

Getting the Data Right: Best Practices for the National Vital Statistics Birth, Fetal Death, and Linked Birth and Infant Health Data Sets

Presented by:

Marie Thoma, PhD, MHS

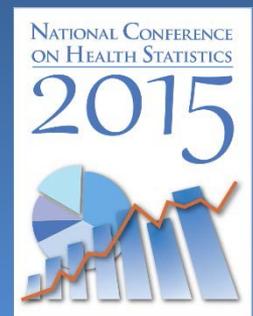
Elizabeth Gregory, MPH

T.J. Mathews, MS

Reproductive Statistics Branch

Division of Vital Statistics

National Center for Health Statistics



The “Birth” Team

Amy Branum (Branch chief)
Joyce A. Martin (Team Lead)
Sally C. Curtin
Elizabeth C.W. Gregory
Brady E. Hamilton
Sharon E. Kirmeyer
T.J. Mathews
Michelle J.K. Osterman
Marie E. Thoma

PERINATAL DATA FILES
BACKGROUND AND BIRTH FILES

Presented by:
Marie E. Thoma, PhD, MHS

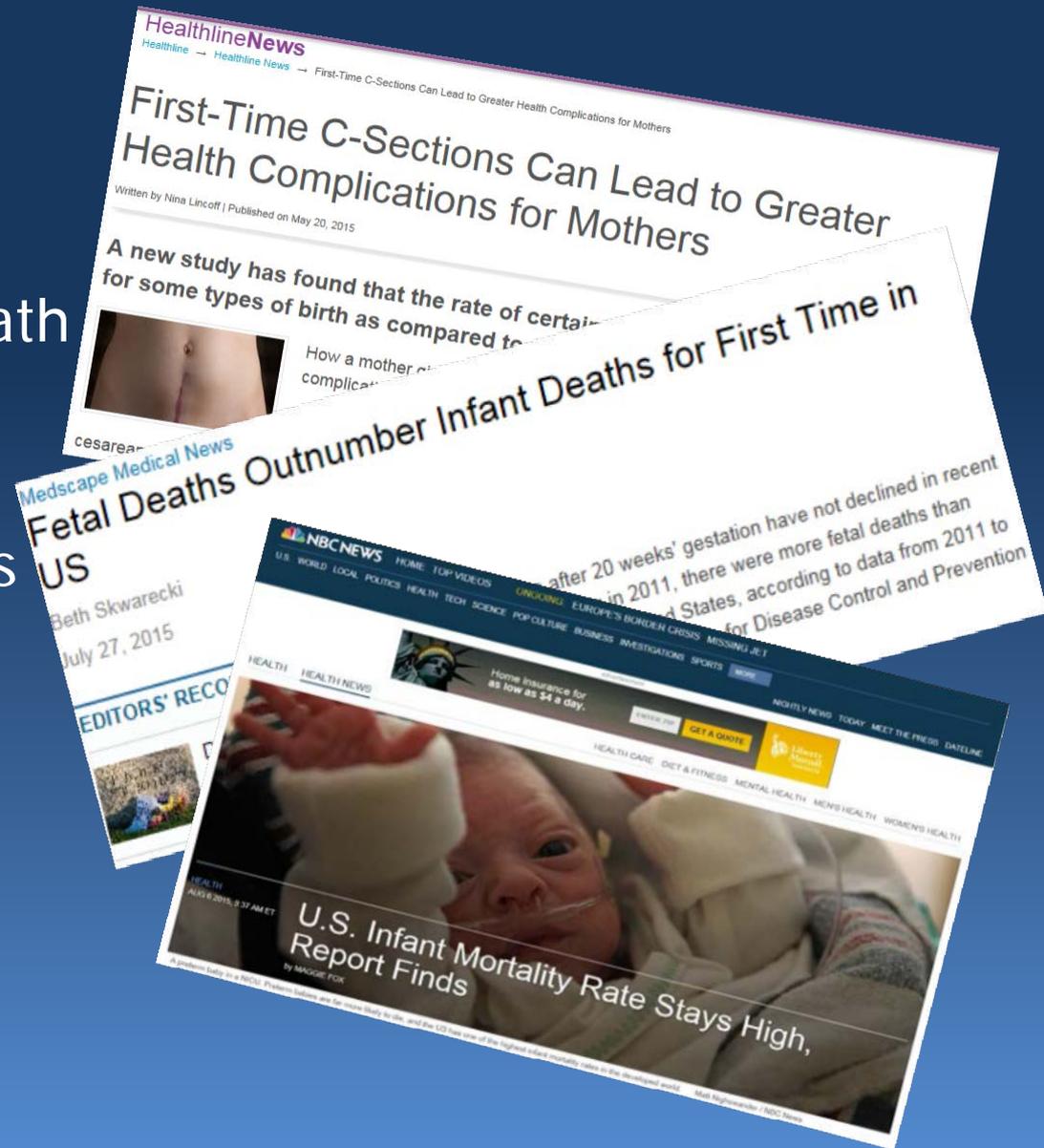
Perinatal Data Files

National data files

- Birth
- Fetal Death
- Linked Birth/Infant Death

These data are used to:

- Describe characteristics of women giving birth
- Monitor trends in maternal, infant, and perinatal health
- Improve knowledge of adverse pregnancy outcomes



Outline

- Background
- Data Access
- Data Files
 - Birth data file
 - Fetal death data file
 - Linked Birth/Infant death data file
- Summary
 - Contact Information

BACKGROUND

Vital Statistics Cooperative Program (VSCP)

- VSCP is a decentralized cooperative data collection process
- Individual reporting areas have responsibility for collecting vital statistics
 - Births, deaths, fetal deaths, marriage and divorce*
- Federal government has no constitutional authority to require collection of vital statistics
 - NCHS is mandated by law to collect and disseminate national vital statistics

*Only overall count data provided and not all states provide this information

National Vital Statistics System



- NCHS contracts with 57 independent reporting areas to provide vital statistics data for the NVSS
 - 50 States, DC, NYC
 - 5 Territories: Puerto Rico, Guam, U.S. Virgin Islands, American Samoa, Northern Marianas Islands



- Facilitates data quality efforts
 - Standardized Model laws, certificate, and definitions
 - Standardized methods for collecting, processing, editing, and analyzing
 - Standardized training (*forthcoming*)

Advantages

- Universal coverage
 - Essentially all U.S. births are registered
 - 100% registered births in the birth file
- Large size (~ 4 million annually)
 - Permits detailed analyses of:
 - Small subgroups
 - Rare events

Data Confidentiality

Public Use Data files do NOT include:

- Personally Identifiable Information (PII)
 - Names, Social Security numbers
 - Addresses and other geographic identifiers
 - Dates of birth of infant, mother, and father
 - Birth certificate numbers
- Potentially identifying outliers (top & bottom recoded)
- Geographic detail (beginning in 2005)
 - E.g., state and county of birth

Restricted Data

- Public-use data with geographic detail are available through web-based systems (i.e., VitalStats, CDC WONDER)
- Customized micro-data files (with geographic detail) are available upon formal request/review/approval by representatives of state vital statistics offices and the DVS director and only under restricted conditions
- Use of data with exact dates may be possible through the Research Data Center (RDC)

RDC: <http://www.cdc.gov/rdc/>

NCHS/NVSS Data Release Policy

National Vital Statistics System

National Vital Statistics System

About NVSS

What's New

Birth Data

Mortality Data

Fetal Death Data

Linked Birth and Infant Death Data

Marriages and Divorces

National Maternal and Infant Health Survey

National Mortality Followback Survey

[NCHS Home](#) > [Surveys and Data Collection Systems](#) > [National Vital Statistics System](#)



NCHS Data Release and Access Policy for Micro-data and Compressed Vital Statistics Files

This document outlines NCHS/Division of Vital Statistics (DVS) policy on the release of and access to vital statistics micro-data for births, deaths, fetal deaths, linked birth/infant death, and matched multiple births. Given changes in state laws and policies on confidentiality with respect to the re-release of vital registration data, NCHS has revised its micro-data release and access policy to comply with state requirements effective with the 2005 data year.* The DVS revised policy as outlined here is consistent with CDC and NCHS goals to make data available as widely as possible while protecting respondent confidentiality, assuring data quality, and conforming to state laws and regulations on re-release of vital statistics data.

www.cdc.gov/nchs/nvss/dvs_data_release.htm

DATA ACCESS

Downloadable Micro-data files

Data Access

Data Access

- Data Linkage
- Data Visualization Gallery
- Interactive Tables and Databases
- National Death Index
- Public-Use Data Files
 - Compressed Mortality File
 - SPACE Program
- Vital Statistics Online**
- Research Data Center

NCHS Home > Data Access > Public-Use Data Files

Vital Statistics Data Available Online

This page is a portal to the online data dissemination activities of the [Division of Vital Statistics](#), including both interactive online data access tools and downloadable public use data files.

On this Page

- Downloadable Data Files
- Data Access Tools

Downloadable Data Files

Public use [Birth](#), [Period Linked Birth - Infant Death](#), [Birth Cohort Linked Birth - Infant Death](#), [Mortality Multiple Cause](#), and [Fetal Death](#) data files are available for independent research and analyses.

- Vital Statistics Data Release Policy
- Data Users Agreement

Important Information

- Data Release Policy
- Data User Agreement

Birth Data Files

| User's Guide (.pdf files) | U.S. Data (.zip files)* | U.S. Territories Data (.zip files) |
|-------------------------------|-------------------------------|------------------------------------|
| 2013 (1.4 MB) | 2013 (219 MB) | 2013 (2.5 MB) |
| 2012 (1.4 MB) | 2012 (218 MB) | 2012 (2.8 MB) |
| 2011 (1 MB) | 2011 (215 MB) | 2011 (1.7 MB) |

Period Linked Birth-Infant Death Data Files

| User's Guide (.pdf files) | U.S. Data (.zip files)* | U.S. Territories Data (.zip files) |
|-------------------------------|-------------------------------|------------------------------------|
| 2013 (561 KB) | 2013 (183 MB) | 2013 (1.8 MB) |
| 2012 (685 KB) | 2012 (182 MB) | 2012 (2 MB) |
| 2011 (814 KB) | 2011 (182 MB) | 2011 (2 MB) |

- Birth Data Files
(2013 latest available)
- Period Linked Birth-Infant Death Data Files
(2013 latest available)
- Birth Cohort Linked Birth-Infant Death Data Files
(2010 latest available)
- Fetal Death Data Files
(2013 latest available)

Vital Stats website



Data Access

Data Access

Data Linkage

Data Visualization Gallery

Interactive Tables and Databases

NCHS DOQS

Health Data Interactive

► VitalStats

Births

Perinatal Mortality

National Death Index

Public-Use Data Files

Research Data Center

[NCHS Home](#) > [Data Access](#) > [Interactive Tables and Databases](#)



VitalStats

Welcome to VitalStats, a collection of vital statistics products including tables, data files, and reports that allow users to access and examine vital statistics and population data interactively.

Use our prebuilt tables and reports for quick access to statistics. Or, you can use the data files to create your own tables--choosing from over 100 variables. Using the data files takes a little more time but gives you access to more data. You can customize the tables, and create charts, graphs, and maps. You can even export the data for use offline or in another format. Please see the [Getting Started Quick Guide \[PDF - 180 KB\]](#)  for more information.

www.cdc.gov/nchs/VitalStats.htm

VITAL STATS

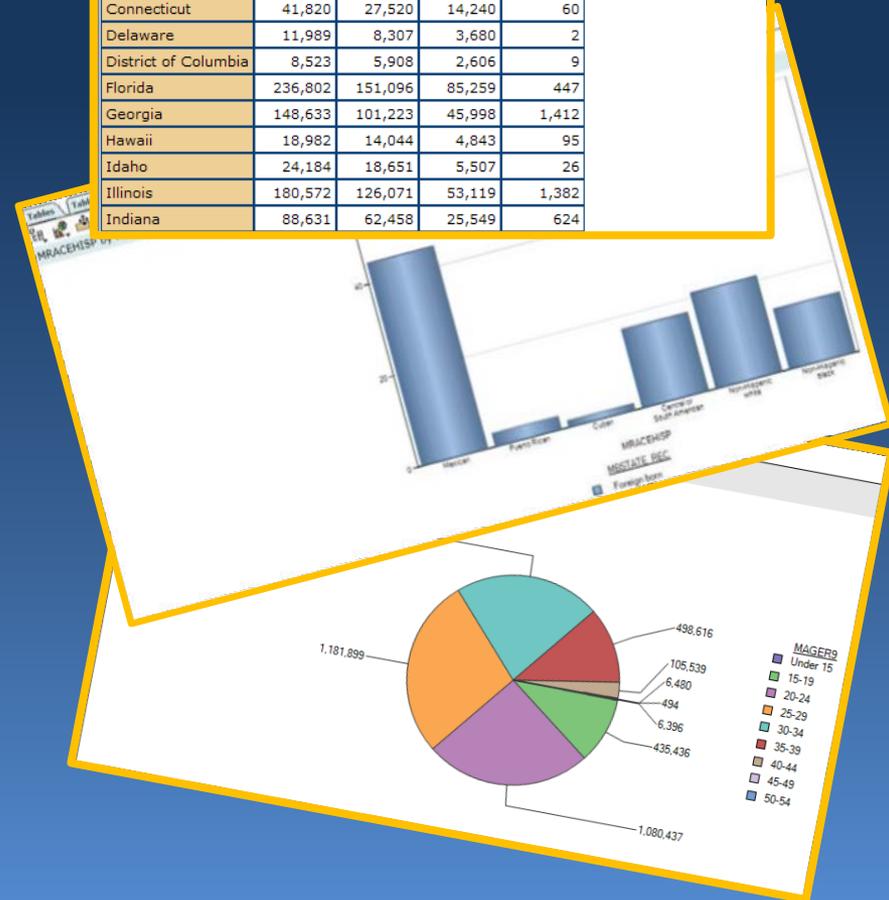
- Birth (1990-2013) and fetal death (2003-2013) data
- Generate unique tables and graphs
 - Contains geographic information
- Create user-defined recodes
- Data suppression of cell sizes <10 for geographic variables (since 2012)
- Populations
 - No longer available
 - Available in CDC WONDER

Tables MRSTATE by DMETH_REC (n06-state) Help

Actions [Icons]

OTHER:

| DMETH_REC | Total | Vaginal | C-section | Not stated |
|----------------------|-----------|-----------|-----------|------------|
| MRSTATE | ↑↓ | ↑↓ | ↑↓ | ↑↓ |
| Total | 4,265,555 | 2,929,590 | 1,321,054 | 14,911 |
| Alabama | 63,232 | 41,843 | 20,964 | 425 |
| Alaska | 10,996 | 8,420 | 2,517 | 59 |
| Arizona | 102,429 | 75,839 | 26,097 | 493 |
| Arkansas | 40,961 | 27,290 | 13,536 | 135 |
| California | 562,440 | 386,379 | 176,057 | 4 |
| Colorado | 70,751 | 52,865 | 17,886 | - |
| Connecticut | 41,820 | 27,520 | 14,240 | 60 |
| Delaware | 11,989 | 8,307 | 3,680 | 2 |
| District of Columbia | 8,523 | 5,908 | 2,606 | 9 |
| Florida | 236,802 | 151,096 | 85,259 | 447 |
| Georgia | 148,633 | 101,223 | 45,998 | 1,412 |
| Hawaii | 18,982 | 14,044 | 4,843 | 95 |
| Idaho | 24,184 | 18,651 | 5,507 | 26 |
| Illinois | 180,572 | 126,071 | 53,119 | 1,382 |
| Indiana | 88,631 | 62,458 | 25,549 | 624 |



CDC WONDER

- Birth (1995-2013) and Linked Birth/Infant death period data (1995-2013)
- Generate unique tables, maps, charts
 - Contains geographic information
- Provides denominators for rates
 - Both overall and bridged race populations
- CANNOT create user-defined recodes
- Data suppression for cell size <10 for geographic variables (since 2012)

wonder.cdc.gov

CDC WONDER

WONDER Home FAQ Help Contact Us Search

WONDER online databases utilize a rich ad-hoc query system for the analysis of public health data. Reports and other query systems are also available.

WONDER Systems Topics A-Z Index

WONDER Online Databases

- ▶ [AIDS Public Use Data](#)
- ▶ [Births](#)
- ▶ [Cancer Statistics](#)

Environment

- ▶ [Heat Wave Days May-September](#)
- ▶ [Daily Air Temperatures & Heat Index](#)
- ▶ [Daily Land Surface Temperatures](#)
- ▶ [Daily Fine Particulate Matter](#)
- ▶ [Daily Sunlight](#)
- ▶ [Daily Precipitation](#)

Mortality

Underlying Cause of Death

- ▶ [Detailed Mortality](#)
- ▶ [Compressed Mortality](#)
- ▶ [Multiple cause of death \(Detailed Mortality\)](#)
- ▶ [Infant Deaths \(Linked Birth/Infant Death Records\)](#)

▶ [Online Tuberculosis Information System](#)

Population

- ▶ [Bridged-Race Population \(from NCHS\)](#)
- ▶ [Population \(from Census\)](#)
- ▶ [Sexually Transmitted Disease Morbidity](#)
- ▶ [Vaccine Adverse Event Reporting](#)

Reports and References

- [Prevention Guidelines \(Archive\)](#)
- [Specific Data and Documentation \(Archive\)](#)

Other Query Systems

- ▶ [Healthy People 2010](#)
- ▶ [MMWR Morbidity Tables](#)
- ▶ [MMWR Mortality Tables](#)

▶ Denotes numerical data available to query or download

NCHS Data Visualization Gallery

NCHS Data Visualization Gallery

NCHS

Data Visualization Gallery

...Visualizing the Nation's Health

Home

Chart Type +

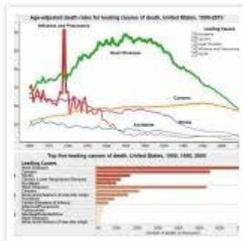
Data Systems +

Health Topics +

Archive



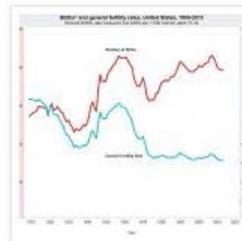
Mortality trends, United States, 1900-2013



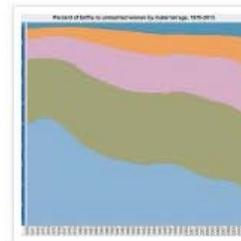
Leading causes of death, United States, 1999-2013



Nativity trends, United States, 1909-2013



Births to unmarried women, United States, 1970-2013



National Bureau of Economic Research

- Birth (1995-2012) and Linked Birth-Infant Death Period (1995-2012) and Birth cohort (1995-2010) Data (and related datasets)
- Provides data in ASCII, Stata, SAS, CSV
- Provides SAS, Stata, and SPSS code for extracting files
- Provides documentation and description of the files

the NATIONAL BUREAU *of* ECONOMIC RESEARCH

Vital Statistics Birth Data at the NBER

The National Vital Statistics System of the National Center for Health Statistics collects vital statistics data for the U.S. Government which can be used by researchers and policymakers to monitor and improve the Nation's health. NBER has a collection of vital statistics birth microdata available for download.

| United States -- Data & Documentation 1968-2013 | | | | | | | | | | |
|---|--------------|-------|-----|-----|----------|------------|------|-----------|---------------|------|
| | Birth Data | | | | SAS Code | Stata Code | | SPSS Code | Documentation | Desc |
| | ASCII Source | Stata | SAS | CSV | | .do | .dct | | | |
| 2013 | Source | Stata | SAS | CSV | sas | do | dct | sps | pdf | desc |
| 2012 | Source | Stata | SAS | CSV | sas | do | dct | sps | pdf | desc |
| 2011 | Source | Stata | SAS | CSV | sas | do | dct | sps | pdf | desc |
| 2010 | Source | Stata | SAS | CSV | sas | do | dct | sps | pdf ad.pdf | desc |
| 2009 | Source | Stata | SAS | CSV | sas | do | dct | sps | pdf ad.pdf | desc |
| 2008 | Source | Stata | SAS | CSV | sas | do | dct | sps | pdf | desc |
| 2007 | Source | Stata | SAS | CSV | sas | do | dct | sps | pdf | desc |
| 2006 | Source | Stata | SAS | CSV | sas | do | dct | sps | pdf | desc |
| 2005 | Source | Stata | SAS | CSV | sas | do | dct | sps | pdf | desc |

The 2005 public use data from 2005-on does not include geographic detail due to restrictions imposed by the states. This means that the 2005-on data does not include any geographic variables such as state, county, msa, etc. <http://www.cdc.gov/nchs/VitalStats.htm> has select tables, and http://www.cdc.gov/nchs/nvss/dvs_data_release.htm has information on requesting restricted versions of the data which include geographic identifiers, etc.

BIRTH DATA



DEFINITION – LIVE BIRTH

The complete expulsion or extraction from its mother of a product of human conception, **irrespective of the duration of pregnancy**, which after such expulsion or extraction, **breathes or shows any other evidence of life**...heartbeats are to be distinguished from transient cardiac contractions; respirations are to be distinguished from fleeting respiratory efforts or gasps.

Source: The 1992 Model State Vital Statistics Act and regulations

2003 Revision

Periodic need to change birth certificate

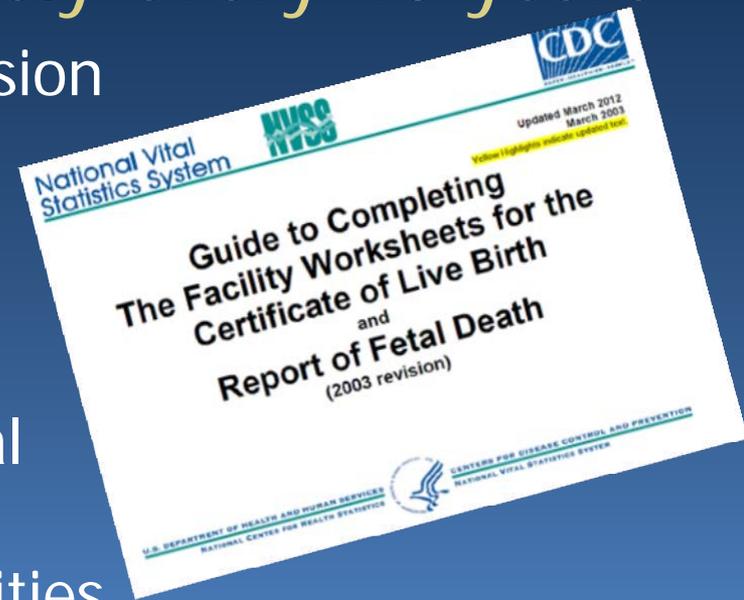
- Changing needs and social conditions
- Changing health and data collection technologies

Historically revised approximately every 10 years

- No current plans for the next revision

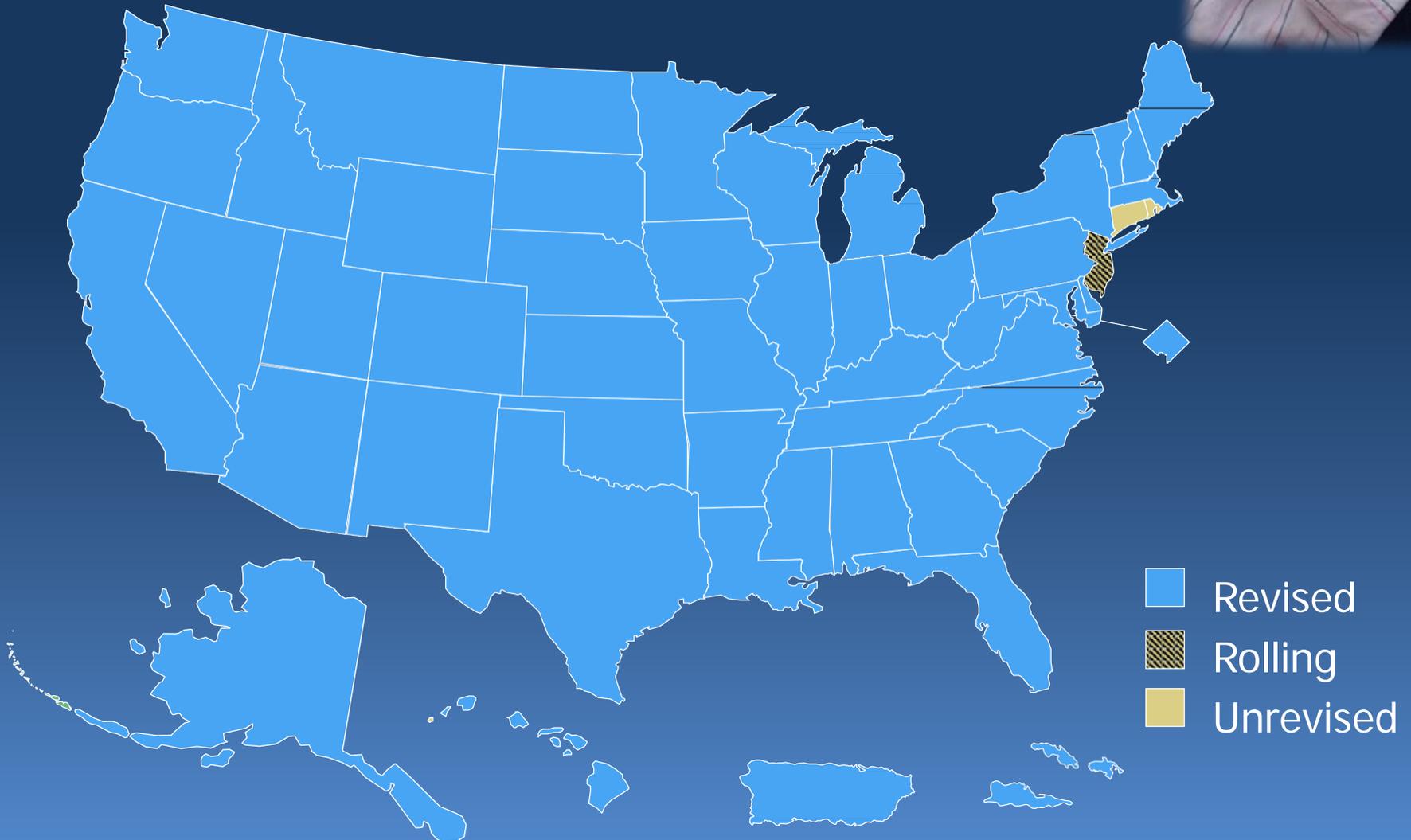
Improved data quality

- Standardized materials
 - E.g., Worksheets, electronic systems
- Comprehensive instruction manual
- Standardized training for clinical and non-clinical staff at birth facilities



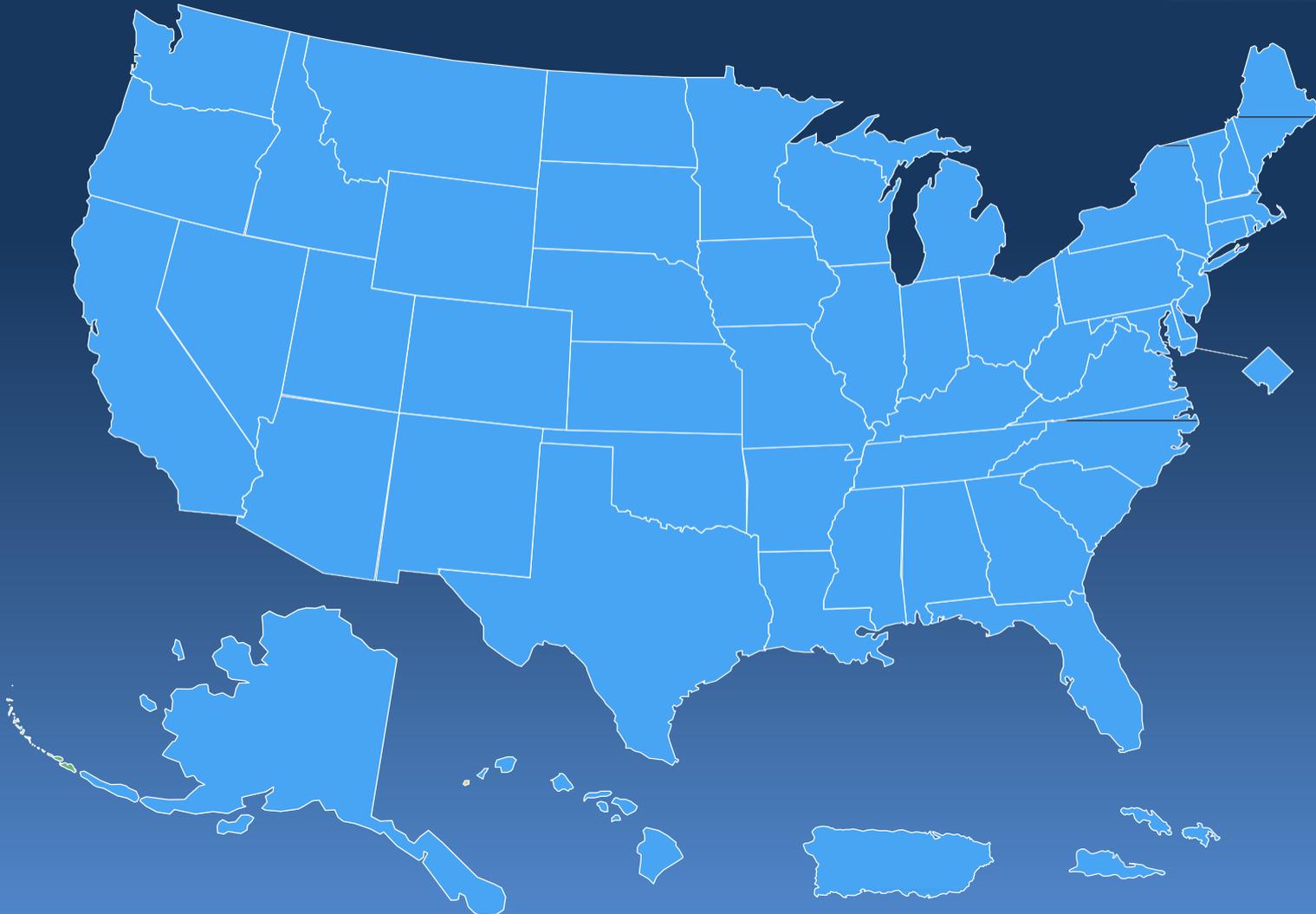
Revised States: 2014

96.2% of U.S. births



Revised States: 2016

100% of U.S. births



Birth Data – Public Use Files

Data currently available:

- 2009-2014: All data comparable between revisions and all revised data
- 2007-2008: all data comparable between revisions, releasable revised data, key non-comparable items
- 2003-2006: all unrevised and releasable revised data
- 2003-2016: Bridged race data

Flag variables

- To differentiate between revised and unrevised reporting areas

Multiple race

- 2014+: Available in public-use files
- 2009+: Multiple race data available in vital stats

Birth data – New for 2014

- Items dropped based on data quality review committee (next slide)
- Transition to the obstetric estimate of gestational age
- Updated geographic coding and county/city Size based on 2010 census
- Multiple race data available in public-use files

Birth data – Items dropped

Items dropped:

- Mother ever married
(Note: current marital status is not being dropped)
- Date of last prenatal care visit
- Premature rupture of the membranes ≥ 12 hours
- Precipitous labor < 3 hours
- Prolonged labor $\Rightarrow 20$ hours
- Cervical cerclage
- Unplanned operating room procedures
- Significant birth injury
- Other previous poor pregnancy outcomes
- Moderate/heavy meconium staining of the amniotic fluid
- Fetal intolerance of labor

| MOTHER | | 29a. DATE OF FIRST PRENATAL CARE VISIT MM / DD / YYYY | 29b. DATE OF LAST PRENATAL CARE VISIT MM / DD / YYYY | 30. TOTAL NUMBER OF PRENATAL VISITS FOR THIS PREGNANCY (If none, enter 0) |
|---|--|--|---|---|
| 31. MOTHER'S HEIGHT (feet/inches) | | 32. MOTHER'S PREPREGNANCY WEIGHT (pounds) | | 33. MOTHER'S WEIGHT AT DELIVERY (pounds) |
| 34. DID MOTHER GET INE FOOD FOR HERSELF DURING THIS PREGNANCY? <input type="checkbox"/> Yes <input type="checkbox"/> No | | 35. NUMBER OF PREVIOUS LIVE BIRTHS (Do not include this child) | | 36. NUMBER OF OTHER PREGNANCY OUTCOMES (spontaneous or induced losses or ectopic pregnancies) |
| 37. CIGARETTE SMOKING BEFORE AND DURING PREGNANCY For each time period, enter either the number of cigarettes or the number of packs of cigarettes smoked. IF NONE, ENTER "0". Average number of cigarettes or packs of cigarettes smoked per day: Three Months Before Pregnancy: _____ OR _____ # of packs First Three Months of Pregnancy: _____ OR _____ Second Three Months of Pregnancy: _____ OR _____ Third Trimester of Pregnancy: _____ OR _____ | | 38a. New Living Number _____ <input type="checkbox"/> None | | 38b. New Dead Number _____ <input type="checkbox"/> None |
| 38c. Other Outcomes Number _____ <input type="checkbox"/> None | | 39. DATE OF LAST LIVE BIRTH MM / YY / XXXX | | 39. DATE OF LAST OTHER PREGNANCY OUTCOME MM / YY / XXXX |
| 40. MOTHER'S MEDICAL RECORD NUMBER | | 41. RISK FACTORS IN THIS PREGNANCY (Check all that apply) | | 42. OBSTETRIC PROCEDURES (Check all that apply) |
| 43. METHOD OF DELIVERY | | 44. ONSET OF LABOR (Check all that apply) | | 45. CHARACTERISTICS OF LABOR AND DELIVERY (Check all that apply) |
| 46. MATERNAL MORBIDITY (Check all that apply) | | 47. NEWBORN MEDICAL RECORD NUMBER | | 48. BIRTHWEIGHT (grams preferred, specify unit) |
| 49. CONGENITAL ANOMALIES OF THE NEWBORN (Check all that apply) | | 50. BIRTHWEIGHT (grams preferred, specify unit) | | 51. APGAR SCORE: Score at 5 minutes: _____ (If 5 minute score is less than 8, Score at 10 minutes: _____) |
| 52. PLURILITY - Single, Twin, Triplet, etc. (Specify) | | 53. IF NOT SINGLE BIRTH - Born First, Second, Third, etc. (Specify) | | 54. ABNORMAL CONDITIONS OF THE NEWBORN (Check all that apply) |
| 55. IS THE INFANT BEING BREASTFEED AT DISCHARGE? <input type="checkbox"/> Yes <input type="checkbox"/> No | | 56. IS THE INFANT TRANSFERRED WITHIN 24 HOURS OF DELIVERY? IF YES, NAME OF FACILITY INFANT TRANSFERRED: _____ | | 57. IS THE INFANT LIVING AT TIME OF REPORT? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Infant transferred, status unknown |

Mother's Name

Mother's Medical Record No.

Obstetric Estimate of Gestational Age

Measuring Gestational Age in Vital Statistics Data: Transitioning to the Obstetric Estimate

Joyce A. Martin, M.P.H.; Michelle J.K. Osterman, M.H.S.; Sharon E. Kirmeyer, Ph.D.;
and Elizabeth C.W. Gregory, M.P.H., Division of Vital Statistics

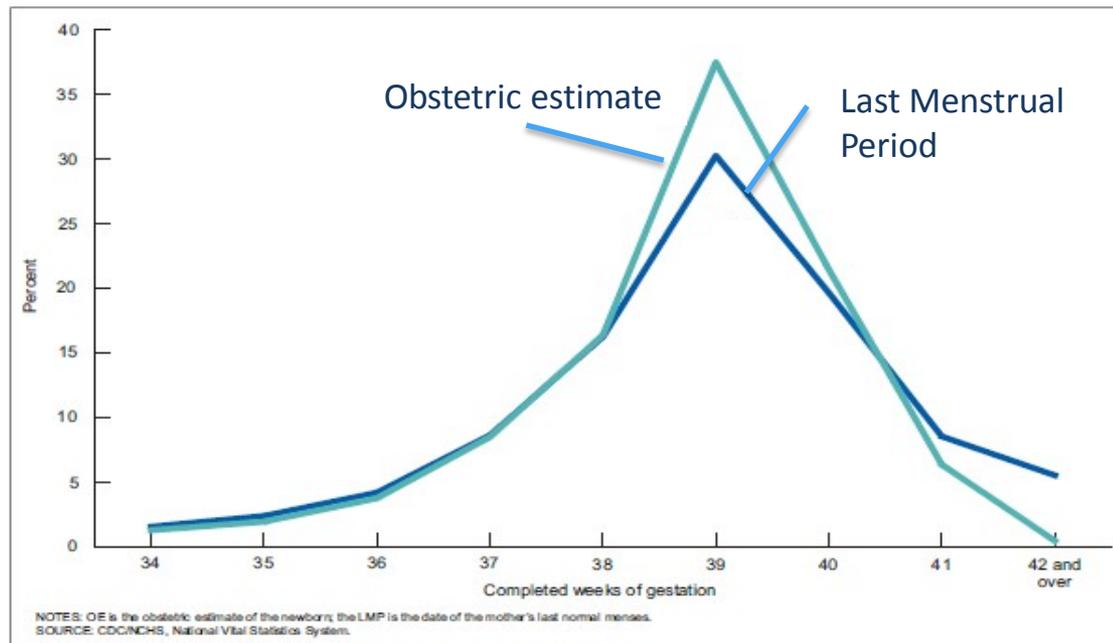
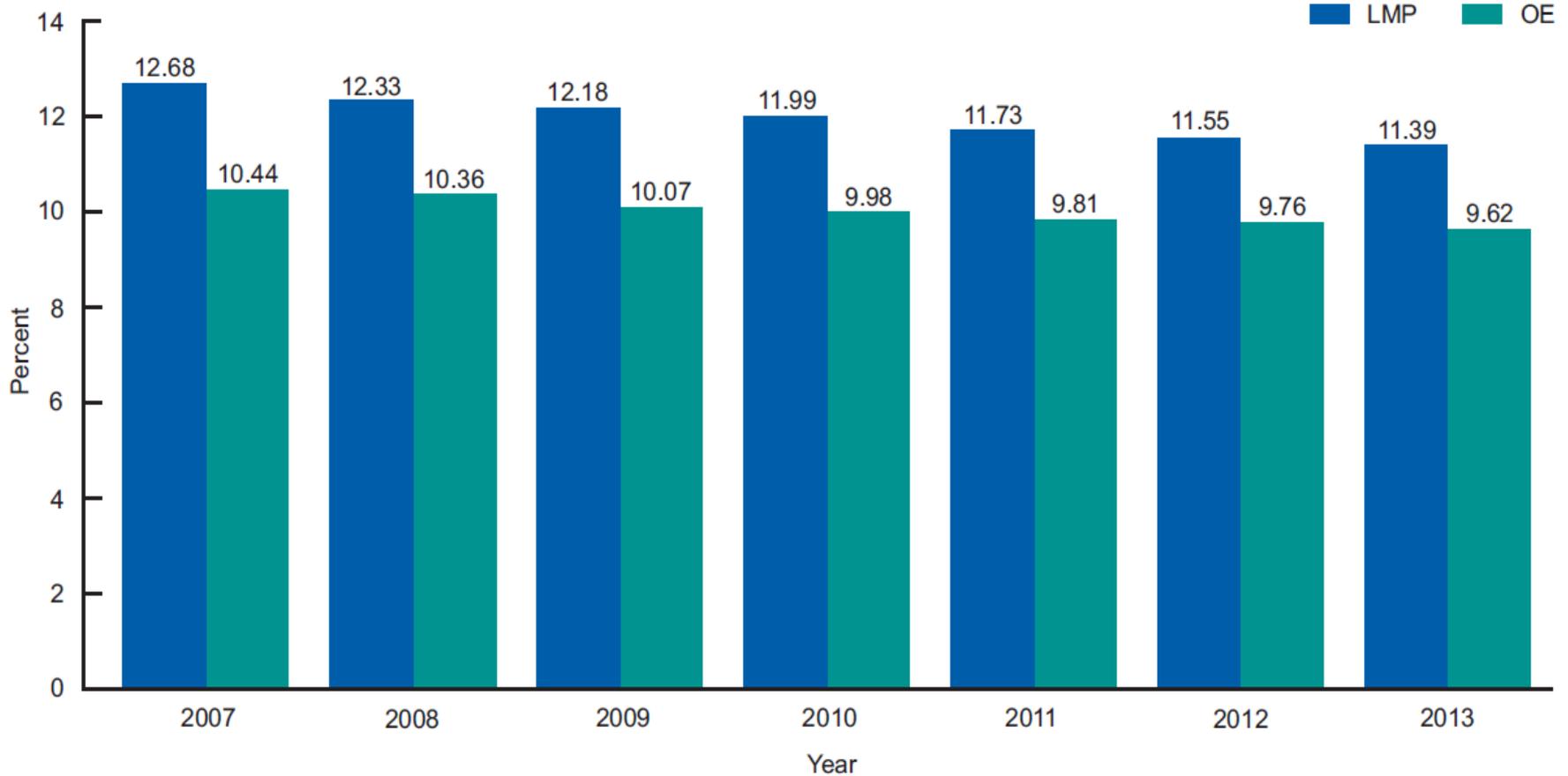


Figure 1. OE- and LMP-based measures of gestational age for selected weeks: United States, 2013

Obstetric Estimate of Gestational Age



NOTES: OE is the obstetric estimate of the newborn; the LMP is the date of the mother's last normal menses. Preterm is defined as under 37 completed weeks of gestation.

SOURCE: CDC/NCHS, National Vital Statistics System.

Figure 2. Preterm births, by OE- and LMP-based measures of gestational age: United States, 2007–2013

Birth data – New for 2014

- File size and layout
 - Smaller to accommodate changes
 - Positions in layout have changed
- *Births: Preliminary Data for 2014* released June 17, 2015

National Vital Statistics Reports



Volume 64, Number 6

June 17, 2015

Births: Preliminary Data for 2014

Brady E. Hamilton, Ph.D.; Joyce A. Martin, M.P.H.; Michelle J.K. Osterman, M.H.S.; and Sally C. Curtin, M.A., Division of Vital Statistics

Abstract

Objectives—This report presents preliminary 2014 data on U.S. births. Births are shown by age, live-birth order, race, and Hispanic

origin of mother. Data on marital status, cesarean delivery, preterm births, and low birthweight are also presented.

Methods—Data are based on 99.71% of 2014 births. Records for the few states with less than 100% of records received are weighted

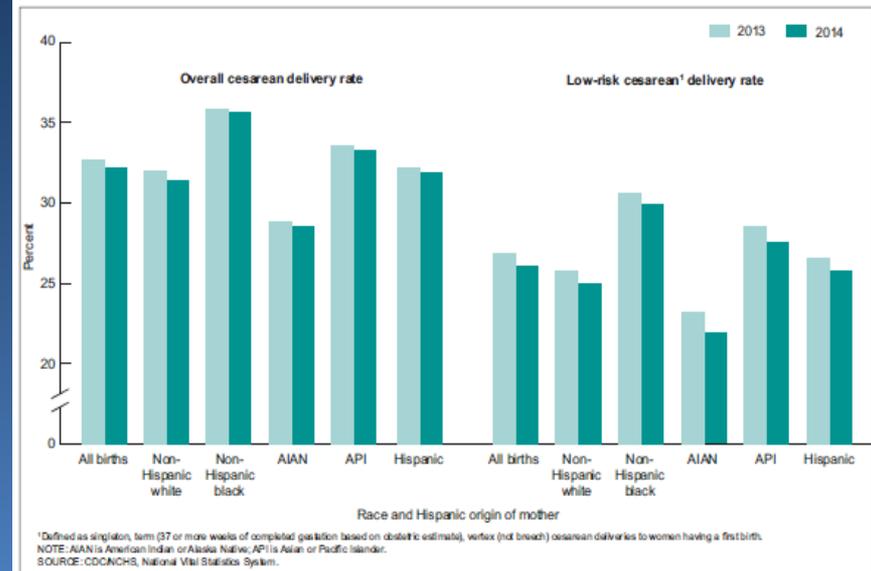
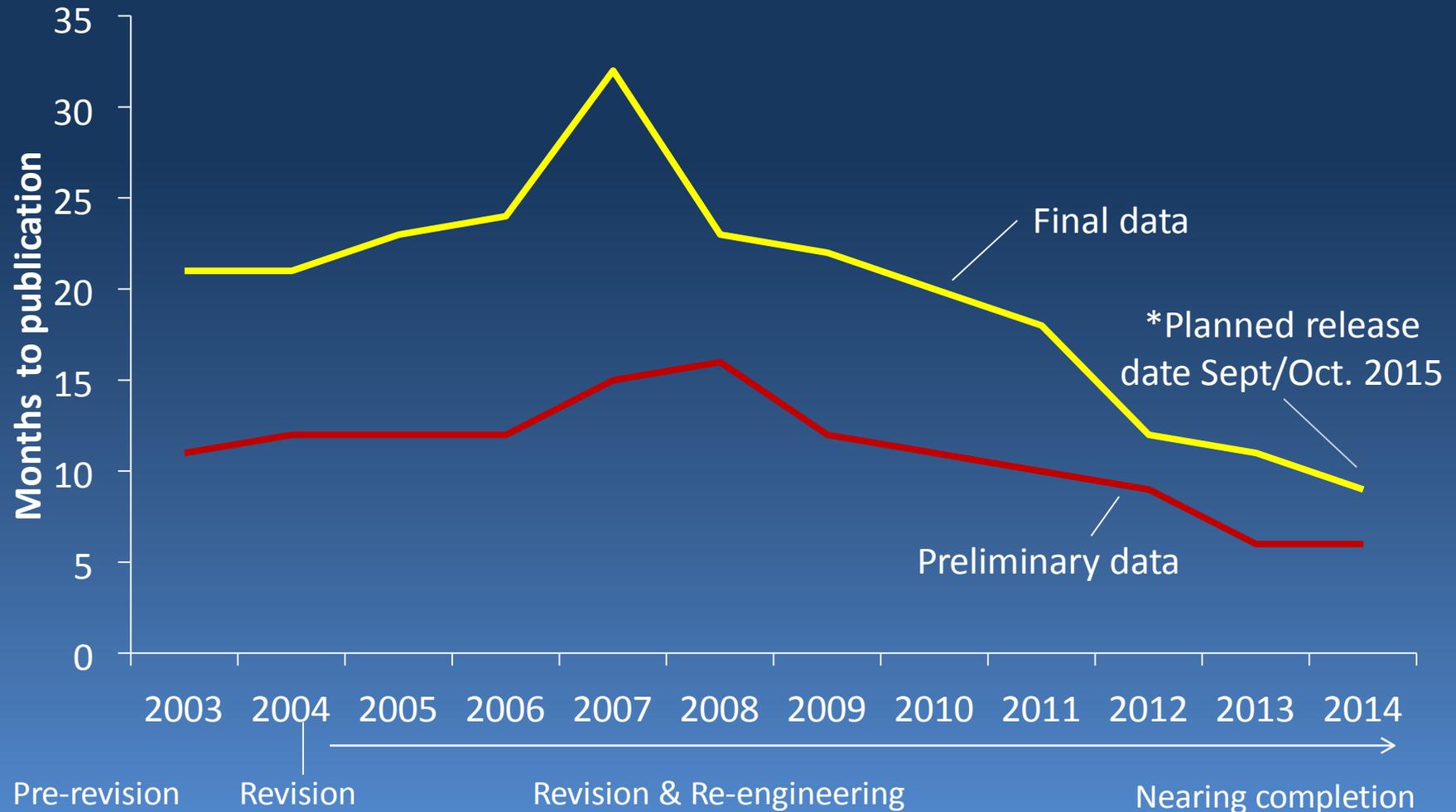


Figure 1. Overall and low-risk cesarean delivery rates, by race and Hispanic origin of mother: United States, final 2013 and preliminary 2014

Timeliness and Quality

Impact of revision and re-engineering on Timeliness



Validity studies

NCHS collaboration with 2 states

- Compared birth certificate medical data with hospital medical records
- 995 records from 8 hospitals
- Random sample of births in one state; convenience sample in other
- NVSR on “Assessing the Quality of Medical and Health Data From the 2003 Birth Certificate Revision: Results From Two States” published July, 2013

NCHS collaboration with NYC

- Larger sample for more robust results and to examine less common items (e.g., infertility therapy)
- Report forthcoming

* Further details are presented at the scientific session, “Assessing and improving the quality of the new birth data: the good, the bad, and the underreported” at 10:30 tomorrow.

National Vital Statistics Reports

Volume 62, Number 2 July 22, 2013

Assessing the Quality of Medical and Health Data From the 2003 Birth Certificate Revision: Results From Two States

by Joyce A. Martin, M.P.H.; Elizabeth C. Wilson, M.P.H.; Michelle J.K. Osterman, M.H.S.; Elizabeth W. Saadi, Ph.D.; Shae R. Sutton, Ph.D.; and Brady E. Hamilton, Ph.D.

| Item | State A (%) | State B (%) |
|------------------------|-------------|-------------|
| Infant living | 100 | 100 |
| Cesarean delivery | 98 | 92 |
| Cephalic | 98 | 95 |
| Vaginal delivery | 98 | 98 |
| Breastfed | 92 | 95 |
| Epidural | 95 | 88 |
| Private insurance | 82 | 88 |
| Meconium | 32 | 18 |
| Previous preterm birth | 22 | 20 |
| Fetal intolerance | 12 | 15 |

SOURCE: CDC/NCHS, National Vital Statistics System.

Figure 1. Checkbox items with high sensitivity and extremely low sensitivity for states A and B

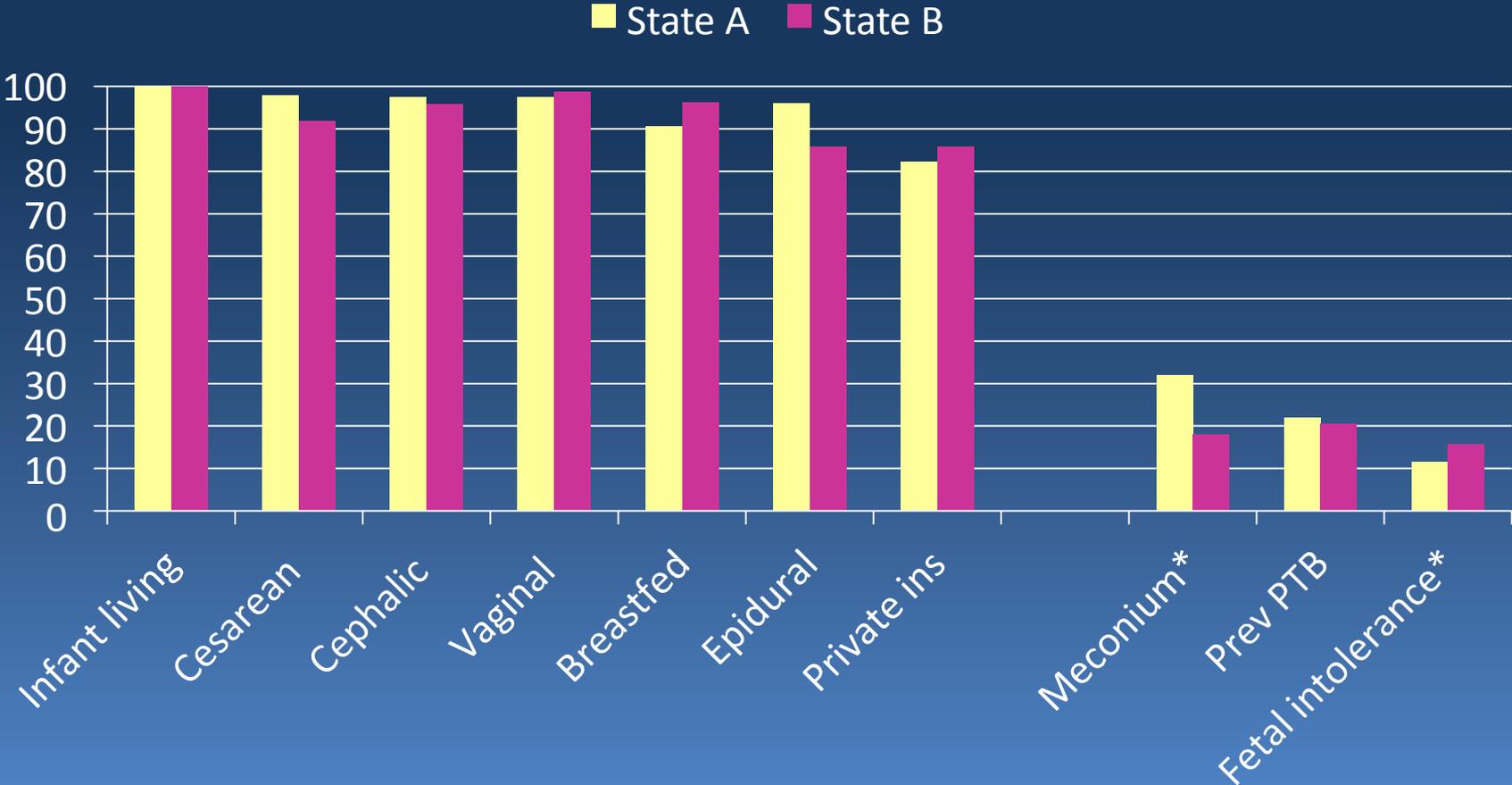
Abstract

Objectives—A primary goal of the 2003 revision of the U.S. Standard Certificate of Live Birth was to improve data quality, in part by improving data sources, definitions, and instructions. This report evaluates the quality of selected medical and health data from the 2003 revision of the birth certificate by comparing birth certificate data with information abstracted from hospital medical records.

Methods—A random sample of records for 600 births that occurred in 2010–2011 in State A, and a convenience sample of 495 births that occurred in State B in 2009 were reviewed. Birth certificate and hospital medical record data were compared for these categories: pregnancy risk factors, obstetric procedures, onset of labor, source of payment, characteristics of labor and delivery, fetal presentation, method of delivery, abnormal conditions of the newborn, infant living, and infant breastfed.

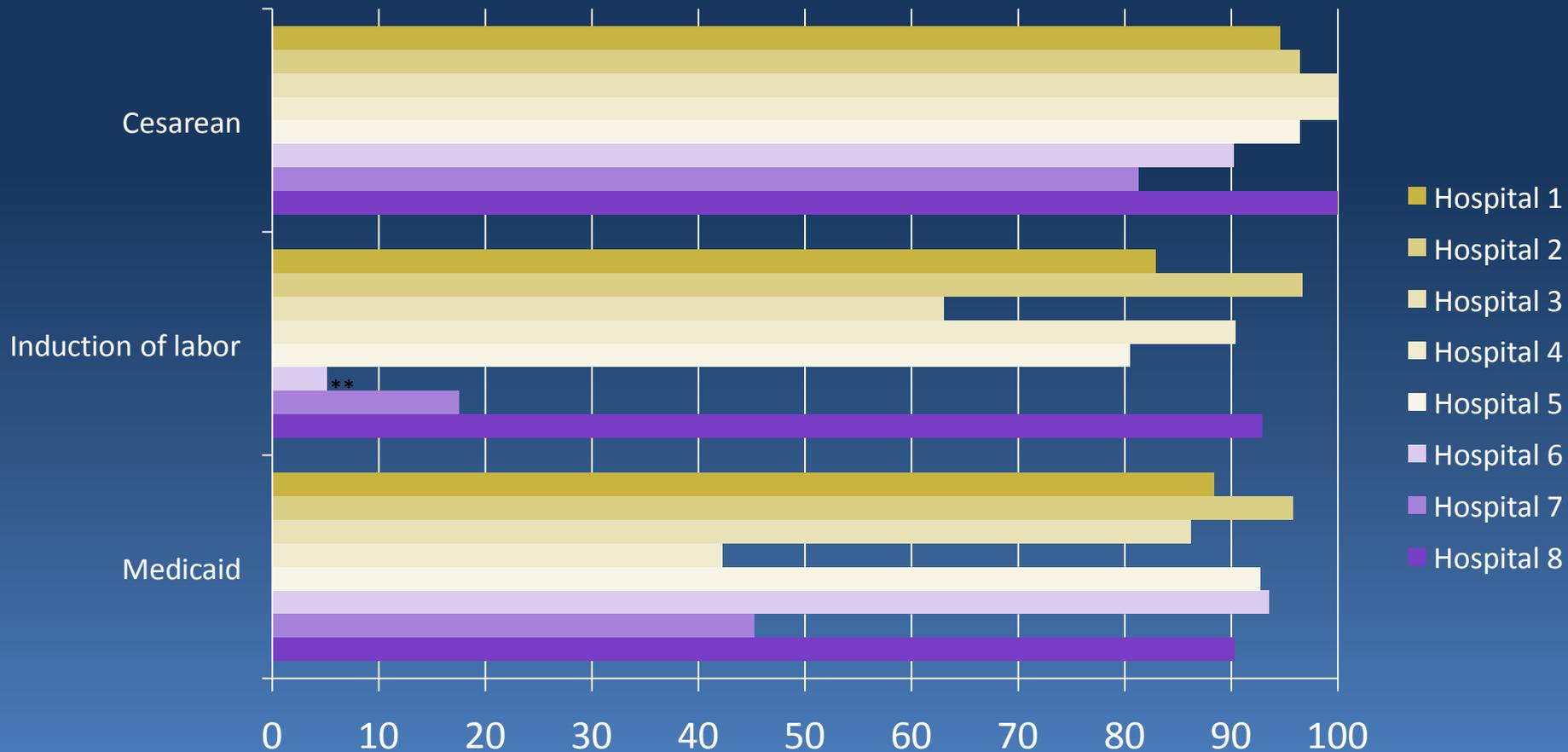
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics
National Vital Statistics System

Checkbox items with high sensitivity and items with extremely low sensitivity for both states: State A and State B



*Note: these items dropped from national file

Sensitivity for selected checkbox items by hospital



Birth Data Quality Workgroup

- Collaboration between NCHS, state and jurisdictional vital statistics offices, and National Association for Public Health Statistics and Information Systems (NAPHSIS)
 - Prenatal care item subgroup
 - Hospital outreach subgroup
 - Fetal death “cut” item subgroup
 - Birth data “cut” item subgroup
 - E-learning subgroup



Recent Publications

NCHS Standard Reports

- Births in the United States (2013)
- Births: Final Data (2013)
- Births: Preliminary Data (2014)

Forthcoming reports:

- Births in the United States (2014) – expected next month
- Births: Final Data (2014) – expected later this Fall
- Quarterly Reports – stay tuned!
 - Key items (e.g., birth rate, cesarean delivery, preterm and low birth weight)

National Vital Statistics Reports



Volume 64, Number 1

January 15, 2015

Births: Final Data for 2013

by Joyce A. Martin, M.P.H.; Brady E. Hamilton, Ph.D.; Michelle J.K. Osterman, M.H.S.; Sally C. Curtin, M.A.; and T.J. Mathews, M.S., Division of Vital Statistics

Abstract

Objectives—This report presents 2013 data on U.S. births according to a wide variety of characteristics. Data are presented for maternal age, live-birth order, race and Hispanic origin, marital status, attendant at birth, method of delivery, period of gestation, birthweight,

and plurality. Birth and fertility rates are presented by age, live-birth order, race and Hispanic origin, and marital status. Selected data by mother's state of residence and birth rates by age and race of father also are shown. Trends in fertility patterns and maternal and infant characteristics are described and interpreted.

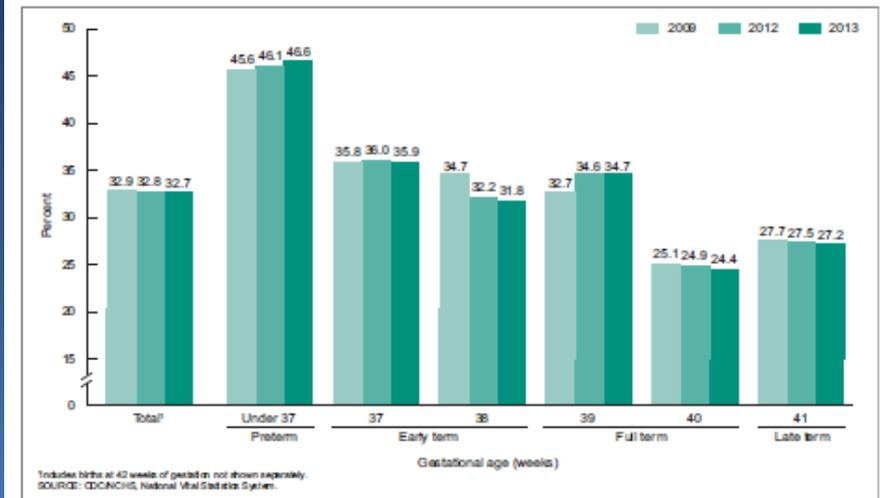


Figure 1. Cesarean delivery, by gestational age: United States, 2009, 2012, and 2013



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics
National Vital Statistics System



Journal articles

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Fertility Treatments and Multiple Births in the United States

Aniket D. Kulkarni, M.B., B.S., M.P.H., Denise J. Jamieson, M.D., M.P.H., Howard W. Jones, Jr., M.D., Dmitry M. Kissin, M.D., M.P.H., Maria F. Gallo, Maurizio Macaluso, M.D., Dr.P.H., and Eli Y. Adashi, M.D.

ABSTRACT

BACKGROUND

The advent of fertility treatments to increase the number of children in the United States. Fertility treatments to

METHODS

We derived the rates of multiple births (including twinning) from all births available in the United States. Publicly available data from 1997 through 2011 were used to determine national multiple birth rates that were attributable to fertility treatments to increase the number of children for maternal age. Trends in multiple birth rates over the 15-year period when clinical practice was reducing the incidence

Original Investigation

Epidemiologic Trends in Neonatal Intensive Care, 2007-2012

Wade Harrison, MPH; David Goodman, MD, MS

IMPORTANCE Neonatal intensive care has been highly effective at improving newborn outcomes but is expensive and carries inherent risks. Existing studies of neonatal intensive care have focused on specific subsets of newborns and lack a population-based perspective.

OBJECTIVES To describe admission rates to neonatal intensive care units across the entire continuum of birth weight and gestational age across time, as well as describe the characteristics of newborns admitted to neonatal intensive care units.

DESIGN, SETTING, AND POPULATION

April 1, 2015

Trends and Characteristics of Home Vaginal Birth After Cesarean Delivery in the United States and Selected States

Marian F. MacDorman, PhD, Eugene Declercq, PhD, T. J. Mathews, MS, and Naomi Stotland, MD

OBJECTIVE: To examine trends and characteristics of home vaginal birth after cesarean delivery (VBAC) in the United States and selected states from 1990-2008.

METHODS: Birth certificate data were used to track trends in home and hospital VBACs from 1990-2008. Data on planned home VBAC were analyzed by sociodemographic and medical characteristics for the 25 states

have coincided with increases in home VBACs; however, home VBAC remains rare, with approximately 1,000 occurrences in 2008.

(Obstet Gynecol 2012;119:737-44)
DOI: 10.1097/AOG.0b013e318246b09d

LEVEL OF EVIDENCE: II

← Editorial

+ Supplemental content at jamapediatrics.com

Summary

- Improved timeliness of report and data releases
- Improved efforts to assess data quality
 - Validation studies and comparison reports
- Improved understanding of data quality
- Improved data quality
 - Ongoing efforts to improve data quality
 - Streamlined file with removal of poorly-reported items
- Improved access to file and birth information
 - All revised items now available in files (2009+)
 - Multiple race available in 2014
 - Interactive data visualization online tools
 - New detailed reports on revised items



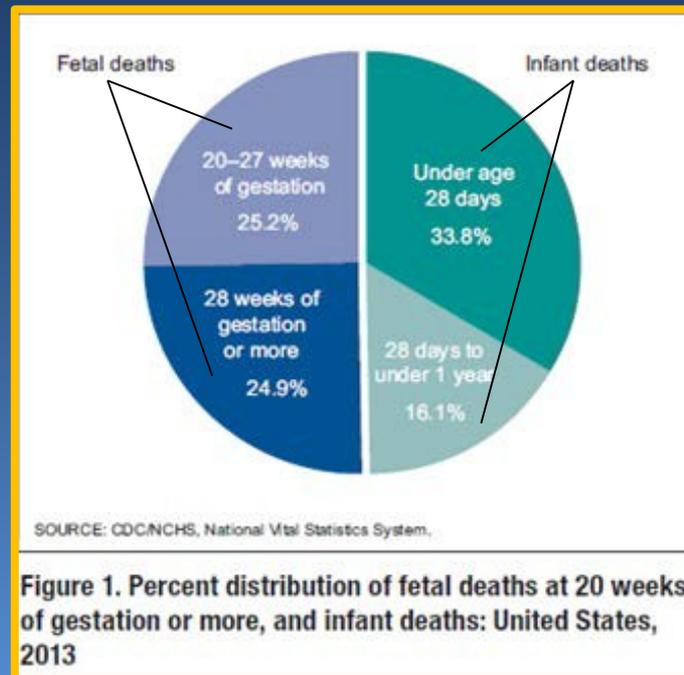
Fetal Mortality Data

Presented by
Elizabeth C.W. Gregory, MPH

Background

The impact of fetal mortality...

- 23,595 fetal deaths at 20 weeks of gestation or more were reported in the United States in 2013
- Since 2011, the total number of fetal deaths has outnumbered the number of total infant deaths
 - In 2013, the number of total fetal deaths was about 1% higher than the total number of infant deaths (23,446)



Definition – Fetal death

- Death prior to the complete expulsion or extraction from its mother of a product of human conception, irrespective of the duration of pregnancy and which is not an induced termination of pregnancy. The death is indicated by the fact that after such expulsion or extraction, the fetus does not breathe or show any other evidence of life...

*Based on the 1992 and 2011 Model State Vital Statistics Act and regulations.

Fetal death

- U.S. Model Law definition (1992 and 2011)
 - Death (absence of any signs of life) prior to delivery
 - Fetal deaths are NOT induced terminations of pregnancy
- Most states generally follow Model Law definition
- Model law recommended reporting:
 - 350 or more grams / 20 or more weeks
 - Some variability in reporting requirements, but most states report by 20 weeks
- National data available only for 20 weeks and greater

Data Files and Availability

Public-Use Files

- Data availability beginning in 2003:
 - 2003-2006: all unrevised and selected revised data
 - 2007-2013: only data comparable between revisions
 - **2014 onward: all data comparable between revisions and all revised data**
 - A substantial number of items will also be dropped from file beginning with 2014 data

Data Access

- Micro-Data Files

- Downloadable micro-data files:

http://www.cdc.gov/nchs/data_access/Vitalstatsonline.htm

- Fetal death data files:

- U.S.: 1982-2013
- Territories: 1994-2013

Data Access

- Vital Stats

- <http://www.cdc.gov/nchs/VitalStats.htm>
- Generate specific/unique tables and graphs
- Fetal death files currently available for the U.S. for 2003-2013
- Data subject to suppression rules as of the 2012 data year

The screenshot displays the CDC VitalStats website interface. At the top, the CDC logo and 'Centers for Disease Control and Prevention' are visible, along with a search bar. Below the navigation bar, the 'Data Access' section is highlighted. The main content area is titled 'VitalStats - Perinatal Mortality' and includes a search bar, a list of variables for table generation (such as Age at Death, Sex, Plurality, Birth Weight, Gestation, Age of Mother, Live-birth Order, Marital Status, Mother's Place of Birth, and Mother's State of Residence), and links to 'Linked Birth/Infant Death Tables', 'Fetal and Perinatal Mortality Tables', and 'Fetal Death Data Files'. A 'Suggested Citation' section is also present at the bottom.

Data Access

VitalStats - Perinatal Mortality

Access pre-built linked birth/infant death tables and fetal death data files.

On this Page

- Linked Birth and Infant Death Tables
- Fetal and Perinatal Mortality Tables
- Fetal Death Data Files
- Suggested Citation

Linked Birth/Infant Death Tables

VitalStats provides many pre-built tables of infant deaths and infant mortality rates by the following:

- Age at Death
- Sex
- Plurality
- Birth Weight
- Gestation
- Age of Mother
- Live-birth Order
- Marital Status
- Mother's Place of Birth
- Mother's State of Residence

Notice of Error in the 2003 and 2004 Fetal Death Data Files and Reports [PDF - 132 KB]

Fetal and Perinatal Mortality Tables

VitalStats provides trend tables of fetal and perinatal mortality rates.

Fetal Death Data Files

Create your own tables by choosing items from a list of over 100 variables on the fetal death data files. The files are available in two formats, one with the [full range of demographic and health variables](#) at state levels of geography. The other with [county level detail](#) (population over 250,000 only), and a more limited set of other variables. **Please note a log-in is required to use this feature.**

Suggested Citation

Centers for Disease Control and Prevention. National Center for Health Statistics. VitalStats. [\[ncha.vitalstats.htm\]](http://ncha.vitalstats.htm). [Date of access].

Public-Use Files – Geographic Detail

- Beginning with 2005, public-use micro-data files do NOT include geographic detail (state or county of birth)
 - Customized micro-data files (with geographic detail) are available upon formal request/review/approval by representatives of state vital statistics offices and the DVS director and only under restricted conditions
 - Geographic detail available through interactive web-based systems in tabulated and aggregated format (Vital Stats), but may be subject to suppression

Data Files – Confidentiality

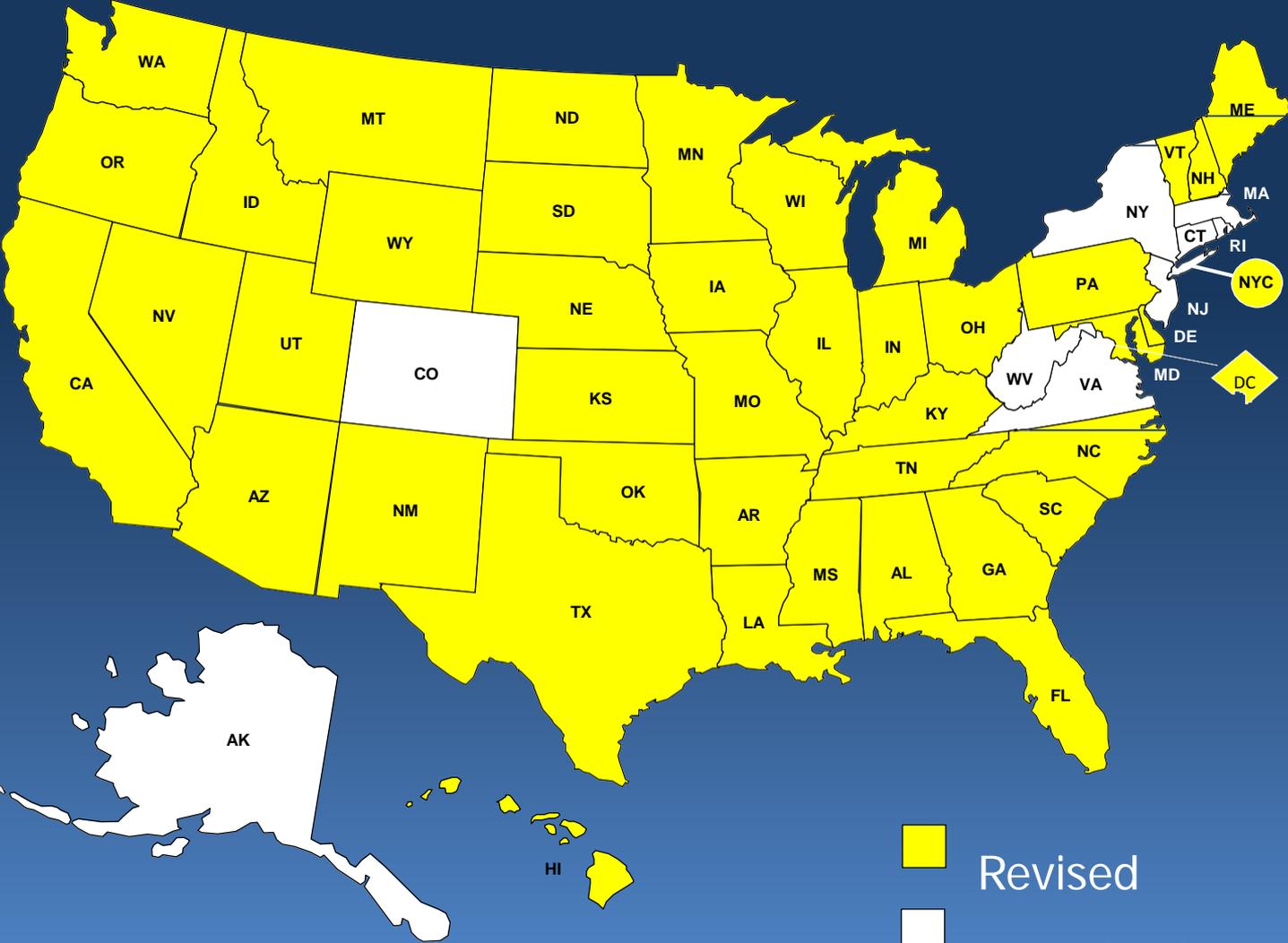
- Public Use Data files do NOT include:
 - Names, Social Security numbers
 - Addresses and other geographic identifiers
 - Dates of delivery of fetus, mother, and father
 - Report of fetal death numbers
 - Potentially identifying outliers (top and bottom recoded)
- NCHS/NVSS Data Release Policy
 - http://www.cdc.gov/nchs/nvss/dvs_data_release.htm

Current Happenings

Current status of files

- Successful catch-up effort after delay in release of national fetal death data
- Public use files for seven years of data (2007-2013) were released between September 2013 and April 2015
 - To facilitate catch-up effort, only comparable data items were included in the public use files for data years 2007-2013

Revised States: 2014



*Does not include mid-year revisers

Recent publications

- Data brief:
 - Trends in Fetal and Perinatal Mortality in the United States, 2006-2012
- NVSR:
 - Fetal and Perinatal Mortality: United States, 2013

NCHS Data Brief ■ No. 169 ■ November 2014

Trends in Fetal and Perinatal Mortality in the United States, 2006-2012

Elizabeth C.W. Gregory, M.P.H.; Maitan F. MacDorman, Ph.D.; and Joyce A. Martin, M.P.H.

Key findings

Data from the National Vital Statistics System

- Following declines from 2000 through 2006, total, early, and late fetal mortality rates were generally flat from 2006 through 2012.
- Fetal mortality rates were essentially stable for non-Hispanic white (4.91 per 1,000 in 2012), non-Hispanic black (10.67), and Hispanic women (10.33) during 2006-2012.
- The overall perinatal mortality rate declined 4% from 6.51 per 1,000 in 2006 to 6.26 in 2011, with an 8% decline for non-Hispanic black women (16.80 in 2011).
- The perinatal mortality rate declined in 14 states, rose in 1 state, and was unchanged in 37 states and the District of Columbia between 2007-2006 and 2010-2011.

Changes in outcomes among live births were seen during 2006-2012. For example, the percentages of births delivered at 37 weeks of gestation or more rose (1) and preterm births and infant mortality rates declined (1-7). Limited recent data, however, have been available on fetal mortality. This information is essential for a more complete understanding of pregnancy health in the United States. This report focuses on fetal deaths (spontaneous intrauterine deaths) at 20 weeks of gestation or more, sometimes referred to as stillbirths, using recently released national data. Trends are examined for fetal mortality for 2006-2012, focusing on the period 2006-2012, and for perinatal mortality by race and Hispanic origin for 2006-2011 (the latest year available) and by state for combined years 2007-2006 and 2010-2011.

Keywords: stillbirth • race and ethnicity

After declining from 2000-2006, overall, early, and late fetal mortality rates were essentially unchanged for 2006-2012.

Figure 1. Total, early, and late fetal mortality rates—United States, 2006-2012

NOTE: Trends shown are for live births. Fetal mortality rates are based on the number of fetal deaths divided by the number of live births. The number of fetal deaths is based on the number of fetal deaths reported to the National Vital Statistics System. The number of live births is based on the number of live births reported to the National Vital Statistics System. Data are based on the most recent data available. Data are based on the most recent data available. Data are based on the most recent data available.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics

National Vital Statistics Reports

Volume 64, Number 8 July 23, 2015

Fetal and Perinatal Mortality, United States, 2013

by Marian F. MacDorman, Ph.D., and Elizabeth C.W. Gregory, M.P.H., Division of Vital Statistics

Abstract

Objective—This report presents 2013 fetal and perinatal mortality data by maternal age, marital status, race, Hispanic origin, and state of residence, as well as by fetal birthweight, gestational age, plurality, and sex. Trends in fetal and perinatal mortality are also examined.

Methods—Descriptive tabulations of data are presented and interpreted.

Results—There were 23,095 reported fetal deaths at 20 weeks of gestation or more in the United States in 2013. The U.S. fetal mortality rate was 5.96 fetal deaths at 20 weeks of gestation or more per 1,000 live births and fetal deaths, not significantly different from the rate of 6.0 in 2012. The lack of decline in fetal mortality in recent years, coupled with declines in infant mortality, meant that there were more fetal deaths than infant deaths in the United States for 2011-2013 (although, the rates were essentially the same). In 2013, the fetal mortality rate for non-Hispanic black women (10.53) was more than twice the rate for non-Hispanic white (4.68) and Asian or Pacific Islander (4.68) women. The rate for American Indian or Alaska Native women (6.22) was 27% higher, and the rate for Hispanic women (5.52) was 7% higher, than the rate for non-Hispanic white women. Fetal mortality rates were highest for teenagers, women aged 35 and over, unmarried women, and women with multiple pregnancies.

Keywords: fetal death • perinatal death • stillbirth • pregnancy loss

Introduction

Fetal mortality—the intrauterine death of a fetus at any gestational age—is a major but often overlooked public health issue. Much of the public concern surrounding reproductive loss has focused on infant mortality, due in part to a lesser knowledge of the incidence, etiology, and prevention strategies for fetal mortality. The National Center for Health Statistics' (NCHS) National Survey of Family Growth estimates that there are more than 1 million fetal losses per year in the United States (1), with the vast majority of these occurring before 20 weeks of gestation. Fetal mortality data

from the National Vital Statistics System are usually presented for fetal deaths at 20 weeks of gestation or more. Even when only fetal deaths at 20 weeks or more are considered, slightly more fetal than infant deaths occurred in the United States in 2013 (Figure 1). The concept of a perinatal period emerged in the late 1940s as clinicians and researchers became increasingly aware of the relatively large number of deaths occurring in the period immediately before and after delivery (2). Perinatal mortality refers to death around the time of delivery and includes both fetal deaths (at least 20 weeks of gestation) and early infant (neonatal) deaths.

The U.S. fetal mortality rate declined from 25.0 fetal deaths at 20 weeks of gestation or more per 1,000 live births and fetal deaths in 1942 (3) to 5.96 in 2013. The real decline in fetal mortality during this period was probably larger because reporting of fetal deaths has improved over time (4,5). This report presents detailed data on fetal and perinatal deaths and mortality rates for the United States

Figure 1. Percent distribution of fetal deaths at 20 weeks of gestation or more, and infant deaths: United States, 2013

NOTE: Data are based on the National Vital Statistics System. Data are based on the most recent data available. Data are based on the most recent data available.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics

In the Future...

Changes for 2014 and Beyond

Items being added back to the file

- Revised data removed from the public use files during the 2007-2013 catch up effort
 - Items include:
 - Mother's education
 - Cigarette smoking before and during pregnancy
 - Body Mass Index (BMI)

Changes for 2014 and Beyond

Fetal cause of death data

- Will be released for first time in 2014 public use file
 - To include data for a subset of revised states with acceptable levels of data quality

Changes for 2014 and Beyond

- The Birth Data Quality Workgroup – Fetal Death Cut Subgroup recommended substantial cuts to file accepted by state representatives, NAPHSIS*, and NCHS
 - A total of 39 items (including all under “Infections present and/or treated during this pregnancy” and “Congenital anomalies”) were cut
 - Data items most often cut for one of these reasons:
 - difficult to collect
 - poor data quality
 - not strongly associated with fetal death
 - collected elsewhere on report
 - cut from the birth certificate after rigorous review
- Items to be cut starting with the 2014 data year

*National Association for Public Health Statistics and Information Systems

Changes for 2014 and Beyond

Items cut:

- Mother married? (At delivery, conception or anytime between)
- Total number of prenatal visits for this pregnancy
- Date of last prenatal care visit
- Mother's weight at delivery
- Number of other pregnancy outcomes
- Date of last other pregnancy outcome
- Mother/patient transferred for maternal medical or fetal indications for delivery?
- Previous preterm birth (Risk factors for this pregnancy)

Changes for 2014 and Beyond

Items cut (continued):

- Other previous poor pregnancy outcomes (Risk factors for this pregnancy)
- Infections present and/or treated during this pregnancy (all checkboxes under this category)
- Hysterotomy/hysterectomy (Method of delivery)
- Maternal transfusion (Maternal morbidity)
- Perineal laceration (Maternal morbidity)
- Unplanned hysterectomy (Maternal morbidity)
- Unplanned operating room procedure (Maternal morbidity)
- Congenital anomalies of the fetus (all checkboxes under this category)

Changes for 2014 and Beyond

Changes to File Layout

- Restructuring and reorganizing file layout as a result of substantial cuts and additions
- Will generally follow the structure of the new birth file layout

Changes for 2014 and Beyond

Transition to Use of Obstetric Estimate

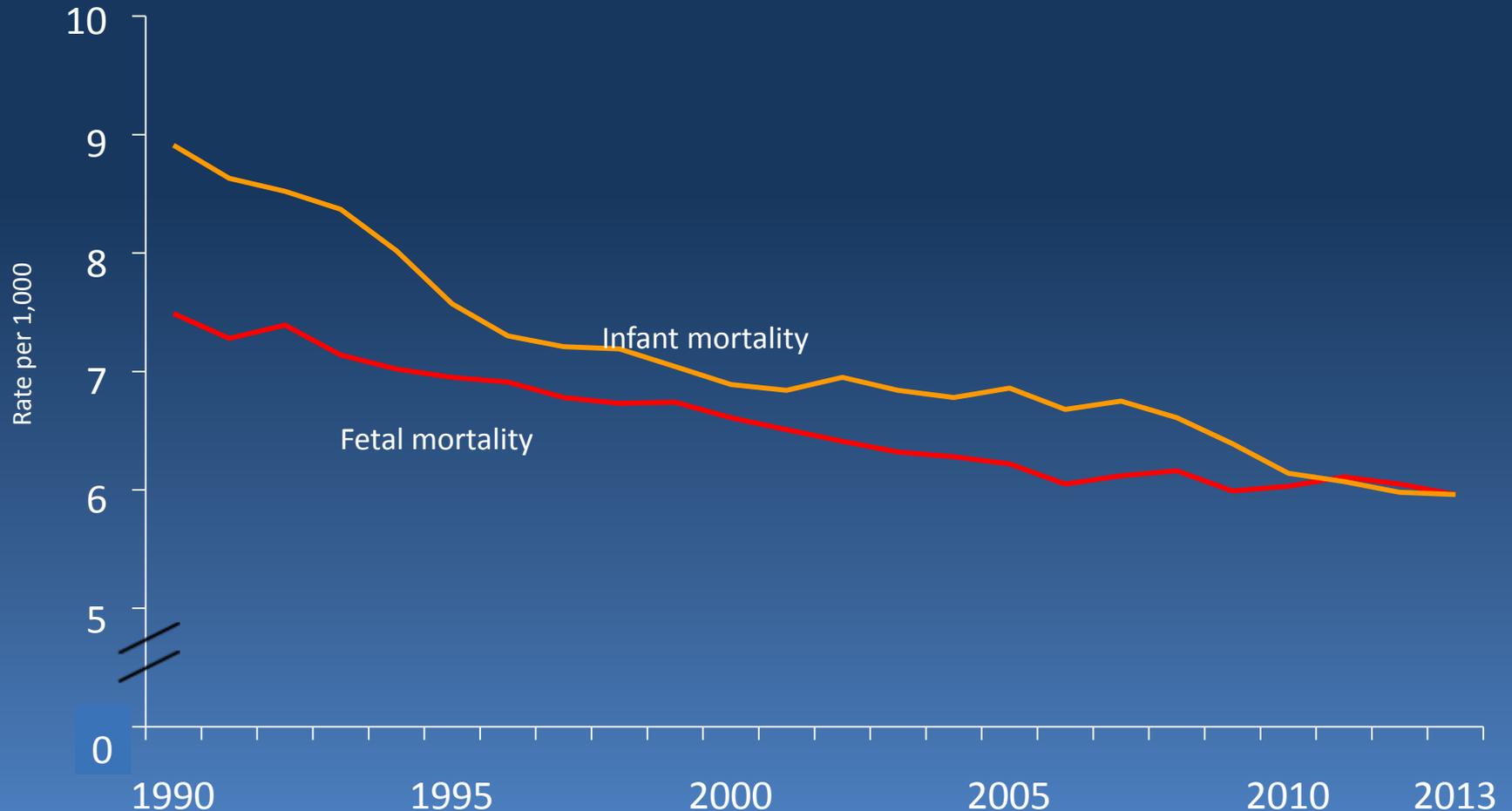
- As with births, fetal deaths will be transitioning to the use of the obstetric estimate as the primary measure for gestational age
 - Implications of change based on preliminary analysis of 2013 data:
 - Number of total fetal deaths of 20+ weeks differs only slightly between the OE and the LMP measures, but no change in rates
 - Some small differences by state
 - More fetal deaths are classified as early (20-27 weeks) when using OE

Data Quality Improvement Efforts

- Substantial cuts to fetal death reporting overall should have future positive impact on quality of other data items and on cause of death data
- New focus on improving cause of fetal death data
 - NCHS is re-engineering/improving its internal fetal cause of death coding system – more accurate and more timely
 - First public release of cause of fetal death data
- E-learning training
 - New birth e-learning training includes training to help clinicians better understand when a fetal death or a live birth should be reported
 - Training also promotes importance of fetal death data

Interesting Findings

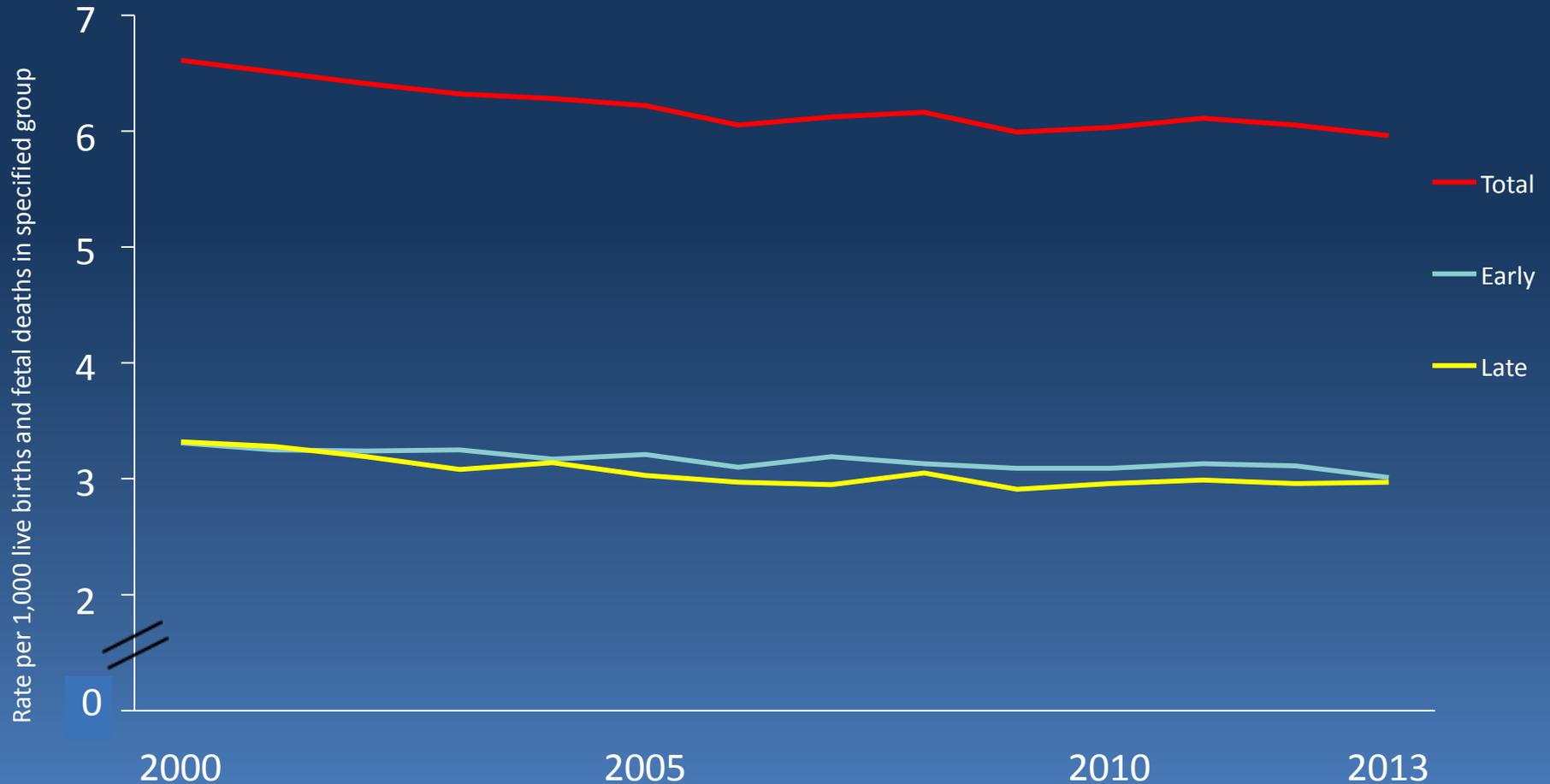
Fetal and infant mortality rates: United States, 1990-2013



NOTES: Infant mortality rates are the number of infant deaths per 1,000 live births. Fetal mortality rates are the number of fetal deaths at 20 weeks of gestation or more per 1,000 live births and fetal deaths.

SOURCE: CDC/NCHS, National Vital Statistics System.

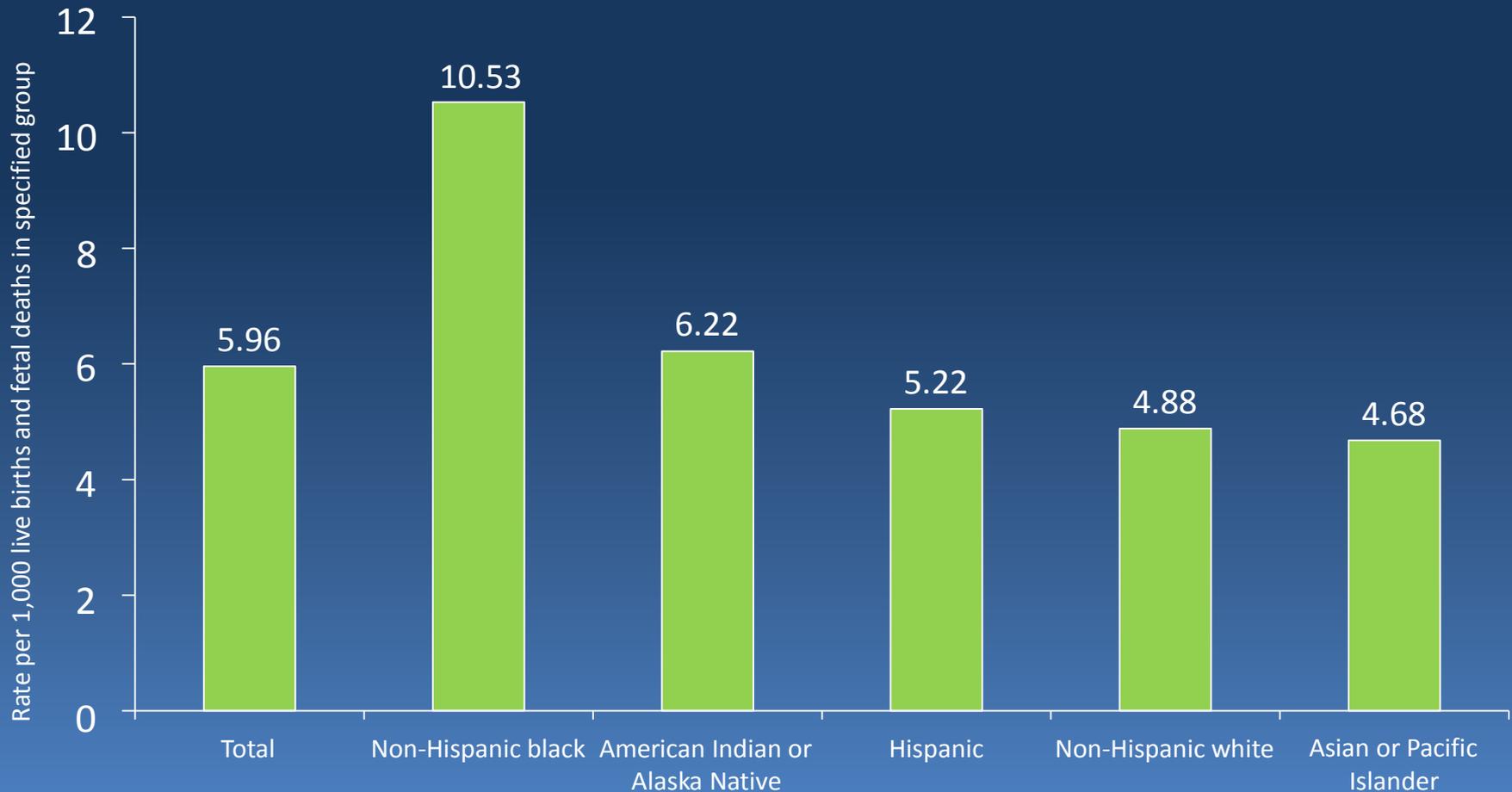
Total, early, and late fetal mortality: United States, 2000-2013



NOTE: Total fetal mortality rate = fetal deaths at 20 weeks of gestation or more per 1000 live births and fetal deaths. Early fetal mortality = fetal deaths at 20-27 weeks per 1,000 live births and fetal deaths at 20-27 weeks. Late fetal mortality rates = the number of fetal deaths at 28 weeks of gestation or more per 1,000 live births and fetal deaths at 28 weeks or more.

Source: CDC/NCHS, National Vital Statistics System

Fetal mortality rates by race and Hispanic origin of mother: United States, 2013



SOURCE: CDC/NCHS; National Vital Statistics System.

Summary

- 2014 – revised reporting area (41 states, DC, and NYC) represent about 87% of all U.S. fetal deaths
- 2016 – 49 states and the District of Columbia will be revised
- Many items will be available for 2014, e.g., mother's education, smoking, and BMI
- Substantial number of items dropped for 2014
- Cause of death data will be released for the first time in the 2014 file
- Transitioning to use of obstetric estimate of gestational age in 2014

- Expected improvement in data quality thanks to new e-learning training and reduced reporting burden

The Linked Birth/Infant Death Data Set

Presented by: TJ Mathews

Thanks to Joyce Martin, Brady Hamilton,
Marie Thoma, and Elizabeth Gregory

Items from Mortality File

Characteristics of the decedent

Age

Race

Hispanic origin

Sex

Cause of Death

The Birth Certificate (2003 Revision)

| | | | | | | | |
|--|--|---|--|---|--|--|--|
| MOTHER | | 24. DATE OF FIRST PRENATAL CARE VISIT (If no prenatal care) | | 25. DATE OF LAST PRENATAL CARE VISIT | | 26. TOTAL NUMBER OF PRENATAL VISITS FOR THIS PREGNANCY (If none, enter "0") | |
| 27. MOTHER'S HEIGHT (feet/inches) | | 28. MOTHER'S PREPREGNANCY WEIGHT (pounds) | | 29. MOTHER'S WEIGHT AT DELIVERY (pounds) | | 30. DID MOTHER GET TWO FOOD PORTION PER SESELF DURING THIS PREGNANCY? (Yes/No) | |
| 31. NUMBER OF PREVIOUS LIVE BIRTHS (Do not include this one) | | 32. NUMBER OF OTHER PREGNANCIES OUTCAME (miscarriages or induced losses or stillbirths) | | 33. CIGARETTE SMOKING BEFORE AND DURING PREGNANCY (For each line, indicate the number of cigarettes or the number of packs of cigarettes smoked. IF NONE, ENTER "0". Average number of cigarettes or packs of cigarettes smoked per day.) | | 34. PRINCIPAL SECRETARY OF PAYMENT FOR THIS DELIVERY (Medical/Insurance) | |
| 35a. Name (Last, First, Middle Initial) | | 35b. How Dead (1/Name, 2/None, 3/None) | | 35c. Other Outcomes (Number) | | 36. THREE MONTHS BEFORE PREGNANCY (1/No, 2/Yes, 3/None) | |
| 37. DATE OF LAST LIVE BIRTH (MM/DD/YYYY) | | 38. DATE OF LAST OTHER PREGNANCY OUTCOME (MM/DD/YYYY) | | 39. DATE OF LAST HOSPITALIZATION (MM/DD/YYYY) | | 40. OTHER (Specify) | |

MEDICAL AND HEALTH INFORMATION

DRAFT 11/09/2001

| | | | |
|--|--|---|--|
| 41. RISK FACTORS IN THIS PREGNANCY (Check all that apply) | | 42. DURATION OF LABOR (Check all that apply) | |
| Gestation: <ul style="list-style-type: none"> Preterm (Diagnosed prior to this pregnancy) Postterm (Diagnosed in this pregnancy) Hypertension: <ul style="list-style-type: none"> Prepregnancy (Diagnosed) Occasional (Pre, pregnancy, or postpartum) Diabetes: <ul style="list-style-type: none"> Preexisting problem (Specify) Other previous poor pregnancy outcome (Includes, perinatal death, small for gestational age, or extreme growth restricted birth): <ul style="list-style-type: none"> Yes No Vaginal bleeding during this pregnancy prior to the onset of labor: <ul style="list-style-type: none"> Yes No Pregnancy resulted from infertility treatment: <ul style="list-style-type: none"> Yes No Major fetal previous cesarean delivery (Specify how many): <ul style="list-style-type: none"> None of the above Infections present and/or treated during this pregnancy (Check all that apply): <ul style="list-style-type: none"> Chlamydia Syphilis Herpes Simplex Virus (HSV) Chlamydia Heatitis B Heatitis C None of the above Cesarean birth procedures (Check all that apply): <ul style="list-style-type: none"> Cesarean coverage Toradol Edematous cephalic version Other (Specify) None of the above | | Premature Rupture of the Membranes (PROM) (2 hrs.) <ul style="list-style-type: none"> Preterm Labor (< 20 hrs.) Postterm Labor (> 20 hrs.) None of the above 43. COMPLICATIONS OF LABOR (Check all that apply) <ul style="list-style-type: none"> Induction of labor Augmentation of labor Non-vaginal presentation Storky (Unassisted) (Specify) Amniotitis (Specify) Clinical cholestasis in the third trimester (Specify) Maternal hypotension (Specify) Fetal malposition of labor (Specify) Epidural or spinal anesthesia None of the above | |

| | | | | | |
|---|--|--|--|---|--|
| NEWBORN | | 44. NEWBORN MEDICAL RECORD NUMBER | | 45. ABNORMAL CONDITIONS OF THE NEWBORN (Check all that apply) | |
| 46. BIRTHWEIGHT (grams preferred, specify unit) | | 47. APGAR SCORE (Score at 5 minutes) | | 48. A5. IF NOT SINGLE BIRTH: Birth Final Exam(s) | |
| 49. OBSTETRIC ESTIMATE OF GESTATION (Completed weeks) | | 50. APGAR SCORE (Score at 10 minutes) | | 51. PLACENTA (Single, Twin, Triplet, etc.) (Specify) | |
| 52. PLACENTAL BIRTH (Birth Final Exam(s)) | | 53. IF NOT SINGLE BIRTH: Birth Final Exam(s) | | 54. TRANSFERRED FOR MATERNAL MEDICAL OR FETAL INDICATIONS FOR DELIVERY? | |

U.S. STANDARD CERTIFICATE OF LIVE BIRTH

BIRTH NUMBER: _____

| | | | | | | | | | |
|--|--|--|--|--|--|---|--|--|--|
| CHILD | | 1. CHILD'S NAME (First, Middle, Last, Suffix) | | 2. TIME OF BIRTH (Date) | | 3. SEX | | 4. STATE OF BIRTH (Abbreviation) | |
| 5. FACILITY NAME (If not institution, give street and number) | | 6. CITY, TOWN, OR LOCATION OF BIRTH | | 7. COUNTY OF BIRTH | | | | | |
| MOTHER | | 8. MOTHER'S CURRENT LEGAL NAME (First, Middle, Last, Suffix) | | 9. DATE OF BIRTH (Month/Day/Year) | | | | | |
| 10. MOTHER'S NAME BEFORE FIRST MARRIAGE (First, Middle, Last, Suffix) | | 11. BIRTHPLACE (State, Territory, or Foreign Country) | | 12. RESIDENCE OF MOTHER (State, County) | | 13. CITY, TOWN, OR LOCATION | | 14. STREET AND NUMBER | |
| 15. FATHER'S CURRENT LEGAL NAME (First, Middle, Last, Suffix) | | 16. DATE OF BIRTH (Month/Day/Year) | | 17. BIRTHPLACE (State, Territory, or Foreign Country) | | | | | |
| FATHER CERTIFIER | | 18. CERTIFIER'S NAME: (Title, Last, First, Middle Initial) | | 19. DATE CERTIFIED (MM/DD/YYYY) | | 20. DATE FILED BY REGISTRATION (MM/DD/YYYY) | | 21. SOCIAL SECURITY NUMBER REQUESTED (Yes/No) | |
| 22. MOTHER'S SOCIAL SECURITY NUMBER | | 23. FATHER'S SOCIAL SECURITY NUMBER | | | | | | | |
| MOTHER | | 24. MOTHER'S EDUCATION (Check the box that best describes the highest degree or level of school completed at the time of delivery) | | 25. MOTHER'S BIRTHPLACE (Check the box that best describes whether the mother is Spanish/Hispanic/Latino. Check the "or" box if mother is not Spanish/Hispanic/Latino) | | 26. MOTHER'S RACE (Check one or more boxes to indicate what the mother considers herself to be) | | | |
| 27. FATHER'S EDUCATION (Check the box that best describes the highest degree or level of school completed at the time of delivery) | | 28. FATHER'S BIRTHPLACE (Check the box that best describes whether the father is Spanish/Hispanic/Latino. Check the "or" box if father is not Spanish/Hispanic/Latino) | | 29. FATHER'S RACE (Check one or more boxes to indicate what the father considers himself to be) | | | | | |
| FATHER | | 30. PLACE WHERE BIRTH OCCURRED (Check one) | | 31. ATTENDANT'S NAME, TITLE, AND SEX | | 32. MOTHER TRANSFERRED FOR MATERNAL MEDICAL OR FETAL INDICATIONS FOR DELIVERY? | | | |
| 33. MOTHER'S NAME (Last, First, Middle Initial) | | 34. MOTHER'S SOCIAL SECURITY NUMBER | | 35. FATHER'S NAME (Last, First, Middle Initial) | | 36. FATHER'S SOCIAL SECURITY NUMBER | | 37. FACILITY NAME (If not institution, give street and number) | |
| 38. MOTHER'S BIRTHPLACE (State, Territory, or Foreign Country) | | 39. FATHER'S BIRTHPLACE (State, Territory, or Foreign Country) | | 40. CITY, TOWN, OR LOCATION | | 41. STREET AND NUMBER | | 42. STATE OF BIRTH (Abbreviation) | |

DRAFT 11/09/2001

Mother's Name: _____
 Mother's Medical Record No.: _____

Key items from Birth File

Birthweight

Period of gestation

Age of mother

Marital status

Maternal medical and other risk factors

Race and Ethnicity reporting

- The linked file uses the race and ethnicity as self reported by the mother on the birth certificate.
 - This information is considered to be more accurate than the race and ethnicity from the death certificate where the reporting comes from others.
- These different reporting methods can lead to different race/ethnicity specific infant mortality rates between the two files.

Birth Certificate items add many variables to the Linked file

- Method of Delivery
- Body Mass Index/Weight Gain
- Obstetric Procedures
- Characteristics of Labor & Delivery
- Tobacco use
- Time of Birth

Items common but NOT comparable across revisions

Fully available after the birth file is national

- Education
- Tobacco use before and during pregnancy
- Timing of prenatal care
- Type of cesarean, type of vaginal delivery (e.g., primary cesarean, VBAC)

Geographic suppression is used to protect confidentiality

Starting with 2005 data there are no geography available in the public use files

For special request files that include geography please see:

http://www.cdc.gov/nchs/nvss/dvs_data_release.htm

**Period File – data based on all infant
deaths in a given year**

2013 Period File =
2013 deaths and
2012 and 2013 births

Cohort File – data based on all deaths to infants born in a given year

2010 Cohort File =
2010 births and
2010 and 2011 deaths

Creating the Linked File

Birth Certificate



Hospital (99% of US births)



State Vital Statistics Office



NCHS



File and Report Production

Timing and Dissemination of data

- First linked cohort files 1983-1991
- No files for 1992-1994
- Period linked file began in 1995
- 2013 Period file released earlier in 2015
- 2010 Cohort file released in July

Obstetric Estimate of Gestational Age

Measuring Gestational Age in Vital Statistics Data: Transitioning to the Obstetric Estimate

Joyce A. Martin, M.P.H.; Michelle J.K. Osterman, M.H.S.; Sharon E. Kirmeyer, Ph.D.;
and Elizabeth C.W. Gregory, M.P.H., Division of Vital Statistics

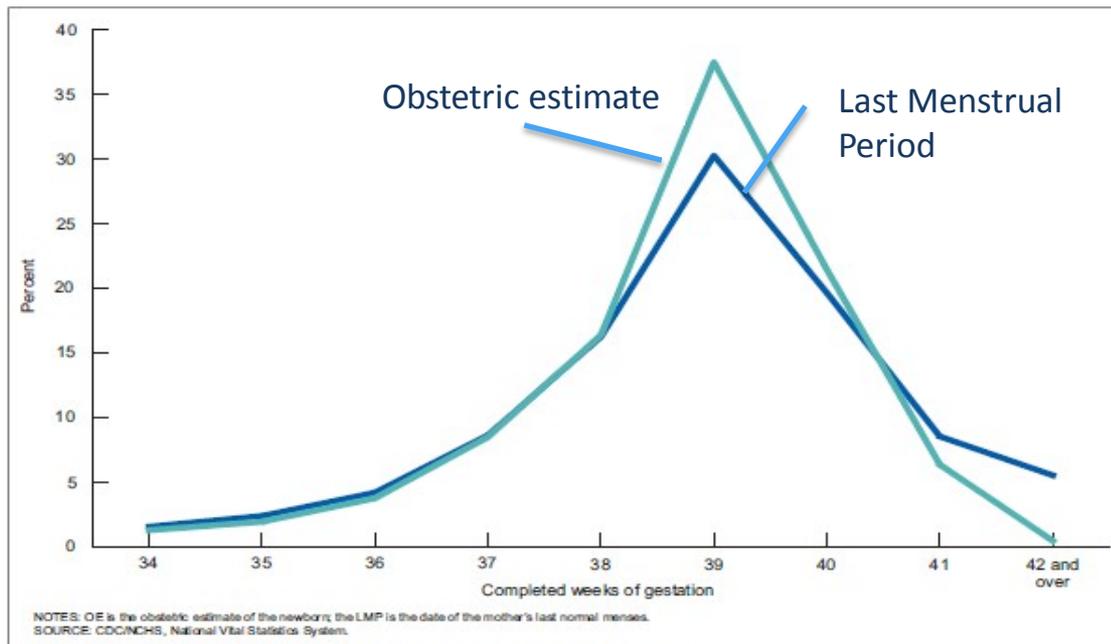
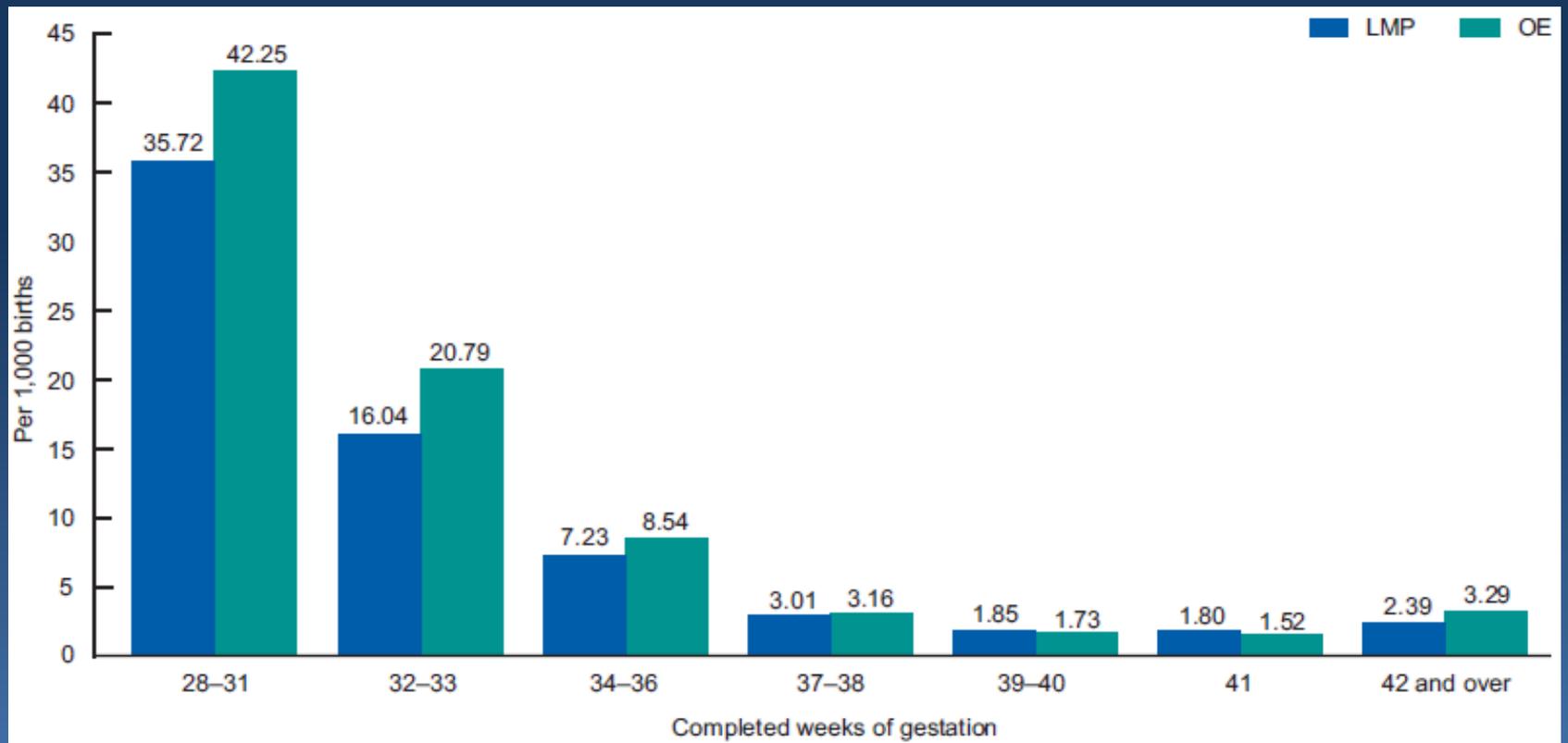


Figure 1. OE- and LMP-based measures of gestational age for selected weeks: United States, 2013

Infant Mortality rates by LMP- and Obstetric estimate (OE)- based gestational age: U.S., 2013



2013 Period linked birth/infant death publication released this month

National Vital
Statistics Reports



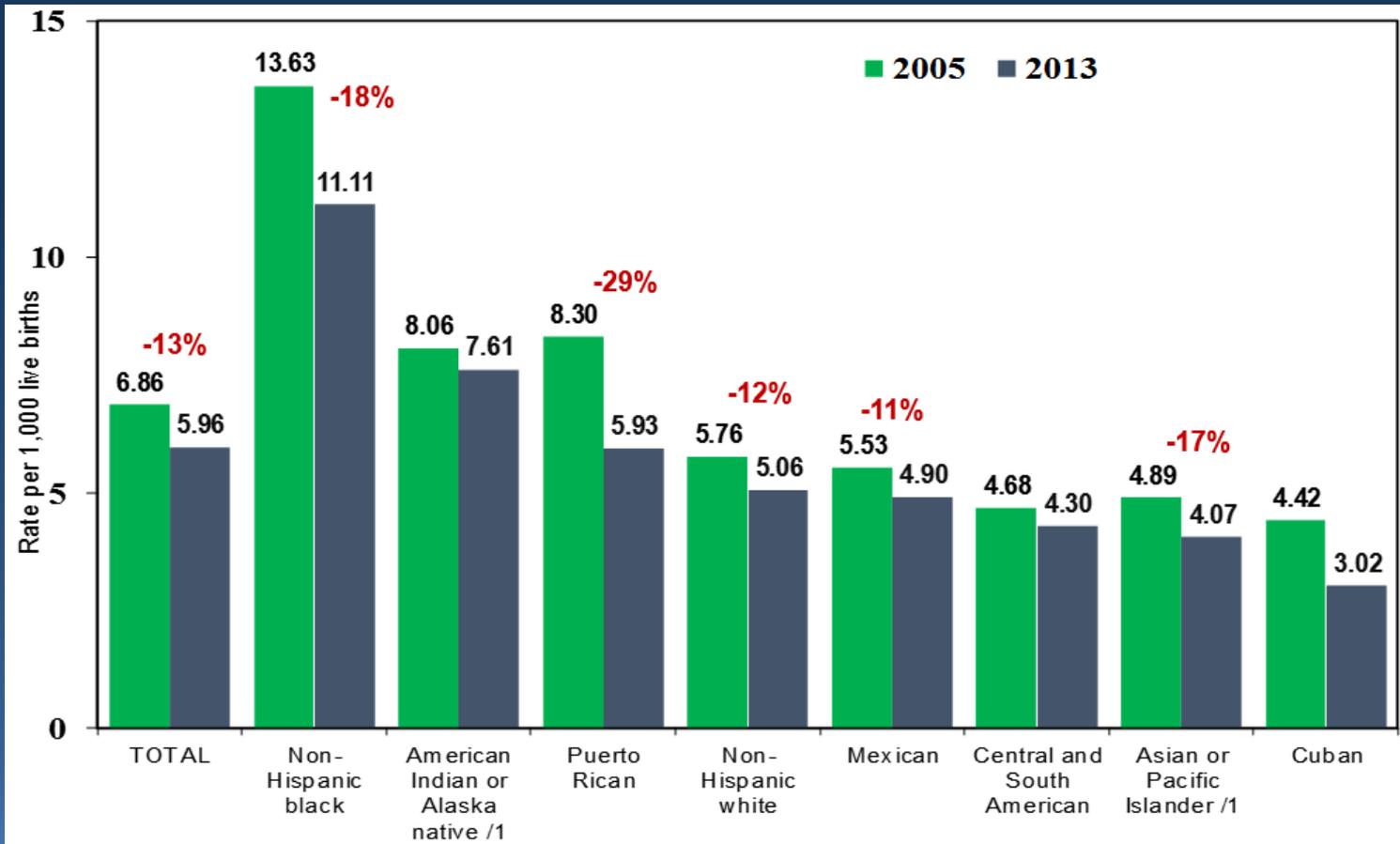
Volume 64, Number 9

August 6, 2015

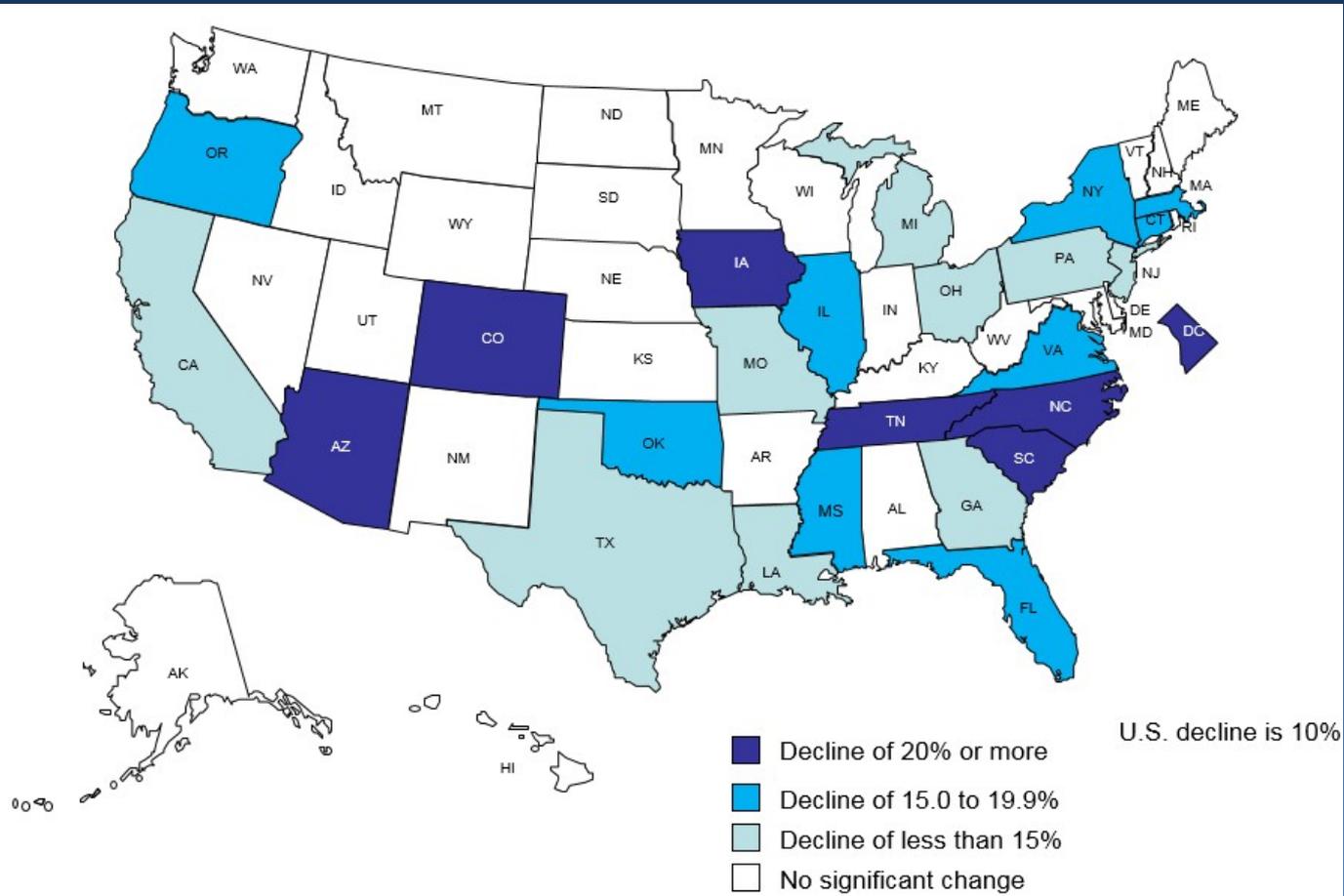
Infant Mortality Statistics From the 2013 Period Linked Birth/Infant Death Data Set

by T.J. Mathews, M.S.; Marian F. MacDorman, Ph.D.; and Marie E. Thoma, Ph.D., Division of Vital Statistics

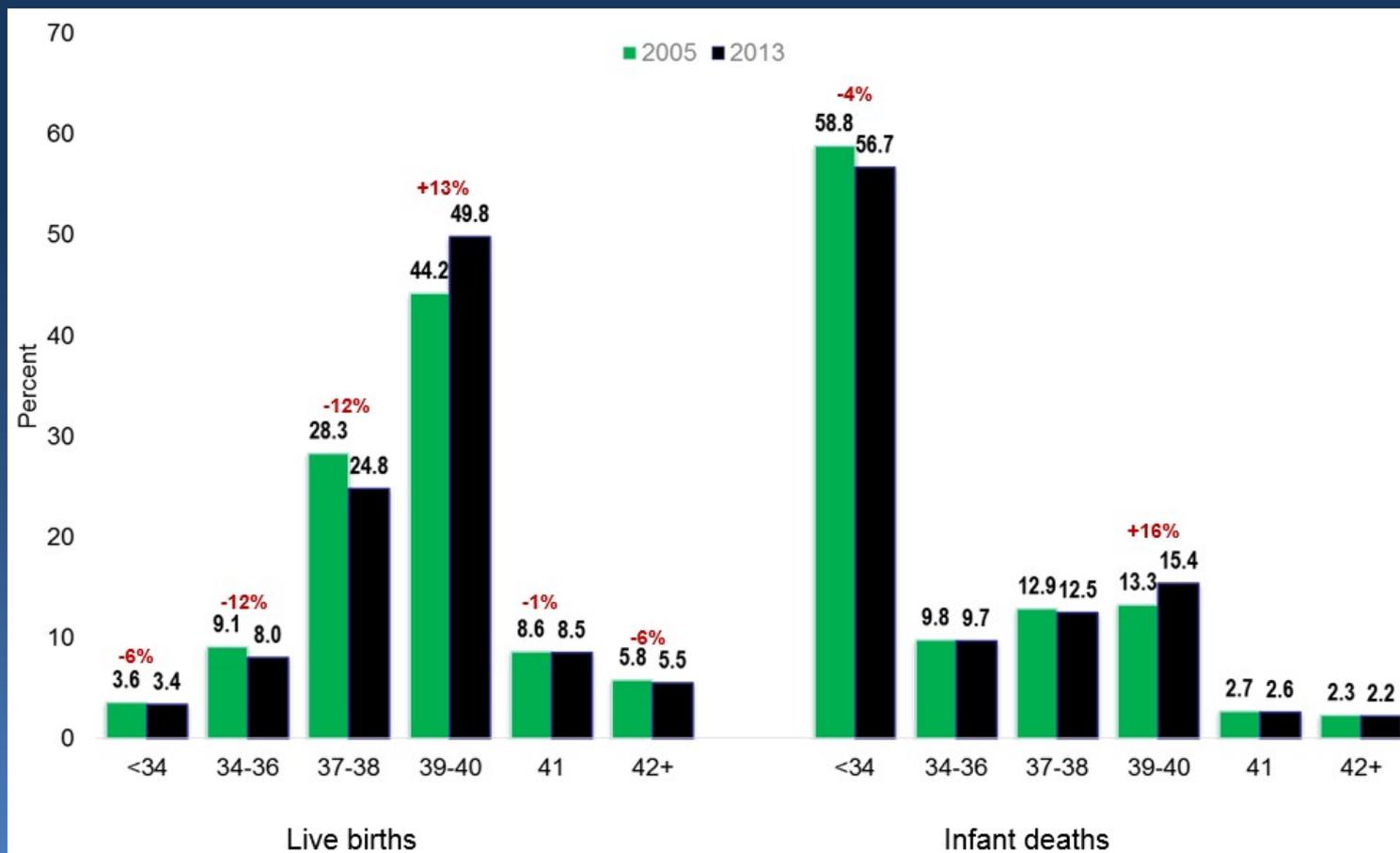
Infant Mortality Rate by Race and Ethnicity of Mother, 2005 and 2013



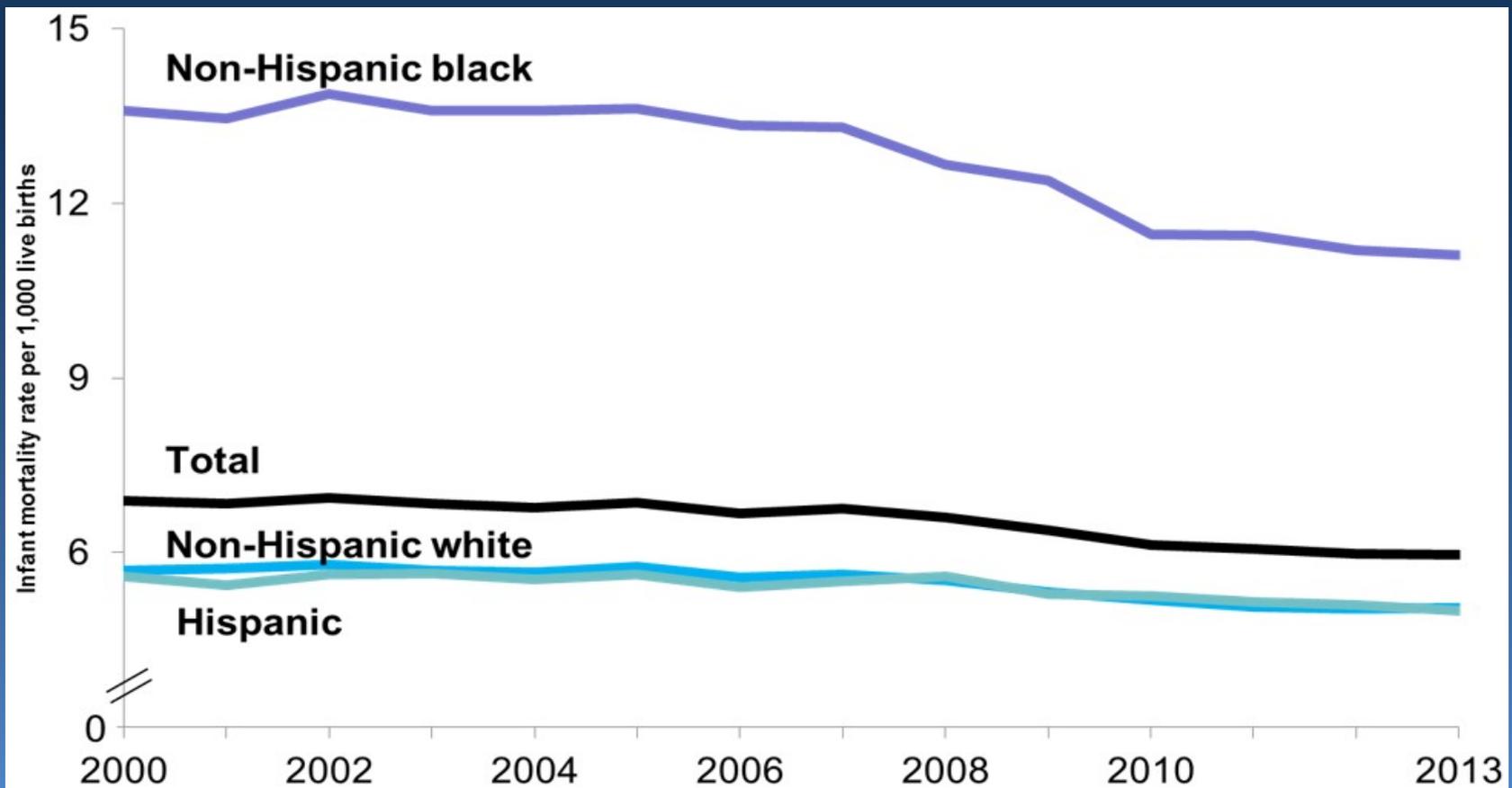
Percent change in infant mortality rates by State, 2005-2013



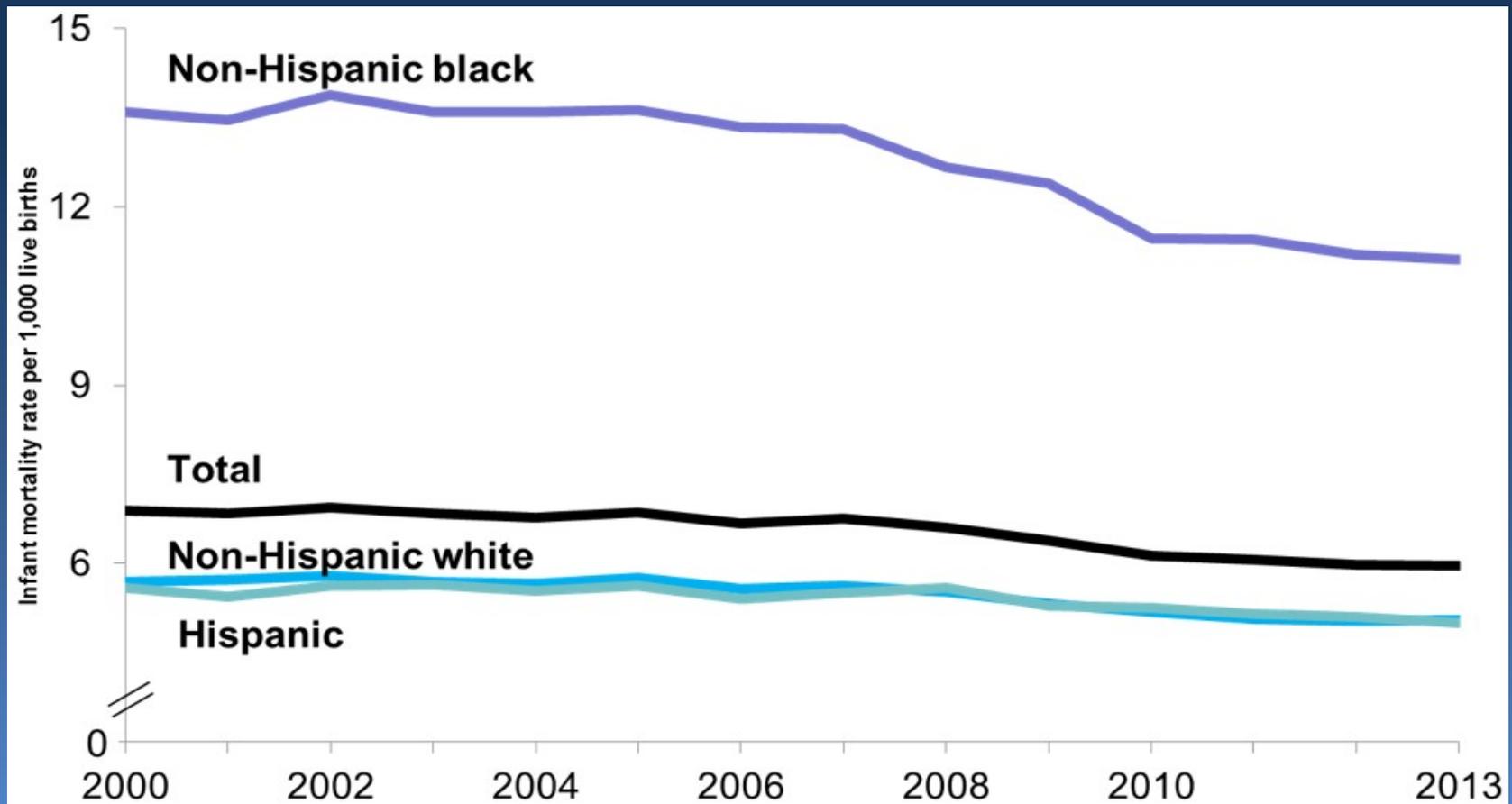
Percent distribution of live births and infant deaths by gestational age, United States, 2005 and 2013



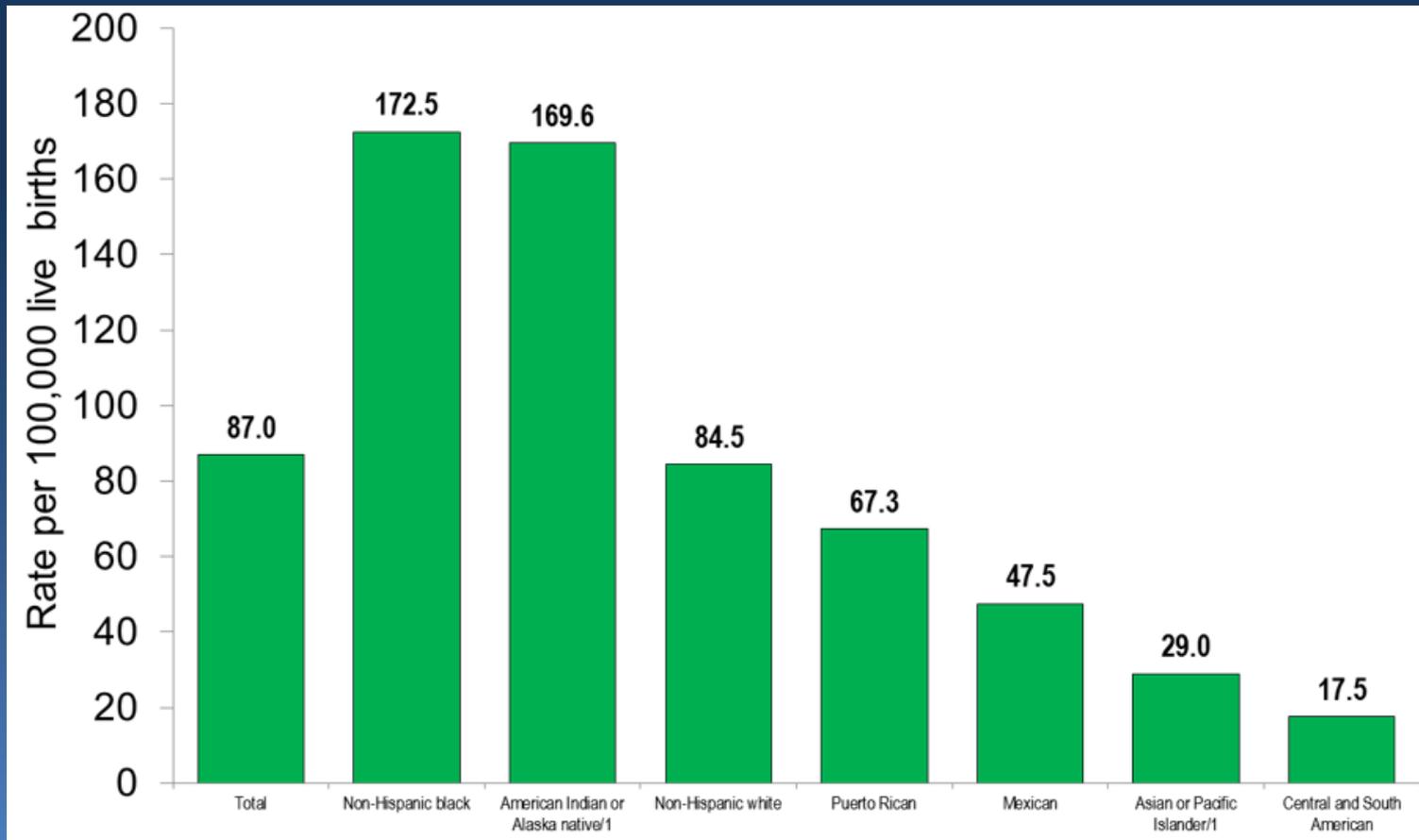
Infant mortality rates by race and Hispanic origin of mother: United States, 2000-2013



Infant mortality rates by race and Hispanic origin of mother: United States, 2000-2013



Sudden unexpected infant death (SUID) rates by race and Hispanic origin of mother, United States, 2013



Why use the linked birth/infant death file?

- Cause of death from the death certificate
- Race and ethnicity from the birth certificate
- Many detailed items available from the birth certificate

The (near) future linked birth/infant death file

- For the 2016 data year all states will have revised their birth and death certificates
- New birth certificate items will be fully reported and available in the linked file
- Infant mortality rates for multiple-race groups will be available for the first time in the 2014 period file

Thanks!

Contact info:

births@cdc.gov