The Transition from Home to Hospital Birth in the United States, 1930-1960

Neal Devitt

During the period from 1930 to 1960 the proportion of births in hospitals increased from 36.9 percent (1935) to 88 percent (1950) to 96 percent (1960), as shown in Table 7. Nationwide statistics on the place of birth were not available until 1935. During this period the campaign to hospitalize birth achieved support from obstetricians, public health officials, upper class women and insurance companies.[41] Also, in 1946, the Hill-Burton Act provided funds for the construction of hospitals in rural areas, creating the possibility of hospital birth for populations which previously had no choice but to give birth in the home.

Many proponents of hospital birth attribute the reduction in obstetric mortality over the past sixty years to the advances in medical care in hospitals. Pearse[54] wrote in 1976:

> In 1940 half the deliveries in the United States were carried out at home, and the maternal mortality was 60 per 10,000 live births. In 1975, with over 99 percent of deliveries in hospitals, maternal mortality is less than 3 per 10,000 live births. This is not purely a coincidence.

A few obstetricians who were familiar with the statistical studies evaluating hospital birth opposed the trend. George Kosmak, editor of the *American Journal of Obstetrics and Gynecology*, wrote in 1938:

> . . . during the last 25 years . . . the hospital has been substituted for the home in from 75 to 80 percent of all cases . . . This undoubtedly has contributed to the ease and comfort of patients, although not necessarily to their safety. The more frequent resort to hospitals has provided a temptation for operative interference, with ultimate results that are often deplorable.[34]

Lay opposition to the hospitalization of birth began in the 1950's with the publication of Ashley Montagu's article "Babies Should be Born at Home" in the *Ladies' Home Journal*.[48] However, vocal, organized lay opposition to hospitalization of normal birth did not appear until the late 1960's. There are now six nationally known organizations of lay and professional people who support home birth.[57] David Stewart of the National Association of Parents and Professionals for Safe Alternatives in Childbirth (NAPSAC) sums up the disenchantment with hospital birth, "Hospitals have never been proven to be the safest place for most mothers to give birth."[13]

In order to address this controversy, we reviewed the historical basis for the hospitalization of birth in the United

Neal Devitt *received an A.B. in Biology from Harvard University in 1977. He will begin medical school this September at Rush Medical College in Chicago. He is a member of Birth Day, a Boston-based home birth organization, and is the father of two children, the second one born at home.*

States, surveying the medical and popular literature from 1930 to 1960 with the following questions in mind: What was the historical basis for the shift to the hospital? How did the home confinement of the past compare to that advocated today? What was the relative safety of birth at home compared to birth in the hospital?

Historical Attitudes toward Home and Hospital Birth

Several changes before 1930 influenced the attitudes of many regarding childbirth. Infant mortality had risen precipitously in the mid-1800's as a result of the related pressures of industrialization and urbanization, which pauperized the working class. In the latter 1800's, in response to the urban reform movement and the growing influence of the infectious theory of disease, infant mortality began a decline which has continued to the present. By 1910, New York City had again attained its infant mortality rate of 1810.[3] Massachusetts in 1910 had just fallen below its infant mortality rate of 1855-59.[26] Thus the decline in obstetric mortality from 1930 to 1960 cannot be understood solely as the result of changes occurring during that period, but must be seen as part of a process that began in the 1870's.

Also prior to 1930, the midwife was virtually eliminated. Midwife-attended births dropped from about 40 percent in 1915 to 10.7 percent in 1935.[32] The remaining practice of midwifery was concentrated largely in the rural South. In 1935 midwives attended only 4.5 percent of all Caucasian births, but 54% of all nonwhite births.[32] As a result, in contrast to Europe, the United States had no class of accoucheurs expertly trained in domiciliary obstetrics.

Between 1920 and 1930 there was a heated controversy between "radical" operative and "conservative" obstetrics. In 1920 De Lee introduced his famous "prophylactic forceps" operation.[11] Others advocated that all babies be delivered by cesarean section to "preserve in its original state the genital tract . . . conducive to a happier marital state."[5] In 1937 Irving[31] wrote in the *New England Journal of Medicine:*

> We have prophylactic forceps, prophylactic version, and even prophylactic rupture of membranes. It is not evident against what the prophylaxis is directed, unless it be against normal childbirth.

Of 223 United States Hospitals surveyed in 1932, 37 percent reported their incidence of forceps deliveries to be 20 percent or higher, ranging up to 81 percent.[68] Due to this rise in forceps deliveries, and other interventions in birth, from 1918 to 1925, infant deaths from birth injuries rose 5 percent per year, an increase of 44 percent for the entire period.[18] Rudolph Holmes, the obstetrician who introduced scopolamine to United States obstetrics, later said, "I wish to God I hadn't done it."[9] He concluded:

> The basic error has crept into the obstetric field that pregnancy and labor are pathologic entities, that childbearing is a disease, a surgical malady which must be terminated by some spectacular procedure. There is too insistent preachment by those who are defending a reign of terror, of promiscuous operative furor, on the argument that women have so degenerated that childbearing is a phase of pathologic anatomy.[28]

Holmes realized that obstetric mortality could be reduced below the rates then obtained without recourse to surgical obstetrics. He cited studies from the eighteenth and nineteenth centuries to show that the best clinics in Europe and the United States had 100 years earlier achieved mortality rates comparable to the obstetric mortality of the United States in 1920.[28] This was also found by Peller[55] who studied obstetric mortality among 8,269 births to the European royal families from 1500 to 1930. For the 1600 births in the 1800's, neonatal mortality (under one month) was 32 per 1000 live births, a rate not equalled in the United States until 1937. For the 811 births from 1850 to 1899, the neo-

natal mortality rate of 17 per 1000 live births bettered the 1966 United States rate. However maternal mortality was unexceptional, largely due to lack of techniques to diagnose or manage placentae abruptio and previa, cephalopelvic disproportion, and hemorrhage

Despite the operative and anesthesia dangers of hospital obstetrics, during the 1930's women increasingly sought hospital births. The belief in a pathologic nature of pregnancy had spread from the medical to the popular consciousness. Science popularizer Paul de Kruif[35] wrote in 1936 that "human reproduction has become the same as a dangerous sickness." Physicians encouraged hospitalization for birth in part because the popular "operative interference" of hospital obstetrics decried by Kosmak was even more dangerous at home. Women who submitted to surgical obstetrics needed effective anesthetics. The popular press celebrated the development of each new childbirth anesthetic and procedure.[10,64] Women were warned that "New methods of painless childbirth can be used only in up-to-date hospitals."[67]

Obstetricians saw anesthetics and hospital based obstetrics as tools to slow what they thought was an alarming decline in the birth rate of the upper classes.[23,39,69] One enthusiastic father[44] wrote that widespread use of scopolamine-nembutal anesthesia would remove women's dread of labor so that more children would be "born in the white collar and professional groups where at present the low birth rate is causing grave alarm."

Physicians also sought to limit deliveries to the hospital to ease the demand of obstetrics on their time. Between 1900 and 1935 the elimination of the midwife, and the reduction in the number of physicians following the publication of the Flexner report on medical education in 1910, increased the obstetric case load of physicians. The draft of physicians into the military for World War Two, during a period of increasing birth rate, further strained the remaining civilian physicians, a group already complaining of exhaustion and fearing heart attacks.[1] Since hospitalization of deliveries decreased the time spent by the physician on each case, Falls[16] concluded in 1943 that "It should be our aim . . . to encourage as far as possible the entry of obstetrical cases to the hospital services."

Paradoxically, in contrast to the popular demand for hospital care and anesthetic oblivion,[59] several recent studies have found that about 80 percent of women who gave birth both at home and in the hospital prefer birth at home.[22,37,53]

How did Home Confinement of the Past Compare to that of Today?

From 1930 to 1960 children were born at home usually because the parents were too poor to afford a hospital birth, according to Olson,[52] O'Brien[51] and the New York Academy of Medicine,[50] or because they lived in an area where there was no hospital. Many of these poor women were ill-nourished. "Poor nutrition [had] been a problem from the beginning" of the New York Maternity Center Association Clinic.[36] The women often were in poor health or had a bad obstetric history. Kooser[33] described the population served by the Frontier Nursing Service of Kentucky:

> The majority have parasitic infestation [such as] ascariasis and *Nectar americanus*. Most of them show varying degrees of endemic thyroid disease and low-grade dental infections. The incidence of gonorrhea and syphilis is very low . . .

He also reported that 16 percent of the women had secondary anemia with hemoglobins of 8 mg. or less. The normal is 14 mg. Steele[60] reported that 13 percent of the first 4000 women attended by the Frontier Nursing Service midwives exhibited symptoms of pre-eclampsia. 29 percent had had six or more children. Laird[36] reported that 36.4 percent of the clients attended at home by the Maternity Center Association in New York showed secondary anemia. In addition 5 percent of the mothers attended at home were in their tenth pregnancy and 6.3 percent tested positive for syphilis.

In addition to the poverty and pre-existing disease of the mothers, many of these women who gave birth at home between 1930 and 1960 were at risk for complications of birth. Miller[47] discovered that the midwives of the Catholic Maternity Institute in Santa Fe successfully attended 4 women at home after previous Cesarean sections. The Institute also reported that, of a series of 2303 home births, 24 percent of the mothers were grand multiparas, having had six or more children.[47] The New York Maternity Center reported that, in a series of 6000 births, 55 mothers with multiple pregnancies were delivered at home.[36]

The condition of the homes in which the children were born was often much worse than the health of the mothers. The midwives of the Catholic Maternity Institute, for example, often attended births in homes with no electricity or running water.[17] Byington[8] described the house of an immigrant steel worker in 1910, probably not different in degree from the tenements where the poor of the 1930's gave birth:

> [The lodging house] consisted of two rooms, one above the other. . . . In the kitchen was the wife of the boarding boss getting dinner . . . In these two rooms besides the boarding boss . . . his wife and two babies, lived 20 men.

A 1942 survey of 15 medical schools which conducted home delivery services revealed that only 10 investigated the home beforehand "to determine its suitability as a place for delivery,"[40] perhaps because their clients could not have afforded any alternative. Buxbaum[6] described the birthplaces of Chicago's poor:

> . . . the homes are usually of the worst type in which to do good aseptic obstetrics. Oftentimes our doctors are compelled to work without the aid of hot water, heat or even light, and the sanitary conditions are indescribable.

The physician who attended home births was often poorly trained in obstetrics, although the graduates of the Chicago Maternity Center Clinic were exceptionally well-trained. In 1931 the Council on Medical Education of the A.M.A. reported that of 1,491 interns in approved teaching hospitals, 334 graduated without having delivered any infants, and 235 had not even observed deliveries; more than 200 had attended fewer than 10 deliveries and only 70 had attended 50 or more.[4]

The survey of home delivery services of 15 medical schools in 1941[40] revealed that at two schools medical students usually were not supervised even for their first delivery at home, while at 10 schools the student was supervised by an intern or resident for his or her first and perhaps second delivery. "The work of the students during the immediate puerperium was characterized in nearly every school by the casual care given the newborn . . ." The author concluded:

> Students assigned to home delivery service are receiving their first practical obstetric training. For a school to have this take place under the worst possible circumstances, with a minimum of equipment, inadequate facilities for efficiently carrying out good aseptic technique, and little or no supervision at any time seems nothing short of criminal . . . Is it any wonder that almost all physicians have a false feeling of confidence that they are perfectly able to deliver almost any woman?

In spite of the frequent poor health and high risk conditions of women who delivered at home in the years between 1930 and 1960, and in spite of poor home conditions and lack of adequate training of doctors who did home deliveries, in many parts of the country birth attendants did not have access to a hospital for emergencies. The Chicago and New York Maternity Centers had very efficient emergency hospitalization procedures, however.[42] Elsewhere, lack of hospital back-up and the current popularity of operative obstetrics resulted in many operations and complicated deliveries carried out at home. Garrison in 1943 stated that he had done more than 2500 forceps deliveries and 1000 versions

at home.[20] In a review article on home obstetrics, Buxbaum of the Chicago Maternity Center advised:

> Forceps delivery, version, breech extraction, manual removal of the placenta, uterine tamponade and primary perineorrhaphy can readily and safely be performed in the home.[7]

Where a hospital was not available for emergencies, even cesarean sections were performed at home. Plass[56] reported in a study of 56,000 home births, that 111 cesarean sections and one craniotomy had been done at home births. Inhalation anesthesia was freely used at home births as well. In 6 of the 15 medical school home delivery services surveyed by Makepeace[40] in 1941, the medical student routinely gave inhalation anesthetics, while at another 6 schools, the student occasionally administered these anesthetics. One attendant[21] reported the use of open drop ether and scopolamine at home, and another,[46] chloroform. Buxbaum[7] advised that "local anesthesia is the anesthesia of choice, but ether can be employed using a tea strainer as a mask." Beard[2] found that his clients could not afford "to pay fees commensurate to having an anesthetist or nurse in attendance, so we depend upon members of the family . . . to drop chloroform."

Couples who have a home birth today choose it because they perceive it to have medical and/or socio-psychological advantages over hospital birth. The few studies of home birth populations[25,45] found the couples to be almost entirely white, middle class, well-nourished and often college educated. Also in contrast to home birth between 1930 and 1960, the attendants today, although composed not just of doctors and nurse-midwives, but mainly of lay midwives, carefully screen their clients to insure that only healthy women who are not likely to develop complications are followed during home birth.[13,14] Although it is often difficult for lay midwives to obtain, hospital back-up is almost uniformly arranged, in case of complications of home birth or early postpartum period. Except for occasional episiotomies, no operations are now performed at home births. High risk conditions such as premature birth or low birth weight babies are carefully screened and not delivered at home. Low birth weight accounts for 66 percent of our perinatal mortality[30] and is largely associated with poverty and multiparity.[58] 75 percent of the recent reduction in neonatal mortality has been attributed to reduction of the incidence of low birth weight rate, and *not to changes in obstetric care.*[38] Diabetes, hypertension, toxemia, multiple gestation, and intercurrent illness indicate hospitalization for birth. Drugs used during home births today are limited to local anesthetics, oxytocin after the birth of the baby, vitamin K, silver nitrate, and antibiotics if needed.[13]

Safety of Home Birth Compared to Hospital Birth from 1930 to 1960

Because of the frequent poverty and resultant poor health of many women who gave birth at home between 1930 and 1960, and because of the poor condition of their homes, the poor training and "operative furor" of many of their attendants, and often the impossibility of hospital emergency care, one would expect that maternal and perinatal mortality would be high. This is not shown by the literature of the period.

A number of studies completed between 1930 and 1960 attempted to determine the relative safety of home and hospital birth. Each of the studies was either a crude comparison of the mortality rates of a local home birth population to the national rates or to a local hospital birth population. Since the mean socio-economic status of the home birth population appears to have been below that of the hospital populations, and since socio-economic status is directly related to successful obstetric outcome,[56] the obstetric outcome for women who gave birth at home would have to have been matched to that of hospitalized parturients by economic status, and age, parity, and health status as well for an accurate comparison. Since this was not done, few

Table 1

Maternal Mortality by Place of Birth–Minneapolis

		Maternal Mortality/1000 live births Home				Maternal Mortality/1000 live births Hospital			
	Live Births	Home %	Total	Sepsis	Hemorrhage	Hosp %	Total	Hosp Sepsis	Hemorrhage
1925	9423	28	3.1	1.9	0	72	3.5	0.3	0.4
1926	9192	25	3.0	0.9	0	75	5.6	1.4	0.4
1927	8620	23	2.5	2.0	0	77	2.5	0.7	0.6
1928	8348	21.5	5.0	3.4	0	78.5	3.8	0.4	0.9
Total	35583	24.2	3.4	2.0	0	75.8	3.9	0.74	0.59

From Holmes RW: Maternal Mortality. JAMA 93:1440-47, 1929.

solid conclusions can be based on the data presented.

Also, reliable statistics were not kept by individuals who attended home births, in contrast to the meticulous records of the 3 established midwifery services–Maternity Center Association, Frontier Nursing Service, Catholic Maternity Institute of Santa Fe–and the home birth services conducted by medical schools, such as the Chicago Maternity Center, and Boston Lying-In.

Holmes[29] presented data (Table 1) comparing home and hospital birth in Minneapolis from 1925 to 1928. The difference between home and hospital for the total maternal deaths in 1928 is not significant (p value = .48) nor is the difference in the total death rate for all four years significant (p value = .50). However the rate of puerperal sepsis following delivery in the hospital was significantly lower than at home (p value = .003). Thus in Minneapolis sepsis mortality was more prevalent at home and hemorrhage more frequent in the hospital so that the overall maternal death rate did not differ significantly between the two places of birth.

The most famous and controversial[43] comparison of the relative safety of home birth was the New York Academy of Medicine study of maternal mortality in New York City in the early 1930's (Table 2). The total maternal mortality rate, the rate of maternal mortality from puerperal septicemia, and the rate of mortality from hemorrhage were all significantly lower at home (all p values less than .0001).

Since "domiciliary obstetrical practice [was] largely confined to the foreign born and economically less fortunate,"[50] and since "the general puerperal death rate among foreign born women [was] considerably higher than that among the native born,"[50] the lower maternal mortality rate at home is surprising. The study committee cautioned that midwives and general practitioners, who attended the bulk of the home births, generally had less complicated cases than the obstetricians who confined their practice to the hospitals. But the committee thought it improbable that one-half of the obstetricians' cases were abnormal "as would be necessary if the rate were to be lowered to that of the general practitioners."[50] The committee concluded:

Table 2

Maternal Mortality in New York City 1930-1932

Place of birth	Total births	%	Maternal deaths	MMR/ 1,000	Sepsis deaths/ 1,000	Hemorrhage deaths/ 1,000
Home	102,105	29.3	189	1.9	0.9	0.26
Hospital	246,205	70.7	1,111	4.5	1.6	0.61
Total	348,310	100	1,300	3.7	1.5	0.51

MMR: maternal Mortality rate

from New York Academy of Medicine: *Maternal Mortality in New York City*. The Commonwealth Fund, New York, 1933.

Table 3
Iowa: Stillbirths by Place of Birth

Place of birth	Total births	%	Stillbirths %	Operative deliveries %	% Stillbirths Spontaneous births only
A. Communities greater than 10,000					
Home	11,858	39.2	2.7*	7.5	2.0†
Hospital	18,393	60.8	3.9*	23.1	2.5†
Total	30,251	100	3.4	17	2.3
B. Communities less than 10,000					
Home	49,542	80.6	2.7	8,1	2.0*
Hospital	11,945	19.4	2.7	14	1.2*
Total	61,487	100	2.7	9.3	1.6

*significant, p less than .0001
†significant, p = .009

from Plass ED, Alvis HJ: A Statistical Study of 129,539 Births in Iowa. Am J Ob Gyn 28:293-305, 1934.

> . . . there can be little doubt that the ready facilities of a hospital tend to cause casual operative interference while conditions at home preclude operation unless there are urgent indications . . . [T]he patient who is delivered at home is subjected to fewer potential sources of danger . . . It would seem that the present attitude toward home confinements requires re-examination, and a program looking toward an increase in the practice of domiciliary obstetrics deserves careful investigation.

Plass and Alvis[56] studied the incidence of stillbirth among 129,500 births in Iowa (Table 3) and concluded that:

> The significant increase in the stillbirth rate in urban hospitals over that of other groups is probably related to the increased incidence of operative delivery.

While, overall, the stillbirth rate was lower for home than for hospital, women who had a spontaneous hospital birth had a significantly lower stillbirth rate than their counterparts at home in the smaller communities. This relationship is reversed in the larger communities.

Hannah[24] reviewed 1809 home births compared to 436 hospital births on the Baylor Hospital charity service in 1939 (Table 4). The stillbirth rate was significantly lower at home (p value less than .0001) while the neonatal death rates did not differ significantly. Operative interference in birth was much more common in the hospital. Hannah attributed the better results at home to the higher proportion of multiparas delivered there and the lesser degree of sedation used at home.

Stout,[61] of Johns Hopkins, studied the incidence of puerperal infection among women who had spontaneous multiparous births in the home and in the hospital charity service there. In his first series (819 deliveries) he found a maternal infection rate of 4.4% in the hospital and 0.8% at home. In the second series (875 births), when the temperature of the woman at home was taken in the afternoon in addition to a morning reading, the rate of infection was 4.9% at the hospital and 8.4% at home (significant, p value = .044). There was no difference in the severity of infection between the two groups. However the rate of mortality from puerperal infection was not different between home and hospital groups. Dowling,[12] in a survey of maternal mortality in Alabama, found no significant difference (p = .52) in the rate of death from puerperal sepsis: a mortality rate of 8.4/1000 live births for 16,633 home deliveries and 9.0 per 1000 for 22,728 hospital births.

Irving[31] examined maternal mortality in Massachusetts according to place of birth (Table 5). While the maternal death rate was significantly higher at home than in maternity hospitals or than in all hospitals, Irving attributed the poor record of home deliveries in Massachusetts

Table 4
Charity Service: Baylor Hospital

Place of birth	Total births	PMR/ 1000	Stillbirths/ 1000	NMR/ 1000	Maternal infection	Episiotomy	Forceps
Home	1809	38	2.8	23.8	5.2%	5.3%	10.3%
Hospital	436	78	27.5	22.9	4.8% *	74.3%	63.8%
Total	2245	46	7.6	23.6		18.7%	20.7%

PMR: Fetal, intrapartum, and neonatal deaths
NMR: Neonatal mortality rate
* Charity and private patients

from Hannah CR, et al: A Review of 4,000 Consecutive Deliveries in the Baylor Out-patient and Hospital Service. Tex St J Med 35:535-40, 1939.

to inadequate care delivered by physicians or to unnecessary intervention in labor. In contrast, the home delivery service of the Boston Lying-in Hospital, which was conducted by supervised fourth year medical students, had a mortality rate far below that of any class of hospital. This home delivery service found it necessary to transfer only 2.1% of its clients to the hospital.[31]

Tucker and Benarm[66] reported the results of 12,597 home deliveries attended by the physicians of Chicago's Maternity Center Clinic from 1932 to 1936. 15% of the women had not received prenatal care at the clinic and were seen for the first time in labor. 4.4% of the women were eventually hospitalized. 18 women died, 5 of whom were seen for the first time in labor. The maternal mortality rate was 14.2 per 10,000 live births at a time when the national rate was 59. If the 5 deaths from tuberculosis and the 2 from pneumonia were excluded, the corrected mortality rate would have been 9/10,000, a rate finally achieved by the United States as a whole in 1949–13 years later.

Laird[36] reported the results of 5,765 births attended by the nurse-midwives of the Maternity Center Clinic in New York from 1931 to 1951. 13.5% of the women were eventually transferred to the hospital. 5 maternal deaths gave the Center a maternal mortality rate of 8.8 per 10,000 live births (compared to a U.S. rate of 31.7 in 1941) and a neonatal death rate of 15 per 1000 live births. Laird emphasized that

> In this group there was a high incidence of poor nutrition, poor home conditions, low income, unmarried mothers, and high parity. In spite of this, our neonatal death rate is much lower than the rate for the whole clinic area.

The final report of the Maternity Center home delivery service compared the record of the clinic to the mortality rates of the New York Hospital and concluded that the Maternity Center Association Clinic had achieved "results in maternal and perinatal mortality comparable to a fine teaching hospital."[15]

Table 5
Maternal Mortality in Massachusetts

Place of Birth	Live Births	Maternal Deaths/1000 Live Births	
Maternity Hospital	9,873	2.9	
General and Other	74,697	4.9	
All Hospitals	84,570	4.6	1934-1935
Home	42,191	5.5	
Boston Lying-In Total	10,590	3.5	1933-1935
Boston Lying-In Out-patient	3,301	0.3	

from Irving FC: Maternal Mortality at the Boston Lying-In Hospital in 1933, 1934, and 1935. N England J Med 217:693-95, 1937.

For the first 4,000 deliveries attended by the nurse-midwives of the Frontier Nursing Servcie from 1925 to 1940, Steele[60] reported a maternal mortality rate of 7.6/10,000 compared to a U.S. rate of 62/10,000 in 1933. The clients of the Frontier Nursing Service had a stillbirth rate of 30.2/1000 pregnancies and a neonatal mortality rate of 30.3/1000 live births compared to a U.S. rate of 34 at the midpoint year. 7.3% of the women required hospitalization. However the rate of hospitalization increased during the series to 12.3% in the fourth 1000 births. The episiotomy rate was 0.4%.

In contrast to the relatively favorable reports of homebirth presented above, Newberger[49] found that both the fetal and maternal death rates were significantly higher at home than in the hospital in downstate Illinois (Table 6). However the meaning of the difference in maternal mortality cannot be settled without knowing the place of occurrence of the 27 deaths due to criminal abortion and ectopic pregnancy since there were only 30 maternal deaths at home. With 94% of all births taking place in the hospital, the few women remaining at home were more likely to be poor, and in poor health. Record keeping by individuals doing home deliveries was also poor, compared to the careful statistics kept by the medical school home birth services and the 3 midwifery home birth services of the period.

normal labor. The recent claim that hospitalization, *per se*, is pathogenic in normal birth, cannot be evaluated from the information presented in these studies. However, Tew[63] has recently shown that in Britain the stillbirth rate is lower at home even for supposed high risk births. She concludes:

> The conventional apology for this wide disparity is that a far greater proportion of births at high risk, with inevitably high death rates, takes place in consultant hospitals than at home . . . [Even if one assumed] that 20 percent of hospital births had three or more high risk characteristics and had the very high average stillbirth rate of 50.0 per 1000, the stillbirth rate for the remaining 80 percent, with less than three high risk characteristics, would have been . . . one third higher than the home rate . . . [given the actual stillbirth rates of 14.8/1000 (hospital) and 4.5/1000 (home) in Britain for 1969-1973.]

Particularly at the New York Maternity Center and the Frontier Nursing Service, the relative safety of home birth should not be attributed solely to the poor quality of hospital obstetrics but also to the skill and dedication of nurse-midwives trained to understand normal childbirth and familiar with the home conditions of their clients.

Table 6

Maternal Mortality in Downstate Illinois

	Live births	% at home	Fetal deaths/1000 live births		Maternal deaths/10,000 live births	
			Home	Hospital	Home	Hospital
1948	103,777	6.9	38	16	17	8
1949	107,015	5.3	35	15	18	7
1950	107,464	4.2	37	14	18	6

from Newberger C: Maternal Mortality in Downstate Illinois. JAMA 149:328-30, 1952. Used with permission of the JAMA. "Copyright 1952, American Medical Association"

The above studies were so different in design and population and so limited in analysis that few generalizations can be made from them. It is evident that much of the poor record of hospital births was due to the greater tendency of hospital-based physicians to interfere in

Table 7 presents data on parallel declines in home birth and obstetric mortality from 1935 to 1961. In order to quantify any causal relationship between parallel declines, correlation coefficients are computed for annual percent changes in maternal mortality and hospitalization

Table 7

	MMR/ 10,000	% Decline	NMR/ 1,000	% Decline	Hospital Births %	% Increase
1935	58.2		32.4		36.9	
1936	56.8	2.4	32.6	+0.6	40.9	10.8
1937	48.9	13.9	31.3	4.0	44.8	9.5
1938	43.5	11.0	29.6	5.4	48.0	7.1
1939	40.4	7.1	29.3	1.0	51.1	6.5
1940	37.6	6.9	28.8	1.7	55.8	9.2
1941	31.7	15.7	27.7	3.8	61.2	9.7
1942	25.9	18.3	25.7	7.2	67.9	10.9
1943	24.5	5.4	24.7	3.9	72.1	6.2
1944	22.8	6.9	24.7	0	75.6	4.9
1945	20.7	9.2	24.3	1.6	78.8	4.2
1946	15.7	24.3	24.0	1.2	82.4	4.6
1947	13.5	14.0	22.8	5.0	84.8	2.9
1948	11.7	13.3	22.2	2.6	85.6	0.9
1949	9.03	22.8	21.4	3.6	86.7	1.3
1950	8.33	7.8	20.5	4.2	88.0	1.5
1951	7.50	10.0	20.0	2.4	90.0	2.3
1952	6.78	9.6	19.8	1.0	91.7	0.8
1953	6.11	9.9	19.6	1.0	92.8	1.2
1954	5.24	14.2	19.1	2.6	93.6	0.9
1955	4.70	10.3	19.1	0	94.4	0.9
1956	4.09	13.0	18.9	1.0	95.1	0.7
1957	4.10	+0.2	19.0	+0.5	95.7	0.6
1958	3.76	8.3	19.5	+2.6	96.0	0.3
1959	3.74	0.5	19.0	2.6	96.4	0.4
1960	3.71	0.8	18.7	1.6	96.6	0.2
1961	3.69	0.5	18.4	1.6	96.9	0.3

MMR: maternal mortality rate
NMR: neonatal mortality rate

Maternal mortality rates from *Historical Statistics of the United States: Colonial Times to 1957.* GPO, Washington, D.C., 1960.

and Garfinkel J, et al: Infant, Maternal, and Childhood Mortality in the United States, 1968-1973. DHEW #75-5013, 1975.

All other data from Trends in Infant and Childhood Mortality, 1961. Children's Bureau Statistical Series #76. GPO, Washington, D.C., 1964.

of birth (R = -0.26, p = 0.2, not significant). The figures do not prove that hospitalization has no impact upon obstetric mortality, but simply that any causal relationship is not shown in the nationwide data for the years 1930 to 1960.

Those in medicine and public health have justified hospitalization and other medical intervention in childbirth by pointing to declines in perinatal mortality which were concurrent with increases in whatever surgical or technological practices were in vogue. However, perinatal mortality is largely dependent on social factors, especially nutrition and standard of living, rather than birth practices. Many social changes between 1930 and 1960 worked to reduce obstetric mortality. The New Dealers[62] emphasized that ". . . the decrease in both maternal and infant mortality rates have been greater during the 5 years of Federal and State cooperation under the Social

Security Act than during the 5 previous years." Another reason for the decline in obstetric mortality in the mid-thirties was the introduction of sulfanilamide to obstetrics in 1936.[31] The availability of penicillin for clinical practice in the early forties may have also contributed to the decline in obstetric mortality. In any period of very low birth rate, such as the 1930's and the 1970's, perinatal mortality can be expected to decline due to the reduction of multiparity and thus low birth weight babies. Both the low birth rate periods of the 1930's and the 1970's have been periods of rising obstetrical intervention, the early period being one of forceps and anesthesia, and the present period one of fetal monitoring and cesarean section. It is fascinating that in both cases, falling perinatal mortality due to lower birth rates, both stimulated increased obstetrical intervention, and was cited as its justification.

Conclusion

While the techniques of modern hospital obstetrics have saved the lives of many women and infants from genuine pathologies of birth, the literature of obstetrics in the United States from 1930 to 1960 does not show that healthy women with normal pregnancies benefitted from hospital obstetric care. Although statistically inconclusive, most of the comparative studies of home and hospital birth from the period, show that the incidence of birth injuries and obstetric mortality was greater in hospitals, probably due to interference in the normal birth process. These studies suggest that, despite the poverty, ill health and frequent high risk conditions of women who delivered at home, and despite the frequent poor training of attendants, and the operations and anesthesias used—often in crowded unsanitary settings—home birth was not less safe than hospital birth from 1930 to 1960.

REFERENCES

1. Bartholomew RA: Utopian Obstetrics. Am J Ob Gyn 44:553-58, 1942.
2. Beard HE: Home Obstetrics. W Virginia Med J 36:18-22, 1940.
3. Bolduan C, Weiner L: Infant Mortality in New York City One Hundred Years Ago. J of Pediatrics 7:55-9, 1935.
4. Boyd MS: Why Mothers Die. Nation 132: 293-5, 1931.
5. Brown WE: The Trend of Modern Obstetrics. J Iowa St Med Soc 20:550-3, 1930.
6. Buxbaum H: Out-patient Obstetrics: A Review of 6,863 Cases. Am J Ob Gyn 31: 409-19, 1936.
7. Buxbaum H: Obstetrics in the Home. Surg Clinics of N Am 23:45-58, Feb 1943.
8. Byington M: *Homestead, the Households of a Mill Town.* Russell Sage Foundation, 1910, reprinted: University of Pittsburgh, 1974.
9. Childbirth: Nature vs. Drugs. Time 27:32-36, May 25, 1936.
10. Childbirth without Pain. Newsweek 21:65, Feb 1, 1943.
11. DeLee JB: The Prophylactic Forceps Operation. Trans Am Gyn Soc 45:66-83, 1920.
12. Dowling JD: Points of Interest in a Survey of Maternal Mortality—Alabama. Am J Public Health 27:803-08, 1937.
13. Epstein JL, et al: A Safe Homebirth Program that Works. in Stewart L, Stewart D (eds.): *Safe Alternatives in Childbirth.* NAPSAC, Chapel Hill, 1976.
14. Ettner FM: Study of Obstetrics. 1975. *Ibid.*
15. Faison JB: Report of the Maternity Center Association Clinic, 1952-1958. Am J Ob Gyn 81:395-402, 1961.
16. Falls FH: Effect of the War on the Maternal Welfare Program in Illinois. Ill J of Med 83:259-63, 1943.
17. Fell F: A Midwifery Delivery Service. Am J Nurs 45:220-22, 1945.
18. Frankel LK: The Present Status of Maternal and Infant Hygiene in the United States. Am J Public Health 17:1909-39, 1927.
19. Garfinkel J, et al: Infant, Maternal, and Childhood Mortality in the United States, 1968-1973. DHEW #75-5013, 1975.
20. Garrison JE: Delivering Babies at Home. J Med Assoc Alabama 12:228-31, 1943.
21. Giletto BJ: Management of Home Deliveries. Med Clinics of N Am 29:1525-37, 1945.
22. Goldthorp WO, Richman J: Maternal Attitudes to Unintended Home Confinement. The Practitioner 212:845-53, 1974.
23. Guttmacher AF: Obstetrics Today and Tomorrow. Bull NY Acad Med 19:555-62, 1943.
24. Hannah CR, et al: A Review of 4,000 Consecutive Deliveries in the Baylor Out-patient and Hospital Service. Tex St J Med 35: 535-40, 1939.

25. Hazell LD: Birth Goes Home. Catalyst Publishing Co., Seattle, 1974.
26. Historical Statistics of the United States: Colonial Times to 1957. GPO, Washington, D.C., 1960.
27. Holmes B: The Hospital Problem. JAMA 47:318-20, 1906.
28. Holmes RW: The Fads and Fancies of Obstetrics. Am J Ob Gyn 2:225-37, 1921.
29. Holmes RW: Maternal Mortality. JAMA 93: 1440-47, 1929.
30. Hunter Jones O: Cesarean Section in Present Day Obstetrics. (Editor's note) Ob Gyn Survey 32:220-24, 1977.
31. Irving FC: Maternal Mortality at the Boston Lying-in Hospital in 1933, 1934, and 1935. N England J Med 217:693-95, 1937.
32. Jacobson PH: Hospital Care and the Vanishing Midwife. Millbank Memorial Fund Quarterly 34:253-61. 1956.
33. Kooser JH: Rural Obstetrics: A Report of the Work of the Frontier Nursing Service. Southern Med J 35:123-31, 1942.
34. Kosmak GW: The Favorable and Unfavorable Results from the Practice of Modern Obstetric Trends and Procedures. Mississippi Doctor 16:1-11, 1938.
35. de Kruif P: Why Should Mothers Die? Ladies' Home J 53:8+, Mar 1936.
36. Laird MD: Report of the Maternity Center Association Clinic, New York, 1931-1951. Am J Ob Gyn 69:178-84, 1955.
37. Lee F, Glasser J: The Role of Lay Midwifery in Maternity Care in a Large Urban Area. Public Health Rep 89:537-44, 1974.
38. Lee K, et al: Determinants of Neonatal Mortality. Ob Gyn Survey 32:153-55, 1977.
39. Letourneau CU: Hospitals and the Prevention of Neonatal Mortality. JAMA 153: 476-79, 1953.
40. Makepeace AW: The Home Delivery Service. The Child 7:36-9, 1942.
41. Maternal Mortality Lowest where Hospital Confinement is most Frequent. Statistical Bull, Metro Life Ins Co 26:6-8, 1945.
42. Maternity Center Association—New York: Preparing for a Delivery in the Home. Am J Nursing 40:1323-27, 1940.
43. Maternity Death Rate. News Week 2:27, Nov 25, 1933.
44. McEvoy JP: Our Streamlined Baby. Readers' Digest 32:15-18, 1938.
45. Mehl LE, et al: Complications of Home Birth. Birth and the Family J 2:123-31, 1975.
46. Miller DG: Home Obstetrics. New Orleans Med and Surg J 101:167-71, 1949.
47. Miller E: Grand Multiparas. Ob Gyn 4:418-25, 1954.
48. Montagu MFA: Babies Should Be Born at Home. Ladies' Home J 72:52+, Sep 1955.
49. Newberger C: Maternal Mortality in Downstate Illinois. JAMA 149:328-30, 1952.
50. New York Academy of Medicine: *Maternal Mortality in New York City*. The Commonwealth Fund, New York, 1933.
51. O'Brien J: Factors in Obstetric Care. N Y St J of Med 43:236-44, 1943.
52. Olson RM: A Home Delivery Service. Am J Nursing 42:877-8, 1942.
53. Pathak UN: The Place for Confinement: Home or Hospital. Brit J Clinical Practice 14:111-14, 1960.
54. Pearse WH: The Image of the Obstetrician Gynecologist. Ob Gyn 48:611-12, 1976.
55. Peller S: Studies on Mortality Since the Renaissance. Bull Hist Med 13:427-61, 1943.
56. Plass ED, Alvis HJ: A Statistical Study of 129,539 Births in Iowa. Am J Ob Gyn 28: 293-305, 1934.
57. Proc of the 1975 Conference on Women and Health. (Chapter on Resources, p. 57) Boston Women's Health Collective, Box 192, W. Somerville, Ma. 02144.
58. Rider RV, et al: Associations between Premature Birth and Socio-economic Status. Am J Public Health 45:1022-28, 1955.
59. Smith HH: Back to the Midwife? New Republic 79:207, 1934.
60. Steele EJ: Report on the Fourth Thousand Confinements. Quart Bull Frontier Nurs Serv 16:4-13, 1941.
61. Stout ML: Incidence of Puerperal Infection. Am J Ob Gyn 29:588-90, 1935.
62. Tandy ED: Maternal and Infant Mortality in 1939. Child 5:189-96, 1941.
63. Tew M: Where to be Born. New Society 120-21, Jan 20, 1977.
64. Todd CL: Easier Motherhood. Ladies' Home J 47:9+, Mar 1930.
65. Trends in Infant and Childhood Mortality, 1961. Children's Bureau Statistical Series #76. GPO, 1964.
66. Tucker B, Benarm H: Maternal Mortality of the Chicago Maternity Center. Am J Public Health 27:33-36, 1937.
67. Vogue Answers Questions on Childbirth. Readers' Digest 43:33-35, Sep 1943.
68. White House Conference on Child Health Protection: Forceps and Cesarean Section. *Fetal, Newborn and Maternal Mortality*. D. Appleton-Century Co., New York, 1932.
69. The Week. New Republic 66:339-40, 1931.