

Trends in Natality, 1990 – 2003

This report will review the general trends in natality occurring in Minnesota. The first section will provide a demographic profile of mothers and fathers in Minnesota. The second section will review the trends in service and delivery. The third section will discuss changes in birth outcomes over the last decade. The final section will provide information on trends in infant and maternal deaths. Natality data are from the Minnesota Department of Health, Center for Health Statistics. Population data are from the U.S. Census Bureau.

Historical Overview

In 1910 44,092 births occurred in Minnesota (Figure 1). The number of births peaked in 1959 at 88,333 births. In the 60's and 70's births in Minnesota declined, bottoming out in 1973 with 53,783 births. In the 1990s births remained fairly constant just below 70,000. In 2003 the number of births finally exceeded 70,000 for the first time since 1965.

Figure 1: Number of Births in Minnesota, 1910-2003

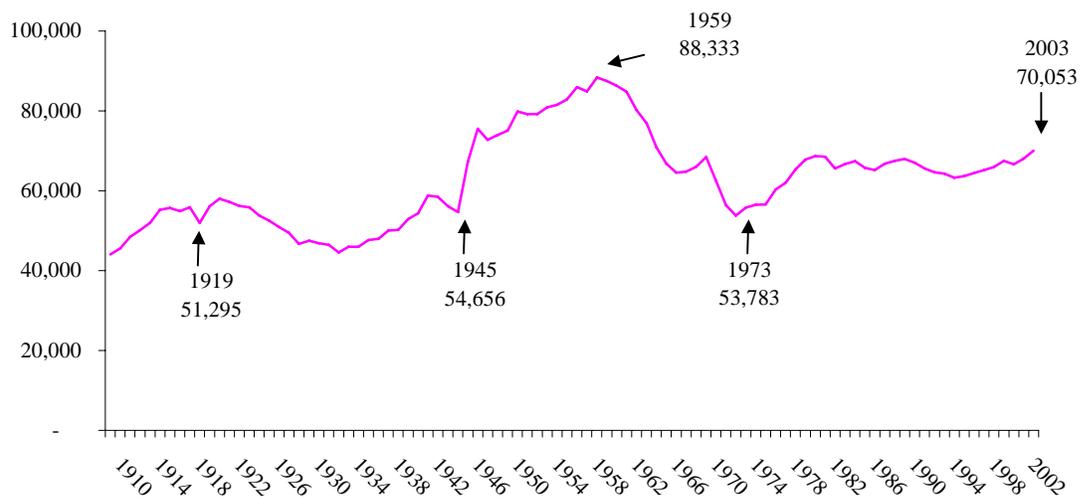


Table 1: Selected Natality Statistics: Minnesota 1970, 1980 and 1990-2003

Year	Number of Births	Birth Rate	Percent Not Married	Average Age at 1 st Birth	Percent Who Attended College or More	Percent Who Smoked
1970	68,449	18.0	8.0	21.8	29.1	N/A*
1980	67,843	16.6	11.4	23.5	37.5	N/A*
1990	67,986	15.5	20.9	25.2	52.4	15.8
1991	67,037	15.1	22.3	25.3	53.3	15.3
1992	65,591	14.7	23.0	25.4	55.1	15.2
1993	64,646	14.3	23.3	25.5	56.3	14.4
1994	64,277	14.1	24.1	25.6	58.0	13.8
1995	63,259	13.7	24.0	25.7	58.2	13.4
1996	63,682	13.7	24.9	25.8	59.0	13.1
1997	64,491	13.8	25.1	25.7	58.4	12.9
1998	65,207	13.8	25.7	25.8	58.7	12.4
1999	65,953	13.8	25.7	25.9	58.9	11.8
2000	67,451	13.7	25.7	26.0	59.2	11.1
2001	66,617	13.4	25.8	26.0	62.6	11.2
2002	68,037	13.6	27.5	25.9	62.3	10.5
2003	70,053	13.8	27.7	26.1	63.4	10.0

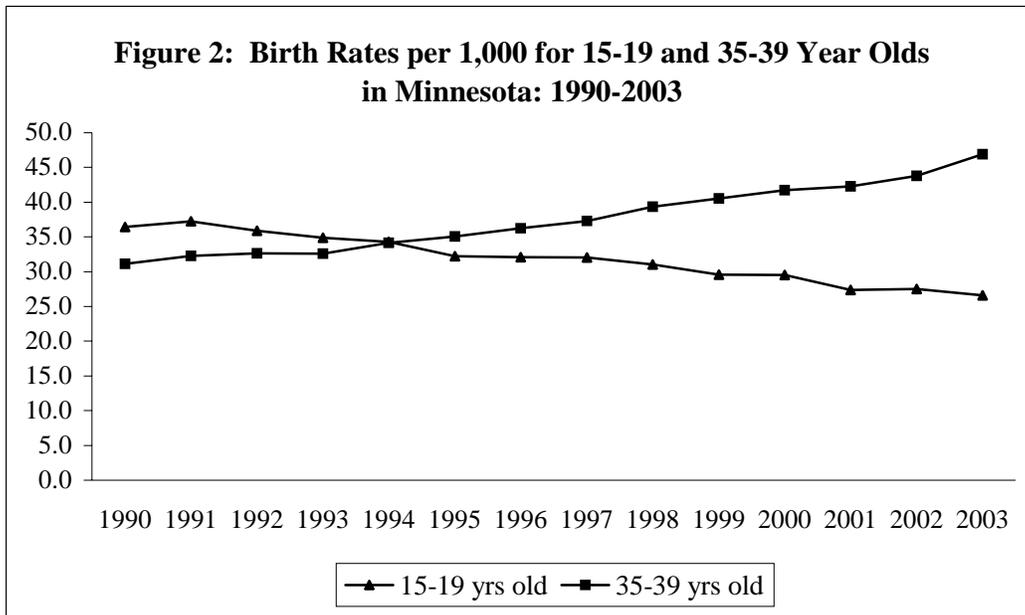
*Data on smoking was first collected in 1989.

Demographics

The demographic profile of Minnesota mothers has changed over the years (Table 1). In 2003, women residing in Minnesota giving birth for the first time are older, less likely to smoke and more educated than mothers in 1990.

Age

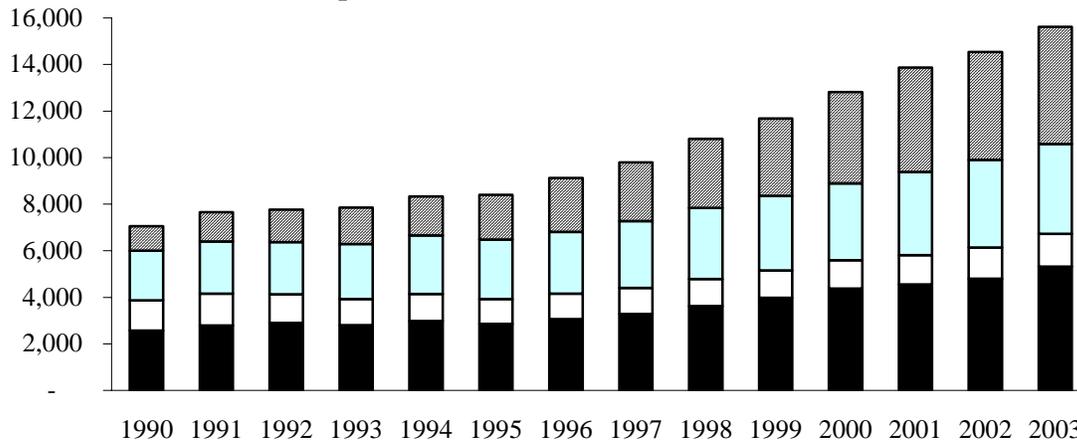
In 1980 the average age of mothers having their first child was 23.5 compared to 26.1 in 2003. Births rates by age have also changed (Figure 2). In 1990, the birth rate for 15-19 year olds was 36.4 per 1,000 females 15-19 and 31.1 per 1,000 for 35-39 year olds. Throughout the 90's the birth rate for 15-19 years olds has decreased while the rate for 35-39 year olds has increased. By 1994, the birth rates for these age groups were virtually the same at approximately 34.0 per 1,000. In 2003, the birth rates were dramatically different with the teen birth rate reaching a low of 26.6 per 1,000 and the 35-39 year olds a high of 46.9 per 1,000.



Race and Ethnicity

In Minnesota, the majority of births have been and still are to White women. However, births to non-White mothers is increasing. In 1990 the percent of births to non-White mothers was 8.9%, in 2003 the percentage increased to 15.9%. Births to African American, Asian and Hispanic mothers have increased through the 90's. The number of births to African American mothers has doubled from 2,565 in 1990 to 5,324 in 2003. Births to Hispanic women have tripled in that same time frame (Figure 3).

Figure 3: Births to African American, American Indian, Asian and Hispanic Mothers in Minnesota: 1990-2003



■ African American □ American Indian □ Asian ▨ Hispanic*

Year	White	African American	American Indian	Asian	Hispanic*
1990	61,795	2,565	1,299	2,140	1,059
2003	58,915	5,324	1,401	3,853	5,044
Percent Change	-4.7	107.6	7.9	80.0	376.3

*Can be of any race

Service and Delivery

Early prenatal care is important in improving birth outcomes. When the health of both mother and baby is monitored from early pregnancy through delivery, any problems that arise can be addressed in a timely manner, potentially preventing an adverse outcome. From 1990 - 2003 there has been a steady increase overall in the percent of mothers seeking care in the first trimester, from 81.2% of those reporting when care began in 1990 to 86.8% in 2003. There has been a corresponding decrease in the percent beginning care in the 2nd or 3rd trimester, while the percent receiving no prenatal care has remained fairly constant at under 1% of all live births. Although all age groups show an increase in first trimester care, a lower percentage of teenage mothers begin care early. In 1990, 59.0% of teen moms had 1st trimester care compared to 81.1% of moms age 20 and older. In 2003 the numbers were 69.2% of teen moms vs. 87.8% of older moms.

There has been a steady increase in the number of births attended by midwives since 1990. In 1990, the percent of physicians attending births was 94.9% while 4.6% of births were attended by midwives. In 2003, 90.5 were physician-attended births and 8.9% were midwife-attended. Interestingly, in 1922 6.4% of births had midwives in attendance. This percentage fell steadily and by 1938 had dropped to less than 1% of births. It remained at this low point over the next 40 plus years, beginning to rise again in the 1980s.

The percent of births taking place in hospitals has remained virtually unchanged during this period, with less than one percent giving birth outside a hospital. In looking back, this number has been fairly steady since the early 1950s. Dramatic changes occurred during the 1930s and 1940s when the percent of hospital births rose from 43% in 1933 to 98% in 1950.

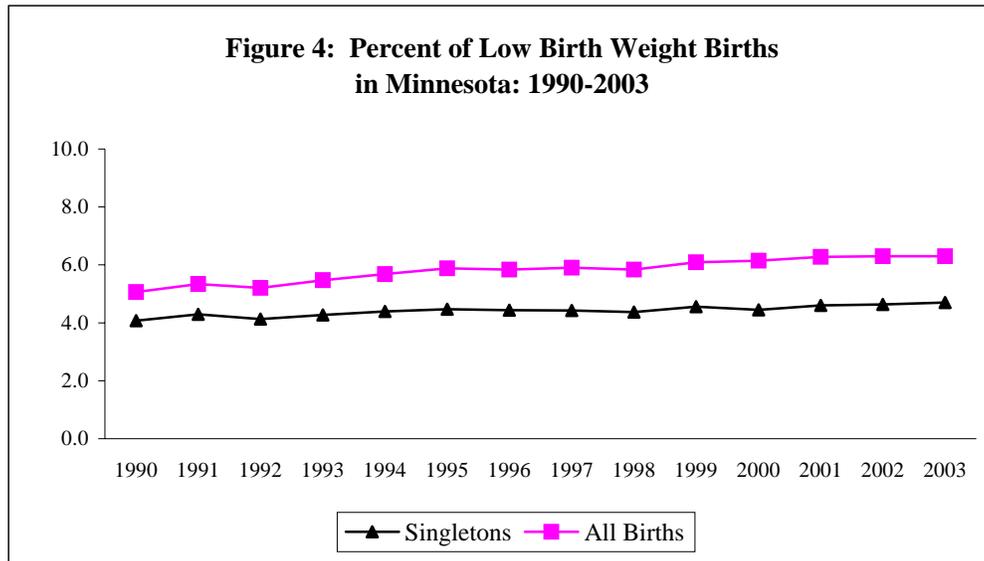
The percent of babies delivered via Cesarean Section has increased since 1990. For births where the method of delivery was indicated on the record, 18.0% of deliveries were by Cesarean Section in 1990, increasing to 23.4% in 2003.

Table 2: Natality Service and Delivery: Minnesota 1970, 1980 and 1990-2003

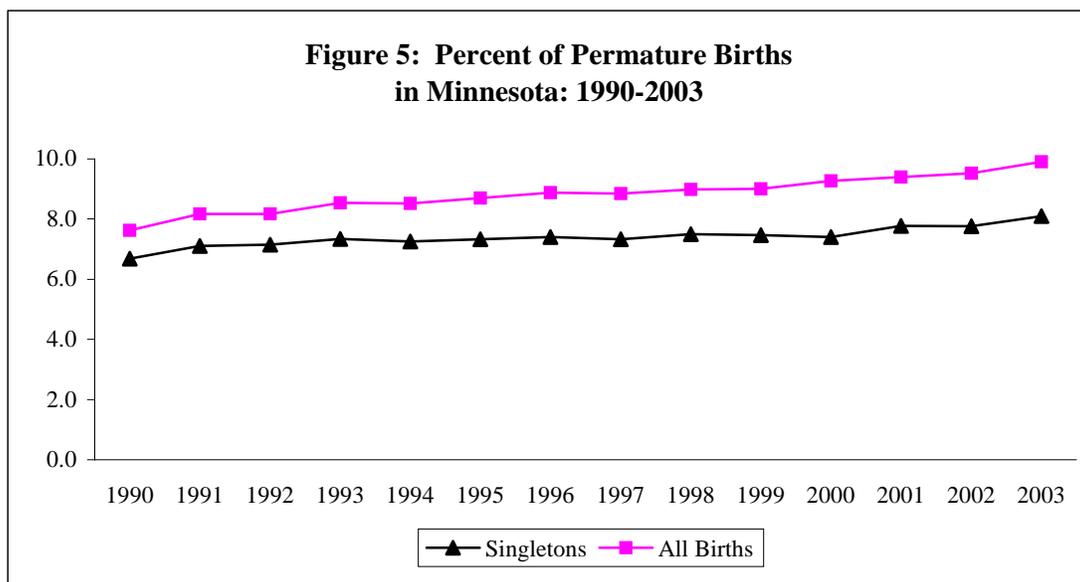
Year	Prenatal Care by Trimester			Attendant at Births		Cesarean Section
	First	Second	Third or None	Physician	Midwife	
1970	64.3	28.6	7.1	99.9	<.1	4.2
1980	78.1	18.6	3.2	96.8	2.8	13.4
1990	81.2	15.2	3.6	94.9	4.6	18.0
1991	80.8	15.4	3.8	94.6	4.9	17.1
1992	81.8	14.7	3.5	94.1	5.5	16.6
1993	82.9	14.0	3.1	94.0	5.5	16.6
1994	83.0	14.0	3.0	93.6	6.2	16.6
1995	83.8	13.3	2.9	93.0	6.6	16.4
1996	83.6	13.1	3.3	91.8	7.7	17.0
1997	84.1	12.9	3.0	91.2	8.4	17.3
1998	84.5	12.6	2.9	91.0	8.5	18.1
1999	84.6	12.8	2.7	90.5	8.7	19.0
2000	84.9	12.3	2.9	90.9	8.2	20.0
2001	84.6	12.7	2.6	90.7	8.3	21.2
2002	85.5	12.2	2.3	90.0	8.8	22.4
2003	86.8	11.4	2.1	90.5	8.9	23.4

Birth Outcomes

The birth certificate provides information about the baby at birth. For example, the birth certificate includes how much the baby weighed at birth, the number of weeks gestation at birth and whether the birth was singleton or multiple. Birth weight and gestation can have a great impact on the baby in the first year.



The percent of low birth weight births has risen slightly since 1990 (Figure 4). Approximately, five percent of babies were born low birth weight in 1990. Since 1999, the percent of low birth weight babies has remained at six percent. This slight increase over the 90's can be partially attributed to the increase in multiple births. From 1990 – 2003, multiple births increase by about 1 percent from 2.3% to 3.4%. The percent of singleton births born low birth weight is lower and has remained fairly constant, around 4.5%, over the past ten years.



Over the past 14 years, the percent of premature births (less than 37 weeks gestation) for all births has increased from 7.6% in 1990 to 9.9% in 2003. There is also a slight increase in prematurity among singleton births which has gone from 6.7% in 1990 to 8.1% in 2003.

Table 3: Age Specific Birth Rates* and Birth Outcomes in Minnesota by Year

Table corrected 8/26/2009

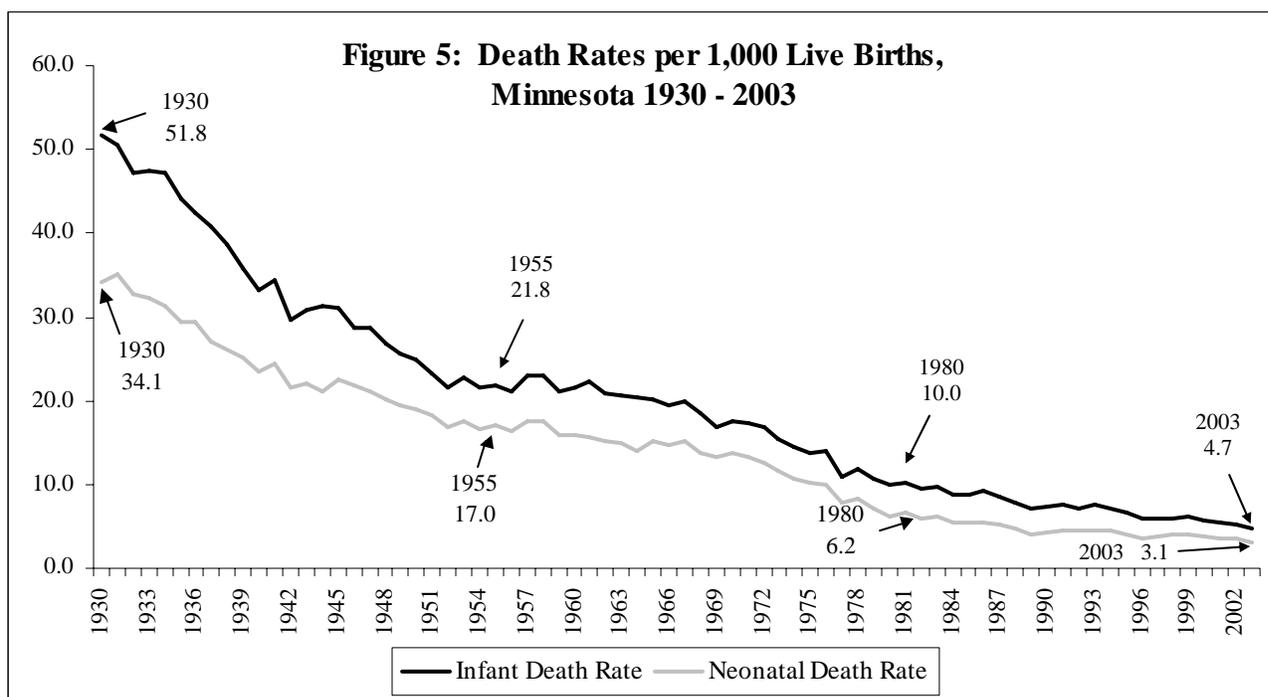
Year	Age-Specific Birth Rate*		Multiple Births (%)	Low Birth Weight (%)		Prematurity (%)	
	15-19 years	35-39 years		Singletons	All Births	Singletons	All Births
1970	42.8	18.9	1.9	5.4	6.4	6.9	7.8
1980	35.4	20.2	1.8	4.3	5.1	6.3	6.8
1990	36.4	31.1	2.3	4.1	5.1	6.7	7.6
1991	37.3	32.3	2.4	4.3	5.3	7.1	8.2
1992	35.9	32.6	2.4	4.1	5.2	7.1	8.2
1993	34.9	32.6	2.5	4.3	5.5	7.3	8.5
1994	34.3	34.1	2.8	4.4	5.7	7.3	8.5
1995	32.2	35.0	2.9	4.5	5.9	7.3	8.7
1996	32.1	36.2	3.0	4.4	5.8	7.4	8.9
1997	32.0	37.3	3.2	4.4	5.9	7.3	8.9
1998	31.0	39.4	3.2	4.4	5.8	7.5	9.0
1999	29.6	40.5	3.2	4.6	6.1	7.5	9.0
2000	29.5	41.7	3.5	4.5	6.1	7.4	9.3
2001	27.4	42.3	3.5	4.6	6.3	7.8	9.4
2002	27.5	43.8	3.5	4.6	6.3	7.8	9.5
2003	26.6	46.9	3.4	4.7	6.3	8.1	9.9

*Rate per 1000 females of specified age group

Infant and Maternal Deaths

Infant and maternal deaths have dropped dramatically over the last century, both in number and in rate. In 1930 the infant death rate (deaths to children under 1 year of age) stood at 51.8 per 1,000 live births, falling rapidly through the 1940s and 1950s, then less steeply over the next decades to 4.7 in 2003. The actual numbers of infant deaths have become small enough, in the 350 – 500 range since 1989 compared with over 2,000 in the 1930s, that rate changes from one year to the next are not a good indicator of a real change in outcome as a change in the rate over that short a time period for that small number is unlikely to be statistically significant. Rather, it makes more sense to look at the trend over a longer period of time.

Neonatal deaths, those under 28 days of age, show the same decline in both number and rate as the overall infant deaths. In 1930 the neonatal death rate was 34.1 compared to 3.1 in 2003. Here, too, there is a steeper decline in the earlier years while the rate and number have shown very little change in the last 20 years.



Maternal deaths are deaths from causes directly related to pregnancy and childbirth. These deaths are a very rare event at the present time and historically the rates have been well under those for infant deaths. In 1930 the maternal death rate was 5.4 per 1,000 live births, dropping to less than half that in 1940 at 2.2 per 1,000 births and to under 1 per 1,000 by 1946. The rate remains at well under 1 per 1,000 with less than 20 events per year since the 1960s, thus the fluctuation in rate from one year to the next is not statistically significant.

Table 4: Infant and Maternal Death Rates in Minnesota by Year

Year	Infant Deaths (less than a year)		Neonatal Deaths (under 28 days)		Maternal Deaths	
	Number	Rate*	Number	Rate*	Number	Rate*
1930	2,457	51.8	1,616	34.1	254	5.4
1935	2,026	44.1	1,350	29.4	214	4.7
1940	1,758	33.2	1,246	23.5	115	2.2
1945	1,698	31.1	1,226	22.4	75	1.4
1950	1,876	25.0	1,429	19.0	43	0.6
1955	1,779	21.8	1,386	17.0	27	0.3
1960	1,881	21.5	1,397	16.0	13	**
1965	1,432	20.2	1,075	15.2	12	**
1970	1,203	17.6	944	13.8	9	**
1975	771	13.7	582	10.3	3	**
1980	679	10.0	421	6.2	4	**
1985	591	8.8	364	5.4	3	**
1990	496	7.3	285	4.2	3	**
1991	502	7.5	298	4.4	5	**
1992	464	7.1	294	4.5	3	**
1993	486	7.5	296	4.6	3	**
1994	451	7.0	295	4.6	3	**
1995	427	6.8	255	4.0	0	**
1996	377	5.9	232	3.6	3	**
1997	382	5.9	241	3.7	4	**
1998	386	5.9	265	4.1	3	**
1999	409	6.2	262	4.0	3	**
2000	377	5.6	252	3.7	4	**
2001	358	5.4	233	3.5	2	**
2002	362	5.3	240	3.5	4	**
2003	327	4.7	218	3.1	3	**

*Rate per 1,000 births

**Rates not calculated for less than 20 events

Minnesota Vital Signs

**Minnesota Center for Health Statistics
Division of Health Policy, Information, Compliance and Monitoring
Minnesota Department of Health**

Vital Signs is available on the Minnesota Center for Health Statistics website, <http://www.health.state.mn.us/divs/chs/vitalsigns/index.html>. If you require this document in another format such as large print, Braille, or cassette tape call 651/296-1232 or email healthstats@health.state.mn.us.



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