Monterey County Birth Outcomes Report: 2013

Monterey County Health Department
Public Health Bureau

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Health Officer and Director of Public Health

September 24, 2015
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Acknowledgements

The registrars in the Health Department’s Office of Vital Records review all birth certificates for completeness and accuracy prior to official registration as mandated by the California Health and Safety Code. The data presented in this report are based on information collected on those certificates. The staff of the Office of Vital Records (Bea Castaneda, Ofelia Bravo, Jazmin Medina) are recognized for their efforts. Kristy Michie, MS, performed quality control checks for this report.

Questions or comments about the content of this report or about information not included in this publication may be directed to:

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Citation

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Monterey County Births: Key Findings

This report represents detailed data on the number and characteristics of births to Monterey County residents. These statistics are based on data obtained from the California Standard Certificate of Live Birth and confidential health and demographic data which accompany each birth record.

The demographic profile and health status of births to residents are used to support surveillance and programs, including needs assessments and evaluation processes to prioritize interventions, services, and policies to improve birth outcomes and health.

In 2013, the total number of births to Monterey County residents was 6,547. This represented a 2% decrease from 2012. The statistical significance of temporal trends (2004 through 2013) was tested for each birth indicator included in this report.

Birth outcome indicators that showed a statistical ($p$ value $\leq 0.05$) increase from 2004 through 2013 were:
- Late entry into prenatal care ($p<0.05$)

Birth outcome indicators that showed a statistical ($p$ value $\leq 0.05$) decrease from 2004 through 2013 were:
- Teen birth rate per 1,000 females aged 15-19 years ($p<0.01$)

The remaining indicators showed no statistical change over the same time period.

Other key findings from the 2013 Monterey County Birth Outcomes Report include:
- Females 25-29 years of age had the highest birth rate in 2013.
- The teen (15-19) birth rate and general fertility rate were highest among Hispanics.
- Hispanics had the highest percent of mothers giving birth without a high school degree.
- Mothers aged 15-24 had the highest percent of births with Medi-Cal and other government programs as the expected source of payment for delivery.
- Grand multiparity (mothers with five or more previous births) was highest among mothers aged 35 and older.
- Late entry into prenatal care and inadequate utilization of prenatal care was highest among mothers aged 15-19 years of age.
- Geographic areas highlighted with poorer birth outcomes included Chualar, Watsonville, Castroville, East Salinas, Greenfield, King City, and San Ardo.
- The majority of births to county residents in 2013 occurred at Natividad Medical Center (38%), followed by Salinas Valley Memorial Hospital (28%).

Department Programs Improving Birth Outcomes and Addressing Birth-Related Disparities

Programs within the Health Department striving toward improving birth outcomes and reducing birth-related disparities include the following:

Maternal Child Adolescent Health (MCAH) Program’s mission is to develop systems that promote, protect and improve the health of women of reproductive age, infants, children, adolescents and their families. MCAH strives to ensure all pregnant women have access to prenatal care and enter prenatal care during the first trimester of pregnancy. Public Health Regional Team (PHRT) nurses are available to make home visits to pregnant women who are referred to the Health Department. During the home visits, women are provided referrals to local doctors who accept their insurance, educated about the importance of early and continual prenatal care, and provided prenatal, postpartum and newborn health education. Clients are also provided referrals to local community resources, as needed.

- First 5 Teen Parenting Program (TPP) provides case management to pregnant teenagers in targeted ZIP codes in Salinas and South County. This program is voluntary.
- Cal-Learn Program is a mandatory case-management program for pregnant teenagers whose family receives cash aid. In addition to providing support during the teen’s pregnancy, school attendance and performance are monitored to help ensure progress is made towards high school graduation or its equivalency.
- SIDS Program coordinator helps to ensure all parents who suffer a loss due to suspected SIDS death are contacted and offered a support visit by a Public Health Nurse, as well as striving to keep PHRT, local hospitals, clinics, and daycare providers apprised of current research and best practices, in efforts to reduce SIDS risk in the community.
- Perinatal Services Coordinator provides enrollment assistance, technical support and consultation to Comprehensive Perinatal Services Program (CPSP) providers. CPSP sites provide enhanced services to pregnant women who are insured by Medi-Cal.

Questions or comments regarding the Health Department’s MCAH Program may be directed to:
Janine Woods, RN, SPHN
Director, Maternal Child Adolescent Health Program
Phone: (831) 755-4711
Email: woodsj2@co.monterey.ca.us

The Teen Pregnancy Prevention Program currently implements two programs, CA PREP and POSTPONE.

- The California Personal Responsibility Education Program (CA PREP) provides two evidence-based curriculums, Be Proud Be Responsible and Cuidate! Both curriculums increase knowledge of HIV, understanding one’s vulnerability to HIV infection, identifying attitudes and beliefs about HIV and safe sex, increasing self-efficacy and skills for correct condom use, negotiating abstinence, and negotiating safer sex practices.
- Positive Outcomes for Successful Teens through Planning, Outreach, Needs assessment and Education (POSTPONE), part of the Girls Health in Girls Hands Initiative, is a county-wide effort working with community-based organizations, parents, teens, and schools to prevent teen pregnancy through the promotion of changes in community norms that encourage teens to delay sexual involvement and prevent adolescent pregnancy through the use of Peer Educators at the high schools.

Questions or comments regarding the Health Department’s Teen Pregnancy Prevention Program may be directed to:
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Monterey County Births: 2013

There were 6,510 births to Monterey County residents in 2013. The tables below show basic demographic characteristics of mothers giving birth in Monterey County.

Table 1. Births to Monterey County Residents by Mother’s Race/Ethnicity: 2013

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>African-American</td>
<td>71</td>
<td>1.1</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>265</td>
<td>4.1</td>
</tr>
<tr>
<td>Hispanic</td>
<td>4,861</td>
<td>74.7</td>
</tr>
<tr>
<td>Multi-Race</td>
<td>114</td>
<td>1.8</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
<td>0.2</td>
</tr>
<tr>
<td>White</td>
<td>1,189</td>
<td>18.3</td>
</tr>
<tr>
<td>Total</td>
<td>6,510</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 2. Births to Monterey County Residents by Mother’s Age Group: 2013

<table>
<thead>
<tr>
<th>Agegroup</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 15</td>
<td>10</td>
<td>0.2</td>
</tr>
<tr>
<td>15-19</td>
<td>519</td>
<td>7.9</td>
</tr>
<tr>
<td>20-24</td>
<td>1,555</td>
<td>23.8</td>
</tr>
<tr>
<td>25-29</td>
<td>1,830</td>
<td>28.0</td>
</tr>
<tr>
<td>30-34</td>
<td>1,614</td>
<td>24.7</td>
</tr>
<tr>
<td>35-39</td>
<td>810</td>
<td>12.4</td>
</tr>
<tr>
<td>40-44</td>
<td>194</td>
<td>3.0</td>
</tr>
<tr>
<td>Over 44</td>
<td>15</td>
<td>0.2</td>
</tr>
<tr>
<td>Total</td>
<td>6,547</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 3. Births to Monterey County Residents by Mother’s Country of Birth: 2013

<table>
<thead>
<tr>
<th>Country of Birth</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>2,703</td>
<td>41.3</td>
</tr>
<tr>
<td>USA</td>
<td>3,314</td>
<td>50.6</td>
</tr>
<tr>
<td>Other</td>
<td>529</td>
<td>8.1</td>
</tr>
<tr>
<td>Total</td>
<td>6,546</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Notes: Percentages are calculated based on only those births with known values for the characteristic(s) of interest; percentages may not sum to total due to rounding. Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: General Fertility Rate

The General Fertility Rate (GFR) is an indicator used to measure overall fertility in a population. In 2013, the GFR for Monterey County was 76.2 live births per 1,000 females aged 15-44 years. The overall rate did not statistically change over the last ten years.

![Graph showing General Fertility Rates among Monterey County Residents: 2004-2013](image)

**Figure 4:** General Fertility Rates Among Monterey County Residents: 2004-2013

Racial/Ethnic Disparities

- GFR among Hispanics was significantly higher than all other racial/ethnic groups.
- No other significant differences between racial/ethnic groups were found.

![Bar chart showing General Fertility Rates by Race/Ethnicity in 2013](image)

**Figure 5:** General Fertility Rates Among Monterey County Residents by Race/Ethnicity: 2013

Note: See Technical Notes at the end of this document for information on significance testing.

Monterey County Births: General Fertility Rate

Geographic Distribution

- ZIP Codes with rates in the highest quartile included portions of Castroville, Aromas, Carmel, East Salinas, Chualar, Greenfield, and San Ardo.
- ZIP Codes with rates in the lowest quartile included portions of Pacific Grove, Pebble Beach, Carmel, Carmel Valley, and San Miguel.

Note: Rates are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on indicator mapping. Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015. ESRI demographic updates, 2013.
Monterey County Births: Age-Specific Birth Rates

Age-specific birth rates measure the number of live births to females for a specific age group.

**Age-Related Disparities**

- The birth rate for females aged 25-29 was significantly higher than all other age groups.
- There was no significant difference in the birth rates between females aged 20-24 and 30-34.
- The birth rates for all other age groups were significantly different from each other.

![Age-Specific Birth Rates for Monterey County Residents: 2013](image)

*Rate based on small numbers and should be considered statistically unstable.

Note: For females under 15, the birth rate is calculated using the female population 10-14 years of age; for females 45 and older, the birth rate is calculated using the female population 45-49 years of age.
Monterey County Births: Teen Birth Rate

Women who give birth as a teen are at a greater risk of having lower academic achievement, dropping out of high school, and lower educational attainment. In 2013, the teen birth rate for Monterey County was 36.0 live births per 1,000 females aged 15-19 years. The overall teen birth rate decreased statistically over the last ten years ($p<0.01$).

![Graph showing teen birth rates from 2004 to 2013](Figure 8: Teen Birth Rates Among Monterey County Residents: 2004-2013)

### Racial/Ethnic Disparities

- The teen birth rate among Hispanic mothers was significantly higher than all other racial/ethnic groups.
- No other significant differences between racial/ethnic groups were found.

![Graph showing teen birth rates by race/ethnicity in 2013](Figure 9: Teen Birth Rates among Monterey County Residents by Race/Ethnicity: 2013)

Note: See Technical Notes at the end of this document for information on significance testing.
Monterey County Births: Teen Birth Rate

Geographic Distribution

- ZIP Codes with rates in the highest quartile included portions of Castroville, East Salinas, Chualar, Greenfield, King City, and San Ardo.
- ZIP Codes with rates in the lowest quartile included portions of Pacific Grove, Pebble Beach, Carmel, Carmel Valley, and San Miguel.

Note: Rates are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on indicator mapping. Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015. ESRI demographic updates, 2013.
Monterey County Births: Educational Level

Educational level is often regarded as an important indicator of health status. Studies have shown that infants with less educated parents are more likely to experience adverse health outcomes. In 2013, 35.9% of births to residents were to mothers without a high school degree. The overall rate did not statistically change over the last ten years.

![Figure 11: Percent of Births to Monterey County Mothers Without a High School Degree: 2004-2013](image)

Table 4. Births to Monterey County Residents by Mother’s Educational Level: 2013

<table>
<thead>
<tr>
<th>Mother's Educational Level</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>8th Grade or Less</td>
<td>1,087</td>
<td>18.3</td>
</tr>
<tr>
<td>Some High School</td>
<td>1,050</td>
<td>17.6</td>
</tr>
<tr>
<td>High School Degree and Higher</td>
<td>3,813</td>
<td>64.1</td>
</tr>
<tr>
<td>Total</td>
<td>5,950</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Notes: Percentages are calculated based on only those births with known values for the characteristic(s) of interest; percentages may not sum to total due to rounding. Births to mothers younger than 20 years of age are not included.

Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Educational Level

**Age-Related Disparities**

- There were no significant differences between age groups found.

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**Racial/Ethnic Disparities**

- Hispanic mothers had a significantly higher percent without a high school degree than mothers of all other racial/ethnic groups.
- There were no other significant differences between racial/ethnic groups.

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*Note: Births to mothers younger than 20 years of age are not included. See Technical Notes at the end of this document for information on significance testing. Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.*
Geographic Distribution

- ZIP Codes with percentages in the highest quartile included portions of Watsonville, Castroville, East Salinas, Greenfield, King City, and San Ardo.
- ZIP Codes with percentages in the lowest quartile included portions of Pacific Grove, Pebble Beach, Carmel, Carmel Valley, and San Miguel.

Note: Births to mothers younger than 20 years of age are not included. Percentages are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on indicator mapping. Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Payment for Delivery

Data on expected payor sources for birth-related expenses can help guide service delivery. In 2013, Medi-Cal and other government programs were the expected principal sources of payment for delivery for 68.3% of births to Monterey County residents. The overall percent of Medi-Cal and other government programs as expected sources of payment did not statistically change over the last ten years.

Figure 15: Percent of Births to Monterey County Residents With Medi-Cal and Other Government Programs as Expected Source of Payment for Delivery: 2004-2013

Table 5. Births to Monterey County Residents by Mother’s Expected Source of Payment for Delivery: 2013

<table>
<thead>
<tr>
<th>Expected Source of Payment for Delivery</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medi-Cal and Other Government Programs</td>
<td>4,468</td>
<td>68.3</td>
</tr>
<tr>
<td>Private Insurance</td>
<td>2,011</td>
<td>30.7</td>
</tr>
<tr>
<td>Self-pay</td>
<td>57</td>
<td>0.9</td>
</tr>
<tr>
<td>N/A or None</td>
<td>9</td>
<td>0.1</td>
</tr>
<tr>
<td>Total</td>
<td>6,545</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Notes: Percentages are calculated based on only those births with known values for the characteristic(s) of interest; percentages may not sum to total due to rounding. Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Payment for Delivery

**Age-Related Disparities**

- Percentages were significantly higher among mothers aged 15-24 compared to all other age groups.
- Percentages among mothers aged 30 and older were significantly lower than the other age groups.

**Racial/Ethnic Disparities**

- The percentages among Hispanics was significantly higher than the other racial/ethnic groups, except African-Americans.
- African-Americans had significantly higher percentages than Asian/Pacific Islanders and Whites.
- There were no other significant differences between racial/ethnic groups.

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Note: See Technical Notes at the end of this document for information on significance testing.
Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Payment for Delivery

Geographic Distribution

- ZIP Codes with percentages in the highest quartile included portions of Watsonville, Castroville, Moss Landing, East Salinas, Greenfield, and San Ardo.
- ZIP Codes with percentages in the lowest quartile included portions of Carmel, Carmel Valley, Big Sur, Salinas, and San Miguel.

Note: Percentages are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on indicator mapping.

Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Grand Multiparity

Grand multiparity is defined as women who have had five or more previous births, including both live births and fetal deaths. Grand multiparity has been considered a prenatal risk factor associated with poorer birth outcomes. In 2013, 2.2% of births were to grand multiparous mothers. The overall percent of grand multiparity did not statistically change over the last ten years.

![Graph showing percent of births to Monterey County mothers with five or more previous births from 2004 to 2013.]

Table 6. Births to Monterey County Residents by Mother’s Grand Multiparous Status: 2013

<table>
<thead>
<tr>
<th>Grand Multiparity</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Five or More Prior Births</td>
<td>146</td>
<td>2.2</td>
</tr>
<tr>
<td>Less Than Five Prior Births</td>
<td>6,393</td>
<td>97.8</td>
</tr>
<tr>
<td>Total</td>
<td>6,539</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Notes: Percentages are calculated based on only those births with known values for the characteristic(s) of interest; percentages may not sum to total due to rounding. Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Grand Multiparity

Age-Related Disparities

- As expected, grand multiparity increases with mother’s age.
- Percentages among mothers aged 35 and older were significantly higher than the other age groups.

Racial/Ethnic Disparities

- There were no significant differences between racial/ethnic groups.

Figure 20: Percent of Births to Monterey County Mothers With Five or More Previous Births by Age Group: 2013
Note: Due to small numbers, births to mothers under 15 years of age have been suppressed to maintain confidentiality.
*Percent based on small numbers and should be considered statistically unstable.

Figure 21: Percent of Births to Monterey County Mothers With Five or More Previous Births by Race/Ethnicity: 2013
*Percent based on small numbers and should be considered statistically unstable.

Note: See Technical Notes at the end of this document for information on significance testing.
Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
**Monterey County Births: Grand Multiparity**

**Geographic Distribution**
- ZIP Codes with percentages in the highest quartile included portions of Watsonville, Castroville, Aromas, Big Sur, Greenfield, and San Ardo.
- ZIP Codes with percentages in the lowest quartile included portions of Moss Landing, Pebble Beach, Carmel, Carmel Valley, Chualar, Bradley, and San Miguel.

Note: Percentages are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on indicator mapping.
Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Late Entry Into Prenatal Care

Prenatal care (PNC) is the care received from a health care provider during pregnancy; it is the primary way to identify potential problems to avoid complications and ensure a healthier pregnancy for both mother and baby. Entry into PNC is considered late when it is initiated after the first trimester (first three months) of pregnancy or was not received during pregnancy. In 2013, 25.5% of births had late entry into prenatal care. The overall percent of births with late entry into PNC increased statistically over the last ten years ($p<0.05$)

![Graph showing percent of births to Monterey County mothers with late entry into prenatal care: 2004-2013](image)

Table 7. Births to Monterey County Residents by Mother’s Entry Into Prenatal Care: 2013

<table>
<thead>
<tr>
<th>Entry Into Prenatal Care</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Trimester</td>
<td>4,858</td>
<td>74.5</td>
</tr>
<tr>
<td>Late Entry</td>
<td>1,659</td>
<td>25.5</td>
</tr>
<tr>
<td>2nd Trimester</td>
<td>1,326</td>
<td>20.3</td>
</tr>
<tr>
<td>3rd Trimester</td>
<td>313</td>
<td>4.8</td>
</tr>
<tr>
<td>None</td>
<td>20</td>
<td>0.3</td>
</tr>
<tr>
<td>Total</td>
<td>6,517</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Notes: Percentages are calculated based on only those births with known values for the characteristic(s) of interest; percentages may not sum to total due to rounding. Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
**Monterey County Births: Late Entry Into Prenatal Care**

**Age-Related Disparities**
- Percentages were significantly higher among mothers aged 15-19 compared to all other age groups.
- Mothers aged 20-24 had a significantly higher percentage than those aged 25-39.
- No other significant differences between age groups were found.

**Racial/Ethnic Disparities**
- The percentage among Hispanics was significantly higher than among Whites.
- No other significant differences between racial/ethnic groups were found.

**Figure 24: Percent of Births to Monterey County Residents With Late Entry Into Prenatal Care by Age Group: 2013**

**Figure 25: Percent of Births to Monterey County Residents With Late Entry Into Prenatal Care by Race/Ethnicity: 2013**

Note: See Technical Notes at the end of this document for information on significance testing.
Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Late Entry Into Prenatal Care

Geographic Distribution
- ZIP Codes with percentages in the highest quartile included portions of Watsonville, Castroville, Moss Landing, East Salinas, Greenfield, and San Ardo.
- ZIP Codes with percentages in the lowest quartile included portions of Pebble Beach, Carmel, Carmel Valley, Monterey, Salinas, and San Miguel.

Note: Percentages are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on indicator mapping.
Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Adequacy of Care

Both early and regular prenatal visits with a health care provider are important for the health of the mother and the baby. The Adequacy of Prenatal Care Utilization Index (APNCU) is a measure which combines initiation of PNC and the adequacy of received services (Kotelchuck, 1994). Initiation of PNC is based on the month when PNC began. Adequacy of received services is determined from the number of PNC visits received compared to the expected number of visit based on the American College of Obstetricians and Gynecologists prenatal care standards for uncomplicated pregnancies and adjusted for the gestational age at initiation of care and for the gestational age at delivery. APNCU is a characterization of the timing and number of prenatal care visits; it is not a measure of the quality of PNC received.

PNC utilization was considered inadequate if utilization was scored as inadequate or intermediate by the APNCU. In 2013, 26.4% of births had inadequate PNC utilization. The overall percent of births with inadequate PNC utilization did not statistically change over the last ten years.

<table>
<thead>
<tr>
<th>Adequacy of Prenatal Care Utilization</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate Plus (PNC begun by 4th month and &gt;109% of recommended visits received)</td>
<td>1,526</td>
<td>25.3</td>
</tr>
<tr>
<td>Adequate (PNC begun by 4th month and 80-109% of recommended visits received)</td>
<td>2,916</td>
<td>48.3</td>
</tr>
<tr>
<td>Intermediate (PNC begun by 4th month and 50-79% of recommended visits received)</td>
<td>634</td>
<td>10.5</td>
</tr>
<tr>
<td>Inadequate (PNC begun after 4th month or &lt;50% of recommended visits received)</td>
<td>961</td>
<td>15.9</td>
</tr>
<tr>
<td>Total</td>
<td>6,037</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 8. Births to Monterey County Residents by Mother’s Adequacy of Prenatal Care Utilization: 2013

Notes: Percentages are calculated based on only those births with known values for the characteristic(s) of interest; percentages may not sum to total due to rounding. Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Adequacy of Care

Age-Related Disparities

- Percentage of births to mothers receiving inadequate PNC was significantly higher among mothers aged 15-19 compared to all other age groups.
- Mothers aged 20-24 had a significantly higher percentage than those aged 25 and older.
- Mothers aged 25-29 had a significantly higher percentage than those aged 35-39.

Racial/Ethnic Disparities

- The percentage among Hispanics was significantly higher than among Whites and Asian/Pacific Islanders.
- No other significant differences between racial/ethnic groups were found.

Note: See Technical Notes at the end of this document for information on significance testing.
Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Geographic Distribution

- ZIP Codes with percentages in the highest quartile included portions of Castroville, Moss Landing, Chualar, Greenfield, Bradley, and San Ardo.
- ZIP Codes with percentages in the lowest quartile included portions of Pacific Grove, Monterey, Carmel, Salinas, and San Miguel.

Note: Percentages are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on indicator mapping.

Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Birth Weight

Infants born with low birth weight have a greater risk of infant mortality in the first year of life, developmental difficulties, and chronic health conditions in later life. Low birthweight (LBW) is defined as infants weighing less than 2,500 grams and very low birthweight (VLBW) is defined as less than 1,500 grams. In 2013, 4.6% of births were LBW and 0.7% were VLBW. The overall percent of births with LBW or VLBW did not statistically change over the last ten years.

### Table 9. Births to Monterey County Residents by Birth Weight: 2013

<table>
<thead>
<tr>
<th>Birthweight</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>LBW (&lt;2,500 grams)</td>
<td>292</td>
<td>4.6</td>
</tr>
<tr>
<td>VLBW (&lt;1,500 grams)</td>
<td>46</td>
<td>0.7</td>
</tr>
<tr>
<td>Normal (2500 grams to &lt;4,000 grams)</td>
<td>5,480</td>
<td>86.0</td>
</tr>
<tr>
<td>Macrosomia (&gt;3,999 grams)</td>
<td>603</td>
<td>9.5</td>
</tr>
<tr>
<td>Total</td>
<td>6,375</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Notes: Multiple births are excluded. Percentages are calculated based on only those births with known values for the characteristic(s) of interest; percentages may not sum to total due to rounding.
Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Low Birth Weight

Age-Related Disparities

- No significant differences between age groups were found.

Racial/Ethnic Disparities

- The percentage among Asian/Pacific Islanders was significantly higher than among Whites.
- No other significant differences between racial/ethnic groups were found.

Note: Multiple births are excluded. See Technical Notes at the end of this document for information on significance testing.

Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Low Birth Weight

Geographic Distribution

- ZIP Codes with percentages in the highest quartile included portions of Moss Landing, Prunedale, Aromas, Carmel, Chualar, and San Ardo.
- ZIP Codes with percentages in the lowest quartile included portions of Pebble Beach, Carmel Valley, Big Sur, Bradley, and San Miguel.

Note: Multiple births are excluded. Percentages are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on indicator mapping.
Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Very Low Birth Weight

Age-Related Disparities

- No significant differences between age groups were found.

Figure 35: Percent of Births to Monterey County Residents With Very Low Birth Weight by Age Group: 2013
Note: Due to small numbers, births to mothers under 15 years of age have been suppressed to maintain confidentiality.

Racial/Ethnic Disparities

- The percentages among Asian/Pacific Islanders and Hispanics were significantly higher than among African-Americans.
- No other significant differences between racial/ethnic groups were found.

Figure 36: Percent of Births to Monterey County Residents With Very Low Birth Weight by Race/Ethnicity: 2013

Note: Multiple births are excluded. See Technical Notes at the end of this document for information on significance testing.
Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Very Low Birth Weight

Geographic Distribution
- ZIP Codes with percentages in the highest quartile included portions of Moss Landing, Monterey, Salinas, and Chualar.
- ZIP Codes with percentages in the lowest quartile included portions of Watsonville, Aromas, Pebble Beach, Carmel, Carmel Valley, Big Sur, Gonzales, Bradley, San Ardo, and San Miguel.

Note: Multiple births are excluded. Percentages are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on indicator mapping.
Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Gestational Age

Infants born prematurely also have a greater risk of infant mortality, developmental disability, and long-term health conditions. Preterm births are births which occur prior to 37 completed weeks of gestation. In 2013, 6.6% of births to Monterey County residents were preterm. The overall percent of preterm births did not statistically change over the last ten years.

Table 10. Births to Monterey County Residents by Gestational Age: 2013

<table>
<thead>
<tr>
<th>Gestational Age</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preterm (Less Than 37 Weeks)</td>
<td>419</td>
<td>6.6</td>
</tr>
<tr>
<td>Very Preterm (Less than 32)</td>
<td>54</td>
<td>0.8</td>
</tr>
<tr>
<td>32-33 Weeks</td>
<td>45</td>
<td>0.7</td>
</tr>
<tr>
<td>Late Preterm (34-36 Weeks)</td>
<td>320</td>
<td>5.0</td>
</tr>
<tr>
<td>Term (37-41 Weeks)</td>
<td>5,674</td>
<td>89.1</td>
</tr>
<tr>
<td>Early Term (37-38 Weeks)</td>
<td>1,488</td>
<td>23.4</td>
</tr>
<tr>
<td>Full Term (39-40 Weeks)</td>
<td>3,456</td>
<td>54.3</td>
</tr>
<tr>
<td>Late Term (41 Weeks)</td>
<td>730</td>
<td>11.5</td>
</tr>
<tr>
<td>Postterm (42 Weeks or Later)</td>
<td>272</td>
<td>4.3</td>
</tr>
<tr>
<td>Total</td>
<td>6,365</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Notes: Multiple births are excluded. Percentages are calculated based on only those births with known values for the characteristic(s) of interest; percentages may not sum to total due to rounding.

Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Preterm Births

**Age-Related Disparities**
- No significant differences between age groups were found.

**Racial/Ethnic Disparities**
- No significant differences between racial/ethnic groups were found.

Note: Multiple births are excluded. See Technical Notes at the end of this document for information on significance testing.

Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Preterm Birth

Geographic Distribution

- ZIP Codes with percentages in the highest quartile included portions of Moss Landing, Castroville, Prunedale, Seaside, Carmel Valley, and Chualar.
- ZIP Codes with percentages in the lowest quartile included portions of Pebble Beach, Big Sur, Bradley, San Ardo, and San Miguel.

Note: Multiple births are excluded. Percentages are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on indicator mapping.

Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
A cesarean birth is the delivery of an infant through an incision in the abdominal wall and uterus instead of through the vagina and generally has a longer recovery time for the mother. Cesarean deliveries may be performed for different reasons, including failure of labor to progress, medical concern for the fetus, fetal presentation, multiple pregnancy, mother’s medical condition(s) as well as elective, non-medical reasons. A low risk delivery is defined as a term (at least 37 weeks gestation), singleton (not a multiple gestation), vertex (head in a downward position in the birth canal) birth (ACOG, 2014). A first time cesarean delivery is a cesarean birth to women giving birth for the first time; a repeat cesarean delivery is a cesarean birth to women who have had a prior cesarean birth. In 2013, 24.7% of births were first time cesareans and 86.4% were repeat cesareans for low risk deliveries. The overall percent of births among low risk women that were first time and repeat cesareans did not statistically change over the last nine years.

Figure 42: Percent of Births by Cesarean Delivery Among Low Risk Monterey County Residents: 2004-2013
+ Low risk status could not be determine for mothers giving birth in 2004.

### Table 11. Births to Monterey County Residents by Delivery Method: 2013

<table>
<thead>
<tr>
<th>Delivery Method</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaginal</td>
<td>4,663</td>
<td>71.2</td>
</tr>
<tr>
<td>Vaginal Birth After Cesarean (VBAC)</td>
<td>123</td>
<td>1.9</td>
</tr>
<tr>
<td>Cesarean</td>
<td>1,884</td>
<td>28.8</td>
</tr>
<tr>
<td>Primary (First Cesarean Delivery)</td>
<td>980</td>
<td>15.0</td>
</tr>
<tr>
<td>Repeat (Cesarean with a Prior Cesarean)</td>
<td>904</td>
<td>13.8</td>
</tr>
<tr>
<td>Total</td>
<td>6,547</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: Table includes all births, not just low risk deliveries.
Monterey County Births: First Time Cesarean Delivery

**Age-Related Disparities**

- Percentage of births was significantly higher among mothers aged 40 and older compared to those aged 15-34.
- Mothers aged 35-39 had a significantly higher percentage than those aged 15-24.
- Mothers aged 15-19 had a significantly lower percentage compared to all other age groups.

**Racial/Ethnic Disparities**

- The percentage among Asian/Pacific Islanders was significantly higher than among Hispanics and Whites.
- No other significant differences between racial/ethnic groups were found.

---

**Figure 43: Percent of Births by Cesarean Delivery Among Low Risk Monterey County Residents Giving Birth for the First Time by Age Group: 2013**

Note: Due to small numbers, births to mothers under 15 years of age have been suppressed to maintain confidentiality.

**Figure 44: Percent of Births by Cesarean Delivery Among Low Risk Monterey County Residents Giving Birth for the First Time by Race/Ethnicity: 2013**

Note: See Technical Notes at the end of this document for information on significance testing.

Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: First Time Cesarean

Geographic Distribution
- ZIP Codes with percentages in the highest quartile included portions of Watsonville, Aromas, Moss Landing, Marina, Chualar, and San Ardo.
- ZIP Codes with percentages in the lowest quartile included portions of Pebble Beach, Big Sur, Greenfield, King City, and San Miguel.

Note: Percentages are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on indicator mapping.

Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Monterey County Births: Repeat Cesarean

Age-Related Disparities

- Percentage of births was significantly higher among mothers aged 30-39 compared to those aged 20-29.
- No other significant differences between age groups were found.

Racial/Ethnic Disparities

- No significant differences between racial/ethnic groups were found.

Figure 46: Percent of Births by Cesarean Delivery Among Low Risk Monterey County Residents Giving Birth With a Prior Cesarean Delivery by Age Group: 2013
Note: Due to small numbers, births to mothers under 15 years of age have been suppressed to maintain confidentiality.

Figure 47: Percent of Births by Cesarean Delivery Among Low Risk Monterey County Residents Giving Birth With a Prior Cesarean Delivery by Race/Ethnicity: 2013

Note: See Technical Notes at the end of this document for information on significance testing.
Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Figure 48: Percent of Births by Cesarean Delivery Among Low Risk Monterey County Residents Giving Birth With a Prior Cesarean Delivery by ZIP Codes: 2013

Geographic Distribution
- ZIP Codes with percentages in the highest quartile included portions of Moss Landing, Pebble Beach, Pacific Grove, Salinas, and Bradley.
- ZIP Codes with percentages in the lowest quartile included portions of Aromas, Big Sur, Carmel Valley, Chualar, Greenfield, San Ardo, and San Miguel.

Note: Percentages are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on indicator mapping.

Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
## Monterey County Births: Births by Hospital

**Table 12. Births to Monterey County Residents by Hospital of Birth: 2013**

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHOMP</td>
<td>1,168</td>
<td>18.0</td>
</tr>
<tr>
<td>Mee</td>
<td>524</td>
<td>8.1</td>
</tr>
<tr>
<td>NMC</td>
<td>2,439</td>
<td>37.5</td>
</tr>
<tr>
<td>SVMH</td>
<td>1,792</td>
<td>27.6</td>
</tr>
<tr>
<td>WCH</td>
<td>258</td>
<td>4.0</td>
</tr>
<tr>
<td>Other</td>
<td>320</td>
<td>4.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>6,501</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Table 13. Births to Monterey County Residents by Hospital of Birth and Mother’s Age Group: 2013**

<table>
<thead>
<tr>
<th>Agegroup</th>
<th>CHOMP</th>
<th>Mee</th>
<th>NMC</th>
<th>SVMH</th>
<th>WCH</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>19 and Under</td>
<td>19</td>
<td>1.6</td>
<td>68</td>
<td>13.0</td>
<td>268</td>
<td>11.0</td>
</tr>
<tr>
<td>20-24</td>
<td>142</td>
<td>12.2</td>
<td>150</td>
<td>28.6</td>
<td>743</td>
<td>30.5</td>
</tr>
<tr>
<td>25-29</td>
<td>346</td>
<td>29.6</td>
<td>138</td>
<td>26.3</td>
<td>623</td>
<td>25.5</td>
</tr>
<tr>
<td>30-34</td>
<td>414</td>
<td>35.4</td>
<td>105</td>
<td>20.0</td>
<td>482</td>
<td>19.8</td>
</tr>
<tr>
<td>35-39</td>
<td>198</td>
<td>17.0</td>
<td>52</td>
<td>9.9</td>
<td>249</td>
<td>10.2</td>
</tr>
<tr>
<td>40 and Over</td>
<td>49</td>
<td>4.2</td>
<td>11</td>
<td>2.1</td>
<td>74</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,168</td>
<td>100.0</td>
<td>524</td>
<td>100.0</td>
<td>2,439</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: Percentages may not sum to total due to rounding.

---

**Notes:**

CHOMP = Community Hospital of the Monterey Peninsula; Mee = George L. Mee Memorial Hospital; NMC = Natividad Medical Center; SVMH = Salinas Valley Memorial Hospital; WCH = Watsonville Community Hospital

Non-hospital births excluded. Percentages are calculated based on only those births with known values for the characteristic(s) of interest; percentages may not sum to total due to rounding.

Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
### Monterey County Births: Births by Hospital, Continued

#### Table 14. Births to Monterey County Residents by Hospital of Birth and Mother’s Race/Ethnicity: 2013

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>CHOMP</th>
<th></th>
<th>Mee</th>
<th></th>
<th>NMC</th>
<th></th>
<th>SVMH</th>
<th></th>
<th>WCH</th>
<th></th>
<th>Other</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Number</td>
<td>Percent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African-American</td>
<td>25</td>
<td>2.2</td>
<td>3</td>
<td>0.6</td>
<td>20</td>
<td>0.8</td>
<td>16</td>
<td>0.9</td>
<td>1</td>
<td>0.4</td>
<td>6</td>
<td>2.0</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>117</td>
<td>10.2</td>
<td>2</td>
<td>0.4</td>
<td>55</td>
<td>2.3</td>
<td>75</td>
<td>4.2</td>
<td>1</td>
<td>0.4</td>
<td>14</td>
<td>4.6</td>
</tr>
<tr>
<td>Hispanic</td>
<td>262</td>
<td>22.7</td>
<td>498</td>
<td>95.0</td>
<td>2,243</td>
<td>92.2</td>
<td>1,459</td>
<td>81.7</td>
<td>241</td>
<td>93.4</td>
<td>148</td>
<td>48.8</td>
</tr>
<tr>
<td>Multi-Race</td>
<td>65</td>
<td>5.6</td>
<td>1</td>
<td>0.2</td>
<td>18</td>
<td>0.7</td>
<td>21</td>
<td>1.2</td>
<td>0</td>
<td>0.0</td>
<td>8</td>
<td>2.6</td>
</tr>
<tr>
<td>White</td>
<td>683</td>
<td>59.3</td>
<td>20</td>
<td>3.8</td>
<td>97</td>
<td>4.0</td>
<td>214</td>
<td>12.0</td>
<td>15</td>
<td>5.8</td>
<td>127</td>
<td>41.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,152</td>
<td>100.0</td>
<td>524</td>
<td>100.0</td>
<td>2,433</td>
<td>100.0</td>
<td>1,785</td>
<td>100.0</td>
<td>258</td>
<td>100.0</td>
<td>303</td>
<td>100.0</td>
</tr>
</tbody>
</table>

#### Table 15. Births to Monterey County Residents by Hospital of Birth and Mother’s Expected Source of Payment for Delivery: 2013

<table>
<thead>
<tr>
<th>Expected Source of Payment for Delivery</th>
<th>CHOMP</th>
<th></th>
<th>Mee</th>
<th></th>
<th>NMC</th>
<th></th>
<th>SVMH</th>
<th></th>
<th>WCH</th>
<th></th>
<th>Other</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Number</td>
<td>Percent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medi-Cal and Other Government Programs</td>
<td>512</td>
<td>43.9</td>
<td>439</td>
<td>83.8</td>
<td>2,254</td>
<td>92.4</td>
<td>925</td>
<td>51.6</td>
<td>209</td>
<td>81.0</td>
<td>124</td>
<td>38.9</td>
</tr>
<tr>
<td>Private Insurance</td>
<td>644</td>
<td>55.2</td>
<td>81</td>
<td>15.5</td>
<td>152</td>
<td>6.2</td>
<td>865</td>
<td>48.3</td>
<td>46</td>
<td>17.8</td>
<td>190</td>
<td>59.6</td>
</tr>
<tr>
<td>Self-pay</td>
<td>11</td>
<td>0.9</td>
<td>4</td>
<td>0.8</td>
<td>25</td>
<td>1.0</td>
<td>2</td>
<td>0.1</td>
<td>3</td>
<td>1.2</td>
<td>5</td>
<td>1.6</td>
</tr>
<tr>
<td>N/A or None</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>8</td>
<td>0.3</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,167</td>
<td>100.0</td>
<td>524</td>
<td>100.0</td>
<td>2,439</td>
<td>100.0</td>
<td>1,792</td>
<td>100.0</td>
<td>258</td>
<td>100.0</td>
<td>319</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Notes:**  
CHOMP = Community Hospital of the Monterey Peninsula; Mee = George L. Mee Memorial Hospital; NMC = Natividad Medical Center; SVMH = Salinas Valley Memorial Hospital; WCH = Watsonville Community Hospital  
Non-hospital births excluded. Percentages are calculated based on only those births with known values for the characteristic(s) of interest; percentages may not sum to total due to rounding.  
Source: California Department of Public Health, Health Information and Research Section, Birth Statistical Master File; data extracted June 3, 2015.
Technical Notes

Background
This section of the Monterey County Birth Outcomes Report describes the methods and limitations used to summarize the epidemiological indicators and outcomes of birth as reported on the Certificate of Live Birth. The dissemination of information on the health status of the community is a core function and essential service of public health.

Methods

Data Sources

The data presented in this report were extracted from the California Department of Public Health, Health Information and Research Section’s Birth Statistical Master File. The Birth Statistical Master File contains data obtained from the California Certificate of Live Birth, which is filed with the Office of Vital Records. Birthing facilities provide the medical data contained on the live certificate, such as birth weight and delivery method, while the birthing mothers provide the demographic information, such as race/ethnicity and educational level. All data in this report are for Monterey County residents (based on maternal residence), regardless of where the birth occurred. State of California Department of Finance projections were used to estimate age and racial/ethnic specific populations within Monterey County (State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2009. Sacramento, California, September 2012; State of California, Department of Finance, State and County Population Projections by Race/Ethnicity, Sex, and Age 2010-2060. Sacramento, California, December 2014). ESRI demographic updates were used to estimate age and racial/ethnic specific populations within Monterey County by ZIP Codes.

Definitions

The race and ethnicity information included in this report are based on the following categories: African American/Black (non-Hispanic); Hispanic/Latino (regardless of racial designation); White (non-Hispanic); Asian/Pacific Islander (non-Hispanic); Multi-racial (two or more races); American Indian/Alaskan Native Only (non-Hispanic); Other (non-Hispanic), and Unknown/Not Stated. For the purposes of this report, American Indian/Alaskan Native Only (non-Hispanic), Other (non-Hispanic), and Unknown/Not Stated were excluded from racial/ethnic disparity calculations due to small numbers in order to preserve confidentiality.

Data Analysis

SAS Enterprise Guide 5.1 software (SAS Institute, Inc., Cary, North Carolina) was used to generate frequency tables and evaluate temporal trends via Poisson regression models. All statistics presented are based upon the number of births, not the number of mothers. For temporal trends, probability values ≤0.05 were considered statistically significant. The difference between rates or proportions of different demographic groups was considered statistically significant if their 95% confidence intervals did not overlap following the testing methods from the National Center for Health Statistics (NCHS) (Martin, 2003); statistical difference is noted by the inclusion of ‘significant’ in comparisons. Rates were calculated per 1,000 population unless otherwise specified. Proportions are calculated based on only those births with knowns values for the characteristic(s) of interest. Rates and proportions were stratified by age group and race/ethnicity. A rate or proportion was defined as statistically unreliable when its relative standard error (RSE) was ≥23%. This threshold is consistent with recommendations from the HCHS. Formulae used to calculate rates, standard errors, and relative standard errors are available upon request.
Technical Notes (Continued)

Data Suppression and Confidentiality

In order to assure the confidentiality of mothers included in this report, data cells with less than 5 observations were either suppressed or combined. In some instances, data cells with 5 or greater observations may have been suppressed to assure confidentiality of related data cells with less than 5 observations.

Maps

Maps of birth indicators were created using ArcEditor 10.2 (ESRI, Redlands, California). Rates and proportions were displayed by quartiles (four equal interval categories) for ease of visual interpretation. Rates and proportions with a value of zero were grouped into the same quartile. Selection of this type of categorization may have lead to introduction of cut-point bias. Zone Improvement Plan (ZIP) Codes were the unit of spatial representation.

Limitations

Because maternal characteristics are self-reported, certain data collected on the birth certificate have inherent reporting bias.

The number of births are subject to random error. Random error may be substantial when the number of births of interest is small (e.g., less than 20) and can make it impossible to distinguish random fluctuations from true changes in the indicator. Rates and proportions based on small numbers should be interpreted with caution.

ZIP Codes, utilized by the United States Postal Service to expedite mail delivery, are not standard census geographic areas for reporting data and are therefore not stable over time.
**Works Cited**


