes of the sinister position occupied by their town in the realm of maternal welfare." It follows quite logically that the authors are impressed "with the importance of a full inquiry by a responsible body into the circumstances leading to the maternal deaths in an area as a means of discovering the ways in which the standard of service may be raised," and "strongly suggest that it should become part of the routine practice of each administrative area."

The intensive efforts made in Rochdale to enlighten the women by the frank dissemination of information also are credited by the authors with a profound part in raising the standard of service. They believe that:

It has undoubtedly led them to seek advice in order to safeguard their health during pregnancy, and to solicit medical aid more quickly now that they realize the possible dangers of bleeding, severe headaches, sickness, et cetera. It has, in addition, brought to their notice the dangers that may attend instrumental delivery, and has tended to discourage the belief, which so often prejudices both the peace of mind and the practice of the practitioner, that the best doctor is he who can deliver them most quickly. Finally, by exerting a continual moral pressure, it has inspired those directly engaged in the maternity services—the public health authority, the doctors, the midwives, the health visitors, and the hospital authorities—to greater efforts in their attempt to build up a system more worthy of their town.

Recent studies of maternal mortality in the United States have led to conclusions in general agreement with those of Dr. Topping in Rochdale, namely, that many deaths were preventable and that prevention was dependent on improved obstetric practice and the education of mothers concerning the importance of medical supervision during pregnancy. The success of the intensive campaign in Rochdale has demonstrated that mothers' lives can be saved if the medical practitioners, the public health authorities and public groups cooperate in an effort to improve maternity services.

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