

## THE EDUCATION OF MIDWIVES\*

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**I**NASMUCH as one of the most important factors in the health and protection of the child is the survival of its mother at childbirth, and as survival of the mother is in turn affected by the type of care she receives at childbirth, a complete program of child care must take into consideration not only the obstetric education of the physician, who, in this country, attends approximately 85 per cent of the births, but also the midwife who attends a large part of the remaining 15 per cent.

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It is not possible to include in this brief survey a detailed account of the development of regulations and midwife education, country by country. In general it is known that such rules governing midwives as existed in Europe before the nineteenth century had legal and religious aspects rather than medical. In Denmark the first midwife commission was established by law in 1714 and in the same year an examination for midwives was provided by law, but a system of instruction for midwives was not started until 1787. Gradually the need for state regulation concerning education and practice came to be recognized, and during the nineteenth century regulations were put into effect in all countries of Europe except England, the latter not enacting such legislation until 1902. Today all countries of Europe have standards for midwife education, either national or provincial. In Germany, for example, each state has its own laws, and the same applies to the cantons of Switzerland. Some countries have both state and private schools, others have state schools only, and in others all schools must be approved by the state. A midwife must complete a course of training varying from six months to three years. In France, final examinations must be given only by the medical department of a university. In Denmark where the instruction is carried on as part of the maternity-hospital service, the midwives are taught by doctors, nurses, and midwives, and the teaching is under the direct supervision of two professors of obstetrics from the State Medical School. For the most part, in European countries midwives are taught and permitted by law to attend only normal cases of delivery, but there are exceptions to this. In Sweden, with a scattered rural population, it is recognized that a midwife must be capable of acting in emergencies, and she is taught to perform certain obstetric operations such as manual removal of the placenta, external, internal and combined version,

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extraction in breech presentation and the use of low forceps. In Denmark, in addition to the care of normal confinement, a midwife may act on her own responsibility in a number of complications, including extraction of breech presentation in a multipara, version of the second twin if it lies in transverse presentation, suturing of lesser ruptures of perineum and use of ergot for lesser postpartum hemorrhage. In both Denmark and Sweden midwives attend more than 85 per cent of the births.

The public control of midwives in Europe is by regulations pertaining to licenses, birth and other reports, records of work, disease notification, requirements for calling in a physician in complicated cases or emergencies, punishment for malpractice or violation of the regulations, and in some places by supervisory visits. There is no provision for inspection of midwives' patients by physicians, except in cases of complications following delivery.

In most countries of Europe the midwife in training pays a tuition fee for her course of instruction, but frequently this fee is very small. In Austria free training is provided and in Holland a certain number are given free training in return for their practicing in scattered country districts at a fixed salary.

In order to insure the services of a trained midwife in communities where the number of confinements is so small that the fees from private practice would not yield a living wage and also to provide services for indigents, some countries have adopted the plan of supplementing the midwife's income by a grant or salary from public funds.

This brief summary will serve to point out some of the main points in the history and present status of the midwife in Europe. Now let us turn our attention to this country.

The first permanent settlement in America was made in 1607, just seventeen years after the death of Paré and but a few more years after the establishment of the first school for midwives in Paris. As would be expected, in America under the primitive conditions of colonial days, midwifery did not receive the attention that it was receiving abroad. Women in the colonies were assisted in childbirth by midwives, if they were available, or by women friends. It may be of interest to know that the wife of Dr. Samuel Fuller, who landed from the *Mayflower*, was the first midwife of the Massachusetts colony. While the countries of Europe were slowly but surely improving the standards and practice of their midwives the colonies gave no attention to the matter with the result that outside of a few urban centers the program of midwife education and supervision in the United States did not begin until the twentieth century, and today we have many thousand untrained women acting as midwives. Or to put it another way, we have large groups of people in various parts of the

country for whom the only attendant available for the mother at confinement is an untrained midwife.

The first midwife ordinance in America was passed by New York City early in the eighteenth century. This ordinance dealt with the midwife's civil activities rather than her care of the mother, the only provision in regard to the latter being that in case the midwife saw the mother or child in peril she should call in other midwives for counsel, and that she would not administer any medicine to produce miscarriage.

The first officially recognized midwife school in America was established at the Bellevue Hospital in New York City in 1911.

Most, if not all, of the state laws specifically referring to the midwife have been enacted in the last thirty years. They cover such items as registration, reporting of births, use of a prophylactic in the eyes of the newborn, educational requirements, examination and licensure, and in some cases prohibitions in regard to use of drugs or instruments or attendance on certain types of cases without calling a physician. The laws also provide penalties for violation.

In order that it might have the most recent information on the midwife situation the committee sent a questionnaire to the health department of each state and territory and the Philippine Islands. The data secured from the several health departments on the number of midwives practicing and the manner of licensing and controlling them are too extended for inclusion in this concise report.

From a study of these data it may be noted that the methods of licensing and controlling midwives are distinguished by their variety. In some states the midwives must have had a course of training in a recognized school of midwifery, in others they do not have to take a course of training, but are required to pass an examination or to satisfy some state or local official that they are qualified; in still others they are only required to register, and some states have no laws regarding registration or licensure.

The reason for this variety and the low educational requirements in most states is easy to understand when the opportunities for midwife training in the United States are considered. There are but two schools; the first of these was established in New York City in 1911 and is limited almost to applicants who wish to practice there. The second school was established only a few years ago in Philadelphia. Realizing the uselessness of laws and regulations that require the midwife to have a course in a recognized school of midwifery when there are no schools available, many states have set up practical requirements which fit the local situation. Most of the midwives who have had a formal course of training providing both theoretical and practical instruction are graduates of foreign schools. Such graduates are found among the white midwives; with the exception of a few nurses

who have had a course of midwifery training, most of the colored midwives are untrained.

A very interesting educational project conducted by a private individual has been the work of a woman physician in Salt Lake City, Utah. For many years this physician has given a formal course of instruction to women wishing to become midwives and when she was in active practice the students were given practical training by accompanying her to attend her own cases. Other local physicians have cooperated to some extent in giving this practical experience.

Most of the State Boards of Health in states having a midwife problem have, in the last eight or ten years, done what they could to improve the situation either directly or through the county health departments. In the southern states, nurses, and occasionally doctors, have conducted courses for midwives in which theoretical instruction has been given, the oldest, most ignorant, and unfit of the colored midwives have been eliminated from practice, and the requirements for a permit or license raised. Work of inspection or supervision has been begun or extended. In some instances, younger and better educated women have been urged to attend the classes so that they might replace some of the older and less qualified ones. The courses of instruction have consisted of only a few lessons in some instances and in others have been more extensive. In Georgia and South Carolina practically every midwife in the State has had the advantage of a short course of lessons. In some places, however, a midwife program has been conducted in only a few counties. In South Carolina during two successive summers, one-month courses of combined practical and theoretical training were conducted at a hospital connected with a colored school. Many colored midwives took advantage of this opportunity for a real course in midwifery brief as it was. In Kentucky a course in midwifery was given at a small hospital located in the mountain section and one class was graduated. Lack of funds prevented continuation of the course. Two national organizations which have assisted in this midwife educational program by lending physicians to conduct midwife classes are the American Child Health Association and the Federal Children's Bureau.

Many of the states where there are large numbers of white midwives have increased their supervisory work and made efforts to raise the qualifications for licenses. The most extensive work has been done in New York, New Jersey, and Pennsylvania. In all three of these states an applicant for a license to practice midwifery must be a graduate of a recognized school of midwifery or maternity hospital, or (New York and Pennsylvania) produce evidence that she has attended a certain number of confinements under the instruction of a physician. In New Jersey a postgraduate course for midwives was begun at the Jersey City hospital about three years ago and within

the last few months Cooper Hospital, Camden, has offered such a course. There is also a State Association of midwives which has an annual meeting, and a quarterly bulletin called the "Progressive Midwife" is issued by the State Bureau of Child Hygiene which has charge of the supervision of midwives.

With the exception or two or three states, the great gap in the educational work has been the lack of facilities for giving the midwife practical training and experience. The two existing schools can accommodate only a few students and it is not economically possible for midwives from a distance to attend them. There are no schools available for the colored midwife, the one in greatest need of training and the one who serves the largest number of people.

Another gap in the midwife program has been that many of the people who have sought to train and supervise the midwife have not had special midwifery training themselves. Much of the supervisory work has been concerned with birth reporting, prevention of ophthalmia neonatorum, and inspection of the midwife's home and equipment. These things are important but not sufficient.

With regard to laws and regulations, one state frankly admits that local necessity makes its laws regarding the licensing of midwives unenforceable. The same situation probably exists in other places where the officials are less frank. In Massachusetts, because of an interpretation of the medical practice act made in a court decision, midwives are not legally permitted to practice, but a survey conducted by the State Department of Health in 1921 revealed the fact that several hundred births had been attended by midwives in the six districts covered by the survey. Obviously it is not logical to institute a program of education and supervision for something that is not supposed to exist and therefore no work for the education or supervision of the midwife is carried on in this state.

In the recommendations made to the committee by State Health Officials the need for training and supervision of midwives was particularly emphasized.

#### MATERNAL MORTALITY IN MIDWIVES' PRACTICE

Any recommendations relative to the midwife problem must be preceded by an examination of the facts to determine the relation between midwives' practice and maternal mortality. To do this accurately it is necessary to have separate figures on the number of births attended by physicians, midwives, and others, and the number of deaths occurring in the practice of each group. Such figures are obtainable only from a few communities and so it has seemed worth while to supplement them with statistics from countries and states having a large number of deliveries attended by midwives. For purposes of this study an effort has been made to collect as many sta-

TABLE I. TREND OF MATERNAL MORTALITY IN THE UNITED STATES AND CERTAIN FOREIGN COUNTRIES\*

| COUNTRY                            | DEATHS FROM CAUSES ASSOCIATED WITH PREGNANCY AND CHILDBIRTH PER 10,000 LIVE BIRTHS |      |      |      |      |      |      |                 |                 |                 |                 |                 |                 |      |
|------------------------------------|--|------|------|------|------|------|------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------|
|                                    | 1915   | 1916 | 1917 | 1918 | 1919 | 1920 | 1921 | 1922            | 1923            | 1924            | 1925            | 1926            | 1927            | 1928 |
| Australia                          | 43   | 53   | 56   | 47   | 47   | 50   | 47   | 45              | 51              | 55              | 56              | 53              | 59              | --   |
| Belgium                            | --   | --   | --   | --   | 72   | 60   | 57   | 53              | 56              | 58              | 50              | 61              | --              | --   |
| Canada                             | --   | --   | --   | --   | --   | --   | 51   | 55              | 54              | 60              | 56              | 57              | 56              | --   |
| Chile                              | 66   | 73   | 72   | 82   | 88   | 75   | 79   | 80              | 74              | 61              | 61              | 58              | 58              | 47   |
| Czechoslovakia                     | --   | --   | --   | --   | 37   | 40   | 37   | --              | 33 <sup>1</sup> | 31 <sup>1</sup> | 33 <sup>1</sup> | 34 <sup>1</sup> | 36              | --   |
| Denmark                            | --   | --   | --   | --   | --   | 24   | 20   | 20 <sup>1</sup> | 26              | 23              | 24              | 26              | 31              | --   |
| England and Wales                  | 42   | 41   | 39   | 38   | 44   | 43   | 39   | 38              | 38              | 39              | 41              | 41              | 41              | 44   |
| Estonia                            | --   | --   | --   | --   | --   | --   | --   | --              | 45              | 40              | 38              | 41              | 41              | --   |
| Finland                            | --   | 36   | 38   | 44   | 40   | 36   | 33   | 30              | 31              | 35              | 29              | 32 <sup>1</sup> | 30              | --   |
| Greece                             | --   | --   | --   | --   | --   | --   | 73   | 72              | 85              | 88              | --              | --              | --              | --   |
| Hungary                            | --   | 42   | 40   | 52   | 29   | 32   | 29   | 30              | 28              | 31              | 29              | 32              | 30              | --   |
| Irish Free State                   | 53   | 57   | 49   | 48   | 47   | 49   | 50   | 57              | 48              | 48              | 47              | 49              | 45              | 49   |
| Italy                              | 22   | 27   | 30   | 37   | 29   | 28   | 26   | 25              | 27              | 32              | 28              | 26              | 26              | --   |
| Japan                              | 36   | 35   | 35   | 38   | 33   | 35   | 36   | 33              | 34              | 31              | 30              | 27              | 28              | 28   |
| Lithuania                          | --   | --   | --   | --   | --   | --   | --   | --              | --              | --              | 59              | 56              | 50              | --   |
| The Netherlands                    | --   | --   | --   | 29   | 33   | 24   | 23   | 25              | 23              | 24              | 26              | 29              | 29 <sup>1</sup> | 34   |
| New Zealand                        | 47   | 59   | 60   | 52   | 51   | 65   | 51   | 51              | 51              | 50              | 47              | 42              | 49              | 49   |
| Northern Ireland                   | 56   | 50   | 51   | 47   | 46   | 69   | 52   | 47              | 49              | 45              | 44              | 56              | 48              | 52   |
| Norway                             | 27   | 28   | 30   | 30   | 34   | 26   | 22   | 25              | 28              | 29              | 27              | 32              | --              | --   |
| Salvador                           | --   | --   | --   | --   | --   | 57   | 57   | 46              | 50              | 57              | 50              | 56              | 63              | --   |
| Scotland                           | 61   | 57   | 59   | 70   | 62   | 62   | 64   | 66              | 64              | 58              | 62              | 64              | 64              | 70   |
| Sweden                             | 29   | 27   | 25   | 26   | 32   | 27   | 27   | 25              | 23              | 24              | 26              | --              | --              | --   |
| Switzerland                        | --   | 54   | 56   | 51   | 57   | 56   | 55   | 51              | 46              | 48              | 43              | 44              | 37              | --   |
| U. S. birth-reg. area <sup>2</sup> | 61   | 62   | 66   | 92   | 74   | 80   | 68   | 66              | 67              | 66              | 65              | 66              | 65              | 69   |
| Uruguay                            | 22   | 29   | 32   | 30   | 23   | 34   | 33   | 27              | 27              | 25              | 25              | 30              | 22              | 24   |

Figures compiled from official sources by the Federal Children's Bureau.

<sup>1</sup>Provisional.

<sup>2</sup>The United States birth-registration area expanded from 10 states in 1915 to 44 states in 1928.

\*See also page 842.

tistics as possible from those communities where records have been kept or studies made of the number of maternal deaths occurring in midwives' practice and to compare maternal mortality rates of countries and states having large or small percentages of births attended by midwives.

*United States Compared with Europe.*—In all of the countries of Europe, except Scotland, more than half of the births are attended by midwives, the number being 80 per cent and more in most of them. In the United States the percentage of births attended by midwives and "others" is estimated to be not over 15 per cent. Yet every country in Europe for which statistics are available has a lower maternal mortality rate than the United States except Scotland which surpassed the United States' rate in 1928 by having one more death per 10,000 live births. The position of the United States is altered but little if the colored population with its extremely high maternal mortality rate is eliminated and figures for the white population only used in the comparison. In only one year since the establishment of the birth registration area has the maternal mortality rate for the white population of the United States been less than 60 per 10,000 live births. (Table I.)

*Comparison of the States in the United States.*—In comparing States with high and low percentages of births attended by midwives two points should be borne in mind: (1) that figures on births attended by midwives frequently include births attended by persons who are not midwives at all, such as members of the family and neighbors acting in an emergency through failure of the family to provide a doctor or the inability to secure one; (2) that of the women who serve as midwives only a small number are trained in midwifery.

In the United States birth registration area we find that in 1929 there were 13 states with maternal mortality rates higher than 80 per 10,000 live births. Mostly these are the southern states with their large colored population. These states also have a large percentage of births attended by so-called midwives. While the ignorant and untrained colored "mammy" undoubtedly contributes her share to this high rate, other factors which contribute to high mortality rates from all causes among the colored population and proportionately to maternal mortality are too well known for us to conclude that the high rates in the South are due per se to the high incidence of so-called midwife deliveries. In fact, statistics from three states given later in this report show a considerably lower maternal mortality rate among the colored women attended by midwives than among those attended by physicians. (Table II.)

Aside from these states we find that in 1929, 12 of the 46 states in the birth registration area had a maternal mortality rate of less than 60 per 10,000 live births. Among these twelve we find New Jersey

TABLE II. MATERNAL MORTALITY IN THE U. S. BIRTH REGISTRATION AREA 1929, AND PERCENTAGE OF TOTAL BIRTHS REPORTED BY MIDWIVES AND OTHERS NOT PHYSICIANS 1925

| STATE         | MATERNAL MORTALITY RATE PER 10,000 LIVE BIRTHS <sup>1</sup> |          |          |                                  | PERCENTAGE OF TOTAL BIRTHS REPORTED BY MIDWIVES AND OTHERS NOT PHYSICIANS <sup>2, 3</sup> |
|---------------|---|----------|----------|----------------------------------|---|
|               | LESS THAN 60  | 60 to 70 | 70 to 80 | 80 to 90                         |   |
| Alabama       |   |          |          |                                  | 35  |
| Arizona       |   |          | 78       |                                  | 10  |
| Arkansas      |   |          |          |                                  | 30  |
| California    | 57  |          |          |                                  | 8   |
| Colorado      |   |          |          | 86                               | 10  |
| Connecticut   | 54  |          |          |                                  | 12.8  |
| Delaware      |   | 63       |          |                                  | 25  |
| Florida       |   |          |          |                                  | 30  |
| Georgia       |   |          |          |                                  | 93  |
| Idaho         |   | 61       |          |                                  | (4)   |
| Illinois      |   | 68       |          |                                  | 0   |
| Indiana       |   |          | 70       |                                  | 20  |
| Iowa          | 56  |          |          |                                  | 5   |
| Kansas        |   | 68       |          |                                  | 1   |
| Kentucky      |   | 66       |          |                                  | 3   |
| Louisiana     |   |          |          |                                  | 20  |
| Maine         |   |          | 72       |                                  | 34.5  |
| Maryland      | 55  |          |          |                                  | (5)   |
| Massachusetts |   | 67       |          |                                  | 19.2  |
| Michigan      |   | 66       |          |                                  | 0   |
| Minnesota     | 43  |          |          |                                  | 5.5   |
| Mississippi   |   |          |          | 89                               | 15  |
| Missouri      |   |          | 73       |                                  | (4)   |
| Montana       |   |          |          | 84                               | 10  |
| Nebraska      |   | 61       |          |                                  | 7   |
| Nevada        |   | 63       |          |                                  | 2   |
| New Hampshire |   |          | 75       |                                  | 10  |
| New Jersey    | 55  |          |          |                                  | (6)   |
| New Mexico    |   |          |          | 87                               | 34  |
| New York      | 56  |          |          |                                  | (4)   |
| N. Carolina   |   |          |          | 84                               | 10  |
| N. Dakota     | 55  |          |          |                                  | 32  |
| Ohio          |   | 67       |          |                                  | 10  |
| Oklahoma      |   |          |          | 82                               | 35  |
| Oregon        | 59  |          |          |                                  | 2   |
| Pennsylvania  |   | 65       |          |                                  | 2   |
| Rhode Island  |   |          | 79       |                                  | (4)   |
| S. Carolina   |   |          |          | 114                              | 5   |
| S. Dakota     |   |          |          | (Not in birth registration area) | 50  |
| Tennessee     |   |          |          | 87                               | 5   |
| Texas         |   |          |          | (Not in birth registration area) | 10.3  |
| Utah          | 49  |          |          |                                  | 6.2   |
| Vermont       |   |          | 77       |                                  | 10  |
| Virginia      |   |          | 71       |                                  | 0   |
| Washington    |   | 62       |          |                                  | 32.4  |
| W. Virginia   | 58  |          |          |                                  | 5.3   |
| Wisconsin     | 51  |          |          |                                  | 10  |
| Wyoming       |   | 63       |          |                                  | 7.7   |
|               |   |          |          |                                  | 2   |

<sup>1</sup>Source: U. S. Bureau of the Census.<sup>2</sup>Source: U. S. Public Health Service Bulletin No. 184, Health Departments and Provinces of the United States and Canada, p. 77. (It has been necessary to use these estimates for 1925 as no later ones are available. It is suggested that this table be considered in connection with the one on pp. 7a-7k.)<sup>3</sup>The following were not in the birth registration area in 1925: Ala., Ariz., Ark., Colo., Idaho, Ga., La., Mo., Nev., N. Mex., Okla., S. C., S. Dak., Tenn., and Texas. All but two states, S. Dak., and Texas, have now been admitted. It is possible that the increase in the number of registered births in these states has changed these percentages somewhat.<sup>4</sup>Data not furnished.<sup>5</sup>A "few" by midwives.<sup>6</sup>"100 per cent reported by town clerk." (There is one practicing midwife in the state, however.)



and Maryland with 18 and 19 per cent respectively of births delivered by midwives and others, and Oregon and Iowa both of which have no midwife problem. And again in looking at the States with rates between 60 and 70 per 10,000 live births we find Kentucky and Delaware where midwives attend 18 and 25 per cent respectively of the births, with Indiana where midwives attend 5 per cent of the births and Nebraska which "has no midwife problem." In the group of states with rates between 70 and 80 per 10,000 live births we have New Hampshire, which reports one midwife in the state, and Vermont which reports none, with Virginia which has over 4,000 midwives who attend nearly one-third of the births in the state.

It is recognized that factors other than the attendant at birth affect the maternal mortality rate of a community and the above statistics are presented only to show that they do not point to the midwife as the determining factor in the high maternal mortality of any particular place.

*Statistics From Communities and Special Studies.*—The data secured from health departments and other agencies on the work done by midwives and from studies made of maternal mortality according to attendant at birth give us more satisfactory ground for conclusions relative to the midwife's effect on maternal mortality. In only a few studies have such statistics been assembled but enough material is available to permit of some conclusions as will be seen from the following:

*Pennsylvania:* In Pennsylvania a program of midwife supervision has been carried on in three sections of the state for varying periods of time, Philadelphia, Pittsburgh, and a group of counties in the coal region. Statistics are given below for these three communities.

*Philadelphia:* The program of midwife education and supervision was begun in Philadelphia in 1914 under the State Bureau of Medical Education. The midwives practicing there at that time were of various nationalities, speaking many languages and dialects. With the exception of a few women who were graduates of foreign schools, most of them were ignorant of any real obstetric knowledge and of elemental personal hygiene as well. The Bureau began by requiring all midwives to register and secure a license. At first the requirements were made very lenient but were gradually increased until at the present time applicants for license are required to be graduates of an approved school of midwifery. Four midwife inspectors, physicians with special training in obstetrics, were appointed whose duties were to instruct and supervise all midwives. Each midwife is required to send to her inspector a report of each case within forty-eight hours after delivery, and the inspector is required to visit the patient within a few days after delivery. If any abnormality occurs during labor the midwife must call a physician.

Statistics on the cases attended by the midwives have been kept. From 1914 to September, 1930, they attended 90,926 confinements. Of this number 1,780 were delivered by physicians and in 1281 cases physicians were called in after delivery, leaving a total of 87,865 women attended only by a midwife. All deaths occurring in the entire group, however, are considered here as deaths occurring in the midwives' practice. There were 91,074 live births (including plural births) in the group of cases, and 77 maternal deaths or a rate of 8.5 per 10,000 live births. There were 18 deaths from sepsis or a rate of 2 per 10,000 live births. The lowest maternal mortality rate ever attained in the State of Pennsylvania is 61 per 10,000 live births and the death rate from puerperal sepsis has varied from 24 to 27 per 10,000 live births during the last six years. In general about one-fourth to one-third of the deaths from sepsis follow abortions, and in order to eliminate this factor from the comparison we may reduce the state rate for sepsis by one-third, making it 16 to 18 per 10,000 live births during the last six years as compared with 2 per 10,000 live births for the group of cases attended by midwives.

The place of delivery is of interest, only 34 deliveries taking place in a hospital. One hundred and twenty-four women were sent to the hospital after delivery but in a number of these cases this was due to the fact that the baby needed hospitalization rather than the mother.

**Pittsburgh:** The midwife program in Pittsburgh was begun at about the same time as the one in Philadelphia. The midwives are required to pass an examination given by the Bureau of Medical Education and they are supervised by nurses on the staff of the City Bureau of Child Welfare who visit each case delivered by a midwife. During the seven-year period from 1924 to 1929 midwives attended 7,707 women. In 39 cases physicians were called in to make the delivery. There were but 4 maternal deaths in the entire group or a rate of 5 deaths per 10,000 cases.

**Group of Ten Counties:** In 1922 an intensive program of midwife education and supervision was begun in four counties by the Preschool Division of the Pennsylvania State Department of Health. This work was later extended to and is now being carried on in ten counties. The midwives are instructed in class groups and visited in their homes by physicians on the staff of the Preschool Division. State nurses in these counties visit all women who are attended by midwives and the doctors investigate deaths of mothers or young infants that occur in the midwives' practice. Statistics have been kept and all deaths occurring among patients attended at any time by a midwife have been charged against the midwives' practice even though the case may have been taken over and the delivery conducted by a physician. There have been 30,364 confinements attended by midwives in this

group of counties from 1925 to 1929 inclusive, with 56 maternal deaths or a rate of 18 per 10,000 confinements.

*New Jersey:* In a report made in 1922 by Dr. Julius Levy, Director of the Bureau of Child Hygiene of Newark, New Jersey, and Consultant to the State Bureau of Child Hygiene, he gave statistics for that city for the five-year period 1916-1921 showing that the maternal mortality rate per 1000 live births among cases delivered by midwives had varied from 1.0 to 2.2 during the five years, while that for doctors in private and hospital practice had ranged from 6.0 to 8.7

In the annual report of the New Jersey Bureau of Child Hygiene for 1928 some figures are given on the number of maternal deaths occurring in the midwives' practice. These figures show that of 400 puerperal deaths occurring in the state in that year, midwives were in attendance in only 17 instances or 4 per cent of the total. However, they attended 18 per cent of the births occurring in New Jersey in 1928. The midwives of New Jersey are probably the best trained and most highly organized state group in the country.

*Maryland:* In a study of maternal deaths in the State of Maryland, exclusive of the city of Baltimore for the three years 1927-1929 information concerning each case was secured by a physician who personally interviewed the person who had been in attendance on the case. There were 241 maternal deaths in the three years, 65 of which were associated with an interruption of pregnancy before the seventh month, leaving 176 deaths taking place after seven months' gestation. Of the 176 cases only 8 deaths had been attended by a midwife alone. There were 23 cases where there had been no attendant, an attendant other than a midwife, or where a physician had followed a midwife or other attendant. In 145 or more than four-fifths of the cases a physician had had entire charge.

*States Included in Children's Bureau's Maternal Mortality Study.*—In a study of maternal mortality made in 13 States in 1927 and in the same states and two others in 1928, by the Federal Children's Bureau in cooperation with State Boards of Health and at the request of State Medical Societies, data were secured relative to the attendant at birth. Preliminary figures on this subject have been made available to the committee.

In order to eliminate the factor of abortions which figure largely in physicians' practice, only those deaths following gestation of seven months or over are included in Tables III and IV. From one of these it will be seen that out of 4903 women dying after seven months' gestation or over, for whom the attendant at birth was reported, only 11 per cent were attended by midwives. All cases in which the midwife was in attendance regardless of whether she was followed by a physician or intern are included in this figure.

TABLE III. ATTENDANT AT BIRTH, BY STATES; WOMEN WHO DIED FROM PUERPERAL CAUSES AFTER A PERIOD OF 7 MONTHS OR MORE GESTATION IN 13 STATES IN 1927 AND IN 15 STATES IN 1928. (U. S. DEPARTMENT OF LABOR, CHILDREN'S BUREAU)

| STATE                   | WOMEN WHO DIED FROM PUERPERAL CAUSES AFTER A PERIOD OF 7 MONTHS OR MORE GESTATION |                    |               |          |                                 |          |                     |          |                           |          |                   |                  |     |          |    |              |
|-------------------------|---|--------------------|---------------|----------|---------------------------------|----------|---------------------|----------|---------------------------|----------|-------------------|------------------|-----|----------|----|--------------|
|                         | TOTAL   | ATTENDANT AT BIRTH |               |          |                                 |          |                     |          |                           |          |                   |                  |     |          |    | NOT REPORTED |
|                         |   | TOTAL              | MIDWIFE ALONE |          | FOLLOWED BY PHYSICIAN OR INTERN |          | PHYSICIAN OR INTERN |          | PHYSICIAN FOLLOWING OTHER |          | OTHER OR UNATTEND |                  |     |          |    |              |
|                         |   |                    | NO.           | PER CENT | NO.                             | PER CENT | NO.                 | PER CENT | NO.                       | PER CENT | NO.               | PER CENT         | NO. | PER CENT |    |              |
| Total                   | 4,965   | 4,903              | 550           | 11       | 357                             | 7        | 193                 | 4        | 4,065                     | 83       | 47                | 1                | 241 | 5        | 62 |              |
| Alabama                 | 859   | 838                | 202           | 24       | 165                             | 20       | 37                  | 4        | 602                       | 72       | 2                 | (1) <sup>1</sup> | 32  | 4        | 21 |              |
| California <sup>2</sup> | 310   | 305                | 12            | 4        | 6                               | 2        | 6                   | 2        | 259                       | 85       | 5                 | 2                | 29  | 10       | 5  |              |
| Kentucky                | 428   | 424                | 69            | 16       | 49                              | 11       | 20                  | 5        | 323                       | 76       | 6                 | 1                | 26  | 6        | 4  |              |
| Maryland                | 255   | 252                | 30            | 12       | 10                              | 4        | 20                  | 8        | 209                       | 83       | 6                 | 2                | 7   | 3        | 3  |              |
| Michigan                | 809   | 799                | 18            | 2        | 8                               | 1        | 10                  | 1        | 743                       | 93       | 12                | 1                | 26  | 3        | 10 |              |
| Minnesota               | 334   | 334                | 16            | 5        | 11                              | 3        | 5                   | 2        | 299                       | 90       | —                 | —                | 19  | 6        | —  |              |
| Nebraska                | 200   | 199                | 6             | 3        | 2                               | 1        | 4                   | 2        | 182                       | 91       | 1                 | 1                | 10  | 5        | 1  |              |
| New Hampshire           | 79  | 78                 | —             | —        | —                               | —        | —                   | —        | 75                        | 96       | —                 | —                | 3   | 4        | 1  |              |
| North Dakota            | 106   | 105                | 7             | 7        | 5                               | 5        | 2                   | 2        | 88                        | 84       | 3                 | 3                | 7   | 7        | 1  |              |
| Oklahoma <sup>2</sup>   | 190   | 184                | 10            | 5        | 8                               | 4        | 2                   | 1        | 166                       | 90       | 2                 | 1                | 6   | 3        | 6  |              |
| Oregon                  | 96  | 96                 | 1             | 1        | 1                               | 1        | —                   | —        | 88                        | 92       | 1                 | 1                | 6   | 6        | —  |              |
| Rhode Island            | 113   | 110                | 1             | 1        | 1                               | 1        | —                   | —        | 101                       | 92       | 2                 | 2                | 6   | 5        | 3  |              |
| Virginia                | 566   | 566                | 161           | 28       | 83                              | 14       | 78                  | 14       | 362                       | 64       | 6                 | 1                | 37  | 7        | —  |              |
| Washington              | 169   | 168                | 4             | 2        | 2                               | 1        | 2                   | 1        | 157                       | 93       | —                 | —                | 7   | 4        | 1  |              |
| Wisconsin               | 451   | 445                | 13            | 3        | 6                               | 1        | 7                   | 2        | 411                       | 92       | 1                 | (1) <sup>1</sup> | 20  | 4        | 6  |              |

<sup>1</sup>Less than 1 per cent.

<sup>2</sup>Figures for 1928 only.

TABLE IV. MORTALITY AMONG MOTHERS AFTER SEVEN MONTHS OR MORE GESTATION, BY ATTENDANT AT BIRTH IN STATES INCLUDED IN THE CHILDREN'S BUREAU STUDY REPORTING TEN PER CENT OR MORE OF BIRTHS ATTENDED BY MIDWIVES, 1927-1928<sup>1</sup>

| STATE       | LIVE BIRTHS REPORTED BY PHYSICIANS | DEATHS OF WOMEN ATTENDED AT CONFINEMENT BY PHYSICIANS | MORTALITY RATE PER 10,000 LIVE BIRTHS | LIVE BIRTHS REPORTED BY MIDWIVES | DEATHS OF WOMEN ATTENDED AT CONFINEMENT BY MIDWIVES <sup>2</sup> | MORTALITY RATE PER 10,000 LIVE BIRTHS |
|-------------|------------------------------------|---|---------------------------------------|----------------------------------|--|---------------------------------------|
| Four states | 327,030                            | 1,496   | 46                                    | 98,373                           | 479  | 49                                    |
| Alabama     | 93,843                             | 602   | 64                                    | 37,176                           | 202  | 54                                    |
| White       | 78,625                             | 389   | 49                                    | 6,381                            | 34   | 53                                    |
| Colored     | 15,218                             | 213   | 140                                   | 30,795                           | 168  | 55                                    |
| Kentucky    | 100,312                            | 323   | 32                                    | 18,763 <sup>3</sup>              | 86 <sup>3</sup>  | 46                                    |
| Maryland    | 54,812 <sup>4</sup>                | 209   | 38                                    | 9,152 <sup>4</sup>               | 30   | 33                                    |
| White       | 45,665                             | 150   | 33                                    | 5,288                            | 15   | 28                                    |
| Colored     | 9,143                              | 59  | 65                                    | 3,860                            | 15   | 39                                    |
| Baltimore   | 27,397                             | 114   | 42                                    | 4,370                            | 13   | 27                                    |
| White       | 21,667                             | 75  | 35                                    | 3,760                            | 11   | 29                                    |
| Colored     | 5,730                              | 39  | 68                                    | 970                              | 2  | —                                     |
| Counties    | 27,415 <sup>4</sup>                | 95  | 35                                    | 4,422 <sup>4</sup>               | 17   | 38                                    |
| White       | 23,998                             | 75  | 31                                    | 1,528                            | 4  | —                                     |
| Colored     | 3,413                              | 20  | 59                                    | 2,890                            | 13   | 45                                    |
| Virginia    | 78,063                             | 362   | 46                                    | 33,282                           | 161  | 48                                    |
| White       | 67,683                             | 248   | 37                                    | 10,569                           | 49   | 46                                    |
| Colored     | 10,380                             | 114   | 110                                   | 22,713                           | 112  | 49                                    |

<sup>1</sup>Source: Live births from correspondence with states. Deaths from Children's Bureau study.

<sup>2</sup>Includes deaths of women attended by midwives alone and by midwives followed by physician.

<sup>3</sup>Includes midwives and others.

<sup>4</sup>Includes four births for which color was unknown.

Table IV, giving the mortality rates according to the attendant at birth for the mothers who died in the four states included in the study in which midwives attended 10 per cent or more of the births, shows lower rates for the midwives in two of the states and lower rates for the physicians in two. In the three states for which it was possible to compute rates separately for white and colored women, the mortality for colored women was lowest for the cases attended by midwives. In considering the figures for these four states it should be borne in mind that with few exceptions the so-called midwives are untrained women, and that therefore the figures are not so valuable as a basis of conclusions as are the ones from Pennsylvania and New Jersey.

The above statistics show very favorable maternal mortality rates in the practice of midwives in general, and remarkably low rates for the mothers attended by trained and supervised midwives.

#### NEED FOR MIDWIVES IN THE UNITED STATES

The question next arises, is there a need or demand for midwives in the United States? In answer to this the committee found that as nearly as can be estimated there are approximately 47,000 women in this country who at least act in the capacity of midwives; only a small proportion of them are trained women; some of them attend only two or three cases a year, but others have a large practice. Altogether, nearly 15 per cent of the births in the United States are attended by midwives and others not physicians. By states, the percentage of births attended by midwives varies from none in some states to between 40 and 50 per cent in others. In general the states with the highest percentage of midwife deliveries are the southern states with their large colored population. For the most part, the midwives who serve the colored population are untrained women. These people have to use untrained midwives because trained ones are not available and doctors cannot be afforded even if they are available. The colored midwives have shown themselves eager and willing to avail themselves of such educational advantages as have been offered to them in the way of theoretical class instruction by State Boards of Health.

The problem is not confined entirely to the colored population: in many states midwives attend large numbers of white women at confinement. The reasons for this vary. Custom, sparseness of the population and scarcity of physicians in some states, and economic conditions all play a part. As one State Health Officer in a sparsely settled southwestern state said in speaking of the situation in his state: "We must accept the midwife and attempt gradually to improve her practice. Fewness of physicians and distance people live from them make it impossible for a large part of the population to

employ them, because (1) they are not to be had at any price, and (2) because people cannot pay the fees. A trip of 100 miles at a dollar a mile plus regular obstetric fee would consume more than the entire cash income of a family for a year in many cases. The midwife in this state is an institution dating from prehistoric times. Any attempt to curtail her activities arouses a storm of protest from the Spanish-speaking population which comprises about one-half of the total."

#### CONCLUSIONS AND RECOMMENDATIONS

After considering all the data which have been collected in this study and paying particular attention to the needs in certain sections of the country the committee has the following recommendations to make:

1. The ultimate solution of the problem of good obstetrics lies not in the midwife but in developing a sufficient number of doctors who are well trained in the fundamental principles of obstetrics. The development of such doctors is a direct responsibility of the medical schools.

2. At the present time the midwife is a necessity; she cannot be eliminated in some sections, and every effort should be made by the profession to improve her as rapidly as possible. This improvement should be brought about by local effort. Inasmuch as the midwifery need seems greatest in those states where the economic status is low, aid is needed and would hasten the relief of present conditions.

3. Recognized institutions for the training of midwives, which would assure preliminary education and proper training must be established if present conditions are to be permanently improved. The establishment of such institutions is a local and not a state responsibility. They should be located in sections needing the services of midwives and where they will not conflict with the obstetric teaching work of medical schools. It is felt that midwives trained in or near their own communities will be more likely to stay in those communities where their services are needed.

4. Inasmuch as the need for midwives seems greatest in those communities having a large colored population, it would seem wise to establish institutions for the proper training of colored midwives in the South where a wealth of controllable clinical material is available.

5. There should be provision for postgraduate courses for keeping midwives up-to-date.

6. The committee commends the good work that has been done in recent years by many State Boards of Health and feels that such work should be continued under the same supervision.

7. The committee appeals to the individual State Boards of Health to develop standards for midwife education, supervision, and control. Such standards would regulate the requirements for licensure and

insure adequate supervision by obstetricians, qualified midwives, and public health nurses with midwifery training. These problems are local and can best be solved by local administration.

8. It is suggested that midwifery training would offer the colored trained nurse a larger field of activity.

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