Safe Motherhood and Infant Health: Updates from CDC's Division of Reproductive Health




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Secretary's Advisory Committee on Infant Mortality
December 4, 2018

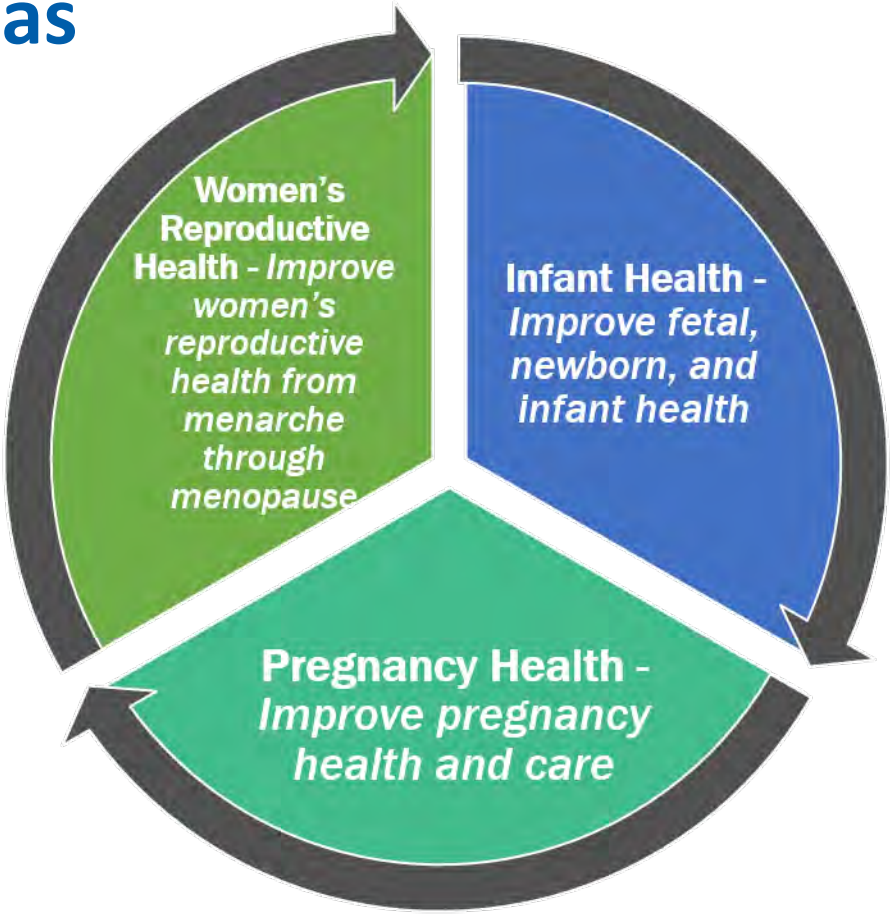
About Our Work…

Who We Are:

CDC's Division of Reproductive Health

- Mission:To promote optimal and equitable health in women and infants through public health surveillance, research, leadership, and partnership to move science to practice
- Vision: Optimal reproductive health for a healthy future

DRH Focus Areas



What We Do:

DRH Strategic Areas of Focus

Chronic Disease Prevention in Women of Reproductive Age

Infant Mortality and Morbidity

Maternal Mortality and Complications of Pregnancy

Reducing Teen and Unintended Pregnancy

Global Reproductive Health

Science to Practice

DRH Priority:
Understanding and Preventing Maternal Mortality

700

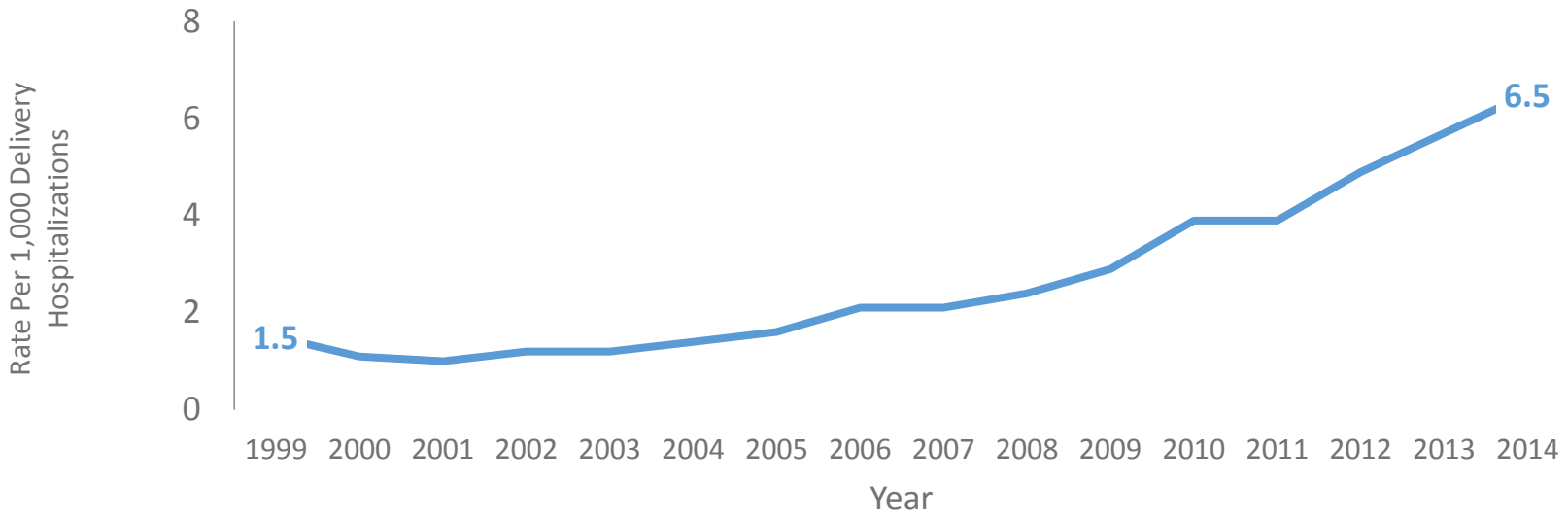
Each year in the U.S., about 700 women die as a result of pregnancy complications.

3 – 4x

Black women are 3 – 4 times more likely to die of pregnancy-related causes than white women.

DRH Priority:
Documenting and Reducing the Impact of Maternal Opioid Use Disorder

Opioid Use Disorder at Delivery Hospitalization



* Prevalence rate numerator consisted of opioid type dependence and nondependent opioid abuse based on ICD-9 codes (304.00-304.03, 304.70-304.73, 305.50-305.53) and denominator consisted of state delivery hospitalization discharges.

ǂ Rates prior to the 2012 are weighted with trend weights and rates after 2012 are weighted using original NIS discharge weights to account for the change in NIS design in 2012.

Source: Haight et al, *MMWR*, 2018

Rapid Assessment of Maternal Opioid Use and Overdose to Improve Outcomes and Save Lives

- Improving and standardizing data on pregnancy-associated overdose deaths through work with state Maternal Mortality Review Committees
- Supporting state teams to address opioid use among women in the preconception, pregnancy and postpartum periods through establishment of a Learning Community
- Collecting and disseminating state-based data on non-fatal opioid use during pregnancy through PRAMS

Updates from Pregnancy Risk Assessment Monitoring System (PRAMS)

What is PRAMS?

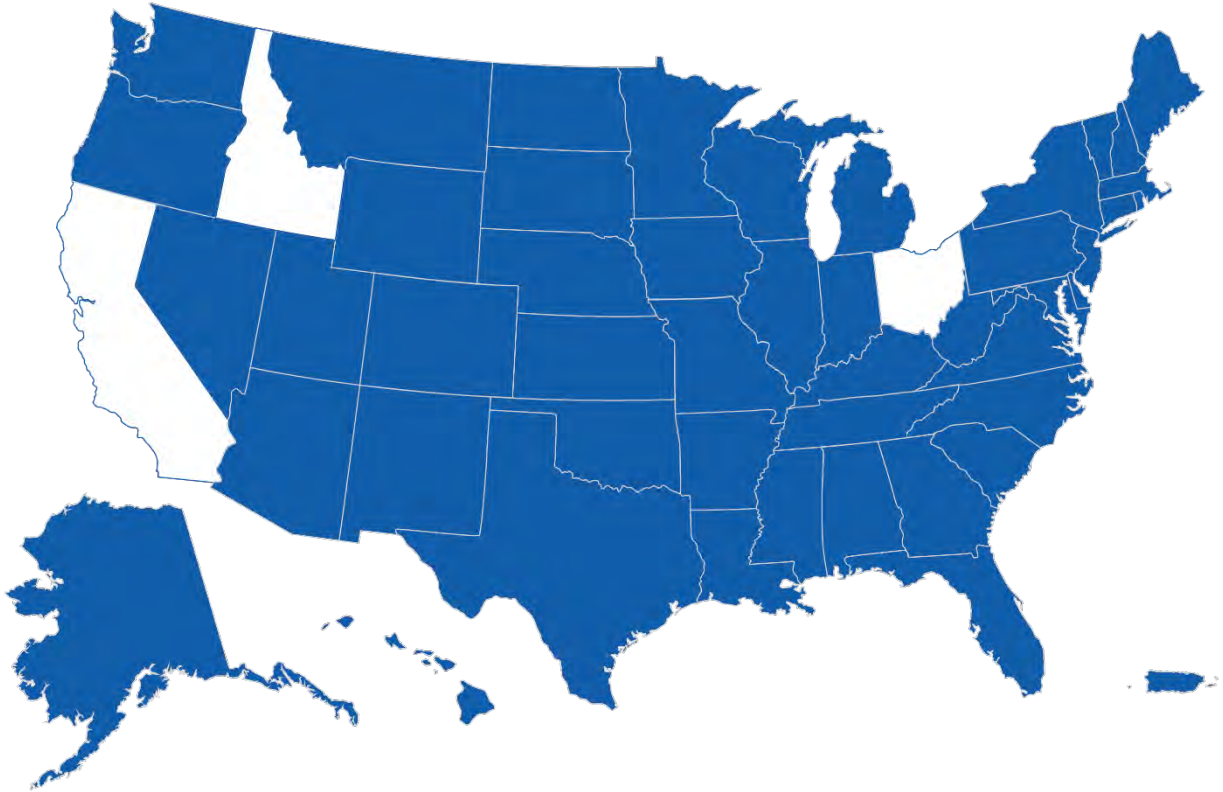
- Established in 1987 as part of an Infant Health Initiative
- Ongoing, population-based surveillance system
- Self-reported maternal behaviors and experiences before, during, and shortly after pregnancy
- State and near-national estimates

Who Participates in the PRAMS Surveys?

Women who recently delivered a live infant

- Random sample from birth certificate records
- Sampled when infants are 2 - 6 months old
- State sample ~1500–3000 women per year
- Combined annual sample ~ 100,000 women per year
  - 47 states, NYC, DC, Puerto Rico and South Dakota Tribal project

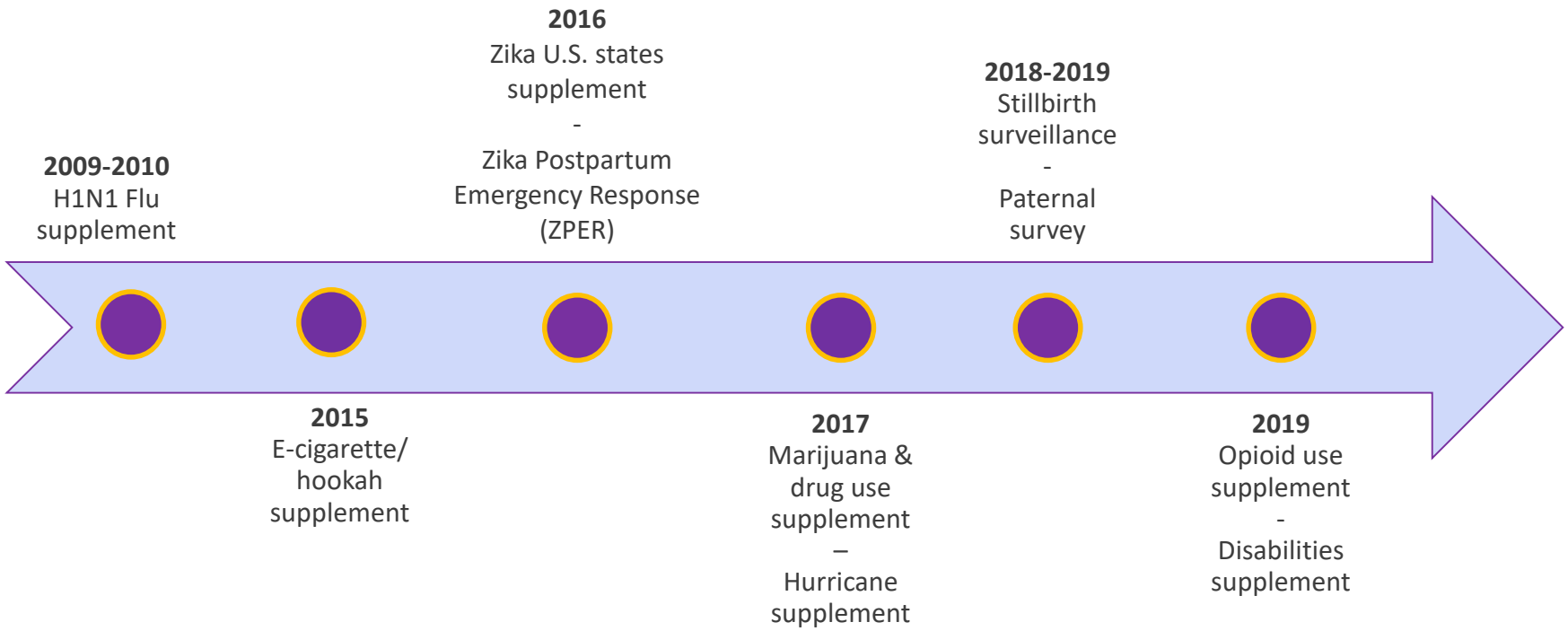
Expansion of Surveillance Efforts
PRAMS Grantees, 2018



Examples of PRAMS Indicators Affecting Infant Health

- Preconception health
- Maternal weight
- Maternal tobacco / alcohol use
- Receipt of prenatal care
- Health insurance status
- Postpartum contraception
- Breastfeeding
- Infant sleep practices

Addressing Emerging Issues with PRAMS



Leveraging PRAMS to Address Key MCH Issues

- Adapting PRAMS methodology to survey women experiencing stillbirth
- Exploring surveying of new fathers regarding behaviors surrounding pregnancy
- Utilizing PRAMS to evaluate the effect of Healthy Start program on key outcomes

Reproductive Health News

DIVISION OF REPRODUCTIVE HEALTH

WWW.CDC.GOV/REPRODUCTIVEHEALTH CENTER FOR CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION

PRAMS Releases New Data

CDC is pleased to announce the release of 2016 data from the Pregnancy Risk Assessment Monitoring System (PRAMS). Researchers can request the most recent year of data, as well as prior years' data.

To determine the data availability by site and year from 1988–2016, please access the tables under Years of Data Available.

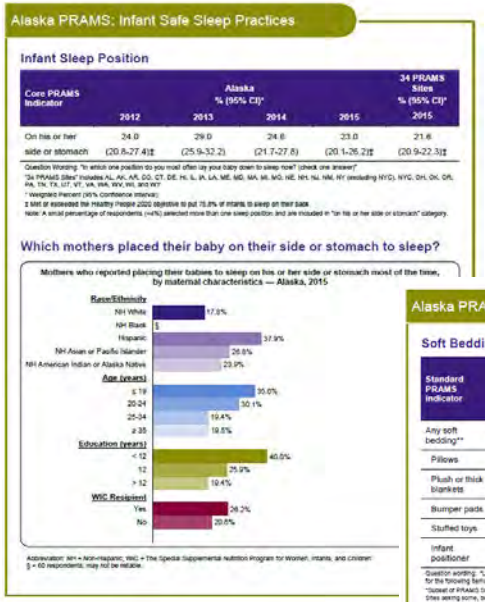
Request data at https://www.cdc.gov/prams/researchers.htm

Promoting Use of PRAMS Data for Action

State Topic Reports

- Available:
  - Breastfeeding
  - Infant Safe Sleep
  - Oral Health
  - Cigarette Smoking

- Pending:
  - Mental Health
  - Family Leave



Alaska PRAMS: Infant Safe Sleep Practices

Infant Sleep Position

Core PRAMS Indicator	Alaska % (95% CI)* 2012	2013	2014	2015	34 PRAMS Sites % (95% CI)* 2015
On his or her side or stomach	24.0 (20.8-27.4)‡	29.0 (25.9-32.2)	24.6 (21.7-27.8)	23.0 (20.1-26.2)‡	21.6 (20.9-22.3)‡

Question Wording: "In which one position do you most often lay your baby down to sleep now? (check one answer)"

"34 PRAMS Sites" includes AL, AK, AR, CO, CT, DE, HI, IL, IA, LA, ME, MD, MA, MI, MO, NE, NH, NJ, NM, NY (excluding NYC), NYC, OH, OK, OR, PA, TN, TX, UT, VT, VA, WA, WV, WI, and WY

* Weighted Percent (95% confidence interval)

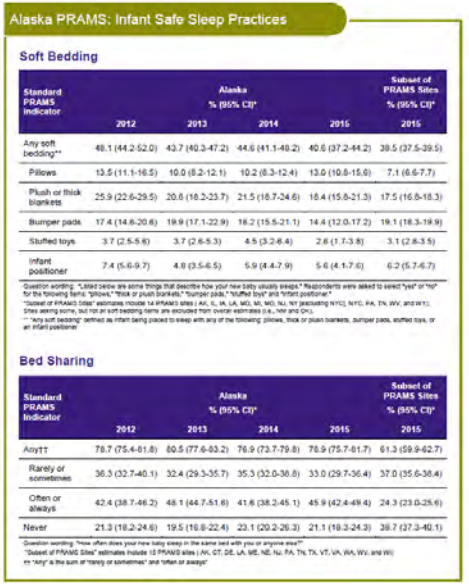
‡ Met or exceeded the Healthy People 2020 objective to put 70.8% of infants to sleep on their back

Note: A small percentage of respondents (<4%) selected more than one sleep position and are included in "on his or her side or stomach" category.

Which mothers placed their baby on their side or stomach to sleep?

Abbreviation: NH = Non-Hispanic; WIC = The Special Supplemental Nutrition Program for Women, Infants, and Children

§ = 60 respondents, may not be reliable.



Alaska PRAMS: Infant Safe Sleep Practices

Soft Bedding

Standard PRAMS Indicator	Alaska % (95% CI)* 2012	2013	2014	2015	Subset of PRAMS Sites % (95% CI)* 2015
Any soft bedding**	48.1 (44.2-52.0)	43.7 (40.3-47.2)	44.6 (41.1-48.2)	40.6 (37.2-44.2)	39.5 (37.5-39.5)
Pillows	13.5 (11.1-16.5)	10.0 (8.2-12.1)	10.2 (8.3-12.4)	13.0 (10.8-15.6)	7.1 (6.6-7.7)
Plush or thick blankets	25.9 (22.6-29.5)	20.6 (18.3-23.7)	21.5 (18.7-24.6)	18.4 (15.8-21.3)	17.5 (16.8-18.3)
Bumper pads	17.4 (14.6-20.6)	19.9 (17.1-22.9)	16.2 (15.5-21.1)	14.4 (12.0-17.2)	19.1 (18.3-19.9)
Stuffed toys	3.7 (2.5-5.6)	3.7 (2.6-5.3)	4.5 (3.2-6.4)	2.6 (1.7-3.8)	3.1 (2.8-3.5)
Infant positioner	7.4 (5.6-9.7)	4.8 (3.5-6.5)	5.9 (4.4-7.9)	5.6 (4.1-7.6)	6.2 (5.7-6.7)

Question wording: "Listed below are some things that describe how your new baby usually sleeps." Respondents were asked to select "yes" or "no" for the following items: "pillows," "thick or plush blankets," "bumper pads," "stuffed toys" and "infant positioner."

"Subset of PRAMS Sites" estimates include 14 PRAMS sites (AK, IL, IA, LA, MD, MI, MO, NJ, NY (excluding NYC), NYC, PA, TN, WV, and WY); Sites asking some, but not all soft bedding items are excluded from overall estimates (i.e., HI and OH).

** "any soft bedding" defined as infant being placed to sleep with any of the following: pillows, thick or plush blankets, bumper pads, stuffed toys, or an infant positioner

Bed Sharing

Standard PRAMS Indicator	Alaska % (95% CI)* 2012	2013	2014	2015	Subset of PRAMS Sites % (95% CI)* 2015
Any††	78.7 (75.4-81.8)	80.5 (77.6-83.2)	76.9 (73.7-79.8)	76.9 (73.7-81.7)	61.3 (59.9-62.7)
Rarely or sometimes	36.3 (32.7-40.1)	32.4 (29.3-35.7)	35.3 (32.0-38.8)	33.0 (29.7-36.4)	37.0 (35.6-38.4)
Often or always	42.4 (38.7-46.2)	48.1 (44.7-51.6)	41.6 (38.2-45.1)	45.9 (42.4-49.4)	24.3 (23.0-25.6)
Never	21.3 (18.2-24.6)	19.5 (16.8-22.4)	23.1 (20.2-26.3)	21.1 (18.3-24.3)	38.7 (37.3-40.1)

Question wording: "How often does your new baby sleep in the same bed with you or anyone else?"

"Subset of PRAMS Sites" estimates include 13 PRAMS sites (AK, CT, DE, LA, ME, NE, NJ, PA, TN, TX, VT, VA, WA, WV, and WI)

†† "Any" is the sum of "rarely or sometimes" and "often or always"

The Pregnancy Risk Assessment Monitoring System (PRAMS): Overview of Design and Methodology

Holly B. Shulman, MA, Dorie V. D'Angelo, MPH, Leslie Harrison, MPH, Robin A. Smith, PhD, and Lee Warner, PhD

Data System. The Pregnancy Risk Assessment Monitoring System (PRAMS) is an ongoing state-based surveillance system of maternal behaviors, attitudes, and experiences before, during, and shortly after pregnancy. PRAMS is conducted by the Centers for Disease Control and Prevention's Division of Reproductive Health in collaboration with state health departments.

Data Collection/Processing. Birth certificate records are used in each participating jurisdiction to select a sample representative of all women who delivered a live-born infant. PRAMS is a mixed-mode mail and telephone survey. Annual state sample sizes range from approximately 1000 to 3000 women. States stratify their sample by characteristics of public health interest, such as maternal age, race/ethnicity, geographic area of residence, and infant birth weight.

Data Analysis/Dissemination. States meeting established response rate thresholds are included in multistate analytic data sets available to researchers through a proposal submission process. In addition, estimates from selected indicators are available online.

Public Health Implications. PRAMS provides state-based data for key maternal and child health indicators that can be tracked over time. Stratification by maternal characteristics allows for examinations of disparities over a wide range of health indicators. [*Am J Public Health.* Published online ahead of print August 23, 2018: e1–e8. doi:10.2105/AJPH.2018.304563]

The Pregnancy Risk Assessment Monitoring System (PRAMS) is part of the Centers for Disease Control and Prevention (CDC) initiative to reduce infant mortality and low birth weight and promote safe motherhood. PRAMS was implemented in 1987 because infant mortality rates were no longer declining as rapidly as they had been in prior years.[1] Although the US infant mortality rate has dropped 15% over the past decade, the United States continues to have one of the highest infant mortality rates among developed countries, at 5.8 per 1000 live births in 2015.[2] Despite recent declines, preterm birth rates remain high (9.9% in 2016),[3] and sudden infant death syndrome is the leading cause of death among infants 1 to 12 months old (approximately 1600 deaths in 2015).[4]

Maternal mortality and morbidity rates have also been increasing. The number of reported pregnancy-related deaths in the United States rose from 7.2 per 100 000 live births in 1987 to 17.3 per 100 000 live births in 2013.[5,6] Moreover, the number of women presenting at delivery with 1 or more chronic conditions rose from 66.9 per 1000 delivery hospitalizations in 2005–2006 to 91.8 per 1000 delivery hospitalizations in 2013–2014.[7]

DATA PROGRAM

PRAMS is an ongoing state-level, population-based surveillance system of selected maternal behaviors and experiences that occur before, during, and shortly after pregnancy. It is conducted by participating state, territorial, tribal, or local health department in partnership with CDC's Division of Reproductive Health. CDC provides annual funding to participating sites through a cooperative agreement, with supplemental funding contributed by recipient. Since the system's inception, the number of participating states and areas (referred to hereafter as states) has increased from 6 to 51, including 47 states, the District of Columbia, New York City, Puerto Rico, and the Great Plains Tribal Chairman's Health Board (Figure 1). PRAMS surveillance currently covers approximately 83% of all US births.

Purpose

The main purpose of PRAMS is to promote the collection, analysis, and dissemination of population-based data of high scientific quality and to support those efforts to develop policies and programs that aim to decrease maternal and infant morbidity and mortality. PRAMS data are used by academic researchers, nonprofit health organizations, state health departments, and federal agencies to guide development of new programs and policies, evaluate existing programs and policies, develop educational materials for health care providers and the public, and contribute to general health knowledge.

Public Health Significance

PRAMS provides state-specific data used to monitor health behaviors, access to care, and receipt of services among recently pregnant women. For example, PRAMS data

ABOUT THE AUTHORS

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Correspondence should be sent to Holly B. Shulman, MA, Centers for Disease Control and Prevention, 4770 Buford Hwy, MS-F75, Atlanta, GA 30341 (e-mail: hbs1@cdc.gov). Reprints can be downloaded at http://www.ajph.org by clicking the "Reprints" link.

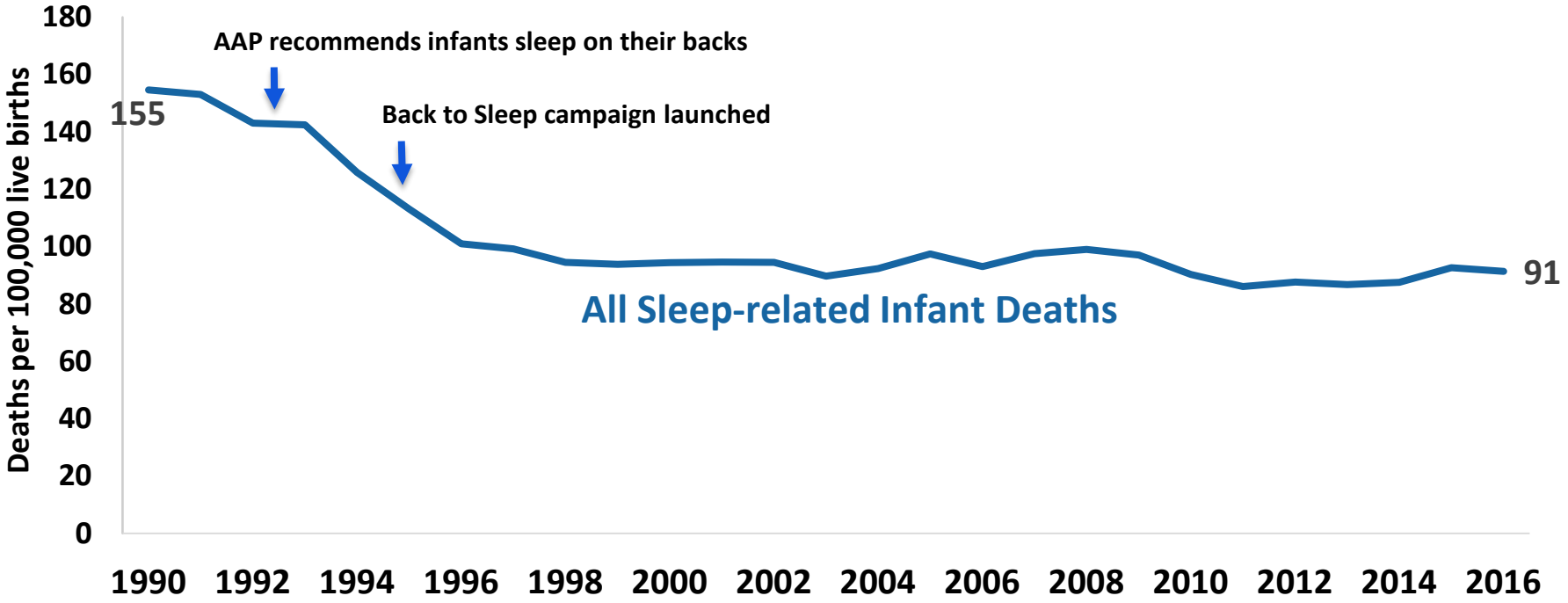
This article was accepted May 4, 2018.

doi: 10.2105/AJPH.2018.304563

Sleep-related Infant Deaths

- 3,500 deaths each year in the U.S.
- Also known as Sudden Unexpected Infant Death (SUID)
  - Deaths of infants less than 1 year old
  - Occur during sleep or in a sleep environment
- Includes:
  - Sudden Infant Death Syndrome (SIDS)
  - Accidental suffocation/strangulation in bed
  - Undetermined causes

Rates of Sleep-related Infant Deaths Dropped in 1990s but Have not Declined Since 2000



AAP Safe Infant Sleep Recommendations

- Back positioning for every sleep
- Use a firm sleep surface
  - Crib, bassinet, play yard
- No soft objects or loose bedding
- Room-sharing, but not bed-sharing
- Smoke-free sleep environment
- Avoid overheating
- Avoid alcohol and tobacco exposure (prenatal & environmental)

Infant Safe Sleep on PRAMS

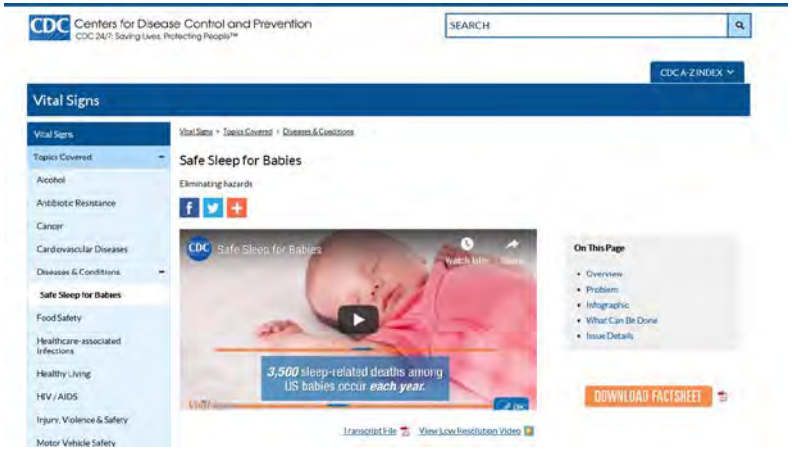
- Infant sleep position
  - all survey respondents since 1996
- Surface-sharing, Usual sleep location, Soft bedding use, Provider safe sleep advice
  - respondents in select states 1996-2015

Safe Sleep for Babies *Vital Signs*

Vital Signs: Trends and Disparities in Infant Safe Sleep Practices — United States, 2009–2015

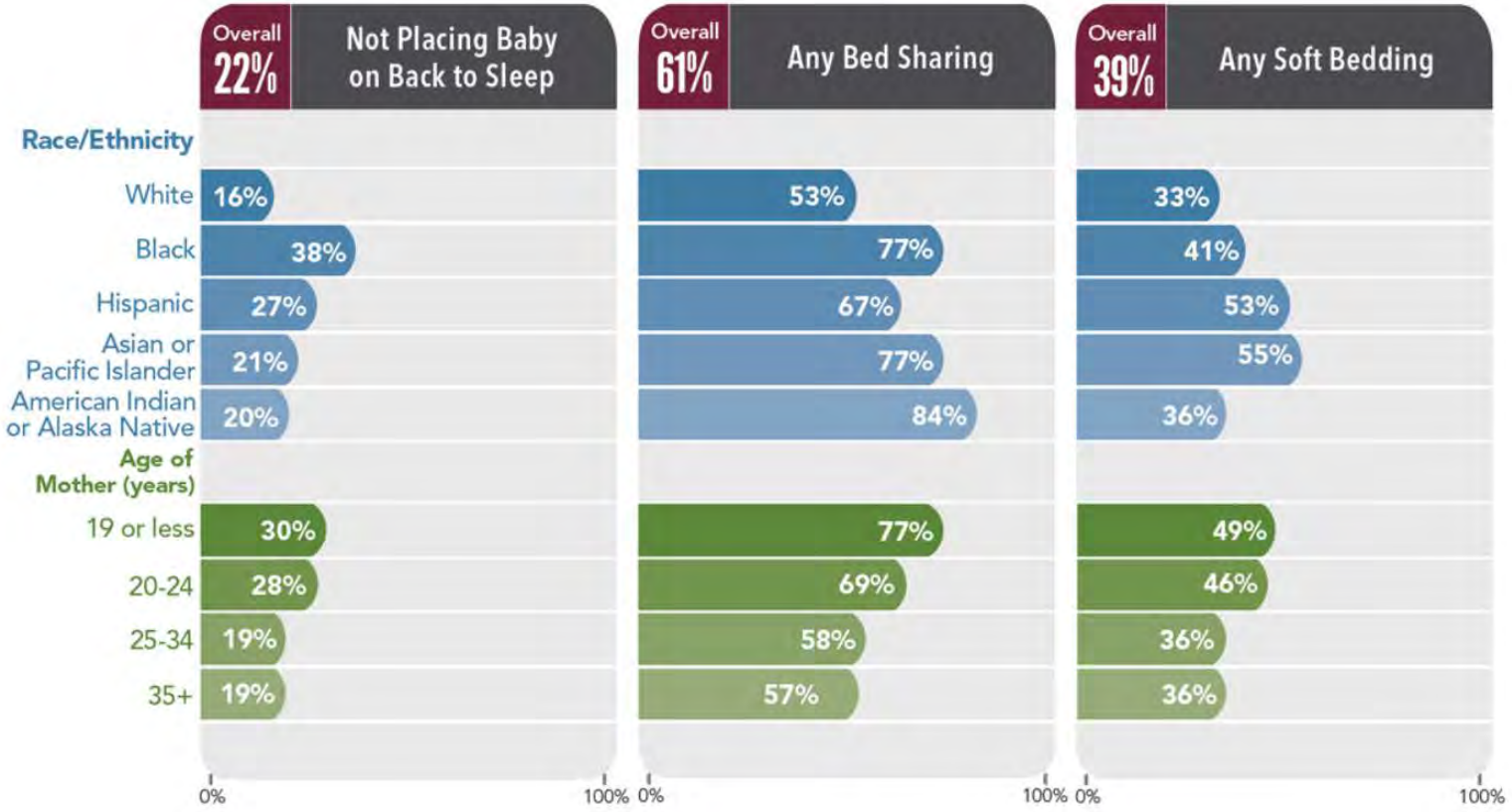
Weekly / January 12, 2018 / 67(1);39-46

On January 9, 2018, this report was posted online as an MMWR *Early Release.*



CDC.gov/vitalsigns /safesleep/index.html

Key findings from PRAMS 2015



SOURCE: Pregnancy Risk Assessment Monitoring System (PRAMS), 2015.

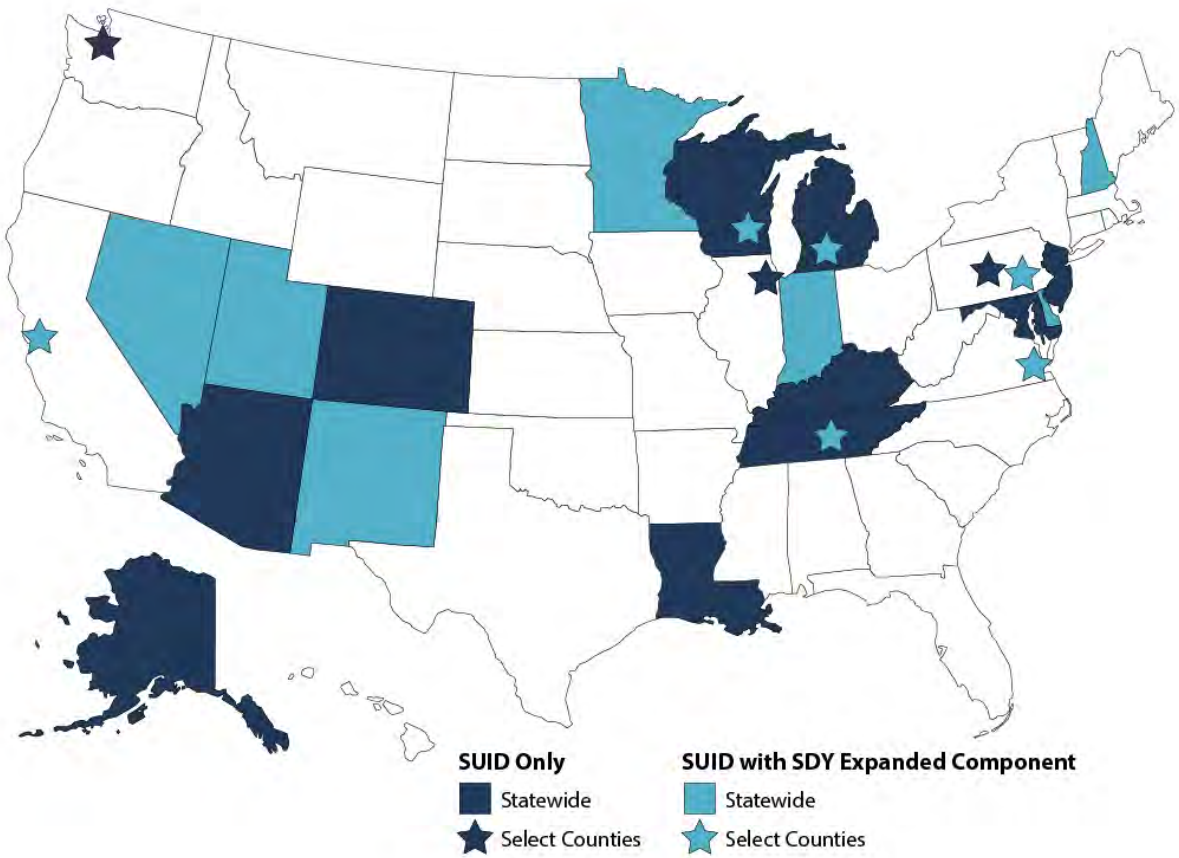
Improvements to PRAMS Safe Sleep Questions

- 2016: HRSA funded addition of four questions to be asked of all respondents
- 5 questions now asked of all respondents
  - Sleep position
  - Surface-sharing
  - Room-sharing, but not bed-sharing
  - Surface type (crib, bassinet, adult bed, etc.), use of soft bedding
  - Health care provider advice

Additional Infant Safe Sleep Activities at CDC

SUID & SDY Case Registry

- Sudden Unexpected Infant Death and Sudden Death in the Young Case Registry
- SUID Registry began 2009
  - Surveillance of sudden unexpected infant (birth-364 days) deaths
- SDY added in 2014
  - Collaboration with additional funding provided by NHLBI and NINDS
  - Increased surveillance up to age 18
  - Includes an extensive postmortem clinical review
  - Genetic testing
- New 5-year award cycle launched FY 18-23


SUID Only
Statewide
Select Counties
SUID with SDY Expanded Component
Statewide
Select Counties

What is the Registry?

- Built upon established National Center for Fatality Review and Prevention's child death review programs, identical:
  - Protocols
  - Multidisciplinary teams
  - Review of medicolegal records
  - Web-based reporting system
- Aim is to enhance states' capacity to:
  - Review and monitor all cases; population-based surveillance
  - Use data to improve case review processes, death investigations and develop prevention strategies

Characteristics of deaths in the Registry

- Compared to their proportion of the overall population:
  - Whites, Asians, and Hispanics under-represented
  - Blacks, American Indian/Alaska Natives over-represented
- Median maternal age: 25 years
- Median age 3 months, almost 80% occur in infants ≤ 4months
- Slight majority male (58%)
- Only 1% had no identifiable unsafe sleep factors

How are the data being used?

- Changes to childcare licensing rules (CO)
- Development of child welfare system training (CO, MI)
- SUID notification letter sent to OBGYN, delivery hospital, pediatrician (LA)
- New birthing hospital safe sleep education legislation (MI)
- Dashboard to visualize SUID data.
  - Local CFR teams can use the dashboard to access local-level SUID data
- Safe Sleep Collaborative Improvement & Innovation Network (CoIIN) to Reduce Infant Mortality

Public Health Grand Rounds: Safe Sleep for Infants

October 21, 2018

CDR Sharyn Parks Brown, USPHS, PHD, MPH

Roger Mitchell, MD, FASCP

Eve Colson, MD, MHPE

Samuel Hanke, MD, MS

- Beyond the Data interview: Dr. Mike Goodstein (AAP SIDS task force)
- 1000 webcast viewers: in 49 states & 7 foreign countries
- Total Facebook reach: 31k; video viewed 10k times
- Archived:
  - https://www.cdc.gov/grand-rounds/pp/2018/20181023-sudden-infant-death.html
  - https://www.youtube.com/watch?v=NdjiihES8FY

Thank you!

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.