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THE LIMITATIONS AND POSSIBILITIES OF PRENATAL CARE

BASED ON THE STUDY OF 705 FETAL DEATHS OCCURRING
IN 10,000 CONSECUTIVE ADMISSIONS TO THE
OBSTETRICAL DEPARTMENT OF THE
JOHNS HOPKINS HOSPITAL *

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My first duty on this occasion is to express my sincere appreciation of the honor of being elected to the presidency of this association, and, as the incumbent of that office, to thank the very efficient local committee of arrangements for their efforts in making it possible to hold our meeting at a time when our sympathies are enlisted in a much broader and more serious cause.

Before taking up the discussion of the subject which I have chosen for my address, I wish to go on record as endorsing the objects of the association, as well as to bear witness to the wisdom displayed in its original organization. In no other way, I believe, could such wide-spread interest have been aroused and so much good have been accomplished as by bringing together all classes of persons interested in the welfare of infants. At each of the meetings which I have attended I have been greatly impressed with the character of the audiences, and I feel sure that the association of trained nurses, social workers, statisticians and physicians, with philanthropically inclined laymen, has been productive of an amount of good which could have been effected in no other way, and which would have been impossible had the association been made up of any single class of persons, no matter how interested or intelligent they might be.

Naturally, my interests in the association are primarily as an obstetrician and deal with the prevention of infant mortality in the earliest periods of life and even before birth. Investigation along these lines has led me to study the character of the obstetric care which is available for the great majority of women in this country, and has convinced me that it is inexcusably poor. This, however, is neither the time nor the place to consider such problems; but, when I face an audience such as this, I almost wish, were the country not already oversupplied with societies, that a somewhat similar association might be organized for the study of the problems connected with motherhood and the diseases peculiar to women, and for teaching the

women of this country that they have a right to the best available treatment and care, which should be at least as good as that available for their young children, and better than that so freely given to the domestic animals by our national and state governments.

The theme which I have chosen for my address is "The Limitations and Possibilities of Prenatal Care." Certain phases of the subject have frequently been presented to you, and will be one of the topics for discussion at this meeting. I am, however, inclined to feel that it is often considered from too narrow a point of view, and my chief object in preparing this address is the hope that I may be able to impress on you that prenatal care covers a very wide field, which, while primarily obstetric, is not limited to any one branch of medicine or social activity.

The foundation of my remarks is the study of 705 fetal deaths which occurred in ten thousand consecutive admissions to the Obstetrical Department of the Johns Hopkins Hospital, 6,500 indoor and 3,500 outdoor cases. In this series I have included all deaths occurring in children born between the seventh month of pregnancy, the so-called period of viability, and full term, as well as those occurring within the first two weeks after delivery. For convenience in consideration I have classified the children as premature or mature, according as their weight varied between 1,500 and 2,500 gm., or exceeded the latter figure. Of the 705 deaths, 334 were in the former, and 371 in the latter category.

These figures somewhat underrepresent the total mortality, as they do not include many children which perished later from the causes enumerated below, either in my service, in other departments of the hospital or in their own homes. Furthermore, it must be borne in mind that they do not necessarily represent the results which may be obtained in private practice, but are based on the material entering a large general hospital, which includes many women who had been improperly treated at home and were admitted to the hospital in desperate straits.

Moreover, our material differs from that of many institutions in that 4,600 out of the 10,000 mothers were colored, thereby making it possible to compare the incidence of certain causes of death in the two races. In addition, our statistics are of unusual value for two reasons: First, that every one of the 10,000 after-births in the series has been carefully described and subjected to routine microscopic examination—a procedure which sometimes yields most important information; and secondly, that most of the dead babies have been subjected to autopsy. Consequently, the causes of death have been ascertained with more

* Presidential address, delivered before the American Association for the Study and Prevention of Infant Mortality, Boston, Nov. 12, 1914.

than usual accuracy; but even in such favorable circumstances, it is not always possible to make a positive diagnosis.

Table 1 gives the gross results of our investigations, the causes of death being classified into twelve general groups, while information is also given as to the prematurity or maturity of the children and their race.

The most striking features of the investigation are the following:

(a) Syphilis is far and away the most common etiologic factor concerned in the production of death, presenting an incidence of 26.4 per cent.

(b) Toxemia, including eclampsia, nephritis and occasional rare conditions, which is usually regarded as the condition *par excellence* which can be influenced by prenatal care, is the cause of only 6.5 per cent. of the deaths, and consequently is accountable for only one-fourth as many as syphilis.

(c) Notwithstanding most painstaking investigation, the cause of death could not be satisfactorily explained in 127 cases, or 18 per cent.

microscopic study of the placenta showed that 350 syphilitic children had been born of the 10,000 women under consideration. In Table 1, 186 are included, leaving nearly as many more — 164 — which were still alive at the end of two weeks, and either soon died or presented manifestations of hereditary syphilis later in life. Even these figures probably underestimate the incidence of the disease, as a diagnosis was made only when characteristic microscopic changes were present in the placenta, a positive Wassermann reaction demonstrated in the fetal blood, or specific lesions were found at autopsy. Accordingly, it is probable that a certain number of cases escaped detection, and plausibility is lent to such a contention by the fact that fifty-three of the children in the next group were born in a macerated condition, and experience teaches that 80 per cent. of such children are syphilitic.

However that may be, the fact remains, which cannot be too strongly impressed on you, that syphilis is the most common single cause of fetal death, not to speak of its ravages in the children which do not

TABLE 1.—CAUSATION OF 705 FETAL DEATHS.

Cause	White	Black	Total	Percentage Incidence	Premature		Mature		Estimated Percentage after Prenatal Care
					White	Black	White	Black	
1. Syphilis	35	151	186	26.4	22	112	13	39	13
2. Unknown	39	88	127	18	12	37	27	51	15
3. Dystocia	61	63	124	17.6	4	6	57	57	6
4. Various	30	49	79	11.2	7	11	23	38	11.2
5. Prematurity	14	36	50	7.1	14	36	—	—	3.6
6. Toxemia	32	14	46	6.5	17	6	15	8	2
7. Deformity	18	6	24	3.4	8	3	10	3	3.4
8. Inanition	11	12	23	3.3	9	10	2	2	1.6
9. Placenta prævia	20	2	22	3.1	10	2	10	—	1.5
10. Premature separation of the placenta	7	6	13	1.8	4	4	3	2	1
11. Suffocation (criminal)	3	3	6	0.9	—	—	3	3	0.5
12. Debility	3	2	5	0.7	—	—	3	2	0.5
Totals	273	432	705	100.0	107	227	166	205	59.3
	705				334		371		
					705				

(d) The death rate is nearly twice as high in the blacks as in the whites, 9.4 and 5.1 per cent., respectively, and equals or exceeds that of the whites in all but three categories, namely, toxemia, deformities and placenta prævia.

CAUSES OF FETAL DEATH

After these preliminary remarks, I shall consider each cause of death separately, and afterward draw certain conclusions as to their bearing on the problems of prenatal care.

1. *Syphilis*.—Although it has long been known that this disease plays an important part in the causation of fetal death and should always be borne in mind when successive pregnancies end in the birth of dead children, I was greatly surprised to find that it was accountable for 186 of the 705 deaths, or 26.4 per cent., and that it constituted the most common single etiologic factor concerned. It was observed much more frequently in the blacks than in the whites, the incidence being 35 and 14 per cent., respectively, and was the direct cause of two-fifths of the deaths occurring in the premature children.

These startling figures, however, do not tell the whole story of the ravages of the disease, as routine

immediately succumb to it, and that in the future no statistics bearing on prenatal care can make any claim to completeness which do not take it into consideration.

2. *Unknown Causes of Death*.—Strange to say, the second largest contingent of fetal deaths is included under this category. One hundred and twenty-seven children, 18 per cent., were born dead or succumbed during the two weeks following birth without our being able to discover a satisfactory explanation for the fatal issue. Indeed, the only suggestive finding was the fact that fifty-three, or nearly one-half, of the children were macerated when born. I have already suggested the possibility that undetected syphilis may have been concerned, and I believe it is reasonable to assume that probably forty of these children, or approximately one-third of the group, really perished from it. With this exception, no definite statement can be made, and we are compelled to confess that the means at present at our disposal do not always enable us to adduce a satisfactory explanation for a considerable number of fetal deaths.

3. *Dystocia*.—Under this caption I have grouped together the deaths following mechanically difficult labor, whether operative or spontaneous. In many instances it was the result of disproportion between

the size of the child and the pelvis of the mother, while in a smaller proportion it was due to abnormal presentations of the child or to other factors resulting in delayed labor. The group, however, does not include the difficult labors associated with eclampsia or complicated by hemorrhage preceding the birth of the child, which are classified under separate headings.

One hundred and twenty-four fetal deaths are included in this category, an incidence of 17.4 per cent., and occurred more frequently in whites than in blacks—22 and 14.5 per cent., respectively. This is a somewhat surprising conclusion when it is recalled that abnormal pelvis are noticed three or four times more frequently in black than in white women, and that the most extreme degrees of deformity occur almost exclusively in the former. To my mind, the explanation for this apparent contradiction is afforded by two factors: First, colored children as a rule are smaller and have softer heads than white children, with the result that moderate degrees of pelvic contraction are frequently compensated for, so that easy spontaneous labor may take place in spite of the contracted pelvis. Secondly, extreme disproportion is readily recognized, when the patients are promptly subjected to cesarean section or other radical mode of delivery, with ideal results for both mother and child. On the other hand, in white women, who as a rule present only moderate degrees of pelvic contraction, the children are comparatively large, so that the resulting disproportion is relatively great. Unfortunately, the recognition of this type of dystocia requires great diagnostic skill, and frequently is impossible until the woman has advanced so far in labor that the time has passed for the employment of the ideal method of delivery, and the child succumbs to the makeshift procedure which we are compelled to employ.

Consequently, one of the most important lessons to be learned from this group of cases is that moderate degrees of pelvic contraction are much more serious in white than in black women, and that the most expert skill is required for the recognition of the disproportion and for the choice of the ideal method of delivery.

I have carefully studied the history of each patient in this group in the attempt to ascertain to what extent the fetal mortality might have been diminished or prevented. In the first place, I found that in twenty-five cases outside physicians or midwives had failed to effect delivery and had transferred the patient to the service when the child was already dead or so damaged that it succumbed shortly after birth. Most of these deaths should be attributed to ignorance, and could have been prevented had the patients received skilled care at the proper time. On the other hand, I found an equal number of cases in which the death of the child was due to errors of judgment by myself or my assistants. In a certain proportion of the cases the result must be regarded as "the premium paid to experience," and was due to inexperience on the part of my resident, who either delayed too long before interfering, interfered too soon, or failed to select the ideal procedure for delivery. In other cases the fault was my own. In most instances, however, the error of judgment was unavoidable, and was recognized as such only after the treatment of the patient had been coolly reviewed months or years afterward. Consequently, only a certain proportion of such deaths are really preventable.

On the other hand, in seventy-four cases of the series most rigorous criticism fails to reveal any cause for reproach, and I believe that the deaths were unavoidable when all the factors concerned are taken into consideration. Thus, it would appear that a considerable fetal mortality is inherent to the class of cases under consideration and cannot be avoided.

4. *Various Causes.*—Under this heading are included seventy-nine deaths, 11.2 per cent., due to thirty different accidental complications which were equally divided between the two races. An idea as to their great variability may be gained from Table 2, which includes all conditions which were observed in two or more instances.

TABLE 2.—VARIOUS CAUSES OF DEATH

Cause	No. of Cases
Hemorrhagic diseases	14
Bronchopneumonia	13
Cord infection	6
Strangulation by loops of cord	5
Umbilical hemorrhage	4
Hydramnios	4
Enteritis	4
Gastritis	2
Asphyxia	2
Neglect	2
Cerebral hemorrhage (spontaneous labor)	2
Status lymphaticus	2
Trauma	2
Various conditions, each of which occurred but once	17
Total	79

In other words, fifty of the deaths were due to the seven causes mentioned first, while the remaining twenty-nine were attributable to twenty-three different causes. In general, very few of these deaths could have been prevented, and it is interesting to note that practically one-third were due to hemorrhagic disease or to bronchopneumonia. Furthermore, it should be observed that twelve out of the fourteen cases of the former occurred in negro children, while the incidence of the latter was identical in the two races.

I am unable to state whether or not the remarkable predominance of blacks perishing from hemorrhagic disease has any especial significance, as we are almost completely ignorant concerning its cause.

5. *Prematurity.*—Under this heading I have grouped together fifty deaths occurring in premature children which were born alive but perished during the first week of life, and whose death could not be attributed to syphilis, toxemia or any of the causes enumerated in the table. Autopsy usually revealed no definite cause for the fatal issue, which apparently was due to the inability of the poorly developed child to lead an extra-uterine life.

Cases of this character occurred much more frequently among the blacks, and are attributable in part at least to the lack of care and intelligence which so frequently characterizes that race.

6. *Toxemia.*—The various toxemic conditions were responsible for forty-six deaths, 6.5 per cent., which were equally divided between premature and mature children. Strange to say, white children were involved nearly three times more frequently than black, although it is impossible to adduce a satisfactory explanation for the difference.

The prevention of the development of these conditions is one of the chief aims of prenatal care, and it must be said that the great majority of our cases occurred in women whose pregnancies had not been supervised, but who were seriously ill before entering the service.

7. *Deformities*.—Under this heading are grouped together twenty-four deaths occurring in children which presented congenital deformities which were incompatible with life, or which gave rise to such mechanical obstruction as to lead to their death at the time of labor.

Table 3 gives an idea of their character and incidence.

TABLE 3.—DEATHS FROM CONGENITAL DEFORMITY

Deformity	No. of Cases
Acrania	6
Hydrocephalus	6
Imperforate anus	3
Congenital edema	2
Osteogenesis imperfecta	2
Hemimelus	1
Congenital cystic kidney	1
Achondroplasia	1
Spina bifida	1
Absence of pylorus, situs transversus	1
Total	24

Such deformities are attributable to errors in development occurring within the first few weeks of life following conception, and cannot be prevented. It is interesting to note that three-fourths of them occurred in white children, and were about equally divided between those which were born prematurely and at full term.

8. *Inanition*.—In this category I have collected twenty-three deaths occurring between the seventh and fourteenth days, for which autopsy failed to reveal a satisfactory explanation. As all but four of the children were premature, this group of deaths might have been considered under prematurity, the only point of difference being that death occurred during the second instead of the first week.

9. *Placenta Praevia*.—Under this heading are included twenty-two deaths which were associated with abnormal implantation of the placenta. This condition gives rise to severe hemorrhage, which necessitates the termination of pregnancy, no matter to what period it may have advanced, and is always associated with a high fetal mortality. The children were almost equally divided between premature and mature, but the most interesting feature connected with this group is that only two deaths occurred in colored children. I am unable to advance an explanation for this peculiarity, as *a priori* the condition should occur with equal frequency, and should be attended by approximately the same mortality in the two races.

10. *Premature Separation of the Placenta*.—The partial or complete separation of the normally implanted placenta before the onset of labor constitutes one of the most serious complications of pregnancy, and if complete always leads to the death of the child and frequently to that of the mother. It was responsible for thirteen deaths in our series, which were approximately equally divided between the two races.

11 and 12. *Suffocation and Debility*.—The conditions comprising these two groups occur so infrequently as not to require especial consideration.

EFFECT OF PRENATAL CARE

Having thus reviewed the various causes of fetal death in our series, I shall briefly consider each group from the point of view of prenatal care, and determine as far as possible to what extent its intelligent application might have been effective in reducing early infantile mortality. I am well aware that any such estimate

is dependent on the personal attitude of the person making it, and at best can be only approximate. Definite statements cannot be made until numerous series of thousands of cases each have been adduced, in which all of the mothers had been the recipients of intelligent prenatal care. Such statistics are not yet available, and I fear that some time will elapse before they are.

1. *Syphilis*.—I feel that the chief value of this investigation consists in the demonstration that syphilis is the most important single factor concerned in the production of fetal death, certainly when the material includes considerable numbers of negro patients. For this reason it must receive important consideration from those interested in prenatal care and in the reduction of infantile mortality. Unfortunately, it is not an easy task to combat its effects. Mere education in sexual matters will do but little good in the class of patients concerned, as we are dealing with realities and not with utopian theories. What is necessary is to recognize the disease in the mother at the earliest possible moment, and then to subject her to appropriate antisyphilitic treatment in the belief that the drug administered to her will be transmitted to the child and effect its cure.

The treatment is comparatively simple, but the difficulty lies in making the diagnosis. Unfortunately, for our purpose, not more than one-fourth of syphilitic pregnant women present lesions from which a clinical diagnosis can be made, with the result that in three-fourths of the cases the condition is usually unsuspected until a dead-born child is subjected to autopsy, or a living child develops symptoms of hereditary syphilis. Indeed, in a large proportion of our cases the condition would have escaped detection had it not been our custom to examine every placenta microscopically, and to insist on an autopsy wherever feasible.

How can the desired end be effected? I am afraid that ideal results cannot be obtained unless a Wassermann test is made in the early months of pregnancy on every woman applying for obstetric aid. Such a procedure is out of the question on account of its expense, and the best that we can do is to bear the possibility of syphilis constantly in mind, and to teach those engaged in practical work to be always on the lookout for it. This would result in the detection of about one-fourth of the cases, while the other three-fourths would escape.

Fortunately for our problem, the effects of unrecognized maternal syphilis are not limited to the birth of a single dead child or by the development of a single case of hereditary syphilis, but the woman continues to give birth to a succession of dead-born children. Consequently, we should always regard the birth of a dead child with suspicion, and, unless it is perfectly apparent from the history that syphilis was not concerned, the blood should be subjected to the Wassermann test, and in case a positive reaction is obtained the mother should be given appropriate treatment, with the certainty that one-half of the children which are now lost would be saved, and the woman herself put in condition to bear normal children in the future.

This is not the time or the place to enter into a discussion as to the possibility of the paternal transmission of syphilis or the proper treatment of the disease; but enough has been said to demonstrate that ideal prenatal care demands much more than the

examination of the urine and instruction as to the desirability of breast feeding, and must include an extensive knowledge of syphilis. For it is only by its recognition and treatment that this important cause of fetal death can be partially eliminated.

2. *Unknown Causes.*—In view of the fact that our knowledge at present is insufficient to permit us to determine the cause of death in this class of cases, nothing can be said of the prospect of immediate improvement by means of prenatal care, except in so far as the detection and treatment of obscure cases of syphilis is concerned. Naturally, future investigations will gradually lead to a decrease in the size of this group, and will open up avenues of prevention which do not now exist.

3. *Dystocia.*—In this group of cases the intelligent application of prenatal care in its broadest sense offers great promise of better results. As has already been indicated, the disasters in this group are in great part due to pelvic abnormalities, or to excessive size or abnormal presentation of the child. Such conditions cannot be detected or remedied by the most intelligent prenatal nurse, and their recognition will be possible only after all women have been educated to go to a competent obstetrician or to a well-regulated obstetric dispensary for a preliminary examination one month before the expected date of confinement.

If abnormalities are found, the woman should enter a hospital for delivery, and the public should be taught to realize that safety is to be found only in ideally organized obstetric hospitals. Too many sins of omission and commission are now covered by the hospital roof, and in many the sense of security is illusory, as the woman may be treated by short-term assistants, who are often less competent than the much-maligned practitioner. These women should not be delivered in their own homes by a doctor or midwife, or even by the outdoor service of the hospital, as their safety and that of their babies depend on the expert service which can be obtained only in a well-regulated hospital. Generally speaking, even in the absence of a recognized abnormality, the history of a dead-born child in a previous labor should always be regarded as an indication for hospital treatment.

It is my belief that at least two-thirds of the fetal deaths due to these factors could be prevented if suitable care were available. On the other hand, greater optimism is not permissible, as, no matter how skilled the medical attention may be, a considerable mortality will always be associated with such cases.

4. *Various Causes.*—As was indicated in the corresponding previous section, the deaths occurring in this group are due to a large number of accidental factors, concerning whose cause and prevention we are in great part ignorant. Consequently, it is not probable that any great diminution can be effected in this group by the means at present available.

5. *Prematurity.*—Prenatal care and instruction offer great possibilities for the diminution in the number of deaths due to this cause. In her visits to the homes of ignorant and overworked women the prenatal nurse can prevent many premature labors by giving instruction in personal hygiene, insisting on rest and abstention from excessive work during the later months of pregnancy, and, where imperfect nutrition is manifest, by putting the woman in touch with appropriate agencies for relief.

It has been established beyond peradventure that one of the most potent causes of premature labor and the birth of poorly developed children consists in overwork and poor nutrition in the last months of pregnancy; and my own observation has demonstrated that the smaller size of the average colored child is dependent on insufficient and unsuitable food, and that a stay of several weeks in the hospital before labor will result in an increase of from 8 to 16 ounces in the size of the children which will then compare favorably with those of white women in comfortable circumstances.

While the state is not yet prepared to follow the example of France and Germany in ensuring the working woman a period of rest during the weeks immediately preceding labor, I am confident that intelligent prenatal care along the lines indicated would soon do away with at least one-half of the deaths due to prematurity.

6. *Toxemia.*—The fact that only forty-six children in our series perished as the result of toxemia indicates that preventive work in our service has resulted in appreciable improvement, as the great majority of deaths occurred in the children of women who had applied for aid only after the disease had become fully established.

For some years the prevention of toxemic conditions has been recognized as one of the main functions of prenatal care and has accomplished great good. Every practitioner knows how difficult it is to induce even intelligent women to send specimens of urine for examination at regular intervals, and that it is practically impossible in the type of women who come to the obstetric dispensary. Consequently, one of the most important functions of the prenatal nurse is to follow up the patients in this regard, and when abnormalities are detected to see that the women enter the hospital for prophylactic or curative treatment.

In my own material I am confident that the mortality from this cause could have been reduced four-fifths had suitable prenatal care been available. At the same time, I think it right to insist that complete abolition of death from this cause is an unattainable dream, as I know from my own experience that patients who have been constantly under ideal supervision occasionally develop and sometimes die from toxemia.

7. *Deformities.*—Under the appropriate heading I indicated that the deformities in question originated during the first weeks of pregnancy, and therefore no diminution in the number of deaths from this cause can be expected from prenatal care. Furthermore, I am inclined to believe that more careful investigation will lead to the recognition of an increasing number of such cases, as is shown by the fact that since completing the tabulations on which this study is based, I have seen two dead babies born which would previously have been classified in the "unknown cause" group, but in which very thorough autopsy demonstrated that death had been due to abnormalities of the nervous system which were incompatible with life and which had originated during the first weeks of development.

8. *Inanition.*—All that can be said of the prevention of death from this cause has already been said under the heading "prematurity."

9. *Placenta Praevia.*—Only a few of the twenty-two deaths from this cause could have been prevented by prenatal care and then only indirectly. Had all of

the women suffering from this abnormality been taught that bleeding during the last months of pregnancy was a serious matter and demanded expert hospital care, it is probable that a considerable number of them and their children might have been saved, instead of being sent to the hospital in a dying condition by doctors or midwives who had attempted to treat them in their own homes.

The greatest hope for improvement in this condition lies in preventive measures, put in operation months or years before the condition develops. In other words, since the causative factor in the production of placenta prævia consists in inflammatory conditions of the lining membrane of the uterus, resulting from infection in previous labors or abortions, the chief means of prevention consists in good obstetric care in preceding labors.

10. *Premature Separation of the Placenta.*—Thirteen fetal deaths were attributable to this cause, but as we are in great part ignorant of the exact mode of production of the accident, it is evident that even the most intelligent prenatal care could not have been effectual in preventing it.

Furthermore, in view of the fact that the complication runs a rapid course and is frequently very difficult of recognition, it is unlikely that the majority of women affected could have been sent to the hospital sufficiently early to have been subjected with any great hope of success to the radical operative procedures which are essential for saving the child; while in many instances it is a matter of congratulation if it is possible even to save the mother.

11 and 12. *Suffocation and Debility.*—These factors in the causation of infantile death occurred so rarely in our series of cases and were so clearly beyond the influence of prenatal care that they do not call for consideration.

Having thus reviewed the causes of fetal death in our series and considered the extent to which they might be decreased by ideal prenatal care, I have indicated in the last column of Table 1 what appears to me to be the proportion of deaths which must be expected and which cannot be appreciably diminished by any means at our disposal.

It would therefore appear that the fetal mortality in our material might have been reduced 40 per cent. had it been possible for all of our patients to have the advantages of the type of prenatal care which I shall briefly sketch, and with the further proviso that they had received practically ideal obstetric care in the hospital. In this event nearly 300 additional children could have been discharged from the service in good condition.

In criticizing our results, it should be borne in mind that our material is of the type which ordinarily applies for aid at a large general hospital, and is less favorable than in many institutions for the reason that nearly one-half of the patients are negroes with scant intelligence and afflicted by contracted pelvis and syphilis to an extent in no way approached by white patients. In general, I believe I can fairly assert that the treatment at the time of labor compares favorably with that of other institutions, but on the other hand, I must frankly confess that the care during pregnancy was far from ideal, and until two years ago consisted solely in such supervision as could be afforded in the dispensary to patients who voluntarily obeyed our directions to return at stated intervals

for supervision and examination. During the past two years, however, thanks to the cooperation of the "milk fund" nurses and of the children's clinic, conditions have materially improved, and at the present moment the hospital has provided funds to enable us to make a start with efficient prenatal care.

If we have to register a total mortality of 7 per cent., with all the resources of a large hospital and university behind our service, which has been fortunate in being provided with an exceptionally competent nursing and resident staff, it is appalling to contemplate the conditions which must obtain in private practice among the poor and in some institutions which are less favorably situated.

I shall now outline briefly my ideas concerning efficient prenatal care in large cities, and shall consider its relations to other departments of medical and social service work.

I believe that too narrow a view is ordinarily taken of the scope of prenatal care, which is regarded on the one hand almost solely as a means of preventing toxemia, and on the other as a side issue in the propaganda for breast feeding. If ideal results are to be obtained, neither view is correct, and if the consideration of the facts which I have presented has served its purpose it will have convinced you that broad-minded prenatal care has an immense scope and can be carried out effectively only under the auspices of a well-regulated obstetric department which can command the enthusiastic cooperation of carefully trained obstetricians, social service workers and prenatal and outdoor obstetric nurses, and at the same time is in close affiliation with a children's clinic with its corps of organized workers, or at least with a well-conducted milk association. Furthermore, the closest relations must be maintained with the other department of a general hospital, whose resources should be readily available to the mother and children when necessary.

ORGANIZATION OF PRENATAL WORK

In an obstetric department such as I have indicated, the prenatal work should be conducted primarily from the dispensary, which should serve as the portal of entry for all prospective patients irrespective of whether they expect to be treated in the hospital or in their own homes.

The first requisite for such a dispensary is that it should have proper quarters, an ideal personnel and adequate financial support. The purely medical work should be under the direct supervision of the director of the hospital, and should be carried out by medical men who are sufficiently well trained to make a reliable diagnosis. A considerable proportion of them, at least, should be assistants living in the hospital, in order that the work of the indoor and outdoor departments may be satisfactorily coordinated. In addition to the medical assistants, the necessary number of nurses should be in attendance to care for the ordinary needs of the patients, but more important is the requisite number of prenatal nurses. These should be graduate nurses with considerable obstetric experience, who have also had a certain amount of training in social service work, and should receive adequate salaries.

Patients should be encouraged to come to the dispensary as early as possible in pregnancy. After registration, a careful physical examination should be made and its results recorded. This should not

be limited to purely obstetric conditions, but should include the entire body, with especial reference to syphilis and tuberculosis, and the condition of the kidneys. At this visit blood should be withdrawn for a Wassermann test, should anything in the physical examination or the previous history of the patient indicate its necessity.

If everything is apparently normal, and the patient desires it, she should be tentatively registered as an outdoor patient, to be eventually delivered in her own home; otherwise, she should be registered as a prospective hospital patient.

In either event she should be instructed to report to the dispensary at stated intervals as long as she remains well, and to bring a specimen of urine at each visit. She should also be given a card containing concise directions concerning the hygiene of pregnancy, and mentioning the important untoward symptoms which might supervene. Should such be noted she should report at once.

At the first visit to the dispensary, the prenatal nurse should arrange to call on the patient at her own home within the week. At this visit she should make a social survey of the surroundings, and determine whether the patient is a proper object for charitable care. If the surroundings are not suitable, the patient should be persuaded to enter the hospital for delivery. The nurse should also amplify the printed directions concerning the hygiene of pregnancy, and impress the woman with the necessity of suckling her baby.

After this initial visit, an important part of the duties of the nurse is to keep track of the patient by means of a card index, and in case she does not return to the dispensary within one week of the appointed time, to visit her again in order to ascertain why she failed to keep the engagement.

Every patient should return to the dispensary for a final examination one month before the expected date of confinement, and the decision as to whether she is to be delivered in the hospital or in her own home will in great part depend on the findings at that time. In the latter event she should be visited again by the prenatal nurse in order to ascertain whether the necessary arrangements have been made for the approaching confinement. Ordinarily, further visits will not be necessary until after the child is born, but a visit should be made just after the student and post-partum nurse cease their visits. This is necessary partly to check up the work of the outdoor service, but principally to put the patient and her baby in touch with the children's clinic with instructions to take the baby to it should necessity arise, and on returning to the hospital the nurse should register the child at the children's clinic or with the "milk fund" nurse so that it can be followed up by the proper agencies.

In the case of patients entering the hospital for delivery, the prenatal nurse's work usually ceases with the visit made one month before delivery, as the subsequent supervision will devolve on the nursing staff of the hospital. On the day before the discharge, the mother and baby should be taken to the children's clinic for registration, so that the baby may be under its supervision for the next year.

Prenatal care does not necessarily end here, as it has to take thought of what may happen in future pregnancies, as well as of the preservation of the gen-

eral health of the mother. Consequently, when the existence of syphilis is not discovered until after the birth of the child, a mechanism should be developed which will ensure proper treatment, either under the auspices of the obstetric service or in some special department of the hospital. To bring this about without unnecessarily going into details concerning the disease will often require great tact, and will tax the resources of many nurses. Furthermore, when patients are discharged with conditions ultimately requiring operative treatment, but which could not be undertaken during their stay in the lying-in ward, an attempt should be made to see that they ultimately return to the obstetric department or to some other department of the hospital for the necessary operation, both for their own sake and for that of their unborn children.

CONCLUSION

I hope that by this brief outline and by my figures I have been able to make clear how complicated prenatal care is and how inextricably it is connected with the work of the obstetric hospital. It is not merely a matter of a few visits by a nurse to the patient in her own home, but should consist in the coordination of the medical, nursing and social service resources of the hospital in the effort to obtain such treatment and supervision for the mother as will offer the greatest possible guarantee for the safe delivery of a normal child, which can be kept healthy by maternal nursing.