THE MATERNAL AND INFANT MORTALITY IN MIDWIFERY PRACTICE IN NEWARK, N. J.

BY

JULIUS LEVY, M. D.,

Director, Division of Child Hygiene, Board of Health,

Newark, N. J.

For many physicians, especially some noted obstetricians, there is no midwife problem; they have long since settled the question by vehement condemnation of the midwife and the recommendation that all who engage midwives from tradition or economic necessity should be delivered in finely appointed hospitals at public expense.

At the infant mortality convention in Philadelphia, a few years ago, an obstetrician, in a paper on "Ideal Obstetrics," declared that "the midwife is a relic of barbarism;" "a brand of infamy;" "it is impossible to train a midwife sufficiently to make her a safe person to attend cases," and again "the midwife is innocent of the high mortality she causes among mothers and babies." Several obstetricians present at that meeting approved of these sentiments and have spoken similarly since. These statements, if founded upon fact, challenge the attention of every public health official and it was with the purpose of determining whether local conditions were such as the previous remarks would lead us to believe, that this study was made.

Maternal Mortality.—It appears that the maternal mortality in Newark among midwife cases is no higher than in the city as a whole and really lower than in many other cities or countries. In the study of Maternal Mortality for the Children's Bureau at Washington Dr. Meigs gives the following rates:

		Puerperal deaths per 1000 live births
Italy	1910–13	2.4 or 1 in 417
Hungary	1908–11	3.6 or 1 in 277
England & Wales	1910–14	3.7 or 1 in 270
New Zealand	1910–14	4.0 or 1 in 250
Australia	1910–12	5.0 or 1 in 200
Ireland	1911–14	5.2 or 1 in 192
Switzerland	1910–12	5.3 or 1 in 188

For the principal cities in the registration area of the United States, in 1910, the rate varied from 1 in 500 mothers in Fall River, and Worcester to 1 in 178 mothers delivered in Grand Rapids. In Newark in 1914, the maternal mortality was 5.3 per 1000 births; in 1915, 3.6, and in 1916, 2.2. In other words, in 1914, 1 in every 188 mothers lost her life in childbirth, while in 1916 1, in every 454 mothers lost her life in childbirth. These figures indicate that there has been a considerable reduction of maternal mortality in the three years that the Department of Health has maintained supervision over midwifery, and that in 1916, with approximately 50 per cent. of the births attended by midwives, the rate of the city of Newark was among the lowest in the country.

It is of interest to contrast this record with that of Boston, where we are told the midwife does not exist, I suppose we had better say officially. Here one mother out of every 153 died in childbirth. Of the large cities, from which I have received reports for 1916, only New York showed a better record than Newark.

We determined the influence of midwifery practice on maternal mortality in a more direct way. We followed up, until one month after birth, 586 mothers who had received prenatal observation from our Department and then were delivered by midwives. In this group one mother died, showing a record better than that of the city, as a whole. We also investigated forty-one puerperal deaths reported by physicians to determine if there was any foundation for the impression that puerperal deaths that occurred in the hospitals or in the practice of physicians are often the result of midwifery incompetence, ignorance and neglect, the cases being referred, it is claimed, to hospitals or physicians when all the mischief has been done. Of the forty-one cases it developed that in only ten had a

MATERNAL DEATHS IN 1916 PER 1000 BIRTHS FOR CERTAIN LARGE CITIES IN THE UNITED STATES.

City	Rate per 1000 births
Newark	2.2 or 1 in 454
Buffalo	3.2 or 1 in 312
Detroit	3.7 or 1 in 270
New York	4.6 or 1 in 217
St. Louis	5.2 or 1 in 192
Cleveland	5.6 or 1 in 180
Boston	6.5 or 1 in 153
Baltimore	6.8 or 1 in 147
Philadelphia	7.0 or 1 in 143

widwife been in attendance *at any time* and in no instance did the doctor claim that the midwife was in any way responsible for the result.

When we recall that midwives attend 50 per cent. of all the births and as much as 88 per cent. of some foreign born groups living in congested quarters, there seems to be little ground for the charge of high maternal mortality among the midwives, at least in Newark.

Infant Mortality.—If the midwife is the cause of much infant mortality, Newark should have a high infant mortality rate, for midwives attend 50 per cent. of all our births and from 55 to 88 per cent. of foreign born mothers. In 1916, the infant mortality rate in Newark was 89.6; New York, 93.1; St. Louis, 84; Philadelphia, 101; Boston, 104; Cleveland, 106.9; Pittsburgh, 109.2; Detroit, 112.8; Buffalo, 113.9 and Baltimore 118.1.

Is the infant mortality higher among infants whose mothers are attended by midwives?

To determine this fact we traced the attendant at birth of 1247 infants that died during 1915 and 1916, and found that quite the reverse was true. Midwives attended 49 per cent. of the births, and had been the attendant at birth of only 49 per cent. of the deaths under one year; physicians attended 39 per cent. of the births and had been the attendant at birth of 36 per cent. of the deaths under one year, hospitals delivered 12 per cent. of the births but had attended 15 per cent. of the deaths under one year.

That the infant mortality is lower among midwife cases and highest in hospital cases is shown better by the following rates.

It may be argued that the effect upon the infant of good and poor obstetrics would appear principally in the deaths under one month of age and that in this group we will find the highest mortality among the births attended by midwives. Strangely enough, it appears that especially in this age group the infant mortality is lowest for infants attended by midwives and highest among those delivered in hospitals. Of 763 deaths under one month of age, midwives attended the births of only 36 per cent., although they attended 49 per cent. of all the births of the city; physicians attended the

INFANT MORTALITY FOR INFANTS ATTENDED AT BIRTH.

By midwives	70.7 per 1000 births.
By physicians	74.3 per 1000 births.
In hospitals	97.4 per 1000 births.

births of 44 per cent. of the deaths under one month and 39 per cent. of all the births of the city; while hospitals delivered 20 per cent. of the babies that died under one month of age but attended only 12 per cent. of all the births of the city.

These results will be better appreciated, perhaps, if presented somewhat differently. Of the babies attended by midwives, 25.1 per 1000 births died before the age of one month; of those attended by physicians, 38.2 per 1000 births died before the age of one month; and of those delivered in hospitals, 57.3 per 1000 births died before the age of one month.

These figures certainly refute the charge of high mortality among the infants whose mothers are attended by midwives, and instead present the unexpected problem of explaining the fact that the maternal and infant mortality for the cases attended by midwives is lower than those attended by physicians and hospitals.

It was suggested that perhaps these apparently favorable results with midwife cases may be explained by the fact that hospitals and physicians deliver a larger proportion of primipara among whom the dangers to mother and baby are admittedly greater.

Of 5702 births in Newark for six consecutive months in 1916, 29.8 per cent. were primipara, and 70.2 per cent. were multipara, and the midwives attended 29 per cent. of the primipara, physicians 47 per cent. and hospitals 23 per cent. From this we see at once that while midwives attend about one-half of all the births, they attend less than one-third of the primipara, and that while hospitals attend about one-ninth of all the births, they receive about one-fourth of the primipara.

Furthermore, the smaller proportion of primipara among foreign-born mothers may explain the better results reported in midwife cases, as it so happens that the largest part of midwifery practice is among the foreign-born mothers with the smallest proportion of primipara.

Nativity of mother	Percentage, primipara	Percentage attended by midwife for each nativity of mother	Percentage distribution of midwife cases by nativity mother
Italian.....	15.1	89.2	40.8
Russian.....	25.6	48.6	12.4
Austrian.....	27.7	75.8	24.1
United States.....	39.5	21.8	16.3

Likewise, the fact that the infant mortality rate is lowest among the group of foreign-born mothers who are mostly attended by midwives is partly explained by the fact that it is these same groups that have the smallest proportion of primipara.

Deaths under one year per 1000 births for two-year period, 1915–1916, for nativity of mother were as follows, viz.:

Among infants born of primipara the mortality is lowest for those attended by physicians. Midwives attend 29 per cent. of the primipara but 32 per cent. of the deaths of infants under one year among primipara had been attended at birth by midwives. Physicians attended 47 per cent. of the primipara but only 43 per cent. of the deaths under one year among primipara had been attended by physicians; hospitals delivered 23 per cent. of the primipara but 24 per cent. of the deaths under one year among primipara had been delivered in hospitals.

The high infant-mortality rate of infants of mothers delivered in hospitals is further explained by the high proportion of primipara *of all nativities* delivered in hospitals. Of United States mothers there were delivered in hospitals 28 per cent. of the primipara and 14 per cent. of the multipara; of Russian mothers 21 per cent. of the primipara and 10 per cent. of the multipara; Austrian mothers 14 per cent. of the primipara and 2 per cent. of the multipara and of the Italian mothers 1.6 per cent. of the primipara and 6 per cent. of multipara.

It is of special interest to note here again that very few of the Italian mothers are delivered in hospitals; that 88 per cent. are delivered by midwives; that 85 per cent. of primipara of Italian mothers are delivered by midwives and that the infant-mortality rate of babies of Italian mothers is one of the lowest of all national groups.

I have been careful to present the data in reference to primipara so that we may have all the facts before us upon which to base a

Nativity of mother	Proportion, primipara	Infant mortality rate	Percentage attended by midwives
United States	39.5	97.7	21.8
Austrian	27.7	89.2	75.8
Italian	15.1	84.3	89.2
Russian	25.6	70.2	48.6

proper judgment of the relation the midwife occupies to the problem of maternal and infant mortality and that we may be willing and able to pass judgment without prejudice or bias of any sort.

The results of midwifery practice in Newark may seem sufficiently favorable to permit a short statement of what has been accomplished during the past three years through the supervision of our Department.

In 1914, there were ninety-nine midwives of whom seventeen were practising without a license; thirty reported births late; twenty frequently failed to report births at all; sixteen carried instruments contrary to law, such as uterine forceps, hypodermic syringes, hard rubber catheters, specula; nine carried drugs such as laudanum, strychnine, arsenic; seventy admitted that they did not send for a physician when presented with slight abnormalities during pregnancy or labor; twenty admitted that they did not use silver nitrate in the eyes of the new-born; twenty-five midwives did not carry thermometers, but claimed that they were quite competent to determine the temperature by taking the pulse; thirteen were suspected of being abortionists.

It was also learned from the records that ten of the midwives delivered more than 50 per cent. of all of the midwife cases; three, delivered twenty a month; two, more than thirty cases a month; and one, delivered as many as fifty cases a month.

With these facts in hand we set about through conferences, lectures and personal visits to the midwives and to their cases to inform the midwife of what she may do under the law and how she should conduct herself and her cases to the best interests of herself and her patients.

A few contrasting figures will be sufficient to indicate what has been accomplished, and also, I suppose, what still remains to be accomplished.

In 1917, we had ninety-six practising midwives, instead of ninety-nine, of whom two are unlicensed instead of seventeen. These two midwives have been practising over twenty-five years, are of good repute and attend only a few cases each year. All midwives carry silver nitrate in their bags and from all reports and observations use it in the eyes of every new-born baby. Of course, it is difficult to be positive about this, but the small number of ophthalmia cases in midwifery practice seems to bear out this report. In 1916, of eighteen cases reported, midwives had been in attendance *at any time* in five cases only. When we recall that they attend 50 per cent. of all the births and practice especially in the families where

TABLE I.—MATERNAL AND INFANT MORTALITY AMONG MOTHERS WHO RECEIVED PRENATAL SUPERVISION FROM CHILD HYGIENE DIVISION AND WERE DELIVERED BY MIDWIVES, NEWARK, N. J., 1916.

Mothers delivered by midwives	Maternal deaths			Deaths of babies under one month			Stillbirths		
Number	No.	Rate	City rate	No.	Rate	City rate	No.	Rate	City rate
586	1	1.7	2.2*	5	8.5	36.4	4	6.8	41.7

* Or 1 in every 454 mothers died in childbirth.

TABLE II.—MATERNAL DEATHS PER 1000 LIVE BIRTHS IN CERTAIN COUNTRIES, AND LARGE CITIES IN THE UNITED STATES.

Countries	Years	Death rate	Cities	Year	Death rate
Italy.....	1910–13	2.4 or 1 in 417	New York....	1916	4.6 or 1 in 217
Hungary.....	1908–11	3.6 or 1 in 277	Newark.....	1916	2.2 or 1 in 454
England and			Buffalo.....	1916	3.2 or 1 in 312
Wales.....	1910–14	3.7 or 1 in 270	Detroit.....	1916	3.7 or 1 in 270
New Zealand..	1910–14	4.0 or 1 in 250	St. Louis.....	1916	5.2 or 1 in 192
Australia.....	1910–12	5.0 or 1 in 200	Cleveland....	1916	5.6 or 1 in 180
Ireland.....	1911–14	5.2 or 1 in 192	Boston.....	1916	6.5 or 1 in 153
Switzerland...	1909–12	5.3 or 1 in 188	Baltimore....	1916	6.8 or 1 in 147
			Philadelphia..	1916	7.0 or 1 in 143

Forty-nine per cent. of the births in Newark were attended by Midwives.

TABLE III.—DEATHS UNDER ONE YEAR AND UNDER ONE MONTH PER 1000 BIRTHS BY ATTENDANT AT BIRTH FOR 1915–1916, NEWARK, N. J.

Year	Attendant at birth							
	All attendants		Midwife		Physician		Hospital	
	Under 1 year	Under 1 month	Under 1 year	Under 1 month	Under 1 year	Under 1 month	Under 1 year	Under 1 month
1915	85.3	35.4	58.9	24.1	79.4	37.0	88.9	50.1
1916	89.6	38.0	82.2*	25.9	70.6	39.4	105.1	64.1
For two-year period.....	87.5	36.4	70.7	25.1	74.3	38.2	97.4	57.3

* Epidemics of poliomyelitis, measles and influenza.

TABLE IV.—DEATHS UNDER ONE YEAR PER 1000 BIRTHS BY NATIVITY OF MOTHER FOR EACH YEAR AND THREE-YEAR PERIOD, NEWARK, 1914-1916.

Mother born in	Year											
	3-year period, 1914–1916			1916*			1915			1914		
	Births	D'ths under 1 yr.	Inf. Mort. rate	Births	D'ths under 1 yr.	Inf. Mort. rate	Births	D'ths under 1 yr.	Inf. Mort. rate	Births	D'ths under 1 yr.	Inf. Mort. rate
United States...	13,478	1,317	97.7	4,685	424	90.5	4,391	401	91.3	4,402	492	111.7
Italy.....	7,575	639	84.3	2,431	228	94.1	2,519	179	71.0	2,625	232	88.0
Austria...	4,843	432	89.2	1,783	103	57.7	1,521	126	82.8	1,539	203	131.0
Russia....	4,556	320	70.2	1,406	95	67.5	1,615	127	78.6	1,535	98	63.0
Others....	3,056	375	122.3	1,141	176	153.3	909	102	112.2	1,006	96	96.0
Total.....	33,508	3,083	92.0	11,446	1,026	89.6	10,955	935	85.3	11,107	1122	98.0

* Epidemic of poliomyelitis, measles and influenza.

TABLE V.—PERCENTAGE DISTRIBUTION OF DEATHS UNDER ONE YEAR AND UNDER ONE MONTH FOR ATTENDANT AT BIRTH, FOR TWO-YEAR PERIOD, NEWARK, N. J., 1915-1916.

Cases studied				Attendant at birth											
				Midwife				Physician				Hospital			
Under one year		Under one month		Under one year		Under one month		Under one year		Under one month		Under one year		Under one month	
No.	% Dis.	No.	% Dis.	No.	% Dis.	No.	% Dis.	No.	% Dis.	No.	% Dis.	No.	% Dis.	No.	% Dis.
1691	100	763	100	778	46	276	36	653	38	334	44	260	16	153	20

Record shows 1961 deaths under one year, 270 attendant at birth unknown.
Record shows 826 deaths under one month, 63 attendant at birth unknown.

TABLE VI.—PERCENTAGE DISTRIBUTION OF BIRTHS FOR THREE-YEAR PERIOD BY ATTENDANT, NEWARK, N. J., 1914-1916.

Year	Attendant at birth							
	Total		Midwife		Physician		Hospital	
	Number	Percentage distribution	Number	Percentage distribution	Number	Percentage distribution	Number	Percentage distribution
1914	11,107	100	5,471	49	4,352	40	1,284	11
1915	10,955	100	5,414	49	4,243	38	1,295	12
1916	11,446	100	5,582	49	4,488	39	1,374	12
Total....	33,508	100	16,467	49	13,083	39	3,953	12

ophthalmia is most likely to occur, this record bears out the previous statement. The number of ophthalmia cases reported in 1916, showed a reduction of 40 per cent. over those reported in 1914, and during this period not a single case of blindness has occurred.

Our records show that about ten midwives are still disposed not to call a physician promptly in abnormal cases and that seven do not carry thermometers. This, however, is an improvement over 1914 when the records showed that seventy did not send for physicians and twenty-five did not carry thermometers.

In 1917, no midwife to our knowledge carried any drug or surgical instrument, not even a soft rubber catheter. Two midwives, however, used hypodermic injections for anemia in pregnancy and to give pituitrin to hasten labor. In this, I fear, they were but following in the steps of some busy practitioners, without, however, the warrant of law.

In 1917, four licenses were revoked by the State Board of Medical Examiners upon our recommendation; three for malpractice and one for incompetence and neglect, though the midwife had been in practice over forty-two years, delivered over 7000 women and received a gold medal after delivering 5000 cases.

In the three years there has been considerable improvement in the reporting of births by midwives. I mention this because the prompt and complete reporting of births is essential for accurate vital statistics and effective preventive child hygiene work. In 1916, of 5414 births attended by midwives only twenty-nine were unreported; for the two-year period, of 10,996 births 262 births were reported late, or 2.4 per cent. and forty-two or 0.3 per cent. not

reported, while physicians attended 8731 births and reported late 725 or 8.3 per cent. and failed to report 56 or 0.6 per cent.

When we recall the homes in which the midwife works, the housing, social and economic conditions under which her families live, I see little reason for condemnation or elimination of the midwife, or the establishment of costly hospitals to care for all maternity cases. Our experience rather justifies our faith in their usefulness under proper supervision and coöperation.

MIDWIFERY AND OPHTHALMIA NEONATORUM.

Among the 4000 babies supervised by the Child Hygiene Division of Newark, N. J. during 1915 and 1916 and attended by midwives, our nurses discovered sixty cases of purulent discharge of the eyes, not reported by the midwives attending these cases; of these only seven were found to show gonococcus. We consider this ample proof that midwives use silver nitrate practically in all their cases and have failed to call physicians only in very rare instances.

DR. E. GUSTAV ZINKE, Cincinnati.—What I have been able to gather from the essays is this, that the results in the practice of obstetrics in the hands of the man-obstetrician are not superior to those obtained by the ordinary midwife. Am I right? One who has devoted himself to the practice of midwifery for a period of forty years, who has taught the subject annually for a period of twenty-eight years, who has kept his eyes open, and who is willing to make a truthful statement, cannot help admitting that what has been said on this floor this afternoon is only too true. If the obstetrician of to-day cannot claim superiority in obstetric practice over the ordinary midwife, there is something seriously wrong. It is impossible to father the claim that the science and practice of obstetrics are not better taught than in the past. Midwifery has never been better understood, nor better taught, than during the last thirty years.

It does not matter whether those who are engaged in the practice of midwifery in private or in hospital practice be midwives or male obstetricians; the determining factor in this instance is, and always will be, how much does the individual, whether man or woman, who engages in the practice of midwifery, know about obstetrics? And if he, or she, knows all about it, much depends upon the care given the patient. Not every one who understands midwifery gives the patient the full benefit of his knowledge. To be a master in obstetrics, is one thing, to practice it well and conscientiously is another. This will explain in a way, why the end-results obtained in the practice of obstetrics are such as are quoted here to-day. And then there are other reasons for the success of the midwife. When the latter are presented in medical meetings, they are invariably resented by a large, yet influential element in the profession. But let the truth be known in spite of this opposition. The midwife waits far more patiently than the busy doctor. She has no authority to make a version, to use the forceps, or to perform any other obstetric operation. She is loath to call in a physician to assist her in a case for fear she may lose in practice and prestige. Therefore, she waits and gives nature a better opportunity to do the work. True, sometimes the midwife waits, I am sorry to say, too long; but I do not hesitate to state that the results of this waiting on her part are more frequently advantageous to the mother, even though the latter may be, temporarily, a little the worse for the wear. On the other hand, the physician, who is privileged to use the forceps, to turn, or to perform without question or censure, any operation he may select, is apt too often to resort to any of these means simply because he is in a hurry to get through with the case.

And what is worse, there are many practitioners who do not know how to perform a version properly, there are many who use the forceps badly and too frequently, and the same may be said of any of the obstetric operations. The worst of all, however, is, that there are too many men in the medical profession who know little or nothing of obstetrics, who depend solely upon nature or accident,

and when they fail to deliver the patient, after attempts to perform a version or to use the forceps, call to their assistance an expert who is expected to assume the responsibility in the case and to endorse the conduct of the attendant.

Dr. John Norval Bell, Detroit.—I have often wondered how it is that midwives get better end results than the doctors! I think there are two distinct classes of men who do obstetrics, the male midwife and the obstetrician. The obstetrician, I believe, will get better end results than the midwife, but my idea is that the reason for the better end results which the midwife shows is this, that the male midwife is practising all kinds of medicine. He goes from a scarlet-fever patient and delivers a woman; he goes from opening an abscess and delivers a woman. He is engaged in all sorts of work and he does obstetrics. The woman midwife does nothing but obstetrics; her hands are cleaner; she does not infect the patient. There, in my mind, is the solution of that disparity.

Dr. William H. Humiston, Cleveland, Ohio.—This is a very interesting subject and I think it is one that should be thoroughly understood and talked over, in the hope that we will have better obstetric work done by the male obstetrician. Obstetrics, as Dr. Zinke stated, is very much better taught to-day than formerly. In fact, it is perfectly taught to-day, where it was not twenty or twenty-five years ago, and the reason why the female obstetrician excels over the male is because she waits longer. She does not become impatient; she is not in a hurry. She has not some other case to go to and hurry matters up, apply forceps before the first stage is reached. The practitioner is in a hurry to make the delivery. I have repaired one woman who had extensive laceration of the cervix at the vaginal junction, tearing the perineum down to the sphincter ani. She was in competent hands. She went into a hospital to be confined a week before her time was up. The doctor had been there a few days before and said she had gone over her time and he would induce labor, as it could be done very readily. He packed the cervix and vagina with gauze and allowed the packing to remain in forty-eight hours, then removed it. Labor pains had not started up; he repacked. At the end of thirty-six hours she had a violent chill and her temperature reached 104° F. He did a forcible dilatation of the cervix, delivered a dead baby. The baby weighed 8 pounds. The patient was dissatisfied, and through her friends learned from the nurse that the doctor was expecting his daughter to return from Europe and wanted to be in New York at the time of her arrival on a certain date and therefore he induced that labor. That is poor obstetrics. He knew better, for we have to be patient in these cases; we have to know enough about obstetrics to know the relative size of the child's head that has to go through the pelvis. We have to determine, as near as we can approximately, when that child can be delivered, and if there is no disproportion between the child's head and the pelvis, we can wait indefinitely, and nature will deliver the child better than we can do by any hurry up process.

DR. GORDON K. DICKINSON, Jersey City, N. J.—The midwife is successful because the law is honored. The young doctor is unsuccessful because he knows there is no law except his own; he is in a hurry; he wants to go home to breakfast, as the chances are he has been out all night. He has other cases to attend to, and until you put the law on the doctor the thing will occur. You can discuss this subject for the next ten years and it will be the same thing.

New Jersey is a rather advanced State in this regard. I am glad you are here to hear about it. We have laws here as to the standardization of the physician. We have a committee connected with the State Medical Society, and have had for three years, looking into the standardization of hospitals, and no one knows better than you or I do that there is no standardization of hospitals at present. The standardization is reached by men on the Board of Managers or a selfish superintendent. The doctor has no say except in a few cases. This committee of standardization at the last meeting of the State Society was called upon to formulate a plan by means of which we can standardize obstetrics in the hospital, because around this part of the country obstetric cases tend to go into the institutions, the poor, the wealthy, and the middle classes. I feel that if we succeed in this, we should standardize a proper midwifery department with an institution, and not a man who is merely willing to do it, but an obstetrician, a man who reads obstetrics and studies it, and lives in it, the same as you would a bacteriologist or an *x*-ray man, make him be responsible for results and report his failures as well as successes. It may be slow; it may take time, but the movement was started, and until you put the law on the doctor as well as on the midwife, there will be trouble.

DR. J. HENRY CARSTENS, Detroit.—Before the discussion is closed, I would like to ask, what is the trouble with the hospitals? The way I interpret what has been said is that the hospitals are as bad off as anything else. Certainly, in a hospital the doctor is not in a hurry. Most of the women that are in a hospital are attended by the house physician and the regular obstetrician, who may have charge of the department, is not always around when these women are delivered. They are delivered under the care of the house physician and that house physician is not in a hurry. Why is it the statistics of the hospital are poorer than those of cases delivered by midwives?

DR. JAMES F. PERCY, Galesburg, Illinois.—We have had two papers on a subject that is usually very uninteresting and yet these papers have been very illuminating and instructive. In Illinois we have recently started a movement that has for its purpose the improvement of the midwifery question by giving the trained nurses the right to practise obstetrics after being found qualified through an examination by the State Board of Health.

Dr. Dickinson has alluded to a point that must have occurred to all of us when he suggests the supervision of the physician in some such way as the midwife is supervised. I think Dr. Levy is to be congratulated that he has obtained the results that he has reported to

us to-day by looking after the work of the midwives. I wish that it were possible for him to put into his statistics the relative quality of the work done by the physicians who have graduated in the last fifteen years as compared with the work along the same lines by the older men engaged in midwifery practice. My own belief is that there is as much puerperal fever as there ever was and it would be interesting to know if this was true in the work of the physicians who have been educated in the recognized modern methods. This question gains additional importance by the remarks of Dr. Harrar in reference to puerperal fever. I hope that the time is coming when every state will have a supervising committee either from the State Board of Health or from the State Medical Society whose duty it shall be to look after the interests of the public not only from the standpoint of good obstetrics but from that also of abdominal surgery.

Dr. Harrar (closing the discussion on his paper).—I have not very much to add to what I have already said. I tried to keep away from detail in my paper and present our general results. You can prove almost anything by statistics if you do not carefully analyze them. For instance our figures might be said to prove that rubber gloves were no good in obstetrics, because on the outdoor service, where we use no rubber gloves as a matter of economy, our mortality and morbidity are better than on the indoor service where we do use rubber gloves. We know this is not the case.

I did not take up the midwife question as I have not accurate figures on which to base any assertion. We get fewer cases that have been badly mismanaged by doctors in the last few years than we did ten years ago. We think this may be because many of the local physicians have had the advantage of the teaching in their attendance at the hospital as students, and have profited by their experience.

Dr. Carstens raises the question about the mortality being higher in hospitals than in private work generally. The reason for this is that the hospital figures unless carefully dissected are contaminated by referred bad cases. The hospital gets the blame for the deaths while the referring doctor or midwife goes free. The deaths from septic abortion and infection are charged up to the hospital and the midwife does not get into trouble.

With regard to a method referred to in the discussion of letting puerperal women with foul lochia "stink themselves out," that might be said to be the principle of our present treatment at the Lying-In Hospital. If there is foul lochia we raise the head of the bed and let them alone. We no longer douche these women, although the odor may be most disagreeable to both the patient and her attendants. We do not do anything locally. Since we have pursued this course of treatment our mortality and morbidity results have regularly improved.

Dr. E. Gustav Zinke, Cincinnati, Ohio.—I should like to add a word or two to what I have already said. From experience in the outdoor obstetric clinic, where not only the surroundings of the

patient were filthy in the extreme in many instances, but the patient's body and bed in nearly every case were anything but aseptic, I may say that both the fetal and maternal mortality and morbidity were not bad, in spite of the fact that students of the fourth year were alone in attendance upon these cases. I cannot claim to have had the same success with some of the patients I delivered in homes with the very best environments and those delivered in well-equipped maternity hospitals. This may best be explained, or illustrated, by referring to the often-observed fact that people who live under unsanitary conditions, like those who from the time of birth are accustomed to poor food and impure air and water, acquire a certain immunity from diseases to which others, who have always enjoyed the best of sanitary surroundings, wholesome food, pure drinking water, and fresh air, would readily fall victims.

DR. LEVY (closing the discussion).—In the first place I wish to take exception to the remarks of the gentleman who tried to criticise the statistical evidence of the low maternal and infant mortality in midwifery practice that I have submitted, stating that figures can be easily juggled to prove anything. Progress in the solution of many medical questions can only be made by the use of statistics and it is unwise and unfair, especially for one who reads a paper based upon statistics, to repeat this old cynicism.

It is true that statistics must be used very carefully and that we should try to include in our report all the elements or factors that may have any relation to the subject under consideration; that I have tried to do this can be seen from the data presented in reference to the distribution of primipara and certain nativities in the practice of the midwife. While the figures show a lower mortality among midwife cases, I did not claim that this was due to any superior skill or ability, but clearly indicated that it could be partly explained by several facts that were brought out by the statistical analysis. I did maintain that the facts as far as can be determined from statistical evidence are not of such a character as to warrant obstetricians making the attacks upon midwives I referred to in the beginning of my paper.

The higher mortality in hospital cases I explained as partly due to the higher proportion of primipara delivered there, but I also pointed out that the higher mortality among physicians and hospitals could not be explained away by the old defense that this was due to the fact that midwives send their badly damaged or moribund cases to the hospital as, in a series of puerperal deaths, carefully investigated, we found that only 25 per cent. of the deaths could be charged to the midwife though they delivered 50 per cent. of the births, even if we held them responsible for every case in which they had been in attendance. I think we will have to admit that women delivered in hospitals are not always attended by superior obstetricians, as a matter of fact the work is frequently done by interns or general practitioners with no special qualification. Some of the poor results may also be due to a lesser sense of responsibility and a greater tendency to experimentation, which I am sure does not always work out to the advantage of the patient.

The purpose of my paper was not to exalt the midwife, but rather to compel those obstetricians who have been hurling the brand of infamy at the midwife to produce the facts upon which their contentions are based so that if they are justified we may all come to the same opinion. It is very important that this question should be settled, because of the statements made by prominent obstetricians, of the desirability of many maternity hospitals to take care of all the cases that now are delivered by midwives, many physicians and laymen are calling upon the community to build hospitals at considerable expense. Those of us who are familiar with the family life of our people look with great trepidation upon any system that removes the wife and mother from the family even for a period of two weeks, and we really feel that there is no better period in the life of the family to develop the solidarity of the family than during this period of childbirth and, therefore, there is a grave responsibility upon all those who urge institutions as a solution of the maternity question.

DR. HUMISTON.—In those cases of puerperal sepsis that happen in the practice of a midwife, and she calls a physician, and the patient lives anywhere from three to twenty-one days and finally dies, does the midwife sign the death certificates or the doctor?

DR. LEVY.—The midwife signs no death certificates. Every death certificate is signed by a doctor. If a woman dies who has been attended by a midwife at any time we charge the death against the midwife and not the doctor.