

TYPE OF DELIVERY ASSOCIATED WITH SOCIAL AND DEMOGRAPHIC, MATERNAL HEALTH, INFANT  
HEALTH, AND HEALTH INSURANCE FACTORS: FINDINGS  
FROM THE 1972 U.S. NATIONAL NATALITY SURVEY

Paul J. Placek, National Center for Health Statistics

Five types of delivery (spontaneous, forceps, Cesarean section, breech, and other) are examined according to a wide variety of social and demographic, maternal health, infant health, and health insurance characteristics. Data are from the 1972 National Natality Survey, a 1 in 500 survey of legitimate live births linked with a mail followback survey of the mothers, physicians, and hospitals associated with those births. Maternal health factors include previous fetal loss, underlying medical conditions, complications of pregnancy, earliness and amount of prenatal care, complications or unusual conditions noted during each trimester, complications of labor, anesthetics used, duration of labor, pre- and post-delivery hospital stay, and postpartum care information. Infant health factors include period of gestation, birthweight, Apgar score, sex, multiple births, congenital malformations and anomalies, birth injuries, unusual resuscitative efforts required, discharge examination information, and whether the infant was discharged from the hospital alive. Health insurance characteristics of the mother include the amount of coverage, if any, for prenatal care, hospital bill, and doctor bill.

Of 2,818,000 legitimate live hospital births occurring in the United States in 1972, 52.7% were spontaneous, 36.8% were forceps, 7.3% were Cesarean section, 2.3% were breech, and 0.9% were other deliveries. Since national data on type of delivery has not been heretofore available, this study both provides baseline data and examines relationships not previously studied.

The 1972 National Natality Survey was designed by the National Center for Health Statistics to extend the scope of data which are collected through the registration system, to gather information comparable to that collected in previous U.S. national natality surveys to assess trend changes in birth related matters, and to evaluate the accuracy and completeness of selected items on the live birth certificate as reported through the vital registration system. Birth certificate records for 1972 from all 54 birth registration areas of the U.S. were divided into 6505 groups of 500 certificates each, and one certificate was selected from each of these 6505 primary sampling units. Births which were reported to be illegitimate (N=555) or inferred to be illegitimate by comparisons of names of father, mother and baby (N=261) were eliminated from this study. The remaining 5689 certificates comprised the sample. Additional information was secured as follows: (1) all mothers named on those certificates were mailed a questionnaire to obtain additional social and demographic information, a complete pregnancy history, detailed information about prenatal care received during the last pregnancy, and the mother's expectations of additional births; (2) if the attending physician and the hospital where the birth occurred had

different addresses on the birth certificate, the physician was mailed a questionnaire to obtain medical information about the mother and her infant. Also, the hospital was mailed a questionnaire to assess additional medical information about the mother and her infant; (3) if the attending physician and hospital of birth had the same address, the hospital was sent one longer questionnaire which gathered all the same information as the physician and hospital questionnaire just discussed in section (2); (4) if the place of delivery was not a hospital but a physician was the attendant at birth, only the physician questionnaire discussed (2) was mailed. NNS data are weighted by means of a post-stratified ratio estimation procedure for age, race, and parity to reflect national estimates of 2,839,000 legitimate live births in the United States.

Since type of delivery data is from the hospital, only hospital births are included here. Thus, the data presented here refer to 2,818,000 legitimate live hospital births in the United States in 1972.\*

\* Additional tables, standard errors, etc. can be obtained from the author:

3700 East-West Highway  
Center Bldg.  
Room 1-44  
Nat. Ctr. for Health Statistics  
HRA  
Hyattsville, MD 20852

Table 1. Percent distribution of type of delivery for mothers of legitimate live hospital births according to social and demographic characteristics:  
United States, 1972 National Natality Survey

Social and Demographic Characteristics	Number in Thousands	Type of Delivery <sup>hp</sup>					
		Total	Spontaneous	Forceps	Cesarean section	Breech	Other
All births-----	2,818	100.0	52.7	36.8	7.3	2.3	0.9
<u>Color of mother<sup>bc</sup></u>							
White-----	2,490	100.0	51.9	37.9	7.0	2.4	0.9
All other-----	328	100.0	59.0	29.1	9.4	1.9	0.6
<u>Metropolitan/non-met. county of residence<sup>bc</sup></u>							
Metropolitan-----	1,874	100.0	50.6	37.9	8.3	2.2	0.9
Non-metropolitan-----	944	100.0	56.9	34.7	5.2	2.4	0.8
<u>Region of residence<sup>bc</sup></u>							
Northeast-----	603	100.0	54.0	35.8	7.0	2.5	0.6
North Central-----	775	100.0	55.3	34.9	7.2	1.9	0.8
South-----	940	100.0	51.2	38.4	7.2	2.3	0.8
West-----	500	100.0	49.8	38.1	7.8	2.6	1.7
<u>Total family income<sup>m</sup></u>							
Less than \$4,000-----	296	100.0	57.0	31.5	7.2	3.8	0.5
\$4,000 to \$6,999-----	537	100.0	54.1	36.7	6.8	1.6	0.7
\$7,000 to \$9,999-----	681	100.0	55.5	35.3	6.1	2.5	0.7
\$10,000 to \$14,999-----	818	100.0	50.2	39.0	7.4	2.1	1.3
\$15,000 or more-----	487	100.0	48.8	38.7	9.2	2.2	1.1
<u>Mother's education<sup>m</sup></u>							
None or elementary-----	121	100.0	63.4	27.9	5.3	3.0	0.4
1-3 years high school-----	475	100.0	56.0	34.3	6.5	1.8	1.4
High school graduate-----	1,348	100.0	52.5	37.4	7.4	1.9	0.9
1-3 years college-----	541	100.0	49.7	39.3	7.2	3.0	0.8
College graduate-----	334	100.0	49.7	37.5	8.8	3.2	0.7
<u>Father's education<sup>m</sup></u>							
None or elementary-----	179	100.0	62.7	26.4	7.0	2.3	1.7
1-3 years high school-----	400	100.0	55.1	36.4	6.0	1.9	0.6
High school graduate-----	1,180	100.0	54.0	35.9	7.1	2.2	0.8
1-3 years college-----	467	100.0	48.0	39.3	8.7	2.7	1.3
College graduate-----	592	100.0	49.0	40.2	7.5	2.6	0.7

Table 1. Percent distribution of type of delivery for mothers of legitimate live hospital births according to social and demographic characteristics: United States, 1972 National Natality Survey (Cont'd.)

Social and Demographic Characteristics	Number in Thousands	Type of Delivery <sup>hp</sup>					
		Total	Spontaneous	Forceps	Cesarean section	Breech	Other
<u>Age of mother</u> <sup>bc</sup>							
Under 18 years-----	124	100.0	46.7	45.9	6.2	0.8	0.4
18-19 years-----	291	100.0	48.9	40.7	6.8	2.0	1.7
20-24 years-----	1,031	100.0	51.3	38.6	6.7	2.7	0.8
25-29 years-----	850	100.0	54.6	36.2	6.5	2.0	0.8
30-34 years-----	356	100.0	54.4	32.2	9.3	3.2	1.0
35 and over-----	166	100.0	59.1	25.9	12.1	1.7	1.2
<u>Live-birth order</u> <sup>bc</sup>							
First-----	1,072	100.0	39.1	49.3	8.7	2.0	0.7
Second-----	869	100.0	56.0	34.8	6.3	2.1	0.8
Third-----	428	100.0	63.0	27.0	6.4	2.5	1.1
Fourth-----	214	100.0	67.2	22.4	5.7	3.5	1.2
Fifth or higher-----	236	100.0	70.3	18.6	7.1	2.8	1.2
<u>Interval between 1972 birth and previous live birth</u> <sup>m</sup>							
1972 birth was one of a multiple birth-----	26	100.0	41.9	34.1	8.1	15.9	-
12 months or less-----	213	100.0	58.6	30.7	6.3	3.0	1.4
13-24 months-----	502	100.0	60.4	30.9	5.6	2.2	1.0
25 months or more-----	1,047	100.0	58.6	31.8	6.9	2.0	0.8
No previous live births-----	1,030	100.0	42.0	46.2	8.6	2.2	0.9
Sources of each variable:							
bc = birth certificate							
m = mother questionnaire							
hp = hospital and/or physician questionnaire							
		* Figure does not meet standards of reliability or precision					
		- Quantity zero					

Table 2. Percent distribution of type of delivery for mothers of legitimate live hospital births according to maternal health characteristics: United States, 1972 National Natality Survey

Maternal Health Characteristics	Number in Thousands	Type of Delivery <sup>hp</sup>					
		Total	Spontaneous	Forceps	Cesarean section	Breech	Other
All births-----	2,818	100.0	52.7	36.8	7.3	2.3	0.9
<u>Previous fetal losses</u> <sup>m,1</sup>							
None-----	2,434	100.0	52.3	37.7	6.8	2.3	0.9
One-----	266	100.0	55.1	32.5	9.5	2.1	0.7
Two+-----	119	100.0	54.9	29.3	11.6	2.5	1.7
<u>Underlying medical conditions</u> <sup>hp,2</sup>							
None-----	2,427	100.0	53.1	37.3	6.4	2.3	0.9
One+-----	381	100.0	50.1	34.1	12.8	2.1	0.9
<u>Complications of pregnancy</u> <sup>hp,3</sup>							
None-----	2,359	100.0	54.2	36.9	5.9	2.1	0.8
One+-----	459	100.0	45.0	36.3	14.0	3.1	1.5
<u>Trimester of pregnancy that prenatal care began</u> <sup>hp,4</sup>							
First trimester-----	1,870	100.0	51.3	38.3	7.3	2.2	0.9
Second trimester-----	585	100.0	55.5	34.6	6.6	2.1	1.2
Third trimester-----	168	100.0	58.9	30.7	6.5	3.0	0.9
No prenatal care-----	195	100.0	51.9	35.4	9.2	3.2	0.3
<u>Number of prenatal visits reported by medical sources</u> <sup>hp,4</sup>							
No visits-----	195	100.0	51.9	35.4	9.2	3.2	0.3
1-4 visits-----	204	100.0	60.3	27.8	6.3	4.2	1.4
5-9 visits-----	809	100.0	56.7	33.6	6.6	2.0	1.1
10-14 visits-----	1,306	100.0	50.8	39.4	6.8	2.0	0.9
15-19 visits-----	285	100.0	45.5	41.3	9.9	2.8	0.5
20+ visits-----	18	100.0	42.8	40.6	16.6	-	-
<u>Complications or unusual conditions noted during first trimester</u> <sup>hp,4</sup>							
No prenatal care-----	195	100.0	51.9	35.4	9.2	3.2	0.3
No complications-----	2,393	100.0	53.6	36.9	6.5	2.1	0.9
One complication-----	200	100.0	43.9	38.1	13.8	3.5	0.8
Two+ complications-----	30	100.0	44.7	34.9	15.1	1.9	3.4
<u>Complications or unusual conditions noted during second trimester</u> <sup>hp,4</sup>							
No prenatal care-----	195	100.0	51.9	35.4	9.2	3.2	0.3
No complications-----	2,266	100.0	53.7	36.8	6.4	2.1	1.0
One complication-----	287	100.0	45.8	39.4	11.1	2.8	0.9
Two+ complications-----	70	100.0	49.6	31.9	14.3	2.9	1.3

Table 2. Percent distribution of type of delivery for mothers of legitimate live hospital births according to maternal health characteristics: United States, 1972 National Natality Survey (Cont'd.)

Maternal Health Characteristics	Number in Thousands	Type of Delivery <sup>hp</sup>					
		Total	Spontaneous	Forceps	Cesarean section	Breech	Other
<u>Complications or unusual conditions noted during third trimester<sup>hp,4</sup></u>							
No prenatal care-----	195	100.0	51.9	35.4	9.2	3.2	0.3
No complications-----	2,151	100.0	54.0	37.3	5.8	2.1	0.8
One complication-----	398	100.0	48.0	35.6	12.1	2.6	1.6
Two+ complications-----	74	100.0	42.8	33.8	18.8	2.7	2.0
<u>Number of prenatal trimesters mother experienced complications<sup>hp,4</sup></u>							
No prenatal care-----	195	100.0	51.9	35.4	9.2	3.2	0.3
No trimesters-----	1,830	100.0	55.1	37.1	5.0	2.0	0.9
One trimester-----	589	100.0	48.7	36.2	11.2	3.0	0.9
Two trimesters-----	142	100.0	45.1	40.9	10.9	1.7	1.4
Three trimesters-----	62	100.0	40.2	32.1	21.1	4.0	2.5
<u>Complications of labor<sup>hp,5</sup></u>							
None-----	2,248	100.0	58.1	37.3	2.3	1.6	0.8
One+-----	570	100.0	31.5	35.0	27.0	5.2	1.3
<u>Type of anesthetic used<sup>hp</sup></u>							
Inhalation - Yes-----	970	100.0	55.3	33.9	7.8	2.1	0.9
No-----	1,848	100.0	51.3	38.4	7.0	2.4	0.9
Spinal and epidural - Yes-----	661	100.0	23.8	57.8	15.5	2.2	0.7
No-----	2,157	100.0	61.5	30.4	4.7	2.3	1.0
Local - Yes-----	653	100.0	76.7	20.2	0.4	2.2	0.6
No-----	2,166	100.0	45.4	41.9	9.3	2.4	1.0
Other - Yes-----	660	100.0	47.1	42.2	6.8	2.3	1.6
No-----	2,158	100.0	54.4	35.2	7.4	2.3	0.7
<u>Number of anesthetics used for delivery<sup>hp</sup></u>							
None-----	203	100.0	85.3	9.3	1.0	3.8	0.7
One-----	2,296	100.0	48.9	40.1	7.9	2.2	0.9
Two+-----	320	100.0	58.9	30.8	7.0	2.2	1.1
<u>Total duration of labor<sup>hp</sup></u>							
0-3 hours-----	647	100.0	55.9	27.7	12.2	3.2	1.1
4-7 hours-----	1,109	100.0	56.2	36.6	4.1	2.1	1.0
8-11 hours-----	565	100.0	47.2	45.0	5.4	1.8	0.5
12+ hours-----	497	100.0	46.8	40.0	10.1	2.1	0.9

Table 2. Percent distribution of type of delivery for mothers of legitimate live hospital births according to maternal health characteristics: United States, 1972 National Natality Survey (Cont'd.)

Maternal Health Characteristics	Number in Thousands	Type of Delivery <sup>hp</sup>					
		Total	Spontaneous	Forceps	Cesarean section	Breech	Other
<u>Pre-delivery hospital stay<sup>hp</sup></u>							
Less than one day-----	2,158	100.0	55.0	37.0	4.4	2.6	0.9
One day-----	582	100.0	44.9	36.6	16.4	1.2	0.9
Two or more days-----	78	100.0	45.3	33.9	17.6	2.5	0.6
<u>Post-delivery hospital stay<sup>hp</sup></u>							
0-2 days-----	554	100.0	65.2	30.6	0.8	2.7	0.8
3 days-----	1,016	100.0	56.0	39.9	0.6	2.5	1.1
4 days-----	693	100.0	50.4	42.9	3.6	2.2	0.8
5 or more days-----	556	100.0	37.0	30.0	30.5	1.8	0.7
<u>Total hospital stay of mother<sup>hp</sup></u>							
0-2 days-----	438	100.0	66.5	29.2	0.6	2.8	1.0
3 days-----	915	100.0	57.7	38.0	0.5	2.6	1.1
4 days-----	744	100.0	51.6	43.6	1.7	2.4	0.6
5 or more days-----	722	100.0	39.0	33.0	25.6	1.6	0.9
<u>Complications to mother's health noted after delivery<sup>hp</sup></u>							
Yes-----	187	100.0	38.3	36.0	20.1	4.6	1.0
No-----	2,632	100.0	53.7	36.9	6.4	2.1	0.9
<u>Postpartum sterilization of mother<sup>hp</sup></u>							
Yes-----	220	100.0	50.9	22.9	23.5	1.6	1.1
No-----	2,598	100.0	52.8	38.0	5.9	2.4	0.9
<u>Interval between delivery and first postpartum visit<sup>hp</sup></u>							
Under 30 days-----	592	100.0	47.9	34.2	14.5	2.3	1.1
30-35 days-----	1,710	100.0	52.2	38.9	5.8	2.3	0.8
60-90 days-----	154	100.0	61.0	33.9	2.6	2.0	0.6
No postpartum visits reported-----	362	100.0	59.2	32.7	4.3	2.7	1.2
<u>Reason for and number of postpartum visits<sup>hp</sup></u>							
One routine visit-----	887	100.0	53.6	38.6	4.9	2.1	0.8
One non-routine visit-----	724	100.0	52.4	37.8	6.7	2.6	0.5
Two routine visits-----	152	100.0	47.8	34.2	13.7	2.3	2.0
Two non-routine visits-----	90	100.0	50.6	38.8	8.9	0.5	1.1
Two visits, one non-routine-----	357	100.0	52.3	34.6	9.6	2.0	1.5
Three+ routine visits-----	30	100.0	44.8	38.2	13.5	1.7	1.8
Three+ visits, incl. one+ non-routine-----	217	100.0	45.0	37.6	14.1	3.0	0.2
No postpartum visits reported--	362	100.0	59.2	32.7	4.3	2.7	1.2

Table 3. Percent distribution of type of delivery for mothers of legitimate live hospital births according to infant health characteristics: United States, 1972 National Natality Survey

Infant Health Characteristics	Number in Thousands	Type of Delivery <sup>hp</sup>					
		Total	Spontaneous	Forceps	Cesarean section	Breech	Other
All births-----	2,818	100.0	52.7	36.8	7.3	2.3	0.9
<u>Birth weight in grams (lbs. &amp; oz.)</u> <sup>bc</sup>							
2500 grams (5 lb. 8 oz.) or less	197	100.0	52.1	26.0	11.6	9.4	0.9
2501-3000 grams (5 lb. 9 oz. to 6 lb. 9 oz.)-----	493	100.0	55.2	34.1	7.1	2.6	1.0
3001-3500 grams (6 lb. 10 oz. to 7 lb. 11 oz.)-----	1,093	100.0	53.1	37.1	7.0	2.0	0.9
3501-4000 grams (7 lb. 12 oz. to 8 lb. 13 oz.)-----	742	100.0	50.2	41.3	6.4	1.0	1.0
4001 grams (8 lb. 14 oz.) or more-----	294	100.0	53.4	36.9	7.7	1.5	0.5
<u>Period of gestation</u> <sup>hp</sup>							
36 weeks or less-----	273	100.0	56.9	25.8	9.7	6.3	1.2
37-39 weeks-----	1,093	100.0	54.4	34.2	8.4	2.0	1.0
40 weeks-----	642	100.0	48.9	43.4	5.3	1.7	0.8
41 weeks or more-----	810	100.0	51.9	38.9	6.5	1.8	0.8
<u>Sex of child</u> <sup>bc</sup>							
Male-----	1,456	100.0	51.7	37.3	8.0	2.0	1.0
Female-----	1,363	100.0	53.7	36.3	6.5	2.7	0.8
<u>Number at birth</u> <sup>hp</sup>							
Single-----	2,761	100.0	53.0	36.9	7.2	1.9	0.9
Plural birth-----	57	100.0	37.0	33.1	9.3	19.8	0.8
<u>Order of presentation at birth</u> <sup>hp</sup>							
Single birth-----	2,761	100.0	53.0	36.9	7.2	1.9	0.9
First-----	28	100.0	46.8	36.9	11.3	5.0	-
Second or higher-----	29	100.0	27.3	29.4	7.4	34.3	1.7
<u>Congenital malformations or anomalies reported on birth certificate</u> <sup>bc</sup>							
No stated condition-----	2,647	100.0	52.4	37.0	7.4	2.2	0.9
Any stated condition-----	20	100.0	53.7	32.0	9.5	4.7	-
Not on State's certificate-----	151	100.0	56.6	34.8	4.2	3.0	1.3
<u>Congenital malformations or anomalies noted at delivery by hospital</u> <sup>hp</sup>							
No-----	2,686	100.0	52.9	37.0	7.0	2.2	0.9
Yes-----	133	100.0	49.0	33.5	12.4	4.6	0.4

Table 3. Percent distribution of type of delivery for mothers of legitimate live hospital births according to infant health characteristics: United States, 1972 National Natality Survey (Cont'd.)

Infant Health Characteristics	Number in Thousands	Type of Delivery <sup>hp</sup>					
		Total	Spontaneous	Forceps	Cesarean section	Breech	Other
<u>Birth injuries noted at delivery</u> <sup>hp</sup>							
No-----	2,757	100.0	53.3	36.2	7.3	2.3	0.9
Yes-----	62	100.0	24.7	66.2	4.9	3.3	0.8
<u>Unusual resuscitative efforts required</u> <sup>hp</sup>							
No-----	2,609	100.0	53.5	36.8	6.9	2.0	0.9
Yes-----	209	100.0	42.9	37.5	11.6	6.8	1.2
<u>Apgar score - one minute</u> <sup>hp</sup>							
Not done-----	467	100.0	57.7	32.1	7.1	2.2	1.0
0-3-----	41	100.0	43.1	17.2	25.0	13.6	1.1
4-7-----	310	100.0	44.2	39.0	8.6	6.9	1.3
8-10-----	2,000	100.0	53.0	38.0	6.7	1.4	0.8
<u>Apgar score - five minutes</u> <sup>hp</sup>							
Not done-----	1,146	100.0	56.2	34.9	6.3	1.8	0.9
0-3-----	16	100.0	42.0	12.8	22.9	15.8	6.5
4-7-----	52	100.0	39.5	33.6	16.5	8.6	1.8
8-10-----	1,605	100.0	50.7	38.6	7.5	2.3	0.9
<u>Age when baby was first examined outside the delivery room</u> <sup>hp</sup>							
One hour or less-----	911	100.0	52.9	32.4	10.7	3.0	1.0
2-6 hours-----	584	100.0	54.3	35.5	6.5	3.1	0.7
7-23 hours-----	655	100.0	51.3	41.3	4.7	1.5	1.1
24 hours or more-----	669	100.0	52.3	39.7	5.8	1.5	0.7
<u>Birth injuries noted before discharge from hospital</u> <sup>hp</sup>							
No-----	2,810	100.0	52.7	36.8	7.3	2.3	0.9
Yes-----	*8	100.0	57.4	42.6	-	-	-
<u>Congenital malformations or anomalies noted before discharge</u> <sup>hp</sup>							
No-----	2,803	100.0	52.7	36.8	7.3	2.3	0.9
Yes-----	15	100.0	45.3	45.0	3.3	6.3	-
<u>Any other illnesses noted before discharge</u> <sup>hp</sup>							
No-----	2,806	100.0	52.7	36.9	7.3	2.3	0.9
Yes-----	13	100.0	58.7	33.9	7.4	-	-
<u>Infant discharged from hospital alive</u> <sup>hp</sup>							
Yes-----	2,791	100.0	52.7	37.0	7.3	2.1	0.9
No-----	27	100.0	49.6	23.7	7.9	18.7	-
Sources of each variable:							
bc = birth certificate							
m = mother questionnaire							
hp = hospital and/or physician questionnaire							
		* Figure does not meet standards of reliability					
		- Quantity zero					