Preparations and Appliances

INUNDATION WINDOW FOR COLONIC IRRIGATION

Dr. F. A. HORT (London, N.W.8) writes:

Any apparatus designed to wash out bowel contents by irrigation will inevitably tend—the more so the more effective the apparatus—to lead to constipation, inasmuch as (1) the normal protective residual debris is thereby washed away, and (2) the natural function of defaecation is supplanted by artificial means.

The glass contrivance shown in the accompanying figure, which differs from those commonly used in irrigation only in that the vertical limb is curved instead of straight, enables the operator to watch the effects of what he is doing, as the tide alternately ebbs and flows before him. By this means he is able to form some idea of the activity and general

condition of any section of the bowel under observation, and thus, by varying the temperature, amount, or strength of the solution he uses for inundation, to coax it to empty itself to the extent that he judges desirable.

The disorganized delicate reflex mechanism that controls the digestive processes is thus given a chance to right itself, which the drastic method of purging by drugs or irrigation can only further disorganize. By gentle inundation, with appropriate food and the avoidance of drugs, the most obstinate constipation, as well as the systemic intoxication with which it is generally associated, will invariably begin to give way for just so long as the bowel is not subjected to further irritation by unsuitable food, by drugs, or by any other direct interference with function.

The window is made for me by Messrs. Allen and Hanburys Ltd., Wigmore Street, W., who also supply a short straight window to use with it.

A HISTIDINE PREPARATION

The "larostidin" brand of histidine, which is a solution of *l*-histidine monohydrochloride, has been prepared by Hoffmann-La Roche Chemical Works Ltd. for the parenteral administration in peptic ulcer. The preparation is a 4 per cent. solution in 5 c.cm. ampoules, and the treatment recommended is the daily intramuscular injection of the contents of one ampoule. A course of treatment lasts for three or four weeks. This method has been recommended by Aron and Weiss of Strasbourg. They produced peptic ulcers in dogs by experimental methods, and found that these were relieved by injections of the amino-acid histidine. The method has been tried clinically by Bogendorfer,¹ Hessel,² and Bulmer.³ The last-mentioned author treated fifty-two cases, and obtained satisfactory results in 58 per cent. The clinical difficulties in the treatment of gastric ulcer are aggravated by the economic difficulty of finding adequate in-patient accommodation for this common complaint. The histidine treatment, however, only involves the daily attendance of the patient for injection. If the early and favourable reports on this treatment are confirmed by longer experience it will constitute an important therapeutic advance. The material is expensive to prepare, and hence is costly (10s. for six ampoules), but this cost is small in comparison with that of surgical or medical in-patient treatment.

¹ Bogendorfer, L.: *Munch. med. Woch.*, 1934, p. 1270.

² Hessel, G.: *Ibid.*, 1934, p. 1890.

³ Bulmer, E.: *Lancet*, 1934, ii, 1276.

MATERNAL MORTALITY IN ROCHDALE

AN ACHIEVEMENT IN A BLACK AREA

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The refusal of the maternal mortality rate to respond to the strenuous measures which have been directed against it within recent years has created widespread disappointment and disillusionment. For this reason it seemed to us desirable that a study should be made of an area in which a deliberate effort to recast the maternity service has been followed by a dramatic fall in the death rate.

For a number of years the high average maternal death rates of certain towns in Lancashire and the West Riding of Yorkshire have been a matter of public concern, and a few years ago they formed the subject of a special investigation by the Ministry of Health.¹ In Yorkshire the towns with an average rate exceeding 5 per 1,000, and which were embraced within this official survey were Barnsley, Bradford, Dewsbury, Halifax, Huddersfield, Sheffield, and Wakefield. In Lancashire county boroughs with a similarly high average record are Bolton, Oldham, Preston, Stockport, Wigan, and Rochdale. The factors in these towns that have contributed to the creation and maintenance of a specially high maternal risk have, in general, been described as those which spring more particularly from such adverse economic influences as unemployment and poverty, undernutrition, improper housing, inability to provide adequate medical services, and so on, and the opinion has been frequently expressed that improvement could be expected only in so far as these economic disabilities were successfully dealt with.

The experience of Rochdale in respect of its maternal problem is of the greatest interest and importance in that it provides an example of a community effort which has resulted in a striking measure of success, and which, at the same time, has thrown a flood of light on the relative significance of the various factors that have been advanced to explain the persistently high rates of this and similar areas.

With the approval of the local authority of Rochdale and for the purpose of carrying out a personal investigation of this maternity effort we made a visit to the borough in January, 1935. Through the help of the medical officer of health, Dr. John Innes, M.D., D.P.H., we were enabled to interview those who are intimately engaged in carrying out the maternity services. Further, we had an opportunity of studying, in most instances in considerable detail, the circumstances leading up to the deaths that occurred during the three years prior to the arrangements introduced for the improvement of the maternity services which it was our special object to study—that is, from 1929 to 1931; also the deaths occurring during the three years 1932 to 1934—that is, since those arrangements have been in existence. We thus had at our disposal data on which we were able to form an

opinion both of the extent and of the nature of any change that had taken place during the years under review.

Origin of the Rochdale Scheme

Before giving the results of this study and of the general impressions created in our minds by our visit, we must outline the genesis and the nature of the Rochdale scheme. We have already referred to the unenviable position which Rochdale, in company with neighbouring towns, had long occupied in regard to maternal mortality; so sinister, indeed, was this record that over the five-year period 1925-9 the death rate, averaging 8.33 per 1,000 live births, was one of the highest in England and Wales.

The new policy in respect of Rochdale's maternity service owes its inception to the medical officer of health, Dr. Andrew Topping, who assumed duty in October, 1930. In his annual report for 1930 he makes the statement, which is significant in view of subsequent events: "An enlightened community should not be willing to allow their town to rest under the stigma of being the town with the very worst record in the country." Since 1932 the administrative guidance of the scheme has been in the hands of Dr. Topping's successor, Dr. Innes.

From a study of the clinical records available in respect of the women who had died from puerperal causes during the preceding years, Dr. Topping concluded 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 occurring from toxæmia, ante-partum bleeding, pelvic contraction, etc., 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.

It is significant that the analysis of the individual death records failed to reveal any evidence for the view that the high death rate of Rochdale could be attributed in an appreciable degree to factors arising directly out of the economic disabilities from which, as a highly industrialized community, this borough, in common with its neighbours, was naturally suffering during the years of the investigation. In other words, the investigation showed, in the majority of the cases, the existence of obstetrical factors which in many instances were capable, with considerable justification, of being regarded as preventable.

Focusing Local Interest

Having arrived at these conclusions the medical officer persuaded the public health department of Rochdale to address itself to the steps necessary to improve those aspects of the maternity services which the analysis had proved to be inadequate. 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 judgement 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, etc., all played an important and willing part.

A circumstance that must be regarded as contributing in no small measure to the degree in which Rochdale has managed to improve its serious obstetric position is to be found in the relatively limited extent of the area to be dealt with. With a population of 90,000 and a maternity service which, in its various aspects of administration, personnel, hospital, etc., forms a unit of moderate size, it was relatively favourably situated for the initiation and maintenance of a public health effort of this kind.

Facts and Figures revealed by Investigation

The accompanying table (Table I) shows the official maternal death rates of Rochdale during the six years embraced by this investigation.

TABLE I.—Detailed Analysis of Maternal Deaths

Year	Live Births Registered	Deaths ascribed to Pregnancy and Childbearing	Rates per 1,000 Live Births Registered	Deaths not classed to Pregnancy and Childbearing, but returned as associated therewith
1929	1,295	12	9.26	6
1930	1,245	12	9.63	2
1931	1,151	9	7.80	2
1932	1,135	2	1.76	4
1933	1,044	3	2.87	1
1934	1,156*	5	4.35*	1
1929-31	3,691	33	8.90	10
1932-34	3,335	10	2.99	6

* Uncorrected figures only available for 1934.

We have already stated that we had an opportunity of studying the causes of death in all the fatalities occurring during the years 1929-34. From our previous investigations of this nature we realized that in an inquiry of this kind it was necessary to consider not only the deaths ascribed by the Registrar-General to puerperal causes, but also those deaths occurring during pregnancy and childbirth which had been classed as due to some intercurrent disease. On going through the latter group we found seven cases in which there were serious obstetrical complications that could be regarded as factors of primary importance in leading to the death of the patient. As an example we would mention the case of a woman suffering from influenza who died from eclamptic convulsions. We thought these cases could be more appropriately considered as due to childbirth for the purpose of this inquiry, and, after reallocating them, we arrived at the data given in Table II.

TABLE II

Years	Live Births Registered	Deaths due to Pregnancy and Childbirth	Rates per 1,000 Live Births Registered	Deaths due to Intercurrent Disease
1929-31	3,691	37	10.0	6
1932-34	3,335	13	3.9	3
1929-34	7,026	50	7.1	9

It will be noted that during the years 1932-4 there has been a striking reduction in the total deaths and in the death rate. According to the Registrar-General's figures the reduction was from 8.9 to 2.99 per 1,000 live births. On the basis of our modified allocation it was from 10 to 3.9. The numbers upon which this investigation is based are small, and, standing individually, the variations shown under the separate items might justifiably be regarded as due to the operation of chance. Taken together, however, we have satisfied ourselves of the inadequacy of such an explanation. In Table III we have set out the causes numerically in relation to the two periods which are the subject of comparison.

TABLE III.—Numerical Analysis of Individual Causes of Death and the Rochdale Percentages compared with those given by the Departmental Committee²

	1929-31	1932-4	Total	Percentage	
				Rochdale	Departmental Committee
Sepsis	10	6	16	32	38.6
Eclampsia	3	1	4	8	13.6
Other toxæmias ...	2	1	3	6	6.2
Operative shock, etc. ...	7	2	9	18	9.0
Ante-partum hæmorrhage	2	1	3	6	7.8
Post-partum hæmorrhage	4	1	5	10	5.7
Embolism	3	0	3	6	7.0
Abortion and mole ...	5	1	6	12	10.5
Extrauterine pregnancy	1	0	1	2	1.2
Total	37	13	50	100	99.6

In the column under 1932-4 it will be seen that there has been a reduction of the deaths under each cause as compared with the corresponding data for 1929-31. Despite the smallness of the figures, the evidence, when studied in this way, is very striking, and it serves to confirm a fact which is borne out by all such investigations—namely, that the standard of a maternity service is expressed throughout all the spheres of this service. The more efficient the practice the more safe does ordinary childbirth become and the larger the proportion of truly normal cases. But this increased safety is not limited to the normal. It embraces the complicated cases also, so that among these fewer patients succumb from sepsis and there are fewer deaths from the toxæmias, obstetric shock, ante-partum and post-partum bleeding, abortion, embolism, and so on.

The tables exemplify these principles in an impressive way when we compare the numbers of women in the two periods who died after operative intervention. Thus in the period 1929-31 there were seven deaths from obstetric shock, whereas from 1932 to 1934 there were only two. The same facts are brought out from the clinical records, which reveal that during the first period five women, and during the second period only one woman, died after the "failed forceps" operation. It is significant, also, to find that whereas during the one interval as many as seven women died after Caesarean section, during the other

there were only three deaths after this operation. The comparative figures in relation to post-partum hæmorrhage, embolism, and abortion, though smaller, are equally significant.

From these facts and the study of the case records during the two periods we are led to conclude that the conditions that existed after the "drive" were more favourable to the management of the cases in accordance with nature. We regard this finding as of the greatest significance, in that it demonstrates how in Rochdale, by the operation of a simple effort, backed by the good will of all concerned, this aspect of the problem was rapidly improved.

Analysis of the Primary Avoidable Factor

By the analysis of the "primary avoidable factor" in each case in a manner similar to that employed by the Departmental Committee on Maternal Mortality and Morbidity² we have adduced evidence of an indirect kind which points in the same direction. The primary avoidable factor was defined by the committee as the first significant and preventable circumstance recognized in the train of events leading to the fatal result. Out of the thirty-seven deaths during 1929-31 a primary avoidable factor was distinguishable in nineteen (51 per cent.), whereas during the years 1932-4 we obtained such evidence in only four (31 per cent.). It is easy to understand that from clinical records compiled after the event the detection of the circumstances responsible for the fatal issue is often difficult. In general, in a series of cases the more grossly the management departs from sound principles the easier is this detection and the larger will the proportion be in which the primary avoidable factor is revealed. This is well exemplified by the series of records which we have had under review. The larger percentage figure for 1929-31 is to be related to the fact that during this period the factors that directly led up to the fatal issue were relatively more obvious and gross in their character.

Changes in Routine Midwifery Service in Rochdale

We found further evidence of the change which had occurred in the routine midwifery service of Rochdale from the records of the local maternity hospital. During the last three years there had been a marked general reduction in the number of cases admitted late in labour. Although there was no rise in the total number of births in the hospital, 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. In this connexion it is worth recording that the local hospital is available for the use of all the doctors practising in the area, who are permitted to take in, and to treat their own patients. Over thirty general practitioners habitually make use of this privilege, and we are informed that this arrangement works satisfactorily. It is significant to find that out of 1,927 births in hospital during 1929-31 there were sixteen deaths, while out of 1,800 births in hospital during 1932-4 there were only six deaths.

From these discoveries we are justified in concluding that 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. We may state, incidentally, that we satisfied ourselves that no appreciable part could be attributed to any change in personnel. In greatest measure we believe 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.

At the same time, while we believe that the evidence is such as to warrant the conclusion that in this way we can account for the chief influence making for betterment, it is also true that the strenuous efforts made by the public health authority, on the one hand, to enlighten the women on the need for submitting themselves to supervision, and, on the other, to provide the clinics and personnel for this purpose, were of great moment. The extent of the influence of ante-natal supervision is difficult to gauge with any accuracy, because it is of such a nature that, when properly directed, it pervades the whole body of obstetric practice. It can be most easily assessed in the degree in which it succeeds in alleviating the risks attendant on such complications of pregnancy as the toxæmias, and it is perhaps significant that during the "pre-drive" era the deaths from those causes numbered five, whereas in the "post-drive" period they numbered two. The general conclusions under this head, however, to which we were driven from the evidence at our disposal were that the greater attention paid to ante-natal care was relatively unimportant as a direct factor. We found no evidence in the bad years to indicate that defective ante-natal care had contributed in a major way to the increase of maternal risk.

We believe, however, that a great influence has been exerted by the women themselves in leading to the creation of a maternity system which has brought greater security during pregnancy and labour. We believe that the intensive efforts made in Rochdale to enlighten the women on these matters by the frank dissemination of information have played a profound part in raising the standard of service. 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, etc. 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. It is said that a country gets the Government it deserves, and it has sometimes likewise been stated that a community obtains the medical service it deserves. There are few who will deny to the doctor and the nurse a zeal for service which is not inferior to that possessed by any other organized body engaged in serving the public weal. At the same time it cannot be gainsaid that, like all such institutions, the standard of its work is influenced by the degree in which it receives moral help and inspiration from those whom it serves.

Conclusions

The experience of Rochdale provides an impressive and valuable example of an area which, by a deliberate effort, has achieved a reduction in its maternal death rate by a method that is capable of being applied with success in other centres. The success of this effort has arisen primarily from the circumstance that it had its origin in the public health department of the borough, which was in the position of being able, in the first place, to obtain the relevant facts, and, in the second place, of supplying the administrative machinery required for the inception and the development of the changes called for in the maternity services. In addition, the success may be traced to the mutual co-operation between the public health authority and all those engaged in the maternity

services—the doctors, the midwives, the hospital, etc. Further, we are of opinion that great importance is to be attached to the propaganda campaign inspired by the public health department, by which there was carried out a wide and frank dissemination of relevant information throughout the borough.

It is important to observe that the results were obtained by a change of spirit and method and without any alteration in the personnel or any substantial increase in public expenditure. Further, the reduction in the mortality rate took place during years of continuing industrial depression, and there is no evidence to correlate it with any change in the economic conditions obtaining throughout the area.

Our investigations have impressed us 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. The advantage of such a survey carried out locally we believe to be so great that we strongly suggest that it should become part of the routine practice of each administrative area.

We are fully aware that, unless carried out with circumspection, such an inquiry concerning individual deaths in a restricted region may readily come to assume the characters of a judicial tribunal. We are convinced that were the inquiry tainted with even the suspicion of such a function it would be undesirable, and would tend in many cases to operate unfairly in introducing irrelevant and unfortunate matters relating to personalities. Further, we are convinced that this would quickly destroy the value of the procedure, in that it would discourage frankness and willing co-operation, which are essential to the success of the scheme.

We believe that to remove any such risks and to ensure the most efficient working, the death records for this inquiry should be prepared by the medical officer of health in a form similar to those submitted to the Ministry of Health; that they should contain no proper names of persons; and that they should be examined periodically by a committee consisting of a general practitioner, an obstetrician, both obtained from outside the area, and the local medical officer of health. The general practitioner and the obstetrician should be selected because of their known interest and experience in the special aspects of the problem. A report prepared by such a body would be of the greatest value for the information and guidance of all those locally concerned with the administration of the maternity services.

We desire to express our thanks to the following for the assistance they have given us during our investigations: Dr. Andrew Topping, D.P.H., senior medical officer, London County Council; Dr. John Innes, D.P.H., medical officer of health, Rochdale; Alderman Y. T. Dawson, chairman of the Public Health Committee, Rochdale Borough Council; Dr. J. C. Jefferson, F.R.C.S., chairman, and Dr. L. Kilroe, secretary of the Rochdale Division of the British Medical Association; Dr. H. N. Crossley, D.P.H., resident medical officer, and Miss H. Copeland, matron, Birch Hill Hospital, Rochdale.

REFERENCES

- ¹ High Maternal Mortality in Certain Areas, Reports on Public Health and Medical Subjects, Ministry of Health, 1932, No. 68.
- ² Final Report of Departmental Committee on Maternal Mortality and Morbidity, Ministry of Health, 1932, p. 13.

V. G. Alvarez (*La Med. Ibero*, January 19th, 1935, p. 89), who records his experiments on guinea-pigs infected with tuberculous sputum, comes to the following conclusions. The presence of tubercle bacilli is easily demonstrable in the infected animals, but this bacillaemia is never found before two months on the average. Splenectomy, on the other hand, hastens the progress of bacillaemia, probably owing to the fact that the animals which have undergone the operation become more susceptible to tuberculous infection.