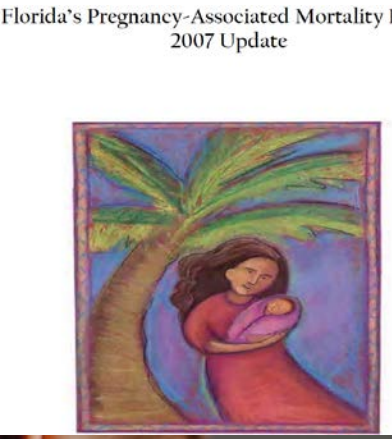
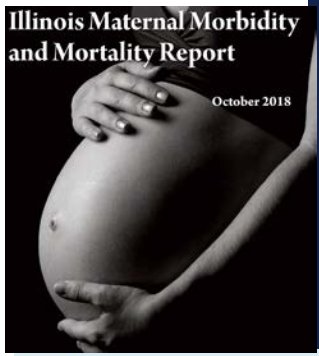
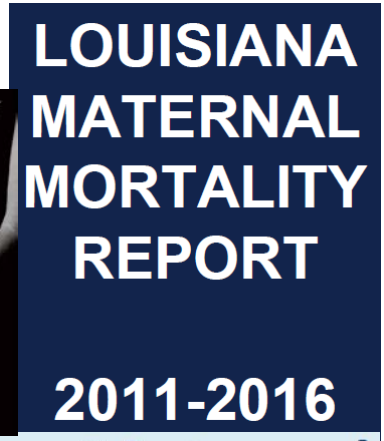
Maternal Mortality is the Canary in the Coal Mine for Women's Health

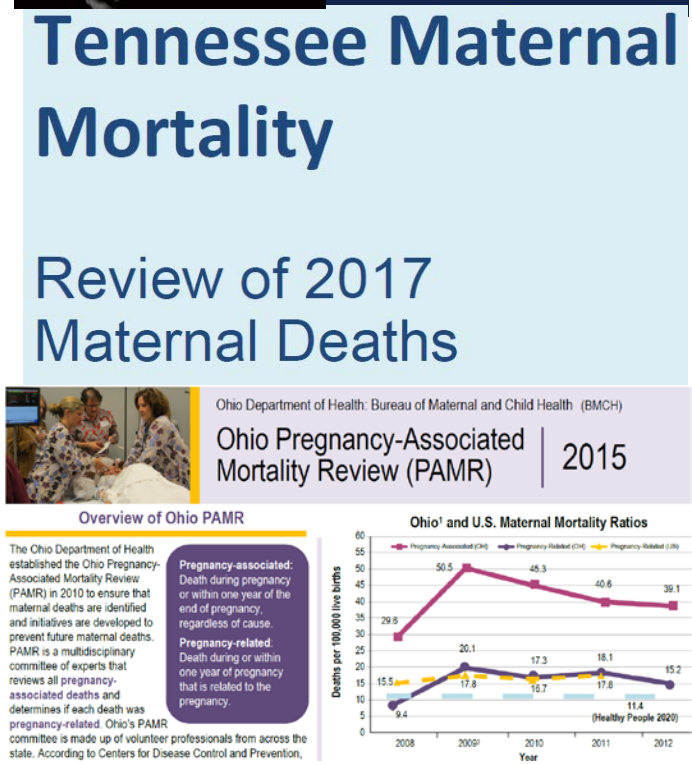


Gene Declercq, PhD
Community Health Sciences Dept.,
Boston University SPH
www.birthbythenumbers.org

Partners in Perinatal Health
30th Annual Meeting
Four Points by Sheraton, Norwood, MA
May 8, 2019







Three keys to understanding the current challenges in maternal mortality and morbidity……

but first a note on definitions

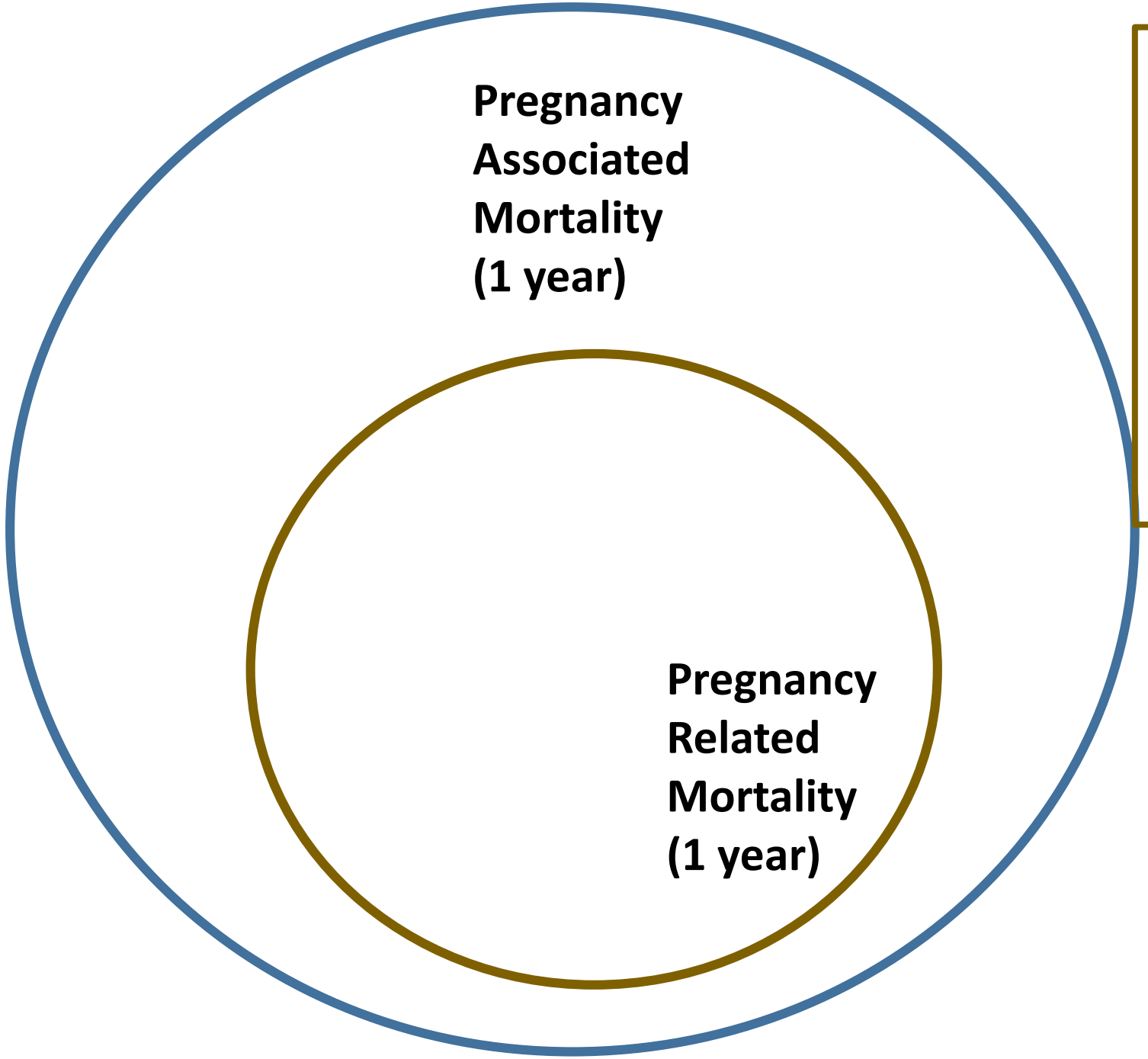
Three Definitions (in the U.S.)

- **Pregnancy Associated Death** – The death of a women while pregnant or ***within one year*** of termination of pregnancy, ***irrespective of cause. (WHO calls these "pregnancy related"). Starting point for analyses.***

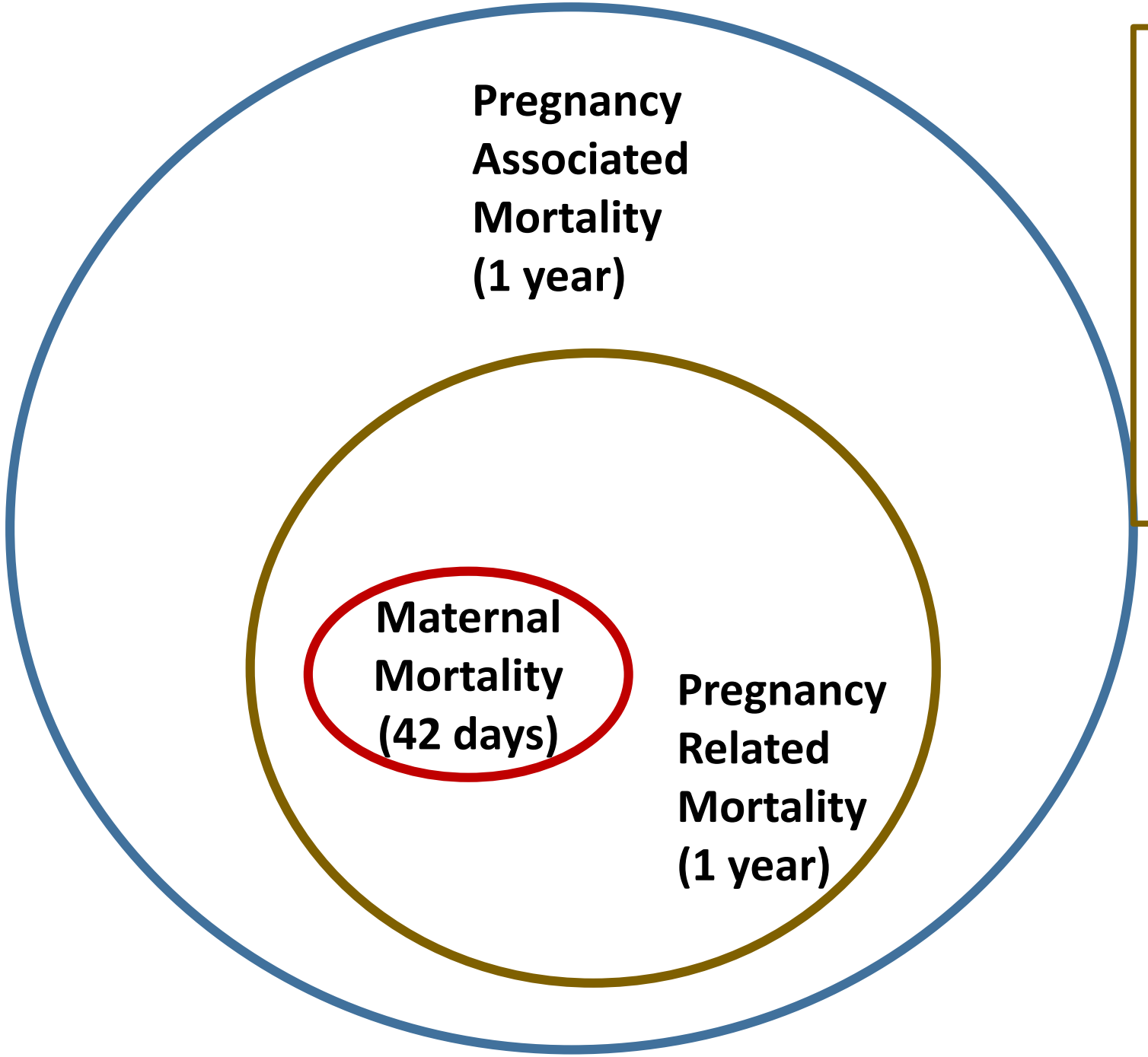
- **Maternal Mortality Ratio** – the death of a woman ***while pregnant or within 42 days of termination of pregnancy***, irrespective of the duration and site of the pregnancy, from any cause ***related to or aggravated by the pregnancy*** or its management but not from accidental or incidental causes. Typically reported as a ratio per 100,000 births. ***Used in international comparisons.***

- **Pregnancy Related Death** – the death of a woman during pregnancy or ***within one year*** of the end of pregnancy from a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy. ***Used by CDC for U.S. trends.***

All Deaths women of reprod. age pregnancy to 1 year ppm

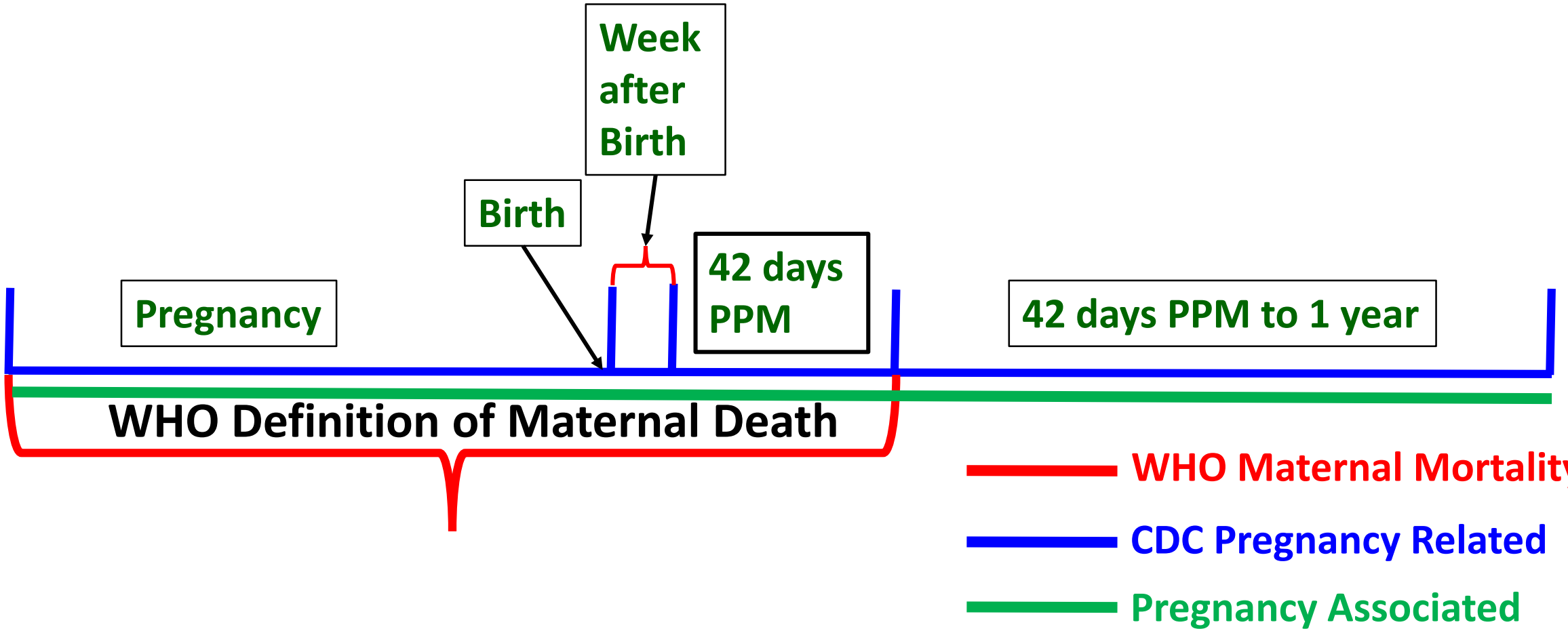


All Deaths women of reprod. age pregnancy to 1 year ppm Related to the pregnancy



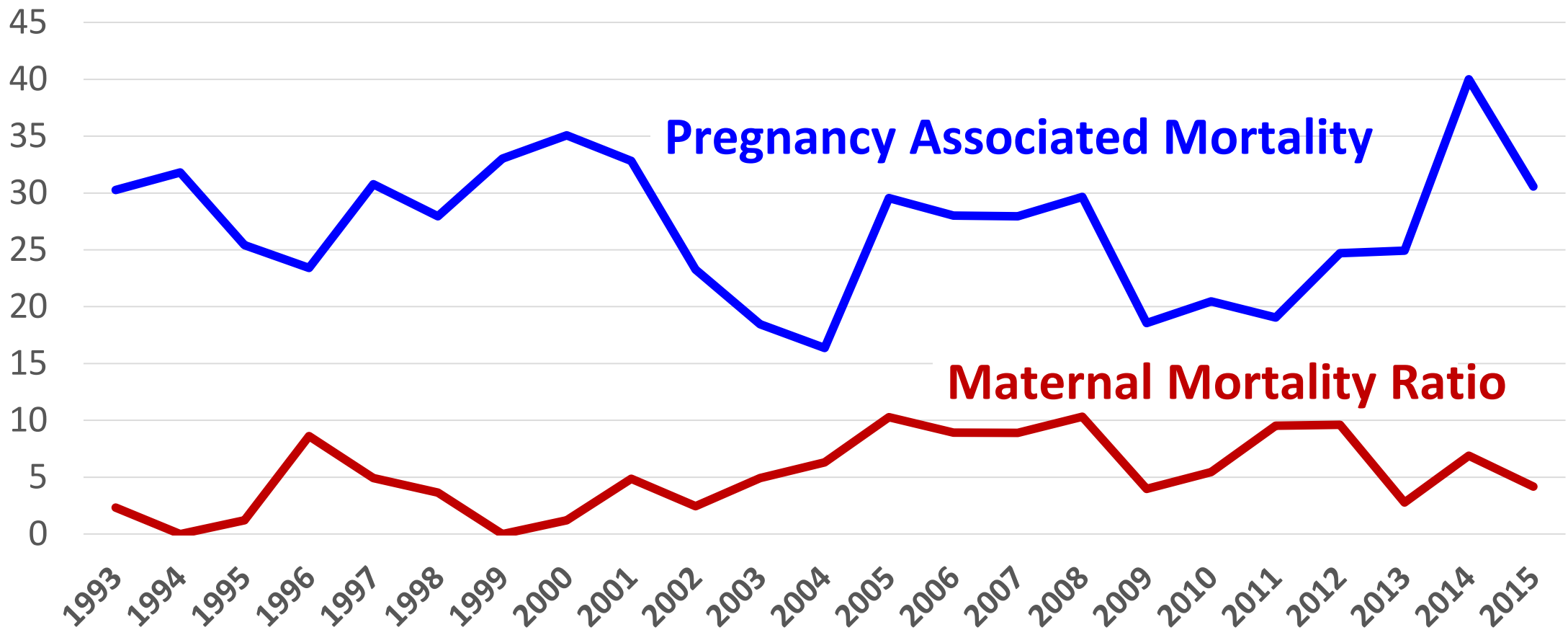
All Deaths women of reprod. age pregnancy to 42 days ppm Related to the pregnancy

Timeline of Maternal Mortality Definitions



PPM – postpartum –period after the birth

Massachusetts Maternal Deaths, (per 100,000), 1992-2015



So what are these 3 challenges?

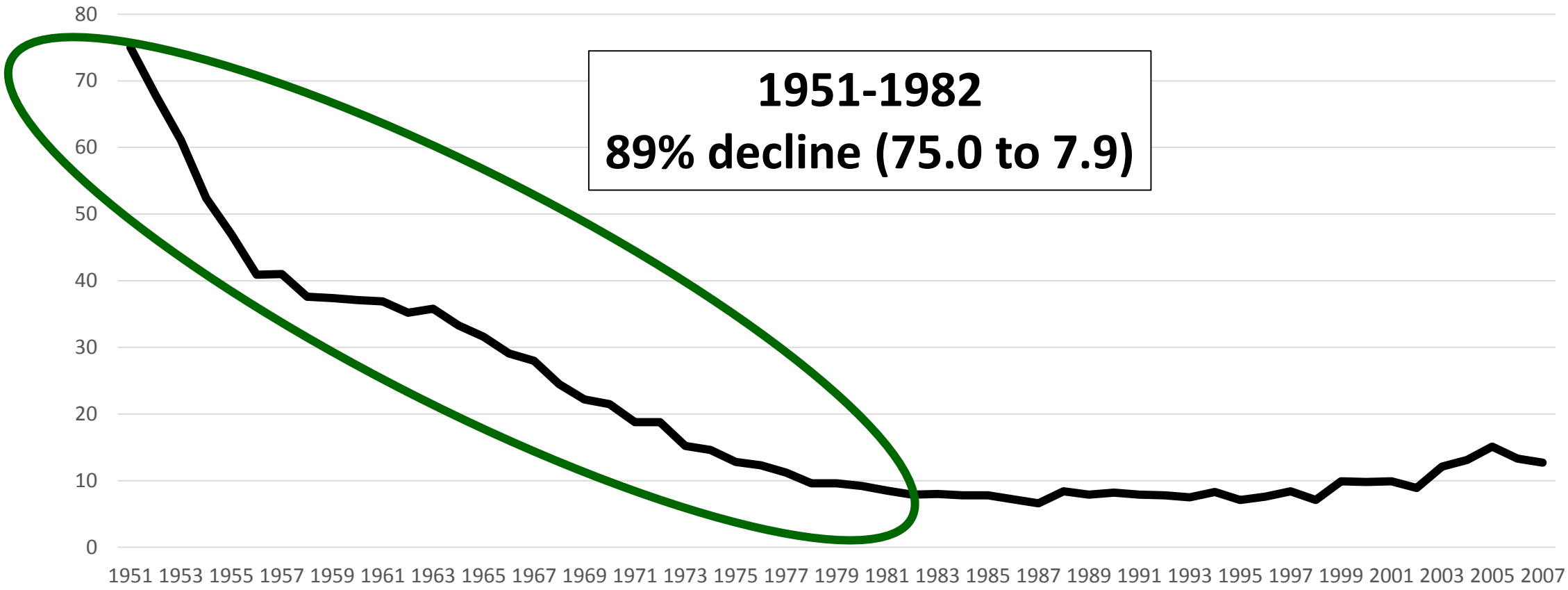
1. *The U.S. has a problem, but isn't sure how bad it is.*

2. *The problem is bigger than maternal mortality*

3. *Addressing the clinical, individual and policy challenges associated with maternal mortality*

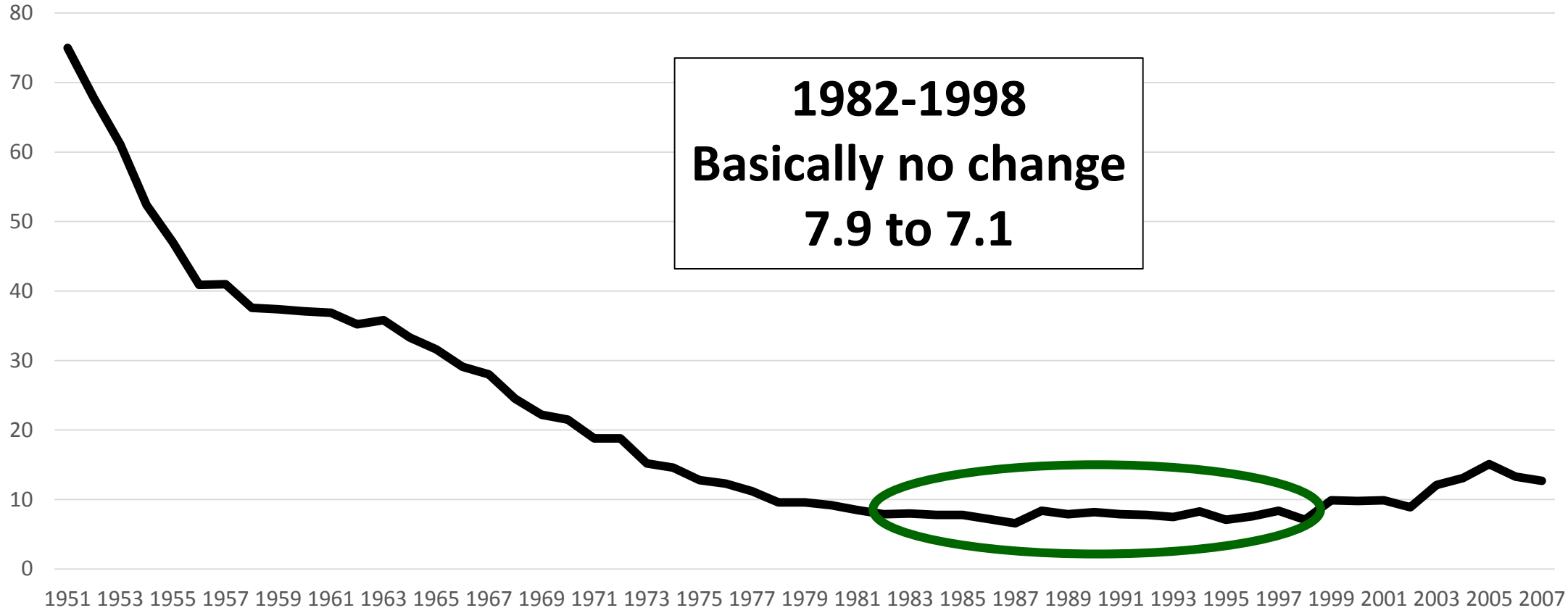
1. The U.S. has a problem, but isn't sure how bad it is.

U.S. Maternal Mortality (per 100,000 live births), 1951-2007



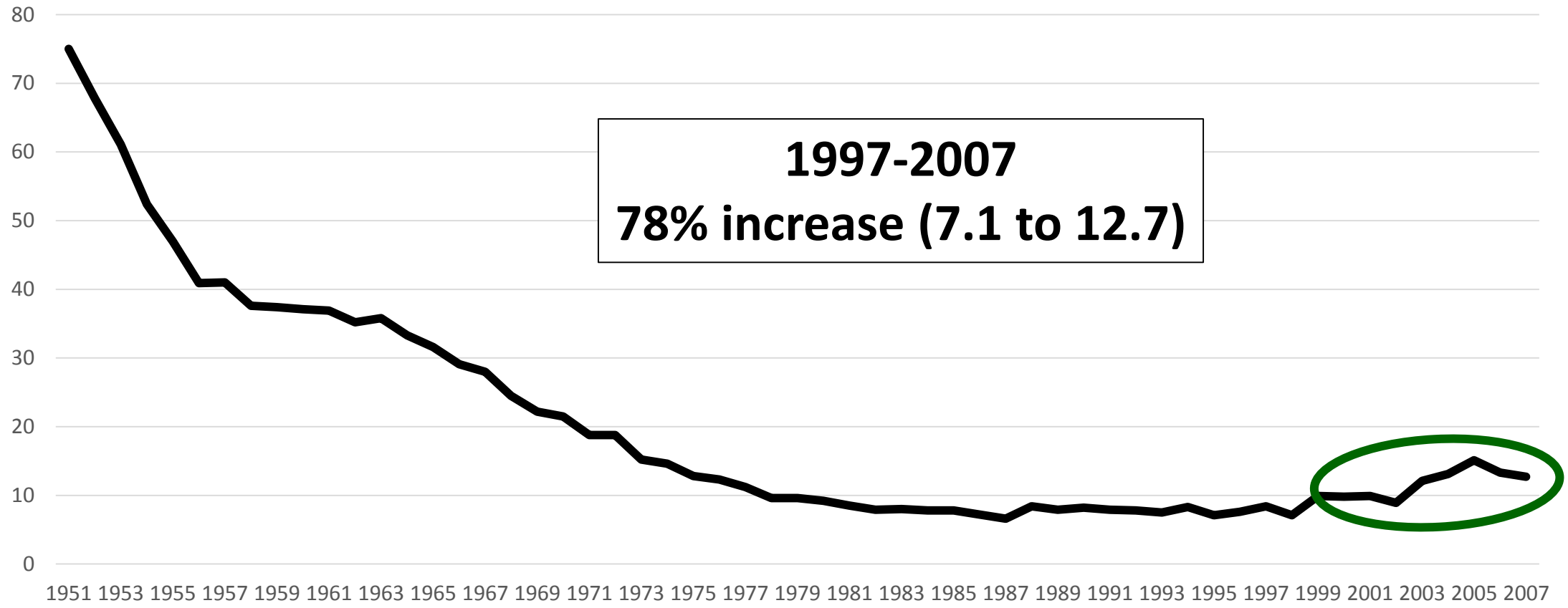
Source: NCHS. Deaths: Final Data. Annual Reports.

U.S. Maternal Mortality (per 100,000 live births), 1951-2007



Source: NCHS. Deaths: Final Data. Annual Reports.

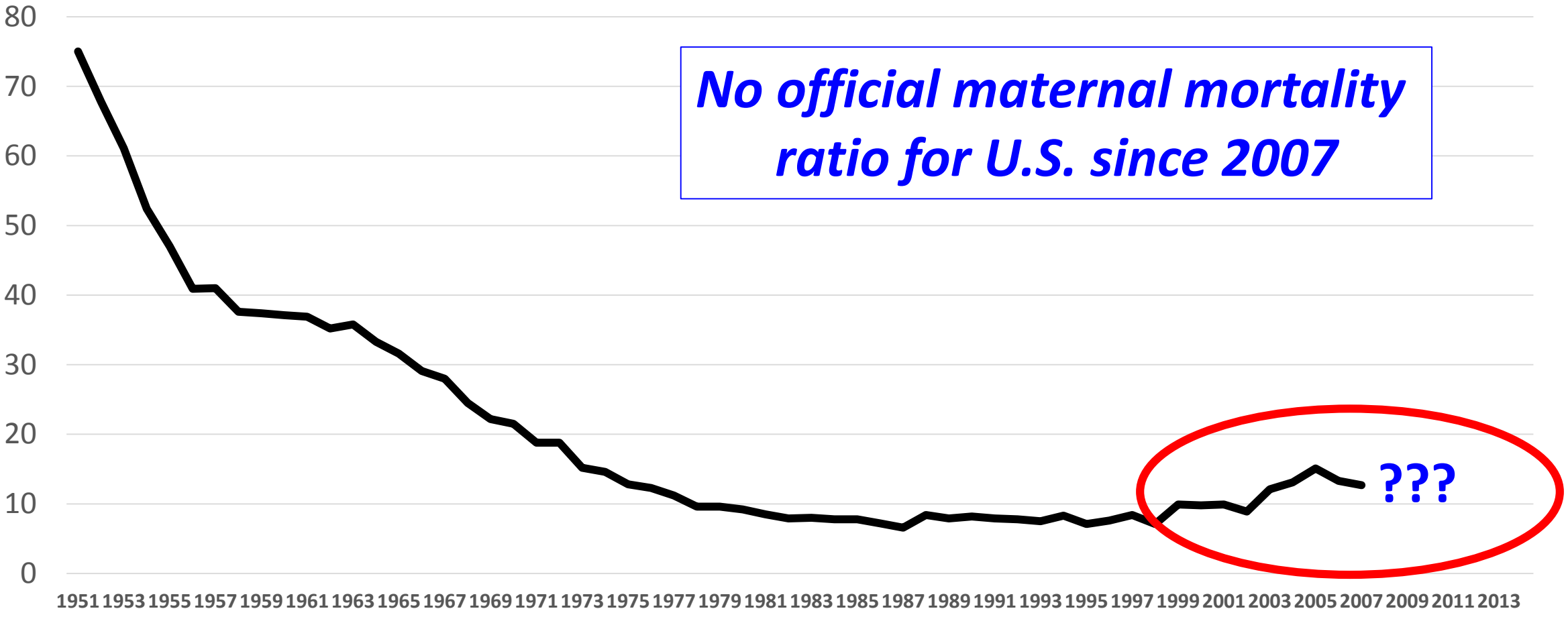
U.S. Maternal Mortality (per 100,000 live births), 1951-2007



Source: NCHS. Deaths: Final Data. Annual Reports.

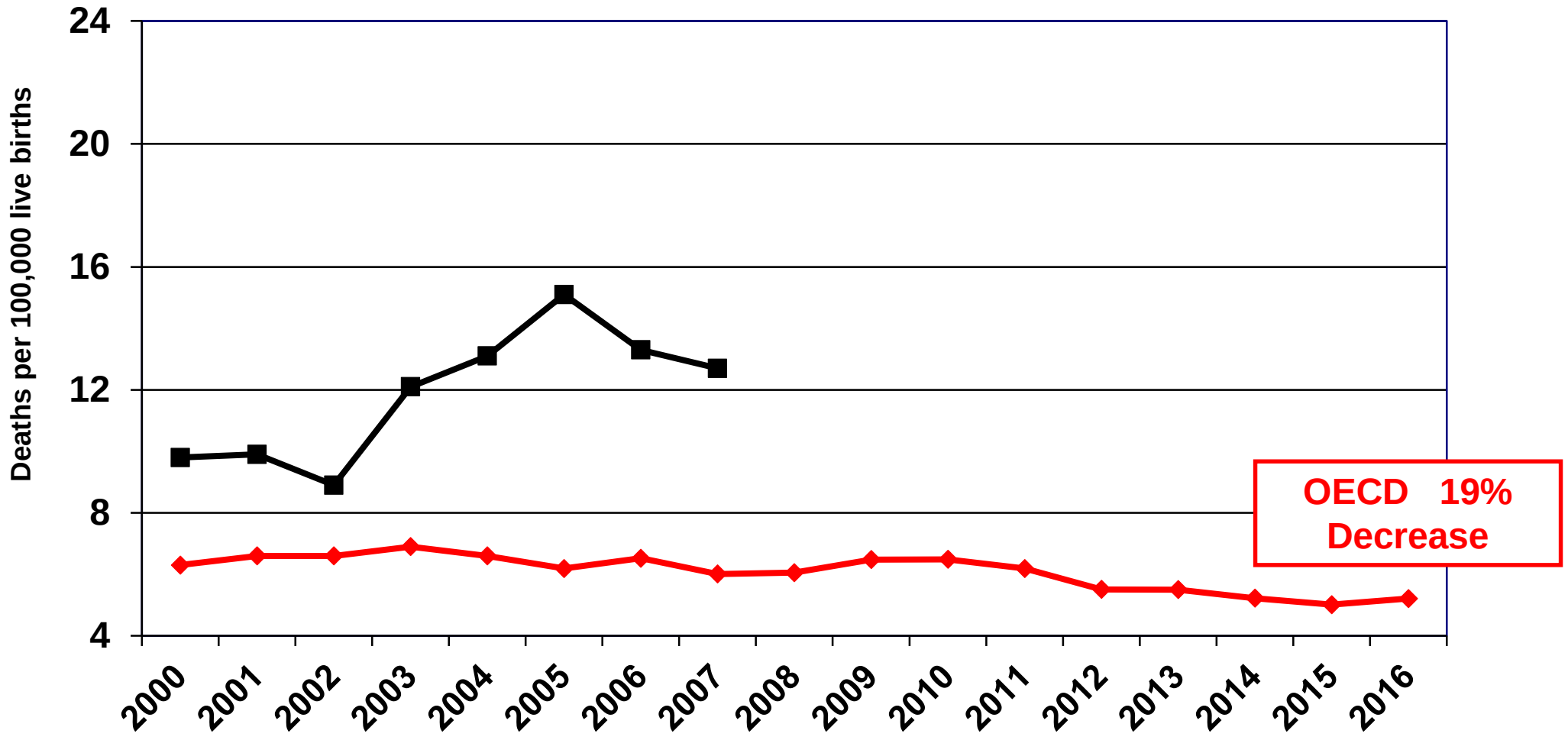
1. The dual problem: substance & measurement

U.S. Maternal Mortality Ratio , 1951-2007



Impetus for our Study

*Maternal Mortality Ratios (per 100K births), 2000-2016, U.S. & Comparable Countries **



* Countries with **300,000**+ births (2015): Australia, Canada, France, Germany, Italy, Japan, S. Korea, Spain, United Kingdom

Sources: OECD Health Data 2019; NCHS. 2009. *Deaths, Final Data, 2007*.

Last reporting (2007)of a maternal mortality rate by NCHS

Table 34. Number of maternal deaths and maternal mortality rates for selected causes, by Hispanic origin and race for non-Hispanic population: United States, 2007

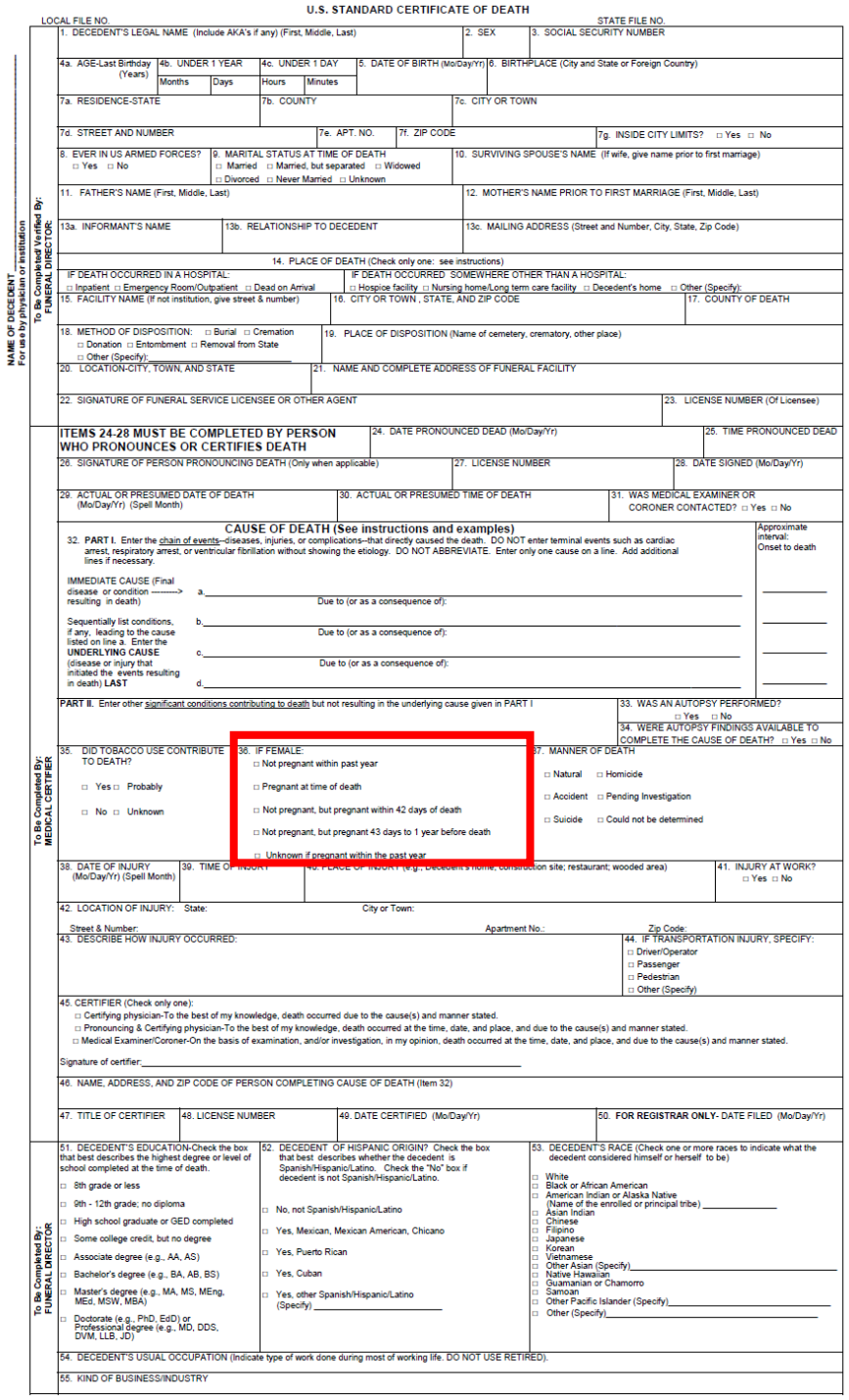
[Maternal causes are those assigned to categories A34, O00–O95, and O98–O99 of the *International Classification of Diseases, Tenth Revision* (ICD–10), Second Edition. An increasing number of states use a separate item regarding pregnancy status on the death certificate to help identify these deaths; see "Technical Notes." Rates are per 100,000 live births in specified group; see "Technical Notes." Race and Hispanic origin are reported separately on the death certificate. Persons of Hispanic origin may be of any race. Data for Hispanic persons are not tabulated separately by race; data for non-Hispanic persons are tabulated by race. Data for Hispanic origin should be interpreted with caution because of inconsistencies between reporting Hispanic origin on death certificates and on censuses and surveys; see "Technical Notes"]

Cause of death (based on ICD–10, 2004)	Number					Rate				
	All origins[1]	Hispanic	Non-Hispanic[2]	Non-Hispanic white[3]	Non-Hispanic black[3]	All origins[1]	Hispanic	Non-Hispanic[2]	Non-Hispanic white[3]	Non-Hispanic black[3]
Maternal causes (A34,O00–O95,O98–O99)	548	95	453	242	178	12.7	8.9	14.1	10.5	28.4
Pregnancy with abortive outcome (O00–O07)	31	5	26	8	17	0.7	*	0.8	*	*
Ectopic pregnancy (O00)	14	1	13	2	11	*	*	*	*	*
Spontaneous abortion (O03)	9	2	7	3	3	*	*	*	*	*
Medical abortion (O04)	–	–	–	–	–	*	*	*	*	*
Other abortion (O05)	1	–	1	–	1	*	*	*	*	*
Other and unspecified pregnancy with abortive outcome (O01–O02,O06–O07)	7	2	5	3	2	*	*	*	*	*
Other direct obstetric causes (A34,O10–O92)	362	67	295	153	117	8.4	6.3	9.2	6.6	18.7
Eclampsia and pre–eclampsia (O11,O13–O16)	64	13	51	29	19	1.5	*	1.6	1.3	*
Hemorrhage of pregnancy and childbirth and placenta previa (O20,O44–O46,O67,O72)	41	12	29	18	9	0.9	*	0.9	*	*
Complications predominately related to the puerperium (A34,O85–O92)	93	15	78	35	31	2.2	*	2.4	1.5	4.9
Obstetrical tetanus (A34)	–	–	–	–	–	*	*	*	*	*
Obstetric embolism (O88)	33	6	27	12	8	0.8	*	0.8	*	*
Other complications predominately related to the puerperium (O85–O87,O89–O92)	60	9	51	23	23	1.4	*	1.6	1.0	3.7
All other direct obstetric causes (O10,O12,O21–O43,O47–O66,O68–O71,O73–O75)	164	27	137	71	58	3.8	2.5	4.3	3.1	9.2
Obstetric death of unspecified cause (O95)	20	4	16	7	7	0.5	*	*	*	*
Indirect obstetric causes (O98–O99)	135	19	116	74	37	3.1	*	3.6	3.2	5.9
Maternal causes more than 42 days after delivery or termination of pregnancy (O96–O97)	221	39	181	92	70	5.1	3.7	5.6	4.0	11.2
Death from any obstetric cause occurring more than 42 days but less than 1 year after delivery (O96)	215	38	176	92	66	5.0	3.6	5.5	4.0	10.5
Death from sequelae of direct obstetric causes (O97)	6	1	5	–	4	*	*	*	*	*

How did this happen?

How did this happen?

Efforts to avoid poor case ascertainment led to over-ascertainment



U.S. STANDARD CERTIFICATE OF DEATH

LOCAL FILE NO. STATE FILE NO.

NAME OF DECEDENT For use by physician or institution

To Be Completed Verified By: FUNERAL DIRECTOR

1. DECEDENT'S LEGAL NAME (Include AKA's if any) (First, Middle, Last) | 2. SEX | 3. SOCIAL SECURITY NUMBER

4a. AGE-Last Birthday (Years) | 4b. UNDER 1 YEAR Months Days | 4c. UNDER 1 DAY Hours Minutes | 5. DATE OF BIRTH (Mo/Day/Yr) | 6. BIRTHPLACE (City and State or Foreign Country)

7a. RESIDENCE-STATE | 7b. COUNTY | 7c. CITY OR TOWN

7d. STREET AND NUMBER | 7e. APT. NO. | 7f. ZIP CODE | 7g. INSIDE CITY LIMITS? □ Yes □ No

8. EVER IN US ARMED FORCES? □ Yes □ No | 9. MARITAL STATUS AT TIME OF DEATH □ Married □ Married, but separated □ Widowed □ Divorced □ Never Married □ Unknown | 10. SURVIVING SPOUSE'S NAME (If wife, give name prior to first marriage)

11. FATHER'S NAME (First, Middle, Last) | 12. MOTHER'S NAME PRIOR TO FIRST MARRIAGE (First, Middle, Last)

13a. INFORMANT'S NAME | 13b. RELATIONSHIP TO DECEDENT | 13c. MAILING ADDRESS (Street and Number, City, State, Zip Code)

14. PLACE OF DEATH (Check only one: see instructions)

IF DEATH OCCURRED IN A HOSPITAL: □ Inpatient □ Emergency Room/Outpatient □ Dead on Arrival

IF DEATH OCCURRED SOMEWHERE OTHER THAN A HOSPITAL: □ Hospice facility □ Nursing home/Long term care facility □ Decedent's home □ Other (Specify):

15. FACILITY NAME (If not institution, give street & number) | 16. CITY OR TOWN , STATE, AND ZIP CODE | 17. COUNTY OF DEATH

18. METHOD OF DISPOSITION: □ Burial □ Cremation □ Donation □ Entombment □ Removal from State □ Other (Specify): | 19. PLACE OF DISPOSITION (Name of cemetery, crematory, other place)

20. LOCATION-CITY, TOWN, AND STATE | 21. NAME AND COMPLETE ADDRESS OF FUNERAL FACILITY

22. SIGNATURE OF FUNERAL SERVICE LICENSEE OR OTHER AGENT | 23. LICENSE NUMBER (Of Licensee)

To Be Completed By: MEDICAL CERTIFIER

ITEMS 24-28 MUST BE COMPLETED BY PERSON WHO PRONOUNCES OR CERTIFIES DEATH | 24. DATE PRONOUNCED DEAD (Mo/Day/Yr) | 25. TIME PRONOUNCED DEAD

26. SIGNATURE OF PERSON PRONOUNCING DEATH (Only when applicable) | 27. LICENSE NUMBER | 28. DATE SIGNED (Mo/Day/Yr)

29. ACTUAL OR PRESUMED DATE OF DEATH (Mo/Day/Yr) (Spell Month) | 30. ACTUAL OR PRESUMED TIME OF DEATH | 31. WAS MEDICAL EXAMINER OR CORONER CONTACTED? □ Yes □ No

CAUSE OF DEATH (See instructions and examples)

32. PART I. Enter the chain of events--diseases, injuries, or complications--that directly caused the death. DO NOT enter terminal events such as cardiac arrest, respiratory arrest, or ventricular fibrillation without showing the etiology. DO NOT ABBREVIATE. Enter only one cause on a line. Add additional lines if necessary.

Approximate interval: Onset to death

IMMEDIATE CAUSE (Final disease or condition ——> resulting in death) a. ____ Due to (or as a consequence of):

Sequentially list conditions, if any, leading to the cause listed on line a. Enter the UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST b. ____ Due to (or as a consequence of): c. ____ Due to (or as a consequence of): d. ____

PART II. Enter other significant conditions contributing to death but not resulting in the underlying cause given in PART I | 33. WAS AN AUTOPSY PERFORMED? □ Yes □ No | 34. WERE AUTOPSY FINDINGS AVAILABLE TO COMPLETE THE CAUSE OF DEATH? □ Yes □ No

35. DID TOBACCO USE CONTRIBUTE TO DEATH? □ Yes □ Probably □ No □ Unknown

36. IF FEMALE: □ Not pregnant within past year □ Pregnant at time of death □ Not pregnant, but pregnant within 42 days of death □ Not pregnant, but pregnant 43 days to 1 year before death □ Unknown if pregnant within the past year

37. MANNER OF DEATH □ Natural □ Homicide □ Accident □ Pending Investigation □ Suicide □ Could not be determined

38. DATE OF INJURY (Mo/Day/Yr) (Spell Month) | 39. TIME OF INJURY | 40. PLACE OF INJURY (e.g., Decedent's home; construction site; restaurant; wooded area) | 41. INJURY AT WORK? □ Yes □ No

42. LOCATION OF INJURY: State: City or Town: Street & Number: Apartment No.: Zip Code:

43. DESCRIBE HOW INJURY OCCURRED: | 44. IF TRANSPORTATION INJURY, SPECIFY: □ Driver/Operator □ Passenger □ Pedestrian □ Other (Specify)

45. CERTIFIER (Check only one):
□ Certifying physician-To the best of my knowledge, death occurred due to the cause(s) and manner stated.
□ Pronouncing & Certifying physician-To the best of my knowledge, death occurred at the time, date, and place, and due to the cause(s) and manner stated.
□ Medical Examiner/Coroner-On the basis of examination, and/or investigation, in my opinion, death occurred at the time, date, and place, and due to the cause(s) and manner stated.

Signature of certifier: ____

46. NAME, ADDRESS, AND ZIP CODE OF PERSON COMPLETING CAUSE OF DEATH (Item 32)

47. TITLE OF CERTIFIER | 48. LICENSE NUMBER | 49. DATE CERTIFIED (Mo/Day/Yr) | 50. FOR REGISTRAR ONLY- DATE FILED (Mo/Day/Yr)

To Be Completed By: FUNERAL DIRECTOR

51. DECEDENT'S EDUCATION-Check the box that best describes the highest degree or level of school completed at the time of death.
□ 8th grade or less
□ 9th - 12th grade; no diploma
□ High school graduate or GED completed
□ Some college credit, but no degree
□ Associate degree (e.g., AA, AS)
□ Bachelor's degree (e.g., BA, AB, BS)
□ Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)
□ Doctorate (e.g., PhD, EdD) or Professional degree (e.g., MD, DDS, DVM, LLB, JD)

52. DECEDENT OF HISPANIC ORIGIN? Check the box that best describes whether the decedent is Spanish/Hispanic/Latino. Check the "No" box if decedent is not Spanish/Hispanic/Latino.
□ No, not Spanish/Hispanic/Latino
□ Yes, Mexican, Mexican American, Chicano
□ Yes, Puerto Rican
□ Yes, Cuban
□ Yes, other Spanish/Hispanic/Latino (Specify) ____

53. DECEDENT'S RACE (Check one or more races to indicate what the decedent considered himself or herself to be)
□ White
□ Black or African American
□ American Indian or Alaska Native (Name of the enrolled or principal tribe) ____
□ Asian Indian
□ Chinese
□ Filipino
□ Japanese
□ Korean
□ Vietnamese
□ Other Asian (Specify) ____
□ Native Hawaiian
□ Guamanian or Chamorro
□ Samoan
□ Other Pacific Islander (Specify) ____
□ Other (Specify) ____

54. DECEDENT'S USUAL OCCUPATION (Indicate type of work done during most of working life. DO NOT USE RETIRED).

55. KIND OF BUSINESS/INDUSTRY

Revised (2003) U.S. Standard Certificate of Death

PART II (Other significant conditions)

•Enter all diseases or conditions contributing to death that were not reported in the chain of events in Part I and that did not result in the **underlying cause of death**. See attached examples.
•If two or more possible sequences resulted in death, or if two conditions seem to have added together, report in Part I the one that, in your opinion, most directly caused death. Report in Part II the other conditions or diseases.

CHANGES TO CAUSE OF DEATH

Should additional medical information or autopsy findings become available that would change the cause of death originally reported, the original death certificate should be amended by the certifying physician by **immediately** reporting the revised cause of death to the State Vital Records Office.

ITEMS 33-34 - AUTOPSY

•33 - Enter "Yes" if either a partial or full autopsy was performed. Otherwise enter "No."
•34 - Enter "Yes" if autopsy findings were available to complete the cause of death; otherwise enter "No". Leave item blank if no autopsy was performed.

ITEM 35 - DID TOBACCO USE CONTRIBUTE TO DEATH?

Check "yes" if, in your opinion, the use of tobacco contributed to death. Tobacco use may contribute to deaths due to a wide variety of diseases; for example, tobacco use contributes to many deaths due to emphysema or lung cancer and some heart disease and cancers of the head and neck. Check "no" if, in your clinical judgment, tobacco use did not contribute to this particular death.

ITEM 36 - IF FEMALE, WAS DECEDENT PREGNANT AT TIME OF DEATH OR WITHIN PAST YEAR?

This information is important in determining pregnancy-related mortality.

ITEM 37 - MANNER OF DEATH

•Always check Manner of Death, which is important: 1) in determining accurate causes of death; 2) in processing insurance claims; and 3) in statistical studies of injuries and death.
•Indicate "Pending investigation" if the manner of death cannot be determined whether due to an accident, suicide, or homicide within the statutory time limit for filing the death certificate. This should be changed later to one of the other terms.
•Indicate "Could not be Determined" **ONLY** when it is impossible to determine the manner of death.

To improve case identification:

U.S. Standard Pregnancy Question, 2003 (sort of)

Checkbox format:

IF FEMALE:

- ❑ Not pregnant within past year
- ❑ Pregnant at time of death
- ❑ Not pregnant, but pregnant within 42 days of death
- ❑ Not pregnant, but pregnant 43 days to 1 year before death
- ❑ Unknown if pregnant within the past year

Meant to solve 2 problems:

(1) Most states had no such question; and

(2) Different questions used in different states

The Check Box

Determining Pregnancy Status to Improve Maternal Mortality Surveillance

Andrea P. MacKay, MSPH, Roger Rochat, MD, Jack C. Smith, MS, Cynthia J. Berg, MD, MPH

Objective: More than half of pregnancy-related deaths are not identified through routine surveillance methods. The purpose of this study was to evaluate the effectiveness of the pregnancy check box on death certificates in ascertaining pregnancy-related deaths.

Methods: Data derived from the Centers for Disease Control and Prevention's ongoing Pregnancy Mortality Surveillance System were used to identify states that included a check box on the death certificate in 1991 and 1992. Death certificates from those states were evaluated to determine the number and proportion of pregnancy-related deaths identified by a marked check box. Characteristics of death were also examined.

Results: Sixteen states and New York City included a check box or question specifically asking about pregnancy of the decedent. Of the 425 pregnancy-related deaths identified in the 17 reporting areas, 124 (29%) were determined to be pregnancy-related deaths only because of the pregnancy status information provided in the check box. The proportion of deaths identified only by a marked check box ranged from less than 5% for four states to 40% or more for seven states.

Conclusions: The availability of pregnancy status information on death certificates is a simple and effective aid in ascertaining a pregnancy-related death, when no other indicators of pregnancy appear on the death certificate. Routine use of the pregnancy check box for all states would lead to substantially increased classification of maternal deaths and more accurate classification of the causes of and risk factors for maternal deaths.

16 States already had a checkbox as far back as 1991-1992, but with different wording

Am J Prev Med 2000;19(1S):35-39.

Table III. Separate questions related to pregnancy on state certificates in 2003

Alabama	Was there a pregnancy in last 42 days? (Specify Yes, No, or Unknown)
California	If female, pregnant in last year? ☐ Yes ☐ No ☐ Unknown
Florida	If female, was there a pregnancy in the past 3 months? ___ Yes ___ No
Idaho	If female aged 10–54: ☐ not pregnant within past year ☐ pregnant at time of death ☐ not pregnant, but pregnant within 42 days of death ☐ not pregnant, but pregnant 43 days to 1 year before death ☐ unknown if pregnant within the past year
Illinois	If female, was there a pregnancy in past three months? ☐ Yes ☐ No
Indiana	Was decedent pregnant or 90 days postpartum? (Yes or no)
Iowa	If female, was there a pregnancy in the past 12 months? (Specify yes or no)
Kentucky	If female, was there a pregnancy in the past 12 months? ☐ Yes ☐ No
Louisiana	If deceased was female 10–49, was she pregnant in the last 90 days? ☐ Yes ☐ No ☐ Unknown
Maryland	If female: Was decedent pregnant in the past 12 months? ☐ Yes ☐ No ☐ Unknown *Separate fields on dates of death and delivery support capability to compute the other categories in the standard.*
Minnesota	Was female pregnant: At death? ___ yes ___ no___ unknown In last 12 months?___ yes ___ no___ unknown
Mississippi	Had decedent been pregnant within 90 days prior to death? ☐ Yes ☐ No
Missouri	If deceased was female 10–49, was she pregnant in the last 90 days? ☐ Yes ☐ No ☐ Unknown
Montana	If female: ☐ not pregnant within past year ☐ not pregnant but pregnant with 42 days of death ☐ not pregnant but pregnant 43 days to 1 year before death ☐ pregnant at time of death ☐ unknown if pregnant within past year
Nebraska	If female, was there a pregnancy in the past 3 months? ☐ Yes ☐ No
New Jersey	If female, was she pregnant at death, or any time 90 days prior to death? ☐ Yes ☐ No
New Mexico	Was decedent pregnant within last 6 weeks? ☐ Yes ☐ No
New York City	If female: ☐ not pregnant within 1 year of death ☐ pregnant at time of death ☐ not pregnant at death, but pregnant within 42 days of death ☐ not pregnant at death, but pregnant 43 days to 1 year before death ☐ unknown if pregnant within 1 year of death *Also have date of outcome, so could compute intervals if needed.*
New York State	If female: ☐ not pregnant within last year ☐ pregnant at time of death ☐ not pregnant, but pregnant within 42 days of death ☐ not pregnant, but pregnant 43 days to 1 year before death ☐ unknown if pregnant within past year *Also have date of delivery, so could compute intervals if needed.*
North Dakota	Was deceased pregnant within 18 months of death? ☐ Yes ☐ No
Texas	Was decedent pregnant at time of death ☐ Yes ☐ No ☐ Unknown within last 12 months ☐ Yes ☐ No ☐ Unknown
Virginia	If female, was there a pregnancy in past 3 months? ☐ Yes ☐ No ☐ Unknown

Time periods used:
42 days;
6 weeks;
3 months;
90 days;
12 mos;
“last year”

Source: Hoyert . *Maternal Mortality and Related Concepts*. NCHS. Vital Health Stat 3(33). 2007. p.12.

Delays in Adoption of the U.S. Standard Pregnancy Question among States

	New Adopters*	Total
2003	4	4
2004	7	11
2005	7	18
2006	4	22
2007	2	24
2008	7	31
2009	0	31
2010	4	35
2011	2	37
2012	4	41
2013	1	42
2014	5	47
2015	2	49
2016	1	50
2017	1	51

New England	
California	2003
New Hampshire	4/2004
Connecticut	2005
Rhode Island	2006
Vermont	7/2008
Massachusetts	**9/2014**

* Note: Some states adopted change in the middle of the calendar year.

Our Analysis

We did an analysis that examined data by state, modeled for whether or not they were using the new item, and came up with national estimates.

Not enough cases to do single state analyses, but could look at some of the larger states.

Original Research

Recent Increases in the U.S. Maternal Mortality Rate

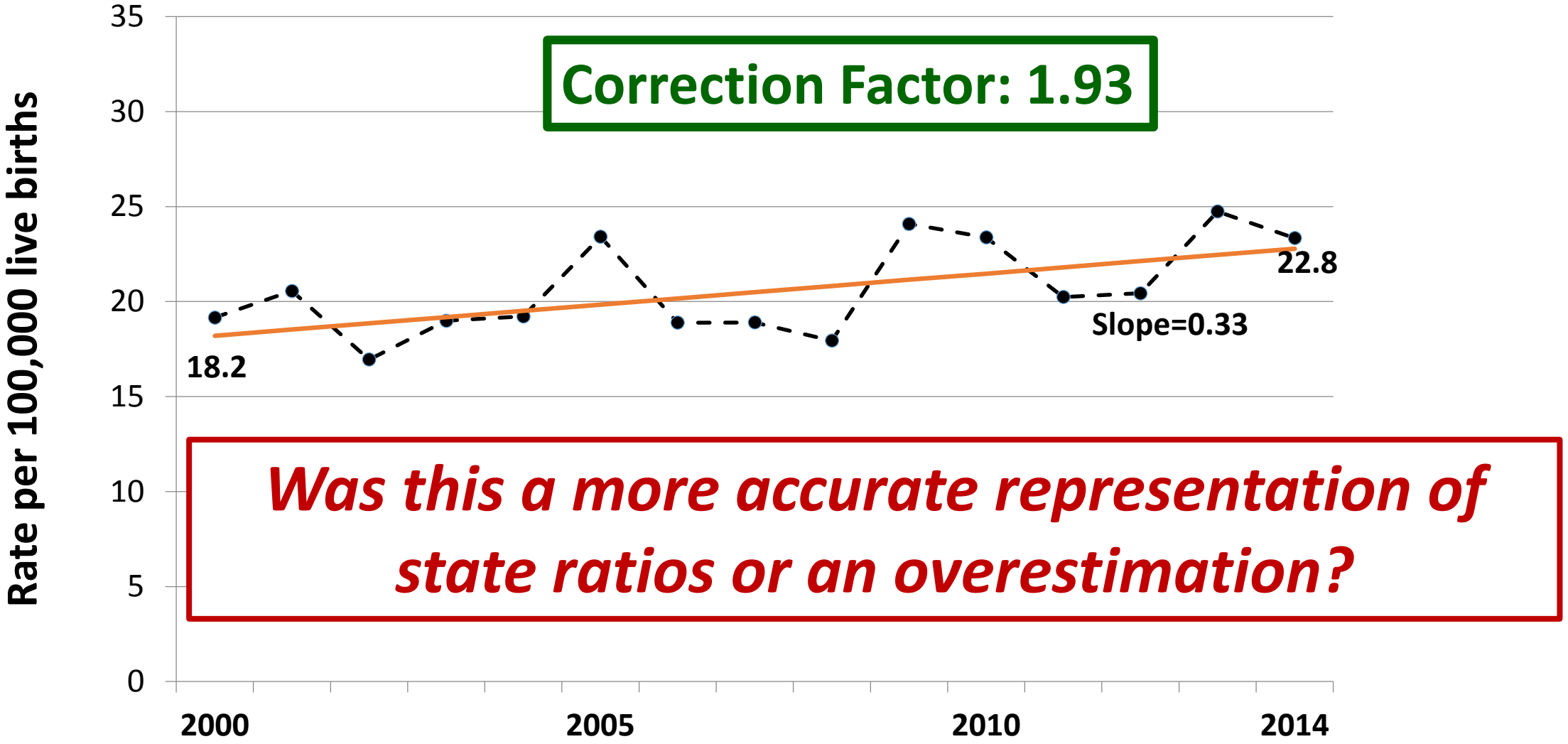
Disentangling Trends From Measurement Issues

Marian F. MacDorman, PhD, Eugene Declercq, PhD, Howard Cabral, PhD, and Christine Morton, PhD

RESULTS: The estimated maternal mortality rate (per 100,000 live births) for 48 states and Washington, DC (excluding California and Texas, analyzed separately) increased by 26.6%, from 18.8 in 2000 to 23.8 in 2014. California showed a declining trend, whereas Texas had a sudden increase in 2011–2012. Analysis of the measurement change suggests that U.S. rates in the early 2000s were higher than previously reported.

(Obstet Gynecol 2016;128:447–55)

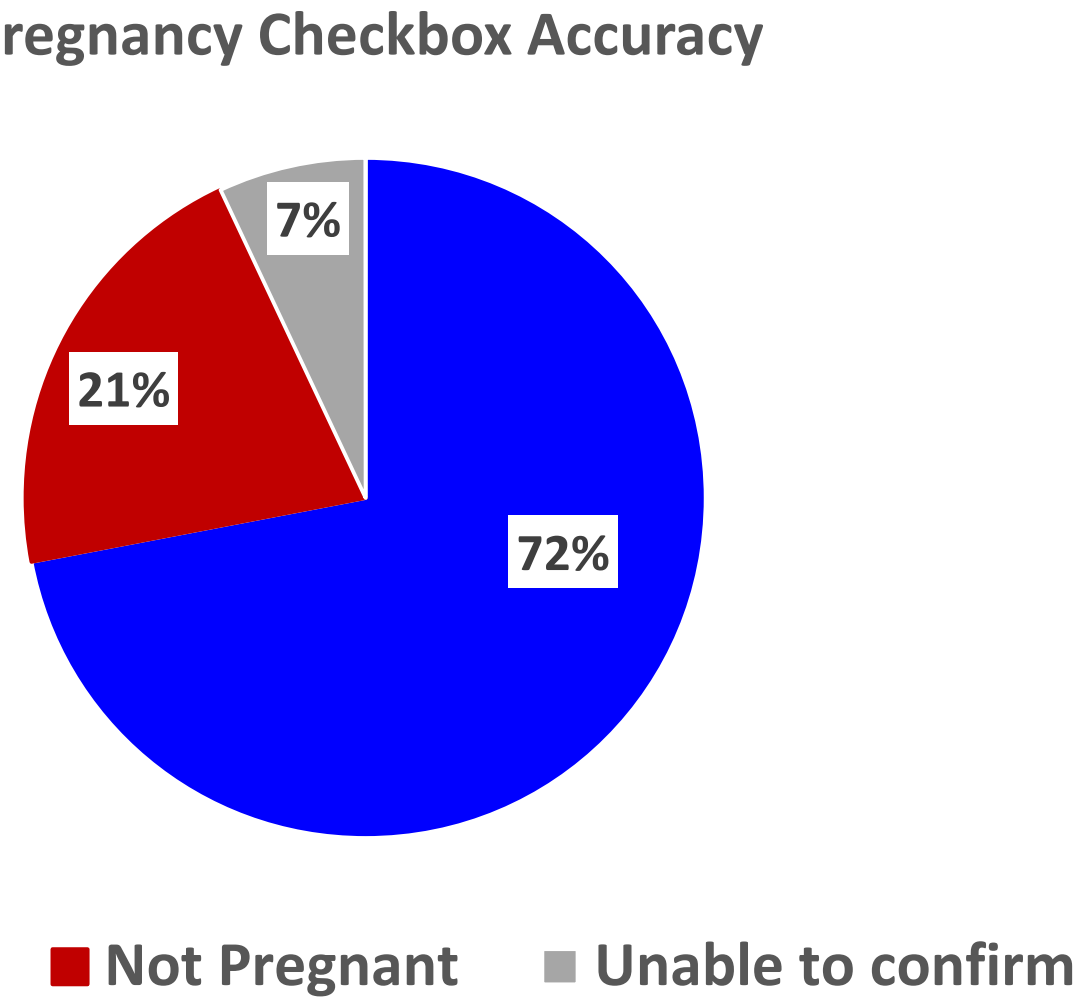
Group 1 states (had no question & added Standard)



Note: Includes 24 states that did not have a pregnancy question on their unrevised death certificate and which adopted the U.S. standard question upon revision: Arkansas, Arizona, Connecticut, Delaware**, Georgia,** Idaho, Kansas, Maine, Michigan, Montana, New Hampshire, Nevada, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Utah, Vermont, Washington, and Wyoming.

Over-ascertainment Results of a 4 state study
(Georgia, Louisiana, Michigan, and Ohio)

In 28% of cases with pregnancy checkbox checked, not certain woman was pregnant



Source: A. Daymude. Checking the pregnancy checkbox: Evaluation of a four-state quality assurance pilot. *Birth* 2019 online

Over Ascertainment??

- Research into the cause of death category finds much of the increase is coming from ***less specific ICD-10 codes***.

- Other specified pregnancy-related conditions (O26.8)
- Other obstetric complications (O21–O22, O24– O41.0, O41.8–O43.1, O43.8–O43.9,O47–O66, O68–O70, O71.2, O71.5,O71.6, O71.8, O71.9, O73–O75.2,O75.4–O75.9, O87–O90, O92)
- Other specified diseases and conditions (O99.8)
- Obstetric death of unspecified cause (O95)

Assessing the impact of ill-defined causes on maternal deaths and mortality rates by cause of death, 27 states and DC, 2008-2009 to 2013-2014

Underlying cause of death (ICD-10 category)	2008-9 Number of deaths	2008-9 Rate~	2013-14 Number of deaths	2013-14 Rate~	Percent change 2008-9 to 2013-14
Total maternal (A34, O00-O05, O98-O99)	780	20.6	907	25.4	23.3
Ill-defined causes (O26.8, O95, O99.8)	266	7.0	371	10.4	47.9
Total maternal minus ill-defined causes (Remainder)	514	13.5	536	15.0	10.6
Total direct obstetric (A34, O00-O92)	527	13.9	595	16.6	19.7
Other specified pregnancy-related conditions (O26.8)	130	3.4	212	5.9	73.0
Total direct obstetric minus O26.8 (Remainder)	397	10.5	383	10.7	2.3
Total indirect causes (O98-O99)	202	5.3	294	8.2	54.4
Other specified diseases and conditions (O99.8)	85	2.2	141	3.9	75.9
Total indirect causes minus O99.8 (Remainder)	117	3.1	153	4.3	38.7

Impact of the Checkbox – Better *and* Worse Ascertainment

- While the checkbox contributed to errors, the Four Committee data show that the ***checkbox also improved identification of pregnancy-related deaths***. ***Without the pregnancy checkbox, approximately:***

- ***50% of pregnancy-related deaths that occurred during pregnancy***

- ***11% of pregnancy-related deaths that occurred within 42 days of the end of pregnancy, and***

- ***8% of pregnancy-related deaths that occurred within 43 days to 1 year of the end of pregnancy***

would have been missed.

Three Sources of U.S. Maternal Death Data

- **National Vital Statistics System (NVSS).** This is the source of the official maternal mortality ratio for the United States and is based on "…information from death certificates filed in the 50 states and the District of Columbia that are subsequently compiled into national data….. Physicians, medical examiners, and coroners are responsible for completing the medical portion of the death certificate." These state data are compiled by NCHS into a national data system.

- **Pregnancy Mortality Surveillance System (PMSS)**. This system was established by CDC. It is based on reports from 52 areas (50 states, Washington, D.C. and New York city) which submits to CDC "… deidentified copies of death certificates for females 12–55 years who died during or within 1 year of pregnancy from any cause; when available, linked birth or fetal death certificates are also sent. Additional sources include computerized searches of Lexis Nexis, reports by public health agencies, including state-based maternal mortality review committees, professional organizations, and individual health care providers." The records are reviewed by specially trained clinicians to determine whether or not a death was pregnancy related.

- **Maternal Mortality Review Information Application (MMRIA).** State interdisciplinary committees do case reviews of maternal deaths. CDC building a data system to compile data from MMRCs. Project got a major boost in recent federal legislation.

So has there been any way to monitor maternal death since 2007?

So has there been any way to monitor maternal death since 2007?

CDC and Pregnancy Related Mortality

Pregnancy Mortality Surveillance System

Pregnancy Mortality Surveillance System

When did CDC start conducting national surveillance of pregnancy-related deaths?

CDC initiated national surveillance of pregnancy-related deaths in 1986 because more clinical information was needed to fill data gaps about causes of maternal death.

How does CDC define pregnancy-related deaths?

For reporting purposes, a pregnancy-related death is defined as the death of a woman while pregnant or within 1 year of pregnancy termination—regardless of the duration or site of the pregnancy—from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.

How are the data collected and coded?

Each year, CDC requests the 52 reporting areas (50 states, New York City, and Washington DC) to voluntarily send copies of death certificates for all women who died during pregnancy or within 1 year of pregnancy, and copies of the matching birth or fetal death certificates, if they have the ability to perform such record links. All of the information obtained is summarized, and medically trained epidemiologists determine the cause and time of death related to the pregnancy. Causes of death are coded by using a system established in 1986 by the American College of Obstetricians and Gynecologists and the Centers for Disease Control and Prevention Maternal Mortality Study Group.

How are the data used?

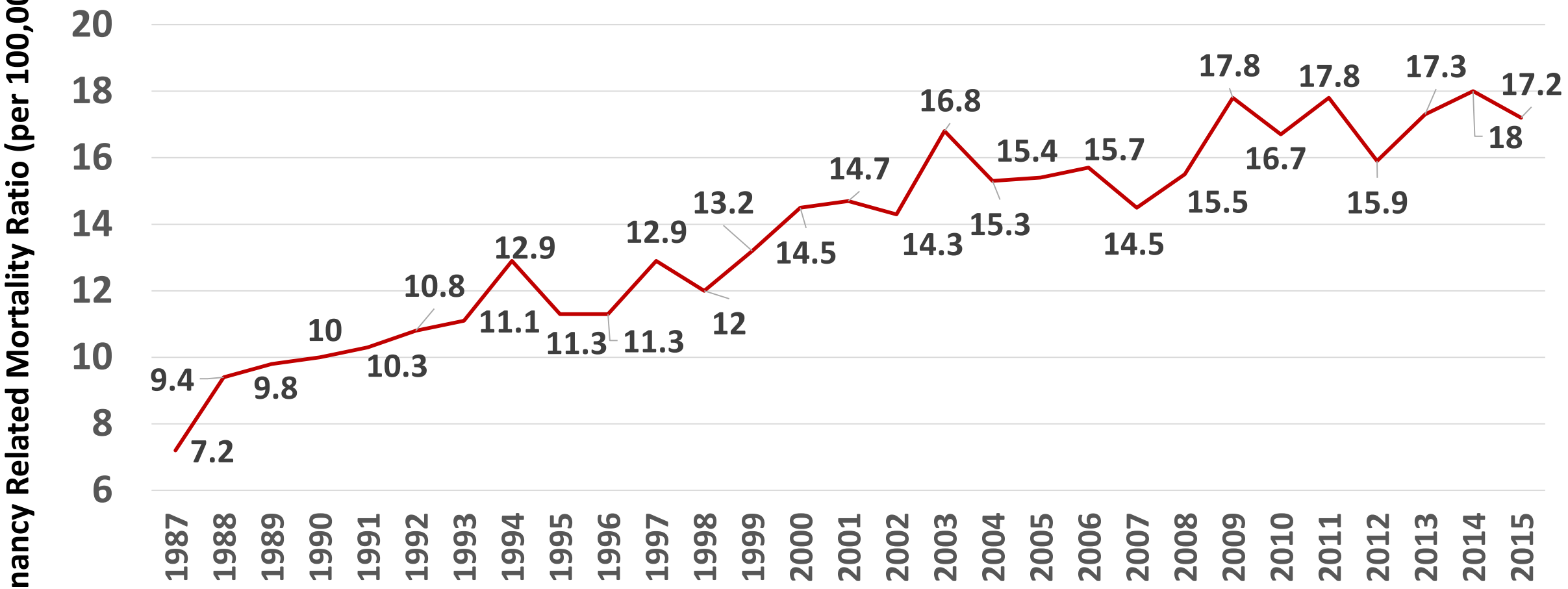
Data are analyzed by CDC scientists. Information about causes of pregnancy-related deaths and risk factors associated with these deaths is released periodically through peer-reviewed literature, CDC's *Morbidity and Mortality Weekly Reports*, and the CDC Web site. This information helps clinicians and public health professionals to better understand circumstances surrounding pregnancy-related deaths and to take appropriate actions to prevent them.

Data for CDCs Pregnancy Related Mortality System

Each year, CDC requests the 52 reporting areas (50 states, New York City, and Washington DC) to ***voluntarily send copies of death certificates for all women who died during pregnancy or within 1 year of pregnancy, and copies of the matching birth or fetal death certificates,*** *if they have the ability to perform such record links. All of the information obtained is summarized, and medically trained epidemiologists determine the cause and time of death related to the pregnancy. Causes of death are coded by using a system established in 1986 by the American College of Obstetricians and Gynecologists and the Centers for Disease Control and Prevention Maternal Mortality Study Group.*

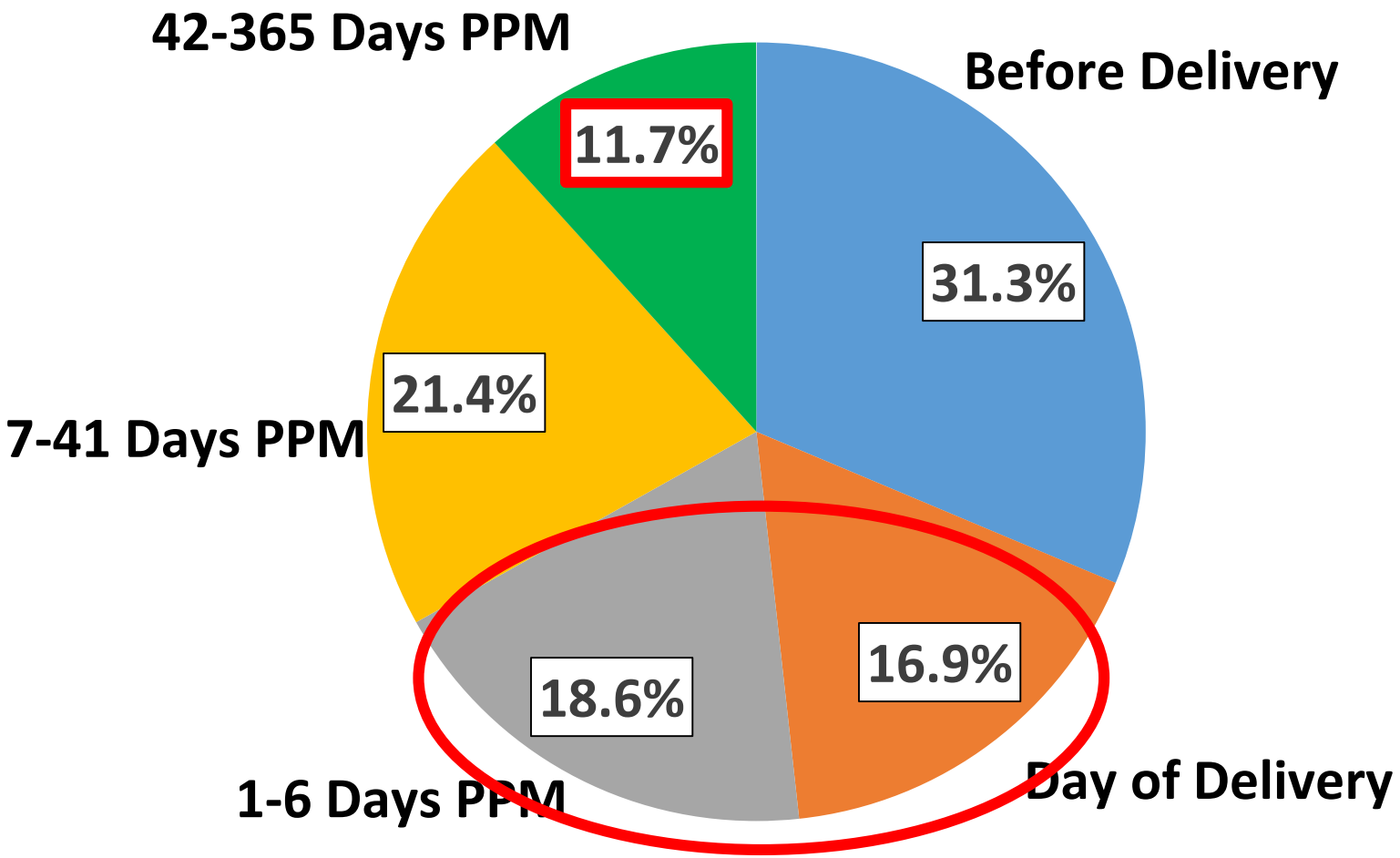
Our best existing measure

Pregnancy Related Mortality, U.S., 1987-2015



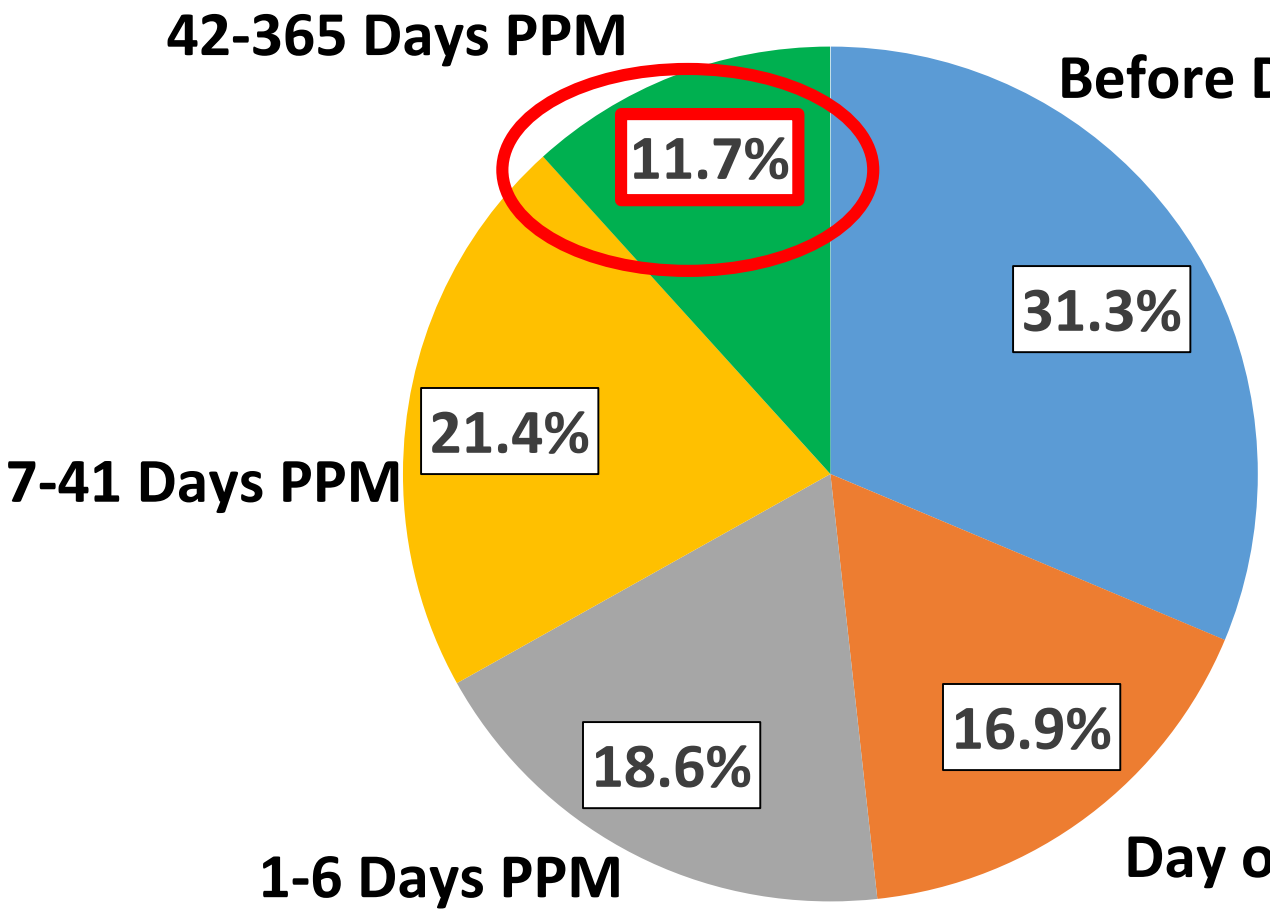
Source: CDC. Adapted from Creanga. Pregnancy-Related Mortality in the United States. *Obstet Gynecol 2017* & Petersen E. et al. Vital Signs: Pregnancy-Related Deaths, United States, 2011–2015,. *MMWR* .vol.68. May 7, 2019. 1-7..

Timing of Maternal Deaths



Source: Petersen E. et al. Vital Signs: Pregnancy-Related Deaths, United States, 2011–2015, and Strategies for Prevention, 13 States, 2013–2017. *MMWR* .vol.68. May 7, 2019. 1-7.

Timing of Maternal Deaths

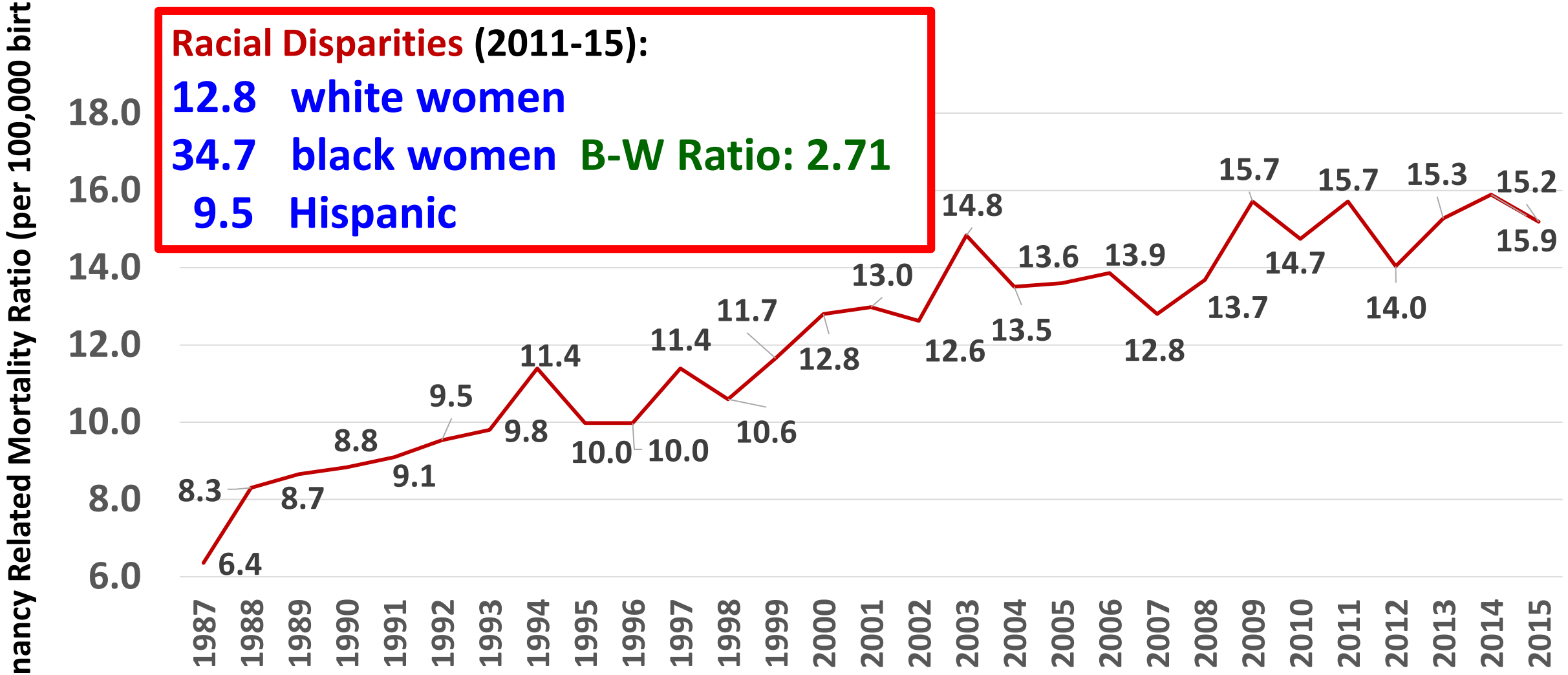


If 11.7% of the pregnancy related deaths occur at 42+ days, then the maternal mortality ration should be approximately 88.3% of the pregnancy related mortality rate.

Source: Petersen E. et al. Vital Signs: Pregnancy-Related Deaths, United States, 2011–2015, and Strategies for Prevention, 13 States, 2013–2017. *MMWR* .vol.68. May 7, 2019. 1-7.

Based on assumption of 11.7% of deaths ppm

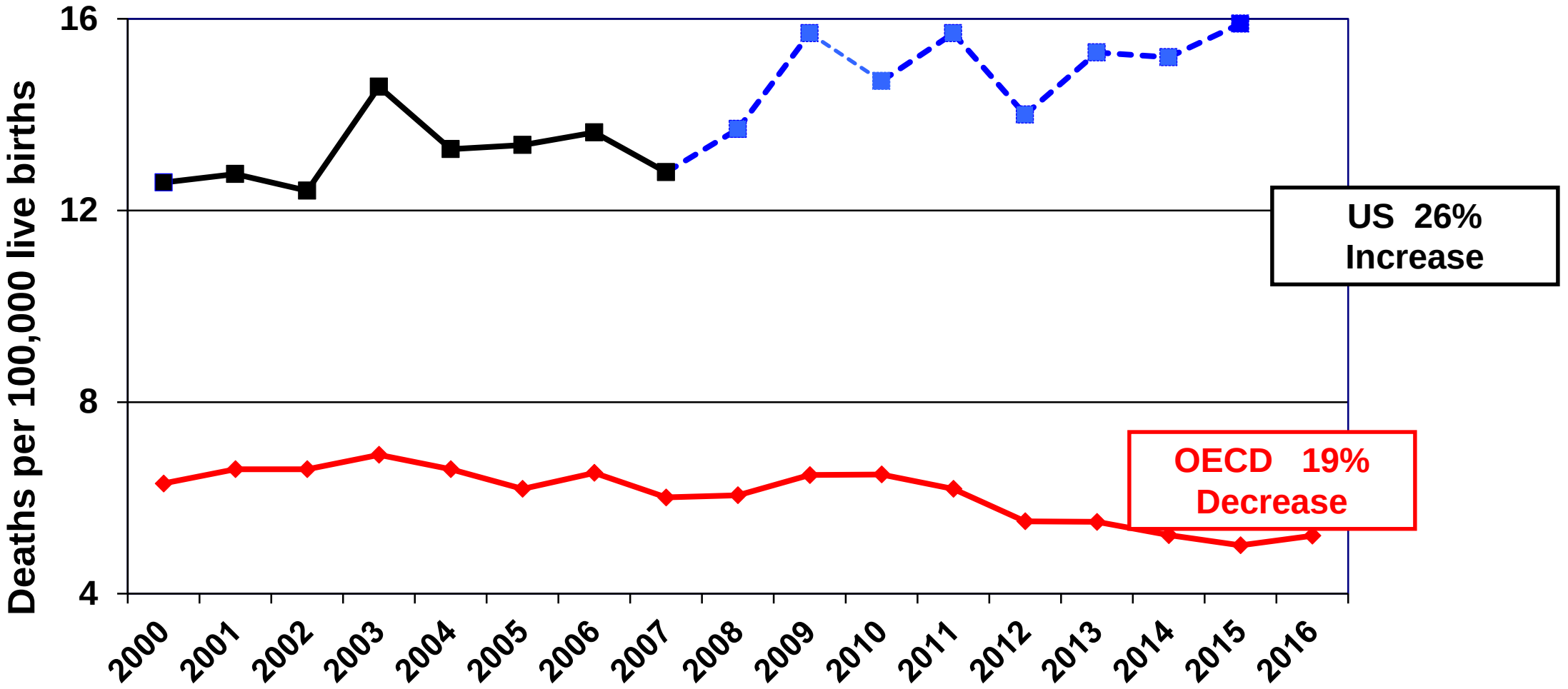
Estimated Maternal Mortality, U.S., 1987-2015



Source: CDC. Adapted from Creanga. Pregnancy-Related Mortality in the United States. *Obstet Gynecol 2017* & Petersen E. et al. Vital Signs: Pregnancy-Related Deaths, United States, 2011–2015,. *MMWR* .vol.68. May 7, 2019. 1-7..

US vs Comparable Countries

*Estimated U.S. Maternal Mortality Ratios (per 100K births), 2000-2016, U.S. & Comparable Countries **



* Countries with **300,000**+ births (2015): Australia, Canada, France, Germany, Italy, Japan, S. Korea, Spain, United Kingdom

Sources: OECD Health Data 2019; NCHS. 2009. *Deaths, Final Data, 2007 and adapted from* Creanga. *Obstet Gynecol 2017 & Petersen, MMWR, 2019.* ..

What about Racial Disparities?

Pregnancy Related Mortality Ratios, U.S. 2011-2015

11.4 Hispanic

What about Racial Disparities?

Pregnancy Related Mortality Ratios, U.S. 2011-2015

11.4	**Hispanic**
13.0	**White**

What about Racial Disparities?

Pregnancy Related Mortality Ratios, U.S. 2011-2015

11.4 Hispanic

13.0 White

14.2 Asian/Pacific Islander

What about Racial Disparities?

Pregnancy Related Mortality Ratios, U.S. 2011-2015

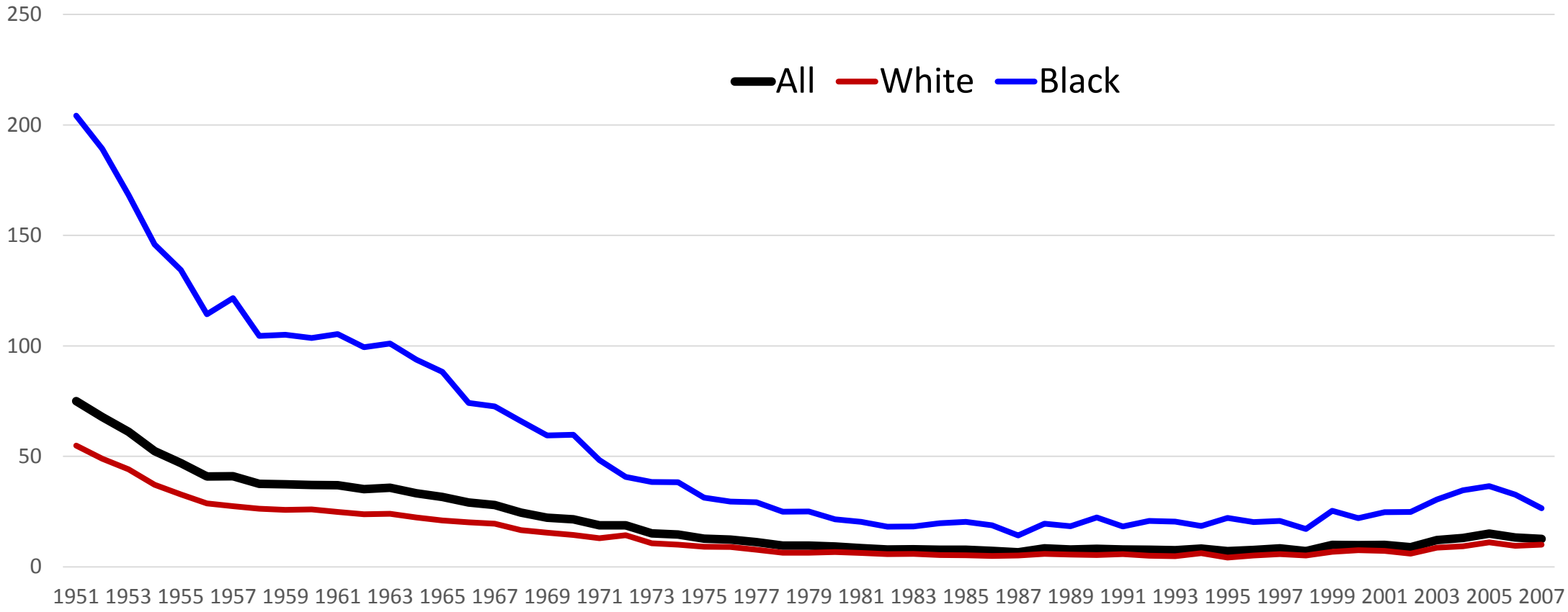
11.4	Hispanic
13.0	White
14.2	Asian/Pacific Islander
32.5	American Indian/Alaskan Native

What about Racial Disparities?

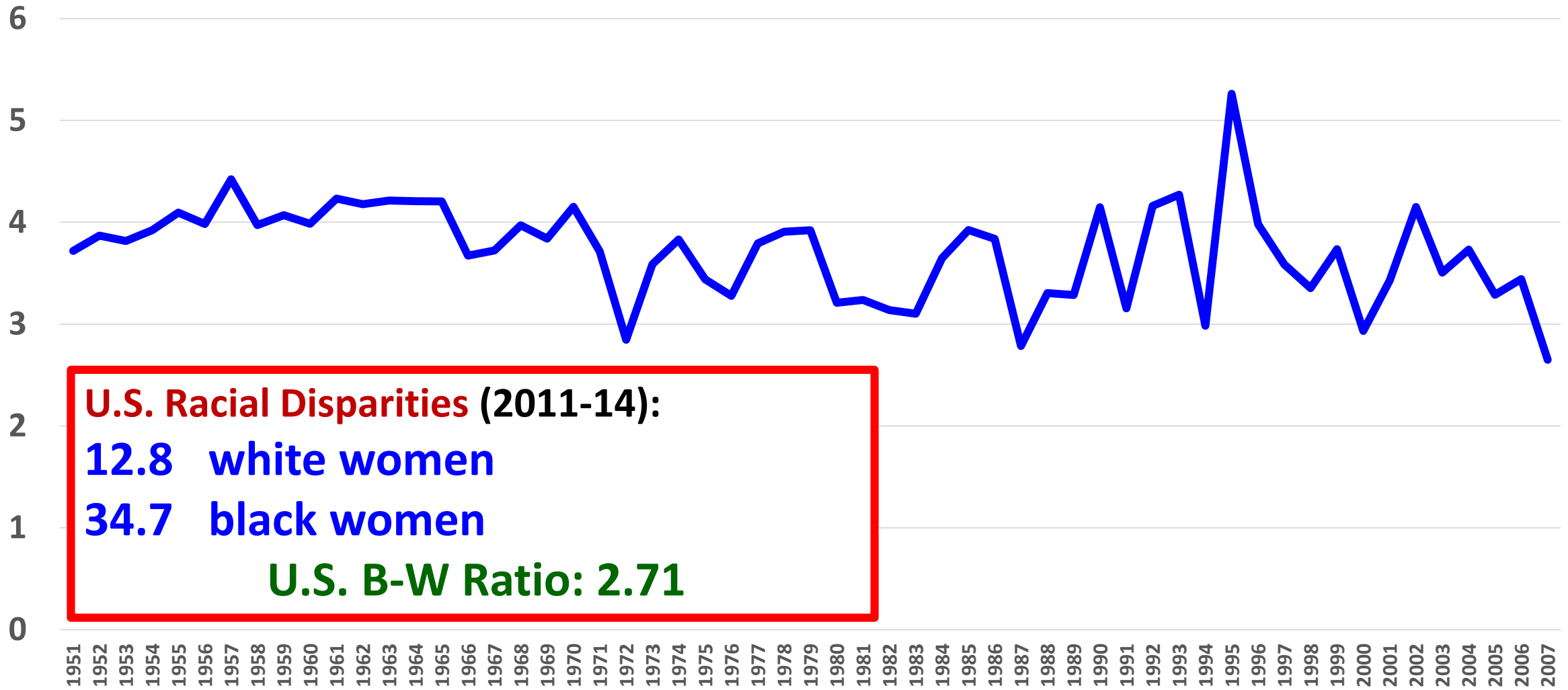
Pregnancy Related Mortality Ratios, U.S. 2011-2015

11.4	Hispanic
13.0	White
14.2	Asian/Pacific Islander
32.5	American Indian/Alaskan Native
42.8	Black

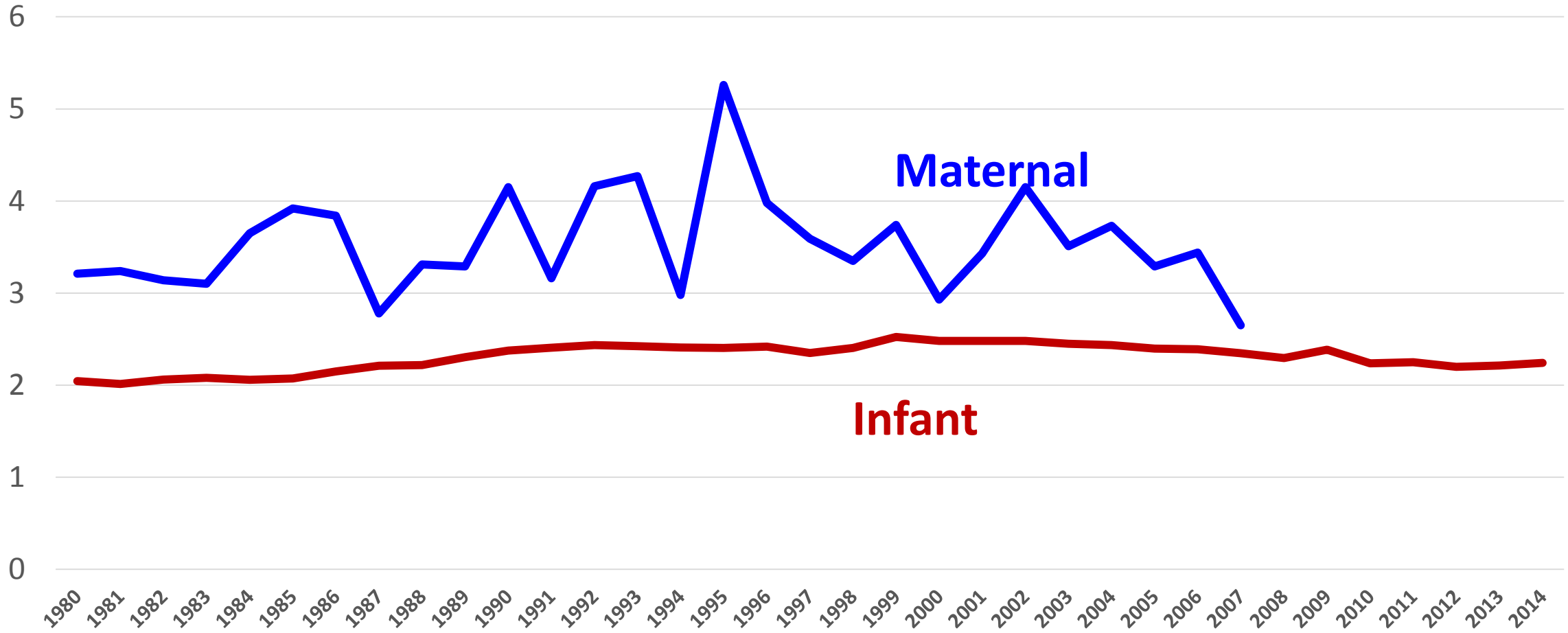
U.S. Maternal Mortality (per 100,000 live births), 1951-2007 by Race



U.S. Maternal Mortality Ratio of Black to White Rates 1951-2007



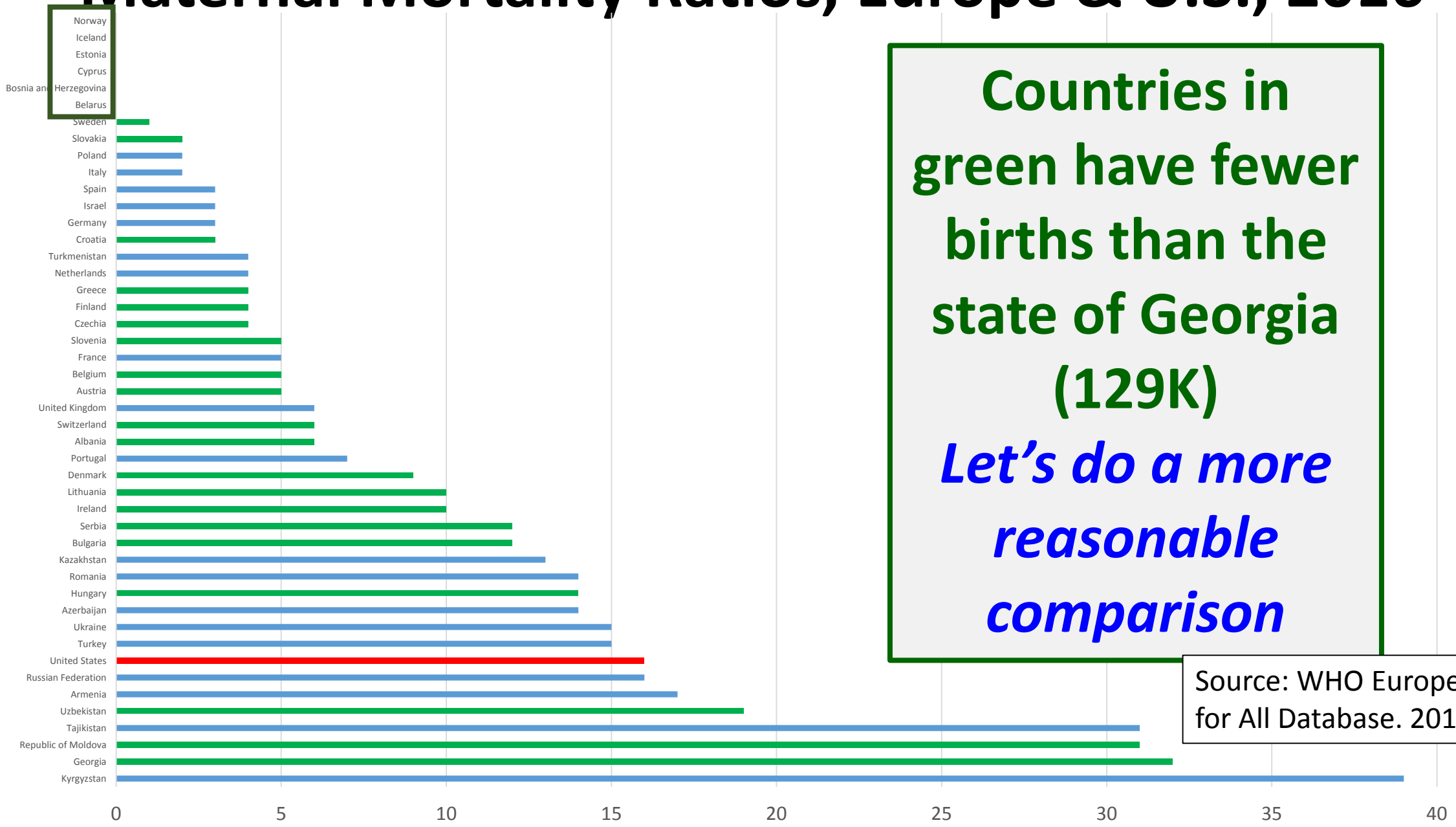
U.S. Infant & Maternal Mortality Black to White Ratios of 1980-2014



Why is disparity greater for maternal mortality than infant mortality?

So how does the U.S. compare internationally?

Maternal Mortality Ratios, Europe & U.S., 2016

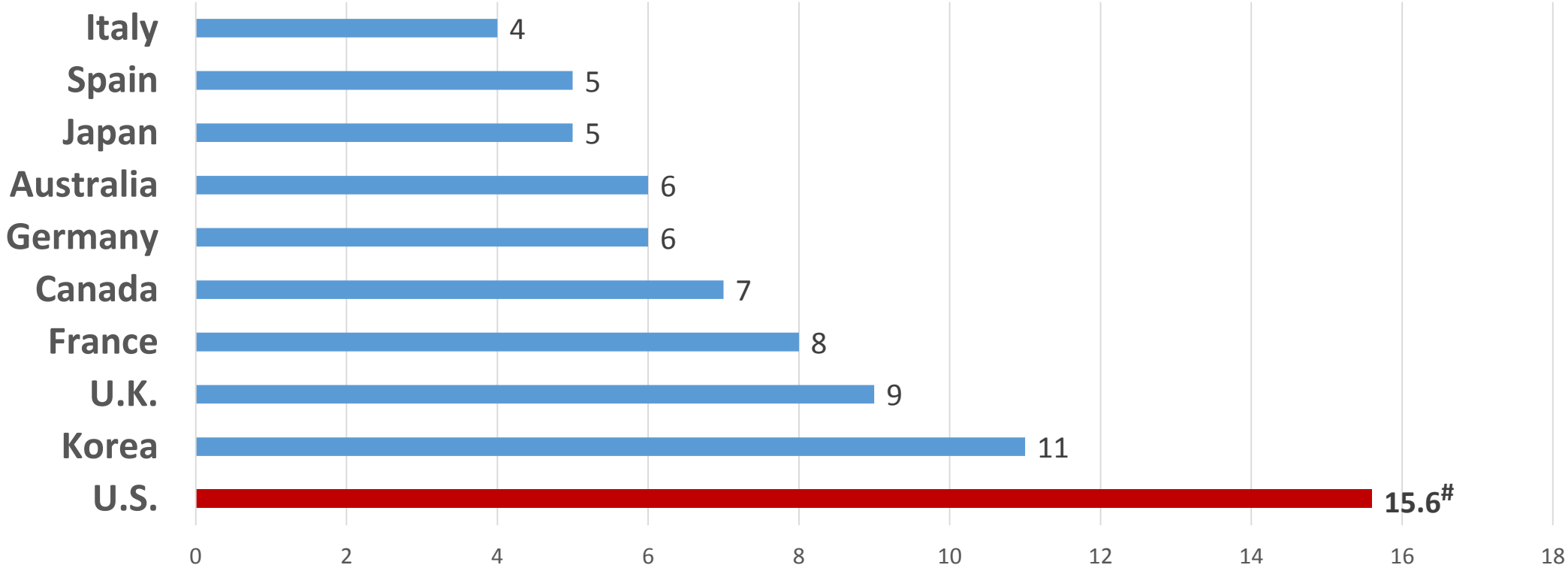


Countries in green have fewer births than the state of Georgia (129K)

Let's do a more reasonable comparison

Source: WHO Europe Health for All Database. 2019

U.S. MMR* Compared to Countries with 300,000+ births, 2014-15

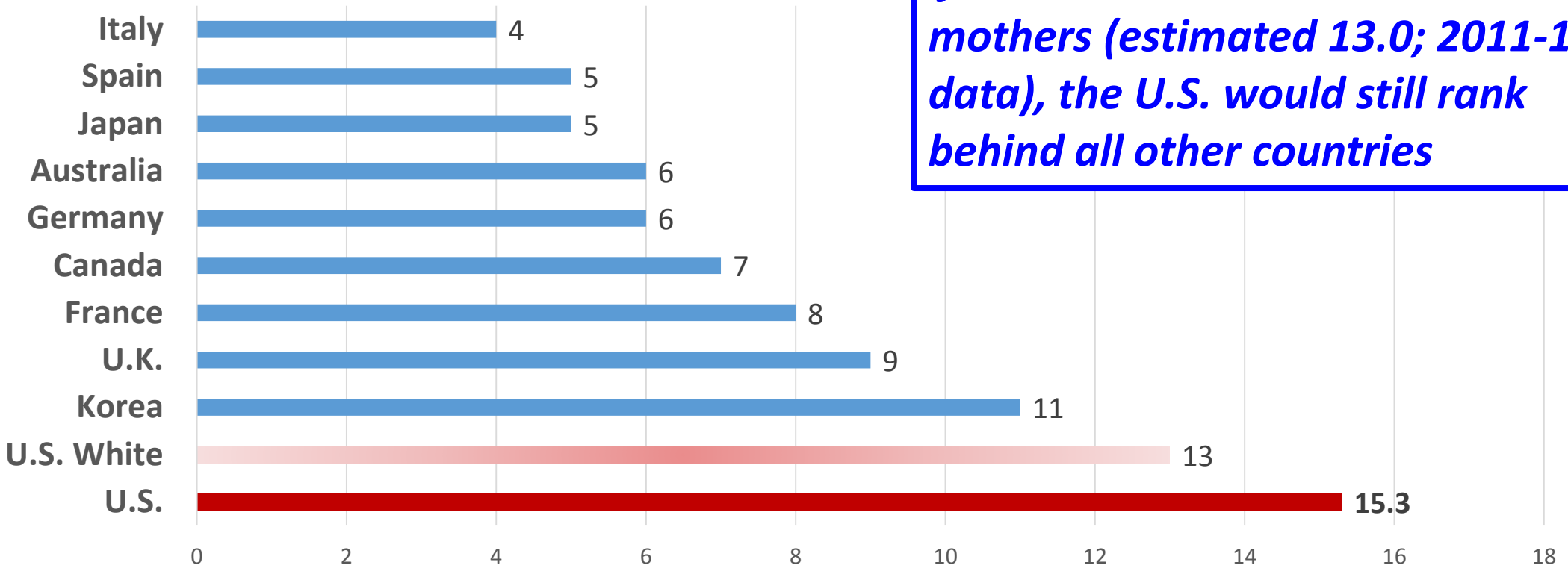


* Maternal Mortality per 100,000 births; # 2014-2015 U.S. average

Source: *Maternal Mortality: 1990 to 2015* Estimates by WHO, UNICEF, UNFPA, World Bank Group & UN Population Division. Geneva: 2015.

U.S. MMR* Compared to Countries with 300,000+ births, 2013-14

If we limited the US ratio to white mothers (estimated 13.0; 2011-15 data), the U.S. would still rank behind all other countries



* Maternal Mortality per 100,000 births

Source: *Maternal Mortality: 1990 to 2015* Estimates by WHO, UNICEF, UNFPA, World Bank Group & UN Population Division. Geneva: 2015.

1. SUMMARY: The U.S. has a problem, but isn't sure how bad it is.

- Measurement remains a problem, though multiple efforts underway
- By any standard though, the U.S. is doing poorly
- Wide racial disparities, but that doesn't explain all the differences

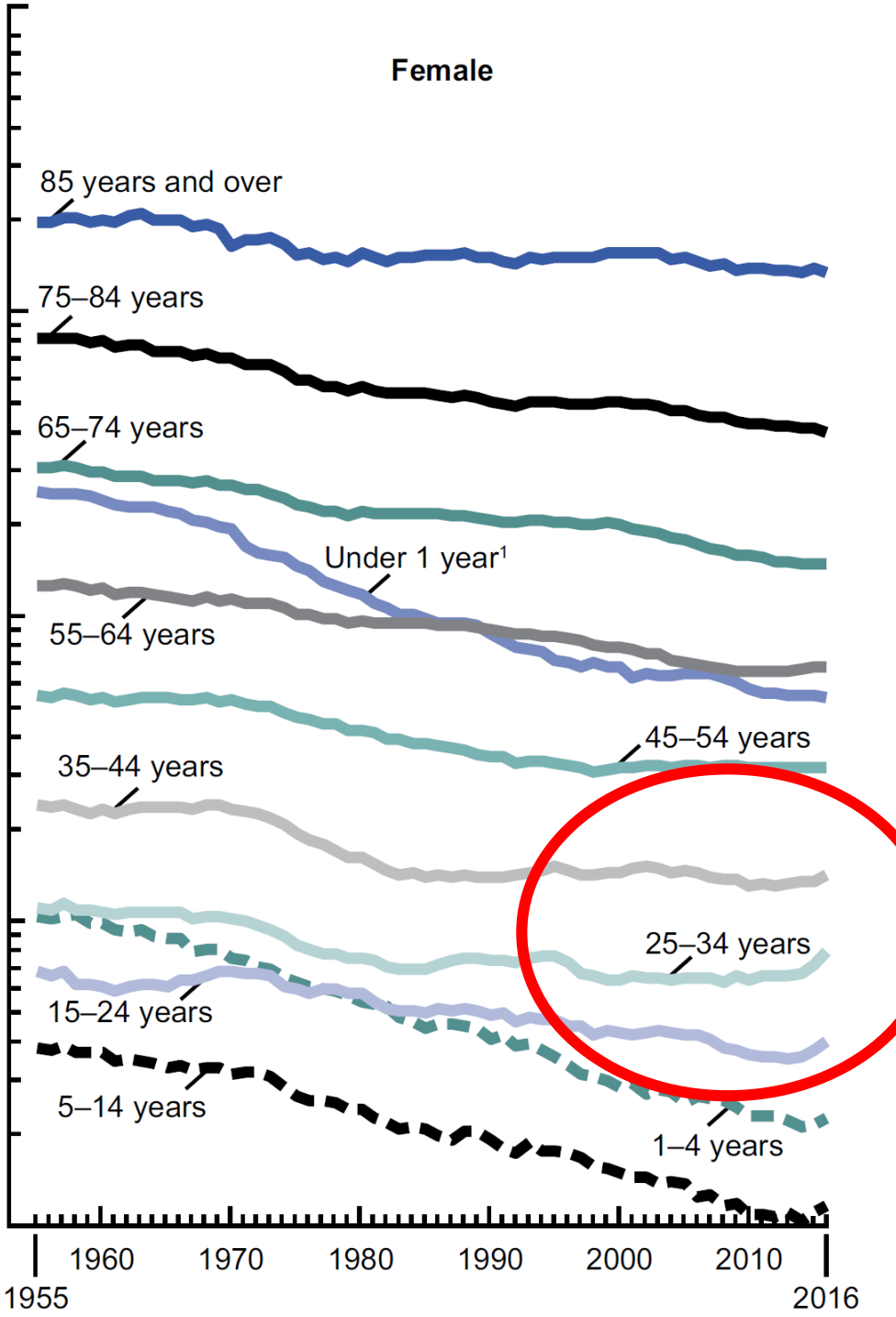
2. It’s not just about maternal mortality

STAT

Maternal deaths represent the canary in the coal mine for women’s health

By Eugene Declercq *and* Neel Shah

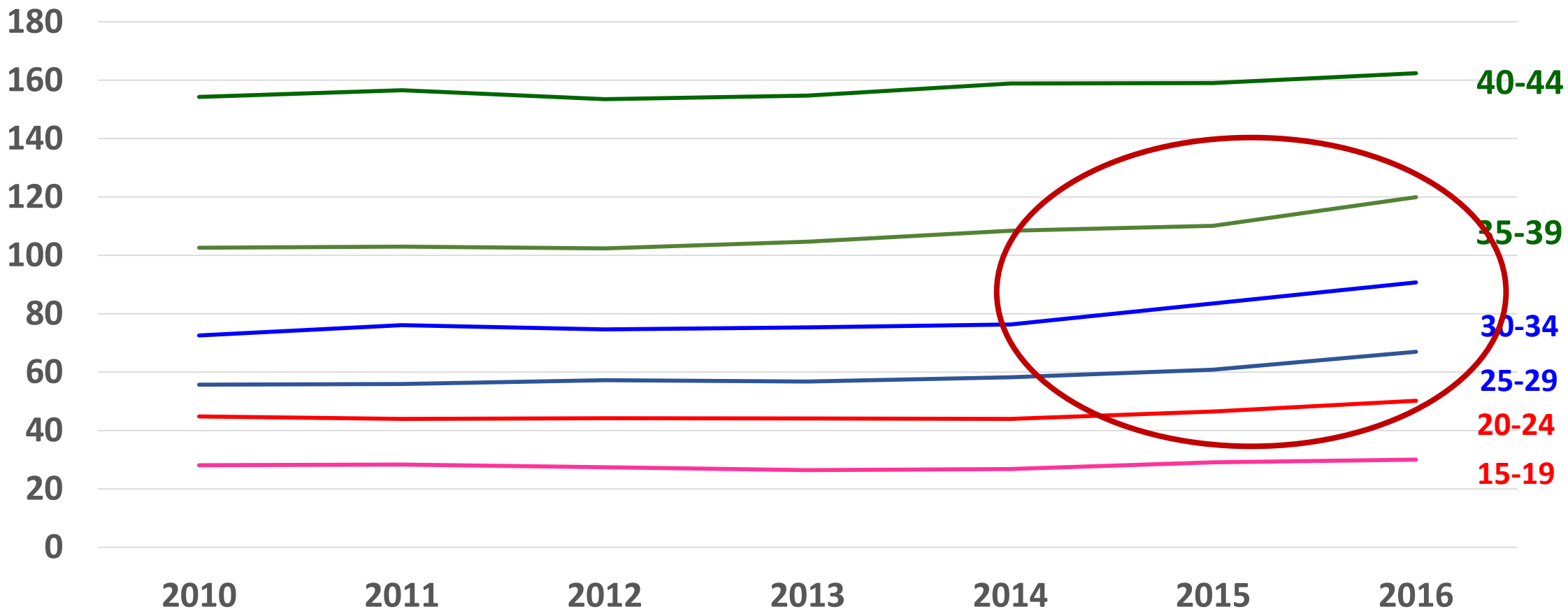
August 22, 2018



Births in U.S. by Maternal Age, 2017

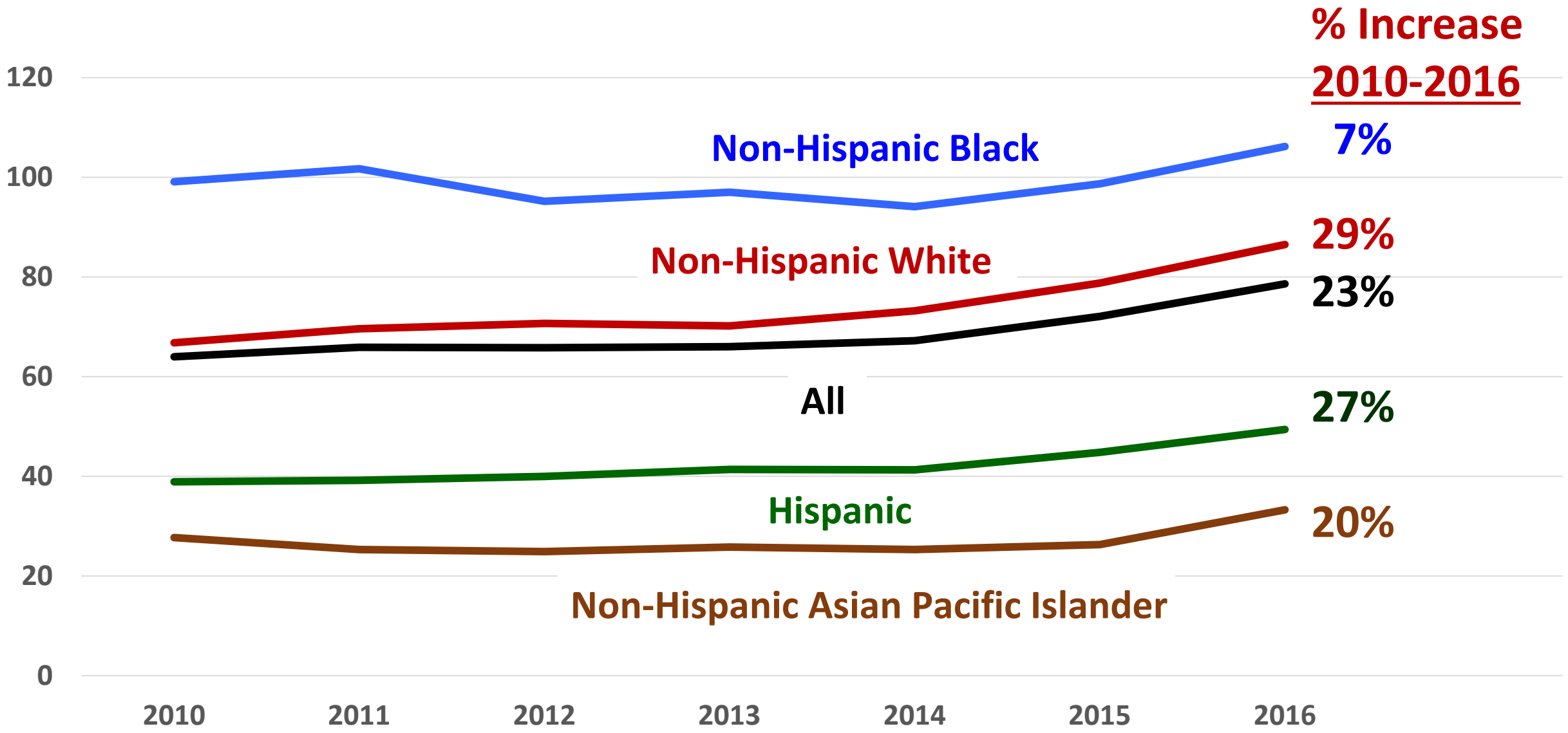
Age	# Births	%
<20	196,294	5.1%
20-24	764,780	19.8%
25-29	**1,123,577**	**29.1%**
30-34	**1,091,917**	**28.3%**
35+	678,932	17.6%
Total	3,855,500	100%

Female Death Rates (per 100,000) by Age, 2010-2016

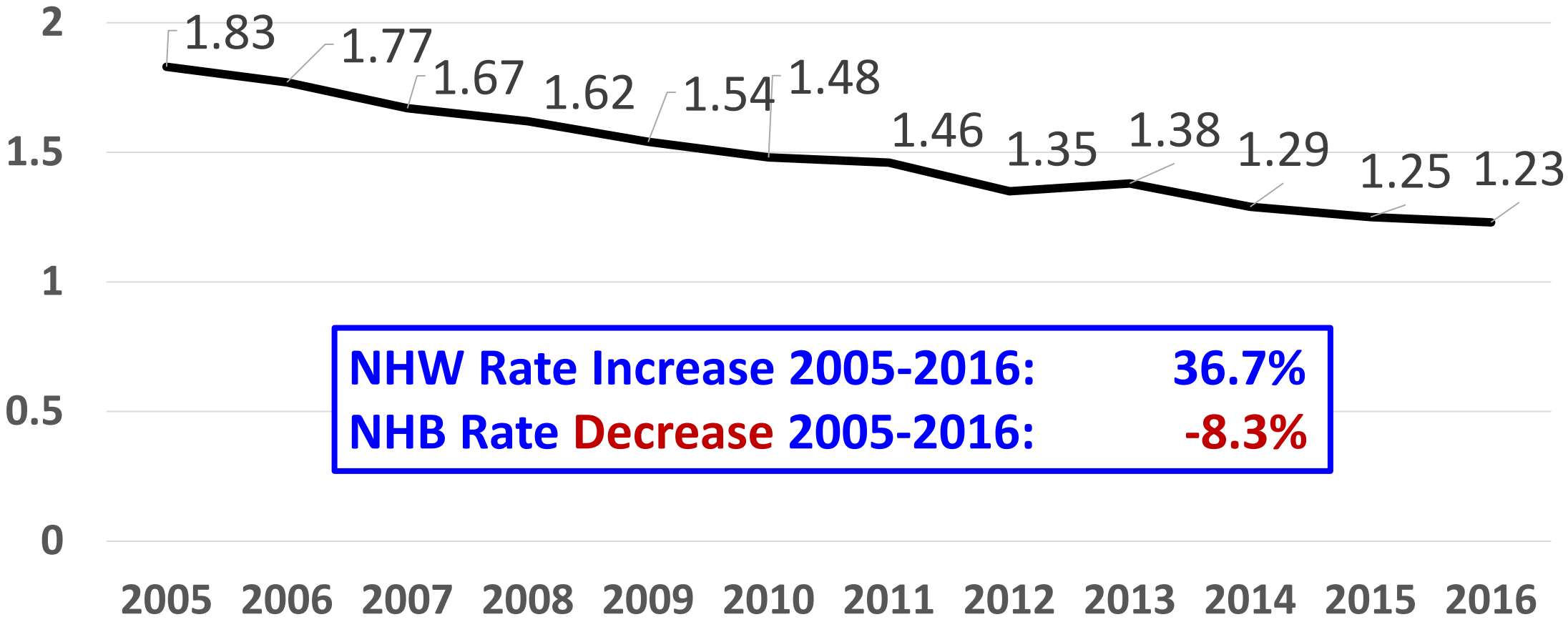


Source: Annual Reports of *Deaths: Final data. (for respective years).* National Vital Statistics Reports; Hyattsville, MD: National Center for Health Statistics

Overall Deaths rates (per 100,000), Females 25-34, by Race/Ethnicity, 2010-2016

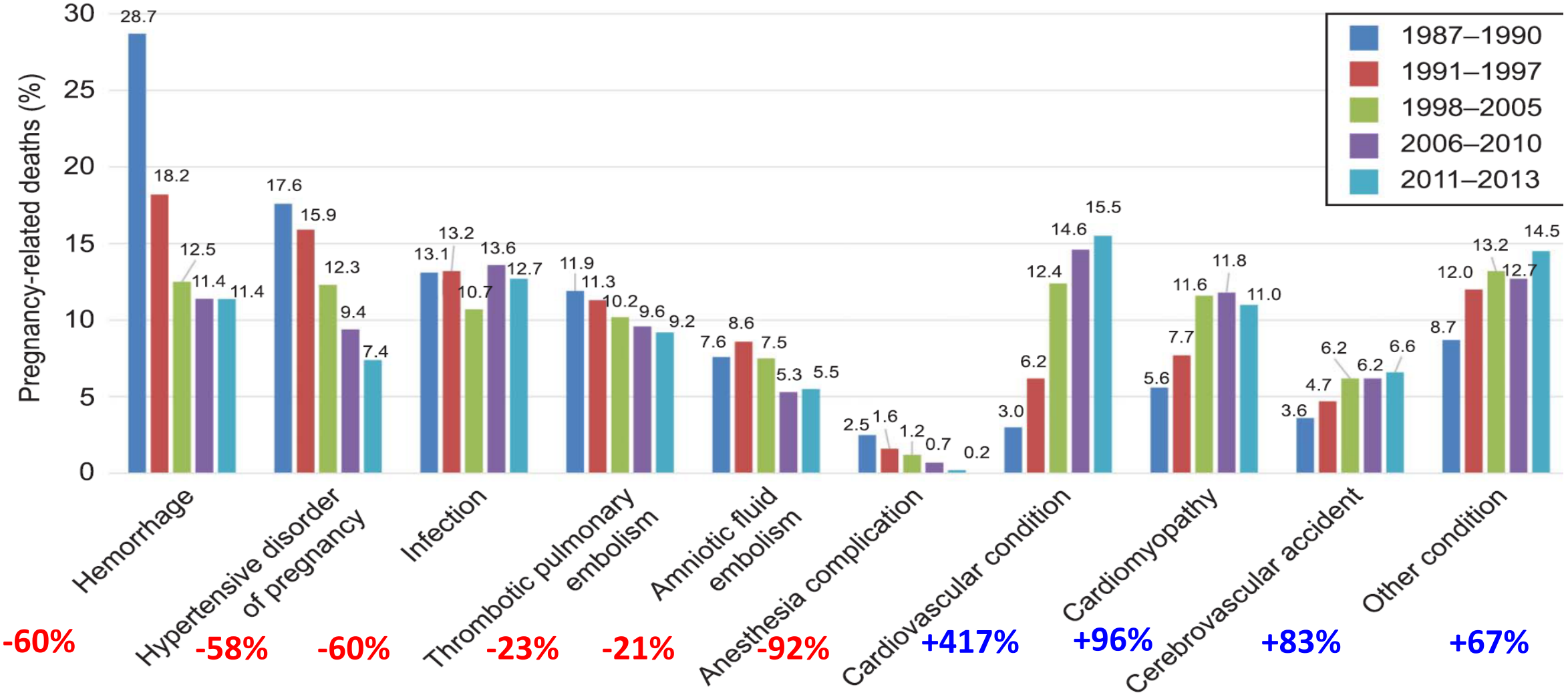


Ratio of Black/White Female Death Rates, Women 25-34, 2005-2016



What can we learn by examining causes of death?

Cause-specific proportionate pregnancy-related mortality: United States, 1987–2013.



Source: Creanga. Pregnancy-Related Mortality in the United States. Obstet Gynecol 2017.

Top 10 Causes of Death for Women 25-34 in 2010 & 2016

		2010					2016			
Rank		Total Deaths	% of total	Rate per 100 K	Rank		Total Deaths	% of total	Rate per 100 K	% Change in rate 2010-2016
	All causes	13067	100	64.0		**All causes**	17,359	100.0	78.6	**22.8%**
1	Accidents (unintentional injuries)	3770	28.9	18.5	1	**Accidents (unintentional inj.)**	6,247	36.0	28.3	**53.0%**
2	Malignant neoplasms	1,835	14.0	9.0	2	Malignant neoplasms	1,966	11.3	8.9	-1.1%
3	Intentional self-harm (suicide) .	1,092	8.4	5.3	3	**Intentional self-harm (suicide) .**	1,479	8.5	6.7	**26.4%**
4	Diseases of heart	1,010	7.7	4.9	4	Diseases of heart	1,141	6.6	5.2	6.1%
5	Assault (homicide)	684	5.2	3.3	5	**Assault (homicide)**	836	4.8	3.8	**15.2%**
6	Pregnancy, childbirth & puerperium	367	2.8	1.8	6	Pregnancy, childbirth & puerperium	472	2.7	2.1	**16.7%**
7	Diabetes mellitus	262	2.0	1.3	7	Chronic liver disease and cirrhosis	360	2.1	1.6	**77.8%**
8	Human immunodeficiency virus (HIV) disease	259	2.0	1.3	8	Diabetes mellitus	336	1.9	1.5	15.4%
9	Cerebrovascular diseases	253	1.9	1.2	9	Cerebrovascular diseases	244	1.4	1.1	-8.3%
10	Chronic liver disease and cirrhosis	180	1.4	0.9	10	Septicemia	210	1.2	1.0	NA
	All other causes (residual)	3,355	25.7	16.4		All other causes (residual)	4,068	23.4	18.4	12.2%

Sources: Heron M. *Deaths: Leading causes for 2010*. National vital statistics reports; vol62 no 6. Hyattsville,MD: National Center for Health Statistics. 2013 & Heron M. *Deaths: Leading causes for 2016*. National Vital Statistics Reports; vol 67 no 6. Hyattsville, MD: National Center for Health Statistics. 2018.

So if "Accidents" are the problem, what do we mean by accidents?

	U.S. Females 25-34			
Source: CDC Wonder	**2010**	**2016**	**'12-'16 Diff.**	**% of total**
All	13,067	18,066	4,999	**increase**
Accidents	5,859	9,547	3,688	73.8%
Motor Vehicle & Transport	1,469	1,784	315	6.3%
Falls	45	53	8	0.2%
Accidental deaths from:				
Firearms	13	9	-4	-0.1%
Drowning	77	94	17	0.3%
Exposure to smoke & fire	57	59	2	0.0%
Poisoning & exposure to noxious substances	**1,965**	**4,510**	**2545**	**50.9%**
Other	2,233	3,038	805	16.1%

Figure 1. Proportion of pregnancy associated deaths related to substance use by year of death — Massachusetts 2005–2014.

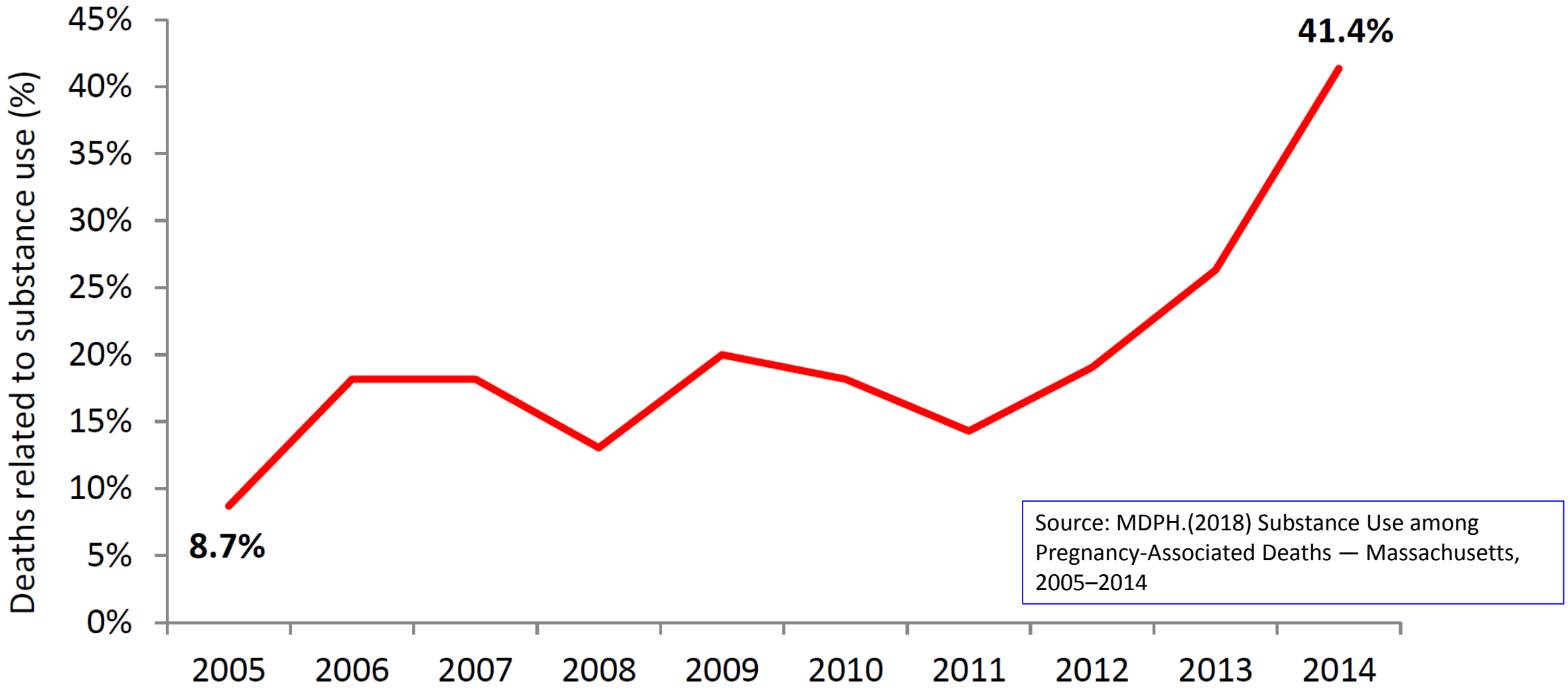


Figure 2: Timing of substance use-related vs. all pregnancy-associated deaths —Massachusetts, 2005–2014.

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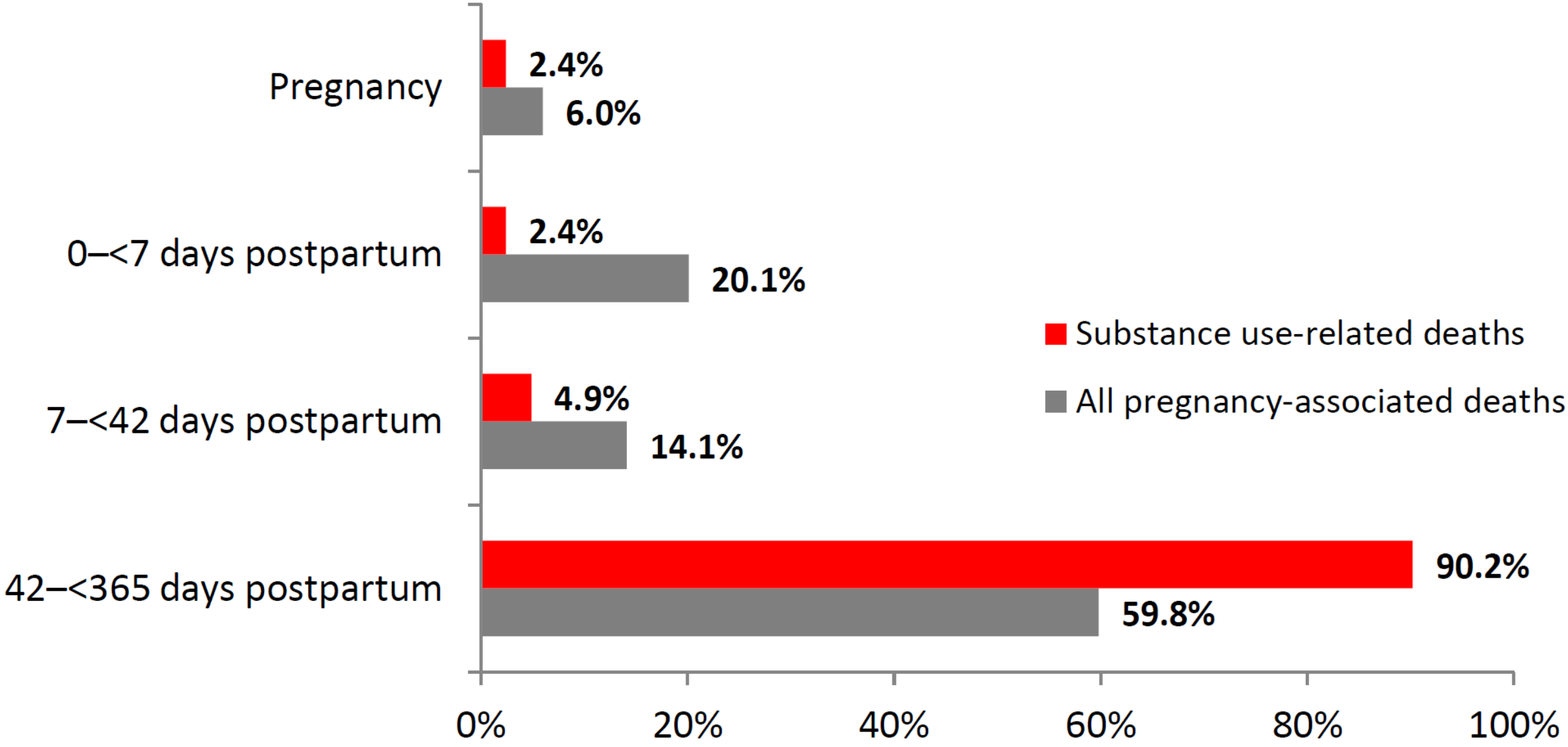
Source: MDPH.(2018) Substance Use among Pregnancy-Associated Deaths — Massachusetts, 2005–2014



What Were the Factors that Contributed to this Death?

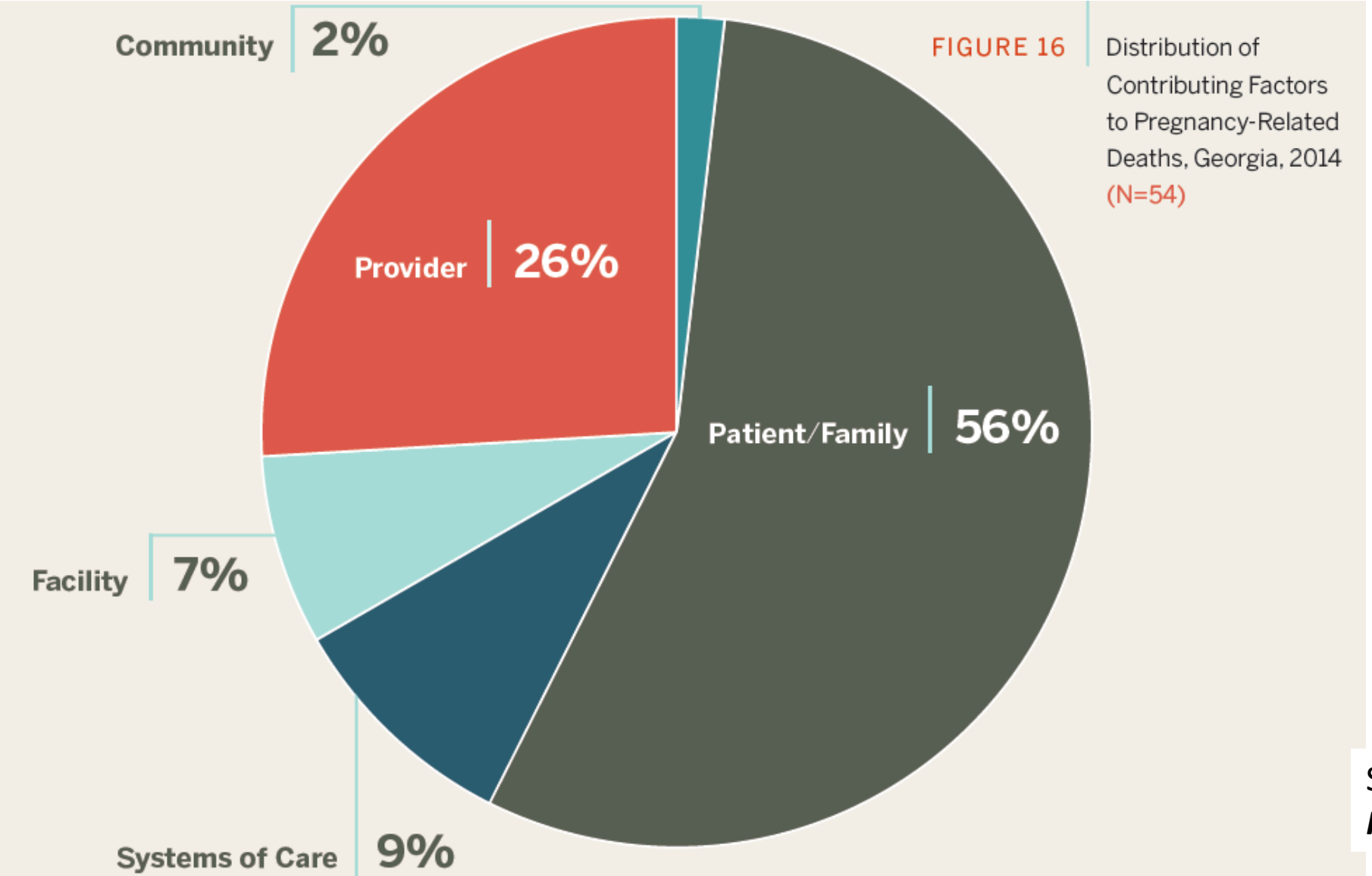
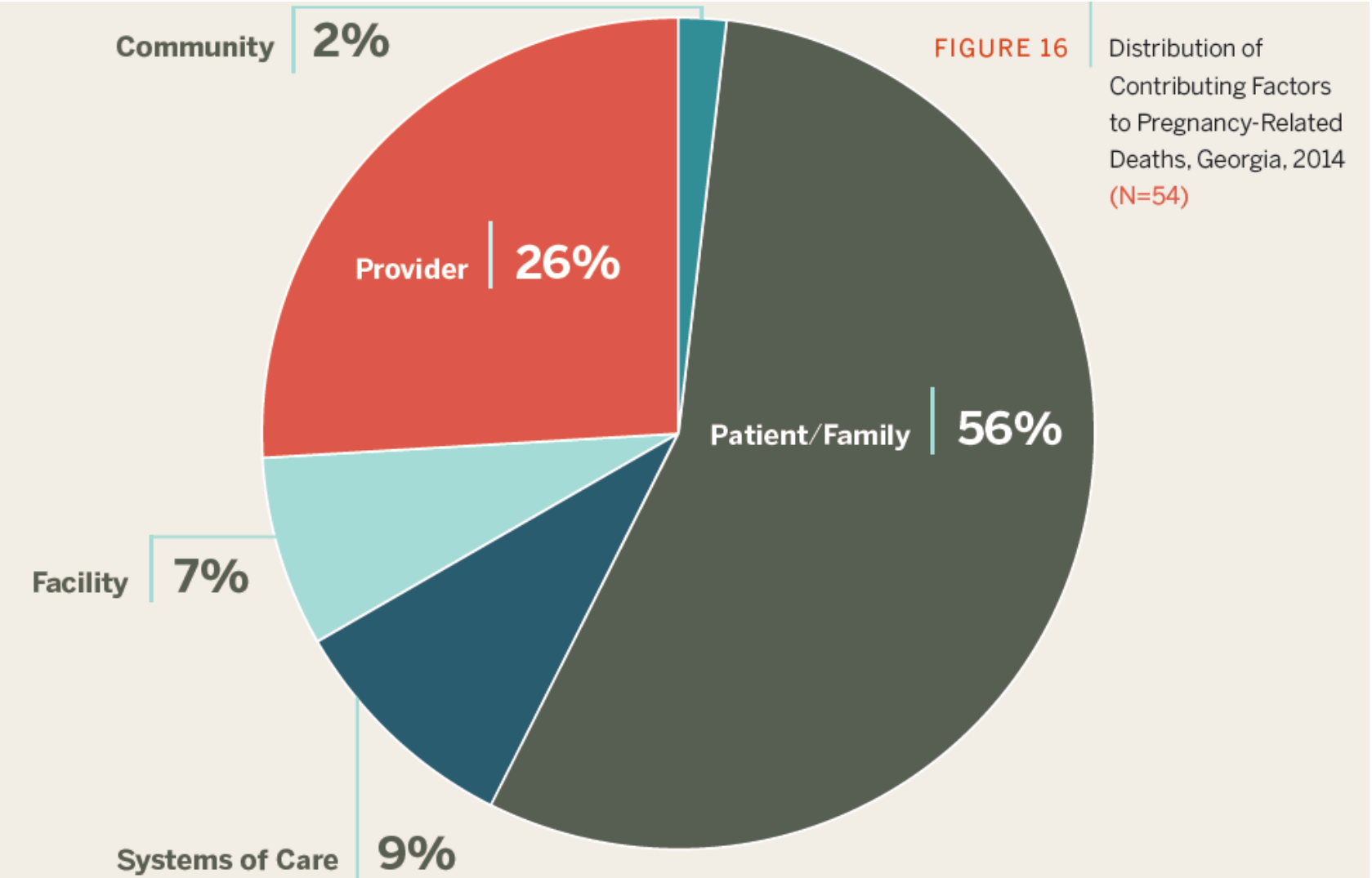


FIGURE 16 Distribution of Contributing Factors to Pregnancy-Related Deaths, Georgia, 2014 (N=54)

Source: ***Georgia Maternal Mortality Report, 2014*** **(March, 2019)**

What Were the Factors that Contributed to this Death?



If only a third of all these pregnancy related deaths involved provider or facility contributors, what are we doing about the other 67%?

Source: ***Georgia Maternal Mortality Report, 2014*** **(March, 2019)**

2. It's not just about maternal mortality

- The growth in maternal mortality is real and serious, but it's a subset of the larger picture of a growing death rate among women of reproductive age

- The driving force in the increase in deaths to women of reproductive age is an increase in accidents and that is driven by a massive increase in accidental poisonings

- ***Who is best positioned to examine this larger challenge?***

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- ***Who is best positioned to examine this larger challenge?***

Maternal Mortality Review Committees and

Perinatal Quality Collaboratives

3. Addressing the Challenges

- **Clinical Challenge** – ***how do we improve clinical care and make it more safe?***

- ***Personal Challenge –*** ***how do we better incorporate the voices of mothers into the process?***

- ***Policy Challenges –*** ***how do we get policymakers to care about women's health?***

3. Addressing the Clinical Challenges

ALLIANCE FOR INNOVATION ON MATERNAL HEALTH AIM

CDC - PERINATAL QUALITY COLLABORATIVES WEBINAR SERIES

CDC Division of Reproductive Health
Perinatal Quality Collaboratives (PQCs)

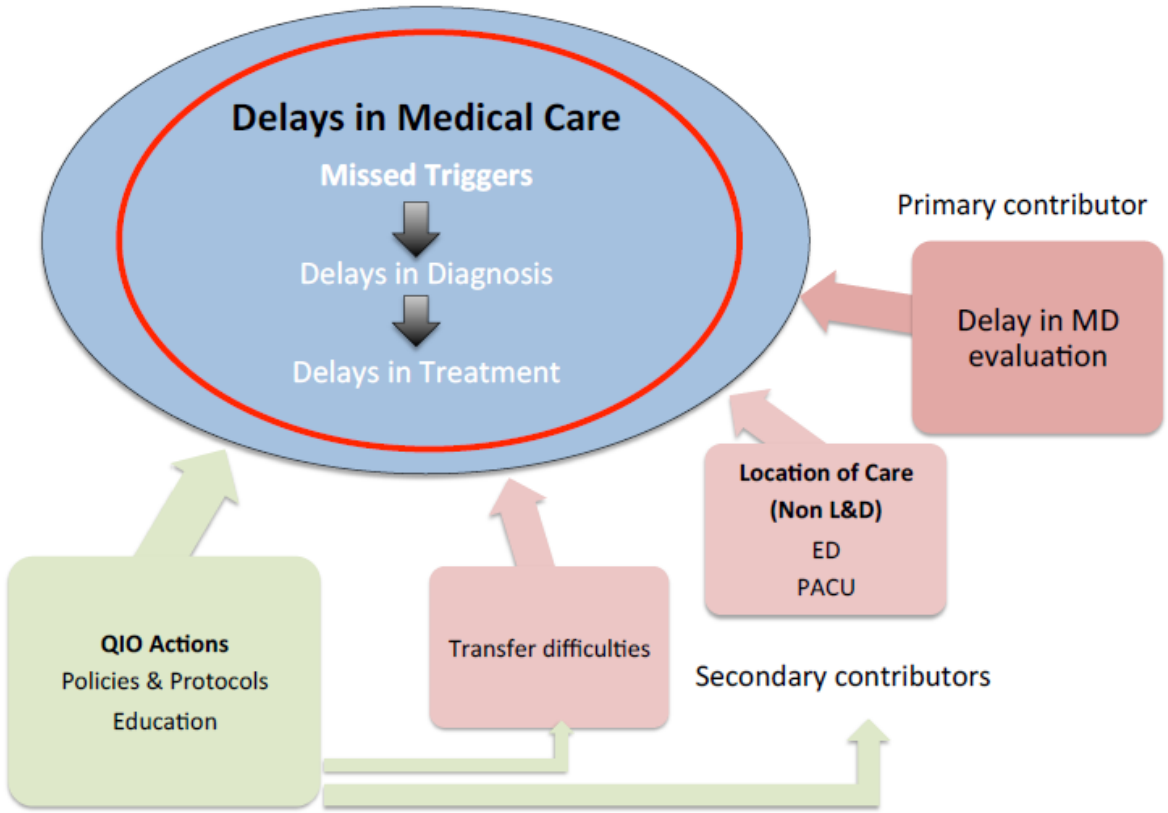
March of Dimes

NNPQC
National Network of Perinatal Quality Collaboratives

3. Addressing the Clinical Challenges

- Been notable efforts, primarily from the California Quality Maternity Care Collaborative to improve clinical care in maternal health with toolkits addressing hemorrhage, cardiac disease, pre-eclampsia, maternal venous thrombosis.

READINESS
Every unit ✓ Hemorrhage cart with supplies, checklist, instruction cards and posters ✓ Immediate access to hemorrhage medications (kit or equivalent) ✓ Establish a response team – who to call when help is needed ✓ Establish massive and emergency release transfusion protocols/policies (type O negative/uncrossmatched) ✓ Unit education on processes, unit-based drills (with post-drill debriefs)
RECOGNITION & PREVENTION
Every patient ✓ Assessment of hemorrhage risk (prenatal, on admission, prior to delivery and post birth) ✓ Measurement of cumulative blood loss (formal, as quantitative as possible) ✓ Active management of 3rd stage of labor
RESPONSE
Every hemorrhage ✓ Unit-standard, stage-based on QBL, obstetric hemorrhage emergency management plan with checklists ✓ Support program for patients, families, and staff for all significant hemorrhages
REPORTING/SYSTEMS LEARNING
Every unit ✓ Establish a culture of huddles for high risk patients and post-event debriefs to identify successes and opportunities ✓ Multidisciplinary review of significant hemorrhages for systems issues ✓ Monitor outcomes and process metrics in perinatal quality improvement committee



3. Addressing the Personal Challenges: Listening to Mothers

Listening to Mothers in California:

A POPULATION-BASED SURVEY OF WOMEN'S CHILDBEARING EXPERIENCES

FULL SURVEY REPORT

Table 17. Demographic Overview of Survey Participants Using Birth Certificates and Survey Responses, and Comparison With Statewide and Federal Birth Certificate Data, 2016

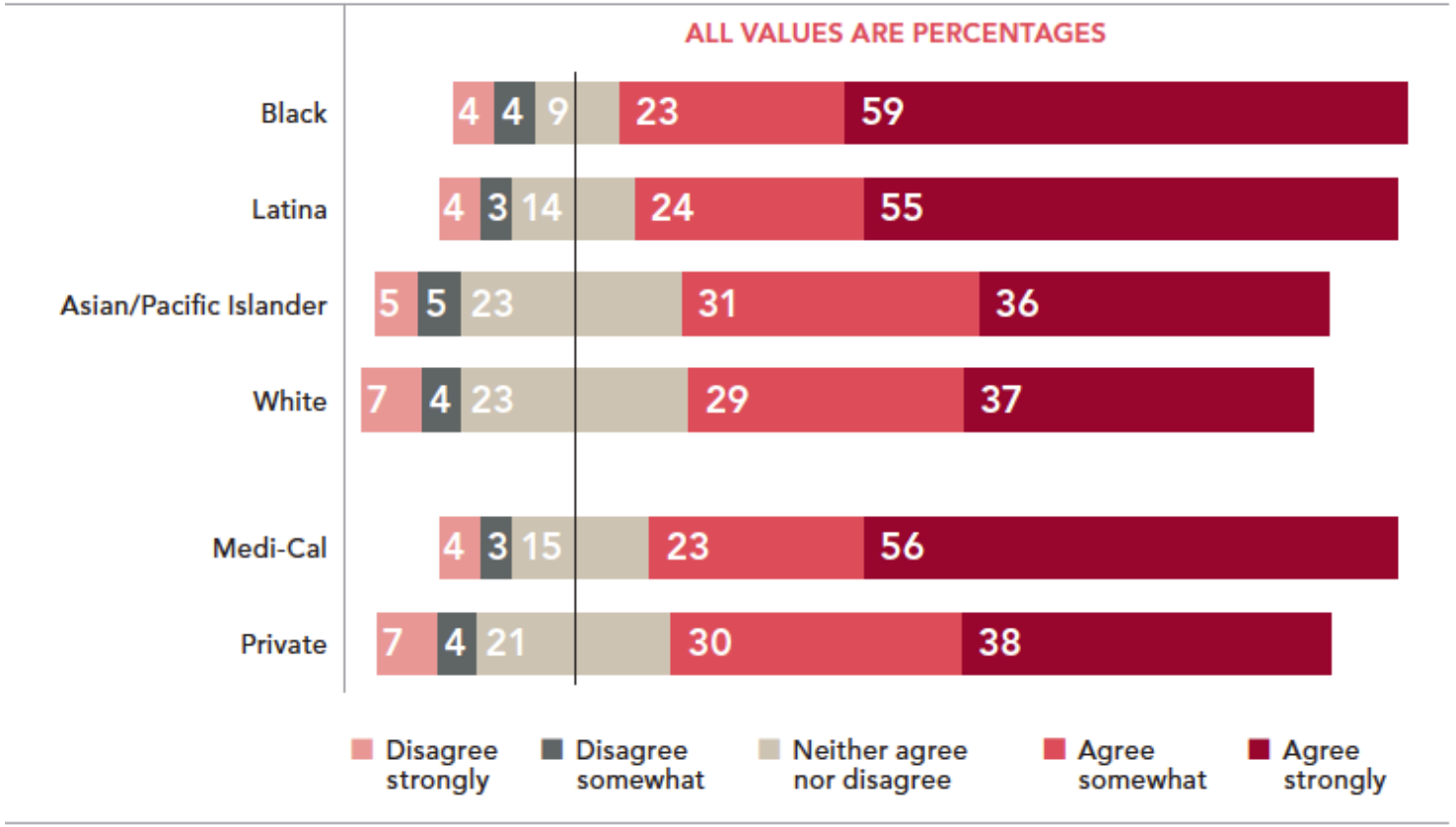
	Singleton hospital births to women 18+, California, 2016	*Listening to Mothers in California* respondents, weighted birth certificate items, 2016	*Listening to Mothers in California* respondents, unweighted maternal responses, 2016	*Listening to Mothers in California* respondents, weighted maternal responses 2016	Singleton hospital births to women 18+, United States, 2016
Maternal age					
18–19	3%	3%	4%	4%	4%
20–24	18%	17%	18%	18%	21%
25–29	27%	27%	28%	27%	30%
30–34	30%	30%	30%	30%	29%
35+	22%	22%	20%	22%	17%
Race/ethnicity					
White, non-Hispanic	28%	28%	25%	27%	52%
Latina/ Hispanic	48%	48%	50%	50%	23%
Asian/Pacific Islander, non-Hispanic	14%	15%	13%	13%	7%
Black, non-Hispanic	5%	5%	9%	5%	14%
Other, non-Hispanic	0%	0%	4%	3%	4%

Women Do Not Want Childbirth to Be Interfered With

Beliefs About Childbirth and Medical Interference
By Race/Ethnicity and Payer, California, 2017

BASE: ALL WOMEN WHO ANSWERED THIS QUESTION

"How much do you agree or disagree with the following statement? Childbirth is a process that should not be interfered with unless medically necessary."



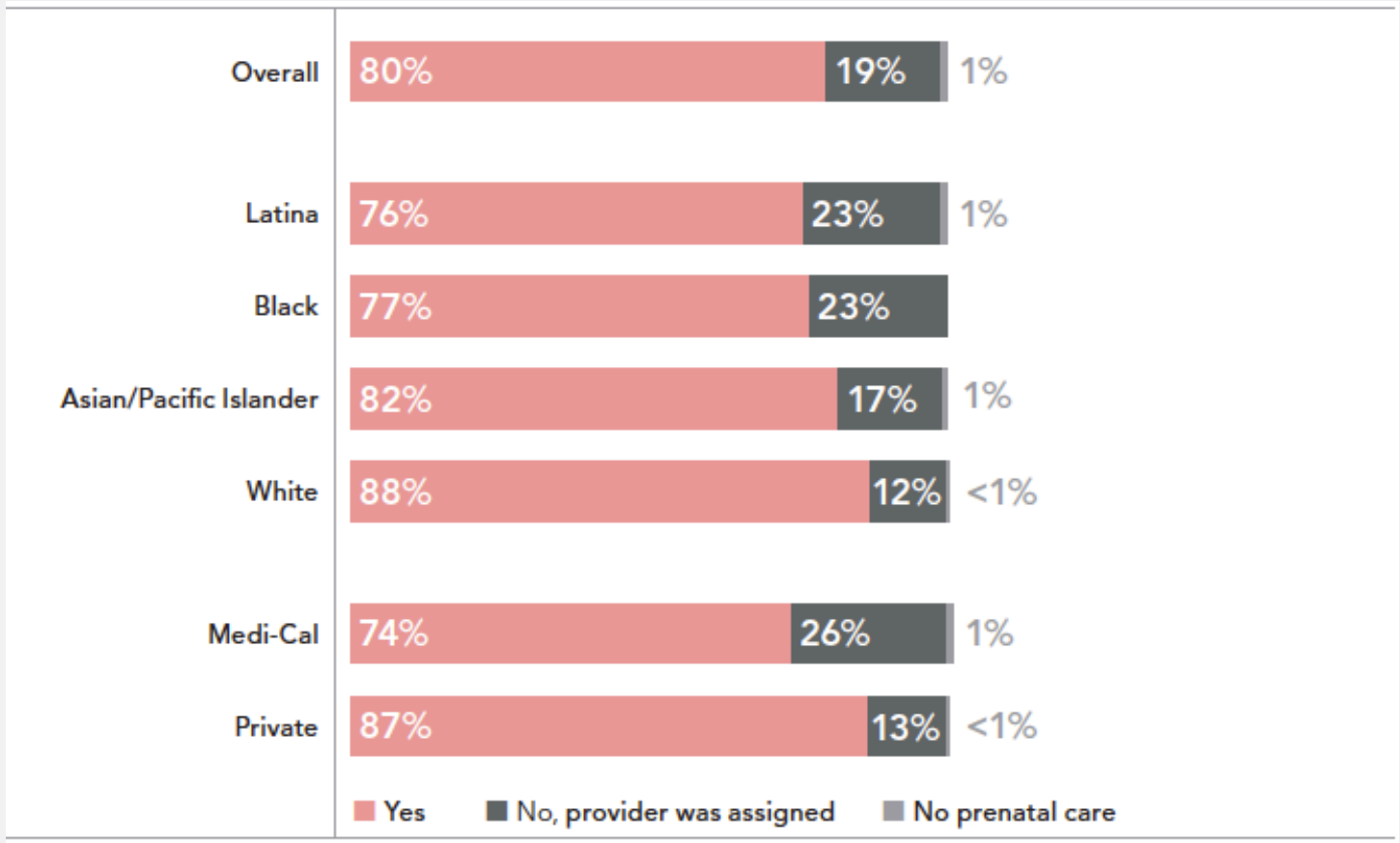
Notes: Not all eligible respondents answered each item. Segments may not add to 100% due to rounding. P < .01 for differences by payer
Sources: Listening to Mothers in California (statewide survey of 2,539 women who gave birth in California hospitals in 2016), National Partnership for Women & Families, 2018; www.nationalpartnership.org.

- ***Medi-Cal beneficiaries, and Black women and Latinas more strongly wished to avoid unneeded childbirth interventions than counterparts.***

"There was a question about birth being a process, and I think … believing in mothers and trusting them during that process is important. We know our bodies. We know how we are feeling…. [In my case,] no one would listen."

Many Women Had No Choice of Prenatal Care Provider

Choice of Prenatal Care Provider
by Race/Ethnicity and Payer, California, 2016



Notes: Not all eligible respondents answered each item. Medi-Cal respondents were identified based upon a Medi-Cal record of a paid 2016 childbirth claim. Privately insured respondents self-identified in the survey. $p < .01$ for differences by race/ethnicity and by payer
Source: Listening to Mothers in California (statewide survey of 2,539 women who gave birth in California hospitals in 2016), National Partnership for Women & Families, 2018, www.chcf.org (PDF).

Related results:

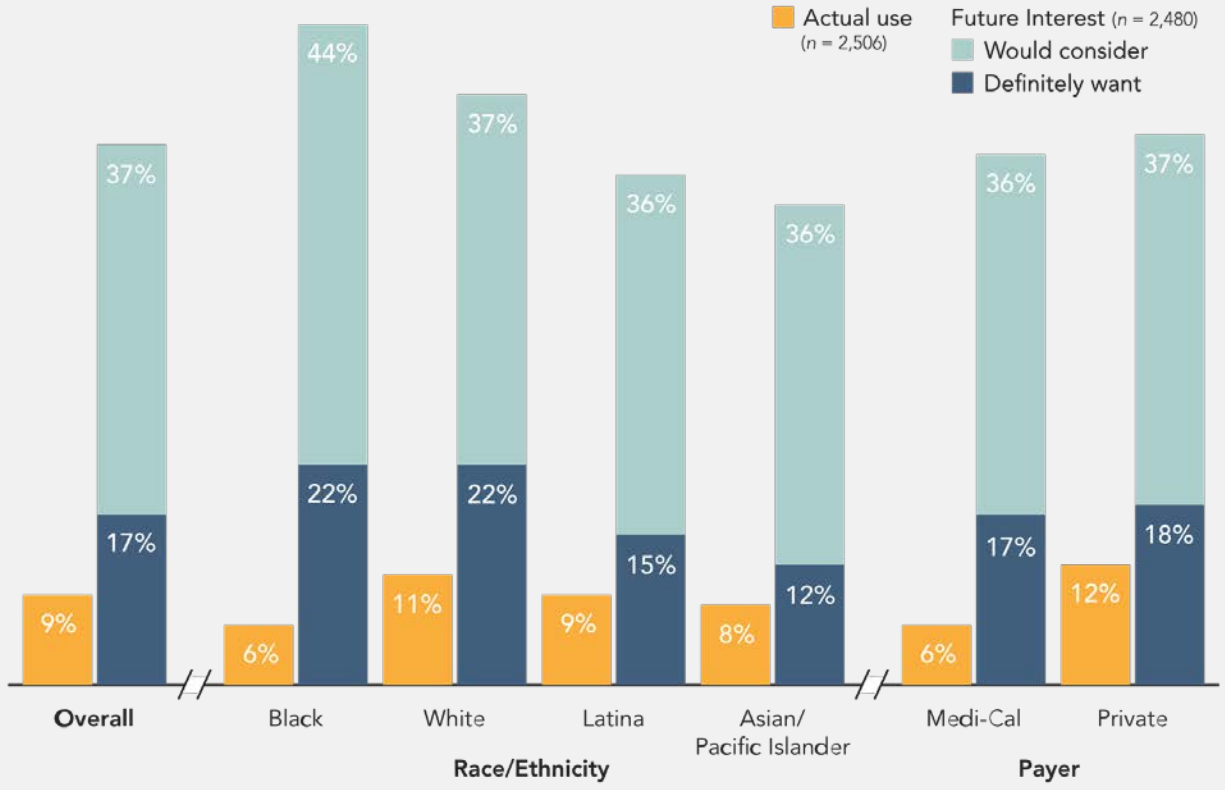
- *Most used OBs*
  - *80% prenatal, 63% at birth*
- *Some further chose "doctor, but I'm not sure what type"*
- *Few appear to use family physicians*
- *Fewer than 1 in 10 used midwives*
  - *7% prenatal, 9% at birth*

Most Women Open to Using Midwife for Future Birth

Midwife Use: Actual Use as Birth Attendant in 2016 and Future Interest by Race/Ethnicity and Payer, California, 2016

BASES: ALL WOMEN WHO ANSWERED THIS QUESTION

If you have a future pregnancy, how open would you be to having a midwife as your maternity care provider (with doctor care, if needed)?



Notes: Data shown for use of midwife as birth provider. Midwives were the main prenatal care providers for 7% of survey participants (not shown). Not shown: "Would definitely not want this" and "not sure." Not all eligible respondents answered each item. Medi-Cal respondents were identified based upon a Medi-Cal record of a paid 2016 childbirth claim. Privately insured respondents self-identified in the survey. Differences within groups were not significant.

Sources: Listening to Mothers in California (statewide survey of 2,539 women who gave birth in California hospitals in 2016), National Partnership for Women & Families, 2018; California Department of Health Care Services MIS/DSS Data Warehouse.

The US is an outlier in midwife use:

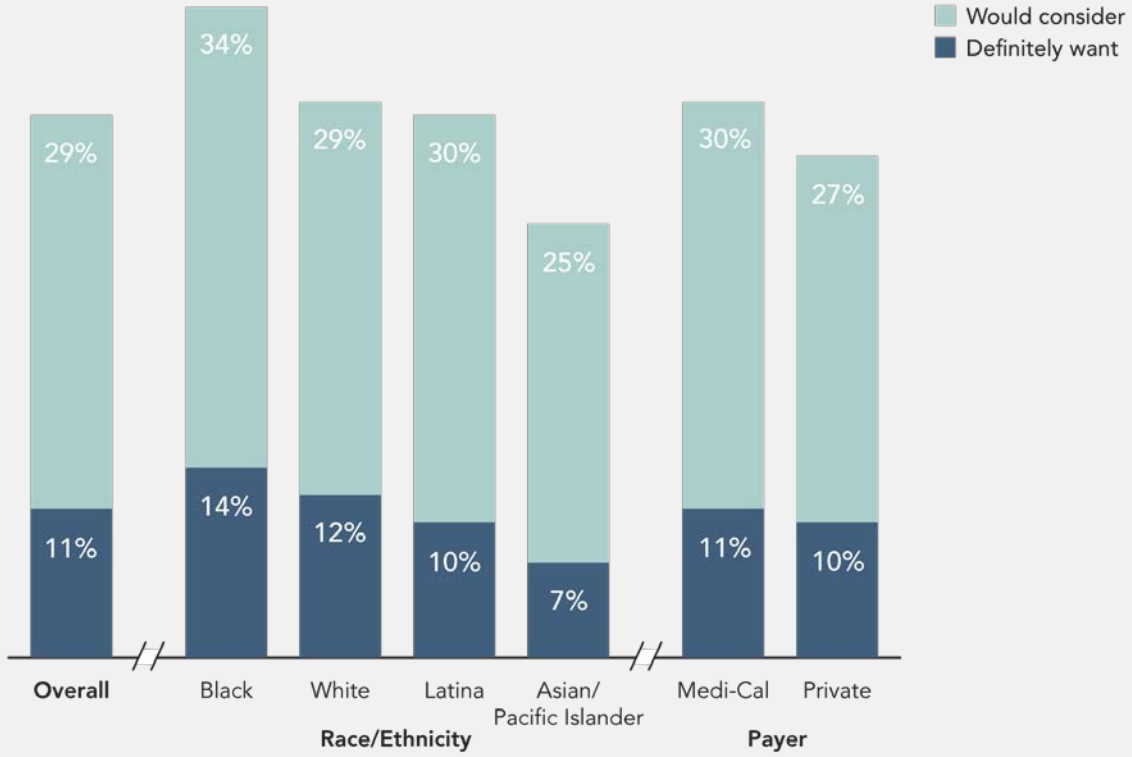
- *Midwives are commonly used in high-income countries with strong maternal outcomes.*
- *Survey revealed lack of knowledge about midwives.*
  - *Studies show midwives have similar outcomes and fewer interventions than doctors.*
  - *63% of those who would definitely not want a midwife in the future thought doctors provide higher quality care.*

Many Women Would Consider Birth Center for Future Birth

Future Interest in Birth Center Use by Race/Ethnicity and Payer, California, 2016

BASE: ALL WOMEN WHO ANSWERED THIS QUESTION (n = 2,482)

If you have a future pregnancy, how open would you be to giving birth in a birth center that is separate from a hospital (with hospital care, if needed)?



Notes: "Would definitely not want this" and "not sure" not shown. Medi-Cal respondents were identified based upon a Medi-Cal record of a paid 2016 childbirth claim.
Privately insured respondents self-identified in the survey. Not all eligible respondents answered each item. $p < .01$ for differences by race/ethnicity and by payer.
Sources: Listening to Mothers in California (statewide survey of 2,539 women who gave birth in California hospitals in 2016), National Partnership for Women & Families, 2018; California Department of Health Care Services MIS/DSS Data Warehouse; Natality public-use data 2007–16 in CDC WONDER database, Centers for Disease Control and Prevention, February 2018, accessed March 6, 2018, wonder.cdc.gov.

From final 2016 birth certificate file:

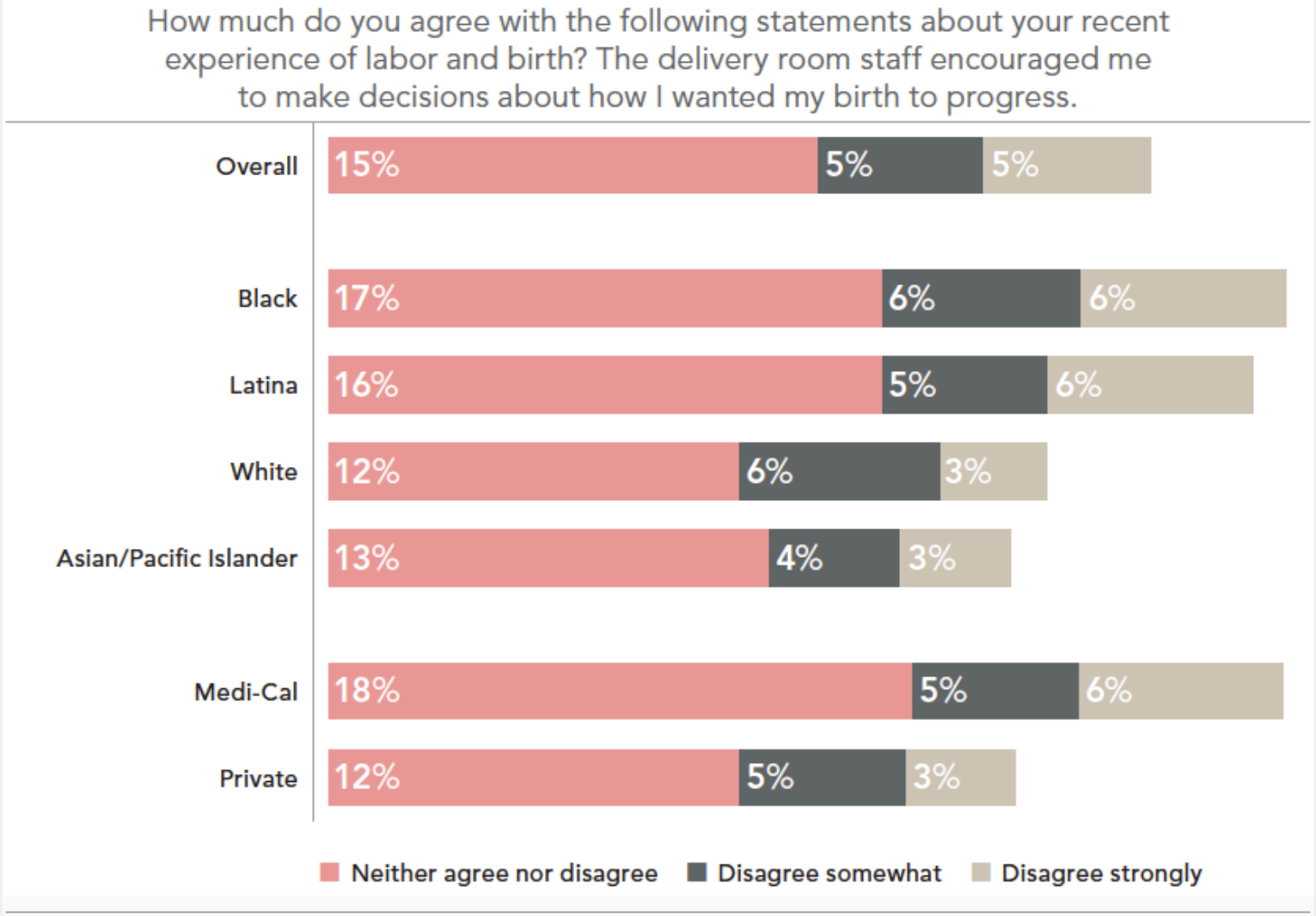
- *Only 0.3% of California women gave birth in a freestanding birth center per final 2016 birth certificate file.*

"I initially wanted a midwife, a doula and a birth center. Insurance wouldn't cover this so we went with the traditional OB and hospital route."

Most Laboring Women Experienced Decision Autonomy

Decision Autonomy by Race/Ethnicity and Payer, California, 2016

BASE: WOMEN WHO EXPERIENCED LABOR (n = 2,067)



Notes: Not all eligible respondents answered each item. "Agree strongly" and "agree somewhat" not shown. P < .01 for difference by payer
Source: Listening to Mothers in California (statewide survey of 2,539 women who gave birth in California hospitals in 2016), National Partnership for Women & Families, 2018. California Department of Health Care Services MIS/DSS Data Warehouse.

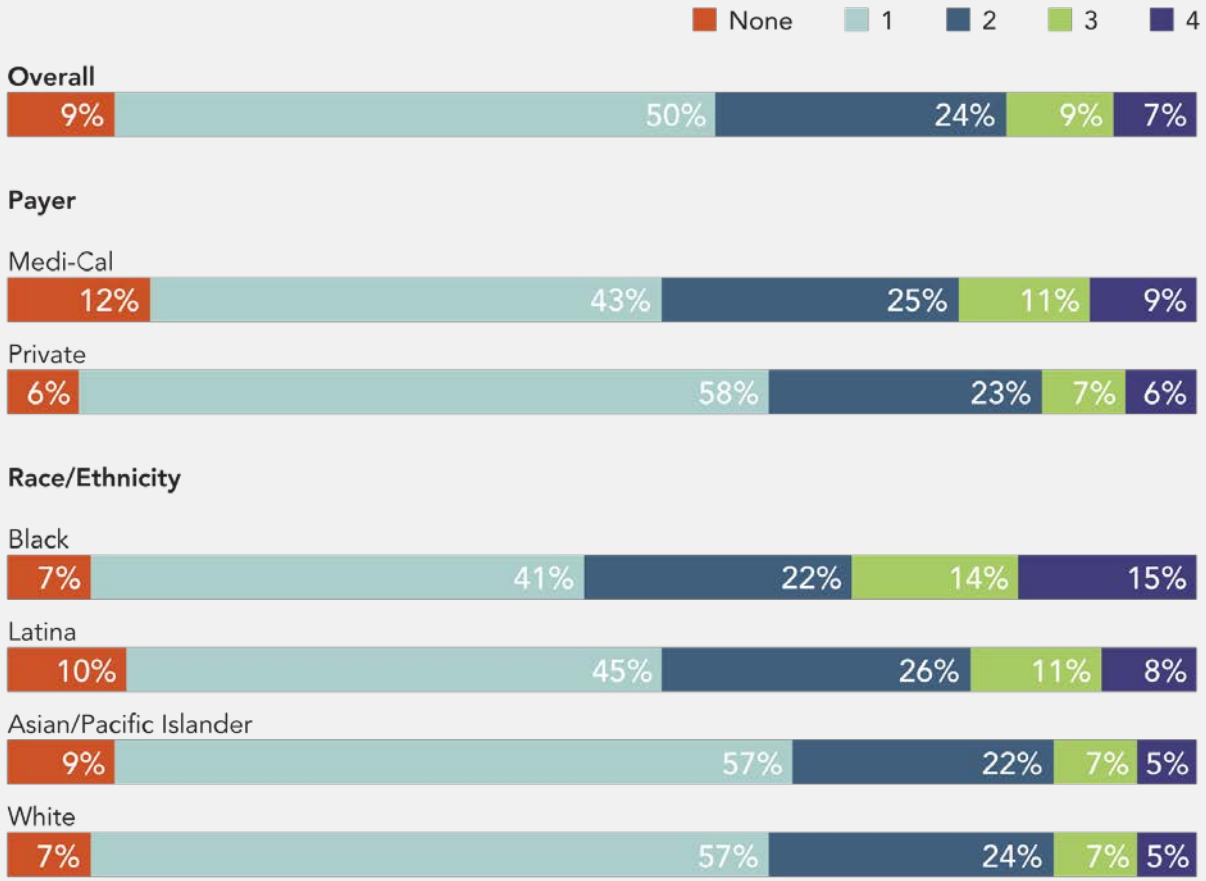
"I felt like I was able to have my labor progress the way I wanted without anyone telling me what I should do. I got support when I asked for things and even got help from a nurse on a good position as I was pushing."

"I had a horrid OB that broke my water and inserted monitor and catheters without telling me. … I did not get skin-to-skin time and could not breastfeed until hours before I was discharged."

Fewer than 1 in 10 Women Had No Postpartum Visit

Number of Maternal Postpartum Office Visits by Payer and Race/Ethnicity, California, 2016

BASE: ALL WOMEN WHO ANSWERED THIS QUESTION (*n* = 2,444)



Notes: Medi-Cal respondents were identified based upon a Medi-Cal record of a paid 2016 childbirth claim. Privately insured respondents self-identified in the survey. Not all eligible respondents answered each item. $p < .01$ for differences by race/ethnicity and by payer.
Sources: Listening to Mothers in California (statewide survey of 2,539 women who gave birth in California hospitals in 2016), National Partnership for Women & Families, 2018; California Department of Health Care Services MIS/DSS Data Warehouse.

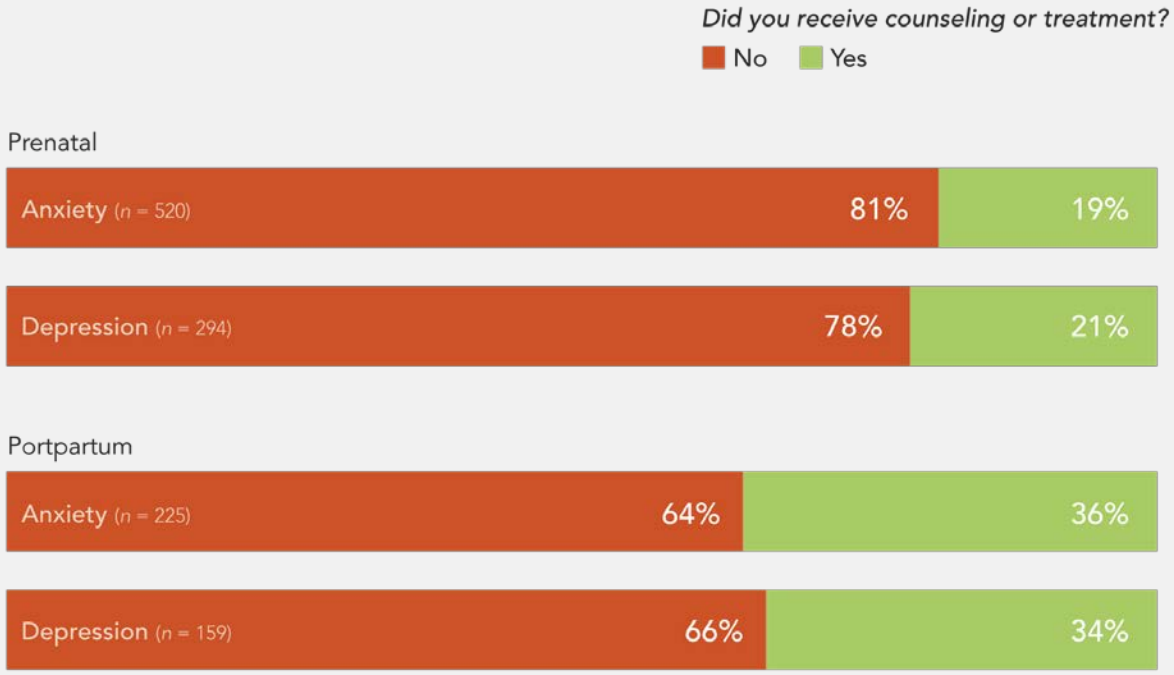
"Overall I had a great birthing experience, but I was shocked by how little support the OBGYN office and doctors provided about everything beyond the childbirth process itself."

"I would have loved to have more postpartum care and breastfeeding help."

Minority of Women with Anxiety or Depression Symptoms Received Treatment

Prenatal and Postpartum Counseling and Treatment Among Women Reporting Symptoms of Anxiety or Depression California, 2016

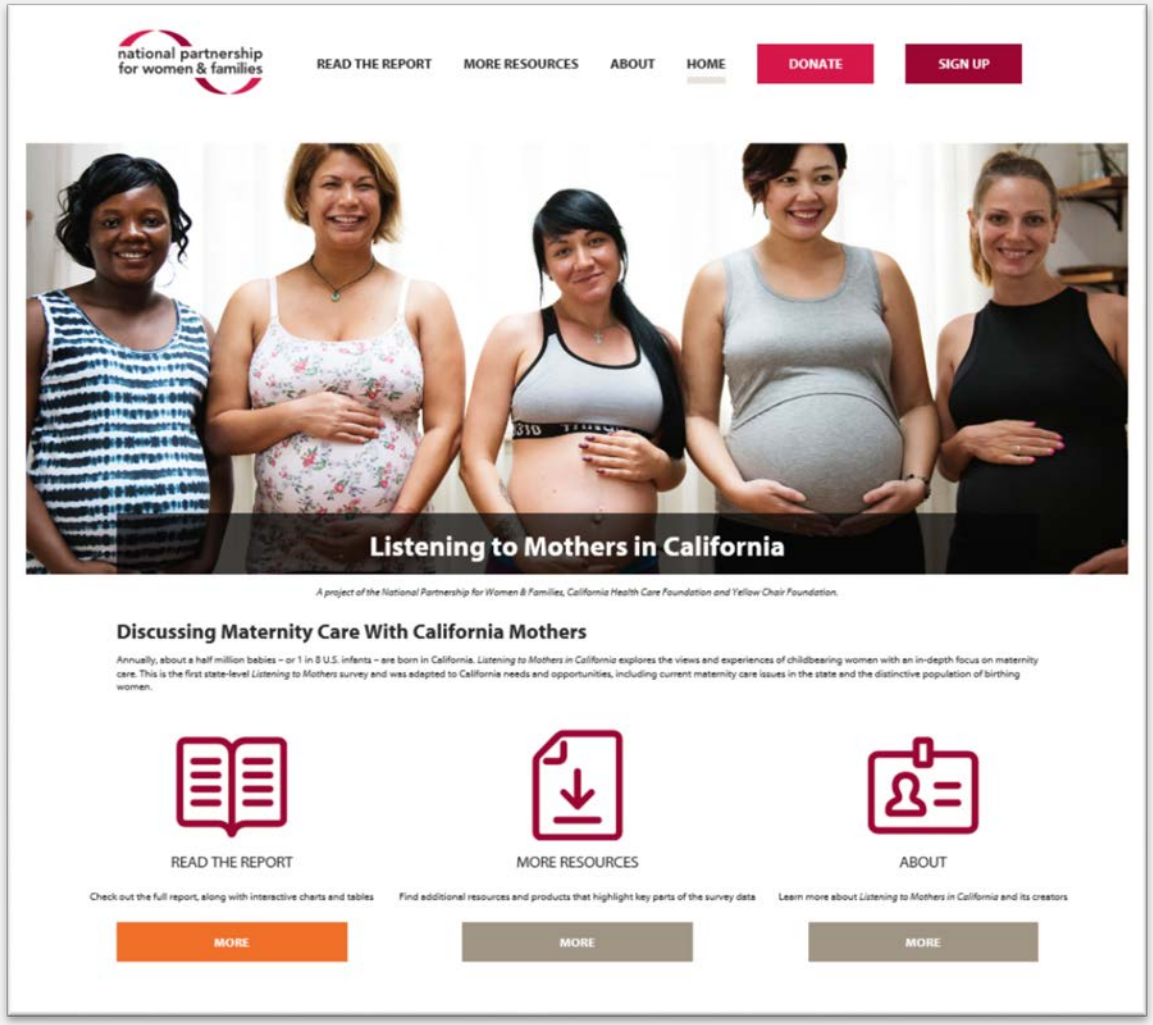
BASE: ALL WOMEN SCREENING POSITIVE FOR PRENATAL/POSTPARTUM ANXIETY OR DEPRESSION



Notes: Women were asked two questions each about the frequency of anxiety symptoms and depression symptoms both "during your recent pregnancy" and "during the last two weeks.* Not all eligible respondents answered each item.
Source: Listening to Mothers in California (statewide survey of 2,539 women who gave birth in California hospitals in 2016), National Partnership for Women & Families, 2018.
*Kurt Kroenke et al., "An Ultra-Brief Screening Scale for Anxiety and Depression: The PHQ–4," Psychosomatics 50, no. 6 (Nov.–Dec. 2009): 613–21, doi:10.1016/S0033-3182(09)70864-3.

"There needs to be more measures taken to prevent PPD (postpartum depression) and places for mothers to go for help without feeling stigmatized for it."

Where to Find Project Resources



www.chcf.org/listening-to-mothers-ca

www.nationalpartnership.org/ltmca

3. Addressing the Policy Challenges

- Preventing Maternal Deaths Act of 2018 was not easy to pass, but it can't be just symbolic reassurance that the government is doing something about maternal mortality

- Advocates need to use the current concern with maternal mortality to advocate for women's health

- Real change and improvements will cost money since it means providing more comprehensive care for ***women…when they're not pregnant***

Policy Responses

Senate Bill 273

By: Senators Burke of the 11th, Unterman of the 45th, Bethel of the 54th and Hufstetler of the 52nd

AS PASSED

A BILL TO BE ENTITLED

AN ACT

To amend Chapter 2A of Title 31 of the Official Code of Georgia Annotated, relating to the Department of Public Health, so as to require the Department of Public Health to establish the Maternal Mortality Review Committee to review maternal deaths; to provide for legislative findings; to provide for data; to provide for confidentiality; to provide for limited liability; to provide for reports; to provide for related matters; to repeal conflicting laws; and for other purposes.

115TH CONGRESS
2D SESSION

S. 3494

To amend titles XIX and XXI of the Social Security Act to improve Medicaid and the Children's Health Insurance Program for low-income mothers.

IN THE SENATE OF THE UNITED STATES

SEPTEMBER 25, 2018

Mr. BOOKER (for himself, Mrs. GILLIBRAND, Ms. BALDWIN, Mr. CARDIN, Mr. BLUMENTHAL, and Ms. HARRIS) introduced the following bill; which was read twice and referred to the Committee on Finance

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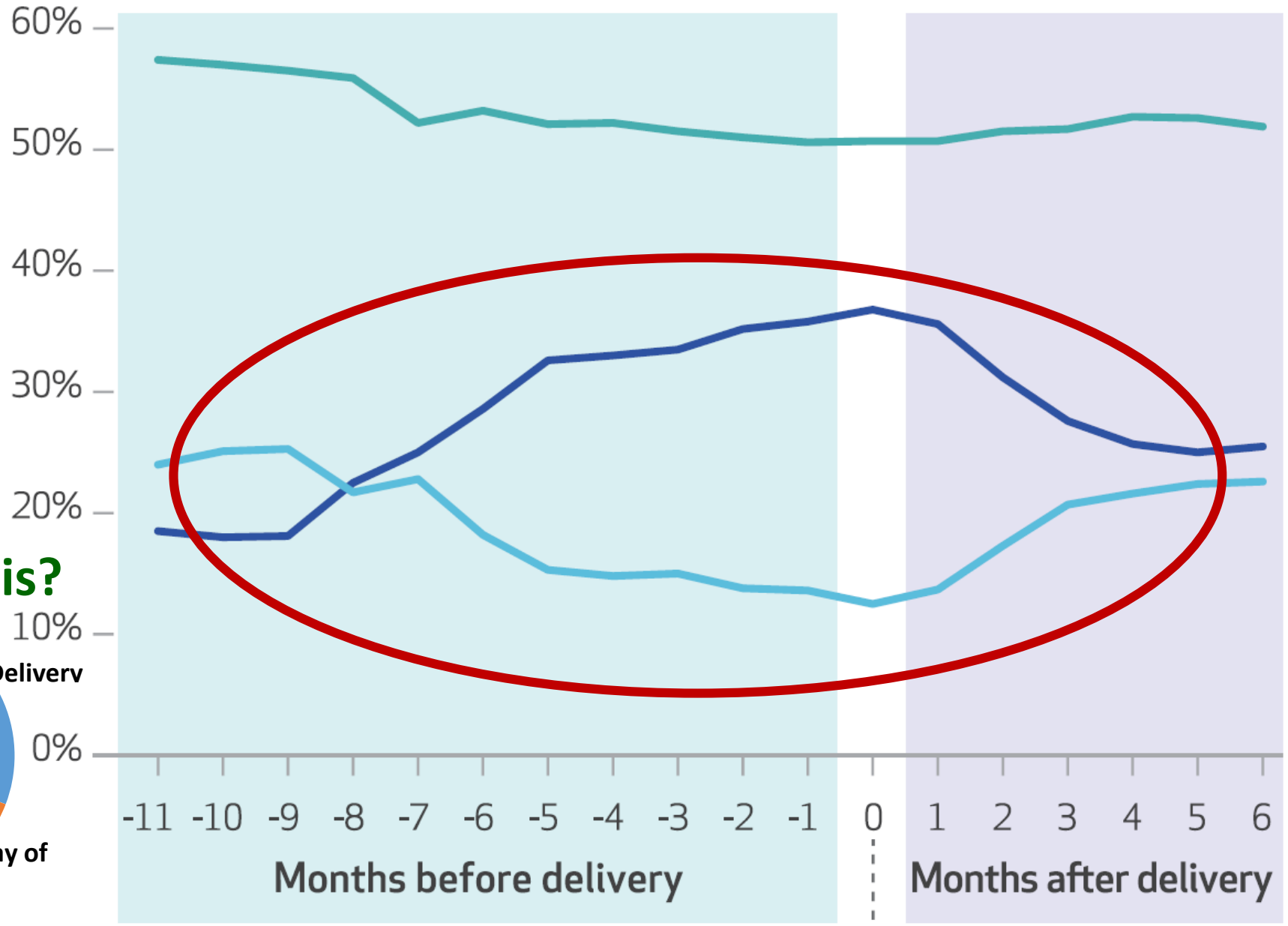
A BILL

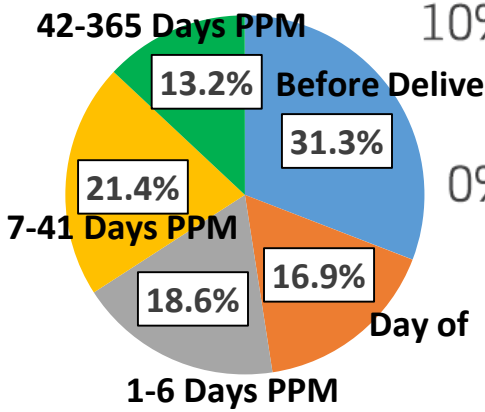
To amend titles XIX and XXI of the Social Security Act to improve Medicaid and the Children's Health Insurance Program for low-income mothers.

Percentages of women who gave birth in the period 2005–13, by health insurance type and month before or after delivery



Source: Daw J. *Health Affairs* 2017; 36:598-606

Remember this?



Role of U.S. policies in preventing maternal death

State Eligibility for Medicaid Coverage

*States with toughest eligibility for non-pregnant adult women. Percent of poverty level you must be **below** to qualify for Medicaid*

As of January, 2018	% of poverty level not pregnant	$ Amount (family of 3)	% poverty level when pregnant
Alabama	18%	$3,740	146%
Texas	18%	$3,740	203%
Missouri	22%	$4,571	201%
Idaho	26%	$5,402	138%
Florida	33%	$6,857	196%
Connecticut	138%	$28,676	263%
Maine	105%	$21,819	214%
Massachusetts	138%	$28,676	205%
New Hampshire	138%	$28,676	201%
Rhode Island	138%	$28,676	195%
Vermont	138%	$28,676	213%

Source: Kaiser Family Foundation

3. Re-conceptualizing maternal mortality & morbidity

- Maternal mortality needs to be viewed as more than a birth event since a majority of deaths occur during pregnancy or in the postpartum period.

- The public health community needs to be as engaged as the clinical community in dealing with *pregnancy associated* deaths.

- Similarly, maternal morbidity needs to be viewed from a longer term perspective than just birth events.

- Women's voices need to be incorporated into the assessment of maternal morbidity.

Summarizing three points

1. *The problem is both poor measurement & poor outcomes*

2. *Maternal mortality is the canary in the coal mine*

3. *Continue clinical improvements, but expand focus to women's health in general, incorporating women's voices into the process and advocate for policy change to address it.*

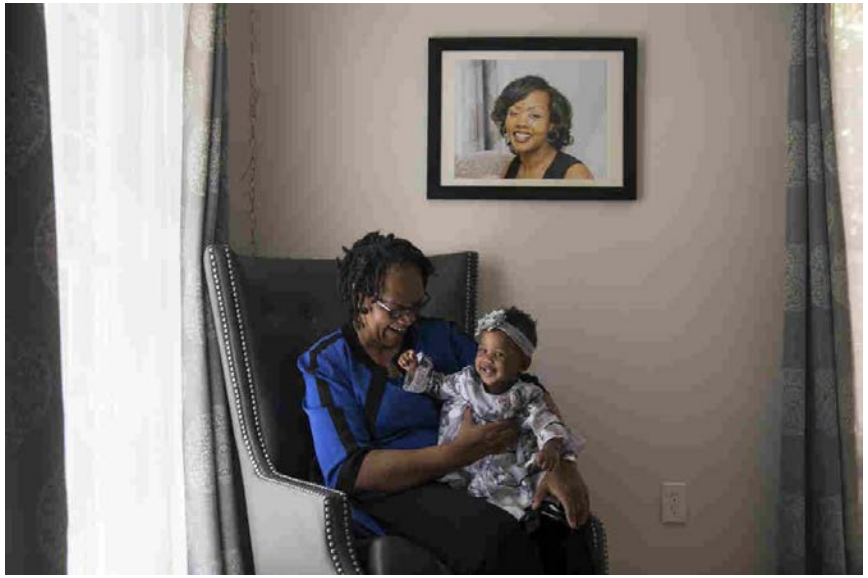
WHERE TO FROM HERE?

POLITICAL WILL & MEDIA COVERAGE

PROPUBLICA'S LOST MOTHERS SERIES

Nothing Protects Black Women From Dying in Pregnancy & Childbirth

Not education. Not income. Not even being an expert on racial disparities in health care.



The Public and Policymakers want answers.

It's our responsibility to develop research and policy recommendations that helps craft sustainable solutions to these problems.

What kind?

Since you asked

1. Use MMRCs to explore pregnancy associated deaths for causes and possible bases for prevention;

2. Use linked datasets to examine women's health through the lifecourse and identify critical moments (e.g. pregnancy?) where intervention might matter; and

3. Listen to women tell us about their lives and experiences in pregnancy and beyond to craft sustainable solutions that are meaningful to them.

4. Get involved in advocacy efforts like the March for Moms (May 11, 2019) in D.C. and elsewhere

MARCH for MOMS

FAMILY FRIENDLY

DC NATIONAL RALLY

A PRE-MOTHER'S DAY MOVEMENT TO MAKE SURE ALL MOMS GET THE CARE THEY DESERVE

Saturday May 11, 2019
On the National Mall, Washington DC

1:00 - 3:30 PM

Our country's most inspiring moms
(and their families)...
sounding off...
on a rock concert stage...
in the heart of the nation's capital.

Learn more at www.MarchforMoms.org

NATIONAL MATERNAL HEALTH WEEK

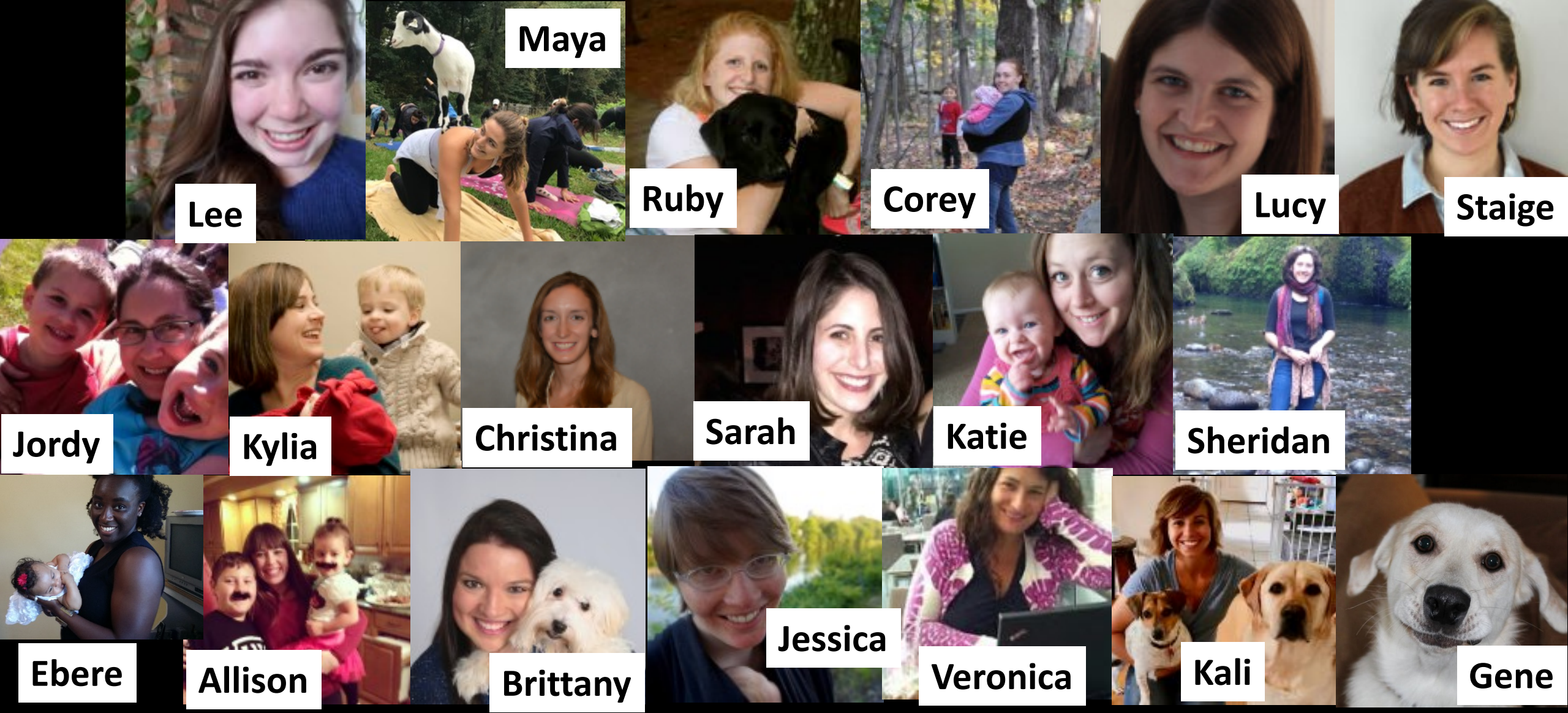
MAY 5th-12th, 2019

#MarchforMoms

#BeyondMothersDay

- Promote State & Federal Legislative Efforts to Improve Maternal Health
- Drive Media Attention on State of Maternal Health
- Seek City, State and National Proclamations
- Organize Visits in DC on Capitol Hill May 10th
- Rally on National DC Mall on May 11th
- Livestream the Rally on Facebook Live
- Curate and Promote Daily Themes Related to Maternal Health

www.marchformoms.org



www.birthbythenumbers.org

Email: birthbynumbers@gmail.com
Twitter: @BirthNumbers
FACEBOOK: www.facebook.com/BirthByTheNumbers