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VITAL STATISTICS REPORT

National Natality and Infant Mortality Surveys: 1964-66

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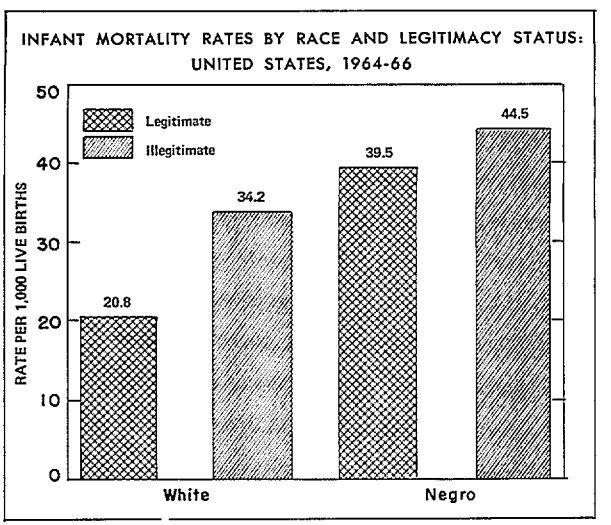
INFANT MORTALITY RATES BY LEGITIMACY STATUS: United States, 1964-66

During 1964-66 the number of infant deaths decreased each year in the United States. At the same time, the number of live births each year also decreased but at a slower rate. This resulted in a declining infant mortality rate over the 3-year period. In 1964 the infant mortality rate was approximately 25 deaths per 1,000 live births. In 1966 the rate was approximately 24 deaths per 1,000 live births. From data published in *Vital Statistics of the United States*, these overall rates are known to vary by region of residence, metropolitan status, sex, and race. Since the information collected on the birth certificate does not correspond to the information collected on the death certificate, infant mortality rates by other characteristics are not available from the registration system.

The data presented here were collected in the 1964-66 National Natality Survey and in the 1964-66 National Infant Mortality Survey. These surveys created a unique opportunity to collect information which would provide national estimates of infant mortality rates cross-classified by legitimacy status. Legitimacy status in this report refers to the infant's status at birth.

According to data collected in these surveys, the overall infant mortality rate for 1964-66 was approximately 24 deaths per 1,000 live births. The corresponding mortality rates for legitimate and illegitimate infants were approximately 23 and 40 deaths per 1,000 live births, respectively. Part of the difference in these rates between legitimate and illegitimate infants may be due to the medical care received by the mother during pregnancy. According to data from the 1963 National Natality Survey, mothers of illegitimate births had, on the average, fewer visits for medical care during the 12 months before the child was born than did mothers of legitimate births. This inequality held in all regions and in both metropolitan and nonmetropolitan areas regardless of income. (See PHS Pub. No. 1000, Series 22, No. 4.)

The mortality rate for white legitimate infants was approximately 21 deaths per 1,000 live births and for white illegitimate infants it was approximately 34 deaths per 1,000 live births. Among Negro infants the mortality rate for legitimate infants was approximately 40 deaths per 1,000 live births and for illegitimate infants it was approximately 45 deaths per 1,000 live births. It should be noted that the mortality rate for infants in the "all other" category (approximately 25 deaths per 1,000 live births) more closely resembles the mortality rate for white infants than that for Negro infants. For this reason, rates for all other infants were calculated separately from those for white and Negro infants. The rates for all other infants are not shown in this report, however, because of the high sampling error associated with rates based on so few births.



Among white infants the greatest difference in the mortality rates between legitimate and illegitimate infants was observed in the Northeast Region, where legitimate infants experienced a rate of approximately 19 deaths per 1,000 live births and illegitimate infants experienced a rate of approximately 36 deaths per 1,000 live births. The least difference was in the West, where the rates for legitimate and illegitimate white infants were approximately 20 and 31 deaths per 1,000 live births, respectively. The rates for white illegitimate infants were at least 54 percent higher than those for white legitimate infants in all four regions. In the Northeast the rates were approximately 86 percent higher for white illegitimate infants than those for white legitimate infants.

Among Negro intants the difference in the mortality rates between legitimate and illegitimate infants was not nearly as great as that among white infants. In the United States as a whole, the mortality rate for Negro illegitimate infants was approximately 13 percent higher than the rate for Negro legitimate infants. In the North Central Region the mortality rate for Negro illegitimate infants was approximately 9 percent lower than the rate for Negro legitimate infants.

Among white infants in both metropolitan and nonmetropolitan areas, the difference in the mortality rates between legitimate and illegitimate infants was approximately 14 deaths per 1,000 live births. In metropolitan areas the mortality rate for white illegitimate infants was approximately 68 percent higher than that for white legitimate infants. In nonmetropolitan areas the rate for white illegitimate infants was approximately 61 percent higher than the rate for white legitimate infants.

Among Negro infants in metropolitan areas the mortality rate for illegitimate infants was approximately 23 percent higher than the rate for legitimate infants. Among Negro infants in nonmetropolitan areas the mortality rate for illegitimate infants was approximately 4 percent lower than that for legitimate infants.

Among white infants born to mothers under 20 years of age the mortality rate was approximately 25 deaths per 1,000 live births for legitimate infants and approximately 31 deaths per 1,000 live births for illegitimate infants. The difference in infant mortality rates between legitimate and illegitimate infants increased with age of mother. When the mothers were 25-29 years of age the mortality rate was approximately 19 deaths per 1,000 live births for white legitimate infants and approximately 31 deaths per 1,000 live births for white illegitimate infants. It is probable that this difference increases even more for infants of mothers over 30 years of age. However, the small number of white illegitimate births to women over 30 years of age results in an unacceptably large sampling error.

Among Negro infants born to mothers under 20 years of age the mortality rate was higher for legitimate infants than that for illegitimate infants. This difference in the mortality rates between Negro legitimate infants (approximately 55) and Negro illegitimate infants (approximately 42) is statistically significant. The reason for this difference would require more study into the differences between mothers of legitimate and illegitimate Negro infants. Among Negro infants born to mothers over 20 years of age, however, the pattern displayed for white infants prevailed, that is, the difference in infant mortality rates between legitimate and illegitimate infants increased with age of mother.

In the United States the illegitimacy ratio was much higher among first births than among later births. Approximately 68 percent of the illegitimate white births and 44 percent of the illegitimate Negro births were first births. The difference in infant mortality rates between legitimate and illegitimate infants is therefore particularly important for first births.

Among white infants the mortality rate for illegitimate first births was approximately 50 percent higher than the mortality rate for legitimate first births. However, among Negro infants the mortality rate for illegitimate first births was approximately 12 percent lower than the rate for legitimate first births. Again, the reason for this difference would require more study.

Table 1. Annual average number of live births and infant mortality rates by race of child, metropolitan status, and legitimacy status by region of residence: United States, 1964-66

Race of child, metropolitan status, and legitimacy status	Region of residence									
	Total	North-east	North Central	South	West	Total	North-east	North Central	South	West
ALL RACES	Number of births in thousands					Rate per 1,000 live births				
All areas	3,796	882	1,061	1,232	621	24.4	21.8	24.2	27.6	22.2
Legitimate	3,480	817	991	1,091	581	23.0	20.4	23.3	25.7	21.3
Illegitimate	315	65	70	140	40	39.9	39.9	36.9	42.7	35.3
Metropolitan area	2,449	712	666	617	455	23.6	21.7	25.2	26.4	20.4
Legitimate	2,240	654	613	548	424	22.0	20.0	24.1	24.3	19.3
Illegitimate	210	58	52	69	30	40.1	41.0	38.7	42.4	35.5
Nonmetropolitan area	1,347	170	396	615	167	26.0	22.3	22.5	28.9	27.3
Legitimate	1,241	162	378	544	157	24.9	21.9	22.1	27.1	26.9
Illegitimate	106	*	18	71	*	39.4	*	31.4	42.9	*
WHITE										
All areas	3,148	766	950	891	541	21.3	19.7	22.1	22.3	20.6
Legitimate	3,013	735	911	856	511	20.8	19.1	21.7	21.7	20.0
Illegitimate	134	30	39	35	30	34.2	35.5	33.3	36.5	31.4
Metropolitan area	2,011	602	562	453	394	20.6	19.2	22.5	21.9	18.9
Legitimate	1,919	577	539	432	371	20.0	18.5	21.8	21.3	18.4
Illegitimate	92	25	23	21	24	33.6	35.5	38.9	33.6	26.3
Nonmetropolitan area	1,137	164	388	439	147	22.5	21.7	21.7	22.7	25.2
Legitimate	1,095	159	372	424	140	22.0	21.3	21.5	22.1	24.1
Illegitimate	42	*	16	15	*	35.5	*	25.3	40.6	*
NEGRO										
All areas	589	109	106	335	39	41.0	37.0	42.8	41.8	40.0
Legitimate	413	74	74	231	33	39.5	33.9	44.0	40.4	35.5
Illegitimate	177	35	32	104	*	44.5	43.6	39.9	45.1	*
Metropolitan area	399	104	100	161	34	39.4	37.1	41.8	39.0	41.8
Legitimate	284	71	70	113	29	37.0	33.3	43.2	35.8	36.1
Illegitimate	116	33	30	48	*	45.4	45.1	38.6	46.6	*
Nonmetropolitan area	190	*	*	174	*	44.2	*	*	44.5	*
Legitimate	129	*	*	118	*	44.8	*	*	44.8	*
Illegitimate	61	*	*	56	*	43.0	*	*	43.7	-

Table 2. Annual average number of live births and infant mortality rates by race of child and legitimacy status by age of mother: United States, 1964-66

Race of child and legitimacy status	Age of mother					
	Total	Under 20 years	20-24 years	25-29 years	30-34 years	35+ years
NUMBER OF BIRTHS IN THOUSANDS						
All races	3,796	607	1,358	934	529	367
Legitimate	3,480	475	1,257	892	506	350
Illegitimate	315	133	101	42	23	17
White	3,148	452	1,146	798	445	306
Legitimate	3,013	398	1,099	783	436	298
Illegitimate	134	54	47	15	*	*
Negro	589	148	192	119	75	55
Legitimate	413	72	140	93	61	47
Illegitimate	177	77	52	26	14	*
RATE PER 1,000 LIVE BIRTHS						
All races	24.4	31.5	21.3	22.6	24.5	29.0
Legitimate	23.0	29.9	20.5	21.5	22.9	27.0
Illegitimate	39.9	37.2	31.5	45.5	58.4	71.4
White	21.3	25.9	19.2	19.4	22.4	26.2
Legitimate	20.8	25.2	18.9	19.2	21.5	24.9
Illegitimate	34.2	31.1	25.8	31.0	*	*
Negro	41.0	48.4	34.8	44.2	35.7	42.8
Legitimate	39.5	55.2	34.1	41.5	31.9	37.2
Illegitimate	44.5	42.0	36.5	54.3	52.9	*

Table 3. Annual average number of live births and infant mortality rates by race of child and legitimacy status by live-birth order: United States, 1964-66

Race of child and legitimacy status	Live-birth order		
	Total	First	Second and higher
NUMBER OF BIRTHS IN THOUSANDS			
All races	3,796	1,185	2,611
Legitimate	3,480	1,013	2,467
Illegitimate	315	172	144
White	3,148	1,007	2,141
Legitimate	3,013	916	2,098
Illegitimate	134	91	43
Negro	589	162	427
Legitimate	413	84	329
Illegitimate	177	78	98
RATE PER 1,000 LIVE BIRTHS			
All races	24.4	19.4	26.7
Legitimate	23.0	17.9	25.2
Illegitimate	39.9	28.3	53.7
White	21.3	16.9	23.4
Legitimate	20.8	16.2	22.8
Illegitimate	34.2	24.3	54.8
Negro	41.0	35.7	43.0
Legitimate	39.5	37.8	39.9
Illegitimate	44.5	33.4	53.3

TECHNICAL NOTES

SOURCE OF DATA. The data presented here were collected in the 1964-66 National Natality Survey (NNS) and in the 1964-66 National Infant Mortality Survey (NIMS). Information available from the birth certificate for all live births in the 1964-66 NNS was collected in the 1964-66 NIMS, making possible the data presented here.

The sampling frame for the 1964-66 NNS was the file of microfilm birth certificates received each month by the National Center for Health Statistics from the 54 registration areas in the United States. A sample of 1 out of 1,000 births was selected from these monthly shipments of certificates from each registration area. The total sample size for the 1964-66 NNS was 11,331 births.

The sampling frame for the 1964-66 NIMS was the 10-percent systematic sample of death certificates known as the Current Mortality Sample received each month by the National Center for Health Statistics from the same 54 registration areas in the United States. The sample for the 1964-66 NIMS was a probability sample of 1 out of 11 deaths under 1 year of age included in the Current Mortality Sample in 1964, 1965, and 1966. The total sample size for the 1964-66 NIMS was 2,490 infant deaths.

Because the sampling frames for both surveys were based on the registration system, the survey results were subject to the same problems inherent in the registration system.

RESPONSE. For purposes of this report, the 1964-66 NNS presented no response problems since all items were obtained from the birth certificate. Data were collected primarily by mail for the 1964-66 NIMS. A questionnaire was sent to the person who provided the funeral director with the personal information about the deceased for recording on the death certificate (death certificate informant). The mailing address of the death certificate informant is usually reported on the death certificate and for infant deaths is usually the mother. A response rate of 88 percent was obtained in the 1964-66 NIMS. Data were adjusted for nonresponse by imputing for a decedent on whom no questionnaire was returned the characteristics for a decedent of the same sex and color on whom a questionnaire was returned.

RELIABILITY. The probability design of each of the surveys made possible the calculation of sampling errors. The standard error is a measure of the sampling variation that occurs by chance because only a sample rather than the entire population of infant deaths and of births is surveyed. Approximate standard errors for estimated infant mortality rates are shown in the table. A detailed discussion of the methods used to calculate standard error for the followback surveys is published in all PHS Pub. No. 1000, Series 22, reports.

TERMS USED IN THIS REPORT

Age of mother.—For births, age of mother was recorded directly from the birth certificate. For deaths, age of mother was derived from the date of birth on the questionnaire. Age in this report refers to age at last birthday.

Legitimacy status.—For births, legitimacy status was recorded directly from the certificate for States reporting legitimacy status and was inferred from indirect evidence on the certificate for States not reporting legitimacy status. For deaths, legitimacy status at birth was inferred from indirect evidence on the certificate and on the questionnaire.

Live-birth order.—Live-birth order was derived from entries on the birth certificate for the NNS and on the questionnaire for the NIMS and refers to the number of children born alive to the mother including the sample child.

Residence.—Residence was derived from entries on the certificates of live birth and of death and was classified according to metropolitan and nonmetropolitan status.

Metropolitan status.—Metropolitan areas are standard metropolitan statistical areas (SMSA's) as defined by the U.S. Office of Management and Budget and used by the U.S. Bureau of the Census.

Region.—Region of residence was derived from entries on the certificates of live birth and of death and corresponds to the four regions used by the U.S. Bureau of the Census.

Race.—Race was derived from the race of the parents on the birth certificate for the NNS and recorded directly from the death certificate for the NIMS. For this report, race was divided into two main categories—"white" and "Negro." The category "white" included births reported as white, Mexican, Puerto Rican, and Cuban.

EXPLANATION OF SYMBOLS USED IN TABLES

Data not available	---
Category not applicable	...
Quantity zero	-
Quantity more than 0 but less than 0.05	0.0
Figure does not meet standards of reliability or precision	*

STANDARD ERRORS OF INFANT MORTALITY RATES USED IN THIS REPORT

Average annual number of live births	Infant mortality rate per 1,000 live births						
	10	20	30	40	50	60	70
	Standard error expressed as rate						
15,000	*	*	9.5	12.1	12.7	14.8	16.6
25,000	4.0	6.0	7.0	8.6	9.8	11.1	12.5
50,000	2.9	4.0	5.0	6.0	6.9	7.8	8.7
100,000	1.9	2.8	3.5	4.3	4.7	5.1	5.5
150,000	1.5	2.3	2.8	3.2	3.5	3.8	4.1
250,000	1.2	1.7	2.0	2.2	2.4	2.7	3.0
500,000	0.8	1.0	1.2	1.8	2.0	2.0	2.2
1,000,000	0.5	0.7	0.9	1.2	*	*	*

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