Birth Registration Completeness United States, 1950

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Preliminary results of a recently completed nation-wide test of birth registration indicate that birth records are now filed by attendants and hospitals for about 98 percent of the babies being born. This represents an important advance since 1940 when only 92.5 percent of the births were registered. Progress made during this period has virtually eliminated underregistration as a practical problem in more than half the country and has sharply reduced the problem in nearly all other areas.

The registration completeness test was conducted in connection with the 1950 Decennial Census of Population and Housing through the cooperative efforts of the Population and Housing Division of the Bureau of the Census, the National Office of Vital Statistics of the Public Health Service, and the State, Territorial, and independent city registration offices. From the standpoint of birth registration, the primary purpose of the test was to obtain current measures of registration completeness for States and local areas on a comparable basis. The chief interest of the Bureau of the Census in the project has been to determine variations in infant enumeration completeness by social and economic groups and to find out reasons for failure to enumerate infants.

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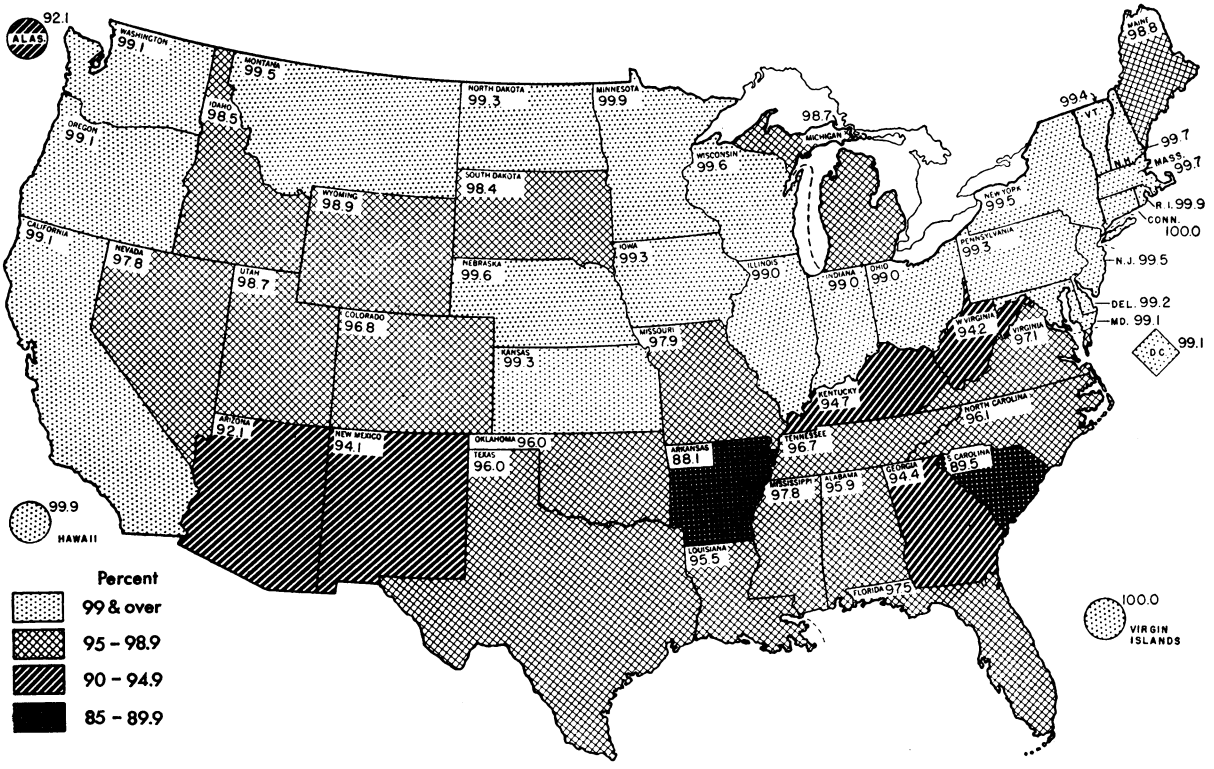
Background

In the past 30 to 40 years, the birth registration system has become one of our indispensable public institutions. A birth record is now of great importance to most people. It is called on frequently to prove age, birthplace, and parentage for such purposes as entering school, obtaining employment limited to citizens, and qualifying for pensions or social security benefits.

The value of the birth record to the individual is paralleled by its importance as a source of data for health workers. The record is used in many communities for reaching families needing public health nursing services or education in the care of the infant. Statistics derived from the record have been an essential and effective tool for planning and evaluating programs for the reduction of infant and maternal mortality. In fact, the recognized need for these statistics stimulated the organization of the birth registration system in the United States. Today, the allocation of resources to deal with aspects of infant mortality such as prematurity (immaturity) is greatly dependent upon information gathered from the birth record.

The use of birth statistics extends far beyond the health field. Available data play a part in the baby food manufacturer's plan for marketing his product, in the city or county school commission's estimate of future needs for classrooms, and in the housing expert's recommendation for new construction required to meet the trend in family size. In addition, these statistics are used extensively to study and in-

Figure 1. Percent completeness of birth registration, 1950 test (preliminary).



terpret population changes for long-range social and economic planning.

To a great extent, the capacity of the registration system for meeting these diverse demands is measured by the completeness with which births are registered. This has been recognized for many years. The history of the formative years of the national birth registration area, 1915 through 1933, is replete with instances of major efforts by health, welfare, and civic groups to insure the registration of all births (*1*). Despite the striking success of these campaigns, the broad range of cultural and ethnic groups within the population and the remoteness of many parts of the country from urban centers prolonged the period during which underregistration was a serious problem.

This was illustrated by the results of the first nation-wide test of birth registration completeness in the United States conducted in conjunction with the 1940 Decennial Census of Population and Housing. In 14 States only 80.0 to 89.9 percent of the births were registered and 2 States had even lower percentages (*2*). The results also demonstrated that registration was especially poor among groups most likely to require public health services that depend on the birth record for case finding. Fully a fifth of the babies born to mothers with little or no education were not registered, and a seventh of the births to farm residents were missed.

Further examination of the 1940 data showed that while the registration problem centered among attendants taking care of home deliveries, registration of hospital births also lagged in some places. These findings, together with figures for local areas, formed the basis for State campaigns directed toward attendants and local registrars to improve registration. However, before all of the necessary actions could be taken, State and local vital statistics offices were overwhelmed by the war demands made upon them for copies of birth certificates. In addition, requirements of the armed forces and war-connected industries rapidly depleted their staffs.

The same factors that diverted efforts from organized promotional activities to improve registration also resulted in making millions of young adults more conscious of the importance of the birth record. Never before was

such a high premium placed on having a birth certificate. Citizenship had to be established to qualify for jobs in defense industry; applications for food ration books for new-born children frequently had to be accompanied by birth records, and birth certificates of dependent children often had to be submitted by servicemen in applying for family allowances. Moreover, hospital facilities for obstetrical care increased, and each year the proportion of births being delivered at home diminished.

After World War II, State offices of vital statistics once more turned their attention to specific measures for curtailing underregistration. While it was generally believed that the net effect of wartime conditions had been to improve the situation, an objective measure of the extent to which underregistration remained a problem was needed to direct these activities. The 1950 test of registration completeness was designed with this in mind.

With the completion of the test, the situation in counties and cities has become clarified. The results are helping registrars localize areas requiring attention, determine the reasons for the remaining underregistration, and take remedial measures. For areas where registration incompleteness is still significant, the test also provides factors for correcting statistics derived from birth records.

Registration in 1950

The 1950 birth registration test indicated that 97.8 percent of the infants born in the early part of that year had birth certificates on file in vital statistics offices. In 23 States and the District of Columbia, birth registration completeness was over 99 percent and in only 7 States was it lower than 95 percent (fig. 1 and table 1).

Seven out of eight infants included in the test were born in hospitals, and all but a few of the hospital births were registered. For births delivered at home, however, registration was not nearly as complete. Nationally, only 88 percent of these births were registered, and in some States the proportion was considerably lower. Because of the consistent pattern of higher registration of hospital births throughout the

Table 1. Percent registration completeness of hospital births and births at home for each State, Territory, and possession, 1940 and 1950

[Figures for area in which birth occurred. Data for 1950, preliminary; for 1940, final]

Area	Total			Births in hospitals			Births not in hospitals		
	1950	1940	Percent change [1]	1950	1940	Percent change [1]	1950	1940	Percent change [1]
Continental United States	97.8	92.5	5.7	99.4	98.5	0.9	88.1	86.1	2.3
New England	99.7	98.6	1.1	99.8	99.5	.3	92.8	95.7	−3.0
Maine	98.8	96.1	2.8	99.5	98.7	.8	91.7	94.2	−2.7
New Hampshire	99.7	98.7	1.0	99.8	99.4	.4	[2] 96.9	96.3	.6
Vermont	99.4	97.3	2.2	99.8	96.8	3.1	95.5	97.7	−2.3
Massachusetts	99.7	98.9	.8	99.9	99.6	.3	91.4	95.5	−4.3
Rhode Island	99.9	98.8	1.1	99.9	99.7	.2	[2] 95.1	96.2	−1.1
Connecticut	100.0	99.4	.6	100.0	99.7	.3	[2] 100.0	97.1	3.0
Middle Atlantic	99.4	98.0	1.4	99.7	99.2	.5	93.8	94.5	−.7
New York	99.5	98.7	.8	99.7	99.4	.3	90.0	94.5	−4.8
New Jersey	99.5	99.0	.5	99.7	99.6	.1	93.8	96.1	−2.4
Pennsylvania	99.3	97.0	2.4	99.6	98.9	.7	95.3	94.3	1.1
East North Central	99.0	96.6	2.5	99.5	98.7	.8	89.3	93.6	−4.6
Ohio	99.0	95.2	4.0	99.6	98.4	1.2	88.2	90.9	−3.0
Indiana	99.0	96.5	2.6	99.3	97.9	1.4	94.5	95.4	−1.0
Illinois	99.0	96.9	2.2	99.6	99.0	.6	88.2	92.3	−4.4
Michigan	98.7	97.8	.9	99.2	98.8	.4	85.1	96.1	−11.4
Wisconsin	99.6	96.9	2.8	99.7	98.9	.8	93.7	94.4	−.7

Table 1 continued on p. 516.

Table 1. Percent registration completeness of hospital births and births at home for each State, Territory, and possession, 1940 and 1950—Continued

[Figures for area in which birth occurred. Data for 1950, preliminary; for 1940, final]

Area	Total			Births in hospitals			Births not in hospitals		
	1950	1940	Percent change [1]	1950	1940	Percent change [1]	1950	1940	Percent change [1]
West North Central	99.0	94.9	4.3	99.7	98.2	1.5	90.4	91.1	−0.8
Minnesota	99.9	99.3	.6	100.0	99.9	.1	95.4	98.2	−2.9
Iowa	99.3	94.6	5.0	99.5	97.6	1.9	93.4	91.0	2.6
Missouri	97.9	90.2	8.5	99.3	96.8	2.6	90.3	85.1	6.1
North Dakota	99.3	94.7	4.9	100.0	98.9	1.1	89.4	88.7	.8
South Dakota	98.4	95.4	3.1	99.5	97.9	1.6	79.1	92.8	−14.8
Nebraska	99.6	96.9	2.8	99.9	98.2	1.7	91.3	95.8	−4.7
Kansas	99.3	95.5	4.0	99.9	98.0	1.9	87.8	93.1	−5.7
South Atlantic	95.6	86.8	10.1	98.7	96.7	2.1	88.4	82.4	7.3
Delaware	99.2	97.4	1.8	99.9	99.6	.3	93.2	[2] 93.4	−.2
Maryland	99.1	97.1	2.1	99.7	99.1	.6	94.4	94.2	.2
District of Columbia	99.1	97.9	1.2	99.4	99.0	.4	[2] 79.8	88.6	−9.9
Virginia	97.1	91.9	5.7	99.5	98.7	.8	91.5	89.1	2.7
West Virginia	94.2	86.5	8.9	98.5	95.7	2.9	87.6	84.7	3.4
North Carolina	96.1	86.1	11.6	98.4	96.1	2.4	91.2	83.0	9.9
South Carolina	89.5	77.6	15.3	96.8	92.9	4.2	81.6	74.4	9.7
Georgia	94.4	81.3	16.1	98.1	96.3	1.9	87.2	76.2	14.4
Florida	97.5	89.9	8.5	99.2	92.5	7.2	91.8	87.4	5.0
East South Central	96.2	85.9	12.0	99.3	98.2	1.1	91.7	83.0	10.5
Kentucky	94.7	89.2	6.2	98.5	97.7	.8	88.4	87.6	.9
Tennessee	96.7	80.4	20.3	99.5	97.8	1.7	89.5	74.2	20.6
Alabama	95.9	85.0	12.8	99.6	98.6	1.0	91.0	81.9	11.1
Mississippi	97.8	89.8	8.9	99.6	99.3	.3	96.4	88.2	9.3
West South Central	94.8	84.5	12.2	98.7	96.4	2.4	82.1	78.5	4.6
Arkansas	88.1	75.9	16.1	97.2	95.0	2.3	75.0	72.9	2.9
Louisiana	95.5	86.1	10.9	98.4	97.3	1.1	84.1	79.4	5.9
Oklahoma	96.0	84.8	13.2	99.1	95.8	3.4	81.1	79.6	1.9
Texas	96.0	86.5	11.0	98.9	96.3	2.7	85.2	80.3	6.1
Mountain	96.6	91.5	5.6	98.9	97.9	1.0	74.5	83.2	−10.5
Montana	99.5	97.6	1.9	99.8	98.8	1.0	89.1	93.4	−4.6
Idaho	98.5	95.0	3.7	99.1	97.5	1.6	79.6	91.4	−12.9
Wyoming	98.9	95.6	3.5	99.4	98.8	.6	[2] 86.8	[2] 88.3	−1.7
Colorado	96.8	89.8	7.8	99.0	98.0	1.0	70.6	79.6	−11.3
New Mexico	94.1	86.4	8.9	97.6	93.8	4.1	85.1	83.5	1.9
Arizona	92.1	84.4	9.1	98.5	97.7	.8	53.3	68.3	−22.0
Utah	98.7	96.6	2.2	99.4	98.6	.8	73.4	93.0	−21.1
Nevada	97.8	96.2	1.7	97.9	[2] 98.2	−.3	([3])	[2] 90.2	([4])
Pacific	99.1	97.8	1.3	99.5	99.1	.4	78.0	91.4	−14.7
Washington	99.1	97.8	1.3	99.5	98.9	.6	70.1	91.1	−23.1
Oregon	99.1	97.1	2.1	99.3	98.7	.6	84.7	90.9	−6.8
California	99.1	98.0	1.1	99.5	99.2	.3	78.5	91.6	−14.3
Territories and possessions:									
Alaska	92.1	([5])	([5])	98.3	([5])	([5])	76.6	([5])	([5])
Hawaii	99.9	97.7	2.3	99.9	([5])	([5])	[2] 98.0	([5])	([5])
Puerto Rico	([6])	80.5	([5])	([6])	([5])	([5])	([6])	([5])	([5])
Virgin Islands	100.0	96.4	3.7	100.0	([5])	([5])	[2] 100.0	([5])	([5])

[1] All percentage changes are relative changes from the 1940 measures of registration completeness. Decreases are indicated by minus sign (−). [2] Based on 25 to 99 records. Sizable variations in percentages based on these frequencies may arise from random factors. [3] Not computed. Number of test records less than 25. Percentages based on so few records subject to considerable error. [4] Not applicable. [5] Not available. [6] Registration test in process.

NOTE. 1950 percentages show results of registration completeness test covering January–March 1950 live births; 1940 percentages, results of similar test covering live births in December 1939 and January–March 1940.

country, the extent to which mothers used hospital facilities played an important part in determining a State's total registration completeness. Figure 2 shows that the proportion of births occurring in hospitals varied considerably from region to region and was lowest in the southern geographic divisions.

About two-fifths of the births occurring at home were attended by midwives, relatives, or neighbors. These attendants registered 85 percent of the births they delivered as against 91 percent for physicians attending home deliveries (tables 2 and 3). Nonphysicians (predominantly midwives) were used far more often in the South Atlantic, South Central, and Mountain States than in other parts of the country. In a number of States these attendants took care of more births at home than did physicians, and in some areas they had a better record of registration.

By comparison, in the 24 States of the New England, Middle Atlantic, North Central, and Pacific areas, fewer than 5 births in every 1,000 were delivered by nonphysicians, with about two-fifths of them unregistered. The large underregistration in this group is explained in part by the fact that the attendant was often a neighbor or relative with little or no knowledge of the responsibility for filing a birth certificate.

Of the white births in the test, 98.5 percent were registered as against 93.4 percent of the nonwhite. A closer examination of the situation indicates that there was no difference between the two race groups in registration completeness of births "at home" and only a slight difference with respect to the "in hospital" births. However, when hospital and nonhospital births are combined, registration is found to be more complete in the white group than in the nonwhite because of the more frequent occurrence of white births in hospitals.

More than nine-tenths of the nonwhites were Negro, the remainder being about evenly divided into "Indian" and "other." The last group consists mainly of births to parents of Chinese or Japanese extraction. Of the nonwhite groups, the Indian had the poorest record of registration completeness (85 percent). Nonphysicians attended over one-fifth of the Indian births and filed certificates for less than half (44 percent) of the infants they delivered. In

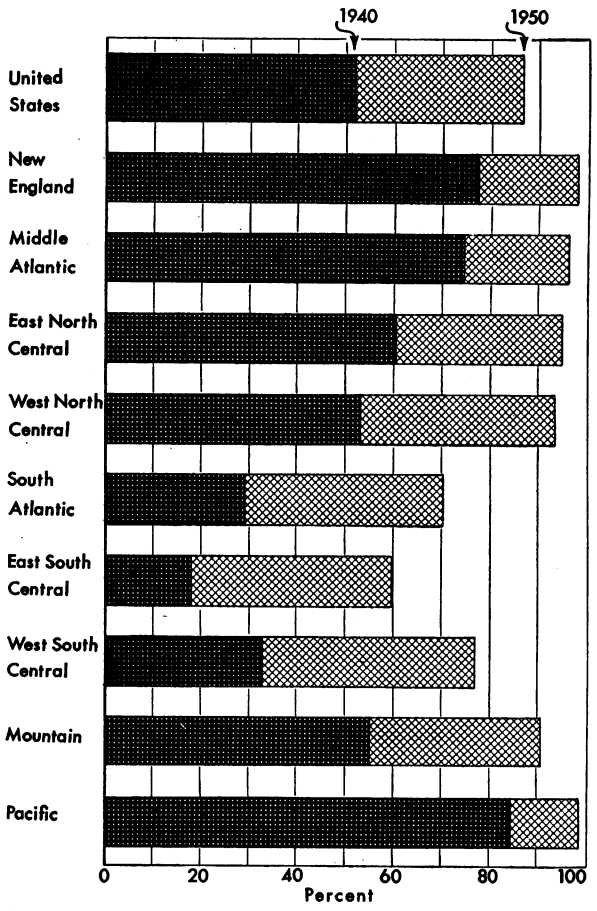


Figure 2. Proportion of births occurring in hospitals for each geographic division, 1940 and 1950.

the "other" category, registration completeness was over the 97-percent mark. Most of these births occurred in areas where extensive use is made of hospital facilities for maternity care.

National Changes Since 1940

A comparison of results from the 1940 and 1950 registration tests shows that substantial gains were made during the intervening years. For the United States as a whole, the relative improvement was 5.7 percent—registration completeness rising from 92.5 percent in 1940 to 97.8 percent in 1950 (table 1).

About four-fifths of the increase is explained by the trend toward use of hospital facilities for obstetrical care (*3*). In 1940, about half of the confinements were in hospitals; by 1950 this proportion had increased to seven-eighths of the total (fig. 2). If the continuing efforts of State and local registrars to obtain complete

registration among hospitals and among home attendants had succeeded only in maintaining the 1940 levels in each group, registration completeness for the country would have risen to 96.8 percent because of the change in the proportion of hospital births.

The remaining portion of the improvement was due to moderate increases in registration of both "in hospital" and "at home" births. During the period of the 1940 test, birth registration completeness of hospital births was already high—98.5 percent (*4*). Hence, although States with near perfect registration of such births retained their high standards and other States were able to approach close to the 100 percent mark, the total improvement was necessarily modest.

With respect to deliveries at home, registration completeness in 1940 was only 86 percent, but here, too, the increase was small—2 percent. To some extent, this limited improvement is explained by the change in composition of attendants delivering babies in the home. Doctors, whose registration practices are generally better than those of the nonphysician group, took care of about three-fifths of the home deliveries in 1950 as against four-fifths in 1940.

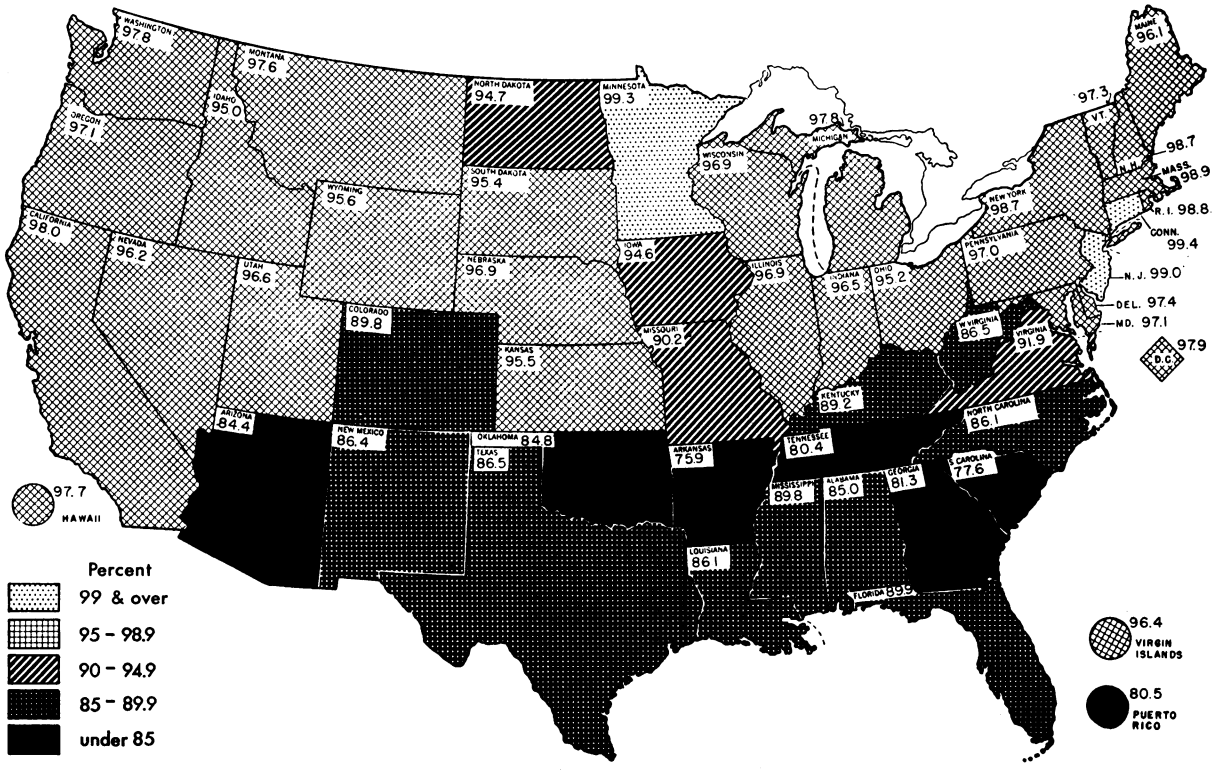
Table 2. Registration completeness by race and person in attendance at birth for each geographic division, 1950

[Figures for area in which birth occurred. Data preliminary, based on births in January–March 1950]

Area and race	Total		Physician in hospital		Physician not in hospital		Midwife, other, and not specified	
	Total infant cards	Percent matched	Total infant cards	Percent matched	Total infant cards	Percent matched	Total infant cards	Percent matched
Continental United States	780, 343	97. 8	674, 221	99. 4	61, 859	90. 6	44, 263	84. 5
White	674, 793	98. 5	618, 329	99. 5	44, 981	91. 7	11, 483	73. 9
Nonwhite	105, 550	93. 4	55, 892	98. 1	16, 878	87. 7	32, 780	88. 3
Negro	98, 154	93. 6	50, 005	98. 2	16, 303	87. 6	31, 846	89. 4
Indian	3, 872	85. 0	2, 715	96. 6	339	90. 9	818	44. 4
Other races	3, 524	97. 4	3, 172	99. 1	236	88. 6	116	69. 8
New England	42, 678	99. 7	41, 678	99. 8	961	94. 4	39	53. 8
White	41, 759	99. 7	40, 777	99. 8	946	94. 3	36	58. 3
Nonwhite	919	99. 3	901	99. 7	15	100. 0	3	0
Middle Atlantic	132, 231	99. 4	127, 154	99. 7	4, 682	97. 2	395	53. 7
White	122, 009	99. 5	117, 601	99. 7	4, 079	97. 5	329	52. 6
Nonwhite	10, 222	98. 2	9, 553	98. 7	603	95. 0	66	59. 1
East North Central	155, 825	99. 0	147, 554	99. 5	7, 562	92. 9	709	51. 3
White	144, 731	99. 1	138, 395	99. 6	5, 821	93. 0	515	45. 6
Nonwhite	11, 094	97. 1	9, 159	98. 6	1, 741	92. 4	194	66. 5
West North Central	74, 356	99. 0	69, 294	99. 7	4, 409	93. 6	653	68. 5
White	71, 117	99. 2	66, 627	99. 7	4, 070	93. 9	420	70. 5
Nonwhite	3, 239	95. 7	2, 667	99. 1	339	90. 6	233	64. 8
South Atlantic	119, 497	95. 6	83, 884	98. 7	17, 983	89. 0	17, 630	87. 7
White	84, 060	97. 2	70, 923	99. 0	10, 759	90. 3	2, 378	74. 3
Nonwhite	35, 437	92. 0	12, 961	97. 4	7, 224	87. 0	15, 252	89. 8
East South Central	68, 880	96. 2	41, 042	99. 3	14, 705	91. 5	13, 133	91. 8
White	48, 738	96. 5	35, 459	99. 4	10, 462	91. 7	2, 817	78. 9
Nonwhite	20, 142	95. 4	5, 583	98. 9	4, 243	91. 1	10, 316	95. 3
West South Central	81, 105	94. 8	62, 122	98. 7	9, 283	85. 2	9, 700	79. 3
White	63, 822	96. 6	53, 397	98. 9	6, 800	87. 7	3, 625	79. 1
Nonwhite	17, 283	88. 3	8, 725	97. 3	2, 483	78. 2	6, 075	79. 4
Mountain	31, 032	96. 6	28, 083	98. 9	1, 446	89. 8	1, 503	59. 9
White	29, 055	97. 9	26, 729	99. 2	1, 372	89. 9	954	72. 7
Nonwhite	1, 977	78. 0	1, 354	93. 9	74	87. 8	549	37. 5
Pacific	74, 739	99. 1	73, 410	99. 5	828	93. 5	501	52. 3
White	69, 502	99. 2	68, 421	99. 5	672	93. 9	409	51. 1
Nonwhite	5, 237	98. 1	4, 989	99. 1	156	91. 7	92	57. 6

NOTE. Registration completeness measured by percent infant cards matched.

Figure 3. Percent completeness of birth registration, 1940 test.



Improvement Among the States

Birth registration improved in virtually every State during the 1940's. States varied in completeness from 76 percent to over 99 percent in 1940, but by 1950 the range was cut in half. To the ranks of the three States that had 99 percent or higher registration completeness in the earlier period were added 20 States and the District of Columbia (fig. 3).

Large gains were made in most of the southern States, nearly all of which were well below the 90-percent point in 1940. Tennessee, with only 80 percent in that year, improved by 20 percent; Arkansas, Georgia, and South Carolina, by 15 to 16 percent; and Alabama, Louisiana, North Carolina, Oklahoma, and Texas, by at least 10 percent.

In all States, the increase in the proportion of births occurring in hospitals was an important factor in the change. However, for some States, particularly those in the South, this by no means tells the whole story. In a few, registration of hospital births during 1940 lagged substantially behind the national average. The improvement that followed brought these areas much closer to the United States figure.

Promotional efforts among midwives and prospective parents also played a large role in the advance made in registration completeness in the southern States. These took varied forms, but in most cases they were linked to public health programs. For example, training sessions organized in a number of States under the direction of public health nurses to teach midwives maternity care were used to instruct them on the preparation of certificates.

In Alabama, Louisiana, Mississippi, and South Carolina, attendance at prenatal clinics served as a point of contact with expectant mothers to establish a check on the filing of a birth record. Post cards were given to these women with the request that they be completed and returned to the health department as soon as possible after the birth of the child. Information received in this way was then used to find out whether the attendant had registered the birth, and follow-up action was taken to remedy omissions of registration. Other steps taken by States included such measures as the

Table 3. Registration completeness by race and person in attendance at birth for selected States, 1950

[Figures for area in which birth occurred. Data preliminary, based on births in January–March 1950. States selected have less than 90 percent of births occurring in hospitals]

Area and race	Total		Physician in hospital		Physician not in hospital		Midwife, other, and not specified	
	Total infant cards	Percent matched	Total infant cards	Percent matched	Total infant cards	Percent matched	Total infant cards	Percent matched
Alabama	18,760	95.9	10,720	99.6	3,582	89.0	4,458	92.5
White	11,501	97.1	8,730	99.7	2,298	90.0	473	83.3
Nonwhite	7,259	94.0	1,990	99.1	1,284	87.3	3,985	93.6
Arizona	4,707	92.1	4,045	98.5	182	84.6	480	41.5
White	3,807	97.5	3,492	99.1	156	87.2	159	73.0
Nonwhite	900	69.6	553	94.9	26	69.2	321	25.9
Arkansas	11,113	88.1	6,560	97.2	2,332	78.0	2,221	71.9
White	7,916	92.3	5,973	97.8	1,572	81.4	371	49.9
Nonwhite	3,197	77.9	587	91.7	760	71.1	1,850	76.3
Florida	13,547	97.5	10,437	99.2	1,043	92.4	2,067	91.4
White	9,757	98.8	9,010	99.4	531	94.4	216	85.6
Nonwhite	3,790	94.1	1,427	98.0	512	90.4	1,851	92.1
Georgia	20,939	94.4	13,961	98.1	2,215	81.3	4,763	89.9
White	12,984	96.7	11,469	98.6	1,104	83.7	411	77.6
Nonwhite	7,955	90.8	2,492	95.6	1,111	78.9	4,352	91.0
Kentucky	17,208	94.7	10,721	98.5	5,008	91.1	1,479	79.3
White	16,052	94.7	10,140	98.5	4,504	91.0	1,408	78.9
Nonwhite	1,156	94.8	581	98.3	504	91.9	71	87.3
Louisiana	16,180	95.5	12,898	98.4	1,004	83.3	2,278	84.5
White	9,768	97.0	8,925	98.6	578	84.3	265	68.7
Nonwhite	6,412	93.3	3,973	97.9	426	81.9	2,013	86.6
Maryland	10,809	99.1	9,459	99.7	921	97.1	429	88.8
White	8,614	99.3	7,940	99.8	558	97.7	116	73.3
Nonwhite	2,195	98.2	1,519	99.4	363	96.1	313	94.6
Mississippi	14,436	97.8	6,395	99.6	2,644	95.2	5,397	97.0
White	6,267	98.6	5,054	99.8	1,020	94.4	193	88.6
Nonwhite	8,169	97.2	1,341	98.9	1,624	95.8	5,204	97.3
Missouri	19,176	97.9	16,230	99.3	2,596	93.0	350	70.6
White	17,325	98.1	14,746	99.3	2,362	93.0	217	67.3
Nonwhite	1,851	96.5	1,484	98.9	234	92.7	133	75.9
New Mexico	4,500	94.1	3,237	97.6	566	92.0	697	79.5
White	4,100	96.6	3,015	98.8	553	92.0	532	89.1
Nonwhite	400	68.3	222	81.5	13	92.3	165	48.5
North Carolina	23,925	96.1	16,334	98.4	4,277	91.9	3,314	90.2
White	16,050	97.5	13,690	98.7	1,951	92.3	409	84.6
Nonwhite	7,875	93.1	2,644	96.9	2,326	91.6	2,905	91.0
Oklahoma	11,186	96.0	9,243	99.1	1,433	87.0	510	64.5
White	9,803	97.3	8,493	99.2	1,151	89.7	159	55.3
Nonwhite	1,383	86.2	750	98.4	282	75.5	351	68.7
South Carolina	13,681	89.5	7,121	96.8	2,536	79.5	4,024	82.9
White	7,238	93.5	5,948	97.1	1,065	79.5	225	62.7
Nonwhite	6,443	85.0	1,173	95.0	1,471	79.5	3,799	84.1
Tennessee	18,476	96.7	13,206	99.5	3,471	91.9	1,799	84.8
White	14,918	97.2	11,535	99.6	2,640	93.4	743	73.6
Nonwhite	3,558	94.4	1,671	99.0	831	87.4	1,056	92.7
Texas	42,626	96.0	33,421	98.9	4,514	88.7	4,691	81.8
White	36,335	97.2	30,006	99.1	3,499	90.4	2,830	85.2
Nonwhite	6,291	88.9	3,415	97.3	1,015	82.7	1,861	76.7
Virginia	17,299	97.1	12,137	99.5	2,812	91.8	2,350	91.2
White	12,967	97.8	10,554	99.6	1,979	92.5	434	79.3
Nonwhite	4,332	95.0	1,583	99.0	833	90.2	1,916	93.9
West Virginia	11,756	94.2	7,131	98.5	4,035	91.3	590	62.4
White	10,984	94.5	6,922	98.5	3,511	91.6	551	61.3
Nonwhite	772	90.9	209	98.1	524	89.1	39	76.9
Alaska	1,010	92.1	720	98.3	18	88.9	272	75.7
White	567	98.4	554	98.9	3	100.0	10	70.0
Nonwhite	443	84.0	166	96.4	15	86.7	262	76.0

NOTE. Registration completeness measured by percent infant cards matched.

dual registration system in Georgia which requires both the parent and the attendant to report the birth.

While registration completeness of births at home increased throughout the South, decreases occurred in almost all other parts of the country. Some of the decreases were small and could be ascribed to random factors. In several States the test figures indicate a substantial decline, but a much higher proportion of the home deliveries in these areas were attended by nonphysicians in 1950 than 10 years earlier. As previously mentioned, nonphysicians in most of the areas outside the South have infrequent contact with the registration system and generally know very little about filing a birth record.

Improvement by Race

Registration in the nonwhite races improved considerably during the 1940 decade. As a result, the wide difference in registration completeness between the white and the nonwhite group that existed in 1940 was substantially reduced. From 82.0 percent in that year, the proportion of nonwhite infants for whom certificates were being filed rose to 93.4 percent in 1950. The corresponding change for the white group was from 94.0 to 98.5 percent (table 4).

In the white group, the improvement in registration was related to the more frequent use of hospital facilities in 1950. Registration of hospital births, already very high in 1940, approached even closer to 100 percent. There was practically no change in the completeness of registration of "out of hospital" births. But, in the 1950 test, 92 percent of the white births occurred in hospitals as against 56 percent in the earlier test.

On the other hand, nonwhite registration improved by 2 percent for hospital births and by 14 percent for births delivered at home. The importance of the latter improvement is indicated by the fact that even in 1950, nearly half of the nonwhite births occurred at home. Promotional efforts of many of the southern States were directed primarily toward this group.

The figures on registration of Negro births and the reasons for the improvement between 1940 and 1950 are practically identical with those for the total nonwhite group (table 5). Among the Indian births, registration completeness advanced from the very low point of 68 to 85 percent (*5*). The more frequent occurrence of births in hospitals in 1950 was, of course, partly responsible. A number of special administrative and procedural actions taken by the States during the decade to reduce underregistration in this race group also contributed to the change.

Table 4. Percent birth registration completeness by race for each State, Territory, and possession, 1940 and 1950

[Figures for area in which birth occurred. Data for 1950, preliminary; for 1940, final]

Area	White			Nonwhite		
	1950	1940	Percent change [1]	1950	1940	Percent change [1]
Continental United States	98.5	94.0	4.8	93.4	82.0	13.9
New England	99.7	98.6	1.1	99.3	96.9	2.5
Maine	98.8	96.3	2.6	[2] 100.0	([2])	([4])
New Hampshire	99.7	98.6	1.1	([2])	([2])	([4])
Vermont	99.4	97.3	2.2	([2])	([2])	([4])
Massachusetts	99.8	98.9	.9	98.7	98.0	.7
Rhode Island	99.9	98.8	1.1	[2] 100.0	[2] 100.0	0
Connecticut	100.0	99.4	.6	100.0	97.9	2.1
Middle Atlantic	99.5	98.2	1.3	98.2	95.4	2.9
New York	99.6	98.8	.8	98.4	96.3	2.2
New Jersey	99.7	99.0	.7	98.1	98.7	—.6
Pennsylvania	99.4	97.2	2.3	98.0	92.9	5.5

See footnotes to table 1. Table 4 continued on p. 522.

Table 4. Percent birth registration completeness by race for each State, Territory, and possession, 1940 and 1950—Continued

[Figures for area in which births occurred. Data for 1950, preliminary; for 1940, final]

Area	White			Nonwhite		
	1950	1940	Percent change [1]	1950	1940	Percent change [1]
East North Central	99.1	96.8	2.4	97.1	92.8	4.6
Ohio	99.0	95.3	3.9	98.0	93.7	4.6
Indiana	99.0	96.6	2.5	98.5	94.0	4.8
Illinois	99.2	97.3	2.0	96.6	90.6	6.6
Michigan	98.9	97.9	1.0	96.1	94.0	2.2
Wisconsin	99.6	96.9	2.8	98.7	93.2	5.9
West North Central	99.2	95.1	4.3	95.7	86.1	11.1
Minnesota	99.9	99.3	.6	96.8	97.2	—.4
Iowa	99.3	94.7	4.9	98.1	[2] 90.1	8.9
Missouri	98.1	90.7	8.2	96.5	82.7	16.7
North Dakota	99.4	94.6	5.1	95.7	95.2	.5
South Dakota	99.2	96.6	2.7	82.7	79.8	3.6
Nebraska	99.6	97.0	2.7	96.7	93.1	3.9
Kansas	99.4	95.6	4.0	96.5	92.9	3.9
South Atlantic	97.2	89.0	9.2	92.0	81.4	13.0
Delaware	99.5	97.2	2.4	98.0	98.6	—.6
Maryland	99.3	97.8	1.5	98.2	94.1	4.4
District of Columbia	99.8	98.5	1.3	97.4	96.6	.8
Virginia	97.8	92.5	5.7	95.0	90.2	5.3
West Virginia	94.5	86.7	9.0	90.9	81.3	11.8
North Carolina	97.5	88.4	10.3	93.1	81.0	14.9
South Carolina	93.5	82.7	13.1	85.0	71.8	18.4
Georgia	96.7	83.6	15.7	90.8	77.6	17.0
Florida	98.8	91.3	8.2	94.1	86.4	8.9
East South Central	96.5	86.9	11.0	95.4	83.1	14.8
Kentucky	94.7	89.2	6.2	94.8	87.6	8.2
Tennessee	97.2	81.4	19.4	94.4	75.1	25.7
Alabama	97.1	86.4	12.4	94.0	82.4	14.1
Mississippi	98.6	93.8	5.1	97.2	86.2	12.8
West South Central	96.6	87.1	10.9	88.3	73.3	20.5
Arkansas	92.3	79.6	16.0	77.9	63.2	23.3
Louisiana	97.0	87.7	10.6	93.3	83.7	11.5
Oklahoma	97.3	87.0	11.8	86.2	66.9	28.8
Texas	97.2	89.3	8.8	88.9	68.7	29.4
Mountain	97.9	93.7	4.5	78.0	56.2	38.8
Montana	99.5	98.0	1.5	98.9	91.1	8.6
Idaho	98.5	95.1	3.6	[2] 98.0	[2] 79.3	23.6
Wyoming	98.8	95.9	3.0	[2] 100.0	[2] 85.4	17.1
Colorado	96.7	89.8	7.7	97.7	[2] 90.4	8.1
New Mexico	96.6	91.2	5.9	68.3	40.3	69.5
Arizona	97.5	93.8	3.9	69.6	48.4	43.8
Utah	99.1	97.1	2.1	[2] 82.5	[2] 59.6	38.4
Nevada	98.8	97.5	1.3	[2] 88.6	[2] 80.9	9.5
Pacific	99.2	98.0	1.2	98.1	94.9	3.4
Washington	99.2	98.0	1.2	96.3	88.7	8.6
Oregon	99.1	97.3	1.8	99.4	[2] 84.1	18.2
California	99.2	98.1	1.1	98.3	96.5	1.9
Territories and possessions:						
Alaska	98.4	([3])	([3])	84.0	([3])	([3])
Hawaii	99.8	([3])	([3])	99.9	([3])	([3])
Puerto Rico	([3])	([3])	([3])	([3])	([3])	([3])
Virgin Islands	([3])	([3])	([3])	100.0	([3])	([3])

See footnotes to table 1.

Methodology

The 1950 birth registration test was limited to infants born during the 3-month period, January 1 through March 31, 1950. Two sets of independently collected records for these infants were compared to obtain measures of registration completeness, that is, birth records on file were matched against infant cards filled out by Census enumerators during the Decennial Census of Population and Housing in April 1950, for enumerated children born in the first 3 months of the year. Because of the confidential nature of the infant cards, they were handled only by Census personnel or special agents of the Bureau of the Census (for discussion of methodology in the 1940 test, see reference *2*).

The matching operation consisted of three major phases.

1. *Matching at the National Office of Vital Statistics.* A punched card containing alphabetical and statistical data was prepared by the National Office of Vital Statistics for each birth record and infant card in the test. The punched cards were collated mechanically using various combinations of common identifying information. When data on these cards were inadequate to establish a match, copies of the original records were examined for confirming evidence.

About 94 percent of the 780,000 infant cards in the test were matched during these operations. (The 780,000 cards do not represent the exact number of infants enumerated in the census since in some cases the enumerator recorded the child on the basic population schedule but failed to fill out an infant card.)

2. *Mail survey.* Unmatched infant cards were included in a mail survey designed to verify and correct information on the residual group. The questionnaire was sent to parents and in special cases to welfare organizations and hospitals. Replies to the initial mailing and follow-up letter were received for about 80 percent of the records. These responses resulted in additional matches and in the elimination of infant cards for children born outside the test period.

3. *State searches.* The 30,000 infant cards still unmatched after the mail survey were sent to State, independent city, and Territorial registration offices for searches against their files. Registrars were authorized to use other sources of information within the limitations of Census and State regulations. Matching records were located for almost half the infant cards sent to these offices. Problems of identification created by illegitimacy, adoption, and other situations resulting in name changes were frequently resolved in this phase.

Preliminary Nature of Test Results

All figures now being released for the 1950 test are preliminary. Final results will become available in a few months after States have had an additional opportunity to search their files and contact agencies in a final effort to locate matching birth records. However, changes in preliminary results are expected to be very small in virtually all States. Final tabulations currently planned will make available completeness data for urban and rural residents and for various demographic charac-

Table 5. Percent birth registration completeness by specified race, 1940 and 1950, and by person in attendance, 1950, continental United States

[Data for 1950, preliminary; for 1940, final]

Person in attendance and year	All races	White	Negro	Indian	Other races
Total:					
1950	97.8	98.5	93.6	85.0	97.4
1940	92.5	94.0	81.9	68.3	97.8
Percent change	+5.7	+4.8	+14.3	+24.5	−.4
Person in attendance 1950:					
Physician in hospital	99.4	99.5	98.2	96.6	99.1
Physician not in hospital	90.6	91.7	87.6	90.9	88.6
Midwife, other, and not specified	84.5	73.9	89.4	44.4	69.8

teristics, including age and education of the mother, birth order, and occupation of the father.

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Poliomyelitis in the United States, 1951

By C. C. DAUER, M.D.

A decrease of approximately 15 percent in both the incidence of poliomyelitis and its estimated death rate in the United States in 1951 is indicated by comparison of provisional data with 1950 figures. Five thousand fewer cases were reported than in 1950, and the estimated death rate, based on a 10-percent sample, was 0.9 per 100,000 population as compared with 1.1 for 1950. (Comparative data for 1946–51 are given in table 1.)

The distribution of poliomyelitis cases by counties in 1951 is shown on the map. The largest area of relatively high incidence was centered in the Colorado-Utah-Wyoming triangle, but it also included portions of adjacent States. In 1950, the area of highest incidence was adjacent to and east of this area.

There were smaller areas of epidemicity in southeast Kansas, Wisconsin, Illinois, Missis-

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Table 1. Poliomyelitis morbidity and mortality in the United States, 1946–51

Year	Number cases reported	Case rate per 100,000 population	Number deaths	Death rate per 100,000 population
1946	25,698	18.4	1,845	1.3
1947	10,827	7.6	580	.4
1948	27,726	19.0	1,895	1.3
1949	42,033	28.3	2,720	1.8
1950	33,303	22.0	----	[1] 1.1
1951	[2] 28,395	18.8	----	[1] .9

[1] Rate based on 10-percent sample of deaths. [2] Provisional figures.