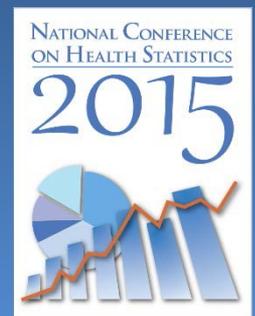


Assessing and Improving the Quality of the New Birth Data: The Good, the Bad, and the Underreported



Birth Data Quality Background

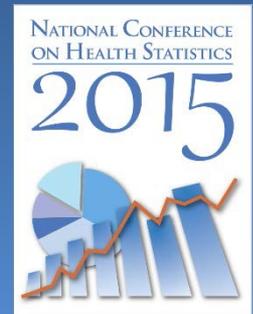


Presented by:

Joyce Martin, MPH

Reproductive Statistics Branch
Division of Vital Statistics

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The Natality Team

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Background

Vital Statistics Cooperative Program (VSCP)

- VSCP is a decentralized cooperative data collection process
- Individual reporting areas have responsibility for collecting vital statistics
- Federal government has no constitutional authority to require collection of vital statistics
- NCHS is mandated by law to collect and disseminate national vital statistics
 - Contract with jurisdictions for data
 - Collaborate to develop standards – US Standard Certificate of Live Birth

Quality of vital statistics birth data

Historically, quality of birth certificate demographic data considered acceptable but...

much of the medical/health data highly suspect

1989 revision – introduction of checkbox format attempt to improve, but data quality highly variable

- ✓ Method of delivery, Birthweight, Plurality
- × Alcohol, Tobacco use, most checkbox items

2003 revision – primary goal:

IMPROVE DATA QUALITY

2003 revision quality improvement efforts

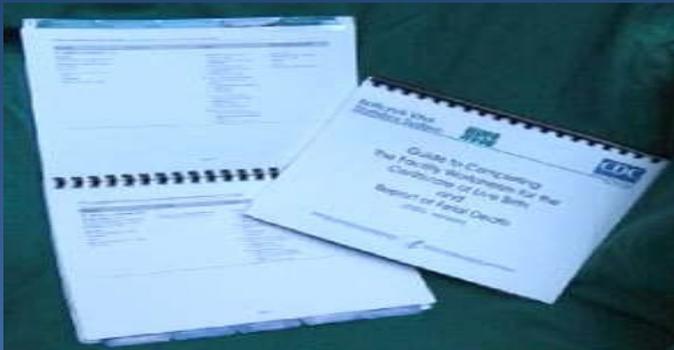
- New and modified data items believed to be collectable with reasonable completeness and accuracy
- Standardization of data collection processes across jurisdictions
 - Standard worksheets to encourage collection of data from best sources – mother and medical records
 - Standard electronic systems
 - - edit and query at time of data entry

- Detailed Guidebook for hospitals

The image displays two draft worksheets for the Live Birth Certificate. The top worksheet is titled 'FACILITY WORKSHEET FOR THE LIVE BIRTH CERTIFICATE' and is dated 'DRAFT 2/16/03'. It includes a section for 'Facility name' and a list of questions to be answered by the facility, such as '1. Facility name', '2. Facility ID#', '3. City, Town or Location of facility', and '4. County or State'. The bottom worksheet is titled 'Mother's Worksheet for Child's Birth Certificate' and is also dated 'DRAFT 2/16/03'. It includes a section for 'Mother's name' and a list of questions to be answered by the mother, such as '1. What is your current legal name?', '2. What will your child's legal name be?', '3. Where do you usually live?', and '4. Do you live in a household outside city limits?'. Both worksheets include instructions and a 'PLEASE PRINT CLEARLY' section.

Guide to Completing Facility Worksheet

The Facility Guidebook was developed to assist hospital staff in completing the medical and health birth information for the birth certificate. It includes:



- Definitions
- Instructions
- Preferred sources within the medical record (e.g., prenatal care record, labor and delivery record)
- Key words and common abbreviations
- Convenient availability (electronically and hard copy)
- Regular updates

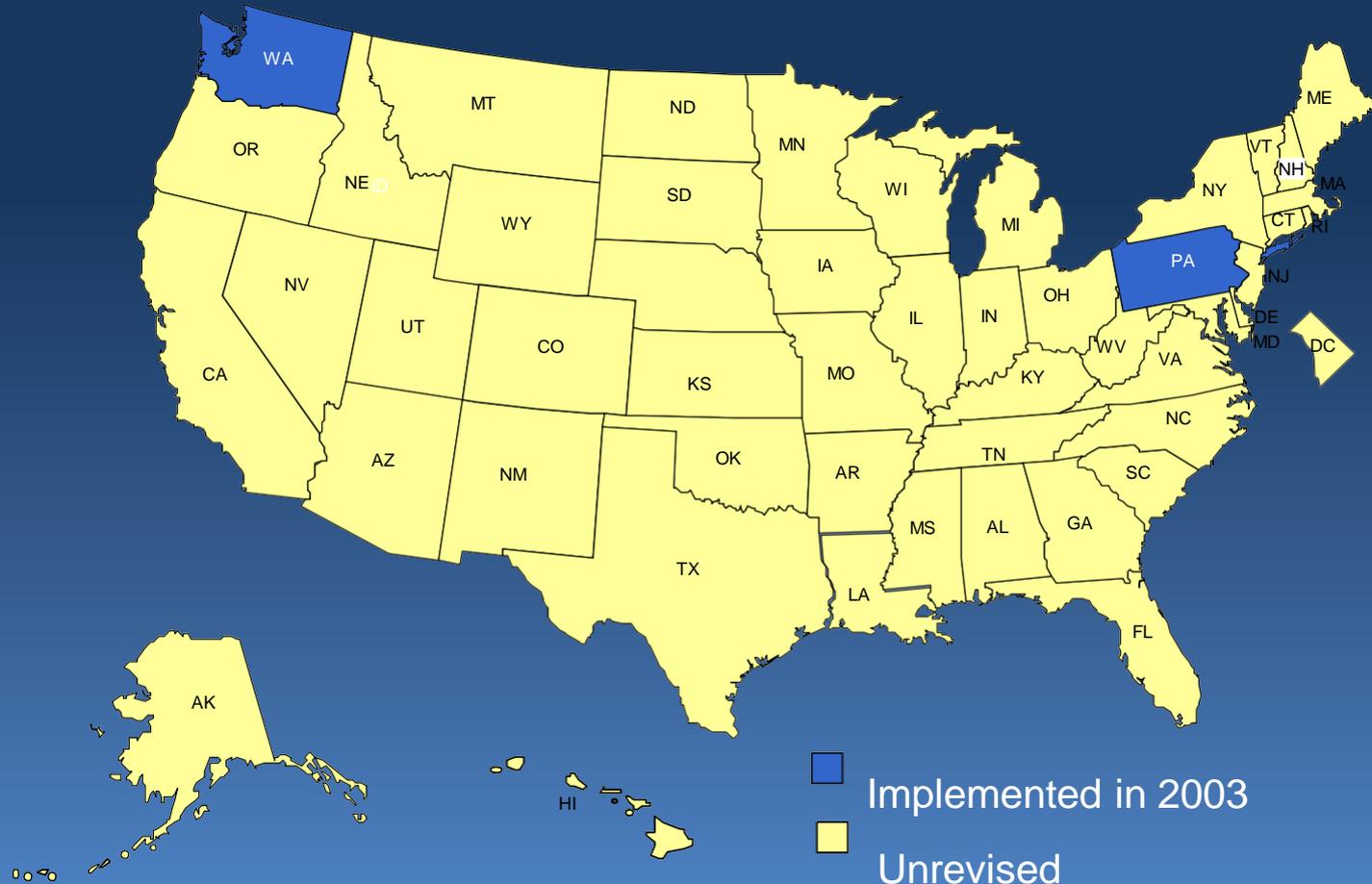
**Challenges - a funny thing
happened on the way to the
revision...**

A funny thing happened...

- Resources not always available (at either state or federal levels) to fund design and implementation of expensive new state electronic birth registration systems.



National transition to the 2003 birth certificate



Staggered implementation of the 2003 standard

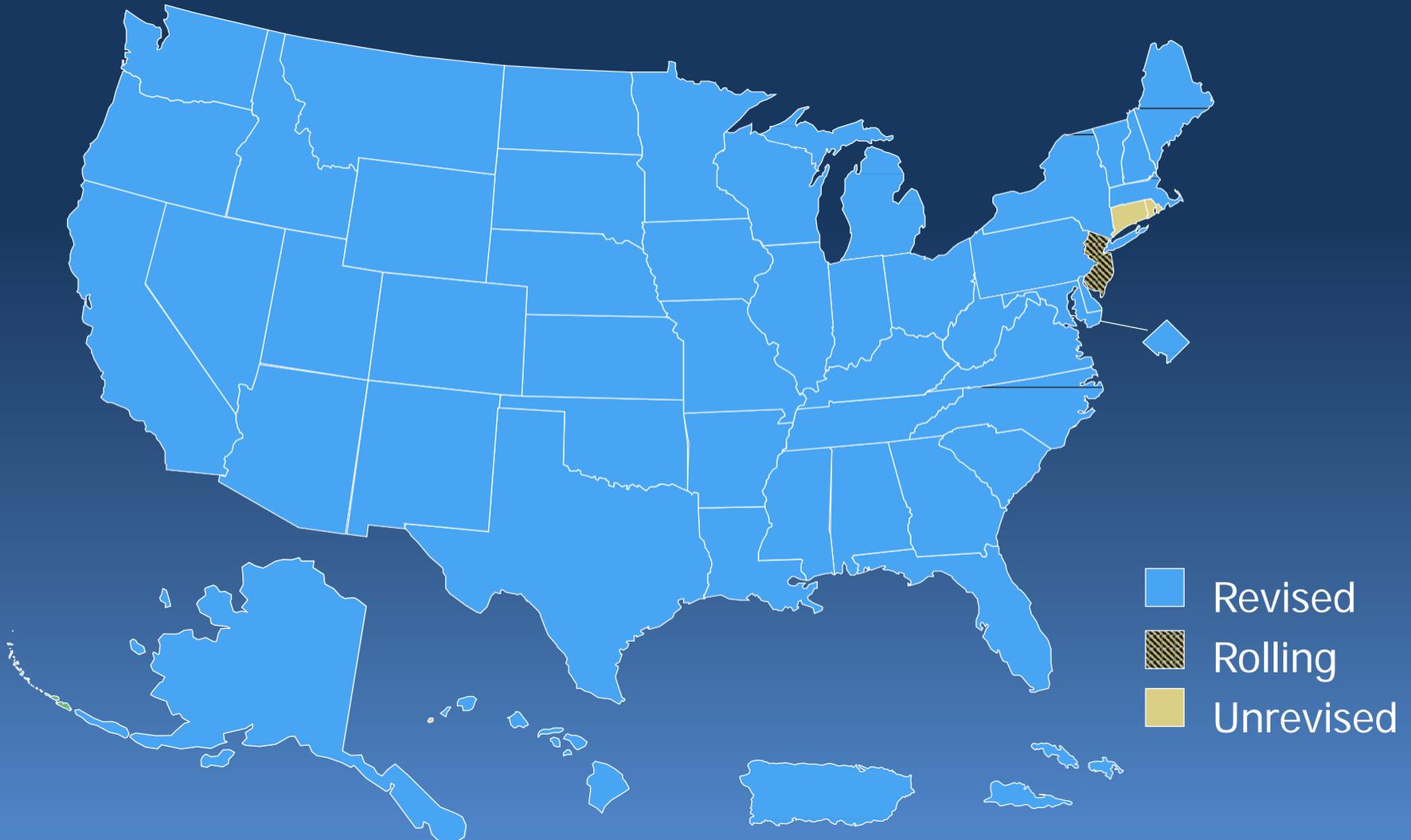


The delayed and staggered implementation of new certificates/systems across the country affected the content, quality and timeliness of the national files

- Lack of national data for many items; including key items (educ, pnc)
- Many new data items could not be released (e.g., infertility therapy, source of payment)
- Burden of processing/reviewing revised and unrevised data undermined timeliness

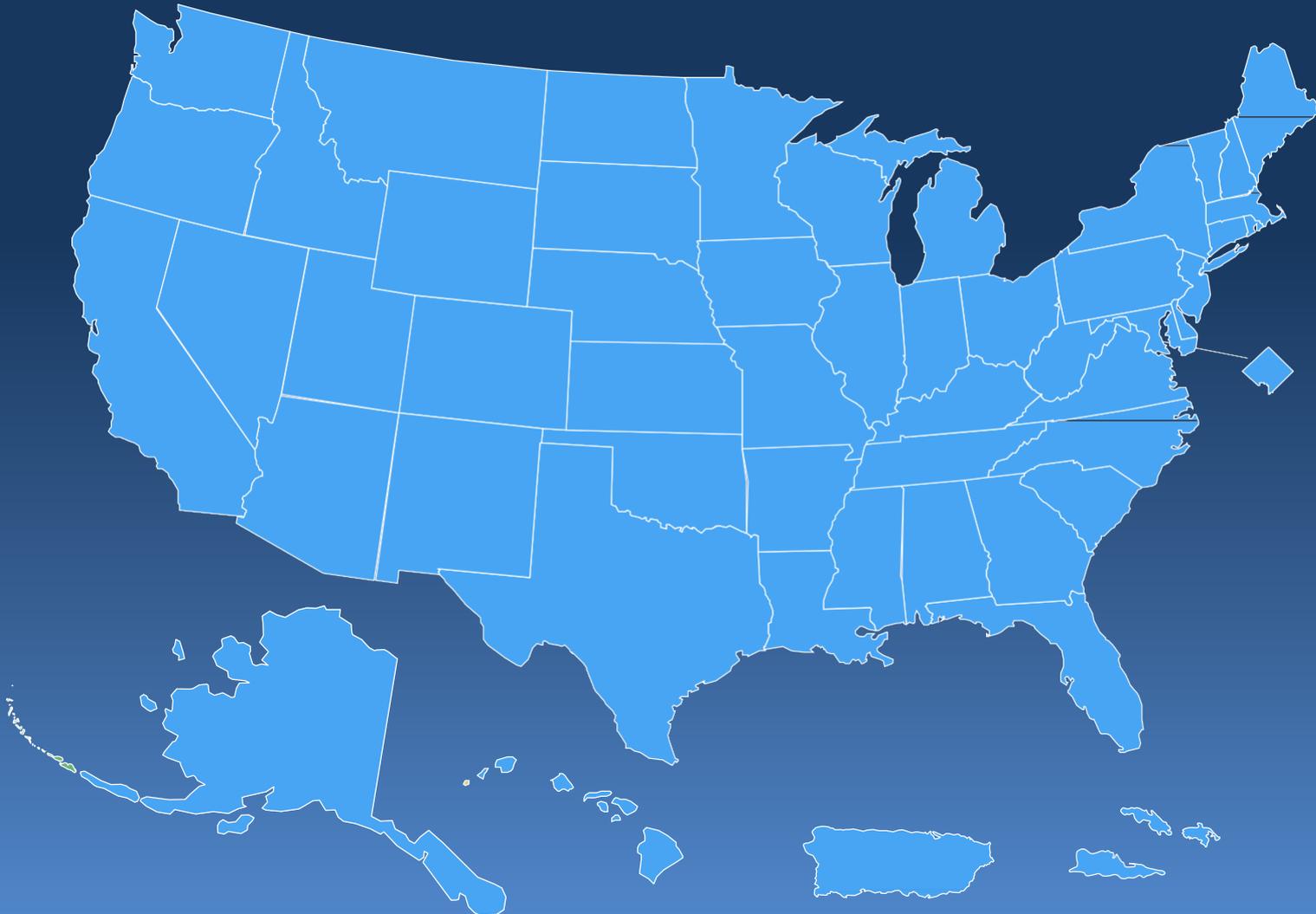
Revised States: 2014

96.2% of U.S. births



Revised States: 2016

100% of U.S. births!





- 2014 - Nearly national and all new data items now available
- Much improved timeliness
 - 2013 and 2014 preliminary birth reports released within 6 months of close of year
 - 2013 final birth file released within 11 months
 - 2014 final birth file anticipated within 10 months
- New, useful information on quality of 2003-based data

Recent collaborations to assess and improve birth data quality



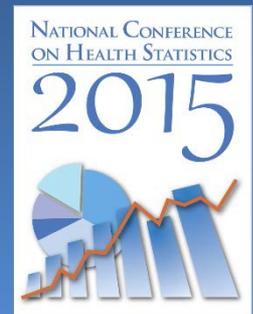
- Interviews with birth information specialists in 4 states
- Validity studies – collaboration with 3 vital statistics jurisdictions to compare birth certificate with medical record data
- Special studies of individual data items – e.g., Source of payment, Assisted reproductive technologies...
- Birth Data Quality Workgroup – collaboration between NAPHSIS, NCHS, states and outside experts – e.g.:
 - E-learning training
 - Cutting items from the nation birth and fetal death files

Assessing the quality of medical and health data from the 2003 birth certificate revision: results from two states and New York City

Elizabeth C.W. Gregory, MPH
National Center for Health Statistics

Erica Lee, MPH

New York City Department of Health and Mental Hygiene



Background

- A primary goal of the 2003 revision of the U.S. Standard Certificate of Live Birth was to improve data quality
- To assess quality of these new data NCHS collaborated with three jurisdictions from 2009 to 2015
- To compare selected medical and health data with information abstracted from hospital medical records

Study objective and basic design

Study objective

- Determine how closely information on the birth certificate matches information recorded in the medical record

Basic design

- Independently abstract medical records for information collected on the birth certificate
- Compare abstracted information with information captured on the birth certificate

Basic design (continued)

- Hospitals were chosen to represent a mix of characteristics:
 - Type (public/private)
 - Location
 - Size
 - Medical record type (electronic/paper/combination)
 - Quality of data (good/not so good)
- Experienced medical record abstractors hired
- Standardized data collection form used
- Abstracted medical record data linked with corresponding birth certificate data

Basic design (continued)

- Items abstracted
 - More than 50 medical and health items were abstracted, including:
 - Obstetric estimate of gestation
 - Number of prenatal visits
 - Risk factors in this pregnancy
 - Obstetric procedures
 - Onset of labor
 - Characteristics of labor and delivery
 - Method of delivery
 - Abnormal conditions of the newborn
 - Principal source of payment
 - Rare items (e.g. maternal morbidities) were not included

Sampling and data collection

- State A
 - 600 births occurring in four hospitals in 2010/2011
 - Random sample
- State B
 - 495 births occurring in four hospitals in 2009
 - Convenience sample
- New York City
 - 900 births occurring in five hospitals in 2013
 - Random sample

Results

Data quality publication for two states

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. Saad, Ph.D.; Shae R. Sutton, Ph.D.; and Brady E. Hamilton, Ph.D.

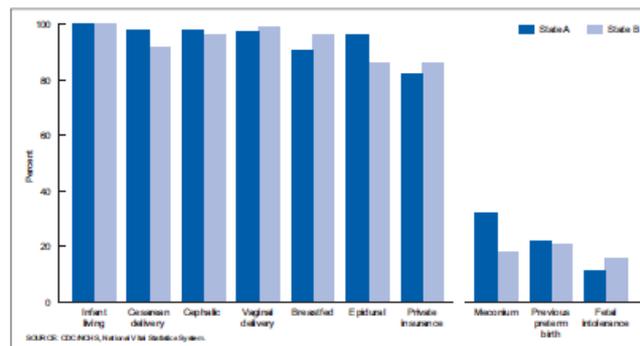


Figure 1. Checklist items with high sensitivity and extremely low sensitivity for states A and B

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 history, prenatal care, gestational age, birthweight, 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.



Representativeness

	State A		State B	
	Percent		Percent	
	Sample ¹	Total ²	Sample ³	Total ⁴
<u>Mother</u>				
Non-Hispanic				
White ⁵	†61.50	55.54	†51.92	71.29
Black ⁵	30.00	32.18	†11.92	7.22
Hispanic ⁶	†5.50	8.56	†30.51	16.20
<u>Infant</u>				
Preterm ⁷	†17.00	11.38	8.13	9.27
Low birthweight ⁸	†14.83	9.81	6.87	7.39

- Samples for both states had similar maternal age distributions compared with their state's respective total

† Difference significant at $p = 0.05$.

SOURCE: "Assessing the quality of medical and health data from the 2003 birth certificate revision: Results from two states"

Percent not stated for selected checkbox and non-checkbox items

	Percent not stated ¹	
	State A (n=600)	State B (n=495)
Number of previous live births now living	1.0	0.6
Date of first prenatal care visit (month)	1.8	17.8
Total number of prenatal care visits	4.2	18.6
Cesarean (Method of delivery)	0.0	0.2
Induction of labor	0.0	0.0

¹ The percentage of records with a not-stated or missing value for at least one source (the number of not-stated values on the medical record plus the number of not-stated values on the birth certificate, minus the number of not-stated values on both, per the total number of records).

SOURCE: "Assessing the quality of medical and health data from the 2003 birth certificate revision: Results from two states"

Primary measures used to compare medical record and birth certificate data

- Non-checkbox items
 - Exact agreement-the percentage of all births for which the values reported on the birth certificate and in the medical records agree
- Checkbox items
 - Sensitivity (true positive rate)-the percentage of births with a condition indicated on the medical record (the “gold standard”) that was also indicated on the birth certificate

Rating of exact agreement and sensitivity

Exact agreement and sensitivity rating scale
High (90.0–100.0%)
Substantial (75.0–89.9)
Moderate (60.0–74.9)
Low (40.0–59.9)
Extremely low (less than 40.0)

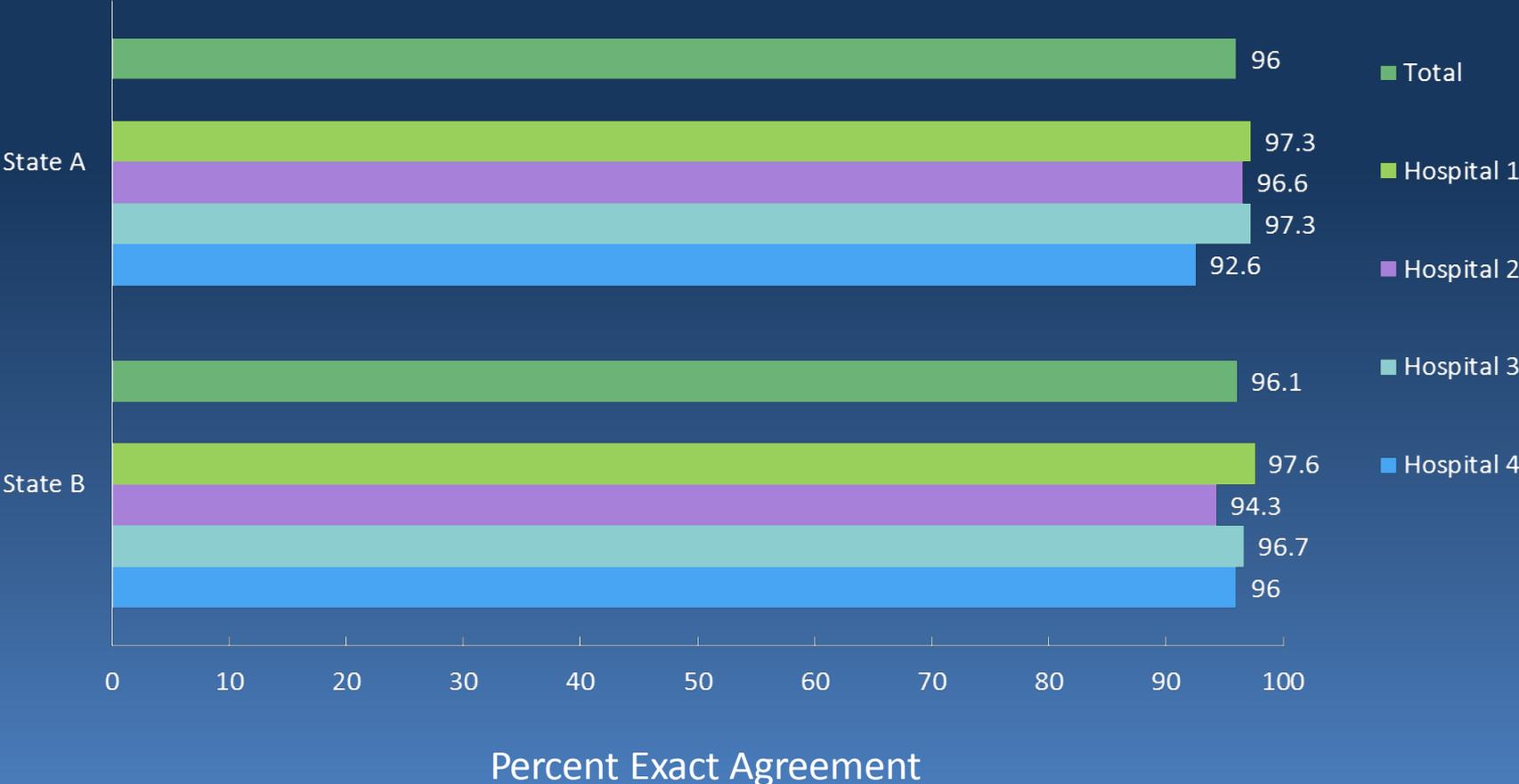
Exact agreement for number of previous live births now living

	State A (n=600)		State B (n=495)	
	Number 1/	Percent	Number 1/	Percent
Number of previous live births now living	570 / 594	96.0	473 / 492	96.1

1/Number of records for which value on birth certificates and medical records agree per total records.

Note: Denominator may not include all records for each state, as any birth where the medical record, birth certificate, or both, reported an unknown value for an item, was excluded from analysis

Exact agreement for number of previous live births now living by state and by hospital



Source: NCHS, National Vital Statistics System

Exact agreement for selected non-checkbox items by state

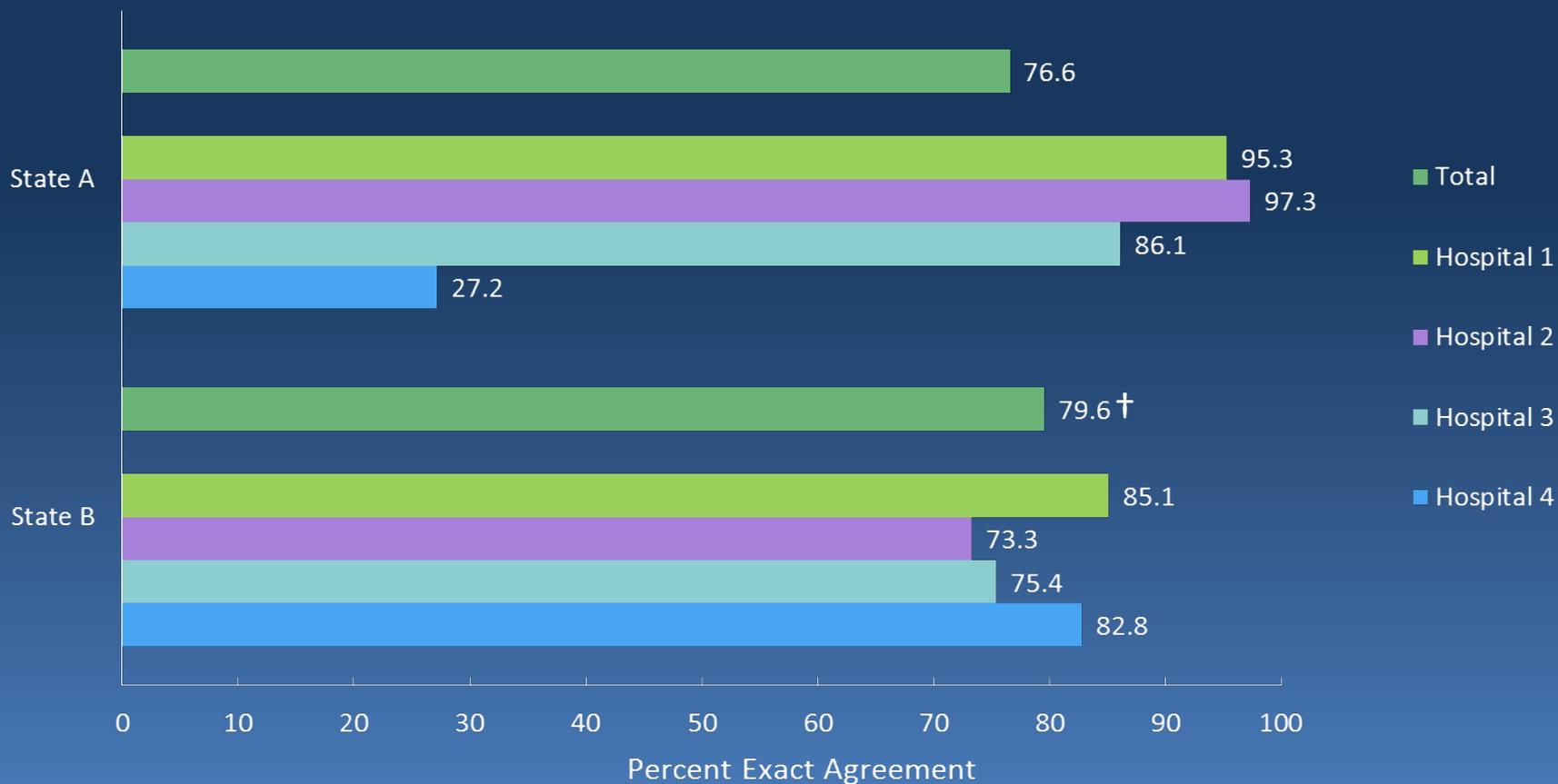
	State A (n=600)		State B (n=495)	
	Number 1/	Percent	Number 1/	Percent
Date of first prenatal care visit (month)	451 / 589	76.6	324 / 407	†79.6
Total number of prenatal care visits	275 / 575	47.8	89 / 403	†22.1
Total number of prenatal care visits (within two visits)	485 / 575	84.3	262 / 403	†65.0

† Level of missing or unknown values greater than 5%.

1/Number of records for which value on birth certificates and medical records agree per total records.

Note: Denominator may not include all records for each state, as any birth where the medical record, birth certificate, or both, reported an unknown value for an item, was excluded from analysis

Exact agreement for date of first prenatal care visit (month) (non-checkbox item) by state and by hospital



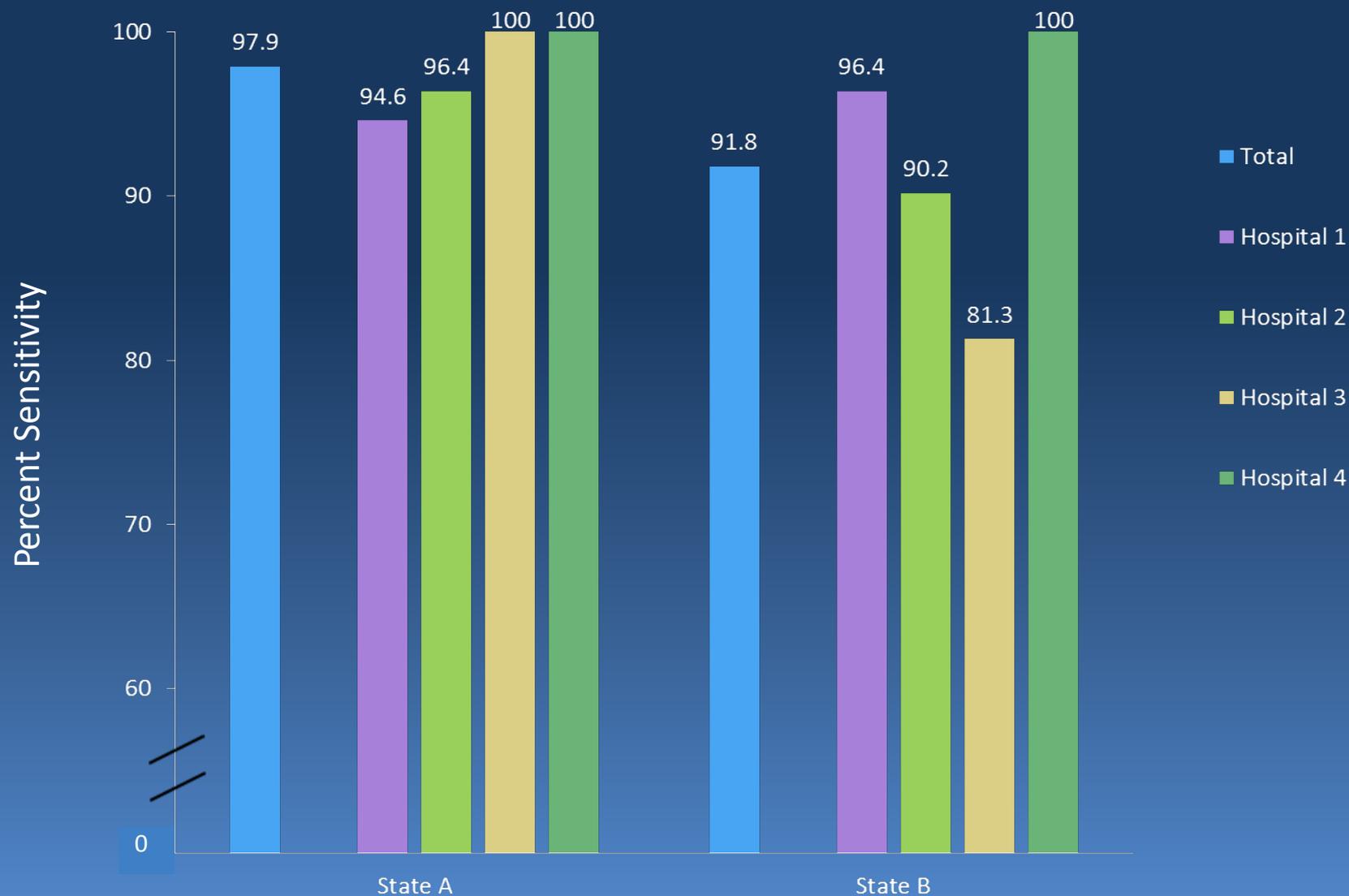
† Level of missing or unknown values greater than 5%.

Sensitivity for selected checkbox items by state

	State A (n=600)		State B (n=495)	
	Number BC/MR 1/	Percent	Number BC/MR 2/	Percent
Cesarean (Method of delivery)	228 / 233	97.9	123 / 134	91.8
Induction of labor	185 / 215	86.0	68 / 148	45.9

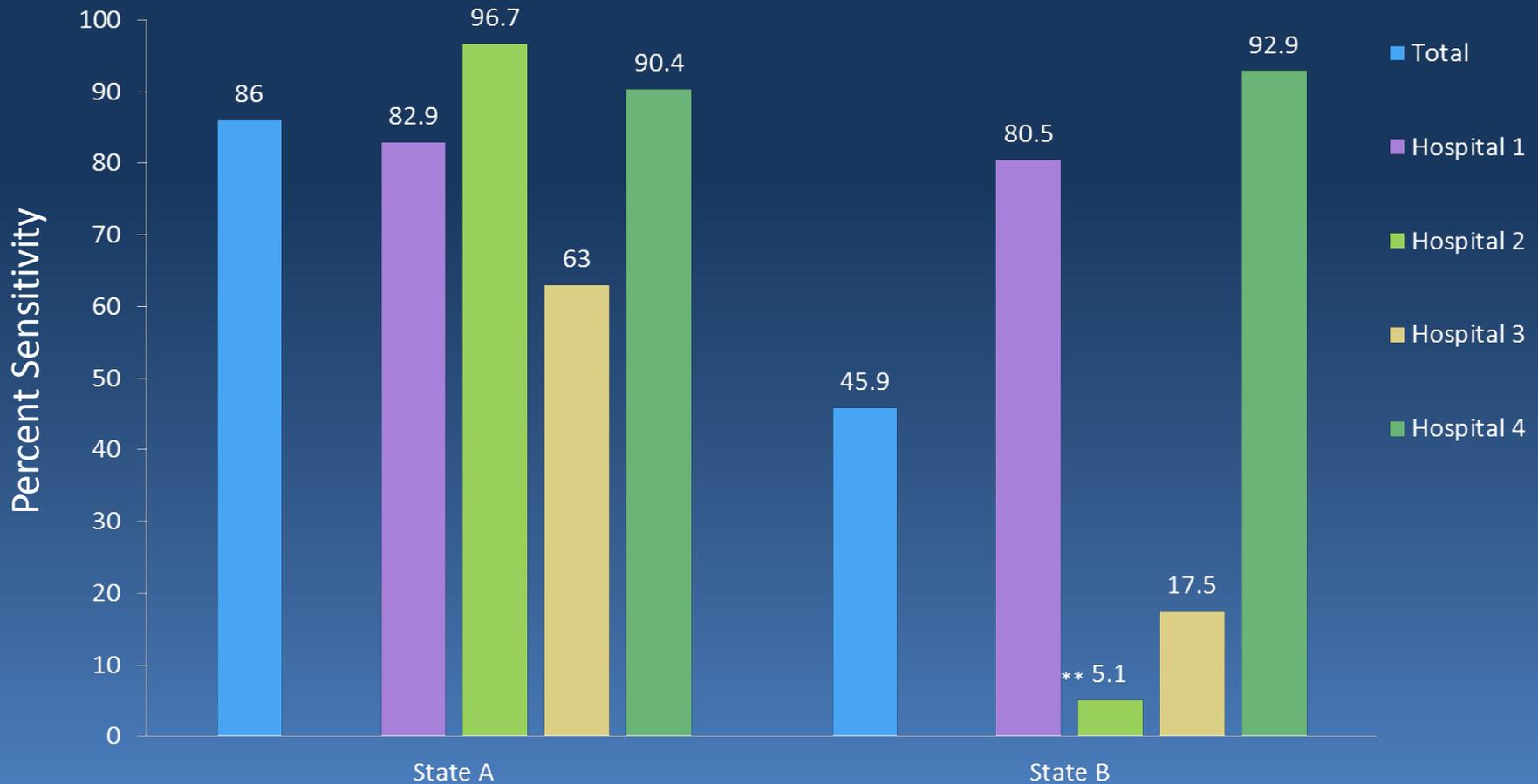
1/Number of records the condition was indicated on both the birth certificate (BC) and the medical record (MR) per the total number the condition was indicated on the medical records.

Sensitivity for cesarean (Method of delivery) by state and hospital



Source: NCHS, National Vital Statistics System

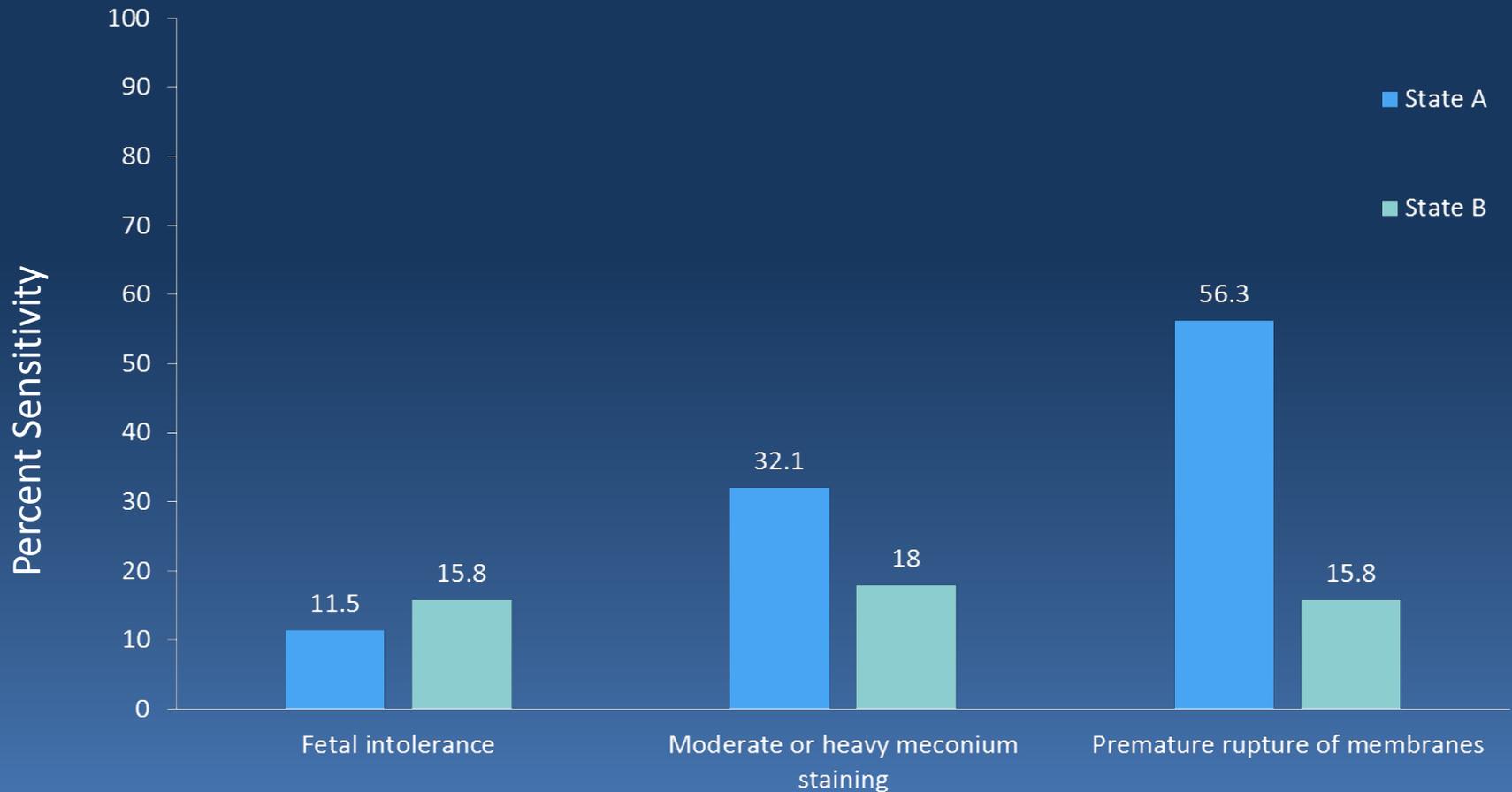
Sensitivity for induction of labor by state and hospital



** Figure may not be reliable; numerator is 5 or less.

Source: NCHS, National Vital Statistics System

Identification of potential items to cut



Source: NCHS, National Vital Statistics System

Results for New York City

Representativeness

	Sample vs. State Distribution		Hospital 1	Hospital 2	Hospital 3	Hospital 4	Hospital 5
	Sample ¹ %	Total ² %	%	%	%	%	%
Mother							
Non-Hispanic							
White³	17.3†	31.5	4.4	15.6	0.6	6.1	59.4
Black³	31.2†	20.4	52.2	16.1	78.9	3.9	5.6
Hispanic⁴	34.4†	30.4	33.9	44.4	18.3	65.6	9.4
Age							
<20 years	6.1†	4.2	9.4	2.8	6.7	7.8	3.9
20-24 years	23.6†	17.5	27.2	21.7	23.9	27.2	17.8
25-29 years	28.6†	25.3	24.4	33.3	26.1	28.9	30.0
30-34 years	23.3†	29.4	23.3	27.2	20.0	18.3	27.8
35-39 years	13.7†	18.1	11.7	11.7	17.2	13.9	13.9
40 or more years	4.8	5.5	3.9	3.3	6.1	3.9	6.7
Infant							
Preterm⁵	7.3	9.0	10.6	4.4	9.4	6.7	5.6
Low birthweight⁶	8.3	8.5	10.6	6.1	12.8	7.8	4.4

† Difference significant at p = 0.05.

1Random sample of births occurring in New York City in five hospitals from January through December 2013.

2All births occurring in State C from January through December 2013.

3Race and Hispanic origin are reported separately on the birth certificate. Race categories are consistent with the 1997 Office of Management and Budget standards; Data by race are non-Hispanic and exclude mothers reporting multiple races.

4Includes all persons of Hispanic origin of any race.

5Born prior to 37 completed weeks of gestation.

6 Birthweight of less than 2,500 grams (5 pounds, 8 ounces).

- Sample had a higher percent of younger, non-Hispanic black and Hispanic mothers than NYC total.

Percent not stated for selected checkbox and non-checkbox items

	Percent not stated ¹	Percent not stated, Range by Hospital
	New York City (n=900)	
Number of previous live births now living	1.4	0.6 - 2.2
Date of first prenatal care visit (month)	22.8	35.6 - 53.9
Total number of prenatal care visits	27.6	7.2 - 51.1
Date of last other pregnancy outcome (month)	42.3	8.3 - 35.6
Cesarean (Method of delivery)	0.6	0.0 - 1.1
Induction of labor	1.2	0.6 - 3.3

¹ The percentage of records with a not-stated or missing value for at least one source (the number of not-stated values on the medical record plus the number of not-stated values on the birth certificate, minus the number of not-stated values on both, per the total number of records).

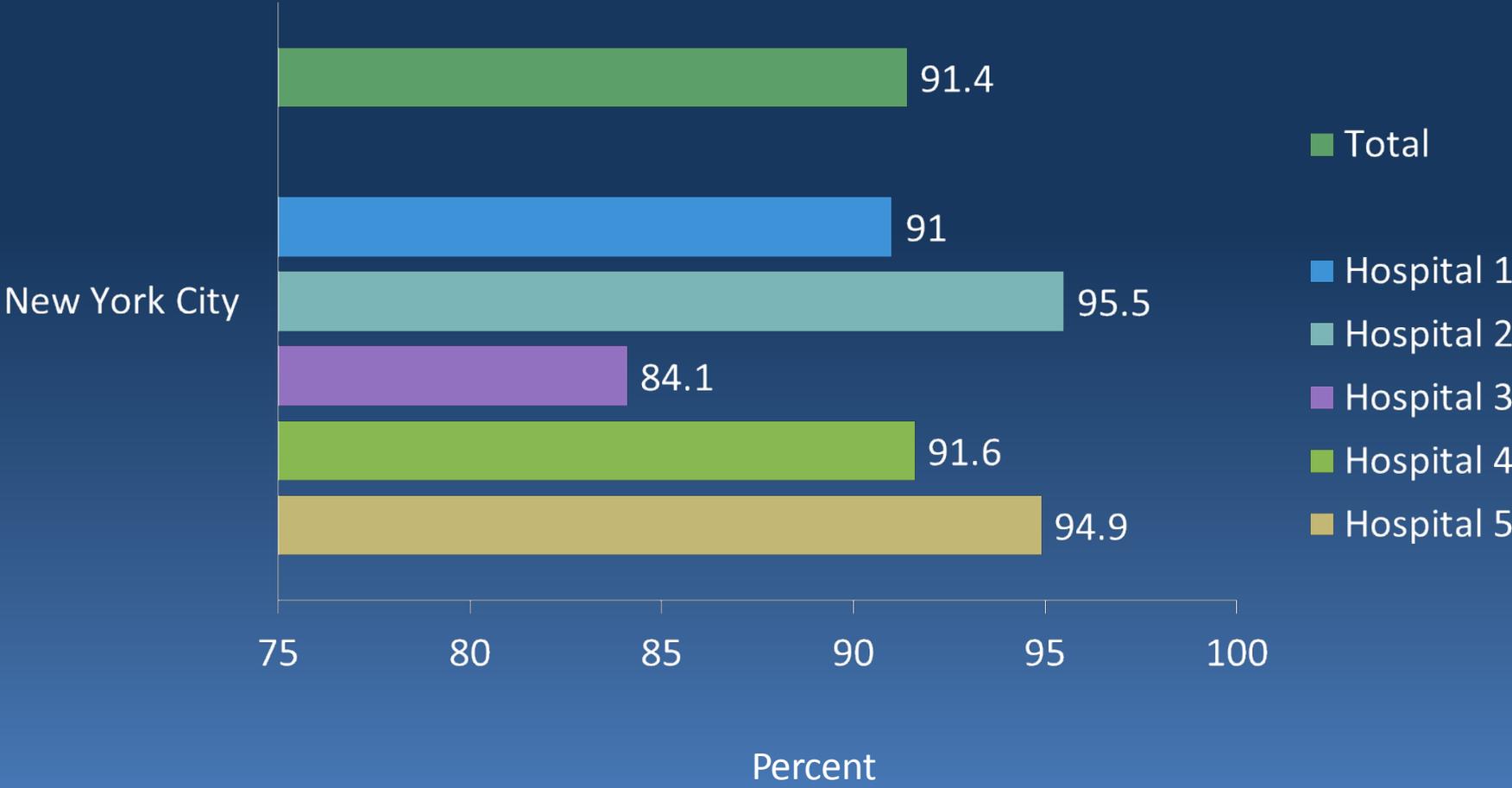
Exact agreement for selected non-checkbox item by state

	New York City (n=900)	
	Number 1/	Percent
Number of previous live births now living	811/887	91.4
Number of previous live births now dead	873/884	98.8

1/Number of records for which value on birth certificates and medical records agree per total records.

Note: Denominator may not include all records for each state, as any birth where the medical record, birth certificate, or both, reported an unknown value for an item, was excluded from analysis

Exact agreement for number of previous live births now living by hospital, NYC



Exact agreement for selected non-checkbox items, NYC

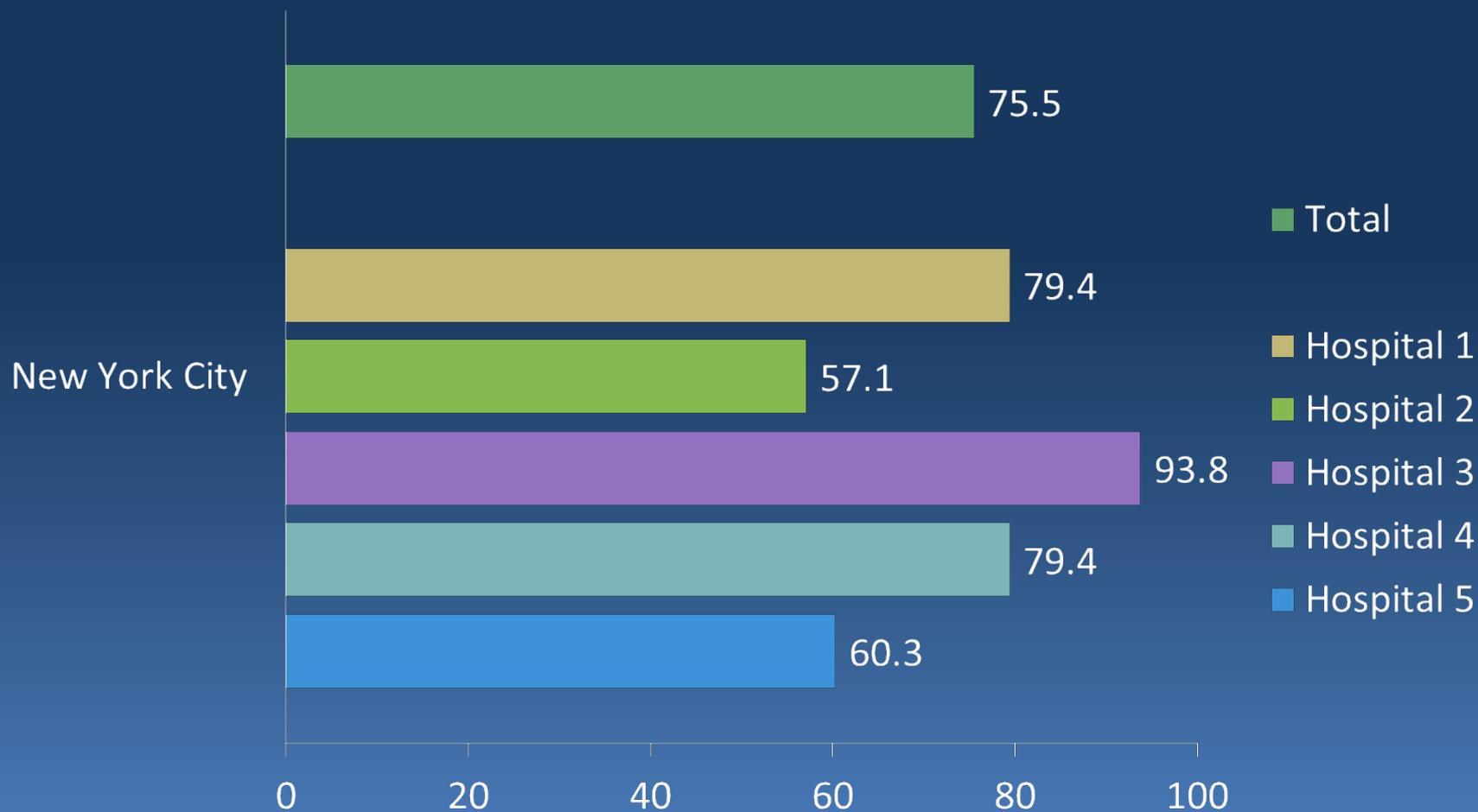
	New York City (n=900)	
	Number 1/	Percent
Date of first prenatal care visit (month)	525/695	75.5
Date of last other pregnancy outcome (month)	43/70	61.4
Birth weight within 500 grams	878/889	98.8
Date last normal menses began (month)	701/774	90.6
Obstetric estimate of gestation at delivery	793/893	88.8
Total number of prenatal care visits	311/652	47.7
Total number of prenatal care visits (within two visits)	471/652	72.2

† Level of missing or unknown values greater than 5%.

1/Number of records for which value on birth certificates and medical records agree per total records.

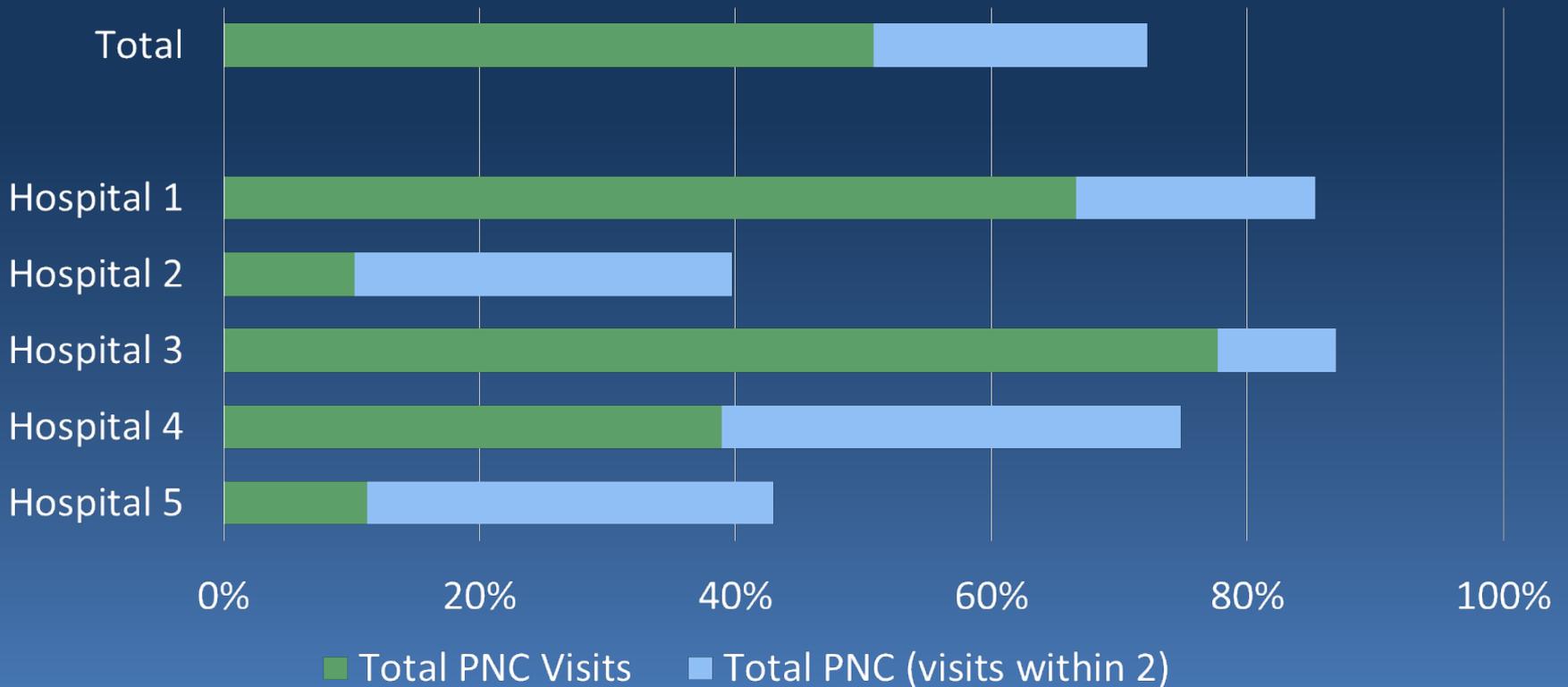
Note: Denominator may not include all records for each state, as any birth where the medical record, birth certificate, or both, reported an unknown value for an item, was excluded from analysis

Exact agreement for date of first prenatal care visit (month) (non-checkbox item) by hospital, NYC



† Level of missing or unknown values greater than 5%.

Exact agreement for total number of prenatal care visits (non-checkbox item) and for total number of prenatal care visits (within two) by hospital, NYC



† Level of missing or unknown values greater than 5%.

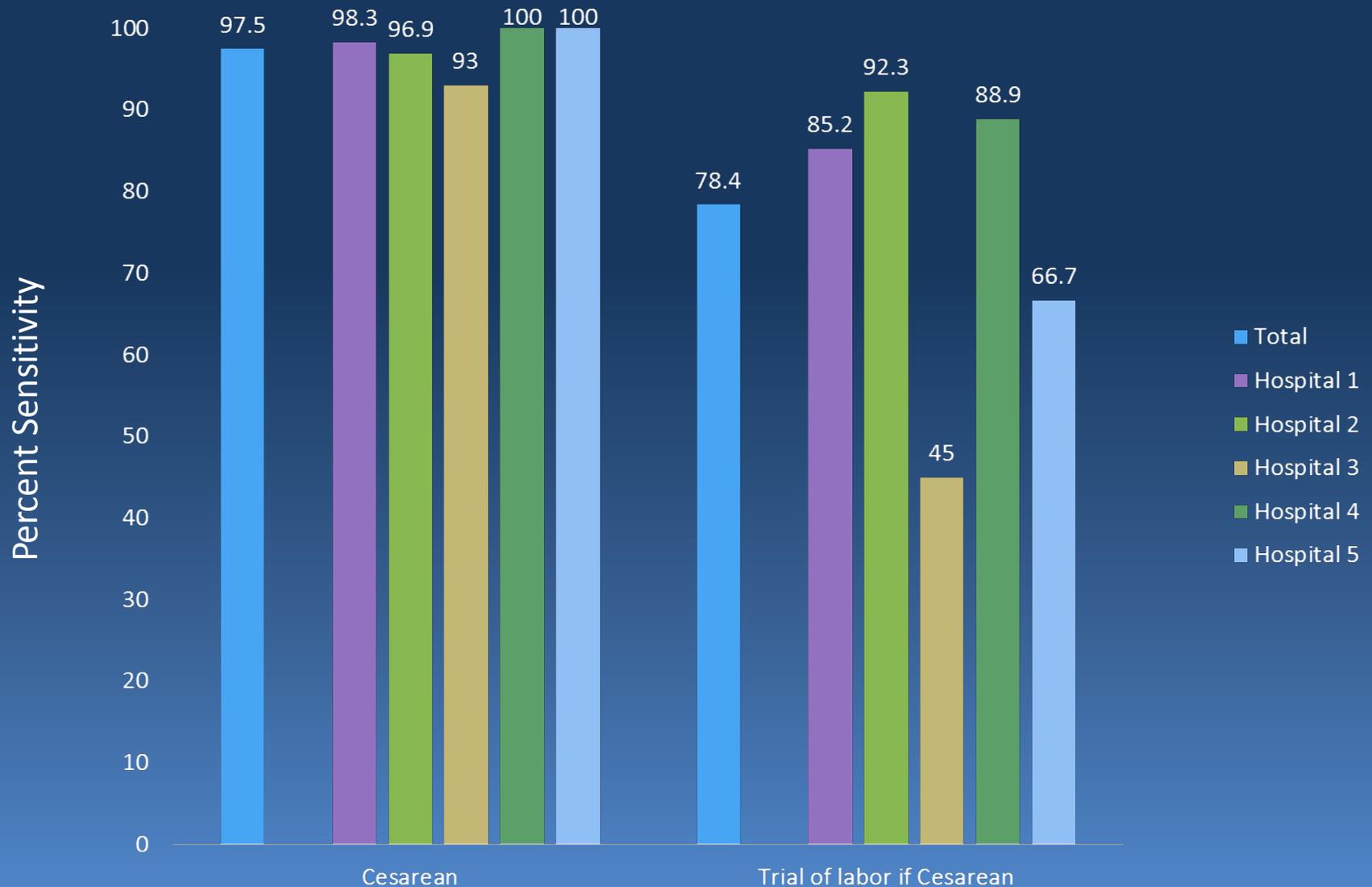
Sensitivity for selected checkbox items

	New York City (n=900)	
	Number BC/MR 1/	Percent
Cesarean (Method of delivery)	268/275	97.5
Trial of labor attempted	76/97	78.4
Induction of labor	97 / 209	46.4
Infant breastfed at discharge	673/707	95.2

- For trial of labor, sensitivity was somewhat higher for state A and similar for state B
- For infant breastfed, sensitivity was somewhat lower for state A and similar for state B

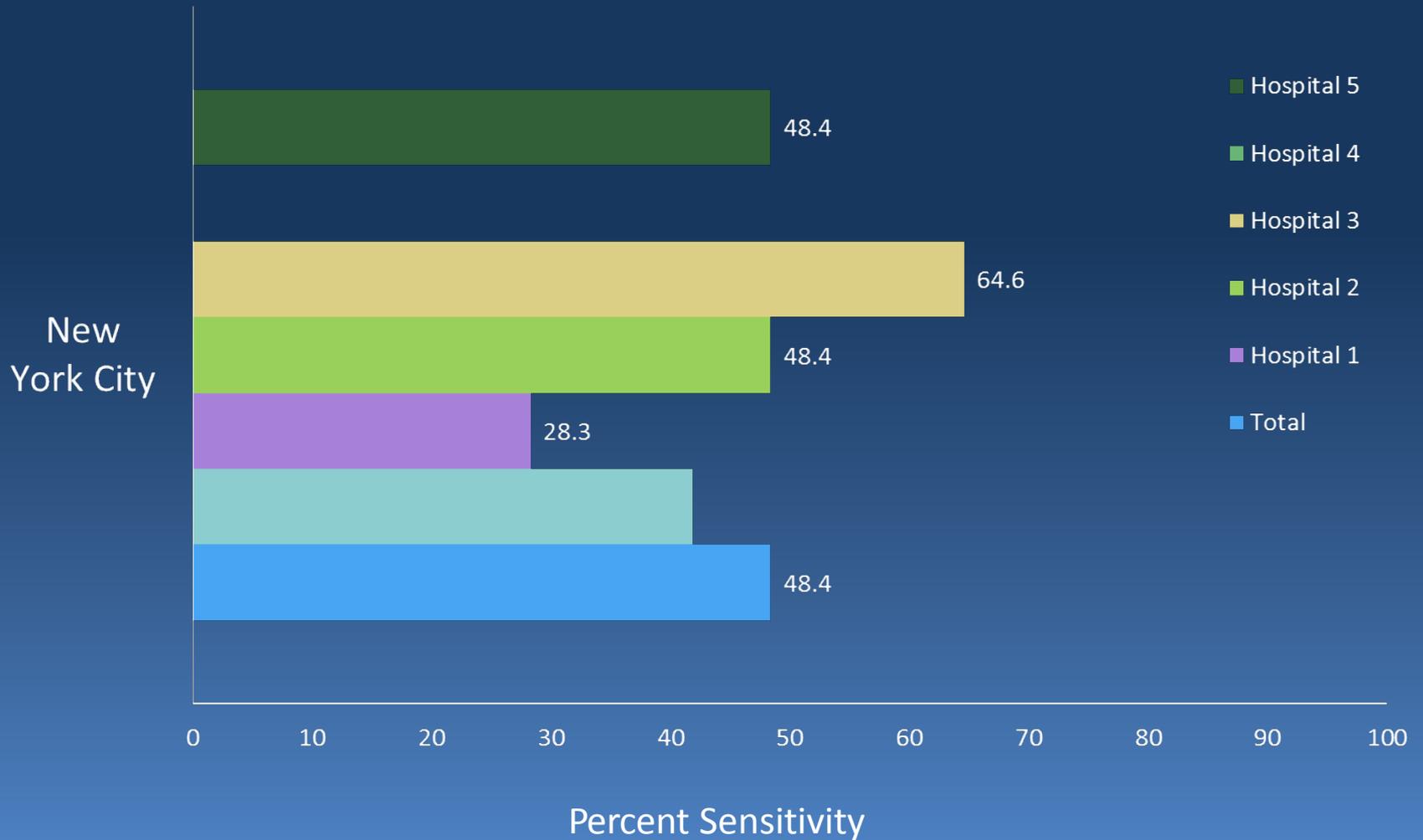
1/Number of records the condition was indicated on both the birth certificate (BC) and the medical record (MR) per the total number the condition was indicated on the medical records.

Sensitivity for Cesarean (Method of delivery) & Trial of Labor by hospital



Source: NCHS, National Vital Statistics System

Sensitivity for induction of labor by hospital, NYC



Summary (2 states and NYC)

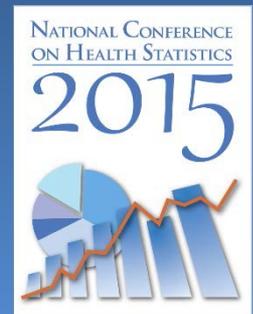
- High variability in data quality among items
 - Many items appear to be well reported
 - Some items appear to be poorly reported
 - Many of these have been cut from the national file for 2014
- Some variability across jurisdictions; high variability in data quality across hospitals
 - High level of data quality for some hospitals for some items suggests that data quality can be improved

Quality of birth certificate data on three items on the 2003 U.S. Certificate of Live Birth

Source of payment for the delivery
Assisted reproductive technology
Date of last live birth (interpregnancy interval)

Sally C. Curtin, M.A.,
Marie E. Thoma, Ph.D., M.H.S.
Division of Vital Statistics, NCHS

National Conference on Health Statistics
August 25, 2015
Bethesda, Maryland



Outline

Three NCHS reports (2013-2015)

- Source of payment for the delivery – December 2013
- Assisted reproductive technology – December 2014
- Interpregnancy interval – April 2015

Reporting Areas

To keep in mind during this presentation

- The reporting areas are not nationally representative
- Vary depending on the data year and item
 - range: 67%- 83% of all U.S. births
- In particular, births to women of Hispanic origin are overrepresented due to the inclusion of Texas and California

Source of payment for the delivery

- Collected for the first time on the birth certificate with the 2003 revision
- Added because of its public health importance—differences in maternal characteristics and birth outcomes among payment groups

38. PRINCIPAL SOURCE OF PAYMENT FOR THIS DELIVERY

- Private Insurance
- Medicaid
- Self-pay
- Other
(Specify) _____

* The “Other” category is further delineated in some states into: CHAMPUS/TRICARE, Indian Health Service and other government.

Source of Payment for the Delivery, 2010

75 percent of all U.S. births

National Vital Statistics Reports



Volume 62, Number 5

December 19, 2013

Source of Payment for the Delivery: Births in a 33-state and District of Columbia Reporting Area, 2010

by Sally C. Curtin, M.A.; Michelle J.K. Osterman, M.H.S.; and Sayeedha F. Uddin, M.D., M.P.H., National Center for Health Statistics; Shae R. Sutton, Ph.D., South Carolina Department of Health and Environmental Control; and Phyllis R. Reed, M.P.H., Washington Center for Health Statistics

Abstract

Objectives—This report presents new data from birth certificates on the principal source of payment for the delivery in 2010 for the following groups: private insurance, Medicaid, self-pay (uninsured), and other payment sources. These data are for the 33 states and District of Columbia that adopted the 2003 U.S. Standard Certificate of Live Birth by January 2010, representing 76% of all 2010 U.S. births. Trend data for the United States for 1990–2010 are also presented from the Centers for Disease Control and Prevention's National Center for Health Statistics, National Hospital Discharge Survey (NHDS), to provide a national comparison and historical context.

Methods—Tabular and graphical data on deliveries by the principal source of payment for 2010 from the birth certificate are compared with NHDS estimates. Trend data for 1990–2010 from NHDS are also presented. Detailed data from the birth certificate on maternal characteristics, prenatal care receipt, and cesarean delivery are provided.

Results—Private insurance was the most frequent payment source for deliveries in the birth certificate-revised reporting area in 2010 (45.8% of births), followed closely by Medicaid (44.9%), "other" payment sources (5.0%), and self-pay (4.4%). Similarly, NHDS data show that private insurance was the most common payment source for deliveries nationally in 2010, followed by Medicaid. Privately insured deliveries declined over the last decade, while the use of Medicaid insurance increased. Medicaid insurance of deliveries was highest for births to teenagers and for non-Hispanic black and Hispanic mothers, according to the birth certificate data. Privately insured mothers were most likely of all payment groups to receive early prenatal care and to have cesarean deliveries.

Keywords: birth certificate • Medicaid • health insurance • uninsured

Introduction

Health care coverage of reproductive-age women is a significant public health issue, as it is among the factors associated with increased use of reproductive health services, including prenatal care (1). Early prenatal care can detect and treat risk factors that could potentially lead to poor outcomes (2). As private insurance

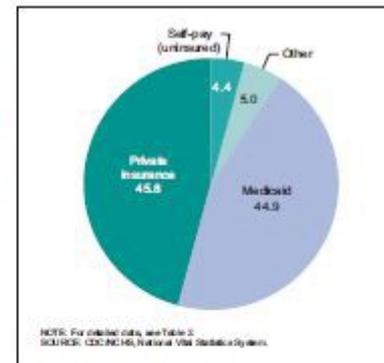


Figure 1. Percent distribution of principal payment source for the delivery: 33-state and District of Columbia reporting area, 2010



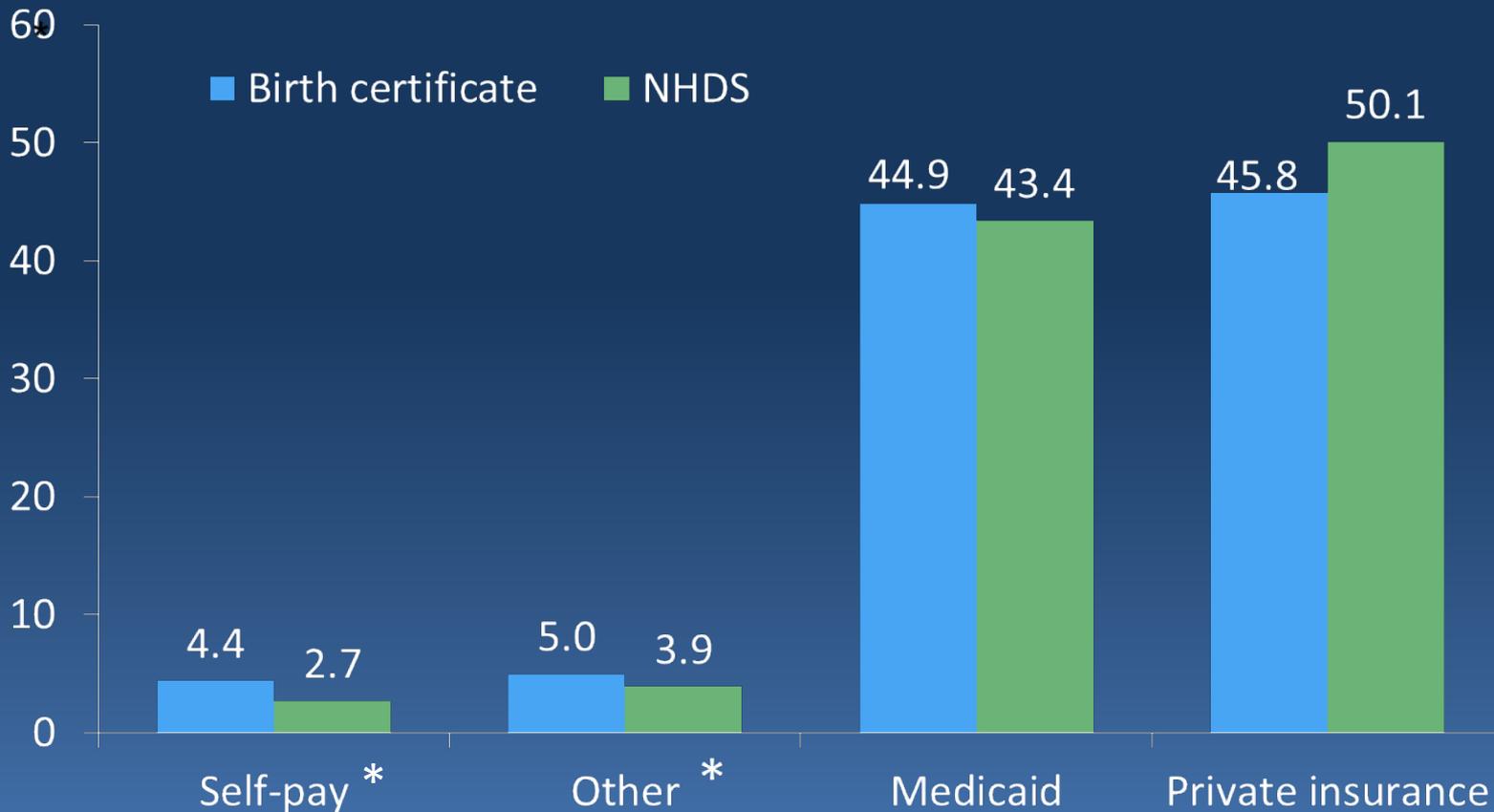
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics
National Vital Statistics System



Birth certificate compared with NHDS data on source of payment, 2010

- Birth certificate data:
 - 33 states and the District of Columbia were in the reporting area in 2010 (75% of all U.S. births)
 - Births to Hispanic women overrepresented
- National Hospital Discharge Survey:
 - Nationally representative survey of information from a sample of discharge records in nonfederal, short-stay hospitals.

Birth certificate compared with NHDS data on source of payment, 2010



* Difference is statistically significant

Source: Curtin SC, Osterman MJK, Uddin SFG, Sutton SR, and Reed PR. Source of payment for the delivery: births in a 33-state and District of Columbia reporting area, 2010. December 2013.

Quality of medical and health data in 2 states

- Primary measure = sensitivity
 - percentage of births with a condition indicated on the medical record (the “gold” standard) that was also indicated on the birth certificate.

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. Seadi, Ph.D.; Shae R. Sutton, Ph.D.; and Brady E. Hamilton, Ph.D.

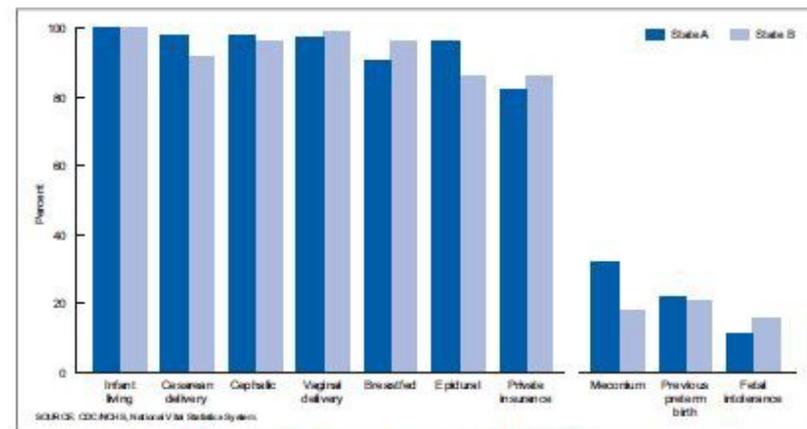


Figure 1. Checkbox items with high sensitivity and extremely low sensitivity for states A and B

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 496 births that occurred in State B in 2009 were reviewed. Birth certificate and hospital medical record data were compared for these categories: pregnancy history, prenatal care, gestational age, birthweight, 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



Quality of the data based on quality studies in two states

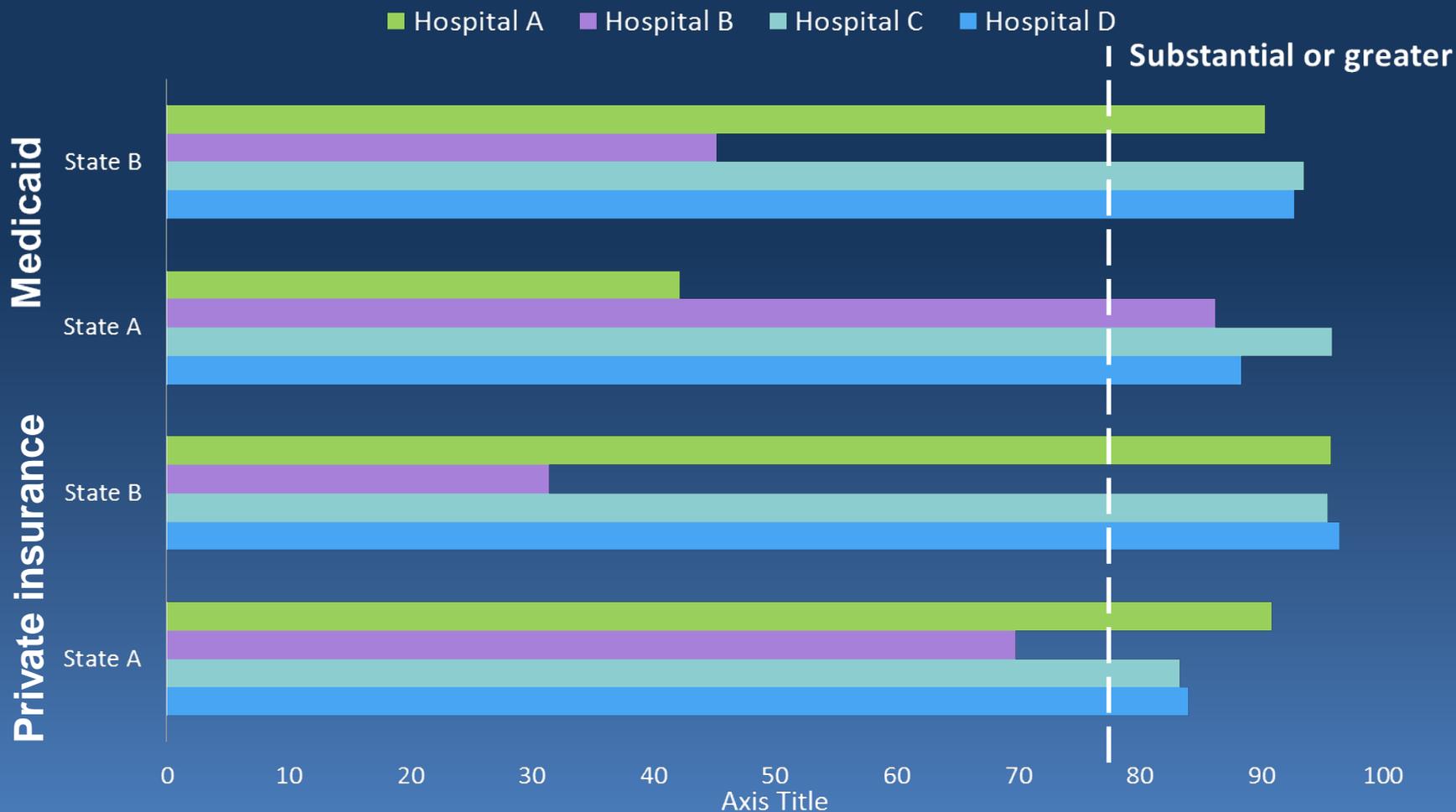
Moderate to substantial sensitivity for all categories:

State A –	Private insurance	82.3%
	Medicaid	79.0%
	Other	87.9%
	Self-pay	---
State B –	Private insurance	85.8%
	Medicaid	72.6%
	Other	---
	Self-pay	75.6%
NYC study -	Private insurance	74.8%
	Medicaid	96.2%
	Other	---
	Self-pay	---

--- Results not available because fewer than 20 cases

Quality of the data based on studies in two states

Sensitivity by hospital for source of payment data



Source: Martin JA, Wilson EC, Osterman MJK, et al. Assessing the quality of medical and health data from the 2003 birth certificate revision: Results from two states. National vital statistics reports; vol 62 no 2. Hyattsville, MD: 2013.

Source of payment: potential issues with data quality

- Some insurance programs have multiple funding sources
 - e.g. MinnesotaCare funded by:
 - Tax on hospitals and healthcare providers (48%)
 - Federal Medicaid matching funds (44%)
 - Enrollee premiums (8%)
- Hard to tell from face of insurance card if private or Medicaid
 - “Other – Specify” allows an “out”
- Working with states on specific issues and to develop general guidance to help address these issues

Births resulting from Assisted Reproductive Technology

- Pregnancy resulted from infertility treatment-If yes, check all that apply:
 - Fertility-enhancing drugs, Artificial insemination or Intrauterine insemination
 - Assisted reproductive technology (e.g., in vitro fertilization (IVF), gamete intrafallopian transfer (GIFT))

**New item on birth certificate on the 2003 revision -
Recommended to come from the medical records**

Rationale for inclusion

Public health importance

- Birth and other pregnancy outcomes
- Contribution to growing multiple birth rate
- Difficult to capture in other data sources ($\leq 5\%$ births for any infertility treatment)

National data limited

- National ART Surveillance System (NASS) monitors ART treatment (limited maternal/infant health data)
- No national system for monitoring births from infertility treatment, in general, and specifically non-ART treatments (e.g., fertility enhancing drugs)

Births Resulting from ART: Comparing birth certificate and NASS data 67 percent of all U.S. births in 2011*

National Vital Statistics Reports

Volume 63, Number 8



December 10, 2014

Births Resulting From Assisted Reproductive Technology: Comparing Birth Certificate and National ART Surveillance System Data, 2011

by Marie E. Thoma, Ph.D., M.H.S.; Sheree Boulet, Dr.P.H.; Joyce A. Martin, M.P.H.;
and Dmitry Kissin, M.D., M.P.H.

Abstract

Objectives—This report compares data on births resulting from assisted reproductive technology (ART) procedures from 2011 birth certificates with data from the 2011 National ART Surveillance System (NASS) among the subset of jurisdictions that adopted the 2003 revised birth certificate as of January 1, 2011, with information on ART.

Methods—Birth certificate data are based on 100% of births registered in 27 states and the District of Columbia. NASS data included all ART cycles initiated in 2010 or 2011 for which a live birth in 2011 was reported. The same reporting area was used for both data sources and represents 67% of all births in the United States in 2011. A ratio was computed by dividing the percentage of births resulting from ART procedures for NASS data by the percentage for birth certificate data. A ratio of 1.0 represents equivalent levels of reporting. Because this reporting area is not a random sample of births, the results are not generalizable to the United States as a whole.

Results—Overall, the percentage of births resulting from ART procedures was 2.06 times higher for NASS data (1.44%) compared with birth certificate data (0.70%). The ratio for each jurisdiction varied from 1.04 for Utah and Wisconsin to 7.50 for Florida. Higher-risk groups had more consistent reporting between data sources [e.g., triplet or higher-order multiples (1.36) compared with singletons (2.11)].

Conclusion—Births resulting from ART procedures appear to be underreported on the birth certificate; however, the magnitude of underreporting varied by jurisdiction and maternal-infant health characteristics.

Keywords: infertility treatment • data quality • vital statistics

Introduction

Assisted reproductive technology (ART) procedures, in which eggs and sperm are handled in a laboratory to produce a pregnancy,

are increasingly being used as a method to overcome infertility. In the United States, the number of ART procedures and ART-conceived births has risen steadily since the early 1980s (1). The rate of multiple births has paralleled this trend, with increases from 19.3 per 1,000 live births in 1980 to a peak of 34.9 in 2009 (2). This rise is largely attributed to the use of ovulation induction, ovarian stimulation, and multiple embryo transfer in ART procedures (3–5). The public health implications of these trends are considerable, because multiple births are related to increases in pregnancy complications and adverse birth outcomes compared with singletons (3). Other studies have suggested that ART may also be associated with potential health risks in singleton infants, such as low birthweight and preterm birth (6–8). These trends and consequences underscore the importance of reliable data to better understand maternal and infant health outcomes from ART procedures.

Much of the current knowledge of ART availability and use is based on the National ART Surveillance System (NASS), which is maintained by the Division of Reproductive Health (DRH) at the Centers for Disease Control and Prevention (CDC). NASS represents the most complete reporting of ART in the United States, with more than 95% of ART cycles captured (9). Detailed information is collected on patient obstetrical and medical history, infertility diagnosis, and ART procedures. However, because ART facilities provide most of the data, pregnancy information beyond the first trimester is minimal, and information on birth outcomes are self-reported by the ART patients or their obstetric providers following delivery. Thus, essential data on maternal and infant outcomes throughout pregnancy and after delivery are limited.

Recognizing the need for more comprehensive information on pregnancy and birth outcomes related to infertility treatments, the 2003 U.S. Standard Certificate of Live Birth (revised) introduced items on infertility treatment and type of treatment, including ART and non-ART procedures. The U.S. birth certificate is an essential data source for maternal and infant health information, providing annual data on all

* Note: 83% of the revised reporting area reports on infertility treatment overall. Fewer reporting areas report on type of infertility treatment



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Births resulting from ART

Objective:

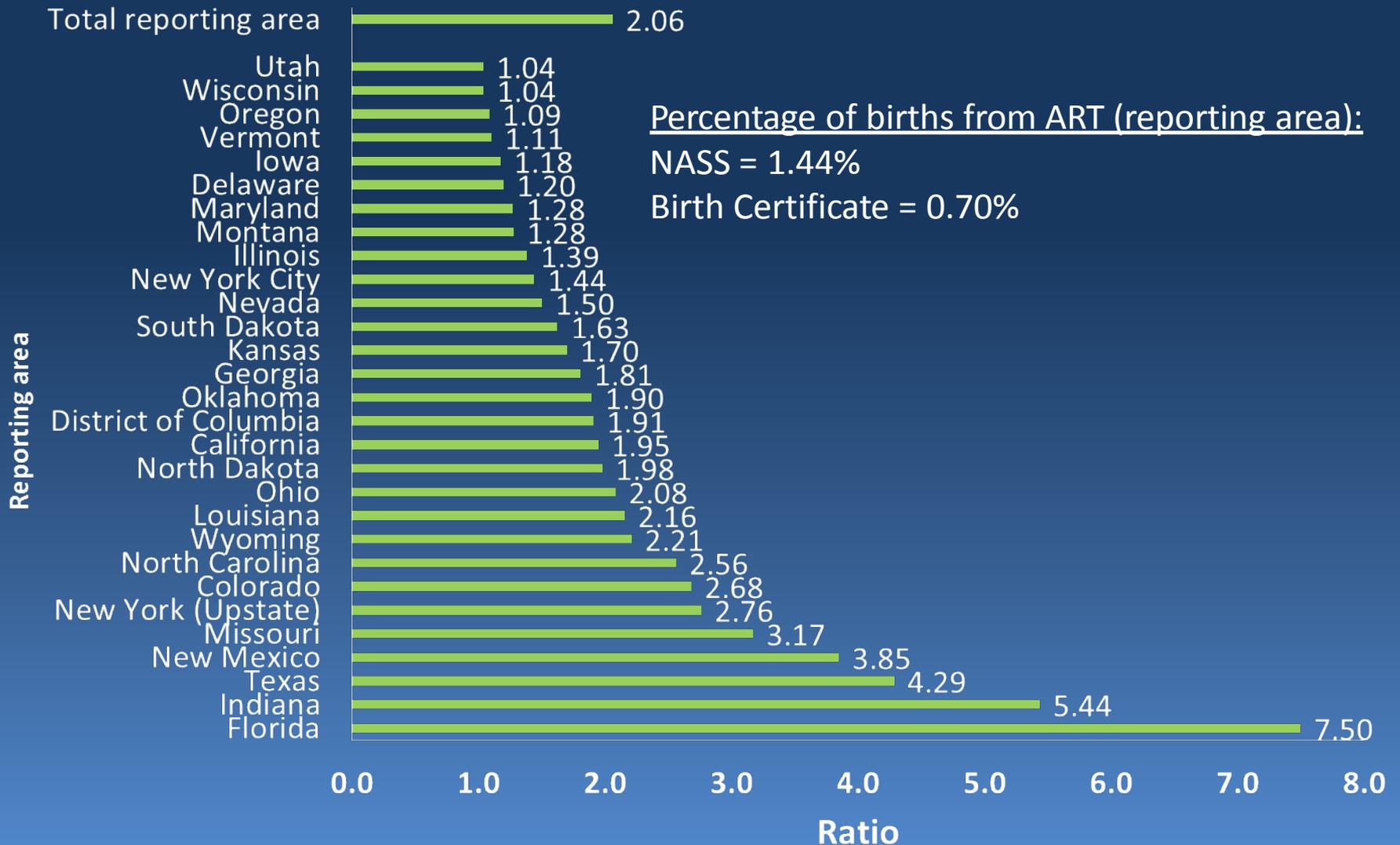
- To compare data on births resulting from assisted reproductive technology (ART) procedures from birth certificates with data from the National ART Surveillance System (NASS) also a CDC data program

Methods:

- 2011 birth certificate and NASS data
- Comparability Ratio computed =
$$\frac{\% \text{ births from ART (NASS)}}{\% \text{ births from ART (birth data)}}$$
- Comparability Ratio = 1 represents equivalent levels of reporting

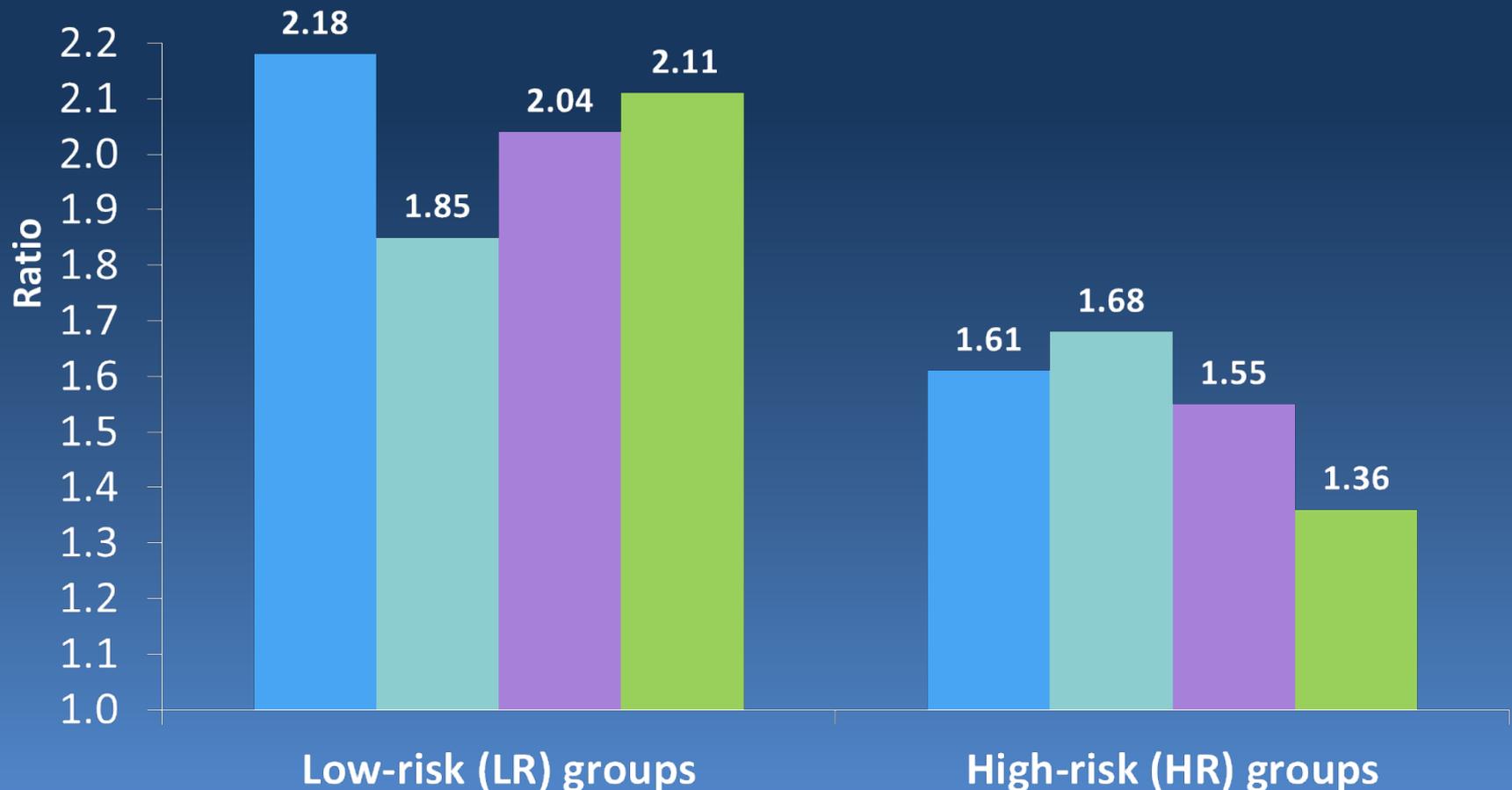
Note: Data are not linked. Comparison of counts within each data source.

Ratio of births resulting from ART in NASS compared with birth certificate data by reporting area



Ratio of births resulting from ART in NASS compared with birth certificate data by selected maternal and infant characteristics

- Maternal age, years (LR: < 35, HR: 45+)
- Gestational age, weeks (LR: 39+, HR: < 32)
- Birthweight, grams (LR: 2500+, HR: <1500)
- Plurality (LR: singleton, HR: triplet or more)



Date of Last Live Birth Item on the 2003 revision

35. NUMBER OF PREVIOUS LIVE BIRTHS (Do not include this child)	
35a. Now Living Number _____ <input type="checkbox"/> None	35b. Now Dead Number _____ <input type="checkbox"/> None
35c. DATE OF LAST LIVE BIRTH _____/_____ MM YYYY	



Newly available information on 2003 revision

Date of Last Live Birth item

- Previously on 1989 birth certificate
- Dropped from national file in 1995 due to budget constraints
- Validation studies in 2 states and NYC
 - At least 85% or higher exact agreement between birth certificate and medical records
- **Interval since last live birth** = Number of months between the date of last live birth and the birth date of the current birth (Recode on national file)

Interpregnancy Intervals in the U.S.

83 percent of all U.S. births in 2011

National Vital Statistics Reports



Volume 64, Number 3

April 16, 2015

Interpregnancy Intervals in the United States: Data From the Birth Certificate and the National Survey of Family Growth

by Casey E. Copen, Ph.D.; Marie E. Thoma, Ph.D.; and Sharon Kirmeyer, Ph.D., Division of Vital Statistics

Abstract

Objective—To describe data on interpregnancy intervals (IPI), defined as the timing between a live birth and conception of a subsequent live birth, from a subset of jurisdictions that adopted the 2003 revised birth certificate. Because this information is available among revised jurisdictions only, the national representativeness of IPI and related patterns to the entire United States were assessed using the 2006–2010 National Survey of Family Growth (NSFG).

Methods—Birth certificate data are based on 100% of births registered in 36 states and the District of Columbia that adopted the 2003 revised birth certificate in 2011 (83% of 2011 U.S. births). The “Date of last live birth” item on the birth certificate was used to calculate months between the birth occurring in 2011 and the previous birth. These data were compared with pregnancy data from a nationally representative sample of women from the 2006–2010 NSFG.

Results—Jurisdiction-specific median IPI ranged from 25 months (Idaho, Montana, North Dakota, South Dakota, Utah, and Wisconsin) to 32 months (California) using birth certificate data. Overall, the distribution of IPI from the birth certificate was similar to NSFG for IPI less than 18 months (30% and 29%), 18 to 59 months (50% and 52%), and 60 months or more (21% and 18%). Consistent patterns in IPI distribution by data source were seen by age at delivery, marital status, education, number of previous live births, and Hispanic origin and race, with the exception of differences in IPI of 60 months or more among non-Hispanic black women and women with a bachelor’s degree or higher.

Keywords: birth spacing • pregnancy interval • vital statistics

Introduction

The timing between a live birth and the next pregnancy, termed the interpregnancy interval (IPI), may affect the risk of pregnancy complications, such as preterm birth, low birthweight, and small gestational age (birthweight that is small for a given gestational age) (1–5). While there is no consensus on optimal IPI, research has shown that short intervals (less than 18 months) and long intervals (60 months or more) were associated with higher risks of adverse health outcomes (1–2). Factors such as maternal age and socioeconomic status may affect IPI patterns (6–8). Health care providers have emphasized the importance of providing information about and access to family planning services during the postpartum period to reduce adverse outcomes associated with short IPI (9). Moreover, evidence suggests a relationship between long IPI and perinatal complications, but these mechanisms are less well understood (1).

Information pertaining to IPI on the birth certificate is useful for tracking trends between successive births or pregnancies, particularly for detailed subpopulations and by geography. In addition, the birth certificate provides information on maternal and infant health outcomes that may be related to IPI. Prior to 1995, the “Date of last live birth” item was available on the birth certificate and was used for assessing IPI in the United States. However, collection of information on the date of last live birth was discontinued after 1995 because of budget constraints (10). Information on the date of last live birth is now available among a subset of jurisdictions adopting the 2003 revision of the U.S. Standard Certificate of Live Birth (referred to in this report as the revised reporting area). The quality of this information on the revised birth certificate was recently assessed in two states and found to have at least 85% or higher exact agreement between birth and



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Interpregnancy Intervals in the U.S.

Objective:

- Describe data on interpregnancy intervals (IPI) using birth certificate data, and
- Assess representativeness of the reporting area with nationally-representative data from the National Survey of Family Growth (NSFG).

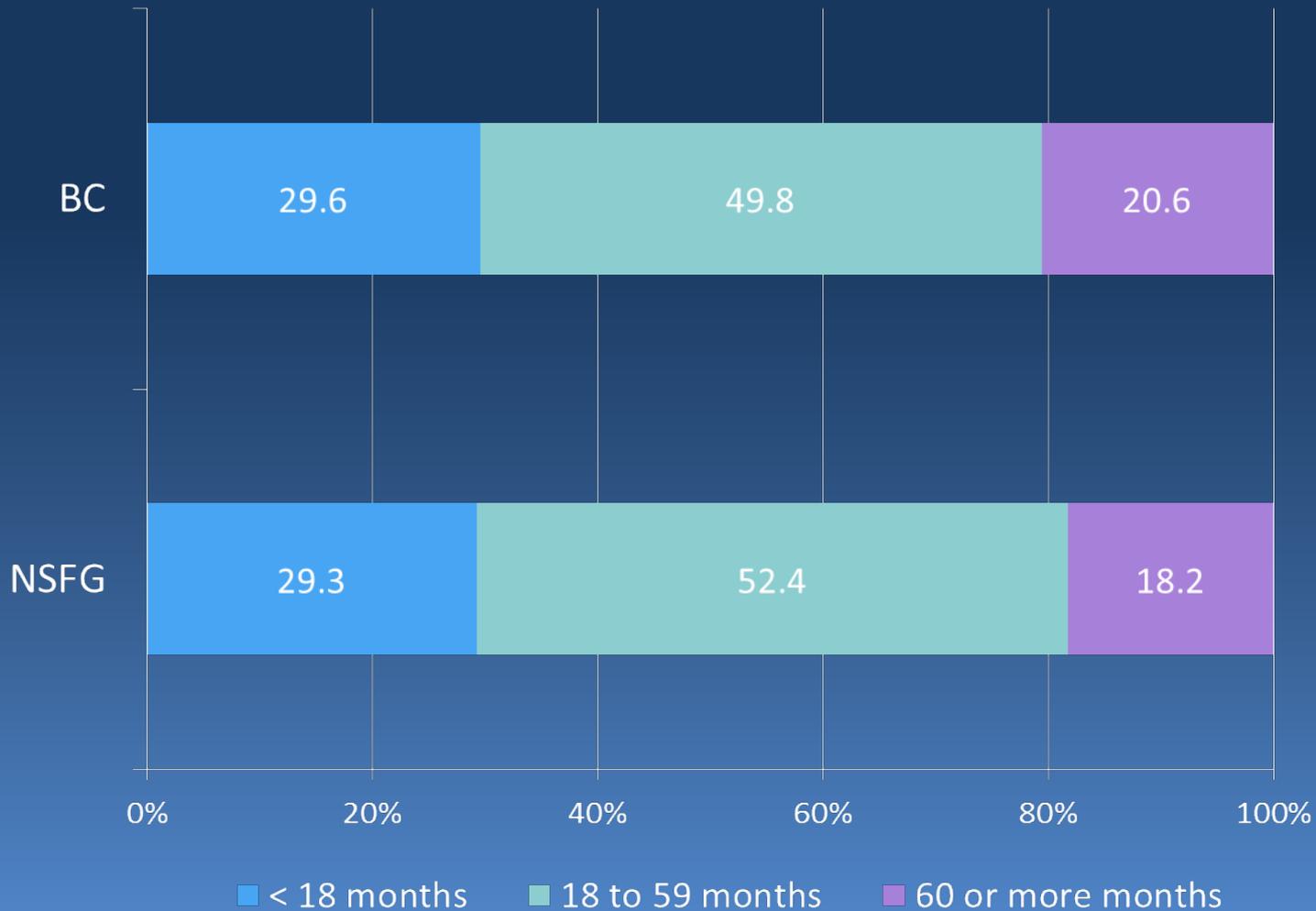
Methods:

- 2011 birth certificate and 2006-2010 NSFG data
- Included singletons, 2 or more live births, maternal ages 15-44
- IPI = Interval of last live birth (mo.) – gestational age (mo.)
= # of months from a live birth to conception of next live birth
- Short IPI = IPI < 18 months

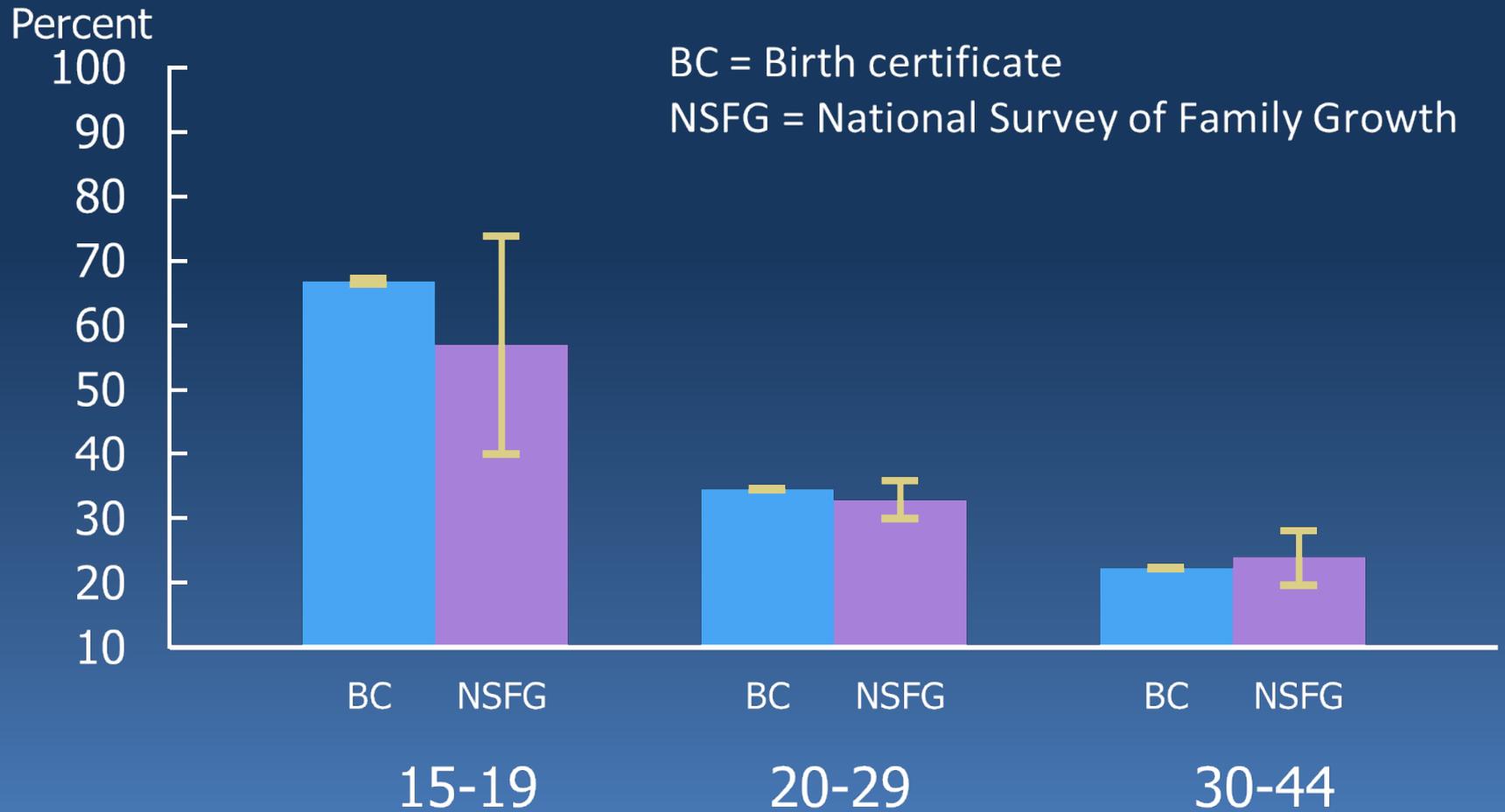
Percent distribution of interpregnancy intervals for women aged 15-44 with 2 or more births: 2011 birth certificate and 2006-2010 NSFG

BC = Birth certificate

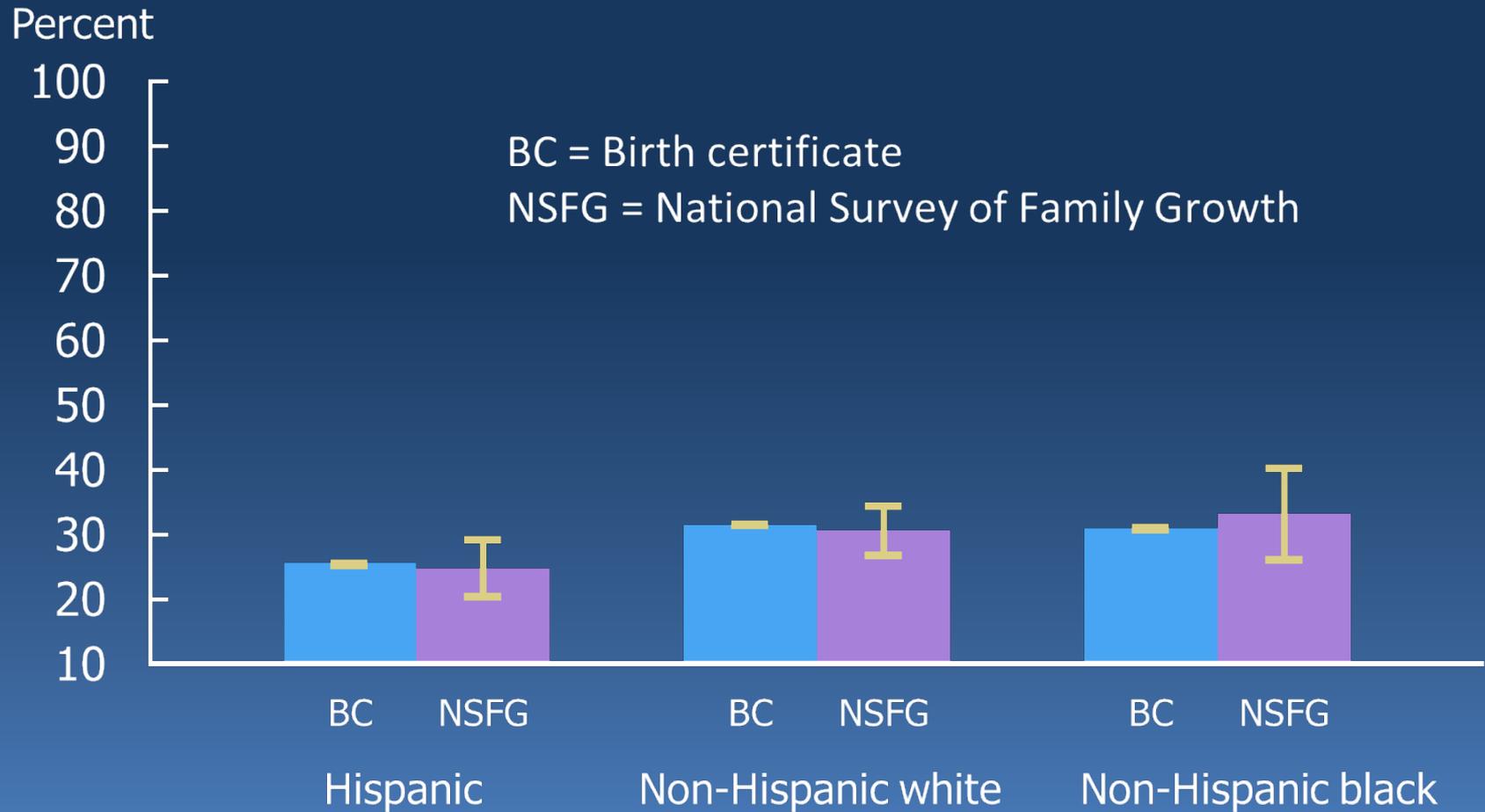
NSFG = National Survey of Family Growth



Short interpregnancy intervals by data source across maternal age at most recent birth



Short interpregnancy intervals by data source across Hispanic origin and race



Summary

Source of payment

- Good quality has been shown in an aggregate comparison and in validity studies
- However, quality issues may vary by hospital and classification of “hybrid” programs may not be obvious

Assisted Reproductive Technology

- Substantial underreporting of ART on the birth certificate
 - 2 times higher in NASS compared with the birth certificate
 - However, the magnitude varied by jurisdiction and maternal-infant health characteristics
- Unlike NASS, the birth certificate provides essential data on pregnancy risk factors and maternal and infant outcomes

Summary

Interpregnancy Intervals

- IPI using birth certificate data was comparable to nationally-representative NSFG data
 - “Date of last live birth” item had high agreement with medical records
- Birth certificate data is useful for tracking trends in IPI and examine IPI by detailed subpopulations and geography

Poster Session

Poster session #3: **Wed, 8-12:30pm.** Short and extremely short interpregnancy intervals: Differences by maternal demographic characteristics

Extremely Short and Short Interpregnancy Intervals: Differences by Maternal Demographic Characteristics Using 2013 Birth Certificate Data

Marie E. Thoma, Ph.D., M.H.S., and Sharon E. Kirmeyer, Ph.D.

National Center for Health Statistics, Division of Reproductive Health, Reproductive Statistics Branch

Introduction

- Short interpregnancy intervals (IPI), IPI less than 18 months, are associated with an increased risk of adverse birth outcomes such as preterm birth.
- At the highest risk for these consequences are women with extremely short IPI, or IPI less than 6 months.

Objective

To examine differences in extremely short IPI (ES-IPI) and short IPI (S-IPI) by selected maternal demographic characteristics using 2013 birth data.

Methods

- Study population: 100% of births registered in 41 states and the District of Columbia that adopted the 2003 revised birth certificate as of January 1, 2013 (90% of 2013 U.S. births).
- IPI definition: Live birth intervals (months) generated from the "Date of last live birth" item and the date of birth. IPI was calculated by subtracting gestational age (months) of the birth in 2013 from the live birth interval.
- Analyses: IPI was compared by race and Hispanic origin, nativity, age at previous birth, parity, and education using z-tests. Education analyses were restricted to maternal age at recent birth of 25 years or over (i.e., minimum years of schooling needed to achieve a doctorate or other professional degree).

Figure 1. Percent distribution of IPI among 2013 births: Total of 41 reporting states and District of Columbia

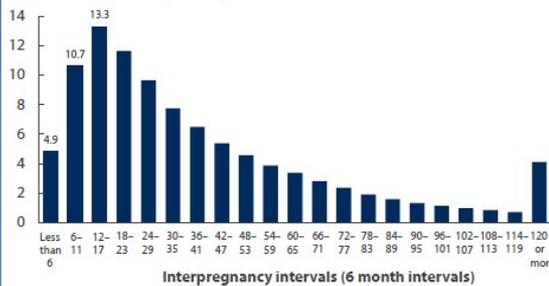


Figure 3. Percent of extremely short IPI and short IPI, by maternal age at the previous birth: 2013

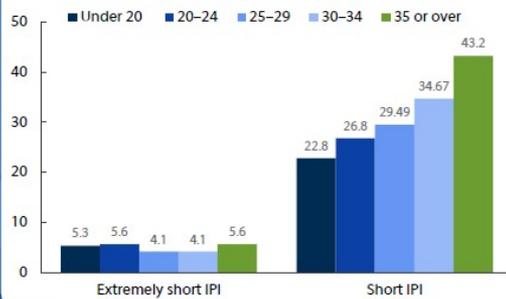


Figure 2. Percent of extremely short IPI and short IPI, by race and Hispanic origin and nativity: 2013

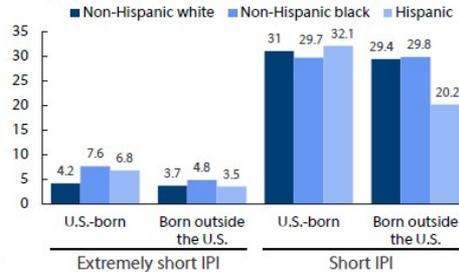


Figure 4. Percent of extremely short IPI and short IPI by maternal education: 2013

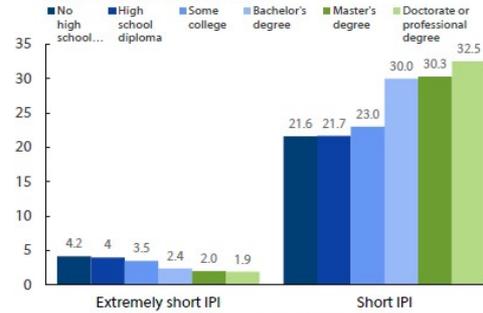


Figure 5. Percent of extremely short IPI and short IPI, by parity: 2013



Conclusions

- ES-IPI (5%) and S-IPI (29%) differed by maternal demographic patterns.
- ES-IPI were highest among U.S.-born non-Hispanic black and Hispanic women, younger (under 25) and older (35 and over) women, higher parity, and women with less education (high school or less).
- S-IPI were highest among U.S.-born non-Hispanic white and Hispanic women, older maternal age (35 or over), higher parity, and higher education (Bachelor's degree or higher).
- Differences between ES-IPI and S-IPI suggest that women with ES-IPI are a distinct group and may need to be examined separately.
- The birth certificate provides a sufficiently large data source to examine these less frequently occurring IPI lengths in greater detail.



Conclusions

- Data quality vary widely by item, under-reporting may still be an issue
- Efforts are underway to further improve data quality
- Birth certificate items are useful for tracking trends and examining differentials in maternal and infant health and healthcare access

BIRTH DATA QUALITY WORKGROUP (BDQWG)



Birth Data Quality Workgroup

Charge

- Assess and improve the quality of vital statistics birth and fetal death data

Originated in 2012

- Collaboration among NAPHSIS, NCHS, and outside experts

NAPHSIS

Protecting Personal Identity
Promoting Public Health

NCHS

National Center for Health Statistics

Workgroup (2014-2015)

Subgroups

- Hospital reports/engaging hospitals
- E-learning for hospital staff
- Identify items to drop from the national birth file
- Identify items to drop from the national fetal death file

Hospital Reports/Engaging Hospitals

- **Charge**
 - Recommend a process for vital records to provide hospitals to improve data quality
 - Develop approaches to engage hospitals to improve systems/procedures for data collection
- **Survey on jurisdictional efforts to improve data quality (NAPHSIS)**
 - Report produced about data quality practices (2014)
- **Template of a letter to engage hospitals to work with vital records offices on data quality improvement efforts**

Efforts to Improve Birth Data Quality: Results from a Survey of Data Quality Practices among US Vital Records Jurisdictions

A report from
The Birth Data Quality Workgroup



Greetings:

The [State Office of Vital Records] invites [institution name] to join a statewide initiative to improve the quality of birth certificate information. We are committed to assessing and improving the quality of Vital Statistics birth data by improving data at its source – the hospital.

“THE FOCUS OF HEALTHCARE FOR WOMEN AND INFANTS OVER THE NEXT CENTURY DEPENDS ON THE QUALITY OF DATA COLLECTED BY THOSE WHO FILL OUT BIRTH CERTIFICATES.”

-Bill Callaghan, MD MPH, Chief, Maternal and Infant Health Branch,
Division of Reproductive Health, Centers for Disease Control and Prevention.

As the primary source for both national and local birth data, the U.S. Certificate of Birth is the principal resource for gauging and improving our Nation's maternal and infant health. Accurate birth data is critical to this effort. Many of our Nation's current health concerns are informed by birth certificate data.

- Preterm birth rates
- Low birth weight rates
- Health equity
- Infant mortality
- Maternal morbidity
- Caesarean rates, particularly <39 weeks
- Uninsured/Medicaid status
- Assisted reproductive technology outcomes
- Maternal risk factors, e.g. smoking, diabetes
- Labor and delivery outcomes

We recognize the integral role that your birthing hospital plays in collecting and reporting birth registration data. We also appreciate your commitment to provide the highest quality care to your patients. We believe that participation in this initiative will meaningfully improve your services by increasing the quality of the indicators used to monitor and improve maternal and child health.

E-LEARNING FOR HOSPITAL STAFF

Achieving Best Practices
for Reporting Birth
Certificate Medical and
Health Information

START COURSE



Background: Interviews with birth information specialists

- In 2009-2010, NCHS collaborated with 4 revised states to conduct interviews with birth information specialists (i.e., non-clinical hospital staff responsible for reporting birth certificate data)
 - NCHS cognitive research lab conducted cognitive interviews
 - 54 BIS representing 54 hospitals interviewed

Background: Interview Findings

- Separate worksheets were typically used by hospitals per recommendation
- BIS used medical records to complete most of the medical and health data items
- Clinicians, usually the labor and delivery nurse, were responsible for reporting medical/health information in about ½ of hospitals
- Issues with specific items (e.g., Prenatal care, Infertility treatment)
- BIS rarely formally trained in data collection
- Guidebook developed for the BIS was not used (most had not heard of it)

Summary:

wwwn.cdc.gov/QBANK/report/Willson_NCHS_2008_Birth%20Certificate%201.pdf

Background: Survey with jurisdiction

Issues related to data collection

- Staff turnover
- Limited training
- Hospital staff unfamiliar with worksheet
- Limited resources
- Raising awareness of birth data quality

STANDARDIZED TRAINING IS NEEDED!

“The focus of healthcare for women and infants over the next century depends on the quality of data collected by those who fill out birth certificates.”

**Dr. Bill Callaghan, Division of Reproductive Health,
Centers for Disease Control and Prevention**

Overarching goals

1. Improve timeliness and accuracy of birth and fetal death reporting in the U.S.
2. Develop a format that is convenient, accessible, and has a broad reach

Everyone involved

Subgroup members (Subject matter experts)

- State representatives
- CDC/NCHS members

Design team – CDC's Division of Scientific Education and Professional Development (DSEPD)

- Instructional designers
- Multimedia specialists
- Technical writers

Accreditation team - DESPD

- Continuing education credits (physicians, nurses, and other health professionals)
- Certificates of completion

What will be featured in the training?

- Medical and health information for the certificate of live birth
 - Information/overlap with items in the fetal death report
- Two modules:
 - The Birth Certificate – The Foundation for Maternal and Infant Health Data in the United States
 - Resources and Tools for Completing Birth Certificate Medical and Health Information
- Scenarios, interactive activities, knowledge checks, post-test

Learning Audience

- Clinical (Obstetricians, Midwives, Nurses)
- Non-clinical (birth information specialists)

Achieving Best Practices for Reporting Birth Certificate Medical and Health Information

About the Course

Target Audience

This course is designed for staff at hospital or free standing birthing centers and midwives attending home births, who are responsible for providing the medical and health information for the certificate of live birth or the report of fetal death.

Module 1 Objectives

1. Determine when a birth certificate or report of fetal death should be completed
2. List the benefits of accurate medical and health information for the birth certificate and report of fetal death
3. Describe how medical and health information for the birth certificate and report of fetal death is collected and protected



Module 1 Introduction

Introduction to Birth Certificate Information

You might be surprised at the many different ways the medical and health information on the birth certificate information or report of fetal death are used. Some examples include:

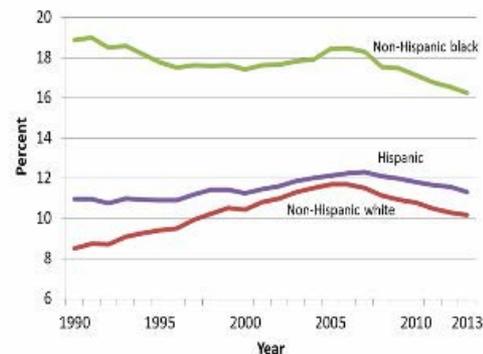
- Tracking trends in cesarean deliveries across the US [Select to Learn More](#)
- Examining patterns in preterm birth rates across groups [Select to Learn More](#)
- Evaluating differences in multiple births by the mother's age [Select to Learn More](#)
- Or, understanding changes over time in fetal and infant mortality [Select to Learn More](#)

Your role in providing this information is crucial to accurately tracking and explaining these important relationships.

In the first module, you will see the and infant health information in the



Preterm Birth Rates, by Race and Hispanic Origin of Mother: United States, 1990-2013



This graph shows the differences in preterm birth rates by race and Hispanic origin over time in the U.S. There have been declines in preterm birth for each group in recent years.

Hospital Staff



Dr. Evans
Ob-Gyn Physician



Sharon
Snr Birth Information
Specialist



Mary
Birth Information
Specialist



Anya
Labor & Delivery
Nurse

Dr. Evans, Sharon, Mary, and Anya work for Suburban Hospital. Throughout this module, they will explain how the work they do supports and significantly impacts the collection and documenting of birth information both locally and nationally.



Select an image to find out more about your c

Benefits of Accurate Birth Data



Live birth and fetal death definitions

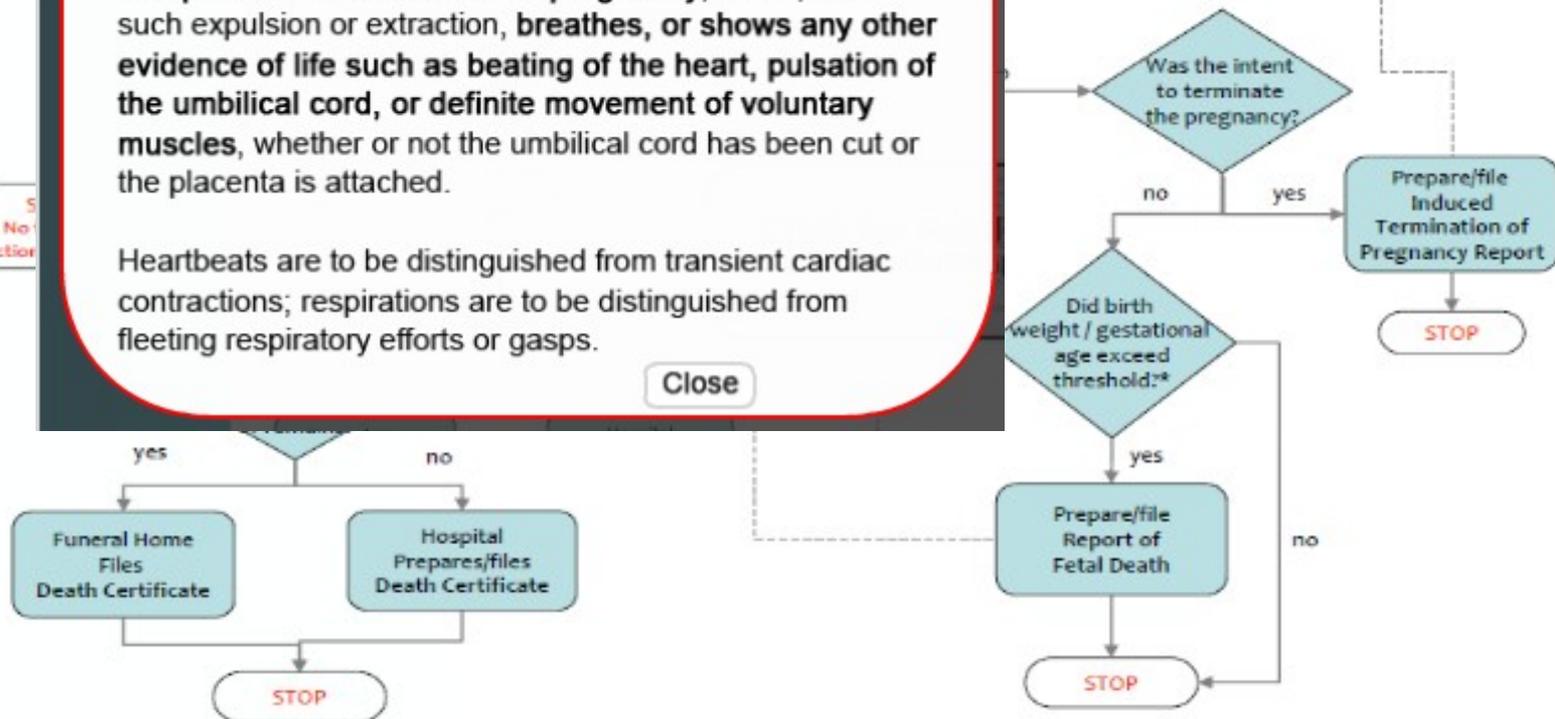
Hospital Guidelines for Reporting Live Births, Infant Deaths, Fetal Deaths and Induced Terminations of Pregnancy

"Live Birth" means 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 such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles**, whether or not the umbilical cord has been cut or the placenta is attached.

Heartbeats are to be distinguished from transient cardiac contractions; respirations are to be distinguished from fleeting respiratory efforts or gasps.

Close

Induced Termination of Pregnancy – The purposeful interruption of an intrauterine pregnancy with the intention other than to produce a liveborn infant, and which does not result in a live birth. This definition excludes management of prolonged retention of products of conception following fetal death.



* Refer to jurisdictional requirements. Thresholds vary by jurisdiction as to birth weight and/or gestational age at which a Report of Fetal Death is required.

Public Health Importance

The Public Health Importance of Accurate Birth Data

The Public Health Importance of Accurate Birth Data

The [CDC's National Center for Health Statistics](#) is mandated by law to collect and disseminate national vital statistics birth data. The NCHS produces birth data files and a variety of annual and special reports on key maternal and infant health information from the birth certificate at the state and national level. These reports are used to monitor trends on topics such as source of payment for delivery (see report title), fetal and perinatal death (see report title, link above), and cesarean delivery [see report title; state map image], and much more! Often these data alert researchers, clinicians, and policy makers to potential public health issues.

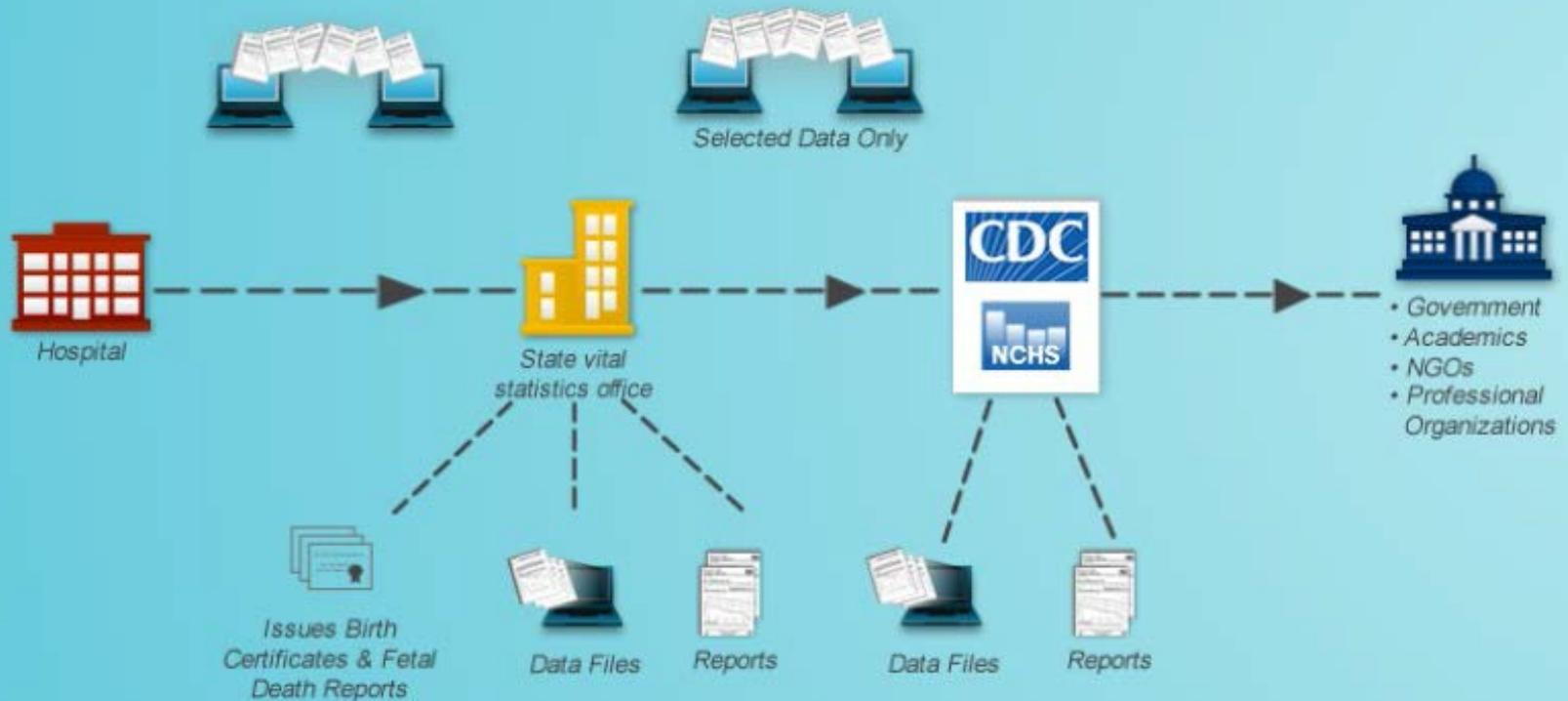
[Access National Vital Statistics Reports](#)



Close

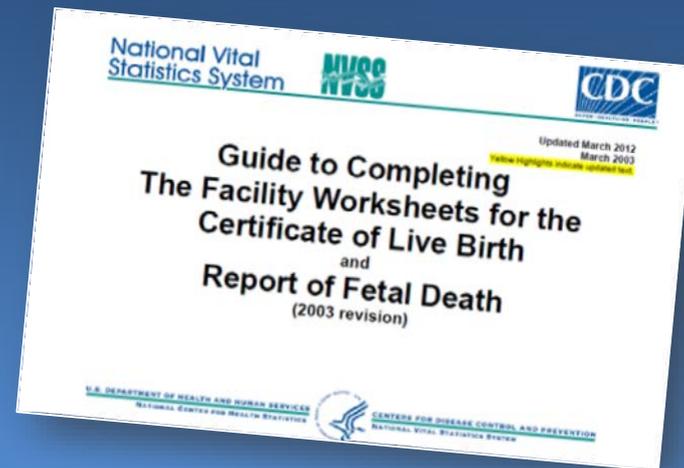
Data Flow Process

Birth Data Flow Process



Module 2 objectives

1. Describe standard resources available for completing medical and health information for the birth certificate
2. Identify approaches for improving the data quality of medical and health information for the birth certificate at your facility
3. Apply criteria from *The Guide to completing the facility worksheets for the certificate of live birth and report of fetal death* to ensure accurate collection of birth certificate information



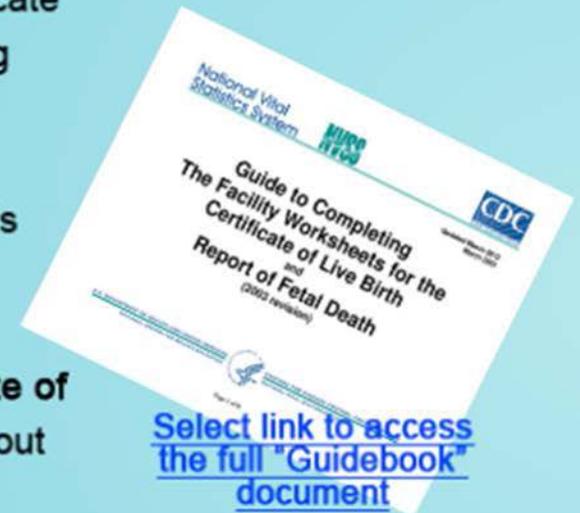
Module 2 Introduction

Assuring Quality Birth Information in the US

Standardized resources and best procedures for collecting birth certificate information were developed to assure complete and accurate reporting across the nation.

The second module will provide you with additional resources and tools for ensuring this information is reported completely and accurately.

The “**Guide to Completing the Facility Worksheets for the Certificate of Live Birth and Report of Fetal Death**” which will be featured throughout this course is an example of one of these important resources.



[Select link to access the full "Guidebook" document](#)

Content development

Reviewed available training from jurisdictions

Reviewed specific medical and health items

- Data collection issues
- Ways to improve through training
- Public health/clinical importance

Grouped content

- General issues: Information on dates
 - e.g., LMP, pregnancy history
- Item-specific issues

Content Development

Knowledge checks (Pregnancy Risk Factors):

1. Two different types of diabetes and hypertension are reported for the birth certificate. Prepregnancy diabetes and prepregnancy hypertension are conditions diagnosed before pregnancy, whereas gestational diabetes and gestational hypertension are conditions diagnosed during pregnancy. Several keywords listed in the Guide can help you to distinguish between the types. Match the keyword with the correct item.

Birth certificate item

Prepregnancy diabetes

Gestational diabetes

Prepregnancy (chronic) hypertension

Gestational hypertension

Keyword

Type 2 diabetes

GDM

CHT

Preeclampsia*

***Note:** Preeclampsia is not Eclampsia, which is another hypertension item on the birth certificate.

Content Development

Knowledge checks (Labor and Delivery):

1. You are completing information on a birth that was delivered vaginally. You see that Pitocin was administered at 8am. Checking the records further you see that the onset of labor time was 11 am and the baby was born at 11 pm that same day. Neither Induction nor Augmentation of labor are checked in the labor and delivery records. Check the item(s) that should be reported for this delivery.
 - a) Induction of labor
 - b) Augmentation of labor
 - c) Trial of labor
 - d) Both induction and augmentation

Answer: **A. Induction of labor.** Pitocin is a medication that is used for both induction and augmentation of labor before delivery and to control uterine bleeding after delivery. Thus, Pitocin alone is not enough information to determine which item to check in this case. You also need to determine when the mother's labor began. The Guide indicates that an induction is the initiation of uterine contractions by medical and/or surgical means for the purpose of delivery before the spontaneous onset of labor (i.e., before labor has begun). In this case, Pitocin was clearly administered before the onset of labor.

Content Development

Knowledge checks (Newborn):

1. You are completing information on the item, "**Antibiotics received by newborn for suspected newborn sepsis.**" You see that the newborn medication records indicate that the antibiotic Penicillin was given to the newborn. What should she look for next in order to know whether this item should be reported? [check all that apply]
 - a) No need to look further. Check "Antibiotics received by newborn for suspected newborn sepsis" since Penicillin is a keyword for this item.
 - b) Review the labor and delivery and newborn notes for mention of suspected sepsis
 - c) Ask a clinician with direct knowledge of the delivery/newborn to confirm that the medication was given for suspected sepsis.
 - d) Ask the mom whether she knows why her baby received antibiotics.

Answers: **B and C.** Antibiotics for suspected newborn sepsis might require further confirmation from the notes or from a clinician that the antibiotic was given specifically for suspected sepsis. Once you have determined that the infant received antibiotics you must also determine whether the drug was given suspected neonatal sepsis. Remember: **This item does not include antibiotics given to infants who are NOT suspected of having neonatal sepsis.**"

Next Steps



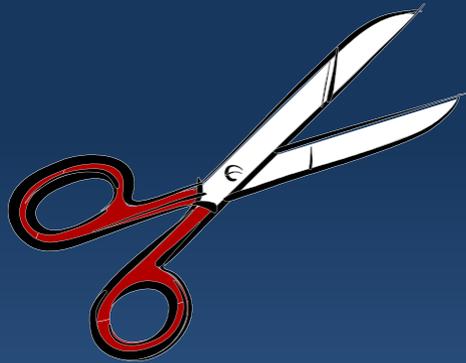
- Finalize Development Module 2
- Pilot test complete course
 - 5 BIS, 5 nurses, 5 physicians, 5 midwives
- Finalize Accreditation
- Projected release → Spring 2016
 - Dissemination
 - Evaluation of data quality

Collaborators

A special thanks to

- Current and past members of the subgroup
- Hospital staff who contributed to this project
- Professional organizations interested in helping to promote the project

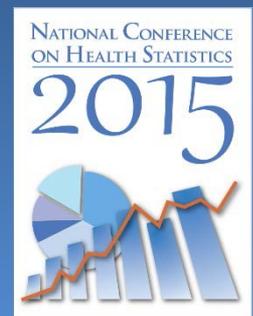
Birth Data Quality Workgroup Cut item subgroup



Joyce Martin, MPH

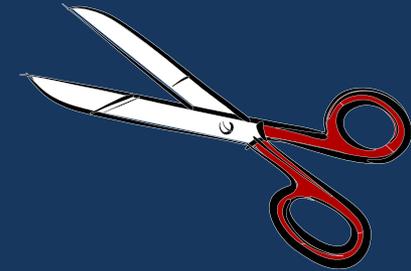
Reproductive Statistics Branch
Division of Vital Statistics

National Center for Health Statistics



Birth Data Quality Workgroup

Cut subgroup



Charge: Review 2003-based revision items for potential elimination from the national birth file for reasons of:

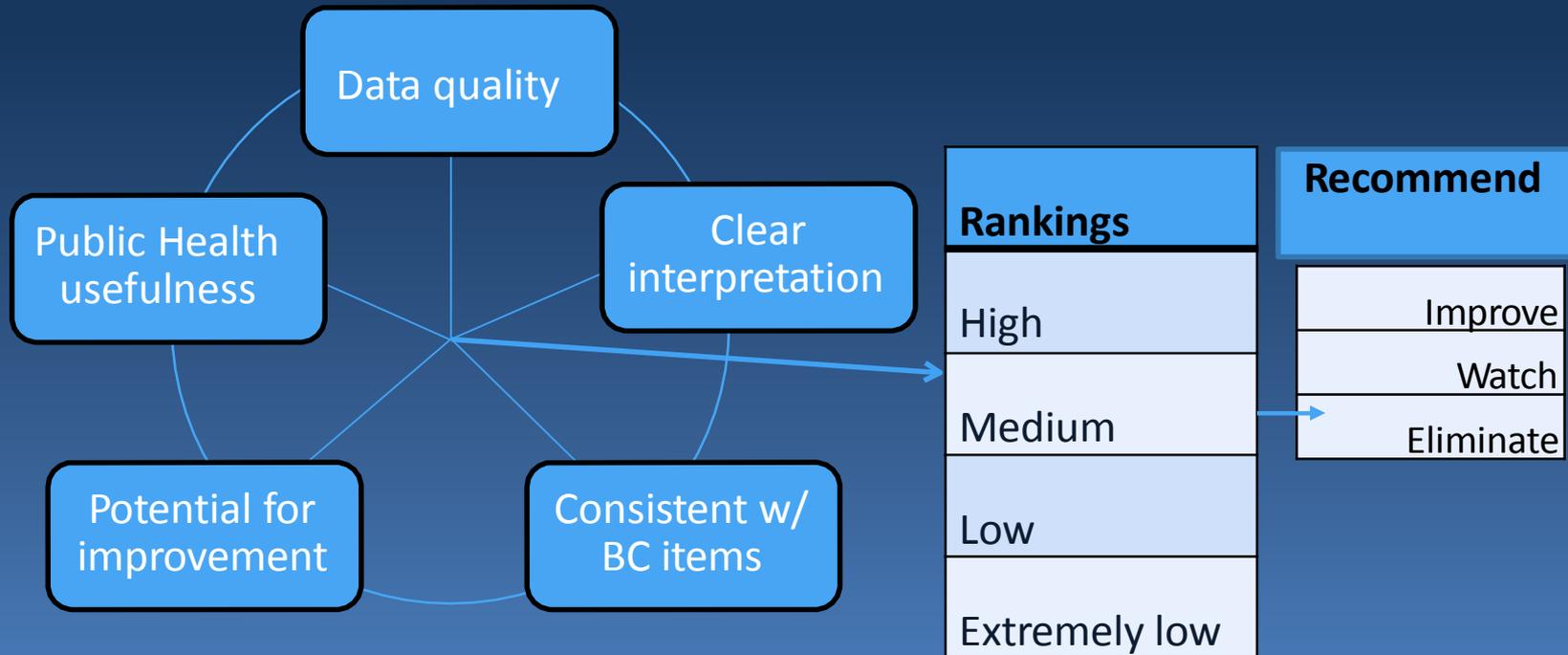
- Poor data quality and
- Lack of potential for improvement

Charge - NOT include modifying or adding items

- Experts on birth data from 7 states and NCHS
- Deliberated over 1½ years (1/2014-6/2015)

Decision making process

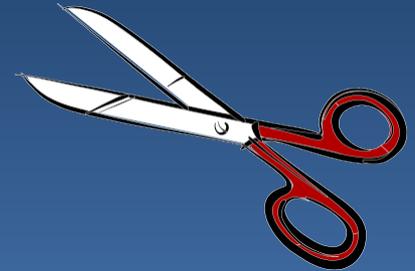
Criteria



Birth Data Quality Workgroup

Cut subgroup

- Carefully reviewed 25 medical/health items
- Recommended 12 items be cut
- Recommendations approved by NCHS and NAPHSIS* leadership (6/15)
- Change effective with the 2014 US birth file



*NAPHIS is the National Association for Public Health Statistics and Information Systems

Items cut from the national birth file

- Mother ever married (not the standard item)
- Date of last prenatal care visit
- Premature rupture of the membranes ≥ 12 hours
- Precipitous labor < 3 hours
- Prolonged labor $\Rightarrow 20$ hours
- Cervical cerclage
- Tocolysis
- Unplanned operating room procedures
- Significant birth injury
- Other previous poor pregnancy outcomes
- Moderate/heavy meconium staining
- Fetal intolerance of labor

Items dropped from national birth file

Items cut by earlier review*



- Non-vertex presentation
- Was delivery with forceps attempted but unsuccessful
- Was delivery with vacuum extraction attempted but unsuccessful

* Items dropped from national file several years ago

Items dropped from national birth file

Page 1

Page 2

MOTHER 29a. DATE OF FIRST PRENATAL CARE VISIT (If none, enter "0") MM D D YYYY		29c. DATE OF LAST PRENATAL CARE VISIT (If none, enter "0") MM D D YYYY		29. TOTAL NUMBER OF PRENATAL VISITS FOR THIS PREGNANCY (If none, enter "0")	
31. MOTHER'S HEIGHT (inches) _____		32. MOTHER'S PREPREGNANCY WEIGHT (pounds) _____		34. DID MOTHER GET WIC FOOD FOR HERSELF DURING THIS PREGNANCY? <input type="checkbox"/> Yes <input type="checkbox"/> No	
33. NUMBER OF PREVIOUS LIVE BIRTHS (Do not include this one) 33a. New Living _____ 33b. New Dead _____ 33c. Other Outcomes _____		36. NUMBER OF OTHER PREGNANCY OUTCOMES (Spontaneous or induced losses or elective pregnancies) 36a. Other Outcomes _____ 36b. _____ 36c. _____		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 _____ First Three Months of Pregnancy _____ Last Three Months of Pregnancy _____	
35. DATE OF LAST LIVE BIRTH (MM YYYY)		38. DATE OF LAST OTHER PREGNANCY OUTCOME (MM YYYY)		40. MOTHER'S MEDICAL RECORD NUMBER	
MEDICAL AND HEALTH INFORMATION 41. RISK FACTORS IN THIS PREGNANCY (Check all that apply) Diabetes <input type="checkbox"/> Gestational (Diagnose in this pregnancy) <input type="checkbox"/> Preexisting (Diagnose in this pregnancy) Hypertension <input type="checkbox"/> Preexisting (Chronic) <input type="checkbox"/> Occasional (PHT, preeclampsia, edema) Previous preterm birth Other previous poor pregnancy outcome (includes perinatal death, still or neonatal death, or low birth weight) Vaginal bleeding during this pregnancy prior to the onset of labor Pregnancy resulted from infertility treatment High fetal or previous cesarean delivery (Yes, how many) None of the above		42. ONSET OF LABOR (Check all that apply) 42a. PROMPT (Within the 12 hours) <input type="checkbox"/> Preterm Labor (< 36 hrs) <input type="checkbox"/> None of the above 42b. CHARACTERISTICS OF LABOR AND DELIVERY (Check all that apply) Induction of labor Augmentation of labor Nonverbal presentation Steroids (glucocorticoids) for fetal lung maturation received by the mother prior to delivery Antibiotics received by the mother during labor Clinical chorioamnionitis diagnosed during labor or maternal temperature ≥ 38.0 (100.4 F) 42c. MATERNAL MORBIDITY (Check all that apply) (Complications associated with labor and delivery) Fetal intolerance of labor such that one or more of the following actions was taken: <input type="checkbox"/> Cesarean section, <input type="checkbox"/> forceps, <input type="checkbox"/> vacuum extraction Episiotomy or other anal incision during labor None of the above		43. OBSTETRIC PROCEDURES (Check all that apply) <input type="checkbox"/> Cervical ripening <input type="checkbox"/> External cephalic version: <input type="checkbox"/> Successful <input type="checkbox"/> Failed <input type="checkbox"/> None of the above 44. ONSET OF LABOR (Check all that apply) 44a. PROMPT (Within the 12 hours) <input type="checkbox"/> Preterm Labor (< 36 hrs) <input type="checkbox"/> None of the above 44b. CHARACTERISTICS OF LABOR AND DELIVERY (Check all that apply) Induction of labor Augmentation of labor Nonverbal presentation Steroids (glucocorticoids) for fetal lung maturation received by the mother prior to delivery Antibiotic received by the mother during labor Clinical chorioamnionitis diagnosed during labor or maternal temperature ≥ 38.0 (100.4 F) Hypoxia (maternal) during labor None of the above	
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48. APGAR SCORE Score at 5 minutes _____ If 5 minute score is less than 6, _____ Score at 10 minutes _____		49. PLURALITY - Single, Twin, Triplet, etc. (Specify) _____		50. IF NOT SINGLE BIRTH - Born First, Second, Third, etc. (Specify) _____	
51. WAS INFANT TRANSFERRED WITHIN 24 HOURS OF DELIVERY? <input type="checkbox"/> Yes <input type="checkbox"/> No IF YES, NAME OF FACILITY INFANT TRANSFERRED TO: _____		52. IS INFANT LIVING AT TIME OF REPORT? <input type="checkbox"/> Yes <input type="checkbox"/> No IF YES, NAME OF FACILITY INFANT TRANSFERRED TO: _____		53. IS INFANT BEING BREAST-FED? <input type="checkbox"/> Yes <input type="checkbox"/> No	

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DRAFT 11/09/2001

NEWBORN

Mother's Name
Mother's Medical Record No.

Summary

- ✓ Total of 15 items 2003 revision based items dropped from the national birth file
 - ✓ Effective with 2014 file
- ✓ States may elect to continue to collect
- ✓ No plans for further cuts
- ✓ No current plans to change/add items (revision)
- ✓ Focus on continuing to assess and
- ✓ Improve quality of remaining items

