

Natality and Mortality of American Indians Compared With U.S. Whites and Nonwhites

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One measure for evaluating the health of a population group is statistics derived from vital events data. The vital events experience of Indians and Alaska Natives is emphasized and comparisons are made with those of the total, white, and nonwhite population groups in the United States. Additional information about the Indian Health Service program and the Indian and Alaska Native population is included to provide insight into the unique factors that affect their health.

THE Surgeon General of the Public Health Service is authorized under Public Law 83-568, effective in 1955, to maintain and operate hospitals and health facilities for Indians and Alaska Natives. The Indian Health Service (IHS) is the operating agency that carries out this mandate.

The legislation contains broad authority to improve the health status of these Americans through a program of comprehensive health services. A full

range of curative, preventive, and rehabilitative health services are provided. In addition to primary medical care, preventive programs including public health nursing, dental care, maternal and child health, family planning, nutrition, health education, mental health, and accident prevention are stressed. There are also special programs for such diseases as trachoma, tuberculosis, and otitis media.

Additional public laws have been passed to improve sanitation facilities including construction of water supplies and facilities, drainage facilities, and sewage and waste-disposal facilities for Indian homes, communities, and lands (1). The Indian Health Service is authorized to provide financial assistance to public or nonprofit organizations for the construction of a community hospital where this constitutes a method of making needed hospital facilities available for Indians (2). Through the operation of these laws and with the help of numerous private and governmental agencies and the active participation of the Indians and Alaska

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Natives, improvements are being made in the health status of these citizens.

The IHS provides comprehensive health services to about 415,000 Indians and Alaska Natives residing in 24 States, primarily west of the Mississippi, on or adjacent to Federal Indian reservations or in identifiable Indian or Alaska Native communities. To do this the Service operates 51 hospitals, 71 large health centers, and more than 300 field clinics. In addition, it has contracts with some 300 private or community hospitals, 18 State and local health departments, and more than 500 physicians, dentists, and other health specialists to provide specialized diagnostic and therapeutic services to the Indians. Emergency hospitalization and medical care needed in locations where an Indian hospital or clinic is not readily accessible also are made possible through contract arrangements.

Indians and Alaska Natives live in circumstances that differ from those of most other population groups in the country. The majority are geographically and culturally isolated on 250 reservations and in hundreds of Alaskan villages. Most of these citizens are removed from the organized community affiliations that meet the physical, social, and economic needs of other Americans. With few exceptions, they live in conditions of poverty. The average family of five or six lives in a one- or two-room dwelling without adequate water or waste-disposal facilities and on a poverty-level income.

In general, the Indians and Alaska Natives have maintained their traditional cultures in language, religion, social organization, and values. Many are not familiar with modern health concepts and do not

understand the scientific bases of illness and medical treatment. Communication is further complicated, in many instances, by their inability or limited ability to speak English.

Transportation for those needing health services and for the health personnel providing these services is a major problem. Many patients must travel long distances over primitive roads and difficult terrain to reach hospitals and health centers. Those who are very ill or who need emergency treatment must be transported by ambulance or airplane, sometimes for hundreds of miles.

The topography and extremes of climate in Alaska have necessitated the development of a program of medical care by shortwave radio to augment the visits of health teams from Public Health Service hospitals and the services of village health aides. Radio medical clinics are conducted on a scheduled and emergency basis to administer to the needs of natives in isolated villages. Village health aides, school teachers, traders, missionaries, or public health field nurses also can contact Public Health Service hospitals and receive medical guidance and assistance for the sick or injured. Because of these economic, cultural, environmental, and geographic factors, high priority is placed on the activities in public health and preventive medicine as well as curative services.

Sources and Limitations of Data

The population base used in this paper for the Indians and Alaska Natives, referred to hereafter simply as Indians, included all Indian, Aleut, and Eskimo residents of the 24 States in which the

Table 1. Estimated Indian population of the 24 reservation States, and resident U.S. population, 1955-68

Year	Indians	U.S. total	U.S. whites	U.S. nonwhites
1968.....	561, 100	199, 861, 000	175, 505, 000	24, 355, 000
1967.....	552, 900	197, 863, 000	173, 920, 000	23, 942, 000
1966.....	544, 700	195, 857, 000	172, 364, 000	23, 493, 000
1965.....	536, 500	193, 818, 000	170, 747, 000	23, 072, 000
1964.....	526, 500	191, 371, 000	168, 769, 000	22, 602, 000
1963 ¹	518, 300	188, 658, 000	166, 557, 000	22, 101, 000
1962 ¹	512, 500	185, 890, 000	164, 282, 000	21, 608, 000
1961.....	505, 600	183, 057, 000	161, 944, 000	21, 113, 000
1960 ²	498, 086	179, 323, 175	158, 831, 732	20, 491, 443
1959.....	491, 500	176, 513, 000	156, 815, 000	19, 698, 000
1958.....	484, 900	173, 320, 000	154, 159, 000	19, 162, 000
1957.....	478, 500	170, 371, 000	151, 684, 000	18, 687, 000
1956.....	472, 200	167, 306, 000	149, 084, 000	18, 222, 000
1955.....	458, 800	164, 308, 000	146, 541, 000	17, 767, 000

¹ Population denominators for computing vital events rates for U.S. whites and nonwhites for 1962 and 1963 must exclude residents of New Jersey, which did not require reporting of color on birth and death certificates, and are as

follows: 1963, 160,752,000 whites and 21,532,000 nonwhites; 1962, 158,555,000 whites and 21,052,000 nonwhites.

² Census count.

Table 2. Indian population in specified reservation States, and Indian percentage of total and nonwhite population in each State, 1960

Reservation State	Indian population ¹	Percent of total in State	Percent of nonwhites in State
U.S. total.....	551, 700	0. 3	2. 7
Reservation States total....	498, 100	. 7	7. 2
Alaska.....	43, 100	19. 0	83. 5
Arizona.....	83, 400	6. 4	62. 9
California.....	39, 000	. 2	3. 1
Colorado.....	4, 300	. 2	8. 1
Florida.....	2, 500	. 1	. 3
Idaho.....	5, 200	. 8	53. 3
Iowa.....	1, 700	. 1	5. 9
Kansas.....	5, 100	. 2	5. 1
Michigan.....	9, 700	. 1	1. 3
Minnesota.....	15, 500	. 5	36. 7
Mississippi.....	3, 100	. 1	. 3
Montana.....	21, 200	3. 1	88. 1
Nebraska.....	5, 500	. 4	15. 2
Nevada.....	6, 700	2. 3	30. 6
New Mexico.....	56, 300	5. 9	74. 7
North Carolina.....	38, 100	. 8	3. 3
North Dakota.....	11, 700	1. 9	90. 9
Oklahoma.....	64, 700	2. 8	29. 4
Oregon.....	8, 000	. 5	21. 9
South Carolina.....	1, 100	0	. 1
South Dakota.....	25, 800	3. 8	94. 1
Utah.....	7, 000	. 8	41. 4
Washington.....	21, 100	. 7	20. 8
Wisconsin.....	14, 300	. 4	15. 4
Wyoming.....	4, 000	1. 2	56. 3

¹ Rounded to nearest hundred.

Indian Health Service had responsibilities, a total of about 560,000 persons, in 1968. This base is larger than the population actually served by the Indian Health Service in 1968, however, since it included about 150,000 Indians in the 24 States who were not served by the Indian Health Service, mainly because they lived off the reservations and long distances from IHS facilities. Reliable and consistent data were available for complete States but not for the subgroup of persons eligible for IHS services.

The Division of Vital Statistics of the National Center for Health Statistics provided the Indian Health Service with the vital events data for the Indians. Statistics for comparing the Indians with the U.S. total, white, and nonwhite populations were derived from data in various publications of the National Center for Health Statistics (3, 4).

Birth statistics for 1956 through 1966 and for 1968 were based on a 50 percent sample of registered birth records, and statistics for 1955 were based on the total file of births. While processing

1967 data, the sampling rate was reduced from 50 percent to 20 percent. Because birth statistics are estimates based on a sample, these estimates may differ from figures that would have been obtained from a total count of all births. Since the total number of Indian births is relatively small compared with white or nonwhite births, Indian rates and ratios may fluctuate for a specific characteristic. This was especially true for 1967 data, where a 20 to 50 percent sample was used. Sampling errors are discussed in the technical appendixes of the volumes of vital statistics of the United States, published by the National Center for Health Statistics (3). Death statistics were based on the total file of registered deaths. All vital statistics are tabulated by place of residence unless specified otherwise.

The Bureau of the Census (5), using the poverty index developed by the Social Security Administration, estimated that in 1966, 29.7 million U.S. citizens were classified below the poverty level. A higher proportion of nonwhite than white persons were below this level. If nonwhite status were used as a proxy for poverty, it would be possible to make comparisons with the Indian population—a group of people who live, with few exceptions, in conditions of abject poverty.

Population figures used in computing rates for vital events are shown in table 1. Indian figures, except for the census year 1960, were estimated by the Indian Health Service. U.S. population data were derived from estimates published by the Bureau of the Census (6). The Indian population base used in this article was estimated to represent nearly 90 percent of all Indians in the United States.

From 1955 through 1968, the estimated Indian

Table 3. Age distribution of Indian and other U.S. population groups, in percent, 1960

Age group (years)	Indians	U.S. total	U.S. whites	U.S. nonwhites
All ages.....	100. 0	100. 0	100. 0	100. 0
Under 5.....	17. 7	11. 3	10. 9	14. 5
5-14.....	28. 2	19. 8	19. 3	23. 1
15-24.....	16. 6	13. 4	13. 3	14. 4
25-34.....	11. 4	12. 7	12. 7	13. 0
35-44.....	9. 0	13. 4	13. 6	12. 3
45-54.....	7. 1	11. 4	11. 6	9. 8
55-64.....	5. 2	8. 7	8. 9	6. 8
65-74.....	3. 1	6. 1	6. 4	4. 2
75 and over.....	1. 7	3. 1	3. 3	1. 9
Median age.....	17. 2	29. 5	30. 3	23. 5

population increased by 22 percent, U.S. whites by 20 percent, and U.S. nonwhites by 37 percent. The high birth rates for Indians, discussed later, indicate that there should have been more Indians in the 24 reservation States in 1968. The relatively low percentage increase was attributed to their migra-

tion from these States, their mergeance into other racial groups, or both.

While nonwhites accounted for about 12 percent of the total U.S. population, the Indian population base represented less than three-tenths of 1 percent of the total and only 2.3 percent of all nonwhites.

Table 4. Live births and birth rates per 1,000 population, Indian and other U.S. population groups, 1955-68

Year	Number				Rate			
	Indians	U.S. total	U.S. whites	U.S. nonwhites	Indians	U.S. total	U.S. whites	U.S. nonwhites
1968	21,602	3,501,564	2,912,224	589,340	38.5	17.5	16.6	24.2
1967	20,658	3,520,959	2,922,502	598,457	37.4	17.8	16.8	25.0
1966	21,100	3,606,274	2,993,230	613,044	38.7	18.4	17.4	26.1
1965	22,370	3,760,358	3,123,860	636,498	41.7	19.4	18.3	27.6
1964	22,782	4,027,490	3,369,160	658,330	43.3	21.0	20.0	29.1
1963 ¹	22,274	4,098,020	3,326,344	638,928	43.0	21.7	20.7	29.7
1962 ¹	21,866	4,167,362	3,394,068	641,580	42.7	22.4	21.4	30.5
1961	21,664	4,268,326	3,600,864	667,462	42.8	23.3	22.2	31.6
1960	21,154	4,257,850	3,600,744	657,106	42.5	23.7	22.7	32.1
1959	20,520	4,244,796	3,597,430	647,366	41.7	24.0	22.9	32.9
1958	19,371	4,203,812	3,572,306	631,506	39.9	24.3	23.2	33.0
1957	18,814	4,254,784	3,621,456	633,328	39.3	25.0	23.9	33.9
1956	17,947	4,163,090	3,545,350	617,740	38.0	24.9	23.8	33.9
1955	17,028	4,047,295	3,458,448	588,847	37.1	24.6	23.6	33.1

¹ U.S. figures for whites and nonwhites exclude data for residents of New Jersey, which did not require reporting of color.

Table 5. Live births of Indians, by reservation States, 1958-68

Reservation State	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958
Total	21,602	20,658	21,100	22,370	22,782	22,274	21,866	21,664	21,154	20,520	19,371
Alaska	1,536	1,710	1,946	2,018	1,988	2,132	2,096	2,094	1,966	1,904	1,943
Arizona	3,928	3,894	4,012	4,216	4,262	4,266	4,158	3,806	3,754	3,792	3,526
California	1,790	1,802	1,770	1,922	1,872	1,802	1,696	1,748	1,808	1,510	1,490
Colorado	274	250	250	236	238	192	198	182	178	188	122
Florida	82	80	96	66	76	64	88	76	96	82	66
Idaho	204	176	216	226	248	216	200	182	180	166	164
Iowa	140	60	52	68	54	68	68	68	62	50	52
Kansas	178	135	96	148	164	132	122	138	144	144	128
Michigan	382	270	230	222	220	184	192	204	210	216	190
Minnesota	764	816	756	772	860	786	772	808	806	730	620
Mississippi	68	115	108	100	124	120	114	108	120	112	120
Montana	918	954	916	1,108	1,094	1,116	1,122	1,206	1,132	1,060	970
Nebraska	262	196	232	258	266	238	262	222	244	230	210
Nevada	238	246	256	240	290	242	244	262	242	250	258
New Mexico	2,402	2,518	2,454	2,678	2,786	2,628	2,678	2,518	2,396	2,474	2,158
North Carolina	1,340	1,170	1,304	1,338	1,394	1,326	1,356	1,388	1,364	1,388	1,342
North Dakota	490	568	564	578	594	570	586	578	552	556	508
Oklahoma	2,690	2,135	2,084	2,232	2,408	2,388	2,110	2,360	2,232	2,230	2,234
Oregon	402	355	424	424	396	368	376	424	394	308	282
South Carolina ¹								30	38	28	26
South Dakota	1,224	1,195	1,296	1,412	1,394	1,330	1,276	1,304	1,270	1,184	1,084
Utah	380	323	322	402	332	336	330	350	288	338	244
Washington	1,082	1,025	966	966	956	1,006	1,042	952	886	862	944
Wisconsin	634	529	572	562	560	578	588	474	616	560	504
Wyoming	194	136	178	178	206	186	192	182	176	158	186

¹ South Carolina excluded beginning 1962.

Table 6. Percentage of live births in hospitals, Indian and other U.S. population groups, 1955-68

Year	Indians	U.S. total	U.S. whites	U.S. nonwhites
1968	98.0	98.5	99.4	94.0
1967	97.2	98.3	99.4	92.9
1966	97.0	98.0	99.3	91.6
1965	95.5	97.4	98.9	89.8
1964	95.5	97.5	99.1	89.0
1963 ¹	95.2	97.4	99.1	87.9
1962 ¹	94.3	97.2	99.0	86.9
1961	93.5	96.9	98.9	86.0
1960	92.9	96.6	98.8	85.0
1959	91.3	96.4	98.7	83.7
1958	90.3	96.0	98.4	82.5
1957	89.1	95.7	98.2	81.1
1956	88.7	95.1	98.0	78.7
1955	88.2	94.4	97.5	76.0

¹ U.S. figures for whites and nonwhites exclude data for residents of New Jersey, which did not require reporting of color.

Because of this small relative size of the Indian group, the number of annual occurrences of any particular vital event tended to fluctuate more for Indians than for the comparison groups. Therefore, Indian rates were inherently less stable than those of the other groups. This fact should be kept in mind when interpreting these vital statistics.

This caveat was even more pertinent when the vital events were considered for individual States or age groups. The 1960 figures for the Indian population for each of the 24 States in the population base are shown in table 2. Four States (Arizona, Oklahoma, New Mexico, and Alaska) accounted for 50 percent of the Indians in all 24 States, whereas half a dozen States each had less than 5,000 Indian residents. In only nine States were the Indians as much as 1 percent of the total population. As a share of the nonwhite population in each State, Indians ranged from more than 90 percent in the Dakotas to less than 5 percent in six States.

Age distributions of the Indian, white, and nonwhite populations in 1960 are compared in table 3; the youthful character of the Indian group is apparent. Since the Indian population in some States or the age groups were so small, usually where rates by State or age group are presented 3-year averages were used for Indians to minimize annual fluctuations not truly representative of underlying trends.

One might suggest that the Indians should have been excluded from the total U.S. population and

from the total nonwhite population to make the comparisons more meaningful. But since Indians represented such a small fraction of the total and nonwhite populations, there was little point in making such a refinement. Therefore, the differences between rates for Indians and for total nonwhites including Indians were somewhat smaller than the differences would have been between rates for Indians and for "other nonwhites."

Natality

The Indian birth rate each year from 1955 through 1968 was considerably higher than the white and nonwhite rates. Although birth rates have been declining since 1957 for both the white and nonwhite groups in the United States, it was not until 1965 that Indian rates began to drop (table 4). The Indian rate for 1968 increased slightly over that of 1967. As a result, in 1968 it was almost the same as a dozen years earlier, whereas U.S. total, white, and nonwhite rates were more than one-fourth lower than in 1955. In 1968 the Indian rate of 38.5 live births per 1,000 population was 2.3 times as high as the white rate of 16.6 and 1.6 times the nonwhite rate of 24.2; in 1955 the ratios were 1.6 for whites and 1.1 for nonwhites.

Indian live births by State for single years 1958 through 1968 are shown in table 5, and 3-year average rates centered at the midyear are compared in table 5A (see box) with single-year rates for the general population of each State. Indian rates were higher than all-race rates in every State for every year shown except for Michigan from 1959 through 1964. There was a much wider range in the Indian rates than in those for the total State populations. For example, in 1967 all-race rates ranged from 15.4 live births per 1,000 population in Kansas to 23.1 in Alaska, while Indian rates varied from a low of 22.4 in Kansas to a high of 46.0 in Minne-

Tables Not Included

Because of space limitations, the following tables referred to in the text were omitted from this paper: Table 5A. Birth rates: Indian and all races, by State, 1959-67

Table 8A. Live births by sex and sex ratio, Indian, U.S. total, white, and nonwhite, 1959-68

Table 8B. Percentage of Indian live births with both parents Indian, only mother Indian, only father Indian, by State, 1964-68

Table 9A. Indian infant deaths by State, 1954-67

Table 9B. Infant death rates: Indian, all races, white, and nonwhite, by State, 1955-66

Copies of these tables can be obtained from Mozart Spector, Room 6-37 Parklawn Building, 5600 Fishers Lane, Rockville, Md. 20852.

sota. There appeared to be no tendency for Indian rates to be highest in States where all-race rates were highest; for example, Spearman's coefficient of rank correlation for 1967 was -0.05.

States with consistently high Indian birth rates included Minnesota, South Dakota, Montana, North Dakota, Arizona, Oregon, and Colorado. Florida, Idaho, Kansas, Michigan, Mississippi, North Carolina, and Oklahoma tended to be in the lower third of the States with respect to Indian birth rates. In 1967, the States in which the ratio of the Indian birth rates to the all-race birth rates was highest were Oregon 2.7, South Dakota 2.6, and Minnesota, Colorado, and North Dakota 2.5. Indian rates were more than twice as high as all-race rates in 15 States, whereas 8 years earlier no State had a ratio as high as 2 to 1. Birth rates, as stated, were based on a sample of registered birth records and were unadjusted for differences in age composition among the population groups.

The percentage of Indians born in hospitals increased steadily over the years (table 6). The figure of 88.2 percent born in hospitals in 1955 was 9.3 percentage points below the figure of 97.5 for U.S. whites. By 1968 the gap had narrowed to only 1.4 percentage points at levels of 98.0 and 99.4 per-

Table 8. Median age of mothers among Indian and other U.S. population groups, 1959-68

Year	Indian	U.S. total	U.S. whites	U.S. nonwhites
1968.....	24.4	24.4	24.6	23.2
1967.....	24.7	24.4	24.6	23.4
1966.....	24.9	24.5	24.7	23.7
1965.....	25.4	24.8	24.9	24.0
1964.....	25.6	24.9	25.1	24.3
1963 ¹	25.5	25.0	25.1	24.4
1962 ¹	25.7	25.1	25.2	24.6
1961.....	25.7	25.4	25.5	24.7
1960.....	25.7	25.5	25.6	24.7
1959.....	25.6	25.6	25.7	24.8

¹ U.S. figures for whites and nonwhites exclude data for residents of New Jersey, which did not require reporting of color.

NOTE: Median age computed from birth frequencies by 5-year age groups of mothers.

cent. Indians fared better than the overall nonwhite population, which passed the 90 percent mark in 1966 and still lagged 5.4 percentage points behind the white population in 1968.

Infants weighing 2,500 grams or less at birth are referred to as low birth weight babies. The term refers only to the weight of the child at birth, with no implications as to length of gestation or any

Table 7. Infants of low birth weight (2,500 grams or less) among Indian and other U.S. population groups as percentage of total reported live births, by age of mother, 1963-67

Population group and year	Age group of mother (years) ¹						
	All ages	Under 20	20-24	25-29	30-34	35-39	40 and over
Indians:²							
1967.....	7.9	8.0	7.7	7.3	8.4	8.4	10.5
1966.....	7.9	7.9	7.7	7.1	8.3	8.7	10.4
1965.....	7.9	8.3	7.6	7.6	7.9	8.6	9.8
1964.....	7.7	8.0	7.5	7.5	8.0	7.9	8.7
1963.....	7.8	8.6	7.5	7.5	8.2	7.9	8.8
U.S. total:							
1967.....	8.2	10.6	7.7	7.2	7.9	9.1	9.6
1966.....	8.3	10.5	7.9	7.3	8.0	9.1	9.5
1965.....	8.3	10.6	7.9	7.3	7.9	8.9	9.0
1964.....	8.2	10.6	7.9	7.2	7.9	8.7	8.9
1963.....	8.2	10.5	7.8	7.3	7.9	8.8	8.8
U.S. whites:							
1967.....	7.1	8.6	6.7	6.5	7.0	8.3	9.0
1966.....	7.2	8.5	6.9	6.5	7.1	8.1	8.7
1965.....	7.2	8.6	6.9	6.5	7.0	8.0	8.3
1964.....	7.1	8.6	6.8	6.4	7.0	7.9	8.2
1963.....	7.1	8.6	6.8	6.5	7.1	8.0	8.1
U.S. nonwhites:							
1967.....	13.6	15.8	13.2	11.8	12.6	13.3	12.1
1966.....	13.9	16.3	13.5	12.1	12.5	14.0	13.2
1965.....	13.8	16.6	13.3	12.2	12.8	13.4	12.3
1964.....	13.9	16.9	13.6	12.2	12.7	13.1	12.7
1963.....	13.6	16.6	13.4	12.0	12.7	13.1	12.4

¹ Denominators for percentages exclude live births if birth weight was not stated.

² Indian rates are for 3-year period centered at specified year; all other rates are for single specified year.

other measure of maturity. Table 7 indicates that Indians had relatively more low birth weight babies than whites but substantially fewer than nonwhites. This characteristic held for each age group of mothers except the group under 20 years, where the Indian percentage was generally lower than that of the whites. For all ages of mothers combined, about 8 percent of the Indian infants weighed 2,500 grams or less as compared with 7 percent for whites and 14 percent for nonwhites. The percentages tended to be higher at the young and old ages than in the middle of the childbearing period. One exception to this was the figure for the nonwhite age group 40 years and over, which dropped somewhat from the percentage for ages 35 through 39. The percentages showed little change from year to year, although in the age group 40 years and over there seemed to be an increasing trend toward low birth

weight infants for whites and Indians but not for nonwhites.

The median ages of Indian, white, and nonwhite mothers were only slightly different at birth of the child (table 8). From 1959 through 1968, the median age of Indian mothers, 25.3 years, was slightly higher than the 25.1 years for whites and 24.2 years for nonwhites. All three population groups showed a slowly decreasing median age for mothers. These medians were computed from birth frequencies and not from age-specific birth rates, as done by the Division of Vital Statistics, National Center for Health Statistics. Population estimates for Indians are extremely crude, and we believed that using birth frequencies by age of mother would be more appropriate. Medians based on age-specific birth rates tended to be 1 to 2 years higher.

Indian births by sex and sex ratio (table 8A)

Table 9. Infant deaths and death rates for Indians, and infant death rates for other U.S. population groups, by age at death, for selected years

Population groups and age at death	1967	1965	1963 ¹	1961	1959	1957	1955
	Number of deaths						
Indian total.....	666	872	972	961	1,016	1,136	1,065
Neonatal total.....	316	354	415	430	452	440	387
Under 1 day.....	174	191	205	236	188	181	147
1-6 days.....	105	102	137	114	160	152	144
7-27 days.....	37	61	73	80	104	107	96
Postneonatal (28 days through 11 months).....	350	518	557	531	564	696	678
	Rate per 1,000 live births						
Indian total.....	32.2	39.0	43.6	44.4	49.5	60.4	62.5
Neonatal total.....	15.3	15.8	18.6	19.8	22.0	23.4	22.7
Under 1 day.....	8.4	8.5	9.2	10.9	9.2	9.6	8.6
1-6 days.....	5.1	4.6	6.2	5.3	7.8	8.1	8.5
7-27 days.....	1.8	2.7	3.3	3.7	5.1	5.7	5.6
Postneonatal (28 days through 11 months).....	16.9	23.2	25.0	24.5	27.5	37.0	39.8
U.S. total.....	22.4	24.7	25.2	25.3	26.4	26.3	26.4
Neonatal total.....	16.5	17.7	18.2	18.4	19.0	19.1	19.1
Under 1 day.....	9.6	10.2	10.4	10.3	10.3	9.9	10.0
1-6 days.....	5.3	5.7	6.0	6.2	6.6	6.8	7.0
7-27 days.....	1.6	1.8	1.8	1.9	2.1	2.4	2.2
Postneonatal (28 days through 11 months).....	5.9	7.0	7.0	6.9	7.4	7.3	7.3
U.S. white total.....	19.7	21.5	22.2	22.4	23.2	23.3	23.6
Neonatal total.....	15.0	16.1	16.7	16.9	17.5	17.5	17.7
Under 1 day.....	8.7	9.3	9.5	9.5	9.5	9.3	9.3
1-6 days.....	5.0	5.3	5.6	5.8	6.2	6.3	6.6
7-27 days.....	1.3	1.5	1.5	1.6	1.7	2.0	1.8
Postneonatal (28 days through 11 months).....	4.7	5.4	5.5	5.5	5.7	5.8	5.9
U.S. nonwhite total.....	35.9	40.3	41.5	40.7	44.0	43.7	42.8
Neonatal total.....	23.8	25.4	26.1	26.2	27.7	27.8	27.2
Under 1 day.....	14.2	14.4	14.6	14.2	14.5	13.9	13.9
1-6 days.....	6.9	7.7	8.2	8.3	8.9	9.3	9.1
7-27 days.....	2.7	3.3	3.4	3.8	4.3	4.6	4.2
Postneonatal (28 days through 11 months).....	12.1	14.9	15.4	14.5	16.4	15.9	15.6

¹ U.S. figures for whites and nonwhites exclude data for residents of New Jersey, which did not require reporting of color.

have been given for all 50 States because comparable data for the 24 States were available for only a few years. As in the white and nonwhite populations, slightly more male than female Indians were born. The Indian ratio of male-to-female births fluctuated substantially because of the relatively small number of Indian births per year. For the entire 1959-68 period, the number of male births for every 1,000 female births was 1,030 for Indians, 1,055 for whites, and 1,024 for nonwhites.

Less than two-thirds of the Indian infants had both parents Indians, more than one-fourth had only an Indian mother, and the remaining one-twelfth had only an Indian father (table 8B). Tremendous variation existed, however, among States in the same year and even within States from year to year. For example, among the States in 1968 more than 70 percent of the Indians born in Arizona, Mississippi, New Mexico, North Carolina, and Utah had both parents Indian, while this was true of less than 40 percent in Iowa, Kansas, Michigan, Minnesota, Nebraska, and Oregon. In year-to-year variation, Iowa showed percentages close to the overall $\frac{2}{3}$ - $\frac{1}{4}$ - $\frac{1}{12}$ pattern, for example, in 1964, but in 1967 there was a large shift to $\frac{3}{10}$ - $\frac{8}{15}$ - $\frac{1}{6}$, probably due in large part to the variability and small numbers in sampling. The percentage of live-born to two Indian parents declined from 66 percent in 1964 and 1965 to 59 percent in 1968.

About one-third of all liveborns designated as "Indian" actually had one non-Indian parent, which may give a clue to the extent that Indians merge into the white population. Many of these children probably lose their identity as Indians at

some point in their lives. A certain number of people therefore are counted as Indians at birth who are not counted as Indians later on; for instance, at census-taking or at death.

Infant and Maternal Mortality

Between 1955 and 1967, the death rate for Indian infants under 1 year of age declined nearly one-half as compared with a decline of only one-sixth in U.S. total, white, and nonwhite rates (table 9). Both Indian and general nonwhite rates were far above those for the white population. In 1955 the Indian rate of 62.5 infant deaths per 1,000 live births was 2.6 times as large as the U.S. white rate and 1.5 times the U.S. nonwhite rate. These ratios declined during the next dozen years. In 1967 the Indian rate of 32.2 was 1.6 times as high as the white rate and 10 percent below the nonwhite rate.

The difference between infant death rates for Indians and whites was largely the result of high mortality among Indian infants after leaving the hospital and returning home in the age groups 7 through 27 days and 28 days through 11 months. Whereas there was little difference between Indian and white mortality under 7 days of age, Indian rates have been four, five, and six times as large as white rates in the postneonatal period.

The infant death rate among Indians was slightly below the nonwhite rate in 1964 (for the first time), about equal to the nonwhite rates in 1965 and 1966, and somewhat below again in 1967. The rates varied considerably by age, however, with Indian neonatal mortality substantially better than

Table 10. Neonatal and postneonatal death rates per 1,000 live births, Indian and other U.S. population groups, by leading causes, 1960 and 1966

Leading causes	1966 ¹				1960 ¹			
	Indian	U.S. total	U.S. whites	U.S. non-whites	Indian	U.S. total	U.S. whites	U.S. non-whites
Neonatal (under 28 days):								
Immaturity, unqualified.....	3.1	3.6	3.0	6.6	4.5	4.5	4.0	7.6
Ill-defined diseases peculiar to early infancy, including nutritional maladjustment.....	3.1	2.7	2.6	3.5	2.0	1.7	1.6	2.4
Postnatal asphyxia and atelectasis.....	2.5	3.8	3.4	5.6	3.0	4.5	4.2	6.5
Congenital malformations.....	1.7	2.3	2.4	1.8	2.3	2.3	2.4	1.8
Birth injuries.....	1.6	2.0	1.9	2.4	2.4	2.4	2.3	2.7
Postneonatal (28 days through 11 months):								
Respiratory diseases.....	7.1	2.5	1.8	6.1	10.3	2.8	2.1	7.0
Digestive diseases.....	3.6	.5	.3	1.4	5.2	.8	.5	2.3
Accidents.....	1.9	.8	.6	1.4	1.9	.8	.6	1.5
Infective and parasitic diseases.....	1.6	.3	.2	.5	2.2	.3	.2	.6
Congenital malformations.....	1.3	1.1	1.1	1.2	1.6	1.3	1.3	1.2

¹ Indian rates are for the 3-year periods 1965-67 and 1959-61; all other rates are for the single years 1966 and 1960.

Table 11. Infant death rates per 1,000 live births, Indian and other U.S. population groups in poverty and nonpoverty areas of selected locations, by age, cause, and color, for selected years

Location and year	Rate		
	Total	Neonatal	Post-neonatal
<i>Age</i>			
Indians in 24 reservation States, 1964 ¹ -----	37.6	16.9	20.6
Chicago, 1964: ¹			
Poverty areas-----	38.5	25.6	12.9
Nonpoverty areas-----	22.2	17.0	5.2
<i>Cause</i>	Influenza, pneumonia	Congenital malformation	Gastroenteritis, colitis, etc.
Indians in 24 reservation States, 1964 ¹ -----	5.7	3.0	3.4
Chicago, 1964: ¹			
Poverty areas-----	7.9	1.3	1.3
Nonpoverty areas-----	2.2	1.0	<1.0
<i>Color</i>	All races	Whites	Nonwhites
Chicago, 1963-65 ² -----	29.9	21.5	41.1
Poverty areas-----	39.6	25.6	42.9
Nonpoverty areas-----	24.5	20.9	37.2
Washington, D.C., 1962-64: ²			
Poverty areas-----	40.5	-----	-----
Nonpoverty areas-----	27.0	-----	-----
New York City, 1964: ³			
Poor housing areas-----	39.1	-----	-----
Good housing areas-----	17.1	-----	-----
Baltimore, 1963: ³		23.6	38.0
Lowest economic fifth-----	-----	32.7	38.4
Highest economic fifth-----	-----	19.4	27.7

¹ Reference 9, p. 19. ² Reference 7, pp. 8-10. ³ Reference 8, p. 35.

that of nonwhites but the reverse holding true in the postneonatal period.

The number of infant deaths among Indians (table 9A) was so small in some States as to make discussion of rates somewhat tenuous. Even the rates based on 3-year periods (table 9B) fluctuated substantially for certain States. In 1966, for example, four States (Kansas, California, Wisconsin, and Michigan) had rates of less than 20 infant deaths per 1,000 live births; in three States (Mississippi, Alaska, and Iowa), more than 55 infants died per 1,000 live births. Oklahoma's rate has been consistently low from year to year, along with that of California and Kansas; whereas the rates in Arizona, South Dakota, and Washington have generally been toward the upper end of the range.

Rates for whites, confined to a much tighter range of values, varied in 1966 from about 18 per 1,000 live births in Nebraska to 24 in New Mexico and Arizona. There was only a slight, positive correlation between the rankings of States based on infant death rates for Indians and rankings based on infant death rates for whites, a Spearman's coefficient of 0.21 for 1966. State rankings based on rates for Indians showed a higher degree of correlation with rankings based on rates for nonwhites (Spearman's coefficient, 0.49 for 1966), partly owing to the fact that Indians constituted a substantial share of the total nonwhite population in many of these States.

As noted earlier, neonatal mortality was as low for Indians as for the white population and lower than for the nonwhite population, but during the postneonatal period Indians fared much worse than

Table 12. Infant, neonatal, and postneonatal mortality rates per 1,000 live births in 10 U.S. States, 1964

State	Infant mortality rates			Neonatal mortality rates			Postneonatal mortality rates		
	Total	Whites	Nonwhites	Total	Whites	Nonwhites	Total	Whites	Nonwhites
U.S. total-----	24.8	21.6	41.1	17.9	16.2	26.5	6.9	5.4	14.6
Mississippi-----	39.4	23.1	53.2	24.2	17.7	29.7	15.2	5.4	23.5
Arkansas-----	26.8	22.3	37.8	17.1	16.1	19.5	9.7	6.2	18.3
South Carolina-----	31.1	23.1	42.4	18.2	17.0	19.9	12.9	6.1	22.5
Alabama-----	31.0	23.1	44.6	20.5	17.4	26.0	10.5	5.7	18.6
West Virginia-----	23.5	22.8	38.7	16.7	16.4	23.4	6.8	6.4	15.3
Tennessee-----	28.2	24.8	40.4	19.6	17.6	26.7	8.6	7.2	13.7
Kentucky-----	25.4	23.6	44.7	17.9	16.7	30.1	7.5	6.9	14.6
Louisiana-----	29.8	20.5	43.8	20.9	16.3	27.8	8.9	4.2	16.0
New Mexico-----	29.1	27.1	42.4	19.0	19.0	19.5	10.1	8.1	22.9
Georgia-----	29.2	21.9	42.6	18.7	16.2	23.2	10.5	5.7	19.4

SOURCE: Reference 3, 1964; vol. 2, Mortality, pt. B, table 7-2.

whites and nonwhites. This pattern was borne out by the leading causes of death among Indians in each category listed in table 10. For neonatal mortality, the rates for Indians were as low or lower than the rates for U.S. whites and nonwhites for most of the leading causes. For postneonatal mortality, each of the five leading causes of death among Indians showed a higher rate for them than for the whites or nonwhites. This pattern held true in both 1966 and 1960. Over this 6-year period the Indian rates improved for eight of the 10 causes listed.

Infant mortality rates in poverty areas have been

compared with those in nonpoverty areas of large metropolitan cities (7-9). Although Indians live predominately in rural areas, comparison of their infant mortality experience with that in poverty and nonpoverty areas of large metropolitan cities is of interest.

In 1964 the infant mortality rate for Indians per 1,000 live births was 37.6. This rate was little different from the rates for poverty areas of Chicago (39.6), Washington, D.C. (40.5), and New York (39.1) for the comparable period (table 11). Nonwhites in poverty areas of Chicago and Baltimore experienced higher infant death rates than whites

Table 13. Maternal deaths and death rates per 100,000 live births, Indian and other U.S. population groups, 1958-67

Year	Number				Rate ¹			
	Indian	U.S. total	U.S. whites	U.S. nonwhites	Indian	U.S. total	U.S. whites	U.S. nonwhites
1967	7	987	571	416	33.9	28.0	19.5	69.5
1966	16	1,049	605	444	54.6	29.1	20.2	72.4
1965	12	1,189	656	533	63.4	31.6	21.0	83.7
1964	14	1,343	751	592	74.2	33.3	22.3	89.9
1963 ²	24	1,466	797	619	83.7	35.8	24.0	96.9
1962 ²	18	1,465	807	615	89.7	35.2	23.8	95.9
1961	17	1,573	897	676	66.5	36.9	24.9	101.3
1960	8	1,579	936	643	67.9	37.1	26.0	97.9
1959	18	1,588	927	661	68.8	37.4	25.8	102.1
1958	16	1,581	938	643	82.6	37.6	26.3	101.8

¹ Indian rates are 3-year averages from 1959 through 1966; all other rates are based on single-year data.

² U.S. figures for whites and nonwhites exclude data for residents of New Jersey, which did not require reporting of color.

Table 14. Distribution of Indian deaths by cause, in percent, for selected years

Cause of death	1967	1966	1965	1960	1955	Rank order	
						1967	1955
All causes, number	4,776	4,920	4,714	4,534	4,254		
All causes, percent	100.0	100.0	100.0	100.0	100.0		
Accidents	20.9	20.4	20.2	17.0	16.8	1	1
Diseases of the heart	16.2	15.8	15.3	14.9	14.4	2	2
Malignant neoplasms	8.2	7.8	7.7	7.2	6.4	3	5
Influenza and pneumonia, excluding newborn	6.2	7.2	7.3	10.4	9.7	4	3
Certain diseases of early infancy	5.7	6.2	6.0	7.3	7.3	5	4
Vascular lesions affecting the central nervous system	5.7	5.3	5.6	5.2	5.0	6	7
Cirrhosis of the liver	4.5	4.5	3.4	2.3	1.5	7	11
Homicide	2.3	1.6	2.2	1.8	1.7	8	10
Diabetes mellitus	2.2	2.3	2.3	1.6	1.5	9	12
Suicide	2.0	1.3	1.4	1.3	.9	10	13
Tuberculosis, all forms	1.9	1.8	2.2	2.5	5.9	11	6
Gastritis, duodenitis, enteritis, and colitis except diarrhea of the newborn	1.7	2.2	2.4	3.4	3.9	12	8
Congenital malformations	1.5	1.7	1.9	2.2	2.0	13	9
All other	21.0	21.9	22.2	23.0	22.9		

NOTE: Percentages may not add to 100.0 because of rounding.

Table 15. Death rates per 100,000 population, Indian and other U.S. population groups, by leading causes, for selected years

Population group and cause of death	1967	1966	1965	1960	1955
Indians, all causes	863.8	903.2	878.7	910.3	927.2
Accidents	180.9	184.1	177.3	155.2	155.6
Diseases of the heart	140.0	142.3	134.2	135.5	133.8
Malignant neoplasms	70.9	70.9	67.5	65.2	59.1
Influenza and pneumonia excluding newborn	53.5	65.0	64.5	95.0	89.8
Certain diseases of early infancy	49.4	55.6	53.1	66.7	67.6
Vascular lesions affecting the central nervous system	48.8	47.5	49.2	47.8	46.4
Cirrhosis of the liver	38.9	40.8	29.6	20.7	14.2
Homicide	19.9	14.5	19.0	16.1	15.9
Diabetes mellitus	19.4	21.1	20.5	14.3	13.9
Suicide	17.0	11.7	12.1	11.4	8.7
Tuberculosis, all forms	16.3	16.7	19.4	23.1	55.1
Gastritis, duodenitis, enteritis and colitis except diarrhea of the newborn	14.5	19.6	20.7	30.5	36.0
Congenital malformations	13.2	15.8	16.6	19.9	19.0
All other	181.2	197.5	195.0	209.0	212.1
U.S. total, all causes	935.7	951.3	943.2	954.7	930.4
Accidents	57.2	58.0	55.7	52.3	56.9
Diseases of the heart	364.5	371.2	367.4	369.0	356.5
Malignant neoplasms	157.2	155.1	153.5	149.2	146.5
Influenza and pneumonia excluding newborn	28.8	32.5	31.9	37.3	27.1
Certain diseases of early infancy	24.4	26.4	28.6	37.4	39.0
Vascular lesions affecting the central nervous system	102.2	104.6	103.7	108.0	106.0
Cirrhosis of the liver	14.1	13.6	12.8	11.3	10.2
Homicide	6.8	5.9	5.5	4.7	4.5
Diabetes mellitus	17.7	17.7	17.1	16.7	15.5
Suicide	10.8	10.9	11.1	10.6	10.2
Tuberculosis, all forms	3.5	3.9	4.1	6.1	9.1
Gastritis, duodenitis, enteritis and colitis except diarrhea of the newborn	3.8	3.9	4.1	4.4	4.7
Congenital malformations	8.8	9.3	10.1	12.2	12.5
All other	136.0	138.5	137.6	135.5	131.8
U.S. whites, all causes	935.6	948.3	940.3	947.8	921.8
Accidents	55.6	56.2	54.2	50.5	55.3
Diseases of the heart	376.8	382.7	379.0	379.6	364.9
Malignant neoplasms	160.7	158.5	157.3	152.8	150.4
Influenza and pneumonia excluding newborn	27.5	30.6	30.1	34.1	24.5
Certain diseases of early infancy	20.5	22.1	23.9	32.3	34.2
Vascular lesions affecting the central nervous system	101.6	103.6	102.3	106.4	104.3
Cirrhosis of the liver	13.7	13.2	12.5	11.5	10.5
Homicide	3.6	3.1	3.0	2.5	2.3
Diabetes mellitus	17.3	17.2	16.7	16.4	15.7
Suicide	11.6	11.7	11.9	11.4	11.0
Tuberculosis, all forms	2.8	3.2	3.4	5.1	7.6
Gastritis, duodenitis, enteritis, and colitis except diarrhea of the newborn	3.7	3.6	3.7	3.8	4.0
Congenital malformations	8.5	9.0	9.7	12.0	12.4
All other	131.7	133.7	132.7	129.3	124.9
U.S. nonwhites, all causes	936.3	973.4	965.0	1,008.5	1,001.0
Accidents	68.5	71.3	67.1	66.1	70.0
Diseases of the heart	275.2	287.1	281.8	287.1	287.2
Malignant neoplasms	131.5	130.1	125.9	121.6	114.0
Influenza and pneumonia excluding newborn	38.1	46.1	45.9	62.0	48.6
Certain diseases of early infancy	52.7	57.7	63.0	77.2	78.6
Vascular lesions affecting the central nervous system	106.2	112.2	114.7	119.7	119.9
Cirrhosis of the liver	16.5	16.4	14.6	10.2	7.5
Homicide	30.1	26.5	24.6	21.9	22.8
Diabetes mellitus	20.8	21.1	20.1	18.8	14.3
Suicide	5.0	5.0	5.0	4.5	3.8
Tuberculosis, all forms	8.4	9.1	9.3	13.2	21.5
Gastritis, duodenitis, enteritis, and colitis except diarrhea of the newborn	4.7	5.7	6.7	9.5	10.8
Congenital malformations	10.8	11.5	12.4	13.7	13.4
All other	167.8	173.7	173.8	183.1	188.6

NOTE: Individual rates may not add to totals for all causes because of rounding.

in the same areas and about the same rates as Indians in the United States.

Table 11 also shows 1964 infant mortality rates by age at death and by major cause of death for poverty and nonpoverty areas of Chicago. Comparing infant, neonatal, and postneonatal mortality rates for Indians with the corresponding figures for Chicago shows that the neonatal rate was much lower for Indians than for the Chicago poverty area but that the Indian postneonatal rate was much higher than Chicago's, with a net result that the total infant mortality rates were approximately the same. By cause of infant mortality, influenza and

pneumonia were more important in the Chicago poverty area, but congenital malformations and gastroenteritis and colitis were more important among Indians.

Infant, neonatal, and postneonatal mortality rates for 1964, by race, are shown in table 12 for States with many persons living in poverty. Infant mortality among Indians was as low or lower than infant mortality among nonwhites in these 10 States as a result of lower neonatal mortality. Postneonatal mortality was higher in the Indian population than the nonwhite populations of seven of the 10 States.

Table 16. Crude and age-adjusted death rates per 100,000 population, Indian and other U.S. population groups, by leading causes, 1967

Cause of death	Rates				Ratio of Indian rate to—		
	Indian	U.S. total	U.S. whites	U.S. nonwhites	U.S. total	U.S. whites	U.S. nonwhites
<i>Crude rates</i>							
All causes.....	863.8	935.7	935.6	936.3	0.9	0.9	0.9
Accidents.....	180.9	57.2	55.6	68.5	3.2	3.3	2.6
Diseases of the heart.....	140.0	364.5	376.8	275.2	.4	.4	.5
Malignant neoplasms.....	70.9	157.2	160.7	131.5	.5	.4	.5
Influenza and pneumonia, excluding newborn.....	53.5	28.8	27.5	38.1	1.9	1.9	1.4
Certain diseases of early infancy.....	49.4	24.4	20.5	52.7	2.0	2.4	.9
Vascular lesions affecting the central nervous system.....	48.8	102.2	101.6	106.2	.5	.5	.5
Cirrhosis of the liver.....	38.9	14.1	13.7	16.5	2.8	2.8	2.4
Homicide.....	19.9	6.8	3.6	30.1	2.9	5.5	.7
Diabetes mellitus.....	19.4	17.7	17.3	20.8	1.1	1.1	.9
Suicide.....	17.0	10.8	11.6	5.0	1.6	1.5	3.4
Tuberculosis, all forms.....	16.3	3.5	2.8	8.4	4.7	5.8	1.9
Gastritis, duodenitis, enteritis, and colitis except diarrhea of the newborn.....	14.5	3.8	3.7	4.7	3.8	3.9	3.1
Congenital malformations.....	13.2	8.8	8.5	10.8	1.5	1.6	1.2
All other causes.....	181.2	136.0	131.7	167.8	1.3	1.4	1.1
<i>Age-adjusted rates¹</i>							
All causes.....	1,049.9	734.5	700.5	1,023.5	1.4	1.5	1.0
Accidents.....	216.8	55.0	52.6	73.3	3.9	4.1	3.0
Diseases of the heart.....	199.4	270.6	265.9	312.8	.7	.7	.6
Malignant neoplasms.....	101.1	129.3	126.8	154.4	.8	.8	.7
Influenza and pneumonia, excluding newborn.....	51.3	21.2	19.1	36.7	2.4	2.7	1.4
Certain diseases of early infancy.....	18.5	20.9	18.7	31.9	.9	1.0	.6
Vascular lesions affecting the central nervous system.....	67.2	71.2	66.3	119.9	.9	1.0	.6
Cirrhosis of the liver.....	59.6	13.4	12.5	20.7	4.4	4.8	2.9
Homicide.....	26.6	7.7	3.9	36.9	3.5	6.8	.7
Diabetes mellitus.....	29.0	13.8	12.7	24.5	2.1	2.3	1.2
Suicide.....	23.1	11.1	11.6	6.2	2.1	2.0	3.7
Tuberculosis, all forms.....	23.9	3.0	2.2	10.1	8.0	10.9	2.4
Gastritis, duodenitis, enteritis, and colitis except diarrhea of the newborn.....	9.9	3.0	2.8	3.9	3.3	3.5	2.5
Congenital malformations.....	6.0	7.7	7.8	7.5	.8	.8	.8
All other causes.....	217.4	106.6	97.5	184.7	2.0	2.2	1.2

¹ Adjusted to 1940 U.S. total resident population using the following age intervals: under 1 year, 1-4 years, 10-year groups through 74 years, and 75 years and over.

Table 17. Indian deaths by reservation States, 1956-67

State	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956
Total.....	4, 776	4, 920	4, 714	4, 645	4, 868	4, 645	4, 457	4, 534	4, 523	4, 418	4, 609	4, 386
Alaska.....	395	473	430	446	430	424	422	389	397	380	425	425
Arizona.....	787	829	761	742	864	775	745	757	702	725	742	645
California.....	324	317	318	280	296	286	296	304	319	303	349	309
Colorado.....	32	28	34	26	22	27	30	30	33	23	22	22
Florida.....	15	10	15	12	17	15	17	19	14	10	12	11
Idaho.....	63	71	75	57	67	66	58	54	58	62	58	67
Iowa.....	16	21	14	8	10	15	17	16	15	17	16	11
Kansas.....	26	23	22	23	27	25	27	21	25	29	20	24
Michigan.....	91	82	79	80	84	79	70	77	66	85	69	98
Minnesota.....	179	163	136	130	135	139	145	141	140	142	153	141
Mississippi.....	34	35	27	20	21	31	30	25	27	27	37	31
Montana.....	253	309	245	291	272	229	242	206	242	199	249	259
Nebraska.....	70	76	69	44	62	68	72	61	71	63	68	70
Nevada.....	76	68	78	80	75	73	69	68	81	88	79	87
New Mexico.....	531	534	503	498	488	412	386	444	427	466	453	377
North Carolina.....	308	281	261	236	295	268	240	263	277	210	201	231
North Dakota.....	107	112	125	121	122	120	125	104	111	118	116	99
Oklahoma.....	578	546	580	597	615	598	562	596	556	585	580	555
Oregon.....	73	93	86	98	105	123	100	97	116	91	82	91
South Carolina ¹							7	7	5		6	5
South Dakota.....	313	366	332	346	328	333	319	364	354	290	311	313
Utah.....	57	51	71	58	54	60	67	64	56	58	63	60
Washington.....	293	270	262	263	269	282	249	271	253	289	292	255
Wisconsin.....	118	130	129	146	168	166	124	113	144	116	167	147
Wyoming.....	37	32	62	43	42	31	38	43	34	42	39	53

¹ South Carolina excluded beginning 1962.

Table 18. Crude death rates per 1,000 population for Indian and all races in each reservation State, by selected years

State	1966 ¹		1965 ¹		1963 ¹		1960 ¹		1957 ¹	
	Indian	All races	Indian	All races	Indian	All races	Indian	All races	Indian	All races
Total.....	8. 8	² 9. 5	8. 9	² 9. 4	9. 1	² 9. 6	9. 0	² 9. 5	9. 3	² 9. 6
Alaska.....	9. 1	4. 8	9. 8	5. 0	10. 0	5. 4	9. 5	5. 8	10. 7	5. 4
Arizona.....	8. 4	7. 9	8. 4	7. 6	8. 9	7. 8	8. 8	7. 8	8. 9	7. 8
California.....	7. 3	8. 3	7. 1	8. 3	6. 9	8. 4	7. 8	8. 6	8. 7	8. 7
Colorado.....	5. 9	8. 3	5. 8	8. 3	5. 3	8. 4	7. 2	8. 7	5. 6	8. 7
Florida.....	4. 8	10. 5	4. 4	10. 3	5. 2	10. 1	6. 7	9. 7	5. 0	9. 2
Idaho.....	12. 0	8. 6	11. 9	8. 6	11. 5	8. 5	10. 9	8. 1	13. 0	8. 2
Iowa.....	8. 2	10. 8	7. 2	10. 7	5. 9	10. 6	9. 3	10. 4	8. 6	10. 3
Kansas.....	4. 0	9. 8	4. 0	9. 7	4. 6	10. 0	4. 8	9. 7	5. 1	9. 6
Michigan.....	8. 0	8. 9	7. 8	8. 9	8. 1	9. 0	7. 3	8. 7	8. 7	8. 8
Minnesota.....	9. 5	9. 3	8. 6	9. 1	8. 4	9. 3	9. 1	9. 3	9. 6	9. 5
Mississippi.....	9. 0	10. 0	7. 8	9. 8	7. 2	10. 2	8. 8	10. 0	10. 2	9. 8
Montana.....	11. 7	9. 8	12. 4	9. 4	12. 0	9. 4	10. 8	9. 7	11. 1	9. 7
Nebraska.....	11. 5	10. 2	10. 3	10. 2	10. 0	10. 0	12. 3	10. 0	12. 5	9. 9
Nevada.....	12. 0	7. 2	11. 8	7. 4	11. 1	7. 5	10. 9	8. 9	13. 2	8. 2
New Mexico.....	8. 2	6. 8	8. 1	6. 7	7. 8	6. 9	7. 5	6. 9	8. 3	7. 2
North Carolina.....	6. 9	8. 5	6. 4	8. 4	6. 7	8. 5	6. 8	8. 4	5. 6	8. 0
North Dakota.....	9. 0	8. 9	9. 5	8. 5	9. 9	8. 5	9. 7	8. 6	9. 5	9. 0
Oklahoma.....	8. 8	10. 1	8. 9	9. 7	9. 3	10. 0	8. 8	9. 8	8. 9	9. 4
Oregon.....	9. 4	9. 7	10. 5	9. 4	12. 8	9. 7	13. 0	9. 5	11. 3	9. 2
South Carolina.....							5. 8	8. 7	3. 3	8. 4
South Dakota.....	12. 3	9. 7	12. 8	9. 5	12. 7	9. 4	13. 4	9. 7	11. 8	9. 4
Utah.....	7. 2	6. 8	7. 5	6. 7	7. 6	6. 8	8. 9	6. 8	9. 0	7. 0
Washington.....	11. 6	9. 8	11. 4	9. 2	12. 1	9. 3	12. 3	9. 3	14. 4	9. 3
Wisconsin.....	8. 3	9. 7	9. 0	9. 7	11. 0	9. 8	8. 9	9. 7	10. 0	9. 7
Wyoming.....	9. 5	8. 1	10. 1	8. 5	9. 0	8. 5	9. 5	8. 5	11. 2	8. 3

¹ Indian rates are 3-year averages centered at specified year; all-race rates are based on single-year data.

² U.S. total.

Death rates from deliveries and complications of pregnancy, childbirth, and the puerperium fluctuated considerably for Indians, a fact that was to be expected because of the small number of deaths, averaging only 15 per year. But over the 10-year period (1958-67) shown in table 13, maternal death rates for Indians averaged about twice those for the country as a whole, three times those for the white population, and three-fourths as high as those for the nonwhite population. A downward trend occurred in the rates for whites and nonwhites and the hint of one for Indians. The low number of deaths, seven, among Indians in 1967 may have been the result of chance fluctuation rather than a true lessening of the risks accompanying pregnancy, childbirth, and the puerperium.

General Mortality

Trends in the leading causes of death, ranked in order for 1967, are shown for Indians in table 14. Over the 13 years 1955 through 1967, accidents and diseases of the heart ranked first and second each year. Tuberculosis had the greatest change in rank, declining from sixth in 1955 to 11th in 1967.

These 13 leading causes of death typically account for about 78 percent of all deaths among Indians, 86 percent among whites, and 82 percent among nonwhites (table 15). In the later years, more than half of all deaths among Indians were attributed to four causes: accidents, diseases of the heart, malignant neoplasms, and influenza and pneumonia. An even greater concentration of deaths occurred among whites and nonwhites from four causes (diseases of the heart, malignant neoplasms, vascular lesions affecting the central nervous system, and accidents), accounting for about three-fourths of deaths among whites and about three-fifths of deaths among nonwhites.

Although crude death rates are not as satisfactory for mortality comparisons as age-adjusted rates, they at least give some indication of relative magnitudes and trends over time. A synopsis of the trends in crude rates over the 1955-67 period for each of the 13 causes shown in table 15 follows. Crude rates for a particular cause were said to be moving up (+) if the general trend was in that direction and down (-) if the rates had been decreasing. Dashes were used to indicate either that the rates had remained nearly level or that there had been no consistent trend up or down. The per-

centage change in rates during 1955-67 is shown only for the causes with a discernible trend.

<i>Cause of death</i>	<i>Change, in percent</i>
Indians:	
Accidents -----	+16
Diseases of the heart -----	----
Malignant neoplasms -----	----
Influenza and pneumonia, excluding new-born -----	-40
Certain diseases of early infancy -----	-27
Vascular lesions affecting the central nervous system -----	----
Cirrhosis of the liver -----	+174
Homicide -----	----
Diabetes mellitus -----	+40
Suicide -----	----
Tuberculosis, all forms -----	-70
Gastritis, duodenitis, enteritis, and colitis except diarrhea of the newborn -----	-60
Congenital malformations -----	-15
Whites:	
Accidents -----	----
Diseases of the heart -----	----
Malignant neoplasms -----	+7
Influenza and pneumonia, excluding new-born -----	----
Certain diseases of early infancy -----	-40
Vascular lesions affecting the central nervous system -----	----
Cirrhosis of the liver -----	+30
Homicide -----	+57
Diabetes mellitus -----	+10
Suicide -----	----
Tuberculosis, all forms -----	-63
Gastritis, duodenitis, enteritis, and colitis except diarrhea of the newborn -----	----
Congenital malformations -----	-31
Nonwhites:	
Accidents -----	----
Diseases of the heart -----	----
Malignant neoplasms -----	+15
Influenza and pneumonia, excluding new-born -----	-22
Certain diseases of early infancy -----	-33
Vascular lesions affecting the central nervous system -----	-11
Cirrhosis of the liver -----	+120
Homicide -----	+32
Diabetes mellitus -----	+45
Suicide -----	+32
Tuberculosis, all forms -----	-61
Gastritis, duodenitis, enteritis, and colitis except diarrhea of the newborn -----	-56
Congenital malformations -----	-19

Because of the wide differences in age distribution among the population groups (Indian median age 17 years, U.S. total 28 years, whites 29 years, and nonwhites 21 years), crude death rates were not entirely satisfactory for mortality comparisons.

It might have been preferable to compare age-adjusted rates, which are designed to eliminate the effect of differences in age composition. Age-adjusted rates for Indians were higher than age-adjusted rates for the U.S. total population for eight of the 13 leading causes of death among Indians in 1967 (table 16). Rates for these eight causes ranged from 2.1 times as high as the U.S. rate for diabetes mellitus and suicide to 8.0 times as high for all forms of tuberculosis. Diseases of the heart and malignant neoplasms showed definitely lower rates for Indians than for the U.S. total population, but it must be noted that these conditions generally are associated with the older age groups. Proportionately fewer Indians than other groups reach the ages where these causes become so important. For all causes combined, the Indian age-adjusted rate was 40 percent above that for the general U.S. population.

For most causes of death, the ratios of age-adjusted rates for Indians to corresponding rates for U.S. whites were naturally about the same as the ratios of Indian rates to U.S. total rates. The major exception to this generalization was homicide; the 1967 age-adjusted homicide rate for Indians was $3\frac{1}{2}$ times as great as that for the United States as a whole but nearly seven times the rate for whites. On the other hand, the rate for Indians was more than one-fourth lower than that for nonwhites. Although there were more than seven times as many whites in this country as nonwhites (table 1), more homicide deaths occurred each year among nonwhites than whites. For all causes of death combined, the age-adjusted rate for Indians in 1967 was about equal to that for the nonwhites. Causes for which the Indian rate was distinctly greater than that for the nonwhites (two to four times as high) were accidents, cirrhosis of the liver, suicide, tuberculosis in all forms, and the category of gastritis, duodenitis, enteritis, and colitis except diarrhea of the newborn. Six other causes showed lower rates for Indians than for nonwhites.

Deaths among Indians by State for 1956-67 are shown in table 17; the crude rates are compared in table 18 with those for the general population in each State. The fact that these were crude rather than age-adjusted rates limited their value for comparative purposes. Based on crude rates, however, the following observations were possible. States with the lowest Indian rates typically included Kansas, Florida, Colorado, North Carolina, Utah, and California; the highest rates generally were in

South Dakota, Nevada, Idaho, Montana, Washington, and Nebraska. There seemed to be no correlation between rankings of States based on rates for Indians and rankings of States based on rates for all races.

More than 16 percent of all Indians who died in 1966 (actually 1965-67) were under age 1 as compared with 3.8 percent for whites and 10.4 percent for nonwhites (table 19). Only 31.5 percent of Indians who died were 65 or over, whereas the corresponding percentages were 64.0 for whites and 40.7 for nonwhites. The median age at death was about 48 years for Indians, 71 years for whites, and 60 years for nonwhites. The percentages for 1957 afforded an interesting comparison. In 1957, one-fourth of all Indians who died were infants; only 27.7 percent were age 65 or over, and the median age at death was about 40 years. For whites, 5.9 percent were under age 1; 60.6 percent were age 65 or over, and the median age was about 69 years. Percentages for nonwhites again were between those for Indians and whites, with 14.2 percent under age 1, 34.2 percent age 65 or over, and a median age of about 57 years. From 1957 to 1966, the median ages at death increased 8 years for Indians, 2 years for whites, and 3 years for nonwhites.

The age-specific death rates for Indians (table 20) were higher than the corresponding rates for whites in every age group under age 65 for every year shown. In most instances the rates for Indians also exceeded the rates for nonwhites below age 45 and were less over age 45. Two exceptions to this generalization were (a) rates for Indians were slightly below those for nonwhites under age 1 for 1965 and 1966 and (b) rates for Indians exceeded those for nonwhites for the age group 75 years and over from 1961 through 1966.

Indian rates were $1\frac{1}{2}$ to two times as high as white rates for the age groups under 1, 5-14, and 45-54; three to four times as high for age groups 1-4, 15-24, and 35-44; and $4\frac{1}{2}$ to five times as high for age group 25-34. Compared with the general U.S. nonwhite population, Indians experienced death rates one to $1\frac{1}{2}$ times as high in age groups 5-14 and 35-44; and $1\frac{1}{2}$ to two times as high in age groups 1-4, 15-24, and 25-34.

Life expectancy at birth is one frequently used measure of the health status of a population group. This statistic tends to fluctuate from year to year a lot more for Indians than for whites or nonwhites, but in recent years it has been 63 to 64 years for

Table 19. Distribution of deaths by age, in percent, Indian and other U.S. population groups, 1957-66

Age at death	1966	1965	1964	1963 ¹	1962 ¹	1961	1960	1959	1958	1957
Indians, all ages ^{2 3} -----	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 1	16.4	17.9	19.0	19.7	20.8	21.9	22.5	23.8	24.2	24.8
1-4	4.4	4.6	4.7	5.1	5.2	5.3	5.2	5.5	5.5	5.9
5-14	2.4	2.6	2.8	2.8	2.6	2.5	2.8	2.8	2.8	2.7
15-24	6.8	6.3	5.7	5.4	5.5	5.7	5.7	5.4	5.4	5.6
25-34	7.9	7.9	7.6	7.4	7.2	6.9	6.9	6.7	6.9	7.1
35-44	8.9	8.7	8.3	7.9	7.7	7.9	7.7	7.5	7.3	7.4
45-54	9.8	9.6	9.5	9.3	9.3	9.1	9.1	8.9	8.9	8.7
55-64	11.7	11.5	11.3	11.3	11.2	11.0	10.8	10.6	10.0	9.7
65-74	13.8	13.4	13.4	13.1	12.5	12.0	11.8	⁴ 28.5	⁴ 28.7	⁴ 27.7
75 and over	17.7	17.4	17.6	17.6	17.7	17.4	17.1			
Not stated	.2	.2	.2	.2	.3	.3	.4	.4	.3	.4
U.S. total, all ages ³ -----	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 1	4.6	5.1	5.5	5.7	6.0	6.3	6.5	6.8	6.9	6.9
1-4	.8	.8	.9	.9	.9	1.0	1.0	1.0	1.1	1.1
5-14	.9	.9	.9	.9	.9	1.0	1.0	1.0	.9	1.0
15-24	1.9	1.8	1.8	1.6	1.6	1.5	1.5	1.5	1.5	1.5
25-34	1.8	1.8	1.9	1.8	1.8	1.9	2.0	2.0	2.1	2.2
35-44	4.0	4.1	4.2	4.1	4.1	4.2	4.2	4.2	4.3	4.4
45-54	8.9	8.9	8.9	8.8	8.9	9.0	9.0	9.1	9.1	9.1
55-64	15.7	15.7	15.7	15.6	15.5	15.6	15.8	15.9	16.0	16.3
65-74	23.8	23.8	24.0	24.3	24.4	24.4	24.6	24.5	24.6	24.6
75 and over	37.4	36.9	36.2	36.2	35.7	35.1	34.4	34.0	33.6	32.8
Not stated	0	0	0	0	0	0	0	0	0	.1
U.S. whites, all ages ³ -----	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 1	3.8	4.2	4.6	4.8	5.1	5.4	5.5	5.7	5.9	5.9
1-4	.7	.7	.7	.8	.8	.8	.9	.9	.9	.9
5-14	.8	.8	.9	.8	.9	.9	.9	.9	.9	.9
15-24	1.8	1.7	1.6	1.5	1.5	1.4	1.4	1.4	1.4	1.4
25-34	1.5	1.5	1.6	1.5	1.6	1.6	1.7	1.7	1.8	1.9
35-44	3.5	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.8	3.9
45-54	8.4	8.4	8.4	8.3	8.4	8.5	8.5	8.5	8.5	8.5
55-64	15.4	15.3	15.3	15.1	15.0	15.2	15.4	15.5	15.6	16.0
65-74	24.1	24.2	24.5	24.6	24.8	25.0	25.2	25.1	25.2	25.3
75 and over	39.9	39.5	38.7	38.8	38.3	37.5	36.9	36.4	36.0	35.3
Not stated	0	0	0	0	0	0	0	0	0	0
U.S. nonwhites, all ages ³ -----	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 1	10.4	11.5	12.3	12.2	12.8	13.4	13.7	14.6	14.7	14.2
1-4	1.7	1.8	1.9	2.0	1.9	2.0	2.2	2.2	2.2	2.1
5-14	1.5	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.3	1.4
15-24	2.9	2.7	2.5	2.4	2.4	2.3	2.3	2.4	2.3	2.4
25-34	4.0	4.0	4.0	3.8	3.9	4.0	4.1	4.3	4.4	4.6
35-44	7.9	7.9	7.9	7.6	7.7	7.8	7.7	7.9	7.7	8.1
45-54	12.7	12.7	12.8	12.5	12.7	12.8	13.0	13.1	13.4	13.7
55-64	18.1	18.4	18.8	18.7	18.6	18.7	18.7	18.5	18.6	18.9
65-74	21.6	21.0	20.4	21.1	20.8	20.4	20.1	19.6	19.7	19.3
75 and over	19.1	18.4	17.7	18.1	17.6	17.0	16.5	15.9	15.6	14.9
Not stated	.1	.1	.1	.1	.1	.1	.1	.1	.2	.2

¹ U.S. figures for whites and nonwhites exclude data for residents of New Jersey, which did not require reporting of color.

² Indian percentages are for 3-year period centered at

specified year; all other percentages are for the single year.

³ Figures may not add to 100.0 because of rounding.

⁴ For age group 65 years and over.

Table 20. Death rates by age per 1,000 population, Indian and other U.S. population groups, 1957-66

Year and population group	All ages	Under 1 year	1-4 years	5-14 years	15-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75 years and over
<i>1966</i>											
Indian ¹	8.8	35.3	2.9	0.8	3.6	6.1	8.7	12.2	19.6	39.0	93.4
U.S. total.....	9.5	23.3	.9	.4	1.2	1.5	3.1	7.4	17.0	38.4	101.1
U.S. whites.....	9.5	20.2	.8	.4	1.1	1.3	2.7	6.8	16.1	37.0	102.8
U.S. nonwhites.....	9.7	38.8	1.5	.6	1.7	3.5	6.8	13.2	26.4	55.2	80.8
<i>1965</i>											
Indian ¹	8.9	38.8	3.0	.8	3.3	6.1	8.6	12.1	19.6	38.0	92.1
U.S. total.....	9.4	24.1	.9	.4	1.1	1.5	3.1	7.4	16.9	37.9	101.3
U.S. whites.....	9.4	20.9	.8	.4	1.0	1.3	2.6	6.8	16.0	36.7	103.1
U.S. nonwhites.....	9.6	40.2	1.5	.6	1.6	3.4	6.6	13.0	26.6	52.6	80.1
<i>1964</i>											
Indian ¹	9.0	41.7	3.1	.9	3.1	6.0	8.3	12.1	19.3	38.5	94.3
U.S. total.....	9.4	24.6	1.0	.4	1.1	1.5	3.1	7.4	17.0	37.8	100.8
U.S. whites.....	9.4	21.5	.8	.4	1.0	1.3	2.6	6.8	16.0	36.7	102.5
U.S. nonwhites.....	9.7	40.6	1.6	.6	1.6	3.3	6.6	13.2	27.1	50.6	80.1
<i>1963²</i>											
Indian ¹	9.1	43.9	3.4	.9	3.0	5.9	8.1	12.2	20.2	39.0	92.3
U.S. total.....	9.6	25.3	1.0	.4	1.1	1.5	3.0	7.5	17.3	38.9	105.3
U.S. whites.....	9.5	22.2	.9	.4	1.0	1.3	2.6	6.8	16.2	37.5	106.5
U.S. nonwhites.....	10.1	41.3	1.7	.6	1.6	3.2	6.5	13.2	27.9	53.0	86.9
<i>1962²</i>											
Indian ¹	9.1	46.1	3.3	.8	3.0	5.8	7.9	12.3	20.9	37.9	89.7
U.S. total.....	9.5	25.3	1.0	.4	1.0	1.5	3.0	7.4	16.9	38.0	103.9
U.S. whites.....	9.4	22.4	.9	.4	1.0	1.2	2.6	6.8	15.9	36.8	105.2
U.S. nonwhites.....	9.8	41.2	1.7	.6	1.6	3.1	6.3	12.9	27.0	49.7	84.3
<i>1961</i>											
Indian ¹	9.0	48.2	3.2	.8	3.0	5.5	8.0	12.2	21.2	36.7	84.1
U.S. total.....	9.3	25.4	1.0	.4	1.0	1.4	2.9	7.3	16.7	37.2	102.2
U.S. whites.....	9.3	22.5	.9	.4	1.0	1.2	2.5	6.7	15.8	36.4	103.7
U.S. nonwhites.....	9.6	40.8	1.7	.6	1.5	3.1	6.2	12.7	26.6	47.1	82.5
<i>1960</i>											
Indian ¹	9.0	49.7	3.2	.9	3.1	5.5	7.9	12.3	20.9	36.4	83.3
U.S. total.....	9.5	27.0	1.1	.5	1.1	1.5	3.0	7.6	17.4	38.2	106.0
U.S. whites.....	9.5	23.6	1.0	.4	1.0	1.2	2.6	6.9	16.3	37.4	107.4
U.S. nonwhites.....	10.1	46.3	1.9	.6	1.6	3.2	6.3	13.4	27.7	47.8	87.9
<i>1959</i>											
Indian ¹	9.1	53.1	3.4	.9	3.0	5.4	7.8	12.1	20.7	³ 54.3	
U.S. total.....	9.4	27.5	1.1	.5	1.1	1.5	2.9	7.4	17.1	37.9	59.7
U.S. whites.....	9.3	24.0	.9	.5	1.0	1.2	2.6	6.8	16.2	36.4	59.9
U.S. nonwhites.....	9.9	47.4	1.9	.7	1.6	3.3	6.3	13.3	27.1	47.1	57.6
<i>1958</i>											
Indian ¹	9.3	55.0	3.5	.9	3.0	5.7	7.7	12.4	19.8	36.4	55.7
U.S. total.....	9.5	28.1	1.1	.5	1.1	1.5	3.0	7.5	17.4	38.2	60.8
U.S. whites.....	9.4	24.5	1.0	.4	1.0	1.2	2.6	6.9	16.4	37.4	60.9
U.S. nonwhites.....	10.3	49.8	2.0	.6	1.6	3.4	6.2	14.0	28.2	47.8	59.4
<i>1957</i>											
Indian ¹	9.3	56.6	3.8	.9	3.1	5.9	7.9	12.1	19.3	36.4	53.9
U.S. total.....	9.6	28.0	1.1	.5	1.2	1.5	3.1	7.6	17.8	38.2	61.1
U.S. whites.....	9.5	24.6	1.0	.5	1.1	1.3	2.7	6.9	16.7	37.4	61.3
U.S. nonwhites.....	10.5	48.1	2.0	.7	1.8	3.5	6.5	14.5	29.6	47.8	58.9

¹ Indian rates are for a 3-year period centered at the specified year; all other rates are for the single year.

² U.S. figures for whites and nonwhites exclude data for

residents of New Jersey which did not require reporting of color.

³ For age group 65 years and over.

Indians, 71 years for whites, and 64 years for nonwhites. The Indian expectation is generally a bit lower than the nonwhite, but both lag approximately 7 years behind the white. A quarter of a century has elapsed since the expectation of life was as low for whites as it now is for Indians and nonwhites.

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HILL, CHARLES A., Jr. (Indian Health Service), and SPECTOR, MOZART I.: *Natality and mortality of American Indians compared with U.S. whites and nonwhites. HSMHA Health Reports, Vol. 86, March, 1971, pp. 229-246.*

Salient features of the natality and mortality experience of American Indians have been compared with those of white and nonwhite Americans. Birth rates in 1968 were 38.5 per 1,000 population for Indians, 16.6 for whites, and 24.2 for nonwhites. While Indian rates were at the same level as a dozen years earlier, white and nonwhite rates were down more than one-fourth. The share of registered Indian births occurring in hospitals increased from 88 percent in 1955 to 98 percent in 1968, still below the 99.4 percent for whites but above the 94.0 percent for nonwhites.

About 8 percent of the liveborn Indian infants weighed 2,500

grams or less as compared with 7 percent for whites and nearly 14 percent for nonwhites. Nearly one-third of all births classified as Indian had one non-Indian parent. The death rates for infants in 1967 were 32.2 per 1,000 live births for Indians, 19.7 for whites, and 35.9 for nonwhites. The rate for Indians was nearly 50 percent lower than in 1955, compared with a decline of 16 percent for both whites and nonwhites. Neonatal death rates for Indians were about the same as for whites and one-third lower than for nonwhites, but postneonatal death rates for Indians were four times as high as for whites and about 50 percent higher than for nonwhites.

Accidents were the leading cause of death among Indians each year from 1955 through 1967, with rates three times those for the nation as a whole. The most significant reductions in crude death rates for Indians from 1955 through 1967 were 70 percent for tuberculosis, 60 percent for gastroenteric diseases, 40 percent for influenza and pneumonia, and 27 percent for certain diseases of early infancy. For all causes of death combined, the age-adjusted death rate for Indians was about the same as that for nonwhites but 40 percent above that for whites. Life expectancy at birth in 1967 was about 64 years for both Indians and nonwhites and 71 years for whites.