

Short Interpregnancy Intervals in 2014: Differences by Maternal Demographic Characteristics

Marie E. Thoma, Ph.D., Casey E. Copen, Ph.D., and Sharon E. Kirmeyer, Ph.D.

Key findings

Data from the National Vital Statistics System

- Nearly 29.0% of U.S. mothers who had a second or higher-order birth in 2014 had a short interpregnancy interval of less than 18 months.
- Short intervals (i.e., less than 6 months, 6–11 months, and 12–17 months) were more common for mothers aged 35 and over (5.7%, 16.3%, and 22.1%, respectively) than mothers who were under age 20 at their previous birth (5.1%, 8.8%, and 8.4%).
- Short intervals of less than 6 months and 6–11 months were more common among non-Hispanic black mothers (7.1% and 11.7%, respectively) than non-Hispanic white mothers (4.1% and 11.2%) and Hispanic mothers (5.0% and 9.3%).
- The percentage of births to mothers with intervals less than 6 months decreased as education level increased, from 4.3% (no high school diploma) to 1.8% (doctorate or professional degree).

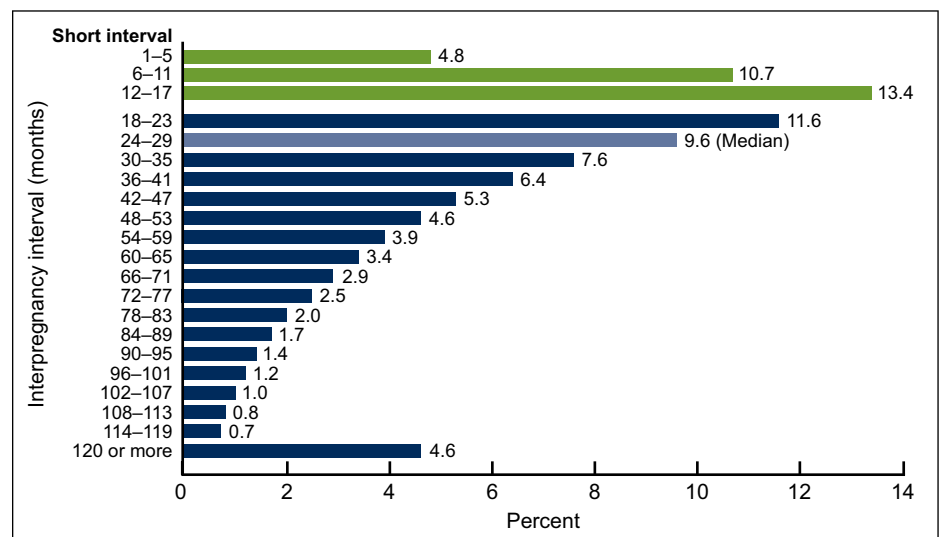
Short interpregnancy intervals are associated with adverse birth outcomes, such as preterm birth (1,2). The risk of adverse birth outcomes has been shown to increase as the duration of short intervals decrease (i.e., 12–17 months, 6–11 months, and less than 6 months), and these patterns may reflect different maternal demographic profiles. This report examines categories of short interpregnancy intervals by maternal demographic characteristics among second and higher-order singleton births, using revised birth certificate data for 47 states and the District of Columbia (96% of births) in 2014.

Keywords: pregnancy intervals • birth spacing • birth certificate • NVSS

How common were short interpregnancy intervals among mothers in 2014?

- Overall, 28.9% of U.S. mothers who had a second or higher-order birth in 2014 had a short interval of less than 18 months (Figure 1).

Figure 1. Percent distribution of second or higher-order births, by interpregnancy intervals: 47 reporting states and District of Columbia, 2014



NOTES: Interpregnancy interval is the number of months between a live birth and the conception of the next live birth. Total percentages may not add to 100 due to rounding. Access data table for Figure 1 at: http://www.cdc.gov/nchs/data/databriefs/db240_table.pdf#1. SOURCE: CDC/NCHS, National Vital Statistics System.

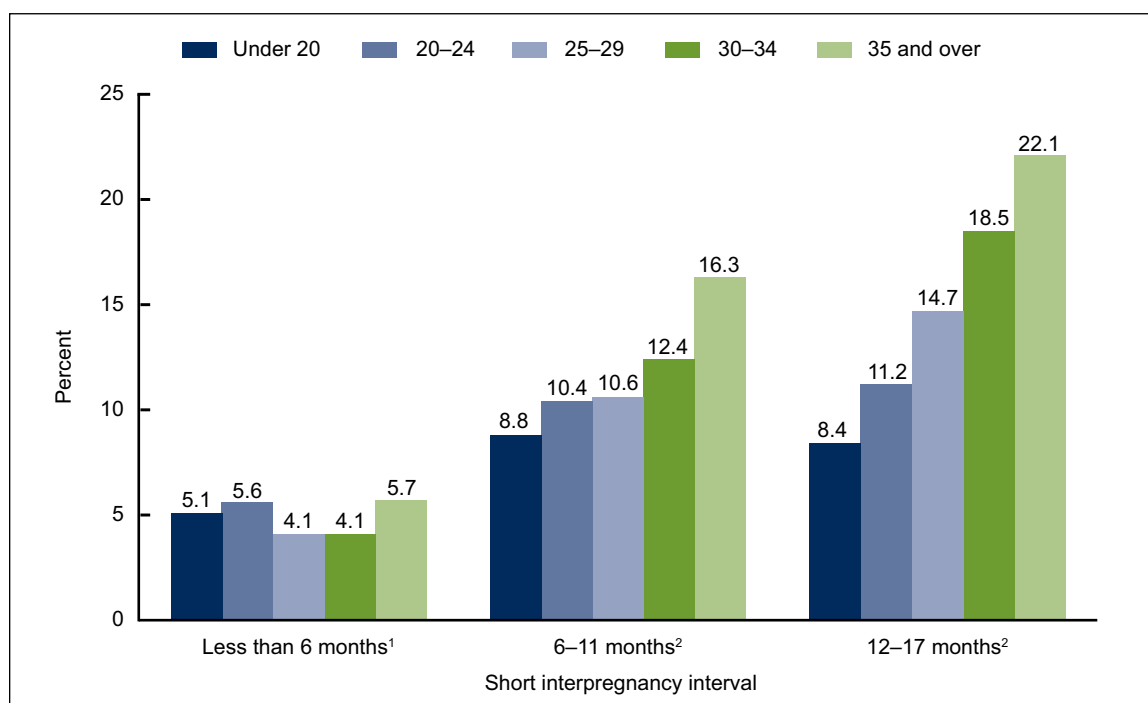


- The median interpregnancy interval was 24–29 months, or 2–2.5 years (Figure 1).
- Interpregnancy intervals of 12–17 months (13.4%) were the most common of all short interval categories, followed by intervals of 6–11 months (10.7%) and 1–5 months (4.8%).
- Less than 5.0% of births occurred to mothers with an interval of 10 years or more (i.e., 120 months or more).

Were older mothers more likely to have short interpregnancy intervals?

- The percentages of births to mothers with intervals less than 6 months were higher for mothers aged 35 and over at the previous birth (5.7%) and for mothers under age 25 at the previous birth (5.1% among those under age 20 and 5.6% among age group 20–24) compared with other age groups (Figure 2).
- The percentage of births to mothers with intervals of 6–11 months increased with increasing maternal age at previous birth: from 8.8% among mothers under age 20 to 16.3% among mothers aged 35 and over.
- Similarly, the percentage of births to mothers with intervals of 12–17 months increased with increasing maternal age at previous birth: from 8.4% among mothers under age 20 to 22.1% among mothers aged 35 and over.

Figure 2. Short interpregnancy intervals, by maternal age at previous birth: 47 reporting states and District of Columbia, 2014



¹Age groups under 20, 20–24, and 35 and over are significantly different from age groups 25–29 and 30–34. Age group 35 and over is significantly different from age group under 20.

²Differences are significant with each increasing age group.

NOTES: Interpregnancy interval is the number of months between a live birth and the conception of the next live birth. Access data table for Figure 2 at:

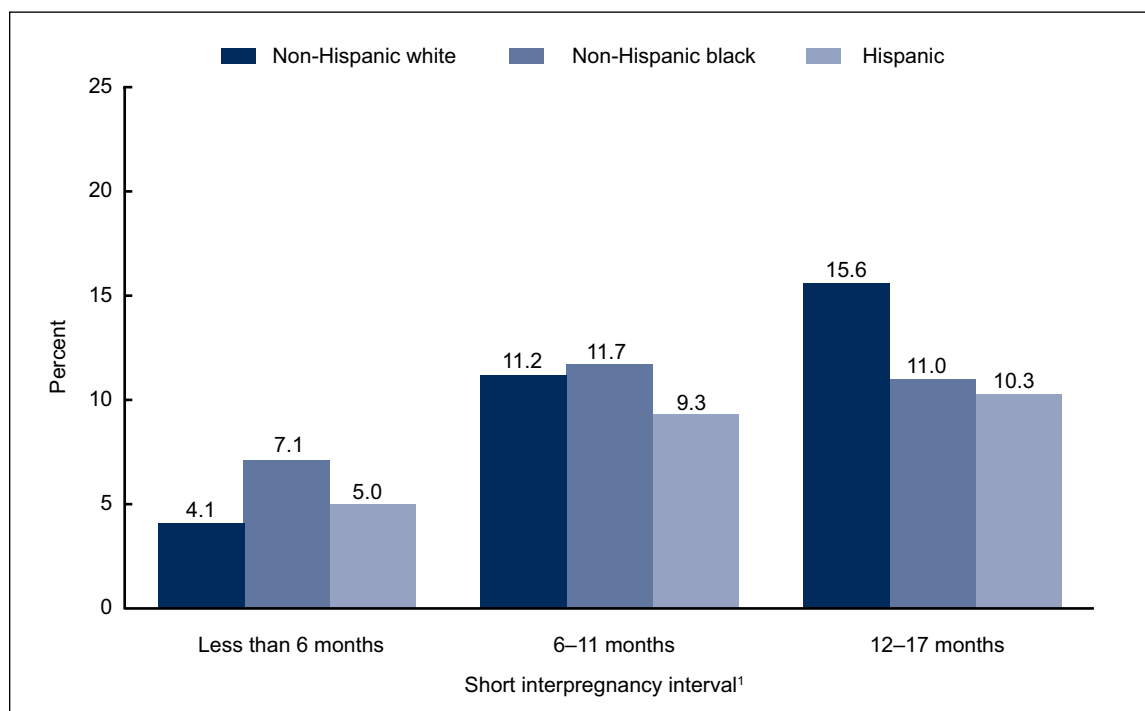
http://www.cdc.gov/nchs/data/databriefs/db240_table.pdf#2.

SOURCE: CDC/NCHS, National Vital Statistics System.

Were there differences in the percentage of short interpregnancy intervals by race and Hispanic origin?

- Intervals of less than 6 months were most common among non-Hispanic black mothers (7.1%), followed by Hispanic (5.0%) and non-Hispanic white (4.1%) mothers (Figure 3).
- Intervals of 6–11 months were most common among non-Hispanic black mothers (11.7%), followed by non-Hispanic white (11.2%) and Hispanic (9.3%) mothers.
- In contrast, intervals of 12–17 months were most common among non-Hispanic white mothers (15.6%), followed by non-Hispanic black (11.0%) and Hispanic (10.3%) mothers.

Figure 3. Short interpregnancy intervals, by race and Hispanic origin: 47 reporting states and District of Columbia, 2014

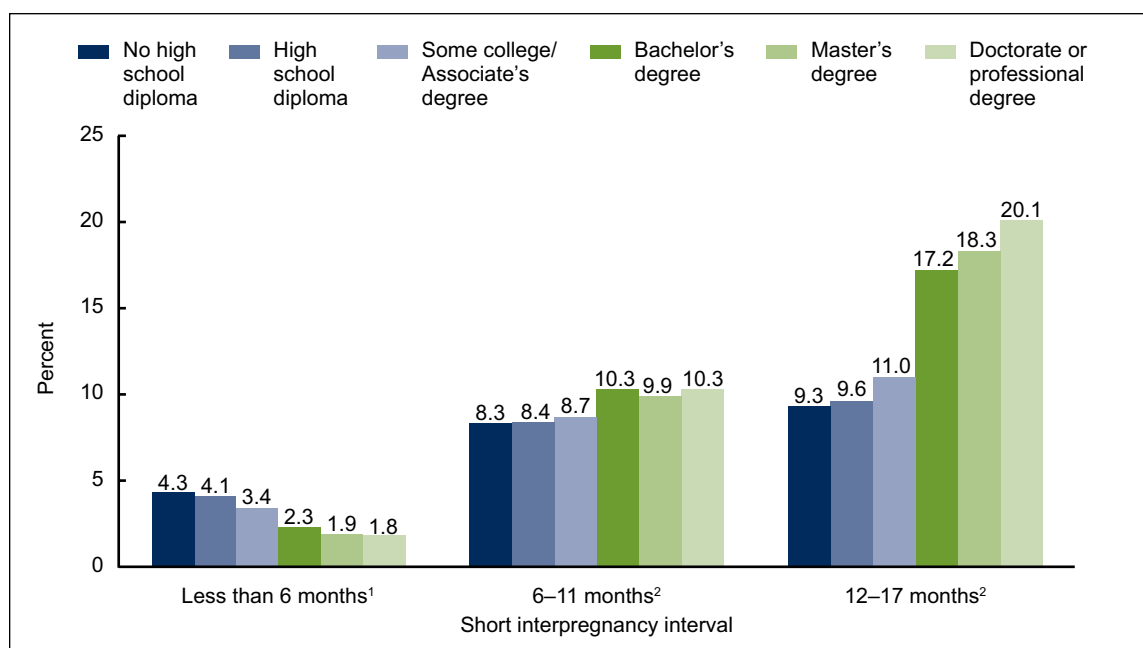


¹Each race and Hispanic-origin group is significantly different from one another in all three intervals.
 NOTES: Interpregnancy interval is the number of months between a live birth and the conception of the next live birth. Findings are shown for the largest single-race and Hispanic-origin groups. Access data table for Figure 3 at: http://www.cdc.gov/nchs/data/databriefs/db240_table.pdf#3.
 SOURCE: CDC/NCHS, National Vital Statistics System.

Did the percentage of short interpregnancy intervals differ by maternal education level?

- The percentage of births to mothers with intervals less than 6 months decreased with increasing education, from 4.3% among mothers with no high school diploma to 1.8% among mothers with a doctorate or professional degree (Figure 4).
- The percentages of births to mothers with intervals of 6–11 months by education level were higher for those with a bachelor’s degree (10.3%), master’s degree (9.9%), or doctorate or professional degree (10.3%) compared with other education groups (8.7% for some college or associate’s degree, 8.4% for high school diploma, and 8.3% for no high school diploma).
- Differences by education level were most pronounced for intervals of 12–17 months: from 9.3% of mothers with no high school diploma to 20.1% of mothers with a doctorate or professional degree.

Figure 4. Short interpregnancy intervals among mothers aged 25 and over, by level of education: 47 reporting states and District of Columbia, 2014



¹Differences are significant with each increasing education level except that master’s degree is not significantly different from doctorate or professional degree.

²Differences are significant between bachelor’s, master’s, and doctorate or professional degrees compared with some college/associate’s degree, high school diploma, and no high school diploma.

NOTES: Interpregnancy interval is the number of months between a live birth and the conception of the next live birth. Analysis is restricted to maternal age at recent birth of 25 and over to account for the minimum years of schooling needed to obtain a doctorate or other professional degree. Access data table for Figure 4 at: http://www.cdc.gov/nchs/data/databriefs/db240_table.pdf#4.

SOURCE: CDC/NCHS, National Vital Statistics System.

Summary

Among mothers with a previous live birth, almost one-third of births in 2014 were conceived within 18 months, and nearly 5% were conceived within 6 months of the previous live birth. Interpregnancy intervals less than 6 months were more common among mothers who were younger (under age 25) or older (aged 35 and over) at the time of their previous birth, mothers who were non-Hispanic black, and mothers with lower education. By comparison, intervals of 6–17 months were more likely to occur among mothers who were older (aged 35 and over) at the time of their previous birth and who had higher education. Non-Hispanic white mothers were more likely to have intervals of 12–17 months, whereas non-Hispanic black mothers were more likely to have intervals of 6–11 months, compared with other race and Hispanic-origin groups.

Patterns of maternal demographic characteristics varied across short interval categories, suggesting that, even among intervals less than 18 months, differences in demographic patterns exist depending on interval length. Health care programs can use this report to better understand these differences and help target strategies to reduce the occurrence of short interpregnancy intervals (3).

Definitions

Interpregnancy interval: The number of months between a live birth and the conception of the next live birth. This was calculated by subtracting the “Date of last live birth” item from the date of birth to obtain a live-birth interval, then subtracting gestational age (months) of the birth from the live-birth interval. More detailed information on the calculation of this measure, which was shown to be comparable with national data from the National Survey of Family Growth, is provided in a previous report (4).

Short interpregnancy interval: The conception of a live birth occurring less than 18 months from the preceding live birth (2). Short interpregnancy intervals were categorized as less than 6 months (i.e., 1–5 months), 6–11 months, and 12–17 months.

Race and Hispanic origin: Hispanic origin and race are reported separately on the birth certificate. Race categories are consistent with the 1997 Office of Management and Budget standards (5). Data for Hispanic origin include all persons of Hispanic origin of any race. Findings are presented for the largest single-race and Hispanic-origin groups.

Maternal age at previous birth: The age of the mother at the time of her previous birth was calculated by subtracting the mother’s calculated interpregnancy interval from the mother’s current age at birth in 2014. For example, if the mother was aged 30 at the birth of her second child in 2014 and had an interpregnancy interval of 2 years, then her maternal age at the previous, or first, birth would be 28.

Data source and methods

This report contains 2014 data from the Natality Data Files of the National Vital Statistics System (NVSS). The NVSS natality files (available from: http://www.cdc.gov/nchs/data_access/Vitalstatsonline.htm) include information on a wide range of maternal and infant demographic and health characteristics for all births occurring in the United States. Final data may also be accessed from the interactive data access tool VitalStats, available from: <http://www.cdc.gov/nchs/VitalStats.htm>.

Data in this report are based on 100% of births to residents of 47 states and the District of Columbia that implemented the 2003 revision of the U.S. Standard Certificate of Live Birth as of January 1, 2014 (96% of 2014 U.S. births). Although the 47-state area may not be representative of the overall U.S. population because it is not a random sample of U.S. births (6), a previous study showed comparable reporting of interpregnancy intervals using birth certificate data in a limited reporting area with national data on interpregnancy intervals using the National Survey of Family Growth (4).

The data presented are based on second or higher-order singleton births. Bivariate associations presented may be explained by other factors not controlled for in the figures or not included in the report. Two-tailed *z* tests at the 0.05 level were used to evaluate differences between percentages for comparisons.

About the authors

Marie E. Thoma, Casey E. Copen, and Sharon E. Kirmeyer are with CDC's National Center for Health Statistics, Division of Vital Statistics, Reproductive Statistics Branch.

References

1. Conde-Agudelo A, Rosas-Bermúdez A, Kafury-Goeta AC. Birth spacing and risk of adverse perinatal outcomes: A meta-analysis. *JAMA* 295(15):1809–23. 2006.
2. Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services. Healthy People 2020: Family planning objectives, FP–5: Reduce the proportion of pregnancies conceived within 18 months of a previous birth. Available from: <http://www.healthypeople.gov/2020/topics-objectives/topic/family-planning/objectives>.
3. Thiel de Bocanegra H, Chang R, Howell M, Darney P. Interpregnancy intervals: Impact of postpartum contraceptive effectiveness and coverage. *Am J Obstet Gynecol* 210(4):311.e1–8. 2014.
4. Copen CE, Thoma ME, Kirmeyer S. Interpregnancy intervals in the United States: Data from the birth certificate and the National Survey of Family Growth. *National vital statistics reports*; vol 64 no 3. Hyattsville, MD: National Center for Health Statistics. 2015.
5. U.S. Office of Management and Budget. Revisions to the standards for the classification of federal data on race and ethnicity. *Fed Regist* 62(210):58782–90. 1997.
6. National Center for Health Statistics. User guide to the 2014 Natality Public Use File. Hyattsville, MD. Available from: http://www.cdc.gov/nchs/data_access/vitalstatsonline.htm.

**U.S. DEPARTMENT OF
HEALTH & HUMAN SERVICES**

Centers for Disease Control and Prevention
National Center for Health Statistics
3311 Toledo Road, Room 5419
Hyattsville, MD 20782-2064

FIRST CLASS MAIL
POSTAGE & FEES PAID
CDC/NCHS
PERMIT NO. G-284

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

For more NCHS Data Briefs, visit:
<http://www.cdc.gov/nchs/products/databriefs.htm>.



NCHS Data Brief ■ No. 240 ■ April 2016

Suggested citation

Thoma ME, Copen CE, Kirmeyer SE.
Short interpregnancy intervals in 2014:
Differences by maternal demographic
characteristics. NCHS data brief, no 240.
Hyattsville, MD: National Center for Health
Statistics. 2016.

Copyright information

All material appearing in this report is in
the public domain and may be reproduced
or copied without permission; citation as to
source, however, is appreciated.

**National Center for Health
Statistics**

Charles J. Rothwell, M.S., M.B.A., *Director*
Nathaniel Schenker, Ph.D., *Deputy Director*
Jennifer H. Madans, Ph.D., *Associate
Director for Science*

Division of Vital Statistics

Delton Atkinson, M.P.H., M.P.H., P.M.P.,
Director
Hanyu Ni, Ph.D., M.P.H., *Associate Director
for Science*

For e-mail updates on NCHS publication
releases, subscribe online at:
<http://www.cdc.gov/nchs/govdelivery.htm>.

For questions or general information
about NCHS:
Tel: 1-800-CDC-INFO (1-800-232-4636)
TTY: 1-888-232-6348
Internet: <http://www.cdc.gov/nchs>
Online request form: <http://www.cdc.gov/info>

ISSN 1941-4927 Print ed.
ISSN 1941-4935 Online ed.
DHHS Publication No. 2016-1209
CS264429