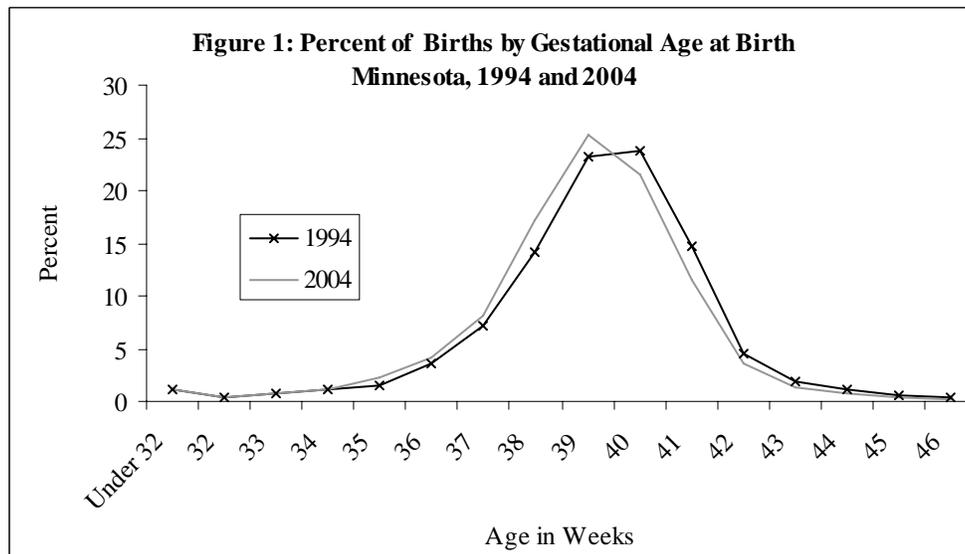


Gestational Age at Birth, 1994 and 2004

This issue of Vital Signs will discuss the changes in gestational age as it relates to age and race of mother, parity, method of delivery, and birthweight. Data are from the Minnesota birth certificate, looking at resident singleton births. Gestational age is defined as the number of weeks between the date last normal menses began and the date of birth.

Shift in Gestational Age

Overall, there has been a slight shift in the gestational age at which infants are born, with more infants being born at earlier ages in 2004 than in 1994 (Figure 1). In 1994, the greatest number of births (24.4%) occurred at 40 weeks gestational age, while in 2004 the greatest number (26.0%) occurred a week earlier at 39 weeks gestation. The biggest changes have occurred between 38 and 41 weeks. In 2004, 43.4% of babies were born between 38 and 39 weeks compared to 37.8% in 1994, a 5.6 percentage point increase, while the percent of babies born in the 40th and 41st weeks have decreased from 38.5% in 1994 to 34.3% 2004.

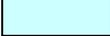


Age of Mother

In 1994 as the age of mother increased, the gestational age at which greatest percent of mothers gave birth decreased: for women under 25, most births occurred at over 40 weeks, for the 25-34 year olds it was 40 weeks and for women 35 and over it was 39 weeks (Table 1). By 2004, the distribution of births by gestational age had changed for mothers in all age groups. The percent of women giving birth after 39 weeks had decreased for all age groups. As a result, in 2004 most births occurred at 39 weeks regardless of the age of mother.

Table 1: Percent of Singleton Births by Age of Mother and Gestational Age of Infant at Birth, Minnesota 1994 and 2004

| Weeks Gestation | Age of Mother | | | | | |
|-----------------|---------------|-------|-------------|----------|-------|-------------|
| | 1994 | | | 2004 | | |
| | Under 25 | 25-34 | 35 and over | Under 25 | 25-34 | 35 and over |
| Under 35 | 3.4 | 2.2 | 3.0 | 3.4 | 2.5 | 3.2 |
| 35 | 1.8 | 1.2 | 1.6 | 2.1 | 1.7 | 2.1 |
| 36 | 3.6 | 3.0 | 3.3 | 3.8 | 3.5 | 4.0 |
| 37 | 7.0 | 6.6 | 7.7 | 7.3 | 7.6 | 8.8 |
| 38 | 12.5 | 14.3 | 16.8 | 15.4 | 17.7 | 19.5 |
| 39 | 21.4 | 24.4 | 25.6 | 23.0 | 26.8 | 28.3 |
| 40 | 23.0 | 25.3 | 22.9 | 22.8 | 22.6 | 20.2 |
| Over 40 | 27.5 | 22.9 | 19.2 | 22.2 | 17.4 | 13.8 |

 Greatest number of births occurred for age group

Race/Ethnicity of Mother

Table 2 shows the percent of singleton births by race/ethnicity of mother and the gestational age of infant for Minnesota in 1994 and 2004. The shaded cells indicate gestational age at which most births occurred for each racial/ethnic group. In 1994, the greatest number of Asian, African American and American Indian mothers gave birth in the 41st week or higher. Most Hispanic women gave birth at 39 weeks and White women at 40 weeks. In 2004, 39 weeks was the gestational age at birth for the greatest number of women regardless of race or ethnicity. The most marked change was for American Indian women. In 1994 28.7% of American Indian women gave birth at 41 weeks gestation or higher, compared to 2004 when 19.1% of births to American Indian women were at 41 weeks gestation or higher.

Table 2: Percent of Singleton Births by Race/Ethnicity of Mother and Gestational Age of Infant at Birth, Minnesota 1994 and 2004

| Weeks Gestation | Race/Ethnicity of Mother | | | | | | | | | |
|-----------------|--------------------------|-----------|-----------------|--------|-------|------------------|-----------|-----------------|--------|-------|
| | 1994 | | | | | 2004 | | | | |
| | African American | | American Indian | | | African American | | American Indian | | |
| | Asian | Hispanic* | White | Indian | White | Asian | Hispanic* | White | Indian | White |
| Under 35 | 4.7 | 6.3 | 4.2 | 3.8 | 2.4 | 3.5 | 4.1 | 3.3 | 4.2 | 2.6 |
| 35 | 2.3 | 2.6 | 1.8 | 2.4 | 1.3 | 1.9 | 2.2 | 1.9 | 2.1 | 1.8 |
| 36 | 4.6 | 5.0 | 4.3 | 3.9 | 3.0 | 3.8 | 4.2 | 3.8 | 4.2 | 3.6 |
| 37 | 8.7 | 8.5 | 6.3 | 7.5 | 6.6 | 7.7 | 7.4 | 6.9 | 9.0 | 7.7 |
| 38 | 15.3 | 14.9 | 13.2 | 14.4 | 14.0 | 17.6 | 15.8 | 16.7 | 16.2 | 17.6 |
| 39 | 21.7 | 20.2 | 25.1 | 18.2 | 24.1 | 26.3 | 23.2 | 24.9 | 24.1 | 26.4 |
| 40 | 20.4 | 21.0 | 21.0 | 21.0 | 24.8 | 19.9 | 21.8 | 22.7 | 21.2 | 22.6 |
| Over 40 | 22.3 | 21.5 | 24.1 | 28.7 | 23.8 | 19.2 | 21.4 | 19.7 | 19.1 | 17.7 |

*Can be any race

 Greatest number of births occurred

Previous Live Births

In 1994, 50.6% of first time mothers gave birth in the 40th or higher week of pregnancy, with the peak being at 41 and over weeks (Table 3). In 2004, the gestational age at which most first time mothers gave birth shifted to 40 weeks, with 47.3% giving birth in the 39th and 40th week. Mothers who have had a previous live birth are more likely to give birth earlier; with the greatest number giving birth at 39 weeks in both time periods. Though the gestational age at which mothers having previous live births has not changed, these women are less likely in 2004 to give birth after the 39th week of pregnancy in 2004 (36.5%), than in 1994 (46.4%).

Table 3: Percent of Singleton Births by Gestational Age and Previous Live Births, Minnesota 1994 and 2004

| Previous Live Births | Year | Weeks Gestation | | | | | | | |
|----------------------|------|-----------------|-----|-----|-----|------|------|------|---------|
| | | Under 35 | 35 | 36 | 37 | 38 | 39 | 40 | Over 40 |
| None | 1994 | 3.2 | 1.6 | 3.5 | 7.0 | 12.7 | 21.4 | 24.1 | 26.5 |
| | 2004 | 3.3 | 2.0 | 3.6 | 7.2 | 14.5 | 23.0 | 24.3 | 22.1 |
| One or More | 1994 | 2.2 | 1.3 | 3.0 | 6.7 | 15.0 | 25.3 | 24.5 | 21.9 |
| | 2004 | 2.5 | 1.8 | 3.7 | 8.0 | 19.4 | 28.1 | 21.0 | 15.5 |

 Greatest number of births occurred

Method of Delivery

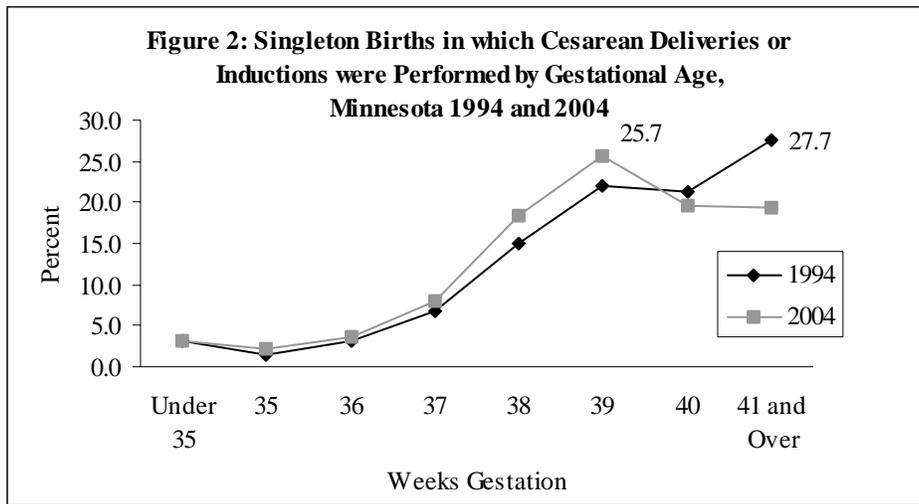
In 1994, 30.5% of singleton births were either induced or delivered by cesarean; by 2004 the percent of singleton babies induced or delivered by cesarean had increased to 41.7%. There has also been an increase in cesarean deliveries and inductions by gestational age. Table 4 shows the percent of singleton births that were cesarean deliveries or inductions by gestational age. For each gestational age group, there was at least a 9-percentage point increase in cesarean deliveries and inductions from 1994 to 2004.

Table 4: Percent of Cesarean Deliveries and Inductions for Singleton Births by Gestational Age, Minnesota 1994 and 2004

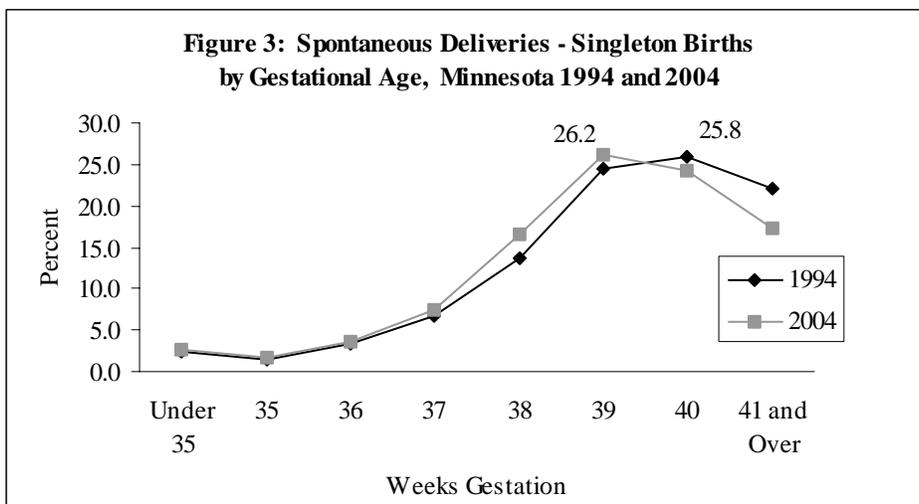
| Year | Weeks Gestation | | | | | | | |
|----------------------|-----------------|------|------|------|------|------|------|---------|
| | Under 35 | 35 | 36 | 37 | 38 | 39 | 40 | Over 40 |
| 1994 | 36.1 | 30.5 | 29.0 | 30.0 | 32.3 | 28.2 | 26.5 | 35.5 |
| 2004 | 46.7 | 46.4 | 41.6 | 42.9 | 44.1 | 41.3 | 36.8 | 44.4 |
| Percentage Increase* | 10.6 | 15.9 | 12.6 | 12.9 | 11.8 | 13.1 | 10.3 | 8.9 |

*2004 % minus 1994 %

There was also a shift in the gestational age at which the largest number of cesarean deliveries and inductions occurred (Figure 2). In 1994 (27.7 %) of cesarean deliveries and inductions occurred after the 41st week or higher; by 2004 this peak shifted to the 39th week of pregnancy (25.7%).

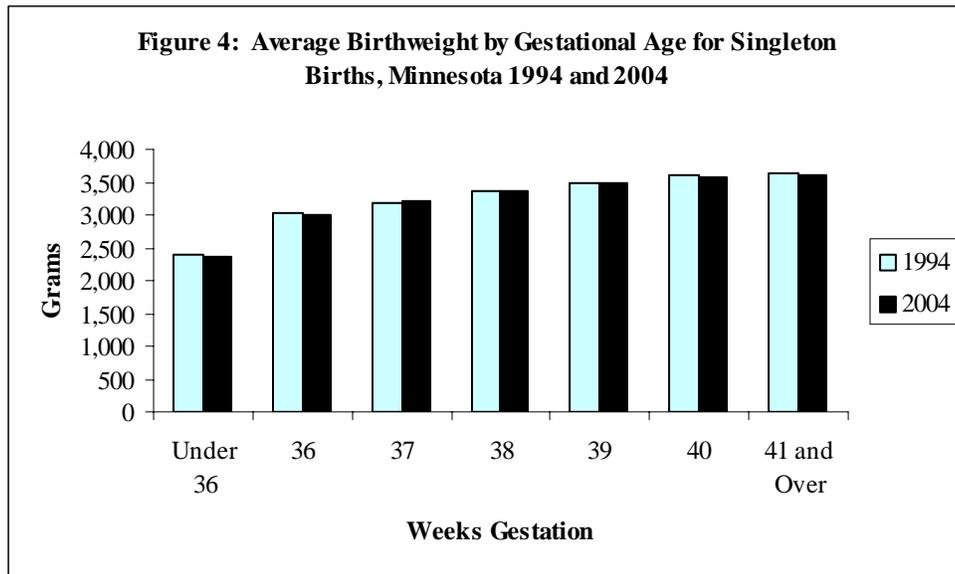


The gestational age at which the greatest number of spontaneous (non-induced vaginal births) singleton births occurred also shifted from 1994 to 2004 (Figure 3). In 1994 the peak occurred at 40 weeks (25.8%), by 2004 most spontaneous births occurred at 39 weeks (26.2%).



Birthweight

Despite the shift in delivery to earlier gestational ages from 1994 to 2004, the average birthweight for singleton babies has not changed significantly. In 1994, the average birthweight for singleton babies was 3,242 grams; in 2004 it was 3,235 grams, a difference of seven grams. Average birthweight by gestational age has stayed relatively stable as well (Figure 4). The difference in average birthweight from 1994 to 2004 was less than one ounce for all gestational ages. The greatest change was for babies born at 41 weeks and over. For this group, the average birthweight decreased by 34 grams from 1994 to 2004, which is just over one ounce.



Minnesota Vital Signs

**Minnesota Center for Health Statistics
Office of Health Policy, Statistics and Informatics
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 651/201-3504 or email healthstats@health.state.mn.us.



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