

# MATERNAL HEALTH AND SUPERVISION IN A RURAL AREA

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THE problem of maternal care was recognized as a difficult but important one in the development of a broad health program in Cattaraugus County, New York, where a rural health demonstration was begun in 1923. However, little experience with the provision of public health services to give more adequate protection to mothers was available from other rural communities and, in the early years of the demonstration, chief emphasis was given to the application of proven health measures, such as those for tuberculosis control and health instruction for care of infants. Studies of infant mortality in the County soon showed that reduction of the infant death rate, as well as the protection of the mother's health, would require an intensive health program directed to the improvement of maternal care. In 1926 and 1927, resident infant mortality in the rural part of the County averaged 53.5 per 1,000 live births<sup>2</sup> and nearly 80 per cent of the deaths resulted from childbirth or congenital and other "early infancy" conditions, the most important of which was premature birth. Such data gave striking evidence of the need for more effective health services for the care of mothers during pregnancy and for early care of the newborn infant. Fundamental to plans for meeting this need was the accumulation of more information on the amount and type of care being received and the use of available services.

An opportunity for obtaining detailed information on the health supervision received by rural mothers and their infants was afford-

<sup>1</sup> From the Milbank Memorial Fund in cooperation with Statistical Studies, Division of Public Health Methods, National Institute of Health.

<sup>2</sup> Wiehl, D. G.: Correction of Infant Mortality Rates for Residence. *American Journal of Public Health*, May, 1929, xix, No. 5, pp. 495-510. Infant mortality in rural Cattaraugus County was higher for several years following 1926 and 1927, but corrected resident rates for the rural area by cause of death are not available until 1933.

ed by a special morbidity survey conducted in Cattaraugus County by the United States Public Health Service and the Milbank Memorial Fund, with the cooperation of the County Department of Health. During the period from September, 1929, to June, 1932, nearly all families living in five townships in the central part of the County were visited fairly regularly at intervals of about three months to inquire about any illnesses in the family and to obtain data about medical care and other health supervision received. Confinements are normally reported as an illness in morbidity surveys, but in the present survey a special questionnaire was provided the enumerators who asked specifically for information about prenatal health and medical or nursing supervision as soon as it became known that the wife, or other member of the family, was pregnant. Similarly, a special record was obtained, usually from the mother herself, for details of her delivery and postpartum health and care, and for each live-born baby special data were obtained throughout the period of infancy. Thus, the antepartum and postpartum records available for the present report include not only histories of mothers who were under medical care but also of those who had no supervision.

During the period of observation for the survey, 213 women reported one pregnancy, 45 women two, and 3 women three, making a total of 312 pregnancies included in the study. Two hundred and seventy-eight of these terminated in live births, five of which were multiple, 13 in stillbirths, and 21 in abortions.<sup>3</sup> Ten live births and three stillbirths were delivered before the ninth month of gestation,<sup>4</sup> making a total of 34 pregnancies which terminated prematurely.

<sup>3</sup> Any product of pregnancy of less than 27 weeks or 7 months' gestation was considered an abortion unless it was registered as a live birth.

<sup>4</sup> The frequency of premature births in this series was 4.4 per 100 births, excluding abortions, compared with 5.5 per 100 in New York State, exclusive of New York City, in 1936, as reported by J. Yerushalmy. See Neonatal Mortality by Order of Birth and Age of Parents. *American Journal of Hygiene*, September, 1938, xxviii, No. 2, p. 253. However, registered stillbirths of only 5 or 6 months' gestation are included in the New York State total, and some live births less than one month premature would be registered as premature births.

The stillbirth rate of 41.7 per thousand total births during the study is very much higher than the average resident stillbirth rate of 32.2 in rural Cattaraugus County for the years 1930-1931, the two calendar years which were included in full in the survey period. However, if the number of births registered in the five townships in this survey, according to the *Vital Statistics Reports of the New York State Department of Health* for 1930 and 1931, is corrected by adding the survey births reported as delivered outside the area in these two years, the stillbirth rate for the area is 54.5 compared with a rate of 55.8 for the same period in the survey.<sup>5</sup> The high stillbirth rate among the survey births, therefore, was typical of this particular section of Cattaraugus County, at least during these years.

Deaths from early infancy conditions among the survey births gave a rate of 31.8 per 1,000 which was lower than the mortality from these causes for the County, exclusive of Olean and Salamanca.<sup>6</sup> If the stillbirths and deaths from causes associated with early infancy are combined, the loss from prenatal, natal, and neonatal causes in the five towns during the survey period was practically the same as in the rural part of the County.

*Health Facilities in the Area.* Three physicians lived in the small village within the survey area and many others were available in nearby villages and in Salamanca, a city of approximately 10,000 population, which borders the area on the south. No family lived more than ten miles from a physician. There is a hospital in Sala-

	Years 1930-1931		Stillbirth Rate
	Total Number of Births	Number of Stillbirths	
Survey in 5 townships	215	12	55.8
Reported born outside the townships	20	3	—
Registered in 5 townships (State Report— Vital Statistics)	200	9	45.0
Registered + births outside the 5 townships	220	12	54.5

<sup>6</sup> The mortality from early infancy causes in the years 1930 and 1931 was 40.5 per 1,000 live births for the County, exclusive of Olean and Salamanca, when births and infant deaths registered in the County are allocated to place of residence.

manca and one in Gowanda, not far from the northern part of the area, but neither hospital maintained any maternal clinics or free beds for delivery service. There was also a small maternity home in the one village within the area.

The full-time medical director of the Bureau of Maternal, Infant and Child Hygiene, who had served for three years, resigned in August, 1929, and this position was not filled until June, 1931. For this reason, throughout most of the survey period, the public health nurses on the staff of the County Department of Health gave the only services provided by the Department of Health. The survey area included parts of two of the six nursing districts in the County, exclusive of Olean City which was not served by the County nurses. There was one nurse to about 3,500 population in the first year of the survey, but this ratio changed to one nurse to about 4,500 population as a result of a reduction in the number of staff nurses in the summer of 1930. The prenatal service provided was almost entirely educational visits to the home, as neither Mothers' Clubs nor prenatal clinics were held. The nurses did not take blood pressure readings nor do urinalyses, as these services had not been approved by the County Medical Society, but they sometimes collected urine specimens to take to the physician. Nursing assistance at delivery was given when requested by the physician, and postpartum bedside care also was given until someone in the home was trained to continue care of the patient.

The attention given to the maternal health problem by the nurses, who were providing a generalized nursing program, was affected not only by the number of nurses on duty and the demands for other health services but also by the interest in the problem which may be stimulated by a director or other responsible officer directing a special program. This is evident in the annual variations in nursing visits to maternity cases. In 1926, only 8 per cent of home visits by nurses were to maternity patients but in 1927, the first year for which there was a full-time medical director, 12 per cent of the

visits were to maternity patients. In 1930 and 1931, when there was no medical director to promote and guide the maternal program, the per cent of all home visits which were maternity visits was 8 and 9, respectively, but increased again to 13 per cent in 1932.

In the last twelve months of the survey period, the director of the Bureau of Maternal, Infant and Child Hygiene started a special prenatal service for low-income patients whereby the private physician was paid by the Health Department for prenatal care given in his own office. A nurse investigated the economic condition of the patient and, if the family was unable to pay, the Health Department forwarded a request for further medical care to the Welfare Department.<sup>7</sup> The authorization for confinement care was solely the responsibility of local welfare officers.

#### PRENATAL CARE

*Medical Care.* The data obtained concerning medical care in the prenatal period were entirely quantitative and relate to the number of times the patient visited or was visited by a physician, the month of pregnancy in which the visits were made, and the number of urinalyses made. Such data do not reveal the quality or adequacy of the supervision given, but are an index of the opportunity for good supervision and of the attitude toward prenatal care of these rural women. The record of prenatal care was not complete for a number of cases, especially for pregnancies which terminated in abortions. All abortion cases, therefore, are omitted from many of the tables showing the extent of prenatal care.

The number and per cent of maternity patients in the series who reported specifically that no visit was made to a physician before delivery is shown in Table 1. The 62 patients with no prenatal care were 21 per cent of the total reporting on care. The number of cases terminated before the ninth month of pregnancy was small, but it

<sup>7</sup> See Bell, J. Warren, M.D. and Atwater, Reginald M., M.D.: Providing Prenatal Care for Necessitous Women. *The Milbank Memorial Fund Quarterly*, April, 1935, xiii, No. 2, pp. 179-184.

PERIOD OF GESTATION AT DELIVERY	TOTAL PREGNANCIES IN SURVEY	PRENATAL CARE				
		Total Known	Number		Per Cent	
			One Visit or More	None	One Visit or More	None
TOTAL MATERNITY CASES	312	296	234	62	79.1	20.9
9th Month	276	272	219	53	80.5	19.5
7th-8th Months	13	12	8	4	66.7	33.3
6th Month or Earlier	21	12	7	5	58.3	41.7
Unknown	2					

Table 1. Proportion of maternity cases for which some prenatal care by a physician was reported in a special survey of rural women in Cattaraugus County, New York, in the period September, 1929, to June, 1932.

is apparent that a larger percentage of such cases than of births at term had no medical care before confinement. This is to be expected unless most patients make a first contact with their physician early in pregnancy.

Registration with a physician during the first trimester of pregnancy was reported by 30.8 per cent of the women, as shown in Table 2, and another 19.2 per cent registered in the fourth or fifth months. Half of the women, therefore, had seen a physician early

Table 2. Month of pregnancy in which a physician was first visited by maternity patients in rural Cattaraugus County, New York, as reported in a special survey from September, 1929, to June, 1932.

MONTH OF PREGNANCY AT WHICH PRENATAL CARE BEGAN	NUMBER OF WOMEN CLASSIFIED ACCORDING TO TIME OF TERMINATION			PER CENT OF WOMEN CLASSIFIED ACCORDING TO TIME OF TERMINATION		
	Total	Ninth Month	Eighth Month or Earlier	Total	Ninth Month	Eighth Month or Earlier
TOTAL <sup>1</sup>	292	268	24	100.0	100.0	100.0
1st-3rd Months	90	80	10	30.8	29.9	41.7
4th-5th Months	56	53	3	19.2	19.8	12.5
6th-7th Months	57	55	2	19.5	20.5	8.3
8th Month	19	19		6.5	7.1	
9th Month	8	8		2.7	3.0	
No Medical Care	62	53	9	21.2	19.8	37.5

<sup>1</sup>Excludes 4 cases with care for which month of first visit was unknown.

enough in pregnancy to receive reasonably good supervision. The cumulative percentages of patients who had made at least one prenatal visit to a physician by the end of any specified month of pregnancy is shown in Figure 1 which indicates a fairly regular increase in medical attendance up to the last two months.

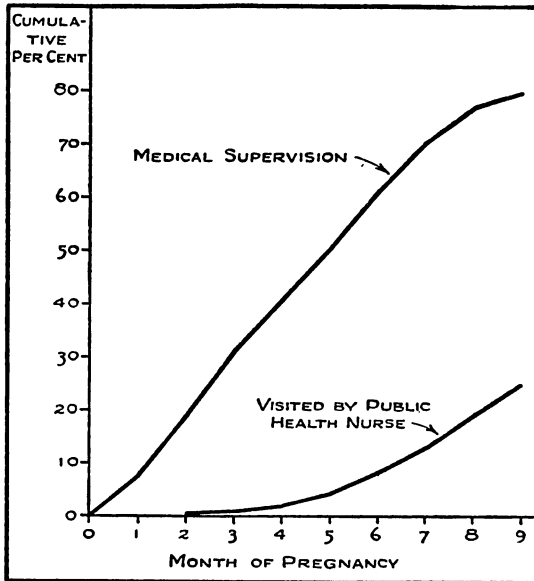


Fig. 1. Cumulative percentages of maternity cases under medical supervision and under nursing supervision at the end of each month of pregnancy, according to a special survey in Cattaraugus County, New York, 1929-1932.

pregnancy is shown in Figure 1 which indicates a fairly regular increase in medical attendance up to the last two months. Data in Table 2 on prenatal care for women whose pregnancies terminated early suggest that a relatively high percentage of them received some prenatal care in the first trimester of pregnancy. This group apparently either sought medical advice early in pregnancy, perhaps because of symp-

toms or some previous experience, or postponed registering with the physician until so late that when early termination occurred no contact with a physician had been established.

Although effective prenatal supervision requires repeated visits to the physician, revisits to the physician at regular intervals were made by only a small percentage of these rural women. Women who made only one visit for prenatal care before confinement were nearly as numerous as those who had no care, and about 40 per cent of the total series either had no care or made only one visit. In Table 3, the number of physician calls for prenatal supervision is shown in relation to the month of pregnancy at first visit to the physician. Mothers who delivered prematurely are excluded since

premature termination reduces the time period during which visits could be made. Early registration with the physician was no indication that the patient would make the necessary return visits. Half of the women (50.6 per cent) who registered with a physician before the fourth month of pregnancy made as many as seven visits, or the minimum number required for regular monthly visits until delivery; but 5 per cent of them did not return for supervision after seeing the physician once and 14 per cent made only two or three visits. The proportion of women visiting with any degree of regularity was less among those who registered later in pregnancy, and of those who first saw a physician in the sixth or seventh month of pregnancy, about one-third made no additional visits. Obviously, many opportunities for adequate prenatal care were missed. The physician, even though he may have seen the mother early in pregnancy, either failed to stress the need for regular supervision, or he was unable to change an attitude prevalent in rural sections, that a doctor's services are needed only in case of actual illness.

The information collected on the number of urinalyses that were made indicated that it was the general practice of the physicians to make such an analysis each time the patient was seen. For some patients, specimens were taken to the physician for analysis when

Table 3. Number of prenatal visits to physician according to month of pregnancy at which care began for women with term births as reported in a special survey in rural Cattaraugus County, New York, from September, 1929, to June, 1932.

MONTH OF PREGNANCY AT WHICH PRENATAL CARE BEGAN	NO. OF WOMEN	NO. OF WOMEN WHO MADE SPECIFIED NO. OF VISITS				TOTAL	PER CENT OF WOMEN WHO MADE SPECIFIED NO. OF VISITS			
		1	2-3	4-6	7 or More		1	2-3	4-6	7 or More
BIRTH AT TERM	211 <sup>1</sup>	47	56	63	45	100.0	22.3	26.5	29.9	21.3
1st-3rd	77	4	11	23	39	100.0	5.2	14.3	29.9	50.6
4th-5th	53	6	17	25	5	100.0	11.3	32.1	47.2	9.4
6th-7th	54	18	21	14	1	100.0	33.3	38.9	25.9	1.9
8th-9th	27	19	7	1		100.0	70.4	25.9	3.7	

<sup>1</sup> 219 women were reported as receiving some care, but for 4 the month care started was unknown, and for 4 the number of visits made was unknown; they, therefore, are excluded.



no prenatal visit was made, and two women who did not see a physician before confinement had had an analysis of a urine specimen. Nevertheless, among women who had visited a physician in the prenatal period, 19 per cent had had no urinalysis and 9 per cent had had only one specimen tested.

*Prenatal Nursing Supervision.* The prenatal visits of the public health nurse provide an important supplement to the medical supervision received by rural mothers. In some instances, the nurse discovers the prenatal case while visiting the family for other health supervision and is instrumental in getting the woman to call upon her family physician. In all cases, the nurse seeks to have the patient continue regular visits to her physician and, although her function is chiefly educational, she also watches carefully for signs or symptoms of any abnormal condition which should be reported to the physician.

A public health nurse had made at least one prenatal visit to 83 of the maternity cases in this series, or 26.6 per cent of all cases. Approximately the same percentage of cases (24.0) with prenatal nursing service was reported by Randall<sup>8</sup> in a study of maternity nursing service in 1930 in three nursing districts in Cattaraugus County. The month of pregnancy in which the nurse made her first visit is shown in Table 4, and the cumulative percentage of cases visited by the end of each month is indicated in Figure 1. Only 8 per cent of the total group (one-third of those receiving nursing visits) were visited in the sixth month or earlier, and, consequently, few women received early instruction in the hygiene of pregnancy and there was limited opportunity for preventive supervision.

Physicians in the area apparently failed to appreciate the value of the service which the nurses could render prenatal patients, since so few of the women who registered with their physician early also had been visited by the nurse early in pregnancy. The number of

<sup>8</sup> Randall, Marian G.: *Maternity Service by the Rural Public Health Nurse*. Milbank Memorial Fund *Quarterly Bulletin*, July, 1931, ix, No. 3, pp. 103-118.

SUPERVISION BY A NURSE AND MONTH OF PREGNANCY AT FIRST VISIT	PER CENT OF TOTAL GROUP		PER CENT OF VISITED CASES WITH FIRST CONTACT IN SPECIFIED MONTH	NUMBER OF WOMEN FIRST VISITED IN SPECIFIED MONTH
	Visited in Specified Month	Cumulative Per Cent		
Number of Cases	100.0	100.0		304 <sup>1</sup>
Number of Cases Visited	24.7	24.7	100.0	75
Month of 1st Visit				
1st-3rd	1.0	1.0	4.0	3
4th-5th	3.0	3.9	12.0	9
6th-7th	8.9	12.8	36.0	27
8th	6.2	19.1	25.3	19
9th	5.6	24.7	22.7	17
Not Visited	75.3			

<sup>1</sup>Eight cases are excluded from the total number of 312 cases and the number of cases visited because the month of first visit by the nurse was unknown.

Table 4. Percentage of maternity cases receiving prenatal supervision from a public health nurse in various periods of pregnancy for a series of rural cases in a special survey in Cattaraugus County, New York, 1929 to 1932.

cases for whom the physician requested nursing supervision was only 11, as shown in Table 5 which gives the source of the nurses' information about the cases visited. Although 146 women had been to their physician before the sixth month, only 8 of these cases were reported to the nurse by the physician, and these were not reported promptly since the nursing visits to these 8 cases were all made in the sixth month or later. One-fourth of the patients who received some nursing visits were discovered by the nurse and another one-fourth were reported to the nurse by another member of the Health Department or by a representative of an official agency in the County. The difficulty of learning about the prenatal cases early in pregnancy is a serious obstacle to effective preventive service, and, although the physicians could aid the nurse in case-finding, greater importance attaches to finding the cases which are not registered with a physician.

Frequent visiting of rural patients by the nurse is unusual and the average number of prenatal visits to this series of cases was 2.4.

CLASSIFICATION OF SOURCE OF INFORMATION	P.H.N. SOURCE OF INFORMATION ABOUT CASES WITH PRENATAL SUPERVISION	
	Number	Per Cent
TOTAL CASES	312	100.0
Total Visited in Prenatal Period	83	26.6
Source of Information Unknown	19	
Source of Information Known	64	100.0
Case Reported by Doctor	11	17.2
Case Reported by Self	12	18.8
Case Reported by Relative, or Other Nonofficial Agency	9	14.1
Case Reported by Official Agency	16	25.0
Discovered by Nurse while Visiting for Other Purpose	16	25.0

Table 5. Sources from which public health nurses learned about prenatal cases which were visited in a rural area of Cattaraugus County in 1929 to 1932.

Nearly one-third of the women received only one prenatal visit, and 5 were visited five or more times, eight visits being the most anyone received. More representative of the nursing supervision given after a case was "found" is the average number of visits per prenatal month of supervision which is given in Table 6. Such an average relates the number of visits made to the total months under care

Table 6. Average prenatal visits per case and per prenatal month under supervision, classified by month of pregnancy at first contact by public health nurse in a rural area of Cattaraugus County, New York, 1929 to 1932.

MONTH OF PREGNANCY AT FIRST CONTACT	NUMBER OF CASES VISITED	NUMBER OF PRENATAL MONTHS FOR CARE	NUMBER OF PRENATAL NURSING VISITS	AVERAGE NUMBER OF VISITS	
				Per Case Visited	Per Prenatal Month
ANY MONTH	71 <sup>1</sup>	205	174	2.45	.85
1st-5th	11	62	40	3.64	.65
6th-7th	27	93	68	2.52	.73
8th	18	35	38	2.11	1.09
9th	15	15	28	1.87	1.87

<sup>1</sup>Four cases are excluded because the nurse was asked either by the family or by the doctor not to revisit the case after her first visit.

and permits an adjustment for cases which terminated early or were dropped at the request of the physician or patient. The average per prenatal month of supervision for all cases was 0.85 visits which means that the nurses made close to the equivalent of monthly visits. However, cases seen only in the last month had an average of 1.87 visits, and those under supervision for five or more months had only 0.65 visits per month.

Although nursing visits do not substitute for medical visits, it is of interest to determine the total number of contacts with either type of professional personnel which these women had during pregnancy. Six of the 62 women who did not visit their physician before confinement had been visited by a nurse; supervision of such cases is discontinued by the nurse after a few visits in accordance with usual nursing policy. Twenty-five per cent of the women had received only one or two health visits and only 16 per cent received eight or more health visits. For all women who received any supervision from either a physician or public health nurse, the average amount of prenatal care was 5.2 visits.

#### FACTORS RELATED TO AMOUNT OF PRENATAL CARE

*Education by Nurses.* In the present series of cases, only 24 women had been visited by the nurse before any prenatal medical care had been received and 18 of them later visited a physician for prenatal care. Case-finding and advice on the value of medical care during pregnancy by the nurses had been a very small factor in bringing patients in this series under medical supervision. Although the nursing contact with patients was established too late in most cases to be very effective in increasing the amount of early medical care, it was thought that education by a nurse at the time of a previous pregnancy might have had some influence on the medical care received for the current pregnancy. Records were available to indicate that 66 women had had nursing supervision with reference to a previous birth (maternity or infant supervision), and 20 per cent

of this group received no prenatal medical care as compared with 21 per cent for the entire series. Furthermore, among 69 multiparous women in the present series who had *not* had nursing supervision for a previous pregnancy, there was 19 per cent with no medical care for the current pregnancy. If the period of pregnancy at first visit to the physician and the frequency of medical visits are considered, there was no difference in the care received by the groups with and without nursing care for previous pregnancies. Thus, the data provide no evidence that previous education had effectively modified the current attitude toward the need for medical care.

Visits of the nurses during the prenatal period did seem to improve the regularity of the revisits of patients to the physician, although the opportunity to increase the amount of medical supervision was limited since the first nursing contact with cases was usually after pregnancy had advanced to the sixth month. Some evidence that the nurses did influence patients to *revisit* their physicians is obtained by comparing the revisits of patients visited by the nurses and those not visited. For this purpose, the patients who first visited a physician in the sixth, seventh, or eighth month of pregnancy were considered; and an index of the regularity of revisits was computed for the remaining months after the first visit to the physician on the basis of the ratio of visits<sup>9</sup> to the number of months. The following ratios were obtained:

<i>Cases with First Medical Care in 6th-8th Month</i>	<i>Revisits Per Prenatal Month</i>
Patients not visited by nurse (50 cases)	.45
Patients visited by nurse after first M.D. visit (13 cases)	.67
Patients visited by nurse before first M.D. visit (12 cases)	.53

<sup>9</sup> If the number of revisits exceeded the number of months, the revisits in this compu-

*Economic Status.* The families living within the survey area were given a rating on economic status based on the general impression formed by the investigator after repeated visits to the family. Table

Table 7. Class of medical prenatal care, according to economic status of family, received by women in a rural area of Cattaraugus County, New York, 1929 to 1932.

Economic Status	Total No. of Women	Per Cent Reporting Specified Class of Prenatal Care <sup>2</sup>				
		Total	I	II	III	None
ALL WOMEN	276 <sup>1</sup>	100.0	33.7	19.9	25.7	20.7
Moderate	111	100.0	49.5	20.7	21.6	8.1
Marginal	80	100.0	28.8	27.5	23.8	20.0
Poor	85	100.0	17.6	11.8	32.9	37.6

<sup>1</sup>Excludes 21 abortions and 15 cases with care unknown.

<sup>2</sup> See footnote 10. Class I was fair or good care.

7 and Figure 2 show the type of prenatal care by economic status of the mothers. The cases with any prenatal care have been classified into three broad groups, according to month prenatal care began and number of visits<sup>10</sup> made to a doctor, as follows: Class I, fair or good care; Class II, insufficient care; and Class III,

poor care, or so few visits that no real supervision was possible. The classification is purely quantitative, and takes no account of the type of service a doctor may have given.

A greater proportion of mothers in the highest economic group received Class I care, as would be expected since private physicians gave the only medical supervision available. Not only are such mothers better able to pay for service, but, as a group, they presumably are more aware of the need for service. Fifty per cent of all mothers with a comfortable or moderate economic status visited

tation were counted as equal to the number of months so that the ratio of visits to months could not be greater than 1.0. This was done to eliminate weighting the average ratio with a large number of visits made by a few cases who were receiving treatment for some special health condition.

<sup>10</sup> (1) *Fair or good care* includes those women first seeing a doctor before the sixth month of pregnancy and having at least four visits; (2) *insufficient care*, those first visiting a doctor in the sixth to eighth month of pregnancy, with at least monthly visits, or those visiting earlier who failed to see their physician in the eighth or ninth month, but with at least three visits; (3) *poor care*, those seeing the doctor first in the ninth month of pregnancy, or seeing a doctor in the eighth month, but not in the ninth, or those seeing a doctor earlier, but with a total of only one or two visits. These standards were applied to all term births, but for premature births an adjustment was made in the number of visits required.

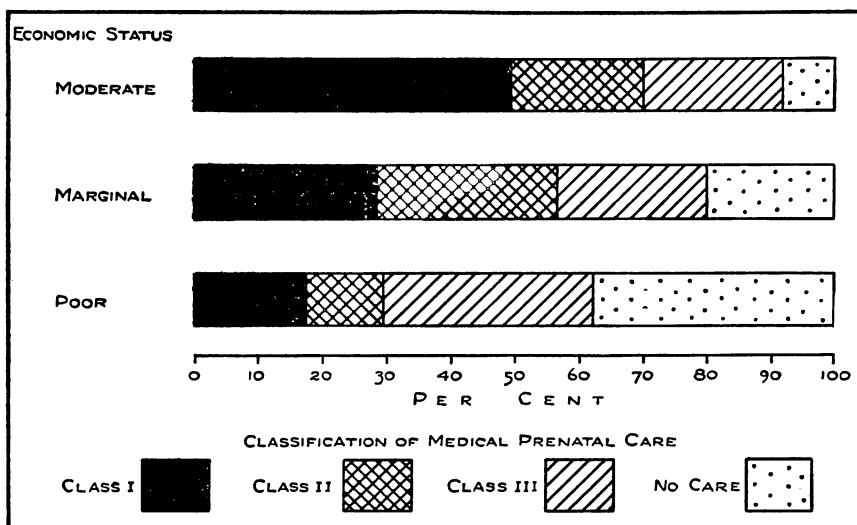


Fig. 2. Percentage distribution according to classification of prenatal care for maternity patients in families of different economic status in Cattaraugus County, New York, 1929-1932. Class I care represents fair or good prenatal care; see footnote 10 for description of each class.

their physicians early enough and often enough to receive fair or good prenatal supervision; 21 per cent had Class II and Class III care, respectively, while only 8 per cent did not see a doctor during the prenatal period. The proportion of women receiving fair or good care decreases, and the proportion receiving none at all increases significantly as the economic status is lowered. In the lowest economic group, only 18 per cent of the women had Class I supervision, while 38 per cent of them did not see a doctor before delivery. In a community where there are no prenatal clinics, the relation between the economic status of the family and the amount of prenatal supervision is very marked. Winslow<sup>11</sup> indicated this when he suggested the need in Cattaraugus County for . . . “the development of prenatal service in rural areas in the offices of private physicians on a standard fee basis, the payments to be made from the health budget when necessary.”

<sup>11</sup> Winslow, C.-E. A.: *HEALTH ON THE FARM AND IN THE VILLAGE*. New York, The Macmillan Company, 1931, p. 6.

Although 60 per cent of the maternity cases which received prenatal nursing supervision were in families classified as of marginal or poor economic status, this was due to a higher birth rate in the low-income families. Approximately the same percentage of mothers in the highest income group and in the marginal and poor-income groups combined, 27.9 and 29.1, had some nursing supervision. If cases with only one nursing visit are excluded, the percentage in high-income and low-income families with two or more nursing visits also was about equal, being 19.8 per cent and 20.6 per cent. Economic status, therefore, had not been used by the nurses as a basis for selecting cases for service.

*Age of Mother and Order of Birth.* The need a mother may feel for prenatal supervision is influenced by her previous experience with pregnancy. A young woman having her first baby will seek advice and return for supervision more readily than an older woman who, having borne two or three children without mishap, thinks such supervision entirely unnecessary. This is brought out in Table 8, which shows the proportion of women who received

Table 8. Medical prenatal care by age of mother and by order of birth for women whose pregnancy terminated after the sixth month of gestation in rural Cattaraugus County, New York, 1929 to 1932.

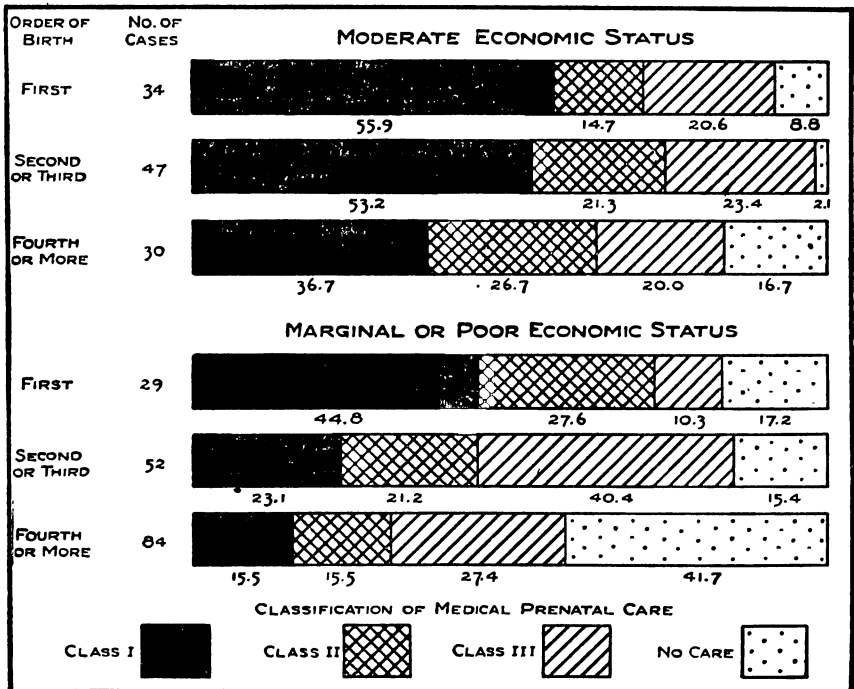
AGE OF MOTHER AND ORDER OF BIRTH	TOTAL	PER CENT OF CASES WITH SPECIFIED CLASS OF MEDICAL PRENATAL CARE <sup>1</sup>				
		Total	I	II	III	None
<i>Age of Mother</i>						
TOTAL	276	100.0	33.7	19.9	25.7	20.7
-25	108	100.0	37.0	24.1	25.0	13.9
25-34	114	100.0	30.7	21.1	25.4	22.8
35 or Over	54	100.0	33.3	9.3	27.8	29.6
<i>Order of Birth</i>						
TOTAL	276	100.0	33.7	19.9	25.7	20.7
1st	63	100.0	50.8	20.6	15.9	12.7
2nd or 3rd	99	100.0	37.4	21.2	32.3	9.1
4th or More	114	100.0	21.1	18.4	25.4	35.1

<sup>1</sup> See footnote 10. Class I was fair or good care.



various amounts of medical care, according to age of mother and according to order of pregnancy. Age of mother *per se* did not seem to influence the amount of prenatal care as much as order of pregnancy. Although the per cent of cases with no prenatal medical care increased by age of mother, the proportions with each class of care did not vary greatly according to age. On the other hand, the amount of prenatal care varied inversely with the number of previous pregnancies these women had had, and for first pregnancies and fourth or higher order of pregnancies, the differences in the per cent with Class I care and in the per cent with Class III or no care, are large and statistically significant. Even the differences in the amount of care for second or third and later pregnancies are marked. In this series of cases, there was a definite

Fig. 3. Percentage distribution according to classification of prenatal care for pregnancies classified by order of birth and by economic status of the family, in Cattaraugus County, New York, 1929-1932. Class I care represents fair or good care; see footnote 10 for description of each class.



tendency for women to receive good supervision during the prenatal period for pregnancies of low parity and to neglect having care for pregnancies of high parity.

Since births of high order are more frequent in the poorest families, the lack of prenatal care for such pregnancies could be due to low economic status. This was in part true as about three-fourths of all births of the fourth and higher order were in families classified as of marginal or poor economic status, but the amount of prenatal care varied by parity for mothers in the same economic group. The distribution of mothers by amount of prenatal care, according to economic status of the family and parity, is shown in Figure 3. Only 37 per cent of the births of high order had Class I care as against 56 per cent of first births in families of moderate economic status, and in low-income families the percentages were 15 and 45, respectively. Regardless of income, there was some tendency for these women to be careless about having prenatal care for births of higher order, but this neglect was much greater in the poorest families.

#### PRENATAL HEALTH

A few studies of clinic and private physician patients have reported on the prevalence of various pathological findings which may be associated with pregnancy but little is known of the prenatal health of those women who see a doctor infrequently or not at all before delivery. In this respect, the data which form the basis of this report offer a unique opportunity for studying the frequency of complications during the period of pregnancy. It is true that the conditions or illnesses noted are those reported by the mother or family, and often are signs or symptoms of an abnormal condition rather than precise diagnoses or specific medical findings. When the patient did have medical care, the physician was asked to confirm the diagnosis and most of the more serious conditions were confirmed. The fact that nearly all the mothers were visited several

times during the prenatal period, regardless of any prenatal supervision, lends particular interest to this phase of the report.

Each woman was asked if she had any of the following symptomatic complaints which are related to conditions associated with pregnancy: nausea, swelling of face, hands or feet, varicose veins, "spots before eyes," constipation and heartburn. The period of occurrence and duration of symptoms also were usually recorded. In addition, a considerable number of chronic conditions and of acute illnesses were reported as complications affecting health during the prenatal period. In the following tables, minor illnesses reported to the canvassers, but not given as complicating pregnancy, are not included; and "spots before eyes," constipation and heartburn, occurring without other symptoms, also have been omitted. Multiple symptoms were grouped under one diagnosis when this seemed proper. For example, a woman reporting a kidney condition, persistent nausea, and high blood pressure, would be classified as a case with a kidney condition since the nausea and hypertension are common manifestations of the toxemia of pregnancy due to a kidney condition.

The total incidence of illnesses or symptomatic complaints, reported by 304 women, is shown in Table 9 in order of frequency. One hundred and forty-five, or about 48 per cent, of the women reported no complications during pregnancy. Edema of the extremities was the most frequently reported condition, and varicose veins was next in order, with a reported incidence of 34 and 20, respectively, per 100 pregnancies studied. Either of these conditions may be the forerunner of very serious trouble for a pregnant woman, but they also appear frequently with no further indication of a significant abnormal condition. Varicose veins or edema were listed as the sole or primary condition for 103 women. If they are excluded from the 159 women reporting any complication of pregnancy, only 56, or 18.4 per cent, of them reported other conditions or illnesses.

Cases of mild or unspecified albuminuria and kidney conditions (reported either as kidney trouble or nephritis) followed next to edema and varicose veins in frequency of occurrence, with incidence rates of 3.3 and 2.3, respectively, per 100 pregnancies studied. One case of eclampsia developed among the kidney cases. The

Table 9. Incidence per 100 pregnancies of reported prenatal complications and classification of conditions as sole or primary and contributory for a series of maternity cases visited in a morbidity survey in rural Cattaraugus County, 1929 to 1932.

CLASSIFICATION OF SYMPTOMS OR ILLNESS	TOTAL INCIDENCE PER 100 PREGNANCIES	NUMBER OF CASES OF SPECIFIED DIAGNOSIS		
		Total	Sole or Primary <sup>2</sup> Condition	Con- tributory Condition
TOTAL PREGNANCIES		304 <sup>1</sup>		
No Complication Reported	47.7	145		
Any Symptom or Illness	52.3	159		
Edema	33.9	103	57	46
Varicose Veins	19.7	60	46	14
Albuminuria, Mild or Unspecified	3.3	10	10	
Kidney or Nephritic Condition	2.3	7	7	
Early Spotting or Bleeding	2.0	6	6	
Persistent or Pernicious Nausea	2.0	6	5	1
Hemorrhoids	1.0	3	1	2
Appendicitis	1.0	3	3	
False Labor Pains	1.0	3	3	
High Blood Pressure	.7	2	2	
Syphilis	.7	2	2	
Abscess (Breast and Rectum)	.7	2	1	1
Heart	.7	2	1	1
Goiter	.7	2	1	1
Prolapse of Uterus	.7	2	1	1
Diabetes	.3	1	1	
Asthma	.3	1	1	
Chorea (Last 2½ Months of Pregnancy)	.3	1	1	
Whooping Cough	.3	1	1	
Scarlet Fever	.3	1	1	
Fainting Spells	.3	1	1	
Bladder Trouble	.3	1	1	
Tonsillitis	.3	1		1
Ill-defined Pains, Symptoms, or Illnesses	2.6	8	6	2

<sup>1</sup> Record of prenatal health was lacking for 8 cases.

<sup>2</sup> The primary condition of two or more complications during pregnancy was selected somewhat arbitrarily with preference given to the more serious or more definite complication.

reported incidence of kidney conditions and eclampsia for this sample is very similar to that found by Tamis and Clahr<sup>12</sup> in a study of clinic patients at Morrisania City Hospital in New York City in 1934. Among 1,009 patients who registered in the antepartum clinic, there were 3 cases of eclampsia and an additional 15 cases classified as nephritic or pre-eclamptic. Persistent nausea and early bleeding or spotting each had an incidence rate of 2.0 per 100 pregnancies (6 cases). Only 2 cases of syphilis were reported, but it is known that few cases received any serological test. Except for cases with ill-defined symptoms, the other illnesses reported ranged in number from one to three cases. Eight women reported illnesses, such as "sick the last two months," or "in bed two weeks," or "felt badly throughout."

Table 10 shows the outcome of pregnancy for cases with a specified illness or complication. However, the small number of cases with any specified complication does not permit significant analysis of the relationship between a condition and the outcome of the pregnancy. About 92 per cent of the women with no reported complication were delivered of term live births, compared with 82 per cent of the women reporting some symptom or diagnosed illness. Although there was about an equal number of women with "normal" health and with some reported complication during the prenatal period, there were twice as many term stillbirths, twice as many premature births (live and still), and nearly three times as many abortions for the latter group. It is of interest, though not significant statistically, that for women whose *only* complication was edema, the combined stillbirth and premature birth rate was 7.1 per cent as compared with 4.8 per cent for the "normal" group. Edema associated with other conditions, except varicose veins, showed a marked relationship with the occurrence of premature and stillbirth. One or more stillbirths or premature births occurred

<sup>12</sup> Tamis, Abraham B., M.D. and Clahr, Jacob, M.D.: Antepartum Care: Its Advantages and Its Shortcomings. *The Journal of the American Medical Association*, July 17, 1937, cix, pp. 195-199.

in association with each type of condition characteristic of pregnancy disturbances, regardless of the small number of cases of each type. Only for the group who reported varicose veins and no other complication, except edema, was the pregnancy loss no greater than for the women with "normal" health. Early terminations and stillbirths were associated almost entirely with conditions incidental to pregnancy rather than general illness; the exceptions were abortions to 2 women with syphilis (one therapeutic and one illegal), and 2 abortions (spontaneous) in the 3 cases of appendicitis. Any

Table 10. Outcome of pregnancy for maternity cases reporting various prenatal complications in a morbidity survey in a rural area of Cattaraugus County, New York, September, 1929, to June, 1932.

CLASSIFICATION OF COMPLICATIONS	NUM- BER OF CASES	OUTCOME OF PREGNANCY					
		Term Birth		Premature		Abortion	
		Live	Still	Live	Still	Spon- taneous	In- duced
TOTAL PREGNANCIES	304	264	9	10	2	15	4
No Complication Reported	145	133	3	4		4	1
Any Symptom or Illness	159	131	6	6	2	11	3
Edema, Total	103	93	4	6			
Edema Only	56	52	2	2			
Varicose Veins	60	56	2			2	
Varicose Veins Only	23	21	1			1	
Varicose Veins + Edema	21	21					
Albuminuria, Mild or Unspecified	10	7	2		1		
Kidney Condition	7	6		1			
Bleeding or Early Spotting	6	2		1		3	
Persistent Nausea	6	4				2	
Other and Ill-defined Conditions							
Associated with Pregnancy	14	9	1	1	1	2	
Appendicitis	3	1				2	
Hemorrhoids	3	3					
Syphilis	2						2 <sup>1</sup>
Diabetes	1						1
Goiter	2	1		1			
Prolapse of Uterus	2				1	1	
Other Acute or Chronic Illness	10	9 <sup>2</sup>		1			

<sup>1</sup>One maternal death caused by an illegal abortion.

<sup>2</sup>One maternal death; cause given as scarlet fever at delivery.

symptoms of complications seemingly should be viewed as possibly serious to the outcome of pregnancy. On the other hand, one-third of the premature births and 4 of the 15 spontaneous abortions occurred to women who reported no prenatal complications.

There were 2 maternal deaths in the series, one following an illegal abortion of a woman with syphilis and one from scarlet fever at time of delivery.

It is difficult to evaluate the relationship between prenatal supervision and the occurrence of complications or the outcome of pregnancies having prenatal complications. No attempt at determining such a correlation will be made. Patients who have had prenatal care are the ones who will know that albumin was present in the urine, etc., and those with definite symptoms will usually seek some medical advice. In the present series, no prenatal care was reported by 24 per cent of women with no complications and also by 24 per cent of women who had only edema or varicose veins or both, as compared with 10 per cent of the group who had other complications or illness during the prenatal period. The complications reported for which no medical care was obtained before delivery were one each of the following: whooping cough, in a patient who also had edema and varicose veins, a term live birth resulted; hemorrhoids and varicose veins, a term live birth resulted; tonsillitis and "kidney trouble," a term live birth resulted; persistent nausea and "felt badly for three months," an abortion resulted; an ill-defined illness for one week, an abortion resulted. The one woman who had eclampsia had visited her physician once in the first trimester of pregnancy but never returned for supervision. Approximately one-half of the women with complications other than edema or varicose veins had Class I prenatal care; obviously, it was common for these women to neglect their medical supervision even when there was good reason to be concerned about their own health.

#### DELIVERY CARE

*Attendant and Place of Delivery.* There was a physician in at-

tendance for all but three women in this series who delivered after the sixth month of pregnancy. Of these three, one was attended by a midwife and two had no attendant except female relatives. There was some medical care reported for 19 of the 21 abortions in the series. Forty-six different physicians had attended these women but more than 70 per cent had been cared for by ten physicians, each of whom had attended eleven or more cases.

Hospitalization for confinement is not usual for these rural women and only 34, or 11 per cent, were delivered in an incorporated hospital. An additional 7 per cent were delivered in a licensed maternity home in the area. Hospitalization of premature births and abortions is shown in Table 11.

*Mode of Delivery and Complications.* The history of delivery, like that of the prenatal period, was reported by the mothers, and the statements on type of delivery and on complications of labor and of the puerperium were verified by the physician only for some of the more serious complications. The mother was asked specifically whether the presentation was breech and whether version was done, whether forceps were used in delivery, whether lacerations were present, and to give any other complications of labor.

Table 11. Hospitalization for delivery of rural women in Cattaraugus County, New York, according to a special survey from September, 1929, to June, 1932.

CLASSIFICATION OF BIRTHS	NUMBER OF CASES				PER CENT OF CASES			
	Total	Specified Place of Delivery			Total	Specified Place of Delivery		
		Home	Mater- nity Home	Hospital		Home	Mater- nity Home	Hospital
TOTAL CASES	312	255	23	34	100.0	81.7	7.4	10.9
Term Births <sup>1</sup>	278	230	22	26	100.0	82.7	7.9	9.4
Premature Births	13	8	1	4	100.0	61.5	7.7	30.8
Abortions	21	17 <sup>2</sup>		4	100.0	81.0		19.0

<sup>1</sup>Includes 2 live births with gestation not specified.

<sup>2</sup>One case transferred to hospital two days after abortion.



Reports from the family on these procedures and on complications probably represent a minimum frequency.

The procedures at delivery and complications reported among hospital and home cases are shown in Table 12 for 287 women whose pregnancies terminated after the sixth month of gestation. Since cases in which some complication of delivery has been anticipated are apt to be hospitalized, it is not surprising to find relatively fewer normal deliveries reported among the hospital cases than among those delivered at home. Fifty-three per cent of the former, compared with 71 per cent of the latter, reported normal deliveries; that is, deliveries in which no operative or manipulative procedure was reported and in which no complicating factors were present or arose during the process of delivery.

The proportion of cases delivered with forceps seems high, especially for home deliveries, with 21.2 per cent in the home deliveries and 27.5 per cent in hospital deliveries. Unlike other studies, there was very little difference in the frequency of the use of forceps on cases delivered at home and those delivered in a hospital. In a recent

Table 12. Percentage of births of more than six months' gestation for which delivery procedures or complications of labor were reported by 287 women in rural Cattaraugus County, New York, in the period September, 1929, to June, 1932.

HISTORY OF DELIVERY	NUMBER OF BIRTHS			PER CENT OF BIRTHS		
	All Cases	Home Deliveries	Hospital Deliveries	All Cases	Home Deliveries	Hospital Deliveries
ALL DELIVERIES	287	236	51	100.0	100.0	100.0
Reported Normal	195	168	27	67.9	71.2	52.9
<i>Delivery Procedures</i>						
Forceps	64	50	14	22.3	21.2	27.5
Version	9	4	5	3.1	1.7	9.8
Breech	6	4	2	2.1	1.7	3.9
Cesarean	3		3	1.0		5.9
<i>Labor Complications</i>						
Lacerations	17	15	2	5.9	6.4	3.9
Hemorrhage	6	4	2	2.1	1.7	3.9
Other	10	8	2	3.5	3.4	3.9

study<sup>13</sup> of births in Buffalo, New York, a nearby urban area, the use of forceps was reported for about 29 per cent of the hospital cases compared with 9.7 per cent of home cases. On the other hand, for the total group of 11,780 births in Buffalo, the use of forceps was reported for 24.6 per cent as compared with 22.3 per cent in this series of rural births. Plass,<sup>14</sup> in a study of 40,138 births in Iowa, reports the use of forceps in 13.8 per cent of hospital cases compared with 4.5 per cent of cases delivered at home, and he observes that forceps extraction is necessary in from 3 to 5 per cent of all labor. Opinion differs as to the danger of forceps deliveries but it is apparent that physicians in Cattaraugus County, on the average, used forceps frequently.

Version was reported for only 9 deliveries, or 3.1 per cent of the births, and breech presentation for 6, or 2.1 per cent. The practice of version in this community was less than half as frequent as in Buffalo where version was reported for 7.8 per cent of the births, but among 1,714 hospital deliveries in Syracuse<sup>15</sup> in 1929-1933, version was done on only 4.1 per cent of the patients.

Cesarean section was performed on three mothers, or 1.0 per cent of all women in the study. The proportion of women delivered by this method varies widely in different localities. Three and four-tenths per cent of all births studied in Buffalo were delivered by Cesarean section, while only 0.4 per cent of the Morrisania City Hospital<sup>16</sup> patients were so delivered.

The reported frequency of hemorrhage and of lacerations is shown in Table 12. Two of the six cases of hemorrhage were women who reported forceps deliveries, and hemorrhage occurred in 3.1 per cent of the forceps cases compared with 1.9 per cent of the

<sup>13</sup> Israel, Marvin, M.D.: Maternal Mortality in Erie County, New York. *New York State Journal of Medicine*, September 1, 1937, xxxvii, No. 17.

<sup>14</sup> Plass, E. D., M.D.: The Difficulties and Dangers of Forceps Deliveries. *The Journal of the American Medical Association*, November 26, 1932, xcix, No. 22, pp. 1817-1819.

<sup>15</sup> Mellor, Lester R., M.D.: Trends in Obstetrics. *New York State Journal of Medicine*, October 15, 1937, p. 1764.

<sup>16</sup> *Op. cit.* Footnote 12.

cases with no operative procedure at delivery. Lacerations were reported by 17 per cent of women who had forceps deliveries but by only 2.8 per cent of those with non-operative deliveries.

There were no neonatal deaths among the births assisted by forceps. One of the three infants delivered by a Cesarean operation died and the cause of death given was prematurity. The stillbirth rate among the forceps cases was 3.1 per cent and for non-operative cases was 4.2 per cent. Thus, there is no evidence that the frequent use of forceps contributed to the neonatal mortality rate or the stillbirth rate. One stillbirth occurred among the breech deliveries and one among cases on which version was done—but the number of cases was too few to obtain a reliable rate.

*Nursing Assistance at Delivery.* Rural women who are delivered at home depend largely upon relatives or neighbors to assist the physician at delivery. In the present series, a registered nurse was present to assist the physician at 36, or 15 per cent, of the 238 home deliveries, exclusive of abortions. For 16 of these 36 cases, the public health nurse gave the assistance at delivery, and the Department of Health, therefore, provided nursing delivery care for 6.7 per cent of home deliveries in this rural area. During the period of this study, it was the policy to give nursing assistance at delivery when the physician urged it but not to promote a demand for such service.

#### POSTNATAL PERIOD

*Medical Care.* It may be assumed that women who are confined in a hospital receive regular and adequate supervision during the puerperium, but the great majority of mothers in this rural area were delivered in their own homes. Some evidence of their medical supervision may be indicated by the number of visits made after delivery by the doctor. Two hundred and thirty-nine women delivered at home reported an average of 1.8 visits from the doctor following the delivery. This low average is explained in part by the fact that 66, or 27.6 per cent, of the women were not seen again

after delivery by their doctors. One-fourth of the women received one postnatal call and 37 per cent received two or three postnatal calls from the physician. Among women who saw their doctors during the prenatal period regularly enough to have received fair or good supervision, 21 per cent were not seen again after delivery. Obviously, there was a lack of realization of the importance of supervision on the part of the mother, and a failure to assume responsibility for her welfare on the part of the doctor, who should be particularly alert for any symptoms of trouble in women delivered at home, where aseptic precautions necessary for the safety of the mother are difficult to maintain.

The postpartum medical examination at about six weeks after delivery is an important part of complete maternity supervision. Two hundred and eight, or 78 per cent, of the 267 women reporting on this phase of the history received no postpartum examination by a doctor. Seventeen women who had examinations, received them from one to three weeks after delivery, or before a sufficient time had elapsed for the doctor to determine the degree of normality attained. Only thirty-seven women were examined one month or more after delivery. Five women who reported an examination did not state the time at which it was made. It is interesting to note that among women receiving the most prenatal supervision and for whom there was some evidence of an interest in good medical supervision, only about one-fourth received their examinations a month or more after delivery. None of the women who had no prenatal supervision returned for a postpartum check-up. It seems apparent that there is serious need for further educational work in regard to postpartum supervision among both the mothers and physicians of this rural area.

*Nursing Supervision.* The public health nurse gave some postnatal supervision to 94, or 30 per cent, of all cases in this series. This is a slight increase over the 24.5 per cent reported by Randall<sup>17</sup> from

<sup>17</sup> *Op. cit.* Footnote 8.

the study of service in 1930. Most of the cases visited in the postnatal period had been seen in the prenatal period, but 27 new cases received postpartum supervision. On the other hand, 16 cases with prenatal service had no postnatal visits from the nurse; only 3 of these cases were delivered in a hospital. Of the total group which received postpartum calls from the nurse, 82 were home deliveries, and nursing supervision was given to 32 per cent of all home deliveries. The time at which postpartum supervision was started by the nurse and the number of visits was known for 83 of the cases carried, and these data are shown in Table 13. Twenty-four per cent of them were visited on the first day, and 18 per cent from the second to seventh days, or about 42 per cent had some supervision during the first week after delivery. Early postnatal care is essential if it is to be effective and the record for prompt visiting was very good for this series of cases. When supervision started during the first week, the nurse usually visited with a fair degree of regularity, but none of the cases first visited after the third week received more than one or two visits. The average number of visits made by the nurse to the cases carried for postpartum supervision was 2.4.

The records of the services rendered in the home indicated that some postpartum nursing care was given to 27 per cent of the women. This included 11 per cent of the cases to which bedside care

Table 13. Time between delivery and first visit by public health nurse, and number of postnatal visits to 83 rural women in Cattaraugus County, New York, who were included in a special survey, 1929 to 1932.

DAYS AFTER DELIVERY	FIRST VISIT IN SPECIFIED TIME		NUMBER CASES WITH SPECIFIED VISITS			
	Per Cent	Number	1-2	3-4	5-6	7 or More
TOTAL CASES	100.0	83	55	17	7	4
1st Day	24.1	20	3	8	6	3
2nd-7th	18.1	15	7	6	1	1
8th-21st	14.5	12	9	3		
22nd-28th	13.3	11	11			
29th or Later	30.1	25	25			

was given as a demonstration of care to some one in the home.

*Postnatal Health.* The reported frequency of complications or abnormal conditions during the puerperium is admittedly very unsatisfactory and incomplete for this group. Conditions serious enough to have required medical care and various ill-defined symptomatic complaints accounted for most of the complications reported. There is no record of temperature available for women delivered at home and cared for by the family or neighbors, and, the failure of most of the group to have postnatal medical supervision and a postpartum check-up makes it possible for many conditions to go undetected. The various symptoms and complications reported are listed in Table 14, and the medical care received is indicated.

Anemia and ill-defined symptoms, such as "marked fatigue" or "backache," were reported most frequently with seven cases each, or a case rate of 2.4 per 100 pregnancies delivered after the sixth month of gestation. Puerperal diseases of the breast come next in order with six cases, and four women reported lacerations or unspecified condition needing repair. Other conditions noted included: two cases of phlebitis, two cases of abnormal lochia or menstruation, and one kidney condition, a complication of the prenatal period which continued during the puerperium. Two hundred and forty-nine, or about 86 per cent of the 290 women who were delivered after the sixth month of gestation, reported an uneventful puerperium. Only six of the twenty-one women whose pregnancies terminated in abortion reported no complication. The frequent occurrence of complications with abortion may represent the continued presence of a defect or condition which originally caused the loss of the fetus, as well as the added risk of infection following abortion.

It is of especial interest that so many of the women who reported some complaint after childbirth had very little medical care. One-sixth of the group with a reported complication had no medical

care after confinement, and nearly one-third received only one or two postnatal visits. Apparently these women accepted poor health

Table 14. Frequency of various complications during the puerperium and the medical care reported by maternity patients in a special survey in rural Cattaraugus County, New York, 1929 to 1932.

CLASSIFICATION OF COMPLICATIONS	CASE RATE PER 100	NUMBER OF CASES	POSTNATAL MEDICAL CARE <sup>1</sup>				
			Hospital Deliveries	Home Deliveries			
				3 or More Visits	1-2 Visits	None	Unknown
<b>TOTAL PREGNANCIES 7-9 MONTHS</b>		290 <sup>2</sup>	53	59	103	62	13
Normal Puerperium	85.9	249	40	49	91	57	12
Any Complication	14.1	41	13	10	12	5	1
Backache or Other Ill-defined	2.4	7		1	5	1	
Anemia <sup>3</sup>	2.4	7	2	3	2		
Puerperal Diseases of Breast	2.1	6	3		1	2	
Repair Needed, Lacerations and Unspecified	1.4	4	2	1	1		
Varicose Veins or Hemorrhoids	1.4	4	2		1		1
Phlebitis	.7	2	1			1	
Abnormal Lochia or Menstruation <sup>4</sup>	.7	2		2			
Prolapse or Displacement	.3	1		1			
Hemorrhage	.3	1	1				
Kidney Condition	.3	1			1		
Respiratory and Other Acute Conditions	2.4	7	2	3	1	1	
<b>TOTAL ABORTIONS</b>		21	5 <sup>4</sup>	4	7	4	1
Normal Puerperium	28.6	6	3	1	2		
Any Complication	71.4	15	2	3	5	4	1
Abnormal Lochia or Menstruation	14.3	3			1	2	
Septicemia <sup>5</sup>	9.5	2	1	1			
Backache or Other Ill-defined	9.5	2		1		1	
Repair Needed, Lacerations and Unspecified	9.5	2		1	1		
Anemia	4.8	1			1		
Prolapse or Displacement	4.8	1					1
Hemorrhage	4.8	1				1	
Respiratory and Other Acute Conditions <sup>5</sup>	19.0	4	1	1	2		

<sup>1</sup> Number of postnatal visits does not include the delivery call.

<sup>2</sup> One case has been excluded because there was no report on the puerperium.

<sup>3</sup> One case appears under both anemia and abnormal lochia or menstruation.

<sup>4</sup> Includes one case which was delivered at home and transferred to the hospital two days later with septicemia.

<sup>5</sup> One case appears under both septicemia and respiratory and other acute conditions.

after childbirth as something to be expected or endured at least. It is well known that it is easier to interest a mother in giving good care to her child than in taking care of herself. The average mother probably has prenatal care as much for the sake of the baby as for herself, and she seeks medical care in the postnatal period only in case of very serious illness.

#### SUMMARY

Special histories of the health of 312 maternity cases and of medical care and public health nursing supervision received by them were obtained during the course of a periodic morbidity survey in rural Cattaraugus County, New York, from September, 1929, to June, 1932. From the detailed analysis presented, a few results which are suggestive of local conditions may be summarized.

##### *Medical Prenatal Care:*

None for approximately one-fifth of the cases.

Only one-third of the cases visited a physician before the sixth month of pregnancy and also made a total of 4 or more visits (Class I care).

With advancing order of birth, there was an increase in the percentage with very little care.

Economic status was an important factor, and only 17.6 per cent of women in families classified as "poor" had Class I care; 37.6 per cent had no care.

##### *Delivery Care:*

A physician attended all but three deliveries.

Eleven per cent were hospitalized and 7 per cent were delivered in a maternity home.

Forceps delivery was reported for 22.3 per cent of cases, excluding abortions. One per cent had a Cesarean section.

##### *Medical Postnatal Care:*

The average number of physician visits to patients delivered at home was only 1.8; 27.6 per cent of cases were not visited after delivery, and 25 per cent received only one postnatal visit.

Fourteen per cent of women reported a postpartum examination one month or more after delivery.



*Nursing Supervision of Maternity Cases:*

Eighty-three cases (26.6 per cent) were visited in the prenatal period; about one-half of cases visited were first seen in the last two months of pregnancy.

Prenatal visits averaged 2.4 per case and 0.85 visits per prenatal month under supervision.

A nurse assisted at 6.7 per cent of home deliveries.

Postpartum supervision was given to 30 per cent of the total group, and 42 per cent of visited cases were seen within one week of delivery.

Prenatal care obviously was neglected by the majority of maternity patients and, in spite of the educational work of the Health Department in the previous six years, indifference prevailed even when illness or symptoms of pregnancy complications occurred. There was some evidence that prenatal cases visited by a nurse were more regular in their revisits to the physician than those not visited; but patients with nursing supervision for a *previous* pregnancy did not obtain more medical prenatal care for the current pregnancy than the average patient. More study of methods for effective educational work is needed.

Available facilities for care which would remove the economic barrier to good care should contribute to higher standards of service in the County. A program to obtain financial aid for maternity care of patients in the lowest income group was begun toward the end of the survey period.

Medical supervision after delivery for rural home deliveries was extremely limited. This is a critical period for the new-born infant as well as for the reestablishment of normal health of the mother.