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

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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–e9. 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 departments 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 recipients. 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 purposes of PRAMS are to promote the collection, analysis, and dissemination of population-based data of high scientific quality and to support the use of data 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

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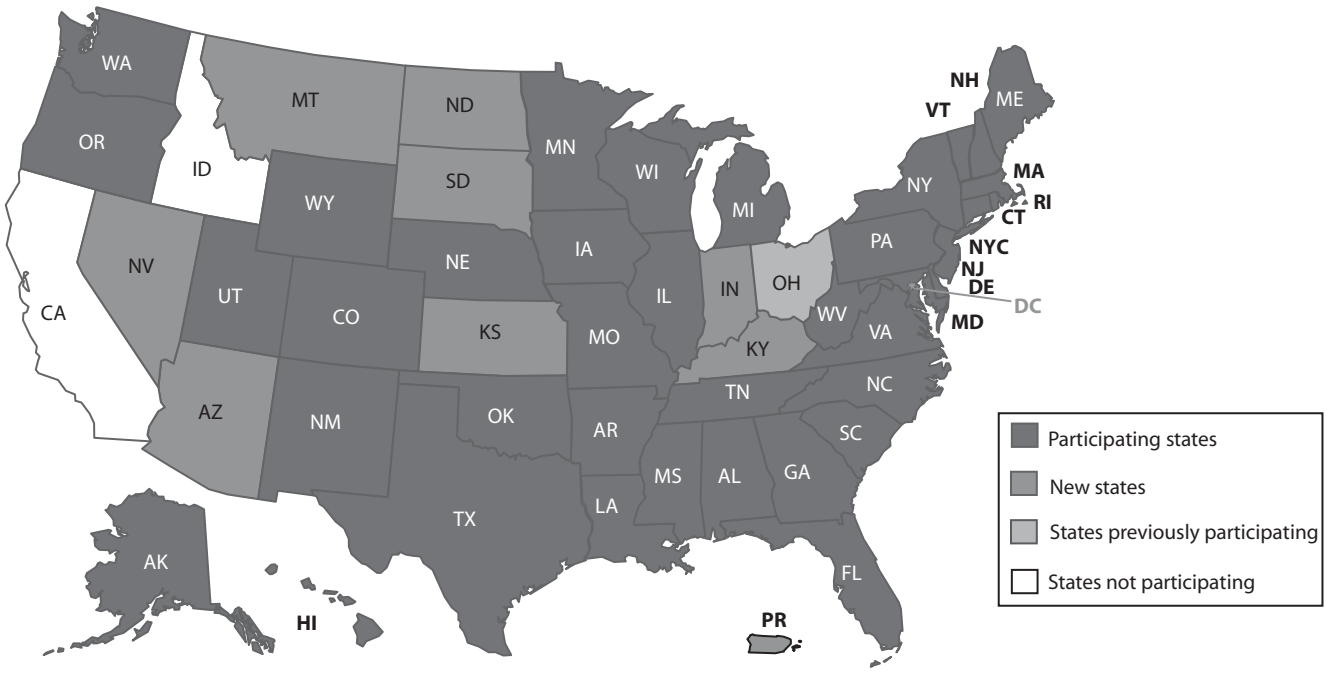


Note. PRAMS represents approximately 83% of all US live births.

FIGURE 1 Participating States: Pregnancy Risk Assessment Monitoring System (PRAMS), United States, 2017

have been used to monitor targets in Healthy People 2020,[8] Title V National Performance Measures for safe sleep and preventive dental visits,[9] National Quality Forum performance measures for postpartum contraception,[10] preconception health and health care indicators,[11] and selected performance measures for various public health programs and initiatives.[12,13]

PRAMS also provides estimates on a variety of maternal and infant health indicators that are not available from any other data source. For example, PRAMS data have been used to monitor progress over time in terms of infant sleep position,[14] unintended births,[15] and patterns of health insurance coverage before, during, and after pregnancy.[16] By collecting data about the preconception and postpartum periods, in addition to the time during pregnancy, PRAMS has information on a wide range of risk factors that influence maternal and infant health. PRAMS data can be used to examine the associations between risk factors and outcomes, explore disparities by subpopulations, and compare health indicators across states. (Many state examples describing the impact of PRAMS data can be found at https://www.cdc.gov/prams/dta-successstories.html.)

DATA COLLECTION/ PROCESSING

States are responsible for their PRAMS data collection activities. All states follow a standard data collection protocol with built-in flexibility to tailor projects to their individual needs.

Data Sources and Collection Mode

PRAMS is a mixed-mode (mail and telephone) surveillance system, based on Dillman and colleagues' tailored design method, that incorporates many techniques developed to enhance response.[17] These techniques include personalized mailing packages, use of response incentives and rewards, and repeated but varied contact attempts. The primary data collection mode is mail, with telephone follow-up for mail nonrespondents.

Multiple attempts to contact sampled women are made within each mode. PRAMS states make up to 5 contact attempts via mail, including an invitation to participate in the survey, first survey mailing, tickler (thank you or reminder note), second survey mailing, and third survey mailing. Telephone contact begins within a week after the last survey mailing. Up to 15 call attempts, staggered over different times of the day and different days of the week, are made to each working telephone number.

A variety of sources are used to obtain 1 or more valid telephone numbers for a mother. Increasingly, telephone numbers are captured on birth certificate files. Approximately half of participating states (48%) have access to telephone numbers from these files. Many states make use of databases of other health department programs (e.g., newborn screening and immunization programs and the Special Supplemental Nutrition Program for Women, Infants, and Children) to locate contact information for mothers who may also be participating in or tracked by those programs. Publicly available phone sources are consulted as well, usually after health department sources have been exhausted.

The processes just described are used by most states according to the CDC model

protocol.[18] The flexibility of the PRAMS methodology allows each state to tailor various data collection strategies to meet its unique needs, including scheduling of mailings, appearance of mailing materials, and use of response incentives and rewards.

All states use either response incentives (sent before the survey is completed) or rewards (sent after the survey has been completed) to increase participation (Table 1). A wide variety of items are used, with the most popular being prepaid gift cards, cash, complimentary birth certificates, and baby items such as diapers, bibs, music CDs, books, picture frames, and thermometers. In recent years, many PRAMS states have enhanced their incentives and rewards to encourage response. Some states have implemented targeted rewards offered to certain groups that traditionally have lower response rates (e.g., phone respondents, adolescents, and mothers of deceased infants).

Most states use health department staff to conduct mail survey operations; however, many states contract out the telephone portion to professional survey research organizations. Recently, there has been an increase in the number of states contracting out all data collection activities. In 2016, 12% of states contracted out all data collection activities, 51% contracted out telephone follow-up activities only, and the remaining 37% conducted all activities at the health department.

Ethical Procedures

The general PRAMS methodology and protocol have been reviewed and approved by the CDC institutional review board. In addition, state PRAMS projects undergo review by the local institutional review board of record for the health department. Any deviations from the PRAMS protocol must be approved by both the local and CDC institutional review boards before implementation.

An informed consent document is included within each survey packet explaining the participant's rights. No written consent is required; rather, consent is implied if the survey is completed. Similarly, the informed consent document is read verbally on phone interviews, and the participant verbally agrees to proceed with the survey. Minors younger than 18 years who have given birth are considered emancipated for the sake of decisions about their children and do not require consent from their parent or guardian to participate. Some states have mandatory reporting laws regarding physical abuse of minors. PRAMS includes questions regarding physical abuse; however, because participants are told the survey is confidential, it would not be ethical to report any disclosed abuse. In states with mandatory reporting laws, a separate version of the survey is used that excludes physical abuse questions.

Population and Geographic Coverage

The population of interest for each PRAMS state is resident women who recently gave birth within their state to a live-born infant during the surveillance year. Women are sampled between 2 and 6 months after giving birth. A state's birth certificate file serves as the sampling frame for identifying new mothers. As a means of ensuring that women with multiple births are sampled at the same rate as women with singleton births, only 1 infant from a multiple gestation is randomly selected to be included in the sample frame. Mothers whose infants die after a live birth are actively followed up with the same survey but receive letters and materials acknowledging and expressing sensitivity to their loss.

The PRAMS sample is stratified so that subpopulations of particular public health interest can be oversampled, such as mothers of low-birth-weight infants, those living in high-risk geographic areas, and racial/ethnic minority groups. States choose a stratification plan according to their own priorities. Statistical weighting schemes account for the different sampling rates in different strata, allowing estimates from these groups to be combined to obtain state-level estimates that ultimately reflect the actual proportions of births attributed to these subpopulations.

Unit of Data Collection and Sample Size

Annual sample sizes per state range from about 1000 to 3000 women (Table 1). Sample sizes are determined according to stratification plan, number of births, and available budgets.

In 2014, PRAMS weighted response rates ranged from 47% to 74%, with a median of 61% (Table 1). By mode, 80% of respondents participated by mail and 20% by phone. Harder to contact demographic groups, including Hispanics, non-White women, adolescents, and those with less than a high school education, are more likely to respond by phone.

Weighting

The analysis weights include 3 components: the sampling weight, a nonresponse adjustment, and a noncoverage adjustment. Because birth certificate data are available for both responders and nonresponders, the information available on nonresponders can be used to adjust for nonresponse and to understand factors associated with survey nonresponse. The final cumulative birth certificate file from each state is compared with the PRAMS sampling frame to identify eligible records that were missed and compute noncoverage adjustments.

Survey Design and Frequency of Data Collection

The annual sample is processed in monthly batches to balance the workload throughout the year. CDC implemented the PRAMS Integrated Data Collection System (PIDS) in 2012 to support data collection activities. PIDS is a secure, Web-based system housed at and maintained by CDC that assists in tracking all aspects of data collection. States import contact information from the birth certificate file into the tracking software on a monthly basis. PIDS includes components supporting mail and telephone data collection activities, data entry, and development of reports to facilitate daily operations. After completion of the data collection cycle, the information in PIDS is extracted for data processing and weighting.

Key Data Elements and Data Quality

Currently the PRAMS questionnaire is in its eighth version, with revisions occurring

TABLE 1 Stratification Variables, Annual Sample Sizes, Response Rates, and Incentives and Rewards: Pregnancy Risk Assessment Monitoring System, United States, 2014

State	Stratification Variable(s)	Annual Sample Size	Weighted Response Rate, %	Incentive[a]	Reward[a]
Alabama	Medicaid status	1456	60.7	Baby CD	Choice of baby items: T-shirt, sippy cup, tote bag, toothbrush
Alaska	Birth weight, maternal race	1993	65.1		Choice of $10 gift card or baby CD
Arkansas[b]	Birth weight, geographic area	951	58.1	Baby picture magnet	$10 gift card, $20 gift card for phone respondents
Colorado	Birth weight, geographic area	2747	59.1	Pen	Quarterly drawing for $200 gift card, $10 gift card for phone respondents
Connecticut	Maternal race/ethnicity	2206	59.6	Pen, magnetic picture frame	$10 Walmart gift card
Delaware	Birth weight	1451	64.5		$30 gift cards before second mail, $20 gift cards for later respondents
Florida	Birth weight, maternal race	2589	47.5	Baby bib	$10 gift card
Georgia	Geographic area	2506	47.1		$10 Walmart gift card
Hawaii	Geographic area, birth weight	2139	63.5		$10 gift card
Illinois	Birth weight	2175	66.3	Immunization card	Stationary, magnetic notepad, or bookmark
Iowa	Maternal race/ethnicity	1977	63.6	Baby book	$10 diaper gift certificate
Louisiana[c]	Birth weight, maternal race, geographic area	2833	58.5	Baby CD	$20 Walmart gift card
Maine	Birth weight	1515	62.1		Birth certificate
Maryland	Birth weight	2300	66.4	Manicure file	Monthly drawing for a $100 gift card
Massachusetts	Maternal race/ethnicity	2847	60.0	Pen	120-minute phone card or $10 CVS gift card
Michigan[c]	Birth weight, maternal race, geographic area	3233	57.4		$10 Walmart gift card
Minnesota	Maternal race	2632	54.4		Music CD or $9 birth certificate coupon
Mississippi[d]	Birth weight	. . .	. . .	Nylon cinch bag	$10 Walmart gift card
Missouri	Birth weight	1723	68.8		$10 gift card for mail respondents, $20 gift card for phone respondents
Nebraska	Maternal race	2669	60.4	Baby bib, music CD	$5 gift card
New Hampshire	Birth weight	979	64.0	Pens and notepad	Birth certificate
New Jersey	Maternal race/ethnicity, smoking status	1920	71.6	$10 bill	$25 gift card to smokers who respond by phone
New Mexico	Maternal race/ethnicity, geographic area, Medicaid/WIC	2178	65.7		$10 gift card for mail respondents, $20 gift card for phone respondents
New York[e]	Birth weight	1543	60.9	Baby CD	$15 CVS gift card for mail respondents, $25 CVS gift card for phone respondents
New York City	Birth weight	1838	72.3	$20 cash	
North Carolina	Birth weight	1808	54.5	Baby CD	
Ohio	Geographic area	2597	60.1		$10 Family Dollar gift card
Oklahoma	Birth weight	2971	61.8	Baby bib	Book, music CD, lunch bag, or notepad
Oregon	Maternal race/ethnicity	2713	57.3	Magnetic photo frame	Drawing for a $200 gift certificate
Pennsylvania	Birth weight	1674	68.6	$10 bill	

Continued

TABLE 1 *Continued*

State	Stratification Variable(s)	Annual Sample Size	Weighted Response Rate, %	Incentive[a]	Reward[a]
Rhode Island	Birth weight	2000	62.3	$5 Walmart gift card	$10 Walmart gift card for mail and phone respondents
South Carolina	Birth weight	1834	50.4	Nylon cinch bags	$10 Walmart gift card
Tennessee	Birth weight	1312	60.3	Baby bib, refrigerator magnet	
Texas	Birth weight, maternal race/ethnicity	2428	52.8	Baby forehead thermometer	$10 gift card
Utah	Birth weight, maternal education	2339	69.1	Insulated lunch bag and gel pen	
Vermont	Birth weight	1389	74.3	Notepad and pen	Music CD
Virginia	Birth weight	1139	49.2	Bookmark	
Washington	Maternal race/ethnicity	2201	60.3		Two $50 gift certificate raffles every month
West Virginia	Birth weight	2039	63.4		Birth certificate
Wisconsin	Maternal race/ethnicity, geographic area	2997	60.2	$10 cash (Black women only)	Baby CD
Wyoming	Birth weight, maternal race	1121	62.5	Bath thermometer and pen	Music CD for mail respondents

Note. WIC = Special Supplemental Nutrition Program for Women, Infants, and Children.
[a]Baby items are not sent to women whose babies have died.
[b]Arkansas 2014 data are available only for mid-April through December.
[c]Louisiana and Michigan included an extra evaluation component in their samples, resulting in larger than normal sample sizes.
[d]2014 data are not available for Mississippi.
[e]New York excludes New York City.

approximately every 3 to 5 years. The current version was implemented with the 2016 birth cohort (https://www.cdc.gov/prams/questionnaire.htm). Each state's questionnaire can consist of 3 types of questions: core questions common to all PRAMS states, standard questions developed by CDC and made available for selection to all states, and state-developed questions. Core questions generally account for 55% to 60% of the questionnaire. In designing their surveys, states can choose from the library of standard questions or develop their own questions to address state priority topics. Standard questions can be inserted among core questions, resulting in a unique survey for each state.

The mail questionnaire is limited to 14 pages and requires approximately 20 minutes to complete. The phone interview requires approximately 25 to 30 minutes. Given the different modes of survey administration, 2 separate surveys are available: a self-administered survey for the mail component and an interviewer-administered survey for the telephone component. CDC supports English and Spanish versions of the survey; New York City also uses a Mandarin version of the survey that the city developed and supports independently.

Box 1 lists core topics and commonly used standard question topics available on the current PRAMS questionnaire. In addition, many standard questions are available that include more in-depth information on core topics.

Many questions in the core section of the survey remain stable across questionnaire versions; however, periodic revisions provide the opportunity to make adjustments based on emerging issues and changing priorities. The PRAMS questionnaire revision process typically begins 2 years in advance. Initially, an evaluation of the current questions is conducted to identify questions that should be modified or removed. CDC also solicits requests for new topics or enhanced questions on existing topics from a wide array of stakeholders. New core and standard questions and questions that have undergone modifications are sent to CDC's National Center for Health Statistics Questionnaire Design Research Laboratory for cognitive testing. Once revised to incorporate cognitive testing feedback, the questions undergo field testing to evaluate the wording and flow of the survey. After the field testing, all questions are finalized.

About a year prior to going live with a new survey, CDC begins preparing the individual surveys for each participating state. Mail versions and phone hard-copy versions of each state's survey in English and Spanish (if applicable) are created by CDC. The PIDS software system is also programmed to allow data entry of mail surveys and administration of telephone surveys via computer-assisted telephone interviewing.

TOPICS COVERED IN THE 2016–2019 PREGNANCY RISK ASSESSMENT MONITORING SYSTEM SURVEYS

Core Topic[a]	Standard Topic
Preconception health and health care	Fertility treatment
Health insurance coverage	Hospital maternity practices related to breastfeeding
Pregnancy intention	Work, leave, and child care
Contraception	Folic acid awareness
Multivitamin use	Participation in WIC and home visitation programs
Prenatal counseling	HIV testing
Influenza vaccination	Inductions and cesarean sections
Oral health	Infections and chronic conditions
Health conditions during pregnancy	Tdap vaccination
Cigarette smoking and use of other tobacco products	Pregnancy complications
Alcohol use	Household characteristics
Physical abuse	Stressful life events
Breastfeeding	Safety at home and car seat usage
Infant sleep position and sleep environment	Well and sick child care
Postpartum depressive symptoms	Social support
Postpartum checkup	Emotional and sexual abuse
Household income	Discrimination
	Tobacco cessation
	Secondhand smoke exposure
	Physical activity
	Family history of chronic conditions
	Reproductive history
	Emergency preparedness
	Marijuana and illicit drug use
	Prescription drug use
	Zika virus

Note. Tdap = tetanus, diphtheria, pertussis; WIC = Special Supplemental Nutrition Program for Women, Infants, and Children.
[a]Each core topic includes additional standard questions that address the topic in more detail.

PRAMS incorporates a number of quality control measures. Data entry verification is required for a minimum of 10% of mail surveys, although many states perform 100% verification of mail surveys. Supervisors are required to monitor 10% of all telephone calls to make sure the survey is properly administered and responses are properly recorded. Item nonresponse rates are low (1%–2% for most questions) with the exception of the question on household income (6% nonresponse rate). No imputation procedures are used for item nonresponse.

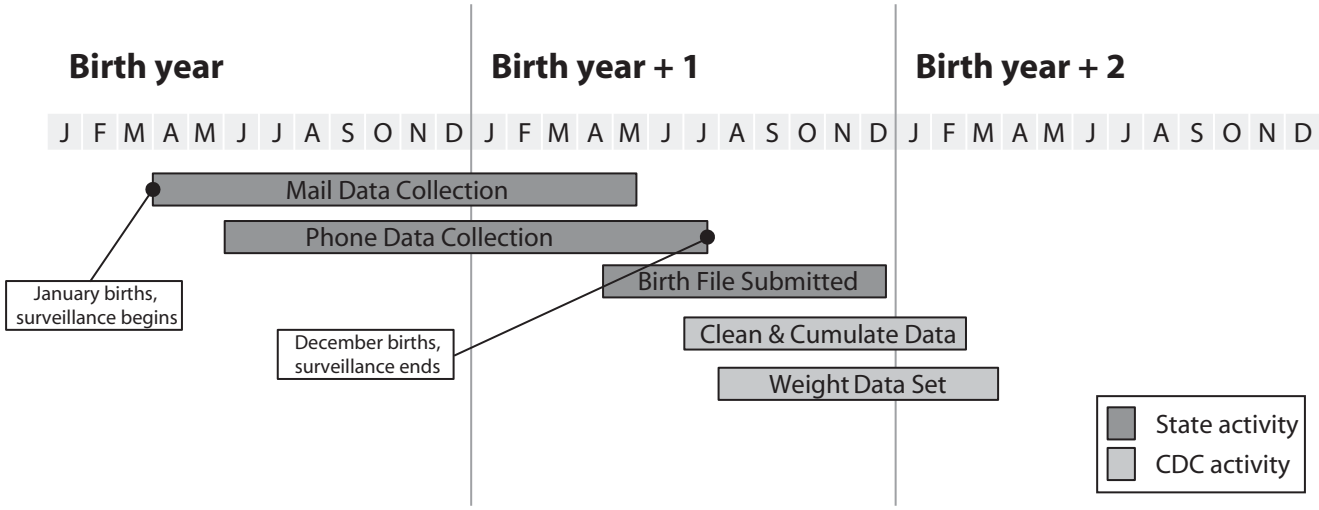
DATA ANALYSIS/ DISSEMINATION

PRAMS analysis files consist of 3 parts: birth certificate data, survey data, and operations data. A separate file of qualitative comment data is available for linkage with survey responses. Analysis files are created for each data collection year.

Linkage Ability

Both birth certificate and infant death certificate numbers, when applicable, are included in the data set to facilitate linkage of PRAMS data with birth and death certificate data. Many states have linked PRAMS data to other data sources including Medicaid records,[19] office of corrections records, child protective service records,[20] and various health department databases.[21]

Five states (Alaska, Missouri, Oregon, Oklahoma, and Rhode Island) conduct a toddler follow-up study to collect information on early childhood development by recontacting PRAMS participants when their babies are 2 to 3 years old.[22] Data from the follow-up surveys can be linked with PRAMS data to assess how risk factors during pregnancy and early infancy affect early childhood development. The follow-up



Note. CDC = Centers for Disease Control and Prevention.

FIGURE 2 Pregnancy Risk Assessment Monitoring System (PRAMS) Data Collection and Data Processing Timeline

studies are developed and implemented independently by state health departments.

Data Release and Accessibility

Figure 2 illustrates the PRAMS data collection and data release timeline. Data collection for a given year is completed by July of the following year to allow time to gather postpartum information. Weighting is conducted once CDC receives the final-year birth files from the individual state health departments. Typically, these files are provided 5 to 12 months after the end of the birth year. Most states receive their weighted data 3 to 6 months after the conclusion of data collection. Under the current protocol, the timeframe for making PRAMS data available to all states is approximately 8 to 12 months after the completion of data collection in a given year (e.g., data collection for 2016 births was completed in July 2017 and a cleaned, aggregate data set was released in mid-2018).

To further ensure high-quality data and motivate states to adhere to the data collection protocol, CDC currently imposes a response rate threshold for inclusion of information in reports, publications, and data made available to the public. States not meeting the threshold still receive their weighted data for internal health department use, but the information is not included in data released by CDC. The response rate threshold was set at 70% until 2006; subsequent levels were 65% (2007 to 2011), 60% (2012 to 2014), and 55% (2015 to 2016). On average, 75% of states have met or exceeded the threshold since 2007. During this period response rates for most federal health surveys have declined, and the threshold has been lowered accordingly over time.

A public use PRAMS analytic data set is available to researchers upon request from CDC after completion of a short application with a brief research proposal summary. The PRAMS Web site provides information about the years of data available, codebooks, and the application process as well as other information for researchers. Certain birth certificate variables are aggregated or truncated in the analytic data file to protect individual confidentiality. For example, no geographic indicators smaller than the state level are included in the file. Maternal age is aggregated into 5-year groupings, and only months and years are provided for dates of birth. Researchers can directly contact participating states to request access to variables not included in the analytic file. In addition, selected PRAMS indicators are available online and through other sources, such as the March of Dimes PeriStats Web system.[23]

Key References

Numerous fact sheets, *Morbidity and Mortality Weekly Report* articles, and peer-reviewed journal articles incorporating PRAMS data have been published. Key sources of information include the following:

- PRAMS Web site (http://www.cdc.gov/prams),
- PRAMS online indicators (https://www.cdc.gov/prams/prams-data/mch-indicators.html), and
- PRAMS data (https://www.cdc.gov/prams/researchers.htm).

In addition, this review updates 3 general PRAMS methods articles published in 1991, 1999, and 2006.[24–26]

PUBLIC HEALTH IMPLICATIONS

PRAMS state data sets can be analyzed individually to monitor the health of mothers before, during, and shortly after pregnancy within a state or aggregated to provide a multistate analytic data set well suited for cross-sectional studies. PRAMS data are frequently used to evaluate public health programs and policies at both the state and national levels. For example, PRAMS data have been used to evaluate the impact of state prescription contraception insurance mandates on unintended and mistimed births.[27]

The ongoing nature of PRAMS surveillance makes it especially useful for tracking trends in health indicators over time and

monitoring health behaviors and practices. PRAMS and the Maternal and Infant Health Assessment (MIHA) survey from California[28] (currently not a PRAMS state) serve as the data sources for tracking 9 Healthy People 2020 objectives. PRAMS and MIHA staff collaborate to ensure that identical survey questions are used to produce the combined estimates.

PRAMS has also proven to be a versatile system to address emerging health issues through the use of questionnaire supplements. Leveraging the existing state-based PRAMS infrastructure allows supplements (short lists of up to 12 questions added to the end of the survey) on an emerging topic to be quickly implemented across some or all participating sites, providing timely data for analysis and dissemination. For example, in 2009 during the H1N1 flu pandemic, a supplement designed to collect information on vaccination uptake among pregnant women was developed and rapidly implemented at 30 of the 38 participating sites. The PRAMS supplement provided timely data on influenza vaccination rates and provider counseling to inform policy and provider practices.[29]

On the basis of the success of the influenza supplement, supplements have become a standard part of the PRAMS methodology. In the case of emerging issues, supplement data can be extracted and weighted with the most recently available birth certificate file at the time for immediate analysis and dissemination. To date, supplements have been developed for a variety of topics including family history of cancer, Zika virus, marijuana and prescription drug use, and disaster preparedness.[30]

PRAMS also has been used for evaluation of programs serving women during and after pregnancy. In 2010, PRAMS began a partnership with the W. K. Kellogg Foundation.[31] Participating states modified their PRAMS samples to oversample Kellogg Foundation targeted communities in their state. The overarching goal of this partnership was to use PRAMS data to assess the potential impact of the Kellogg Foundation's interventions in terms of improving maternal and child health outcomes.

The success of the survey supplements and the Kellogg evaluation has led to new opportunities for PRAMS. PRAMS is currently collaborating with the Health Resources and Services Administration to evaluate the Healthy Start program.[32] Eleven participating states oversampled Healthy Start clients who gave birth in 2017 and 2018 and will compare them with similar populations not participating in Healthy Start.

Finally, PRAMS is exploring the expansion of its sampling frame beyond women with recent live births. Currently, Utah is piloting a surveillance system to assess the feasibility of using the existing PRAMS methodology to learn more about the behaviors and experiences of women who have experienced a stillbirth.[33] Promising formative research has also explored the feasibility of extending the reach of PRAMS to fathers of recent live-born infants to better understand the influence of fathers on maternal and infant health and the experience of transitioning to fatherhood.[34]

CONCLUSIONS

PRAMS, which recently completed its 30th consecutive year of surveillance, continues to be a comprehensive source of perinatal data and has proven an effective system for addressing emerging issues affecting the health of mothers and babies. The PRAMS methodology is standardized across participating states but is also flexible in allowing states to tailor various aspects of the surveillance system, including survey appearance, survey topics, and sampling and stratification plans, to meet their data needs and populations. The success of PRAMS is largely attributable to the partnership between CDC and participating states that collect, analyze, and disseminate timely data to inform maternal and child health programs and policies. AJPH

CONTRIBUTORS

H. B. Shulman conceptualized the study and drafted the article. D. V. D'Angelo, L. Harrison, R. A. Smith, and L. Warner provided significant input, review, and editing.

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Note. 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.

HUMAN PARTICIPANT PROTECTION

Ethical approval from an institutional review board was not needed for this review because no human participants were involved.

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