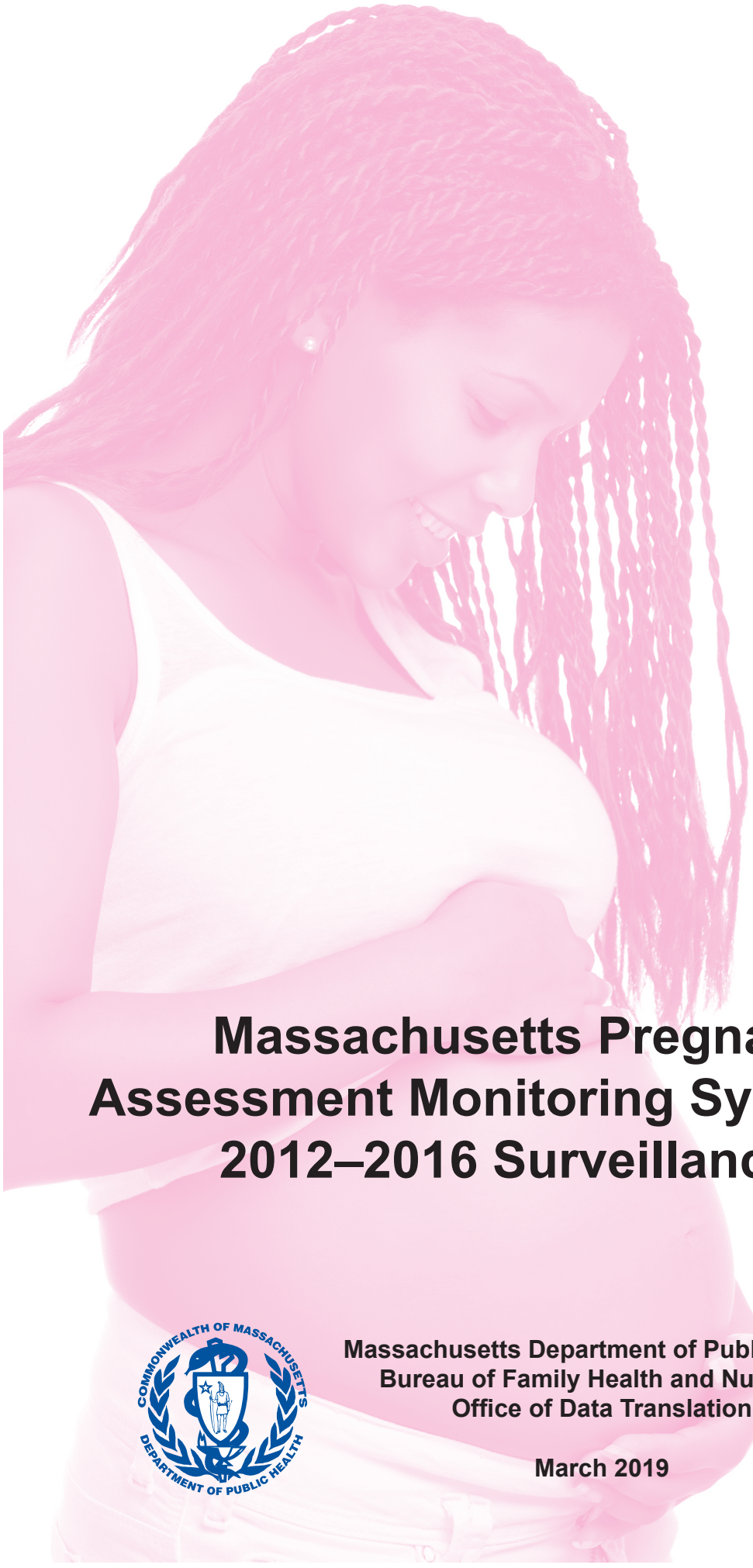

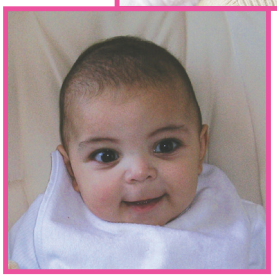

Massachusetts Pregnancy Risk Assessment Monitoring System (PRAMS) 2012–2016 Surveillance Report

Massachusetts Department of Public Health
Bureau of Family Health and Nutrition
Office of Data Translation

March 2019

PRAMS
Massachusetts

Pregnancy Risk Assessment Monitoring System

Massachusetts PRAMS 2012–2016 Surveillance Report

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March 2019

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Executive Summary

This report contains results from the 2012–2016 Massachusetts Pregnancy Risk Assessment Monitoring System (MA PRAMS) data. MA PRAMS is a collaborative surveillance project between the Centers for Disease Control and Prevention (CDC) and the Massachusetts Department of Public Health. MA PRAMS collects state-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy. MA PRAMS oversamples by race and Hispanic ethnicity to ensure adequate representation of racial and ethnic minority mothers. Findings from MA PRAMS are used to assess the health of mothers and infants across the state and to inform program monitoring, maternal and child health research and evaluation, and policy development. This is the sixth PRAMS report for Massachusetts since MA PRAMS began in 2007.

A total of 12,658 mothers were sampled and 7,199 responded to the survey during 2012–2016, resulting in a weighted response rate of 62%. Final results were weighted to represent 345,248 Massachusetts resident mothers who delivered a live infant during 2012–2016.

The key findings in this report are highlighted below and are matched to relevant state and national objectives, and organized by topic.

Massachusetts Title V Performance Measures

Oral Health

- *Teeth cleaning twelve months before pregnancy,2015–2016:* Lower prevalence was observed among Black, non-Hispanic, Hispanic, Asian, non-Hispanic and Other, non-Hispanic mothers (46.9%, 53.3%, 49.0% and 44.4%, respectively) compared to White, non-Hispanic mothers (69.0%); those with less than a high school education, high school diploma and some college education (45.5%, 49.7%, and 53.4%, respectively) compared to mothers with a college degree (70.8%); those who were living at or below 100% of the Federal Poverty Level (FPL) (50.5%) compared to those who were living above 100% of the FPL (65.2%); those born outside of the United States (US) compared to US-born mothers (51.5% vs. 65.9%); and those who were unmarried (49.9%) compared to those who were married (67.1%).

- *Receiving counseling on the importance of teeth cleaning during pregnancy, 2015–2016:* Lower prevalence was observed among Black, non-Hispanic mothers (47.1%) compared to White, non-Hispanic mothers (60.6%); those with a high school diploma (51.8%) and some college education (50.2%) compared to mothers with a college degree (61.9%); those who were living at or below 100% of the FPL (49.2%) compared to those who were living above 100% of the FPL (59.5%); those born outside of the US (52.1%) compared to US-born mothers (59.3%); those who were unmarried (51.8%) compared to those who were married (59.8%); and those with a disability (42.9%) compared to those without a disability (58.7%).

- *Dental insurance during pregnancy, 2012–2016:* The trend for having dental insurance during pregnancy increased significantly from 80.5% in 2012 to 85.1% in 2016. Compared to 2012–2014, there is a significant increase in prevalence of dental insurance during 2015–2016 among Hispanic mothers (78.9% vs. 86.8%); and among mothers born outside of the US (75.3% vs. 81.2%). During 2015–2016, lower prevalence of dental insurance during pregnancy was reported among mothers aged 20-29 years (81.5%) compared to mothers aged less than 20 years (92.6%) and mothers aged 30-39 years (87.0%); those with some college education (81.3%) compared to mothers with a college degree (88.0%); and those born outside of the US (81.2%) compared to US-born mothers (86.6%).

Safe Sleep

- *Infant sleep position, 2012–2016*: The trend for supine (back) sleep position increased significantly from 80.0% in 2012 to 86.2% in 2016. Compared to 2012–2014, there is a significant increase in supine sleep positioning during 2015–2016 among Other, non-Hispanic mothers (71.5% vs. 93.4%); mothers who were living above 100% of the FPL (85.9% vs. 89.5%); US-born mothers (85.6% vs. 89.7%), and mothers without a disability (82.8% vs. 86.6%). During 2015–2016, lower prevalence of supine sleep position was observed among Black, non-Hispanic, Hispanic and Asian, non-Hispanic mothers (72.5%, 74.4%, and 85.6%, respectively) compared to White, non-Hispanic mothers (91.5%); those with less than a high school education, high school diploma and some college education (74.6%, 80.2%, and 80.3%, respectively) compared to mothers with a college degree (90.3%); those who were living at or below 100% of the FPL (75.1%) compared to those who were living above 100% of the FPL (89.5%); those born outside of the US (78.3%) compared to US-born mothers (89.7%); those who were unmarried (80.2%) compared to those who were married (89.1%); and those who participated in WIC (75.2%) compared to those who did not participate in WIC (91.6%).

Breastfeeding

- *Breastfeeding initiation, 2015–2016:* Higher prevalence was observed among Hispanic and Asian, non-Hispanic mothers (93.1% and 94.6%, respectively) compared to White, non-Hispanic mothers (88.5%); those with a college degree (95.0%) compared to those with less than a high school education (79.3%); those who were living above 100% of the FPL (92.1%) compared to those who were living below 100% of the FPL (83.5%); those born outside of the US (95.8%) compared to US-born mothers (87.2%); those who were married (93.5%) compared to those who were unmarried (82.7%); those not enrolled in WIC (92.8%) compared to those enrolled in WIC (84.5%); and mothers without a disability (90.8%) compared to mothers with a disability (82.5%).

- *Breastfeeding for at least eight weeks*, *2015–2016:* Higher prevalence was observed among Asian, non-Hispanic mothers (84.3%) compared to White, non-Hispanic mothers (88.5%); those aged 30-39 years (78.4%) compared to those aged 20-29 years (64.1%); those with a college degree (83.5%) compared to those with less than a high school education (50.3%); those living above 100% of

the FPL (77.2%) compared to those living below 100% of the FPL (54.9%); those born outside of the US (81.5%) compared to US-born mothers (67.8%); those who were married (80.3%) compared to those who were unmarried (55.9%); those without a disability (73.9%) compared to those with a disability (56.8%); and those not enrolled in WIC (59.4%) compared to those enrolled in WIC (59.4%).

Emotional Wellness

- *Postpartum depression, 2015–2016:* Higher prevalence was observed among Black, non-Hispanic, Hispanic and Asian, non-Hispanic mothers (17.4%, 13.6%, and 14.8%, respectively) compared to White, non-Hispanic mothers (7.9%); those aged less than 20 years (26.2%) compared to mothers aged 20-29 years (13.3%); those with less than a high school education and high school diploma (16.2% and 15.8%, respectively) compared to mothers with a college degree (8.0%); those who were living at or below 100% of the FPL (19.0%) compared to those who were living above 100% of the FPL (8.1%); those born outside of the US (13.9%) compared to US-born mothers (9.0%); those who were unmarried (15.0%) compared to those who were married (8.3%); and those with a disability (35.8%) compared to those without a disability (8.0%).

Racial Equity

- *Reactions to racism, 2012–2016:* Approximately one in every four Black, non-Hispanic mothers and about one in every five Hispanic mothers reported thinking about race at least once a day or constantly during 2012–2016. Black, non-Hispanic mothers reported the highest prevalence of feeling stressed, upset and experiencing physical symptoms due to racism during the twelve months before delivery (11.7%, 16.6%, and 7.3%, respectively) than White, non-Hispanic mothers (Figure 11). When stratified by race/ethnicity, the highest prevalence of feeling stressed, feeling upset, and experiencing physical symptoms was reported by Black, non-Hispanic mothers with disabilities (24.8%, 30.6% and 14.5%, respectively) and Hispanic mothers with disabilities (16.8%, 21.1%, and 15.2%, respectively).

Healthy People 2020 Objectives:

- *Unintended pregnancy, 2015–2016:* The trend for unintended pregnancy (mistimed or unwanted) among mothers who had a live birth declined significantly from 23.8 % in 2012 to 18.7 % in 2016. Higher prevalence was observed among Black, non-Hispanic, Hispanic and Other, non-Hispanic mothers (30.2%, 29.9%, and 32.1%, respectively) compared to White, non-Hispanic mothers (15.2%); those aged 20-29 years (31.9%) compared to those aged 30-39 years (12.4%); those with less than a high school education, high school diploma and some college education (30.2%, 29.1%, and 29.5%, respectively) compared to mothers with a college degree (11.2%); those who were living at or below 100% of the FPL (38.4%) compared to those who were living above 100% of the FPL (15.3%); those who were unmarried (33.2%) compared to those who were married (13.6%); or those with a history of physical abuse (49.9%) compared to those without a history of physical abuse (19.9%).

- *Tobacco smoking, 2012–2016:* The trends for smoking three months before pregnancy among Massachusetts mothers declined significantly from 19.4 % in 2012 to 13.5% in 2016. Smoking during the last three months of pregnancy and in the postpartum period also declined significantly during 2012–2016 from 8.3% to 5.3% and from 12.5% to 8.2%, respectively. Compared to 2012–2014, there is a significant decrease in smoking in the three months before pregnancy among mothers aged 20-29 years during 2015–2016 (26.9% vs. 18.9%). Similarly, when we compare 2012–2014 and 2015–2016, there is a significant decrease in smoking during the last three months of pregnancy among mothers aged 20-29 years (13.2% vs. 6.5%); among mothers born outside of the US (3.0% vs. 0.7%); and among married mothers (2.9% vs. 1.1%). Lastly, in the postpartum period, compared to 2012–2014, there is a significant decrease in smoking during 2015–2016 among mothers aged 20-29 years (17.9% vs. 12.0%); and among mothers born outside of the US (4.2% vs. 1.2%).

- *Smoking during the three months before pregnancy, 2015–2016*: Higher prevalence of smoking during the three months before pregnancy was reported by mothers aged 20-29 years (18.9%) compared to mothers aged 30-39 years (9.8%); those with less than a high school education, high school diploma and some college education (22.3%, 26.3%, and 22.6%, respectively) compared to mothers with a college degree (4.9%); those who were living at or below 100% of the FPL (28.1%) compared to those who were living above 100% of the FPL (9.6%); US-born mothers (18.0%) compared to those born outside of the US (4.6%); those who were unmarried (28.7%) compared to those who were married (6.1%); and those with a disability (27.1%) compared to those without a disability (12.3%).

- *Smoking during the last three months of pregnancy, 2015–2016:* Higher prevalence of smoking during the last three months of pregnancy was reported by mothers with less than a high school education, high school diploma and some college education (14.1%, 12.5%, and 7.6% respectively) compared to mothers with a college degree (0.5%); those who were living at or below 100% of the FPL (15.1%) compared to those who were living above 100% of the FPL (2.8%); US-born mothers (7.4%) compared to those born outside of the US (0.7%); those who were unmarried (13.7%) compared to those who were married (1.1%); and those with a disability (12.8%) compared to those without a disability (4.4%).

- *Smoking in the postpartum period, 2015–2016:* Higher prevalence of smoking in the postpartum period was reported by mothers aged 20-29 years (12.0%) compared to mothers aged 30-39 years (5.8%); those with less than a high school education, high school diploma and some college education (17.5%, 18.8%, and 13.2%, respectively) compared to mothers with a college degree (1.5%); those who were living at or below 100% of the FPL (22.5%) compared to those who were living above 100% of the FPL (4.5%); US-born mothers (11.6%) compared to those born outside of the US (1.2%); those who were unmarried

(20.4%) compared to those who were married (2.2%); and those with a disability (21.3%) compared to those without a disability (6.9%).

Additional Topics:

Preconception Health

- *Self-rated "fair/poor" health before pregnancy, 2012–2015:* Compared to 2012–2013, there is a significant increase in prevalence of fair/poor self-rated health during 2014–2015 among mothers who were living at or below 100% of the FPL (7.7% vs 13.8%). During 2014–2015, higher prevalence was observed among Hispanic mothers (9.3%) compared to White, non-Hispanic mothers (3.4%); those aged 20 years and younger (19.7%) compared to those aged 20-29 years (7.2%); those with less than a high school education, high school diploma and some college education (12.9%, 10.2%, and 6.8%, respectively) compared to mothers with a college degree (1.1%); those who were living at or below 100% of the FPL (13.8%) compared to those who were living above 100% of the FPL (1.9%); those who were unmarried (9.9%) compared to those who were married (2.5%); and those with a disability (20.1%) compared to those without a disability (4.0%).

Pregnancy

- *Influenza vaccination before or during pregnancy, 2015–2016:* Compared to 2012–2014, there is a significant increase in receiving an influenza vaccine before or during pregnancy during 2015–2016 among Asian, non-Hispanic mothers (73.4% vs. 82.7%); mothers who were living at or below 100% of the FPL (61.4% vs. 70.5%); mothers born outside of the US (70.8% vs. 79.6%); and mothers without a disability (70.0% vs 74.8%). During 2015–2016, higher prevalence was observed among mothers aged 30-39 years (77.9%) compared to those aged 20-29 years (68.7%); those with a college degree (79.9%) compared to those with some college education (68.6%), a high school diploma (66.7%) and less than a high school education (68.8%); those born outside of the US (79.6%) compared to US-born mothers (72.0%); and those who were married (78.1%) compared to those who were unmarried (67.1%).

- *HIV testing, 2012–2016*: The trend for receiving an HIV test during pregnancy declined significantly from 65.0% in 2012 to 52.9% in 2016. Compared to 2012–2014, there is a significant decrease in receiving HIV testing during 2015–2016 among White non-Hispanic mothers (55.9% vs. 49.0%), Hispanic mothers (76.7% vs. 68.4%), Asian, non-Hispanic mothers (63.5% vs. 51.0%); among those aged 20-29 years (68.6% vs. 55.9%); among those with some college education (70% vs. 60.0%); among mothers who were living at or below 100% of the FPL (74.8% vs. 66.4%); among mothers who were living above 100% of the FPL (58.4% vs. 52.7%); among mothers born outside of the US (69.9% vs. 63.0%); among unmarried mothers (73.0% vs. 65.1%); among married mothers (57.5% vs. 50.1%); and mothers without a disability (62.3% vs. 55.0%). Higher prevalence was observed among Black, non-Hispanic and Hispanic mothers (71.7% and 68.4%, respectively) compared to White, non-Hispanic mothers (49.0%); those with less than a high school and some college education (67.0% and 60.0%, respectively) compared to those with a college degree (49.3%); those who were living at or below of the FPL (66.4%) compared to those living above 100% of the FPL (52.7%); those born outside of the US (63.0%) compared to US-born mothers (51.6%); and those who were unmarried (65.1%) compared to married mothers (50.1%).

- *WIC enrollment during pregnancy, 2012–2016:* The trend for WIC enrollment during pregnancy declined significantly from 39.7% in 2012 to 34.7% in 2016. During 2015–2016, higher prevalence was reported among Black, non-Hispanic, Hispanic, and Other, non-Hispanic mothers (67.6%, 74.1%, and 38.1%, respectively) compared to White, non-Hispanic mothers (17.5%); those aged less than 20 years (83.7%) compared to those aged 20-29 years (49.3%); those with less than a high school education, high school diploma and some college education (84.5%, 69.2%, and 50.4%, respectively) compared to mothers with a college degree (7.8%); those who were living at or below 100% of the FPL (82.2%) compared to those who were living above 100% of the FPL (18.2%); those born outside of the US (52.2%) compared to US-born mothers (25.3%); those who were unmarried (65.8%) compared to those who were married (17.5%); and those with a disability (59.1%) compared to mothers without a disability (31.2%).Compared to 2012–2014, there is a significant decrease in WIC enrollment during pregnancy during 2015–2016 among Asian, non-Hispanic mothers.

- *Cesarean delivery, 2012–2015*: The trend for cesarean delivery recommended by a health care provider before labor increased significantly from 45.0% in 2012 to 47.6% in 2015. About 63.0% of those mothers have had prior history of a cesarean delivery.

Postpartum

- *Maternal postpartum checkup, 2012–2016*: Compared to 2012–2014, there is a significant decrease in postpartum checkup during 2015–2016 among mothers aged 40 years and older (97.4% vs. 87.7%). In addition, during 2015–2016, lower prevalence was observed among Black, non-Hispanic and Hispanic mothers (88.8% and 85.5%, respectively) compared to White, non-Hispanic mothers

(94.5%); those aged 20-29 years (89.3%) compared to those aged 30-39 years (94.5%); those with less than a high school education, high school diploma and some college education (76.0%, 83.9%, and 92.5%, respectively) compared to mothers with a college degree (96.8%); those who were living at or below 100% of the FPL (82.2%) compared to those who were living above 100% of the FPL (95.0%); those who were unmarried (85.7%) compared to those who were married (95.1%); and those with a disability (85.8%) compared to mothers without a disability (92.7%).

- *Maternity leave, 2012–2016:* In Massachusetts, about 73.4% of mothers were working during pregnancy. About 40% of mothers reported taking unpaid maternity leave only, followed by 35% taking paid leave only, and 22% taking both paid and unpaid leave. About 4% of mothers reported not taking any maternity leave. Below are the socio-demographic characteristics of working mothers who reported taking maternity leave.

- *Paid leave only, 2015–2016*: Lower prevalence of paid maternity leave was observed among Black, non-Hispanic and Hispanic mothers (27.3% and 27.9%, respectively) compared to White, non-Hispanic mothers (39.3%); those aged 20-29 years (29.7%) compared to those aged 30-39 years (41.0%); those with less than a high school education, high school diploma, and some college education (17.5%, 23.1%, and 30.9%, respectively) compared to mothers with a college degree (42.9%); those who were living at or below 100% of the FPL (15.0%) compared to those who were living above 100% of the FPL (40.1%); and those who were unmarried (27.4%) compared to those who were married (40.8%).

- *Unpaid leave only, 2015–2016*: Higher prevalence was observed among Black, non-Hispanic and Hispanic mothers (51.9% and 52.7%, respectively) compared to White, non-Hispanic mothers (37.8%); those aged 20-29 years (53.6%) compared to those aged 30-39 years (34.6%); those with less than a high school education, high school diploma, and some college education (50.8%, 63.8%, and 54.5%, respectively) compared to mothers with a college degree (30.8%); those who were living at or below 100% of the FPL (75.1%) compared to those who were living above 100% of the FPL (35.7%); and those who were unmarried (56.9%) compared to those who were married (34.1%).

- *Both paid and unpaid leave, 2015–2016:* Compared to 2012–2014, there is a significant decrease in both paid and unpaid maternity leave during 2015–2016 among mothers aged 30-39 years (28.5% vs. 21.8%); and among mothers with a college degree (31.6% vs. 24.6%). Higher prevalence was observed among White, non-Hispanic mothers (20.6%) compared to Hispanic mothers (11.1%); those aged 30-39 years and 40 years and older (21.8% and 27.8, respectively) compared to those aged 20-29 years (12.4%); mothers with a college degree (24.6%) compared to those with a high school education (5.8%); those who were living above 100% of the FPL (21.5%) compared to those who were living below 100% of the FPL (2.6%); US-born mothers (20.2%) compared to mothers born outside of the US (15.8%); those who were married (22.8%) compared to those

who were unmarried (8.7%); and mothers without a disability (19.8%) compared to mothers with a disability (8.5%).

- *No leave, 2015–2016:* Higher prevalence was observed among Black, non-Hispanic and Hispanic mothers (7.5% and 8.3%, respectively) compared to White, non-Hispanic mothers (2.3%); those with less than a high school education and high school diploma (27.7% and 7.3%, respectively) compared to mothers with a college degree (1.7%); those who were living at or below 100% of the FPL (7.2%) compared to those who were living above 100% of the FPL (2.7%); those born outside of the US (8.3%) compared to US-born mothers (1.9%); and those who were unmarried (7.0%) compared to those who were married (2.3%).

Note: A copy of the 2012–2015 (phase 7) and 2016–2019 (phase 8) MA PRAMS surveys is included in Appendix B.

Introduction

The Pregnancy Risk Assessment Monitoring System (PRAMS) is a collaborative surveillance project of the Centers for Disease Control and Prevention (CDC) and state health departments. PRAMS collects state-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy. Mothers are sampled for participation between two and six months postpartum.

The Massachusetts Department of Public Health uses PRAMS data to inform program monitoring, MCH research and evaluation, and policy development. PRAMS data are also used to inform the Title V Maternal and Child Health (MCH) needs assessment. The Title V program is a federal-state partnership between the Health Resources and Services Administration and state health departments. The Title V program plays a key role in the provision of MCH services in Massachusetts. The Massachusetts (MA) PRAMS survey was developed to support Title V priorities needs and activities. Currently, PRAMS data are the only source of information for two of the Title V national performance measures: (1) Percent of infants placed to sleep on their backs; and (2) Percent of women who had a dental visit during pregnancy.

Similarly, PRAMS data are used to monitor progress for Healthy People 2020. Healthy People (HP) 2020 is the federal government's prevention agenda for building a healthier nation. It is a statement of national health objectives designed to identify the most significant preventable threats to health and to establish national goals to reduce these threats. There are specific HP2020 objectives and targets for the MCH population for which PRAMS data are relevant and useful; see Table 1 for the progress Massachusetts made toward reaching the HP2020 MCH targets as well as the Title V MCH performance measures.

PRAMS data are also regularly used by a variety of other MCH programs, policy makers and initiatives including:

- The Collaborative Improvement and Innovation Network to reduce infant mortality (Infant Mortality CoIIN) which aims to improve birth outcomes, address racial disparities and reduce infant mortality rates. PRAMS provided baseline data for Massachusetts IM CoIIN to reduce infant mortality through safe sleep initiatives.
- The Massachusetts Center for Birth Defects Research and Prevention also relies on PRAMS data to monitor the use of multivitamins containing folic acid prior to pregnancy.
- An Act Relative to Postpartum Depression, which was passed in 2010, uses PRAMS data to monitor progress.

MA PRAMS began data collection in 2007. This is the sixth report of the MA PRAMS project.

Table 1. Massachusetts Title V Performance Measures and Healthy People 2020 Objectives

Massachusetts Title V	Healthy People 2020		PRAMS 2012–2016	
Performance Measures	**Objective**	**Target**	**Survey Question**	**Prevalence**
	ORAL HEALTH			
Increase the percent of mothers who had a dental visit during pregnancy			Had teeth cleaned during pregnancy	60.9%
	SAFE SLEEP			
Increase the percent of infants placed to sleep on their backs (supine)	Increase the proportion of infants who are put to sleep on their backs	75.8%	Placed infant to sleep on back	84.0%
	BREASTFEEDING			
Increase the percent of infants who are ever breastfed	Increase the proportion of infants who were breastfed (ever)	81.9%	Breastfed ever	88.9%
	EMOTIONAL WELLNESS			
Increase the percent of mothers who reported discussing what to do if they feel depressed during pregnancy or after delivery at any prenatal care visit with a health care worker			During prenatal care visit, talked with healthcare worker about depression during pregnancy or after delivery	78.3%
	Decrease the proportion of mothers delivering a live birth who experience postpartum depressive symptoms	No target	Experienced depressive symptoms (always/often) in the postpartum period	11.0%

Table 1. Massachusetts Title V Performance Measures and Healthy People 2020 Objectives

Massachusetts Title V	Healthy People 2020		PRAMS 2012–2016	
Performance Measures	**Objective**	**Target**	**Survey Question**	**Prevalence**
	PRECONCEPTION HEALTH			
	Increase the proportion of pregnancies that are intended	56.0%	Wanted to get pregnant then or sooner	66.1%
	Increase the proportion of mothers who took multivitamins/folic acid daily prior to pregnancy	33.3%	Took a daily multivitamin in the month prior to pregnancy	41.8%
	Increase the proportion of mothers who did not smoke during the three months prior to pregnancy	87.8%	Abstained from cigarette smoking in the three months prior to pregnancy	84.0%
	Increase the proportion of mothers who did not drink alcohol during the three months prior to pregnancy	55.6%	Reported no alcohol consumption in the three months prior to pregnancy	35.9%
	Increase the proportion of mothers who had a healthy weight (BMI 18.5-24.9) prior to pregnancy	57.8%	Reported a healthy weight prior to pregnancy	54.3%
	PRENATAL CARE			
	Increase the proportion of mothers who received prenatal care beginning in the first trimester of pregnancy	77.9%	Received prenatal care during the first trimester of pregnancy	91.3%

Massachusetts Title V Performance Measures

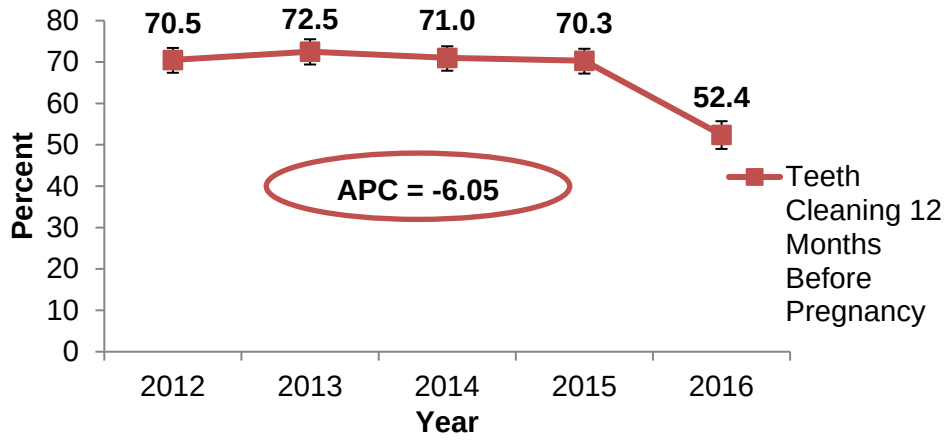
Oral Health: Teeth cleaning twelve months before pregnancy

Maintaining good oral hygiene is important when planning to get pregnant as it can help prevent or reduce the severity of oral health problems during pregnancy such as gingivitis, gingival hyperplasia, and pyogenic granuloma (pregnancy tumors) (Hemalatha et al., 2013). For optimal oral health, the American Dental Association recommends regular dental visits, at intervals determined by a dentist.

The proportion of mothers reporting that they had their teeth cleaned during the twelve months before pregnancy did not change significantly from 2012 to 2015 (Figure 1). However, the prevalence went down in 2016 (52.4%), which may be due to the change in the wording of the question in the phase 8 survey. As of 2016, “teeth cleaning before pregnancy” was preceded by a screener question regarding whether the woman had received any health care visits in the twelve months before pregnancy and those who did not receive a health care visit during the twelve months before pregnancy were instructed to skip the teeth cleaning question.

The prevalence of teeth cleaning in the twelve months before pregnancy varied by socio-demographic characteristics. During 2015–2016, lower prevalence of teeth cleaning in the twelve months before pregnancy was observed among Black, non-Hispanic, Hispanic, Asian, non-Hispanic and Other, non-Hispanic mothers (46.9%, 53.3%, 49.0% and 44.4%, respectively) compared to White, non-Hispanic mothers (69.0%); those with less than a high school education, high school diploma and some college education (45.5%, 49.7%, and 53.4%, respectively) compared to mothers with a college degree (70.8%); those who were living at or below 100% of the FPL (50.5%) compared to those who were living above 100% of the FPL (65.2%); those born outside of the US (51.5%) compared to US-born mothers (65.9%); and those who were unmarried (49.9%) compared to those who were married (67.1%) (Table 2).

Figure 1. Trend in teeth cleaning in the 12 months before pregnancy, MA PRAMS, 2012–2016



APC = Annual Percent Change
P-value for trend is not statistically significant.

Table 2. Prevalence of teeth cleaning in the 12 months before pregnancy by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016*				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	147,400	71.3	69.6	-	73.0	83,973	61.3	59.0	-	63.6
Maternal race/ethnicity										
White, non-Hispanic	96,428	76.8	74.2	-	79.3	55,122	69.0	65.5	-	72.3
Black, non-Hispanic	11,574	**60.2**	**56.5**	**-**	**63.8**	6,069	**46.9**	**42.2**	**-**	**51.7**
Hispanic	23,095	**63.7**	**60.5**	**-**	**66.8**	13,401	**53.3**	**49.4**	**-**	**57.1**
Asian, non-Hispanic	10,263	**60.2**	**56.6**	**-**	**63.6**	6,041	**49.0**	**44.5**	**-**	**53.6**
Other, non-Hispanic	3,787	**65.5**	**56.3**	**-**	**73.8**	1,844	**44.4**	**31.1**	**-**	**58.5**
Maternal age (years)										
<20	4,659	72.9	62.7	-	81.2	1,595	47.6	34.1	-	61.5
20-29	51,915	63.3	60.2	-	66.2	26,150	53.5	49.4	-	57.5
30-39	84,901	**77.3**	**75.1**	**-**	**79.4**	52,255	**66.5**	**63.6**	**-**	**69.3**
40+	5,925	70.3	61.1	-	78.1	3,973	65.1	54.1	-	74.7
Maternal education										
<High school	12,313	**60.0**	**54.2**	**-**	**65.4**	5,693	**45.5**	**38.6**	**-**	**52.6**
High school diploma	19,264	**57.9**	**52.7**	**-**	**62.9**	9,995	**49.7**	**43.5**	**-**	**56.0**
Some college	33,058	**66.2**	**62.5**	**-**	**69.7**	16,097	**53.4**	**48.4**	**-**	**58.3**
College graduate	80,111	80.8	78.6	-	82.8	49,320	70.8	67.8	-	73.7
Household poverty level										
≤100% FPL	28,716	**57.2**	**53.4**	**-**	**61.0**	13,849	**50.5**	**45.5**	**-**	**55.4**
>100% FPL	110,104	77.0	74.9	-	78.9	65,300	65.2	62.5	-	67.8
Maternal nativity										
Non-US-born	41,028	**63.4**	**60.8**	**-**	**65.9**	22,297	**51.5**	**48.2**	**-**	**54.6**
US-born	106,129	74.9	72.6	-	77.1	61,676	65.9	62.8	-	68.8
Marital status										
Unmarried	43,453	**63.1**	**59.7**	**-**	**66.3**	23,009	**49.9**	**45.6**	**-**	**54.1**
Married	103,927	75.5	73.4	-	77.4	60,822	67.1	64.5	-	69.6
Disability										
No	138,894	72.2	70.4	-	73.9	75,512	62.0	59.6	-	64.3
Yes	6,532	**57.2**	**48.6**	**-**	**65.4**	7,027	55.4	47.5	-	63.1

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

*The 2016 question on teeth cleaning during twelve months before pregnancy was different from 2012–2015.

Massachusetts Title V Performance Measures

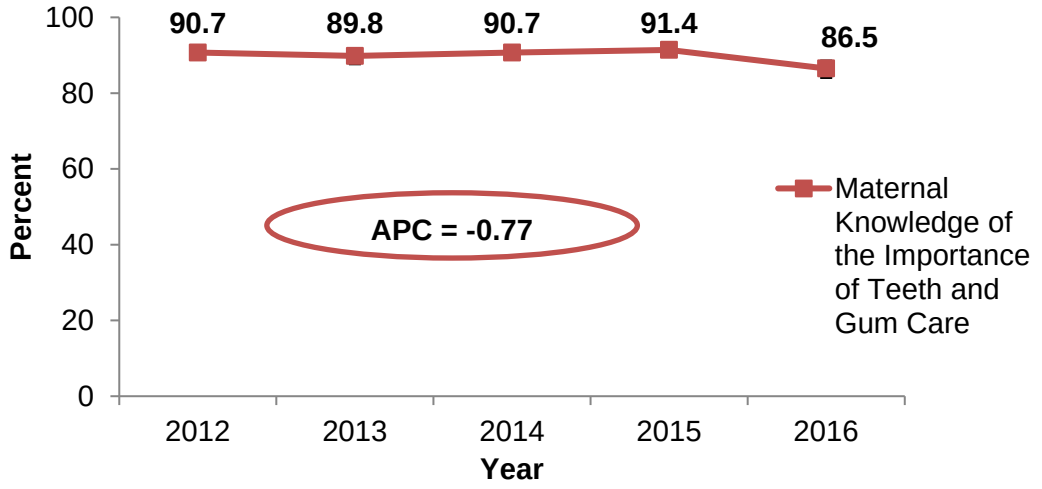
Oral Health: Knowledge of the importance of teeth and gum care during pregnancy

In addition to regular dental checkups, daily oral care at home is very important. According to the American Dental Association, brushing teeth twice a day and flossing once a day can help to prevent plaque buildup, which causes gum disease and tooth decay. Mouth rinsing with baking soda is recommended after morning sickness to prevent the adverse effect of stomach acid on teeth (Journal of Midwifery and Women's Health, 2014).

During 2012–2016, the trend for maternal knowledge regarding the importance of teeth and gum care during pregnancy did not change significantly (Figure 2). During 2015–2016, lower prevalence was observed for Black, non-Hispanic, Hispanic, and Asian, non-Hispanic mothers (85.0%, 84.1%, and 84.0%, respectively) compared to White, non-Hispanic mothers (92.6%); those with less than a high school education, high school diploma and some college education (82.1%, 81.4%, and 88.2%, respectively) compared to mothers with a college degree (93.1%); those who were living at or below 100% of the FPL (82.6%) compared to those who were living above 100% of the FPL (91.3%); those born outside of the US (83.7%) compared to US-born mothers (91.3%); those who were unmarried (84.7%) compared to those who were married (91.1%); and those with a disability (80.4%) compared to those without a disability (89.7%) (Table 3).

Compared to 2012–2014, there is a significant decrease in maternal knowledge regarding the importance of teeth and gum care during 2015–2016 among mothers aged 30-39 years (94.0% vs. 90.7%) (Table 3).

Figure 2. Trend in maternal knowledge of the importance of teeth and gum care during pregnancy, MA PRAMS, 2012–2016



APC = Annual Percent Change
P-value for trend is not statistically significant.

A Massachusetts mother says: *"I think OBGYN/midwifes should be more adamant with telling pregnant women about dental care."*

Table 3. Prevalence of maternal knowledge of the importance of teeth and gum care during pregnancy by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	185,150	90.4	89.3	-	91.4	121,088	88.9	87.4	-	90.3
Maternal race/ethnicity										
White, non-Hispanic	116,839	93.7	92.0	-	95.1	73,551	92.6	90.3	-	94.3
Black, non-Hispanic	16,057	**85.1**	**82.1**	**-**	**87.7**	10,915	**85.0**	**81.3**	**-**	**88.1**
Hispanic	29,793	**82.9**	**80.4**	**-**	**85.2**	21,052	**84.1**	**81.0**	**-**	**86.8**
Asian, non-Hispanic	14,667	**87.3**	**84.8**	**-**	**89.4**	10,308	**84.0**	**80.5**	**-**	**87.0**
Other, non-Hispanic	5,238	91.9	88.0	-	94.6	3,370	83.0	67.7	-	91.9
Maternal age (years)										
<20	4,913	78.2	69.0	-	85.3	2,653	78.3	63.6	-	88.2
20-29	70,561	86.5	84.3	-	88.4	42,053	86.6	83.7	-	89.0
30-39	102,177	**94.0**	**92.8**	**-**	**95.0**	70,873	90.7	88.7	-	92.3
40+	7,499	90.5	83.6	-	94.7	5,509	91.2	83.5	-	95.5
Maternal education										
<High school	16,930	**84.4**	**80.9**	**-**	**87.4**	9,924	**82.1**	**76.3**	**-**	**86.8**
High school diploma	27,303	**82.9**	**78.7**	**-**	**86.4**	16,408	**81.4**	**75.7**	**-**	**85.9**
Some college	44,680	**89.7**	**87.3**	**-**	**91.7**	26,494	**88.2**	**84.6**	**-**	**91.0**
College graduate	92,900	94.5	93.1	-	95.6	64,553	93.1	91.3	-	94.5
Household poverty level										
≤100% FPL	41,455	**83.3**	**80.4**	**-**	**85.8**	22,604	**82.6**	**78.6**	**-**	**86.1**
>100% FPL	132,524	93.1	91.8	-	94.2	91,246	91.3	89.6	-	92.7
Maternal nativity										
Non-US-born	54,814	**85.9**	**84.0**	**-**	**87.5**	36,174	**83.7**	**81.2**	**-**	**85.9**
US-born	130,144	92.5	91.0	-	93.7	84,914	91.3	89.4	-	93.0
Marital status										
Unmarried	58,440	**85.4**	**82.9**	**-**	**87.6**	38,857	**84.7**	**81.4**	**-**	**87.5**
Married	126,671	92.9	91.7	-	93.9	82,089	91.1	89.4	-	92.5
Disability										
No	173,908	90.8	89.7	-	91.8	109,064	89.7	88.2	-	91.1
Yes	9,658	85.4	78.8	-	90.2	10,197	**80.4**	**73.3**	**-**	**86.0**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

Massachusetts Title V Performance Measures

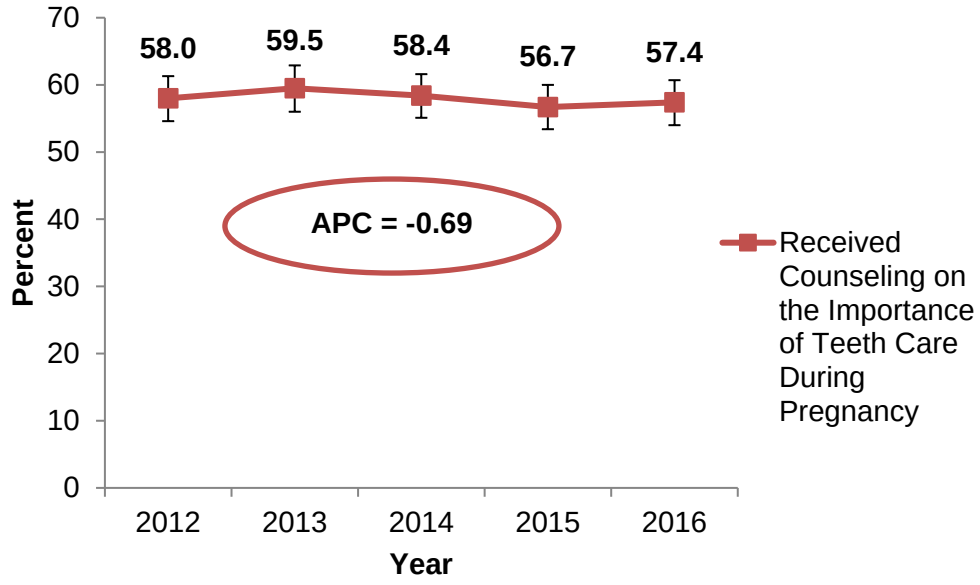
Oral Health: Counseling on the importance of teeth care during pregnancy

Oral health promotion and education are very important during prenatal care. Research shows that women who received oral health counseling were more likely to get their teeth cleaned during pregnancy (Thompson et al., 2013). Therefore, the American College of Obstetricians and Gynecologists (ACOG) recommends that health care providers counsel all women on the importance of teeth care during pregnancy (ACOG, 2013).

The trend in counseling on the importance of teeth care during pregnancy with Massachusetts mothers did not change significantly from 2012 to 2016 (Figure 3). Despite ACOG's recommendation, only 58% of mothers reported having received counseling.

During 2015–2016, lower prevalence was observed among Black, non-Hispanic (47.1%) mothers compared to White, non-Hispanic (60.6%) mothers; those with a high school diploma (51.8%) and some college (50.2%) education compared to mothers with a college degree (61.9%); those who were living at or below 100% of the FPL (49.2%) compared to those who were living above 100% of the FPL (59.5%); those born outside of the US (52.1%) compared to US-born mothers (59.3%); those who were unmarried (51.8%) compared to those who were married (59.8%); and those with a disability (42.9%) compared to those without a disability (58.7%) (Table 4).

Figure 3. Trend in counseling on the importance of teeth care during pregnancy, MA PRAMS, 2012–2016



APC = Annual Percent Change
P-value for trend is not statistically significant.

Table 4. Prevalence of counseling on the importance of teeth care during pregnancy by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	119,919	58.6	56.7	-	60.6	76,843	57.0	54.7	-	59.4
Maternal race/ethnicity										
White, non-Hispanic	76,759	61.6	58.7	-	64.5	47,772	60.6	57.0	-	64.1
Black, non-Hispanic	10,494	55.7	51.7	-	59.6	5,876	**47.1**	**42.3**	**-**	**52.0**
Hispanic	18,291	**51.0**	**47.7**	**-**	**54.3**	13,223	53.5	49.5	-	57.4
Asian, non-Hispanic	8,901	**53.0**	**49.4**	**-**	**56.6**	6,569	54.4	49.7	-	59.0
Other, non-Hispanic	3,401	59.9	51.0	-	68.1	2,105	51.6	37.0	-	65.9
Maternal age (years)										
<20	3,493	55.6	44.8	-	65.9	1,807	53.4	39.5	-	66.8
20-29	43,716	53.6	50.4	-	56.7	25,581	53.3	49.1	-	57.3
30-39	67,953	**62.7**	**60.0**	**-**	**65.2**	45,955	59.3	56.2	-	62.4
40+	4,756	58.0	48.3	-	67.1	3,499	59.6	48.7	-	69.7
Maternal education										
<High school	10,659	**53.1**	**47.2**	**-**	**58.8**	6,641	55.9	48.7	-	62.9
High school diploma	16,540	**50.3**	**45.1**	**-**	**55.4**	10,156	**51.8**	**45.5**	**-**	**58.1**
Some college	27,913	**56.0**	**52.0**	**-**	**59.8**	14,873	**50.2**	**45.2**	**-**	**55.2**
College graduate	62,259	63.6	60.8	-	66.3	42,799	61.9	58.6	-	65.1
Household poverty level										
≤100% FPL	25,502	**51.3**	**47.4**	**-**	**55.1**	13,226	**49.2**	**44.1**	**-**	**54.2**
>100% FPL	86,405	60.8	58.5	-	63.2	59,008	59.5	56.7	-	62.2
Maternal nativity										
Non-US-born	33,960	**53.2**	**50.5**	**-**	**55.9**	22,233	**52.1**	**48.8**	**-**	**55.4**
US-born	85,786	61.1	58.5	-	63.6	54,609	59.3	56.2	-	62.4
Marital status										
Unmarried	36,669	**53.5**	**50.0**	**-**	**56.9**	23,287	**51.8**	**47.5**	**-**	**56.1**
Married	83,231	61.2	58.9	-	63.5	53,555	59.8	56.9	-	62.5
Disability										
No	113,302	59.2	57.2	-	61.2	70,758	58.7	56.2	-	61.1
Yes	5,234	**46.3**	**37.9**	**-**	**54.8**	5,306	**42.9**	**35.3**	**-**	**50.8**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

Massachusetts Title V Performance Measures

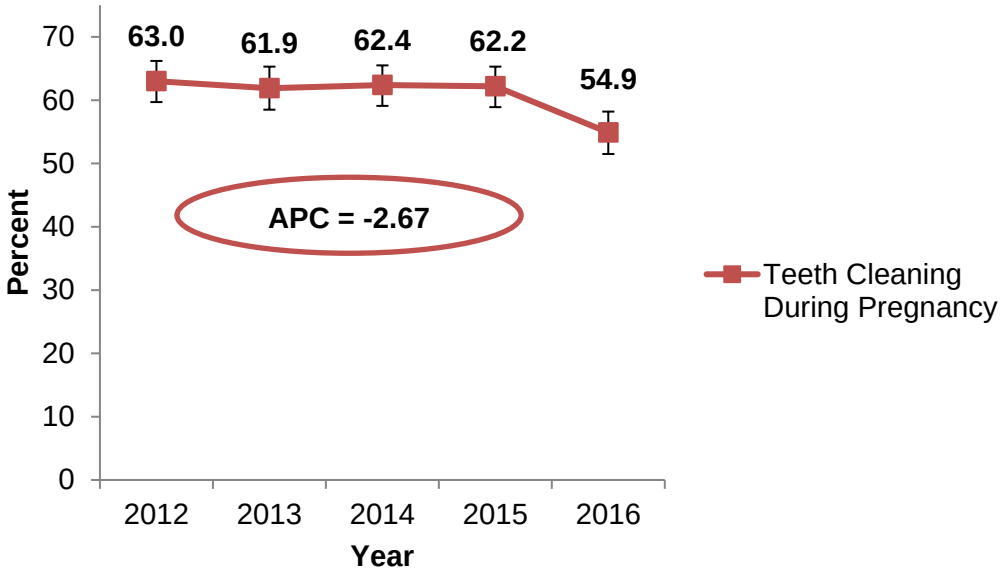
Oral Health: Teeth cleaning during pregnancy

According to the March of Dimes, untreated gum disease (periodontitis) may cause premature birth and low birth weight (March of Dimes, 2013). The American Dental Association, the American College of Obstetricians and Gynecologists and the American Academy of Pediatrics encourage mothers to get dental care while pregnant. Getting a dental check-up during pregnancy is safe and important for maintaining good oral health.

The trend for teeth cleaning during pregnancy did not change significantly from 2012 to 2015 (Figure 4). Similarly to teeth cleaning twelve months before pregnancy, in 2016, the prevalence of teeth cleaning during pregnancy dropped to 54.9% (the drop in prevalence could be due to the change in the wording of the question in the phase 8 survey).

During 2015–2016, lower prevalence was observed among Black, non-Hispanic, Asian, non-Hispanic and Other, non-Hispanic mothers (43.3%, 51.9 %, and 43.7%, respectively) compared to White, non-Hispanic (63.2%) mothers; those aged 20-29 years (51.0%) compared to those aged 30-39 years (63.2%); those with less than a high school education, a high school diploma and some college education (52.0%, 46.5%, and 48.6%, respectively) compared to mothers with a college degree (67.3%); those who were living at or below 100% of the FPL (48.1%) compared to those who were living above 100% of the FPL (62.0%); those born outside of the US (53.1%) compared to US-born mothers (61.0%); and those who were unmarried (46.4%) compared to those who were married (64.6%) (Table 5).

Figure 4. Trend in teeth cleaning during pregnancy, MA PRAMS, 2012–2016



APC = Annual Percent Change
P-value for trend is not statistically significant.

Table 5. Prevalence of teeth cleaning during pregnancy by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016*				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	127,634	62.5	60.5	-	64.3	79,822	58.5	56.1	-	60.8
Maternal race/ethnicity										
White, non-Hispanic	83,678	67.2	64.3	-	69.9	50,296	63.2	59.6	-	66.7
Black, non-Hispanic	9,357	**50.0**	**46.0**	**-**	**53.9**	5,549	**43.3**	**38.6**	**-**	**48.1**
Hispanic	20,079	**56.3**	**53.0**	**-**	**59.5**	14,300	56.8	52.9	-	60.7
Asian, non-Hispanic	9,512	**56.3**	**52.7**	**-**	**59.9**	6,373	**51.9**	**47.2**	**-**	**56.5**
Other, non-Hispanic	2,957	**52.3**	**43.2**	**-**	**61.3**	1,816	**43.7**	**30.5**	**-**	**57.9**
Maternal age (years)										
<20	3,867	62.2	51.1	-	72.1	1,829	54.0	39.8	-	67.6
20-29	45,301	55.7	52.5	-	58.8	24,836	51.0	46.9	-	55.1
30-39	72,974	**67.2**	**64.7**	**-**	**69.6**	49,501	**63.2**	**60.2**	**-**	**66.2**
40+	5,493	67.3	57.9	-	75.5	3,656	59.9	49.0	-	69.8
Maternal education										
<High school	10,980	**55.0**	**49.1**	**-**	**60.8**	6,348	**52.0**	**44.9**	**-**	**59.1**
High school diploma	17,421	**53.1**	**47.9**	**-**	**58.3**	9,384	**46.5**	**40.4**	**-**	**52.8**
Some college	26,600	**53.5**	**49.6**	**-**	**57.4**	14,645	**48.6**	**43.6**	**-**	**53.6**
College graduate	70,144	71.4	68.8	-	73.9	46,760	67.3	64.2	-	70.4
Household poverty level										
≤100% FPL	25,378	**51.2**	**47.3**	**-**	**55.1**	13,184	**48.1**	**43.2**	**-**	**53.1**
>100% FPL	94,596	66.5	64.2	-	68.7	62,052	62.0	59.2	-	64.7
Maternal nativity										
Non-US-born	35,559	**55.9**	**53.1**	**-**	**58.6**	23,034	**53.1**	**49.8**	**-**	**56.3**
US-born	91,902	65.4	62.9	-	67.9	56,787	61.0	57.9	-	64.1
Marital status										
Unmarried	35,139	**51.5**	**48.0**	**-**	**54.9**	21,307	**46.4**	**42.2**	**-**	**50.7**
Married	92,456	68.0	65.7	-	70.1	58,372	64.6	61.8	-	67.2
Disability										
No	120,557	63.0	61.1	-	65.0	73,522	60.4	57.9	-	65.0
Yes	6,078	54.0	45.4	-	62.5	5,532	43.8	36.2	**-**	62.5

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

*The 2016 question on teeth cleaning during pregnancy was different from 2012–2015.

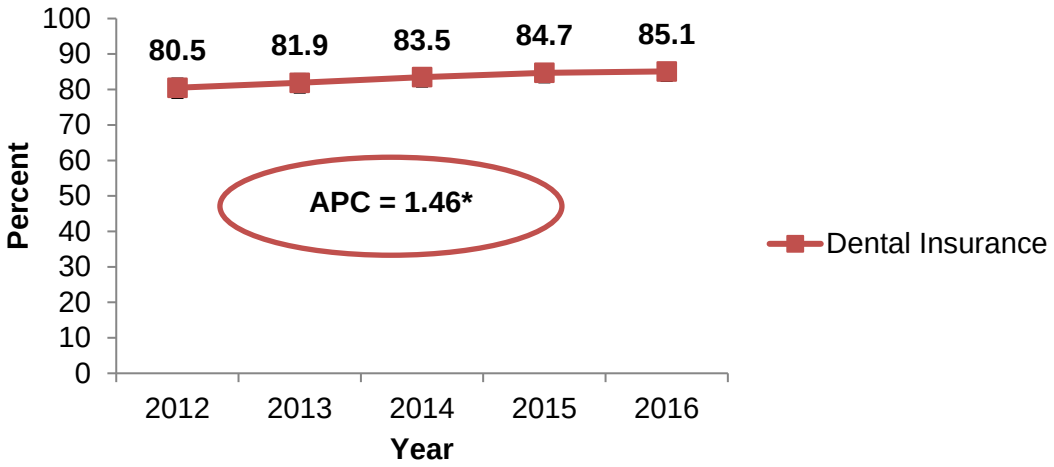
Massachusetts Title V Performance Measures

Oral Health: Dental insurance during pregnancy

In 2014, approximately 64% of Americans had dental insurance coverage (Probasco, 2015). Access to oral health care remains a big challenge for pregnant women, especially minority and low income groups (Sanders, 2012). MassHealth (Massachusetts Medicaid) members are eligible for dental services such as oral exams, x-rays, cleanings, extractions, and some oral surgery performed by a MassHealth dentist (Dental Service of Massachusetts, 2012).

In Massachusetts, the trend for dental insurance during pregnancy increased significantly from 80.5% in 2012 to 85.1% in 2016 (Figure 5). During 2015–2016, lower prevalence was observed among mothers aged 20-29 years (81.5%) compared to those aged less than 20 years (92.6%) and those aged 30-39 years (87.0%); those with some college education (81.3%) compared to mothers with a college degree (88.0%); and those born outside of the US (81.2%) compared to US-born mothers (86.6%). Compared to 2012–2014, there is a significant increase in prevalence of dental insurance during 2015–2016 among Hispanic mothers (78.9% vs. 86.8%); and among foreign-born mothers (75.3 % vs. 81.2%) (Table 6).

Figure 5. Trend in dental insurance during pregnancy, MA PRAMS, 2012–2016



APC = Annual Percent Change
*P-value for trend < 0.05

Table 6. Prevalence of dental insurance during pregnancy by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	166,325	82.0	80.4	-	83.4	114,124	84.9	83.0	-	86.6
Maternal race/ethnicity										
White, non-Hispanic	103,685	83.6	81.3	-	85.7	67,638	85.7	82.9	-	88.1
Black, non-Hispanic	14,820	79.6	76.5	-	82.4	10,221	82.0	77.5	-	85.8
Hispanic	27,840	78.9	76.0	-	81.6	21,231	86.8	83.9	-	89.3
Asian, non-Hispanic	13,320	79.8	76.9	-	82.4	9,902	81.7	77.8	-	85.0
Other, non-Hispanic	4,693	84.5	77.8	-	89.5	2,936	72.1	54.9	-	84.5
Maternal age (years)										
<20	5,517	**90.4**	**82.8**	**-**	**94.8**	3,071	**92.6**	**85.5**	**-**	**96.3**
20-29	62,986	78.0	75.3	-	80.6	38,680	81.5	77.9	-	84.6
30-39	91,629	**84.9**	**82.9**	**-**	**86.6**	67,484	**87.0**	**84.7**	**-**	**88.9**
40+	6,192	76.0	66.8	-	83.3	4,888	80.5	70.3	-	87.8
Maternal education										
<High school	15,844	80.4	75.6	-	84.4	10,058	85.0	79.8	-	89.1
High school diploma	25,829	**79.4**	**74.9**	**-**	**83.3**	15,739	80.8	74.7	-	85.6
Some college	38,452	**77.7**	**74.2**	**-**	**80.9**	24,054	**81.3**	**76.8**	**-**	**85.1**
College graduate	83,495	85.5	83.4	-	87.4	60,797	88.0	85.6	-	90.0
Household poverty level										
≤100% FPL	37,620	**77.4**	**74.0**	**-**	**80.5**	22,192	82.7	78.4	-	86.2
>100% FPL	118,730	83.8	81.9	-	85.5	84,847	85.6	83.4	-	87.5
Maternal nativity										
Non-US-born	47,426	**75.3**	**72.9**	**-**	**77.7**	34,378	**81.2**	**78.5**	**-**	**83.6**
US-born	118,696	84.9	82.9	-	86.7	79,746	86.6	84.1	-	88.7
Marital status										
Unmarried	54,286	80.5	77.6	-	83.1	36,470	81.3	77.4	-	84.6
Married	112,000	82.7	80.8	-	84.4	77,512	86.7	84.6	-	88.4
Disability										
No	156,517	82.4	80.8	-	83.9	102,638	85.5	83.6	-	87.2
Yes	8,336	74.4	66.2	-	81.3	9,762	78.0	69.8	-	84.5

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

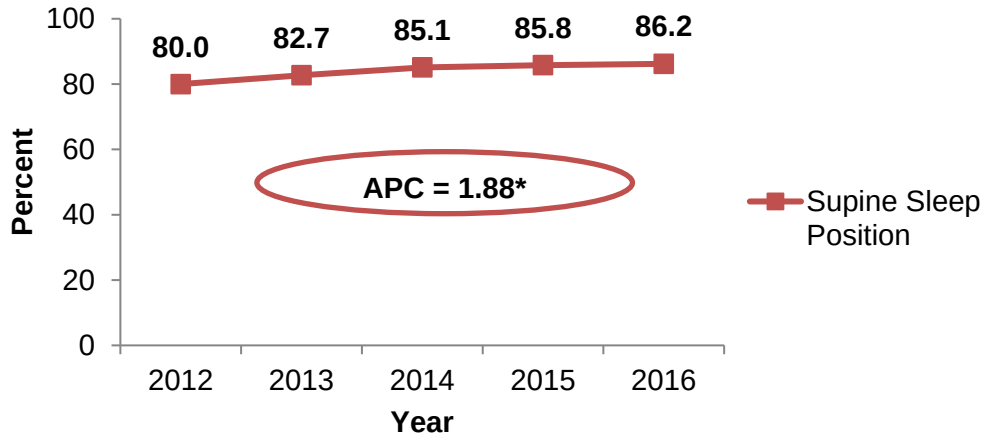
Safe Sleep: Infant sleep position

The safest position for infants to sleep is on their back (supine position). Since 1992, the American Academy of Pediatrics has recommended supine sleep positioning to reduce the risk of sudden infant death syndrome (SIDS). As a result, nationwide, the frequency of supine sleeping has increased from 13% in 1992 to approximately 73% in 2010 (National Infant Sleep Position Household Survey, 2010) and the SIDS rate has decreased by 66% from 1980 to 2010 (American SIDS Institute).

During 2012–2016, the overall trend for supine sleep position increased significantly from 80.0% to 86.2% (Figure 6). During 2015–2016, mothers aged 30 to 39 years were more likely to report placing their infant on their back to sleep (89.4%) compared to mothers aged 20-29 years (81.9%). In addition, compared to 2012–2014, there is a significant increase in supine sleep positioning during 2015–2016 among Other, non-Hispanic mothers (71.5% vs. 93.4%); mothers who were living above 100% of the FPL (85.9% vs. 89.5%), US-born mothers (85.6% vs. 89.7%), and among mothers without a disability (82.8% vs. 86.6%) (Table 7).

However, disparities continue to exist when examining the prevalence of supine sleep positioning by maternal demographics. During 2015–2016, lower prevalence was observed among Black, non-Hispanic, Hispanic and Asian, non-Hispanic mothers (72.5%, 74.4%, and 85.6%, respectively) compared to White, non-Hispanic mothers (91.5%); those with less than a high school education, high school diploma and some college education (74.6%, 80.2%, and 80.3%, respectively) compared to mothers with a college degree (90.3%); those who were living at or below 100% of the FPL (75.1%) compared to those who were living above 100% of the FPL (89.5%); those born outside of the US (78.3%) compared to US-born mothers (89.7%); those who were unmarried (80.2%) compared to those who were married (89.1%); and those who participated in WIC (75.2%) compared to those who did not participate in WIC (91.6%) (Table 7).

Figure 6. Trend in placing infants to sleep on back, MA PRAMS, 2012–2016



APC = Annual Percent Change
*P-value for trend < 0.05

Table 7. Prevalence of supine sleep position by sociodemographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	166,532	82.6	81.1	-	83.9	114,270	86.0	84.5	-	87.5
Maternal race/ethnicity										
White, non-Hispanic	110,342	89.4	87.4	-	91.1	71,135	91.5	89.2	-	93.4
Black, non-Hispanic	11,884	**66.2**	**61.9**	**-**	**70.2**	8,952	**72.5**	**68.1**	**-**	**76.5**
Hispanic	24,283	**69.0**	**65.8**	**-**	**72.0**	18,114	**74.4**	**70.7**	**-**	**77.8**
Asian, non-Hispanic	13,845	**83.3**	**80.6**	**-**	**85.8**	10,100	**85.6**	**82.1**	**-**	**88.5**
Other, non-Hispanic	4,099	**71.5**	**62.0**	**-**	**79.4**	3,813	93.4	84.2	-	97.4
Maternal age (years)										
<20	4,190	67.3	56.8	-	76.3	2,373	72.9	59.8	-	82.9
20-29	61,620	77.3	74.6	-	79.8	38,805	81.9	78.9	-	84.6
30-39	93,650	**87.1**	**85.4**	**-**	**88.7**	68,381	**89.4**	**87.5**	**-**	**91.1**
40+	7,072	85.9	78.9	-	90.9	4,712	82.7	73.6	-	89.1
Maternal education										
<High school	14,137	**71.7**	**66.7**	**-**	**76.3**	8,742	**74.6**	**68.2**	**-**	**80.1**
High school diploma	23,876	**74.9**	**70.2**	**-**	**79.0**	15,219	**80.2**	**75.1**	**-**	**84.5**
Some college	37,520	**76.9**	**73.6**	**-**	**79.9**	23,469	**80.3**	**76.3**	**-**	**83.8**
College graduate	88,303	90.3	88.6	-	91.8	62,867	91.9	90.1	-	93.5
Household poverty level										
≤100% FPL	36,590	**74.9**	**71.6**	**-**	**77.9**	19,673	**75.1**	**70.7**	**-**	**79.0**
>100% FPL	121,674	85.9	84.2	-	87.4	88,196	89.5	87.8	-	91.0
Maternal nativity										
Non-US-born	47,468	**76.0**	**73.7**	**-**	**78.2**	33,126	**78.3**	**75.5**	**-**	**80.8**
US-born	118,998	85.6	83.8	-	87.3	81,144	89.7	87.7	-	91.3
Marital status										
Unmarried	49,724	**74.8**	**71.9**	**-**	**77.6**	35,203	**80.2**	**76.9**	**-**	**83.1**
Married	116,788	86.4	84.7	-	87.9	79,067	89.1	87.3	-	90.6
WIC Participation										
No	112,112	88.6	86.9	-	90.1	80,767	91.6	89.9	-	93.0
Yes	53,140	**72.6**	**69.9**	**-**	**75.1**	33,047	**75.2**	**71.9**	**-**	**78.2**
Disability										
No	157,131	82.8	81.3	-	84.2	103,348	86.6	85.0	-	88.1
Yes	8,645	78.7	70.9	-	84.9	9,825	80.6	73.6	-	86.1

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, not a WIC participant, and without a disability.

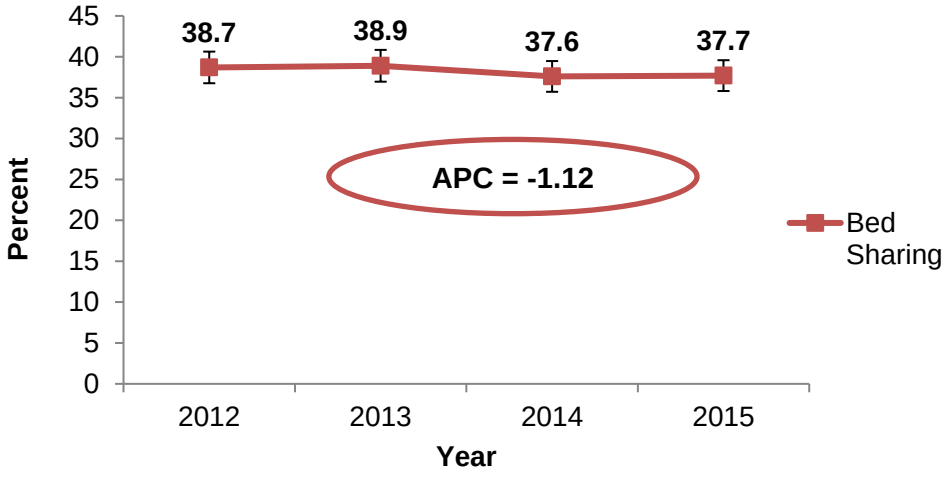
Massachusetts Title V Performance Measures

Safe Sleep: Infant bed sharing

The practice of "bed sharing" refers to infants sleeping in the same bed with one or both parents, or with another child, as opposed to sleeping in their own crib or bassinet. Nationwide, the percentage of infants who bed share (defined as usually bed sharing) more than doubled between 1993 and 2010—from 6.5% to 13.5% (Colson et al., 2013). Bed sharing has been linked to increased risk for sudden infant death syndrome (SIDS) as well as suffocation, strangulation, and falls (March of Dimes, 2015).

During 2012–2015, the trend for infant frequently bed sharing with mother (defined as always or at least five times a week) did not change significantly (Figure 7). During 2014–2015, higher prevalence was observed among Black, non-Hispanic, Hispanic, and Asian, non-Hispanic mothers (56.7%, 43.9%, and 59.3%, respectively) compared to White, non-Hispanic mothers (30.1%); those aged 20-29 years (42.4%) compared to those aged 30-39 years (34.9%); those with less than a high school education, high school diploma and some college education (45.9%, 47.0%, and 41.4%, respectively) compared to mothers with a college degree (32.2%); those who were living at or below 100% of the FPL (46.5%) compared to those who were living above 100% of the FPL (34.5%); those born outside of the US (47.8%) compared to US-born mothers (32.8%); those who were unmarried (42.9%) compared to those who were married (35.2%); those who participated in WIC (44.6%) compared to those who did not participate in WIC (34.2%); and those with a disability (50.6%) compared to mothers without a disability (36.8%) (Table 8).

Figure 7. Trend in infant frequently bed sharing with mother (always or 5+ times per week), MA PRAMS, 2012–2015*



APC = Annual Percent Change

P-value for trend is not statistically significant.

*Wording of the bed sharing question has changed in the phase 8 survey (2016). As a result, only 2012–2015 data are included in this trend graph.

Table 8. Prevalence of infant frequently bed sharing with mother by socio-demographic characteristics, MA PRAMS, 2012–2013 and 2014–2015

	2012–2013					2014–2015				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	51,787	38.8	36.5	-	41.2	49,914	37.7	35.4	-	40.0
Maternal race/ethnicity										
White, non-Hispanic	25,021	30.3	27.0	-	33.8	23,866	30.1	26.9	-	33.6
Black, non-Hispanic	6,539	**55.1**	**50.1**	**-**	**60.1**	6,843	**56.7**	**51.7**	**-**	**61.5**
Hispanic	11,231	**50.2**	**46.0**	**-**	**54.4**	10,377	**43.9**	**40.0**	**-**	**48.0**
Asian, non-Hispanic	5,961	**56.0**	**51.5**	**-**	**60.5**	6,920	**59.3**	**54.9**	**-**	**63.6**
Other, non-Hispanic	1,716	42.3	32.3	-	53.1	1,368	37.9	27.4	-	49.6
Maternal age (years)										
<20	2,256	46.0	34.2	-	58.3	1,371	47.7	32.9	-	62.8
20-29	22,216	41.4	37.6	-	45.3	20,319	42.4	38.6	-	46.4
30-39	25,366	36.4	33.3	-	39.6	26,574	**34.9**	**32.0**	**-**	**38.0**
40+	1,949	37.6	26.9	-	49.7	1,651	29.5	20.8	-	39.9
Maternal education										
<High school	7,068	**53.2**	**45.7**	**-**	**60.7**	5,191	**45.9**	**38.9**	**-**	**53.1**
High school diploma	8,261	40.6	34.7	-	46.9	9,596	**47.0**	**40.8**	**-**	**53.3**
Some college	13,708	41.0	36.3	-	45.8	12,521	**41.4**	**36.8**	**-**	**46.1**
College graduate	21,296	33.2	30.0	-	36.6	21,671	32.2	29.2	-	35.4
Household poverty level										
≤100% FPL	16,218	**49.3**	**44.5**	**-**	**54.1**	14,218	**46.5**	**41.9**	**-**	**51.2**
>100% FPL	32,361	34.5	31.7	-	37.3	32,575	34.5	31.9	-	37.3
Maternal nativity										
Non-US-born	21,106	**53.1**	**49.6**	**-**	**56.5**	20,557	**47.8**	**44.5**	**-**	**51.2**
US-born	30,480	32.6	29.7	-	35.7	29,357	32.8	29.9	-	35.8
Marital status										
Unmarried	19,823	**44.7**	**40.4**	**-**	**49.1**	18,415	**42.9**	**38.9**	**-**	**47.1**
Married	31,964	35.9	33.1	-	38.7	31,480	35.2	32.6	-	38.0
WIC Participation										
Non-WIC	27,989	33.8	30.9	-	36.9	29,327	34.2	31.3	-	37.2
WIC Participant	23,174	**46.6**	**42.8**	**-**	**50.4**	20,102	**44.6**	**40.9**	**-**	**48.2**
Disability										
No	48,580	38.7	36.4	**-**	41.2	45,782	36.8	34.5	**-**	39.2
Yes	3,155	40.2	30.3	**-**	51.0	4,034	**50.6**	**41.1**	**-**	**60.0**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, not a WIC participant, and without a disability.

Massachusetts Title V Performance Measures

Breastfeeding

The American Academy of Pediatrics recommends exclusive breastfeeding for the first six months of an infant's life. After the first six months and up to one year, breastfeeding can continue with introduction of solid foods (Eidelman & Schanler, 2012). According to the Centers for Disease Control and Prevention (CDC), breastfeeding was initiated for 83% of US infants born in 2014. In addition, 55% of infants born in 2014 were still being breastfed at six months of age, up from 42% in 2004 (CDC, 2017). The benefits of breastfeeding include providing a child with a nutritionally balanced meal, some protection against common childhood infections, and better survival during an infant's first year, including a lower risk of SIDS (Ip, 2007). Previous research showed that breastfeeding may reduce the risk for certain allergic diseases, asthma, obesity, and Type 2 diabetes (Ip, 2007).

Breastfeeding is also strongly encouraged and promoted by the WIC program. All WIC staff are trained to support mother's desire to breastfeed and help new breastfeeding mothers to continue breastfeeding as long as they wish. However, despite WIC's breastfeeding promotion, many mothers in the WIC program may experience barriers such as returning to work or social/cultural barriers to continue breastfeeding. HP 2020 target for the proportion of infants who were ever breastfed is 81.9% (Healthy People, 2014). During 2012–2016, 88.9% of Massachusetts mothers reported ever initiating breastfeeding. The trends for breastfeeding initiation and breastfeeding duration for at least eight weeks in Massachusetts did not change significantly from 2012 to 2016 (Figure 8).

During 2015–2016, higher prevalence of breastfeeding initiation was observed among Hispanic and Asian, non-Hispanic mothers (93.1% and 94.6%, respectively) compared to White, non-Hispanic mothers (88.5%); those with a college degree (95.0%) compared to those with less than a high school education (79.3%); those who were living above 100% of the FPL (92.1%) compared to those who were living at or below 100% of the FPL (83.5%); those born outside of the US (95.8%) compared to US-born mothers (87.2%); those who were married (93.5%) compared to those who were unmarried (82.7%); those not enrolled in WIC (92.8%) compared to those enrolled in WIC (84.5%); and mothers without a disability (90.8%) compared to mothers with a disability (82.5%) (Table 9).

Higher prevalence of breastfeeding for at least eight weeks, during 2015–2016, was observed among Asian, non-Hispanic mothers (84.3%) compared to White, non-Hispanic mothers (88.5%); those aged 30-39 years (78.4%) compared to those aged 20-29 years (64.1%); those with a college degree (83.5%) compared to those with less than a high school education (50.3%); those living above 100% of the FPL (77.2%) compared to those living below 100% of the FPL (54.9%); those born outside of the US (81.5%) compared to US-born mothers (67.8%); those who were married (80.3%) compared to those who were unmarried (55.9%); those without a disability (73.9%) compared to those with a disability (56.8%); and those not enrolled in WIC (59.4%) compared to those enrolled in WIC (59.4%) (Table 10).

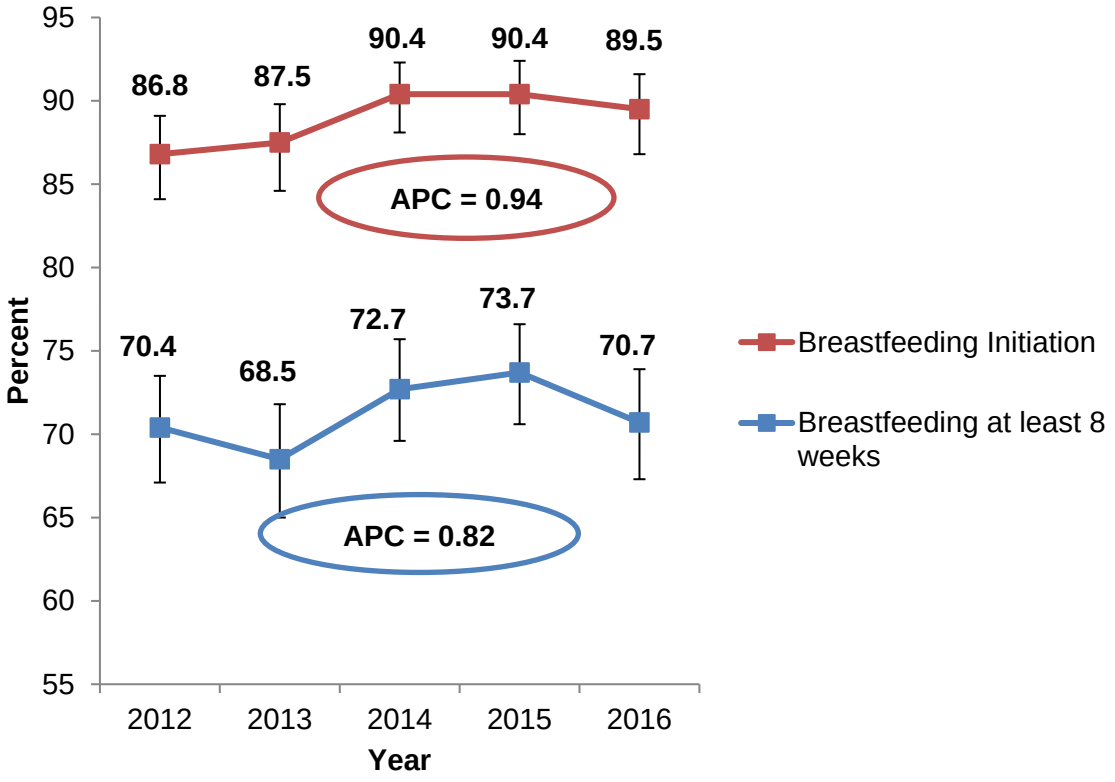
Massachusetts mothers say:

"I wish I had more education on breastfeeding before the baby was born."

"The only thing that I think needs to happen differently is more support with breastfeeding in and out of the hospital. I [truly] don't think there is enough support."

"I have had the luxury of attending lactation support group meetings since having my daughter. We paid to have a LC visit our home. There needs to be more encouragement and education around breastfeeding - not pressure. Many mothers feel extreme depression about not 'being able to breastfeed' when most often they just have not been given the appropriate support. Our hospital considered themselves extremely progressive in this way and yet, we still had to request the LC [to] visit our room & skin to skin post-delivery."

Figure 8. Trends in breastfeeding initiation and duration for at least 8 weeks, MA PRAMS, 2012–2016



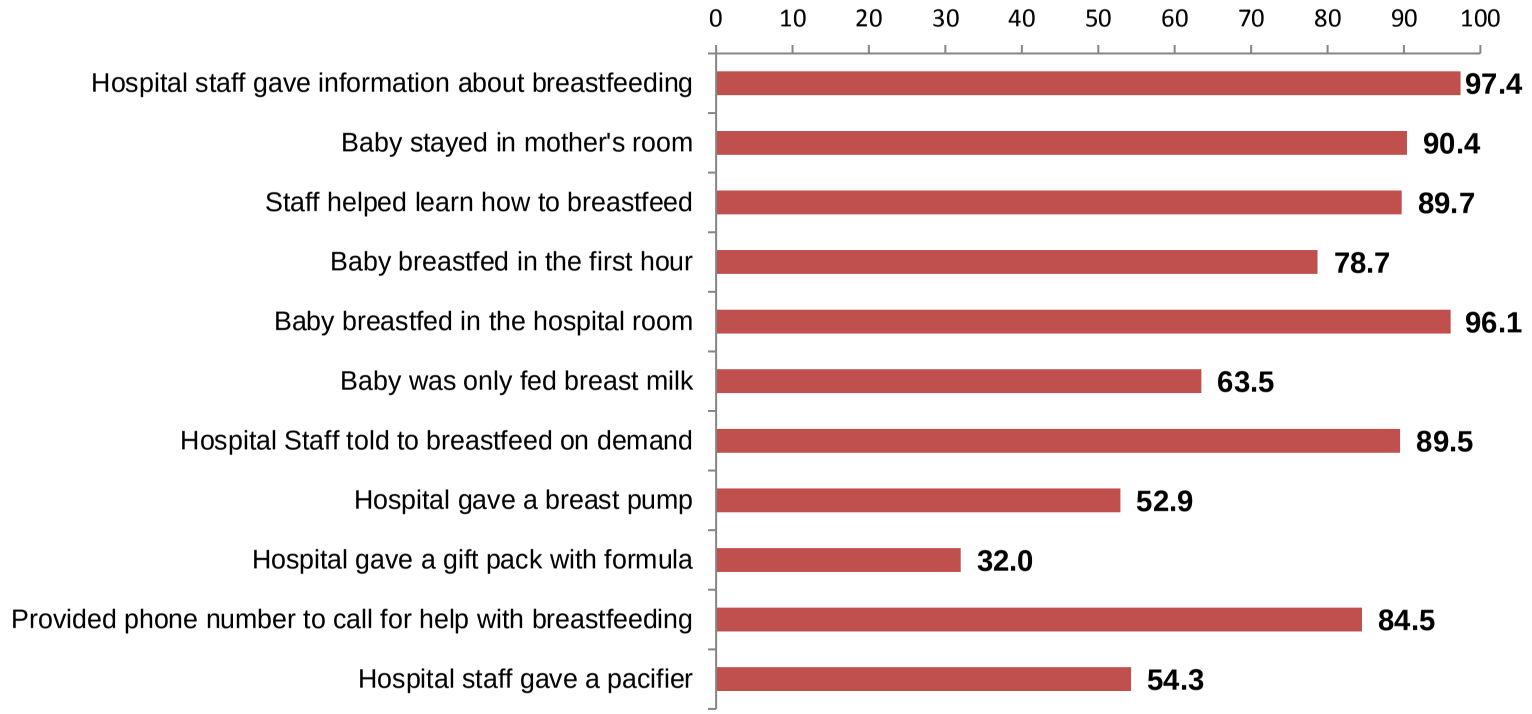
APC = Annual Percent Change

P-values for trends are not statistically significant.

Hospital Breastfeeding Practices

A Baby-Friendly Hospital Initiative was launched in 1991 by the World Health Organization and the United Nations Children's Fund. Its main focus is to improve breastfeeding rates while encouraging mother-infant bonding (Baby-Friendly USA). To earn the designation, hospitals and birth centers must adopt the practice of keeping mothers and babies together at all times (Pearson, 2016). Many Massachusetts hospitals and birth centers have implemented policies and care practices that meet the gold standard for protecting, promoting and supporting breastfeeding. As a result, eight of these Massachusetts hospitals have received the Baby-Friendly designation by 2016 (Figure 9).

Figure 9. Hospital breastfeeding practices for maternal delivery hospital stay, MA PRAMS, 2012–2016



A Massachusetts mother says:

…"I [also] appreciated that our hospital had the 'baby friendly' designation."

Table 9. Prevalence of breastfeeding initiation by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	179,215	88.2	86.8	-	89.5	120,208	89.9	88.2	-	91.4
Maternal race/ethnicity										
White, non-Hispanic	107,033	86.6	84.3	-	88.6	69,207	88.5	85.8	-	90.8
Black, non-Hispanic	16,762	91.1	88.6	-	93.1	11,077	88.8	84.8	-	91.9
Hispanic	31,907	89.5	87.2	-	91.4	22,748	**93.1**	**90.9**	**-**	**94.8**
Asian, non-Hispanic	15,784	**93.6**	**91.4**	**-**	**95.3**	11,326	**94.6**	**91.4**	**-**	**96.6**
Other, non-Hispanic	5,205	90.3	83.3	-	94.6	3,450	84.1	66.9	-	93.2
Maternal age (years)										
<20	4,650	74.4	63.0	-	83.3	2,999	90.2	76.5	-	96.3
20-29	67,705	84.3	81.5	-	86.7	41,688	87.6	84.2	-	90.3
30-39	99,400	**91.9**	**90.2**	**-**	**93.3**	70,693	91.8	89.7	-	93.5
40+	7,460	89.1	81.4	-	93.8	4,828	84.9	73.6	-	92.0
Maternal education										
<High school	15,354	**76.9**	**70.9**	**-**	**81.9**	9,274	**79.3**	**71.4**	**-**	**85.5**
High school diploma	25,654	**79.4**	**74.3**	**-**	**83.7**	15,918	**82.9**	**76.7**	**-**	**87.7**
Some college	41,918	**85.1**	**81.8**	**-**	**87.9**	25,623	**86.8**	**82.6**	**-**	**90.2**
College graduate	93,058	95.0	93.5	-	96.2	65,290	95.0	93.2	-	96.3
Household poverty level										
≤100% FPL	39,254	**79.3**	**75.6**	**-**	**82.6**	22,025	**83.5**	**78.7**	**-**	**87.4**
>100% FPL	130,313	91.8	90.3	-	93.1	91,327	92.1	90.2	-	93.6
Maternal nativity										
Non-US-born	59,707	**94.0**	**92.6**	**-**	**95.2**	40,778	**95.8**	**94.3**	**-**	**96.9**
US-born	119,442	85.7	83.7	-	87.5	79,430	87.2	84.8	-	89.3
Marital status										
Unmarried	52,924	**78.9**	**75.6**	**-**	**81.8**	36,567	**82.7**	**78.8**	**-**	**86.1**
Married	126,252	92.8	91.4	-	94.0	83,499	93.5	91.8	-	94.9
Disability										
No	169,682	88.9	87.4	-	90.2	109,141	90.8	89.1	-	92.3
Yes	8,597	**77.3**	**68.4**	**-**	**84.2**	**10,038**	**82.5**	**74.1**	**-**	**88.6**
WIC Participation										
No	116,624	92.0	90.4	-	93.4	82,224	92.8	91.0	-	94.3
Yes	60,890	**81.8**	**78.9**	**-**	**84.3**	37,409	**84.5**	**80.8**	**-**	**87.5**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, without a disability and not a WIC participant.

Table 10. Prevalence of breastfeeding duration for at least 8 weeks by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	142,262	70.5	68.6	-	72.4	96,249	72.2	69.9	-	74.4
Maternal race/ethnicity										
White, non-Hispanic	85,871	69.8	66.9	-	72.6	55,889	71.8	68.3	-	75.1
Black, non-Hispanic	13,670	75.5	72.3	-	78.6	9,097	72.9	68.3	-	77.0
Hispanic	22,781	64.2	60.9	-	67.3	16,288	66.5	62.7	-	70.2
Asian, non-Hispanic	13,468	**81.2**	**78.3**	**-**	**83.8**	10,061	**84.3**	**80.3**	**-**	**87.5**
Other, non-Hispanic	4,370	76.5	68.2	-	83.2	3,028	74.2	57.2	-	86.1
Maternal age (years)										
<20	2,414	**40.0**	**30.0**	**-**	**51.0**	1,498	**45.5**	**31.9**	**-**	**59.8**
20-29	47,791	60.0	56.7	-	63.2	30,440	64.1	60.0	-	68.1
30-39	85,441	**79.4**	**77.1**	**-**	**81.6**	60,207	**78.4**	**75.6**	**-**	**80.9**
40+	6,617	**78.9**	**69.9**	**-**	**85.8**	4,105	72.0	60.3	-	81.3
Maternal education										
<High school	10,094	**51.3**	**45.4**	**-**	**57.2**	5,970	**50.3**	**43.1**	**-**	**57.6**
High school diploma	17,204	**53.7**	**48.4**	**-**	**59.0**	10,533	**55.0**	**48.5**	**-**	**61.3**
Some college	29,637	**60.9**	**56.9**	**-**	**64.8**	19,252	**65.6**	**60.5**	**-**	**70.4**
College graduate	82,558	84.5	82.2	-	86.5	57,124	83.5	80.7	-	85.9
Household poverty level										
≤100% FPL	26,041	**53.1**	**49.2**	**-**	**57.0**	14,496	**54.9**	**49.7**	**-**	**59.9**
>100% FPL	108,924	77.2	75.1	-	79.2	76,224	77.2	74.6	-	79.6
Maternal nativity										
Non-US-born	50,179	**79.7**	**77.4**	**-**	**81.8**	34,640	**81.5**	**79.0**	**-**	**83.8**
US-born	92,017	66.5	63.9	-	68.9	61,609	67.8	64.8	-	70.8
Marital status										
Unmarried	34,474	**51.8**	**48.2**	**-**	**55.3**	24,661	**55.9**	**51.5**	**-**	**60.2**
Married	107,769	79.8	77.7	-	81.7	71,446	80.3	77.8	-	82.5
Disability										
No	135,120	71.3	69.4	-	73.2	88,526	73.9	71.6	-	76.1
Yes	6,338	**57.1**	**48.2**	**-**	**65.6**	**6,933**	**56.8**	**48.5**	**-**	**64.7**
WIC Participation										
No	99,328	78.7	76.4	-	80.9	69,588	78.7	76.0	-	81.2
Yes	41,611	**56.4**	**53.3**	**-**	**59.5**	26,312	**59.4**	**55.5**	**-**	**63.3**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, without a disability, and not a WIC participant.

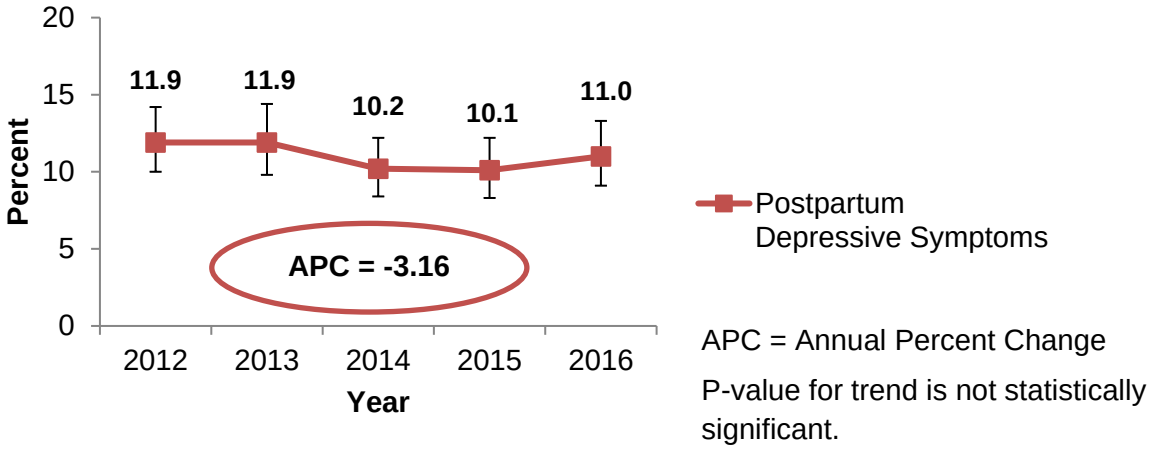
Massachusetts Title V Performance Measures

Emotional Wellness: Postpartum depression

Postpartum depression (PPD) is a mood disorder that can affect mothers after childbirth. Mothers with PPD experience feelings of sadness, anxiety, and exhaustion that are associated with adverse infant and maternal outcomes. Mothers with a history of depression and those who experience depression during pregnancy are at highest risk for PPD (Spring Thompson & Fox, 2010). Nationally, about one in nine women experience symptoms of PPD (Ko et al., 2017).

During 2012–2016, the trend for postpartum depressive symptoms among Massachusetts mothers did not change significantly (Figure 10). During 2015–2016, higher prevalence was observed among Black, non-Hispanic, Hispanic and Asian, non-Hispanic mothers (17.4%, 13.6%, and 14.8%, respectively) compared to White, non-Hispanic mothers (7.9%); those aged less than 20 years (26.2%) compared to mothers aged 20-29 years (13.3%); those with less than a high school education and high school diploma (16.2% and 15.8%, respectively) compared to mothers with a college degree (8.0%); those who were living at or below 100% of the FPL (19.0%) compared to those who were living above 100% of the FPL (8.1%); those born outside of the US (13.9%) compared to US-born mothers (9.0%); those who were unmarried (15.0%) compared to those who were married (8.3%); and those with a disability (35.8%) compared to those without a disability (8.0%) (Table 11).

Figure 10. Trend in postpartum depressive symptoms, MA PRAMS, 2012–2016



APC = Annual Percent Change

P-value for trend is not statistically significant.

A Massachusetts mother says:

"I experienced severe depression postpartum and still, 3 months later, [I] feel very overwhelmed and anxious, especially when the baby cries. I think it would be great if something could be done to better prepare people for the massive life change. Even a talk therapy session during a prenatal visit would help, but something like a 'practice baby' or being given the chance to volunteer at a daycare or nursery to give 1st time parents at least some ideas of how all-encompassing caring for a baby is."

Table 11. Prevalence of postpartum depression by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	23,290	11.3	10.2	-	12.6	14,373	10.6	9.2	-	12.1
Maternal race/ethnicity										
White, non-Hispanic	10,135	8.1	6.6	-	10.0	6,253	7.9	6.1	-	10.2
Black, non-Hispanic	3,655	**19.4**	**16.6**	**-**	**22.5**	2,226	**17.4**	**13.6**	**-**	**21.9**
Hispanic	4,907	**13.6**	**11.5**	**-**	**16.2**	3,410	**13.6**	**11.1**	**-**	**16.5**
Asian, non-Hispanic	3,090	**18.2**	**15.5**	**-**	**21.2**	1,816	**14.8**	**11.9**	**-**	**18.1**
Other, non-Hispanic	940	**16.3**	**10.3**	**-**	**24.6**	566	13.8	6.1	-	28.3
Maternal age (years)										
<20	1,057	16.7	10.4	-	25.6	889	**26.2**	**16.5**	**-**	**39.1**
20-29	11,411	14.0	12.0	-	16.3	6,492	13.3	10.9	-	16.2
30-39	10,468	**9.6**	**8.2**	**-**	**11.2**	6,197	**8.0**	**6.5**	**-**	**9.8**
40+	353	**4.2**	**2.2**	**-**	**7.9**	795	13.0	7.2	-	22.4
Maternal education										
<High school	4,383	**21.8**	**17.1**	**-**	**27.4**	1,995	**16.2**	**11.7**	**-**	**21.9**
High school diploma	5,121	**15.5**	**12.2**	**-**	**19.4**	3,141	**15.8**	**11.5**	**-**	**21.3**
Some college	6,292	**12.6**	**10.4**	**-**	**15.3**	3,450	11.6	8.8	-	15.0
College graduate	6,866	7.0	5.7	-	8.5	5,564	8.0	6.5	-	9.9
Household poverty level										
≤100% FPL	9,427	**18.8**	**16.0**	**-**	**21.9**	5,250	**19.0**	**15.3**	**-**	**23.4**
>100% FPL	11,878	8.3	7.1	-	9.7	8,135	8.1	6.8	-	9.7
Maternal nativity										
Non-US-born	9,928	**15.5**	**13.6**	**-**	**17.6**	6,036	**13.9**	**11.8**	**-**	**16.3**
US-born	13,171	9.3	7.9	-	10.9	8,337	9.0	7.3	-	11.0
Marital status										
Unmarried	10,835	**15.8**	**13.5**	**-**	**18.5**	6,861	**15.0**	**12.2**	**-**	**18.3**
Married	12,454	9.1	7.9	-	10.5	7,512	8.3	7.0	-	9.9
Disability										
No	18,161	9.4	8.3	-	10.6	9,793	8.0	6.8	-	9.4
Yes	4,936	**43.3**	**35.0**	**-**	**52.0**	4,470	**35.8**	**28.6**	**-**	**43.6**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

Massachusetts Title V Performance Measures

Racial Equity: Reactions to racism

Racism can be described as an individual-level psychosocial stressor due to perceived exposure to racial prejudice and discrimination (Clark et al, 1999). Racial minorities encounter racism regularly in their lives. It has been linked to a variety of mental and physical health outcomes (Harrell et al., 2003) including maternal stress during pregnancy, low birth weight (<2,500 g), and preterm delivery (<37 weeks) (Giscombe & Lobel, 2005). African American women, in particular, experience a greater number of stressful life events (Feldman, Dunkel-Schetter, Woo, & Hobel, 1997) and are more distressed by them (Zambrana, Dunkel-Schetter, Collins, & Scrimshaw, 1999) than other racial or ethnic groups. There is also evidence to suggest that stress may be more detrimental to African American women during pregnancy (Orr et al., 1996).

During 2012–2016, Black, non-Hispanic mothers reported the highest prevalence of feeling stressed, upset and experiencing physical symptoms due to racism during the twelve months before delivery (11.7%, 16.6%, and 7.3%, respectively) than White, non-Hispanic mothers (Figure 11). When stratified by race/ethnicity and disability status, the prevalence of feeling stressed, feeling upset, and experiencing physical symptoms was the highest among Black, non-Hispanic mothers with disabilities (24.8%, 30.6% and 14.5%, respectively) and Hispanic mothers with disabilities (16.8%, 21.1%, and 15.2%, respectively) (Tables 12-17).

Figure 11. Prevalence of reactions to racism during the twelve months before delivery, by maternal race/ethnicity, MA PRAMS, 2012–2016

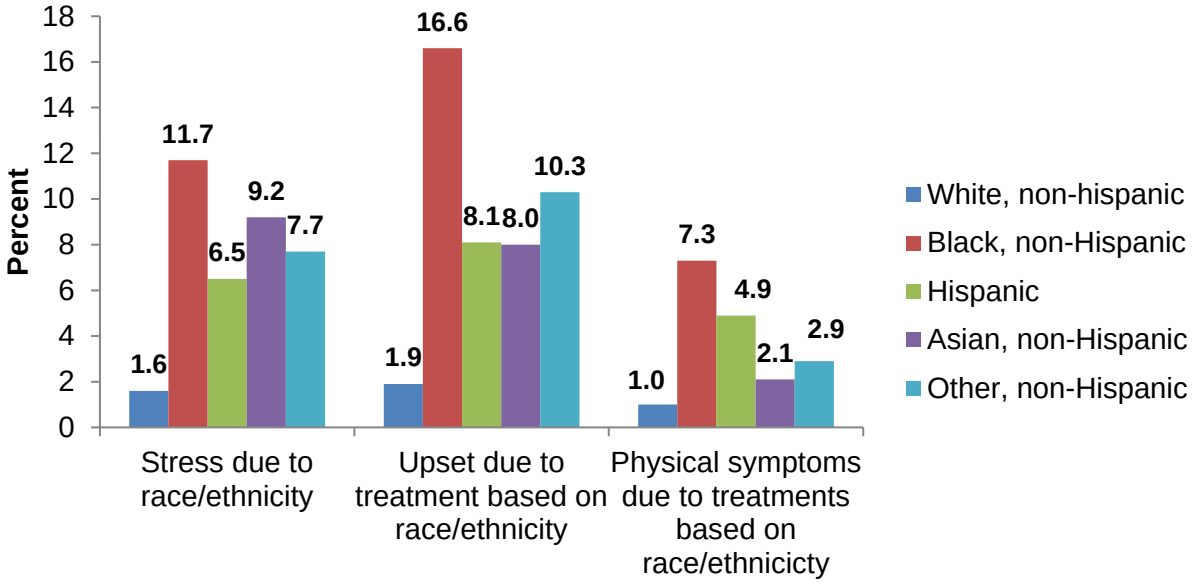


Table 12: Prevalence of stress due to race/ethnic background by socio-demographic characteristics, MA PRAMS, 2012–2016

	White, Non-Hispanic					Black, Non-Hispanic				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	3,159	1.6	1.1	-	2.3	3,632	11.7	9.8	-	14.0
Maternal age (years)										
<20	*Insufficient Data to Report*					*Insufficient Data to Report*				
20-29	1,358	2.0	1.1	-	3.7	1,484	10.8	8.2	-	14.0
30-39	1,533	1.2	0.7	-	2.0	1,888	13.1	10.0	-	17.0
40+	*Insufficient Data to Report*					201	11.8	6.2	-	21.3
Maternal education										
<High school	*Insufficient Data to Report*					171	5.2	2.6	-	10.0
High school diploma	*Insufficient Data to Report*					642	8.8	5.3	-	14.2
Some college	508	1.2	0.5	-	2.8	1,483	11.6	8.9	-	14.9
College graduate	1,879	1.5	0.9	-	2.4	1,335	**18.0**	**13.2**	**-**	**23.9**
Household poverty level										
≤100% FPL	892	3.2	1.6	-	6.4	1,190	9.5	6.9	-	12.8
>100% FPL	2,173	1.3	0.8	-	2.0	2,263	14.3	11.3	-	17.9
Maternal nativity										
Non-US-born	754	3.7	1.8	-	7.6	1,446	**8.2**	**6.0**	**-**	**11.1**
US-born	2,405	1.3	0.8	-	2.0	2,186	16.3	13.0	-	20.2
Marital status										
Unmarried	793	1.5	0.7	-	3.4	2,146	12.8	9.8	-	16.6
Married	2,366	1.6	1.0	-	2.4	1,485	10.4	8.3	-	12.9
Disability										
No	2,797	1.5	1.0	-	2.2	2,900	10.4	8.6	-	12.5
Yes	*Insufficient Data to Report*					704	**24.8**	**15.3**	**-**	**37.7**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: 20-29 years, <High school, >100% FPL, US-born, married, and without a disability.

Table 13: Prevalence of stress due to race/ethnic background by socio-demographic characteristics, MA PRAMS, 2012–2016 (continued)

	Hispanic					Asian, Non-Hispanic				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	3,893	6.5	5.3	-	7.9	2,650	9.2	7.7	-	11.0
Maternal age (years)										
<20	217	4.5	2.0	-	9.6	0.0	0.0	.	-	.
20-29	1,878	5.7	4.3	-	7.5	610	6.5	4.1	-	10.1
30-39	1,503	7.3	5.4	-	9.9	1,856	10.4	8.5	-	12.8
40+	296	17.5	6.9	-	38.0	184	13.3	7.0	-	24.0
Maternal education										
<High school	1,182	7.0	4.8	-	10.0	142	7.8	3.8	-	15.4
High school diploma	790	4.9	3.2	-	7.3	129	4.5	2.0	-	9.6
Some college	1,347	7.5	5.3	-	10.7	355	10.4	6.6	-	16.2
College graduate	518	6.4	4.1	-	10.0	2,024	9.8	7.9	-	12.2
Household poverty level										
≤100% FPL	1,654	5.7	4.2	-	7.7	293	6.4	3.9	-	10.4
>100% FPL	1,714	6.9	5.1	-	9.3	2,342	10.3	8.4	-	12.5
Maternal nativity										
Non-US-born	2,391	6.1	4.7	-	7.9	2,244	9.4	7.7	-	11.5
US-born	1,502	7.2	5.3	-	9.6	406	8.2	5.5	-	12.1
Marital status										
Unmarried	2,020	5.6	4.3	-	7.4	315	8.6	5.0	-	14.3
Married	1,873	7.7	5.8	-	10.2	2,335	9.3	7.6	-	11.3
Disability										
No	2,948	5.5	4.4	-	6.8	2,252	8.5	6.9	-	10.4
Yes	945	**16.8**	**11.1**	**-**	**24.6**	398	**17.4**	**11.4**	**-**	**25.7**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: 20-29 years, <High school, >100% FPL, US-born, married, and without a disability.

Table 14: Prevalence of feeling upset due to treatment based on race/ethnic background by socio-demographic characteristics, MA PRAMS, 2012–2016

	White, Non-Hispanic					Black, Non-Hispanic				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	3,961	1.9	1.4	-	2.7	5,140	16.6	14.3	-	19.2
Maternal age (years)										
<20	*Insufficient Data to Report*					118	10.4	4.4	-	22.7
20-29	1,394	2.1	1.1	-	3.8	2,111	15.3	12.3	-	18.8
30-39	2,047	1.6	1.0	-	2.6	2,662	18.5	14.8	-	23.0
40+	*Insufficient Data to Report*					249	14.9	8.5	-	24.7
Maternal education										
<High school	*Insufficient Data to Report*					382	11.5	7.2	-	17.9
High school diploma	572	2.3	0.9	-	5.9	1,030	14.2	9.1	-	21.4
Some college	1,276	3.0	1.7	-	5.4	1,921	15.0	12.1	-	18.6
College graduate	1,776	1.4	0.9	-	2.3	1,807	**24.3**	**19.2**	**-**	**30.3**
Household poverty level										
≤100% FPL	1,172	4.2	2.2	-	8.0	1,909	15.3	12.2	-	19.0
>100% FPL	2,695	1.6	1.1	-	2.4	2,981	18.8	15.3	-	22.9
Maternal nativity										
Non-US-born	670	3.3	1.5	-	7.1	2,433	13.9	10.9	-	17.4
US-born	3,292	1.8	1.2	-	2.6	2,707	20.2	16.6	-	24.3
Marital status										
Unmarried	1,584	3.1	1.7	-	5.5	2,876	17.2	14.0	-	21.1
Married	2,378	1.6	1.0	-	2.4	2,264	15.8	12.8	-	19.5
Disability										
No	3,418	1.8	1.2	-	2.6	4,237	15.2	12.9	-	17.7
Yes	543	4.5	1.8	-	10.6	867	**30.6**	**20.6**	**-**	**42.8**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: 20-29 years, <High school, >100% FPL, US-born, married, and without a disability.

Table 15: Prevalence of feeling upset due to treatment based on race/ethnic background by socio-demographic characteristics, MA PRAMS, 2012–2016 (continued)

	Hispanic					Asian, Non-Hispanic				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	4,823	8.1	6.8	-	9.6	2,301	8.0	6.4	-	10
Maternal age (years)										
<20	327	6.7	3.5	-	12.6	*Insufficient Data to Report*				
20-29	2,425	7.4	5.8	-	9.4	669	7.1	4.6	-	10.8
30-39	1,778	8.7	6.6	-	11.3	1,285	7.2	5.5	-	9.4
40+	293	17.4	6.8	-	37.9	330	**23.9**	**11.6**	**-**	**42.9**
Maternal education										
<High school	1,138	6.7	4.6	-	9.7	157	8.6	4.1	-	17.3
High school diploma	1,074	6.7	4.7	-	9.4	168	5.8	2.9	-	11.2
Some college	1,880	10.6	7.9	-	14.0	356	10.4	6.7	-	15.9
College graduate	649	8.0	5.3	-	11.9	1,620	7.9	5.9	-	10.4
Household poverty level										
≤100% FPL	1,912	6.7	5.0	-	8.8	436	9.5	6.3	-	14.1
>100% FPL	2,380	9.6	7.5	-	12.2	1,799	7.9	6.1	-	10.3
Maternal nativity										
Non-US-born	3,319	8.5	6.8	-	10.6	1,926	8.1	6.4	-	10.1
US-born	1,504	7.2	5.5	-	9.5	375	7.6	3.8	-	14.7
Marital status										
Unmarried	2,580	7.2	5.7	-	9.1	332	9.0	5.4	-	14.8
Married	2,243	9.3	7.1	-	11.9	1,970	7.8	6.1	-	10.0
Disability										
No	3,534	6.6	5.4	-	8.0	1,977	7.5	5.8	-	9.6
Yes	1,289	**23.1**	**16.5**	**-**	**31.3**	311	13.5	8.2	-	21.2

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: 20-29 years, <High school, >100% FPL, US-born, married, and without a disability.

Table 16: Prevalence of experiencing physical symptoms due to treatment based on race/ethnic background, MA PRAMS, 2012–2016

	White, Non-Hispanic					Black, Non-Hispanic				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	2,056	1.0	0.6	-	1.6	2,251	7.3	5.8	-	9.1
Maternal age (years)										
<20	*Insufficient Data to Report*					*Insufficient Data to Report*				
20-29	746	1.1	0.5	-	2.5	813	5.9	4.3	-	8.0
30-39	1,044	0.8	0.4	-	1.6	1,134	7.9	5.5	-	11.3
40+	*Insufficient Data to Report*					234	**14.5**	**8.1**	**-**	**24.5**
Maternal education										
<High school	*Insufficient Data to Report*					226	6.9	3.7	-	12.3
High school diploma	*Insufficient Data to Report*					642	8.8	4.9	-	15.4
Some college	603	1.4	0.6	-	3.1	809	6.4	4.7	-	8.6
College graduate	867	0.7	0.3	-	1.4	573	7.7	5.4	-	10.9
Household poverty level										
≤100% FPL	713	2.5	1.1	-	5.7	965	7.7	5.8	-	10.2
>100% FPL	1,233	0.7	0.4	-	1.3	1,065	6.7	4.6	-	9.8
Maternal nativity										
Non-US-born	*Insufficient Data to Report*					1,221	7.0	4.9	-	9.8
US-born	1,694	0.9	0.6	-	1.6	1,029	7.7	5.8	-	10.0
Marital status										
Unmarried	*Insufficient Data to Report*					1,105	6.6	5.1	-	8.6
Married	1,530	1.0	0.6	-	1.7	1,146	8.0	5.6	-	11.5
Disability										
No	1,694	0.9	0.5	-	1.5	1,818	6.5	5.0	-	8.5
Yes	*Insufficient Data to Report*					413	**14.5**	**9.3**	**-**	**21.8**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: 20-29 years, <High school, >100% FPL, US-born, married, and without a disability.

Table 17: Prevalence of experiencing physical symptoms due to treatment based on race/ethnic background, MA PRAMS, 2012–2016 (continued)

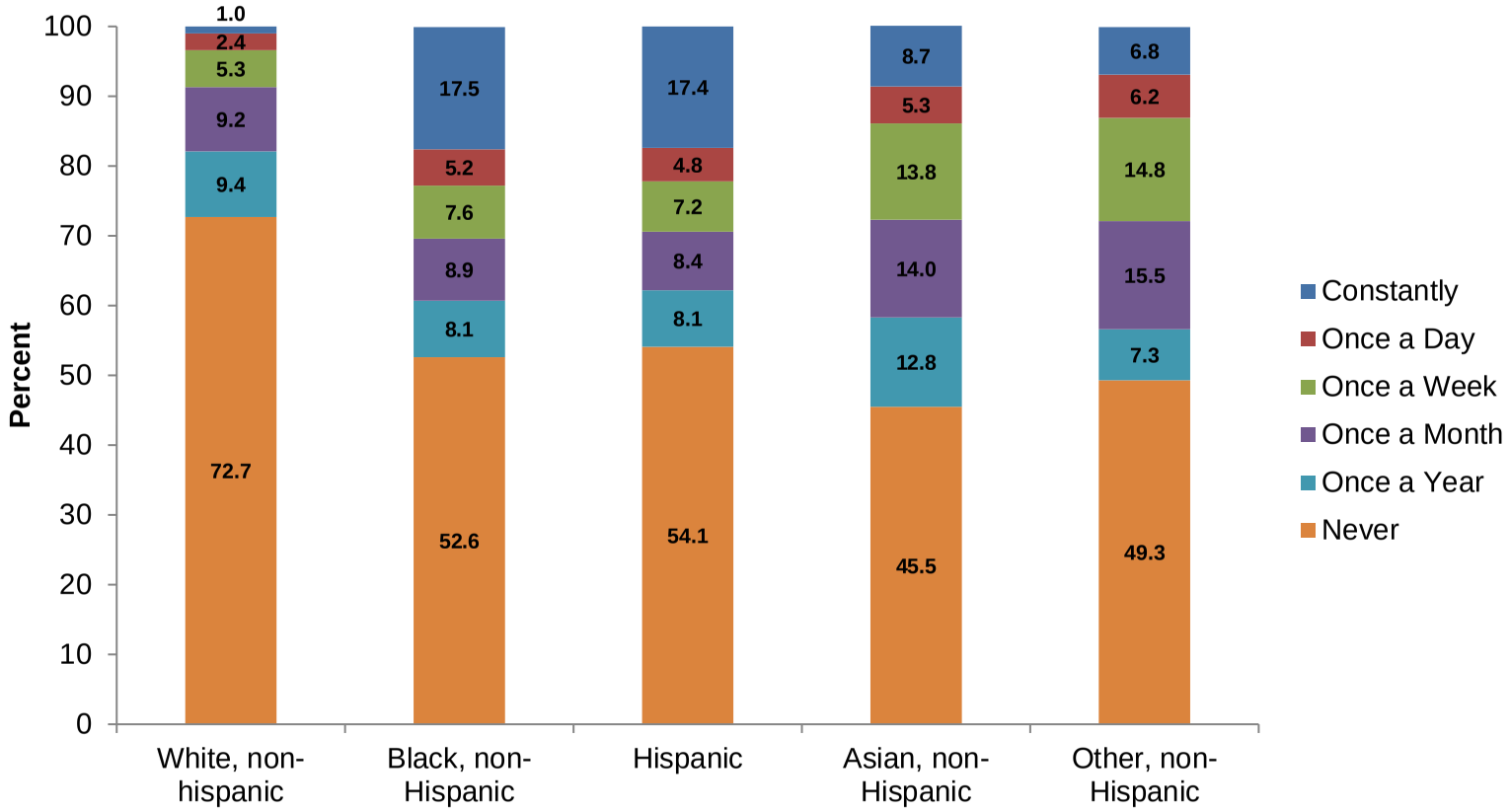
	Hispanic					Asian, Non-Hispanic				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	2,931	4.9	3.9	-	6.2	612	2.1	1.5	-	3.0
Maternal age (years)										
<20	252	5.2	2.3	-	11.1	0.0	0.0	.	-	.
20-29	1,237	3.8	2.7	-	5.2	156	1.7	0.8	-	3.3
30-39	1,248	6.0	4.3	-	8.5	371	2.1	1.4	-	3.2
40+	*Insufficient Data to Report*					*Insufficient Data to Report*				
Maternal education										
<High school	1,036	6.1	4.1	-	9.0	176	9.5	5.0	-	17.3
High school diploma	687	4.3	2.7	-	6.8	*Insufficient Data to Report*				
Some college	921	5.2	3.4	-	7.8	93	2.7	1.2	-	6.4
College graduate	232	2.9	1.4	-	5.6	279	**1.4**	**0.8**	**-**	**2.2**
Household poverty level										
≤100% FPL	1,321	4.6	3.2	-	6.5	142	3.1	1.5	-	6.3
>100% FPL	1,053	4.3	2.9	-	6.2	453	2.0	1.3	-	2.9
Maternal nativity										
Non-US-born	2,278	5.8	4.5	-	7.6	553	2.3	1.6	-	3.3
US-born	652	3.1	2.1	-	4.8	*Insufficient Data to Report*				
Marital status										
Unmarried	1,632	4.6	3.4	-	6.2	94	2.5	1.0	-	6.1
Married	1,299	5.4	3.8	-	7.5	519	2.1	1.4	-	3.0
Disability										
No	2,086	3.9	3.0	-	5.0	493	1.9	1.3	-	2.7
Yes	845	**15.2**	**9.7**	**-**	**23.2**	119	5.2	2.3	-	11.0

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: 20-29 years, <High school, >100% FPL, US-born, married, and without a disability.

Time Spent Thinking about Race

Approximately one in every four Black, non-Hispanic mothers and about one in every five Hispanic mothers reported thinking about race at least once a day or constantly in 2012–2016 (Figure 12).

Figure 12. Time spent thinking about race by maternal race/ethnicity, MA PRAMS, 2012–2016



Healthy People 2020 Objectives

Pregnancy intention

Unintended pregnancy is found to be associated with delayed entry into prenatal care (Altfeld, 1997). Having unintended pregnancy could result in later awareness of the pregnancy and subsequently later cessation of dangerous and unhealthy behaviors, such as smoking or substance use.

HP 2020 target for the proportion of pregnancies that are intended is 56% (Healthy People, 2014). During 2012–2016, 66.1% of Massachusetts mothers reported that their pregnancy was intended.

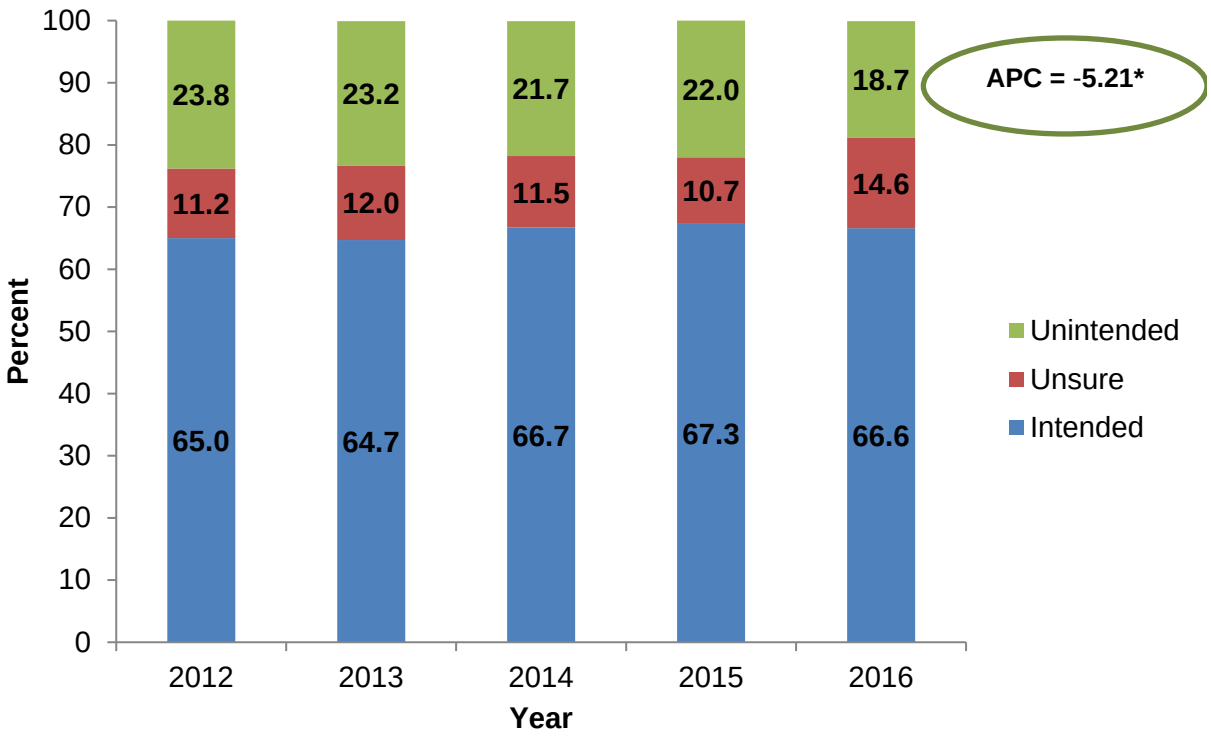
The prevalence of unintended pregnancy (mistimed or unwanted) among mothers who had a live birth significantly decreased from 23.8% in 2012 to 18.7% in 2016 (Figure 13).

During 2015–2016, higher prevalence was observed among Black, non-Hispanic, Hispanic and Other, non-Hispanic mothers (30.2%, 29.9%, and 32.1%, respectively) compared to White, non-Hispanic mothers (15.2%); those aged 20-29 (31.9%) compared to those aged 30-39 (12.4%); those with less than a high school education, high school diploma and some college education (30.2%, 29.1%, and 29.5%, respectively) compared to mothers with a college degree (11.2%); those who were living at or below 100% of the FPL (38.4%) compared to those who were living above 100% of the FPL (15.3%); those who were unmarried (33.2%) compared to those who were married (13.6%); and those with a history of physical abuse (49.9%) compared to those without a history of physical abuse (19.9%) (Table 18).

Since 2012, a new response choice, “I wasn’t sure what I wanted” (unsure about becoming pregnant) was included in the survey, and therefore, the prevalence of the unsure about becoming pregnant group is also included in Figure 13 and Table 19. CDC’s recommendation is not to combine unsure with unintended pregnancy, while keeping in mind that ambivalent feelings about pregnancy are real and are associated with different levels of risk.

During 2015–2016, higher prevalence of being unsure about becoming pregnant was observed among Black, non-Hispanic mothers (21.3%) compared to White, non-Hispanic mothers (11.5%); those aged 20-29 years (15.9%) compared to those aged 30-39 (10.4%); those with less than a high school education, high school diploma and some college education (17.5%, 22.7%, and 17.2%, respectively) compared to mothers with a college degree (7.5%); those who were living at or below 100% of the FPL (20.3%) compared to those who were living above 100% of the FPL (10.4%); those who were unmarried (22.4%) compared to those who were married (7.8%); and those with a disability (26.7%) compared to those without a disability (11.3%) (Table 19).

Figure 13. Pregnancy intention status, MA PRAMS, 2012–2016



APC = Annual Percent Change
*P-value for trend of unintended pregnancy < 0.05

Table 18. Prevalence of unintended pregnancies by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	46,782	22.9	21.3	-	24.6	27,742	20.4	18.5	-	22.3
Maternal race/ethnicity										
White, non-Hispanic	22,335	18.0	15.7	-	20.5	12,096	15.2	12.7	-	18.1
Black, non-Hispanic	6,482	**34.1**	**30.5**	**-**	**37.9**	3,852	**30.2**	**25.8**	**-**	**35.1**
Hispanic	12,085	**34.3**	**31.2**	**-**	**37.5**	7,515	**29.9**	**26.3**	**-**	**33.8**
Asian, non-Hispanic	3,782	22.4	19.5	-	25.4	1,953	16.0	12.7	-	19.9
Other, non-Hispanic	1,595	27.8	20.0	-	37.2	1,333	**32.1**	**19.6**	**-**	**47.8**
Maternal age (years)										
<20	3,768	**59.4**	**48.8**	**-**	**69.3**	1,640	48.9	35.2	-	62.8
20-29	25,920	31.8	29.0	-	34.9	15,530	31.9	28.2	-	35.8
30-39	15,913	**14.7**	**13.0**	**-**	**16.7**	9,715	**12.4**	**10.5**	**-**	**14.6**
40+	1,181	**14.2**	**8.8**	**-**	**22.0**	857	**14.3**	**8.0**	**-**	**24.2**
Maternal education										
<High school	7,664	**39.9**	**34.3**	**-**	**45.9**	3,755	**30.2**	**23.9**	**-**	**37.3**
High school diploma	9,562	**28.8**	**24.5**	**-**	**33.6**	5,805	**29.1**	**23.8**	**-**	**35.1**
Some college	15,201	**30.7**	**27.1**	**-**	**34.5**	8,872	**29.5**	**25.2**	**-**	**34.2**
College graduate	13,645	13.9	12.0	-	15.9	7,752	11.2	9.3	-	13.4
Household poverty level										
≤100% FPL	18,395	**37.5**	**33.8**	**-**	**41.4**	10,447	**38.4**	**33.5**	**-**	**43.5**
>100% FPL	24,619	17.4	15.6	-	19.2	15,320	15.3	13.4	-	17.5
Maternal nativity										
Non-US-born	15,489	24.3	22.2	-	26.6	10,097	23.4	20.7	-	26.4
US-born	31,225	22.3	20.2	-	24.5	17,645	18.9	16.6	-	21.5
Marital status										
Unmarried	26,934	**39.9**	**36.5**	**-**	**43.3**	15,306	**33.2**	**29.4**	**-**	**37.4**
Married	19,828	14.5	13.0	-	16.2	12,293	13.6	11.8	-	15.7
History of Physical Abuse										
No	44,310	22.4	20.8	-	24.1	26,317	19.9	18.1	-	21.9
Yes	1,951	**41.1**	**28.9**	**-**	**54.5**	1,354	**49.9**	**34.2**	**-**	**65.6**
Disability										
No	42,298	22.2	20.6	-	23.9	23,580	19.4	17.5	-	21.5
Yes	3,815	**35.1**	**27.2**	**-**	**43.9**	3,656	29.0	22.2	-	37.0

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, with no history of physical abuse, and without a disability.

Table 19. Prevalence of being unsure about becoming pregnant by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

Characteristic	2012–2014					2015–2016				
	Weighted n	Weighted %	95% CL			Weighted n	Weighted %	95% CL		
Total	23,627	11.6	10.4	-	12.9	17,297	12.7	11.2	-	14.4
Maternal race/ethnicity										
White, non-Hispanic	12,298	9.9	8.2	-	11.9	9,142	11.5	9.3	-	14.1
Black, non-Hispanic	3,247	**17.1**	**14.7**	**-**	**19.7**	2,711	**21.3**	**17.1**	**-**	**26.1**
Hispanic	5,097	**14.5**	**12.4**	**-**	**16.8**	3,579	14.3	11.8	-	17.1
Asian, non-Hispanic	1,656	9.8	8.1	-	11.8	1,237	10.1	7.7	-	13.2
Other, non-Hispanic	1,061	**18.5**	**12.7**	**-**	**26.2**	628	15.1	6.8	-	30.3
Maternal age (years)										
<20	1,666	**26.3**	**17.9**	**-**	**36.8**	551	16.4	8.8	-	28.7
20-29	11,620	14.3	12.2	-	16.7	7,734	15.9	13.1	-	19.1
30-39	9,392	**8.7**	**7.3**	**-**	**10.3**	8,159	**10.4**	**8.6**	**-**	**12.6**
40+	948	11.4	6.6	-	18.8	854	14.2	7.9	-	24.3
Maternal education										
<High school	3,135	**16.3**	**12.6**	**-**	**20.9**	2,181	**17.5**	**12.8**	**-**	**23.5**
High school diploma	6,577	**19.8**	**16.0**	**-**	**24.3**	4,526	**22.7**	**17.4**	**-**	**29.0**
Some college	7,707	**15.6**	**12.9**	**-**	**18.6**	5,159	**17.2**	**13.7**	**-**	**21.3**
College graduate	5,774	5.9	4.6	-	7.4	5,178	7.5	5.9	-	9.4
Household poverty level										
≤100% FPL	9,656	**19.7**	**16.8**	**-**	**23.0**	5,520	**20.3**	**16.4**	**-**	**24.7**
>100% FPL	11,772	8.3	7.0	-	9.8	10,386	10.4	8.7	-	12.3
Maternal nativity										
Non-US-born	8,110	12.7	11.0	-	14.8	4,789	11.1	9.3	-	13.2
US-born	15,343	10.9	9.4	-	12.7	12,508	13.4	11.4	-	15.8
Marital status										
Unmarried	14,543	**21.5**	**18.7**	**-**	**24.6**	10,295	**22.4**	**18.9**	**-**	**26.2**
Married	9,064	6.6	5.6	-	7.8	7,003	7.8	6.4	-	9.4
History of Physical Abuse										
No	22,163	11.2	10.0	-	12.6	16,501	12.5	10.9	-	14.3
Yes	1,092	**23.0**	**13.5**	**-**	**36.4**	571	21.1	12.0	-	34.3
Disability										
No	21,308	11.2	10.0	-	12.5	13,709	11.3	9.8	-	13.0
Yes	1,881	17.3	11.7	-	24.8	3,359	**26.7**	**19.9**	**-**	**34.8**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, with no history of physical abuse, and without a disability.

Healthy People 2020 Objectives

Tobacco smoking

Smoking before and during pregnancy has a negative impact on the health of both a mother and her baby. Smoking reduces woman's chances of getting pregnant and also increases the risks of pregnancy complications such as placenta previa, placental abruption (Murin et al., 2011), miscarriage, preterm delivery and stillbirth (Surgeon General's Report, 2014). In addition, exposure to nicotine in utero harms babies and puts them at a greater risk for low birth weight and congenital heart defects (Alverson et al., 2011). Babies whose mothers smoke are also about three times as likely to die from sudden infant death syndrome (Surgeon General Report, 2014).

The Healthy People 2020 target for the proportion of mothers who did not smoke in the three months prior to pregnancy is 87.8 % (Healthy People, 2014). During 2012–2016, 84.0% of Massachusetts mothers reported abstaining from cigarette smoking in the three months prior to pregnancy.

During 2012–2016, the trends for smoking among Massachusetts mothers decreased significantly from 19.4 % to 13.5% during the three months before pregnancy, from 8.3% to 5.3% during the last three months of pregnancy, and from 12.5% to 8.2% in the postpartum period (Figure 14).

Smoking during the three months before pregnancy:

During 2015–2016, higher prevalence of smoking during the three months before pregnancy was reported by mothers aged 20-29 years (18.9%) compared to mothers aged 30-39 years (9.8%); those with less than a high school education, high school diploma and some college education (22.3%, 26.3%, and 22.6%, respectively) compared to mothers with a college degree (4.9%); those who were living at or below 100% of the FPL (28.1%) compared to those who were living above 100% of the FPL (9.6%); US-born mothers (18.0%) compared to those born outside of the US (4.6%); those who were unmarried (28.7%) compared to those who were married (6.1%); and those with a disability (27.1%) compared to those without a disability (12.3%). Compared to 2012–2014, there is a significant decrease in smoking in the three months before pregnancy among mothers aged 20-29 years during 2015–2016 (26.9% vs. 18.9%). (Table 20).

Smoking during the last three months of pregnancy:

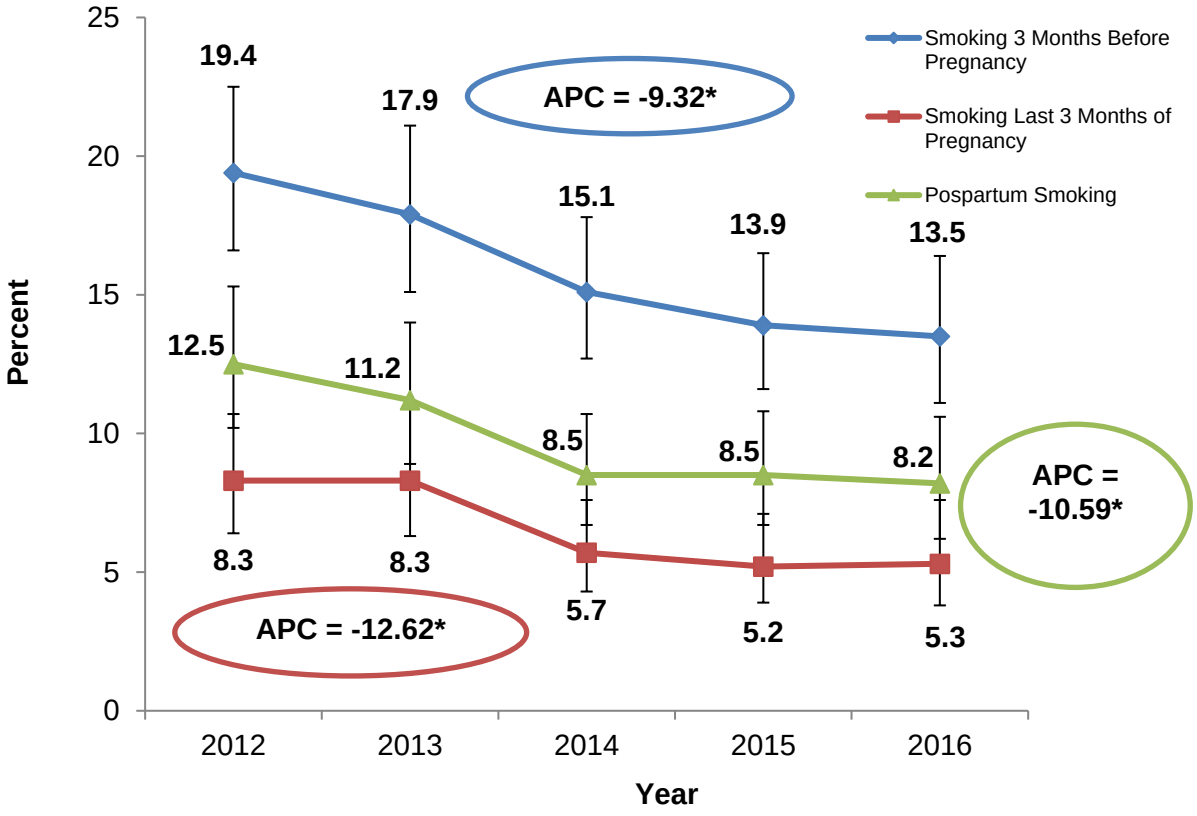
During 2015–2016, higher prevalence of smoking during the last three months of pregnancy was reported by mothers with less than a high school education, high school diploma and some college education (14.1%, 12.5%, and 7.6% respectively) compared to mothers with a college degree (0.5%); those who were living at or below 100% of the FPL (15.1%) compared to those who were living above 100% of the FPL (2.8%); US-born mothers (7.4%) compared to those born outside of the US (0.7%); those who were unmarried (13.7%) compared to those who were married (1.1%); and those with a disability (12.8%) compared to those without a disability (4.4%). Compared to 2012–

2014, there is a significant decrease in smoking during the last three months of pregnancy during 2015–2016 among mothers aged 20-29 years (13.2% vs. 6.5%); among foreign-born mothers (3.0% vs. 0.7%); and among married mothers (2.9% vs. 1.1%) (Table 21).

Smoking in the postpartum period:

During 2015–2016, higher prevalence of smoking in the postpartum period was reported by mothers aged 20-29 years (12.0%) compared to mothers aged 30-39 years (5.8%); those with less than a high school education, high school diploma and some college education (17.5%, 18.8%, and 13.2%, respectively) compared to mothers with a college degree (1.5%); those who were living at or below 100% of the FPL (22.5%) compared to those who were living above 100% of the FPL (4.5%); US-born mothers (11.6%) compared to those born outside of the US (1.2%); those who were unmarried (20.4%) compared to those who were married (2.2%); and those with a disability (21.3%) compared to those without a disability (6.9%). Compared to 2012–2014, there is a significant decrease in smoking during 2015–2016 among mothers aged 20-29 years (17.9% vs. 12.0%); and among foreign-born mothers (4.2% vs. 1.2%) (Table 22).

Figure 14. Trends in maternal smoking prior to, during and after pregnancy, MA PRAMS, 2012–2016



APC = Annual Percent Change

*P-value for trend < 0.05

Table 20. Prevalence of maternal smoking 3 months prior to pregnancy by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	35,799	17.5	15.9	-	19.2	18,641	13.7	12.0	-	15.6
Maternal race/ethnicity										
White, non-Hispanic	25,550	20.5	18.1	-	23.2	12,236	15.5	12.9	-	18.5
Black, non-Hispanic	2,574	**13.6**	**10.7**	**-**	**17.1**	1,772	13.7	10.5	-	17.7
Hispanic	5,138	**14.2**	**12.2**	**-**	**16.4**	3,315	13.3	10.7	-	16.2
Asian, non-Hispanic	876	**5.2**	**3.6**	**-**	**7.4**	331	**2.7**	**1.5**	**-**	**4.7**
Other, non-Hispanic	1,372	23.7	16.8	-	32.5	987	23.9	12.7	-	40.5
Maternal age (years)										
<20	2,026	32.0	21.9	-	44.2	854	25.2	13.9	-	41.3
20-29	22,004	26.9	23.9	-	30.1	9,184	18.9	15.7	-	22.7
30-39	11,445	**10.5**	**8.9**	**-**	**12.4**	7,684	**9.8**	**8.0**	**-**	**12.0**
40+	325	**3.9**	**1.6**	**-**	**9.3**	919	15.0	7.8	-	26.9
Maternal education										
<High school	6,007	**29.7**	**24.1**	**-**	**35.9**	2,714	**22.3**	**16.1**	**-**	**30.1**
High school diploma	9,566	**28.8**	**24.0**	**-**	**34.1**	5,282	**26.3**	**20.7**	**-**	**32.9**
Some college	13,867	**27.8**	**24.2**	**-**	**31.7**	6,766	**22.6**	**18.4**	**-**	**27.5**
College graduate	5,995	6.1	4.8	-	7.8	3,406	4.9	3.6	-	6.7
Household poverty level										
≤100% FPL	16,009	**31.9**	**28.2**	**-**	**35.9**	7,709	**28.1**	**23.4**	**-**	**33.3**
>100% FPL	17,514	12.3	10.7	-	14.2	9,651	9.6	7.9	-	11.7
Maternal nativity										
Non-US-born	5,249	**8.2**	**6.5**	**-**	**10.2**	1,990	**4.6**	**3.2**	**-**	**6.5**
US-born	30,328	21.6	19.4	-	23.9	16,652	18.0	15.6	-	20.6
Marital status										
Unmarried	23,224	**33.8**	**30.4**	**-**	**37.3**	13,108	**28.7**	**24.8**	**-**	**33.0**
Married	12,576	9.2	7.8	-	10.9	5,534	6.1	4.8	-	7.8
Disability										
No	31,121	16.2	14.6	-	17.9	14,918	12.3	10.5	-	14.2
Yes	4,435	**38.8**	**30.5**	**-**	**47.8**	3,430	**27.1**	**20.4**	**-**	**35.0**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

Table 21. Prevalence of maternal smoking during the last 3 months of pregnancy by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	15,246	7.4	6.3	-	8.7	7,201	5.3	4.2	-	6.7
Maternal race/ethnicity										
White, non-Hispanic	10,980	8.8	7.1	-	10.9	4,530	5.7	4.1	-	7.9
Black, non-Hispanic	970	**5.1**	**3.9**	**-**	**6.8**	651	5.0	3.5	-	7.2
Hispanic	2,425	6.7	5.3	-	8.4	1,223	4.9	3.5	-	6.7
Asian, non-Hispanic	248	**1.5**	**0.8**	**-**	**2.5**	*Insufficient Data to Report*				
Other, non-Hispanic	603	10.4	6.0	-	17.4	729	17.5	7.8	-	35.0
Maternal age (years)										
<20	183	**2.9**	**1.3**	**-**	**6.4**	*Insufficient Data to Report*				
20-29	10,812	13.2	10.9	-	15.9	3,156	6.5	4.6	-	9.2
30-39	4,092	**3.8**	**2.8**	**-**	**5.1**	3,535	4.5	3.3	-	6.3
40+	*Insufficient Data to Report*					*Insufficient Data to Report*				
Maternal education										
<High school	3,783	**18.7**	**14.0**	**-**	**24.5**	1,719	**14.1**	**9.0**	**-**	**21.5**
High school diploma	4,941	**14.9**	**11.2**	**-**	**19.5**	2,502	**12.5**	**8.4**	**-**	**18.0**
Some college	5,581	**11.2**	**8.7**	**-**	**14.3**	2,266	**7.6**	**5.1**	**-**	**11.1**
College graduate	896	0.9	0.5	-	1.7	373	0.5	0.2	-	1.3
Household poverty level										
≤100% FPL	8,549	**17.1**	**14.0**	**-**	**20.6**	4,137	**15.1**	**11.3**	**-**	**19.8**
>100% FPL	5,706	4.0	3.1	-	5.3	2,757	2.8	1.9	-	4.1
Maternal nativity										
Non-US-born	1,937	**3.0**	**2.0**	**-**	**4.5**	297	**0.7**	**0.3**	**-**	**1.5**
US-born	13,309	9.5	8.0	-	11.2	6,903	7.4	5.9	-	9.4
Marital status										
Unmarried	11,257	**16.4**	**13.7**	**-**	**19.4**	6,234	**13.7**	**10.7**	**-**	**17.3**
Married	3,989	2.9	2.1	-	4.0	966	1.1	0.6	-	1.9
Disability										
No	12,146	6.3	5.3	-	7.6	5,408	4.4	3.4	-	5.8
Yes	3,010	**26.3**	**18.9**	**-**	**35.5**	**1,618**	**12.8**	**7.9**	**-**	**20.0**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

Table 22. Prevalence of maternal smoking after delivery by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	21,969	10.7	9.4	-	12.2	11,330	8.3	7.0	-	9.9
Maternal race/ethnicity										
White, non-Hispanic	15,561	12.5	10.5	-	14.8	7,281	9.2	7.1	-	11.8
Black, non-Hispanic	1,457	**7.7**	**6.1**	**-**	**9.6**	999	7.8	5.8	-	10.4
Hispanic	3,424	9.5	7.8	-	11.4	2,105	8.4	6.4	-	10.9
Asian, non-Hispanic	326	**1.9**	**1.2**	**-**	**3.1**	186	**1.5**	**0.7**	**-**	**3.1**
Other, non-Hispanic	1,090	18.9	12.3	-	27.8	759	18.3	8.3	-	35.5
Maternal age (years)										
<20	1,147	18.1	10.7	-	29.1	579	17.3	7.4	-	35.3
20-29	14,629	17.9	15.3	-	20.8	5,812	12.0	9.3	-	15.2
30-39	6,015	**5.6**	**4.4**	**-**	**7.1**	4,495	**5.8**	**4.3**	**-**	**7.6**
40+	178	**2.1**	**0.6**	**-**	**6.9**	443	7.2	2.7	-	17.7
Maternal education										
<High school	4,395	**21.7**	**16.7**	**-**	**27.7**	2,127	**17.5**	**11.9**	**-**	**25.1**
High school diploma	6,918	**20.9**	**16.7**	**-**	**26.0**	3,777	**18.8**	**13.9**	**-**	**25.0**
Some college	8,562	**17.2**	**14.1**	**-**	**20.8**	3,940	**13.2**	**9.9**	**-**	**17.4**
College graduate	1,957	2.0	1.3	-	3.1	1,012	1.5	0.8	-	2.6
Household poverty level										
≤100% FPL	12,053	**24.2**	**20.6**	**-**	**28.1**	6,158	**22.5**	**18.0**	**-**	**27.6**
>100% FPL	8,461	5.9	4.8	-	7.4	4,529	4.5	3.4	-	6.1
Maternal nativity										
Non-US-born	2,672	**4.2**	**3.0**	**-**	**5.7**	539	**1.2**	**0.6**	**-**	**2.5**
US-born	19,279	13.7	12.0	-	15.8	10,791	11.6	9.7	-	13.9
Marital status										
Unmarried	16,433	**23.9**	**20.9**	**-**	**27.3**	9,314	**20.4**	**16.9**	**-**	**24.4**
Married	5,536	4.1	3.1	-	5.3	2,016	2.2	1.5	-	3.4
Disability										
No	18,013	9.4	8.1	-	10.8	8,390	6.9	5.6	-	8.5
Yes	3,875	**34.0**	**25.9**	**-**	**43.2**	2,699	**21.3**	**15.2**	**-**	**29.1**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference group: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

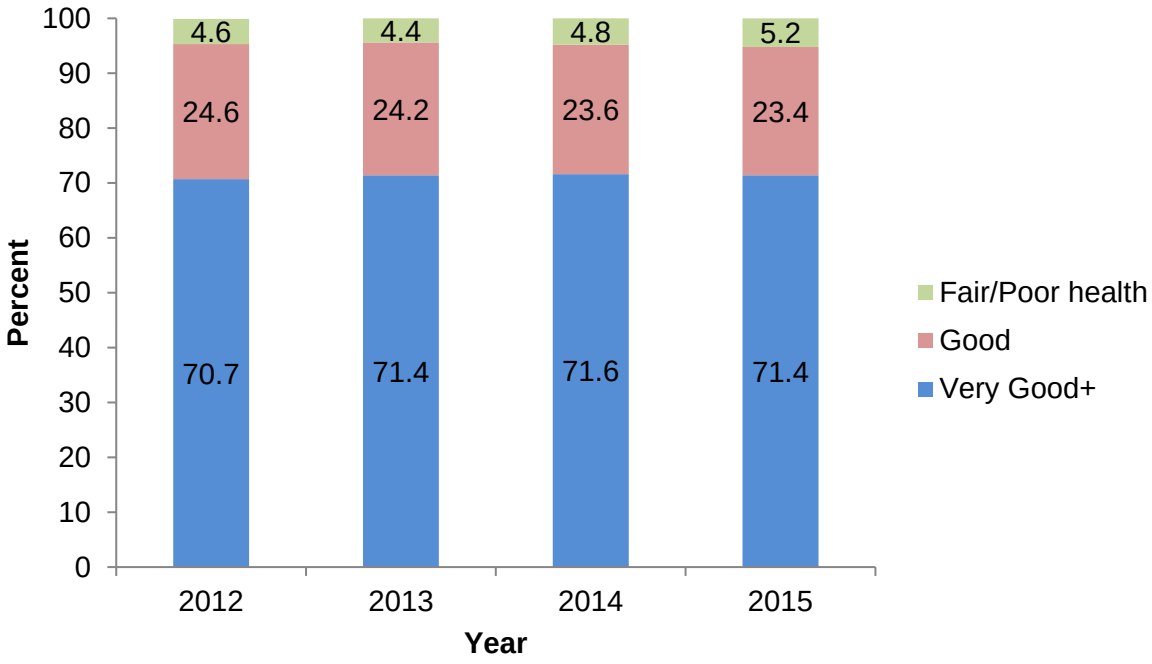
Additional Topics

Preconception Health: Maternal self-rated health before pregnancy

According to World Health Organization (WHO), women have distinctive health needs due to certain conditions that only women experience (WHO, 2009). Pregnancy and childbirth for instance, although natural physiological processes, carry risks and directly impact women's health (WHO, 2009). It's important for women to remain in good health as it is crucial not only to women themselves, but also to the health of their children.

The prevalence of maternal self-rated health as "fair or poor" before pregnancy did not change significantly from 2012 to 2015*, remaining approximately 5% each year (Figure 15). Compared to 2012–2013, there is a significant increase in prevalence of fair/poor self-rated health during 2014-2015 among mothers who were living at or below 100% of the FPL (7.7% vs 13.8%) (Table 23). During 2014-2015, higher prevalence was observed among Hispanic mothers (9.3%) compared to White, non-Hispanic mothers (3.4%); those aged 20 years and younger (19.7%) compared to those aged 20-29 years (7.2%); those with less than a high school education, high school diploma and some college education (12.9%, 10.2%, and 6.8%, respectively) compared to mothers with a college degree (1.1%); those who were living at or below 100% of the FPL (13.8%) compared to those who were living above 100% of the FPL (1.9%); those who were unmarried (9.9%) compared to those who were married (2.5%); and those with a disability (20.1%) compared to those without a disability (4.0%) (Table 23).

Figure 15. Maternal self-rated health status before pregnancy, MA PRAMS, 2012–2015*



*This question was not used in the phase 8 survey (2016). Only 2012–2015 data are available.

Table 23. Prevalence of fair/poor self-rated health before pregnancy by socio-demographic characteristics, MA PRAMS, 2012–2013 and 2014–2015

	2012–2013					2014–2015*				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	6,168	4.5	3.6	-	5.6	6,790	5.0	4.1	-	6.1
Maternal race/ethnicity										
White, non-Hispanic	2,541	3.0	1.9	-	4.7	2,782	3.4	2.3	-	5.1
Black, non-Hispanic	994	7.8	4.7	-	12.6	925	7.3	5.0	-	10.5
Hispanic	1,996	**8.4**	**6.3**	**-**	**11.2**	2,269	**9.3**	**7.3**	**-**	**11.8**
Asian, non-Hispanic	298	2.7	1.7	-	4.3	387	3.2	2.1	-	4.9
Other, non-Hispanic	167	4.1	2.2	-	7.5	408	11.1	4.3	-	26.0
Maternal age (years)										
<20	472	9.4	3.7	-	22.0	577	**19.7**	**9.9**	**-**	**35.3**
20-29	3,339	6.0	4.3	-	8.2	3,575	7.2	5.4	-	9.6
30-39	2,228	3.1	2.2	-	4.5	2,406	**3.1**	**2.3**	**-**	**4.2**
40+	129	2.4	1.0	-	5.8	233	4.0	1.5	-	10.5
Maternal education										
<High school	1,512	**10.6**	**6.8**	**-**	**16.2**	1,531	**12.9**	**9.0**	**-**	**18.1**
High school diploma	1,665	**7.7**	**5.1**	**-**	**11.5**	2,200	**10.2**	**6.9**	**-**	**14.9**
Some college	1,471	4.3	2.7	-	6.9	2,112	**6.8**	**4.8**	**-**	**9.6**
College graduate	1,293	2.0	1.1	-	3.5	748	1.1	0.6	-	1.9
Household poverty level										
≤100% FPL	2,600	**7.7**	**5.6**	**-**	**10.4**	4,337	**13.8**	**10.7**	**-**	**17.7**
>100% FPL	2,755	2.9	2.0	-	4.3	1,850	1.9	1.4	-	2.8
Maternal nativity										
Non-US-born	2,282	5.4	4.0	-	7.3	2,398	5.4	4.3	-	6.8
US-born	3,702	3.9	2.8	-	5.4	4,393	4.8	3.6	-	6.3
Marital status										
Unmarried	3,676	**8.0**	**5.9**	**-**	**10.7**	4,478	**9.9**	**7.7**	**-**	**12.7**
Married	2,492	2.7	1.9	-	3.9	2,312	2.5	1.9	-	3.4
Disability										
No	4,566	3.6	2.8	-	4.6	4,993	4.0	3.2	-	5.0
Yes	1,416	**17.9**	**10.7**	**-**	**28.6**	1,657	**20.1**	**13.4**	**-**	**29.0**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

*This question was not used in the phase 8 survey (2016). Only 2012–2015 data are available.

Additional Topics

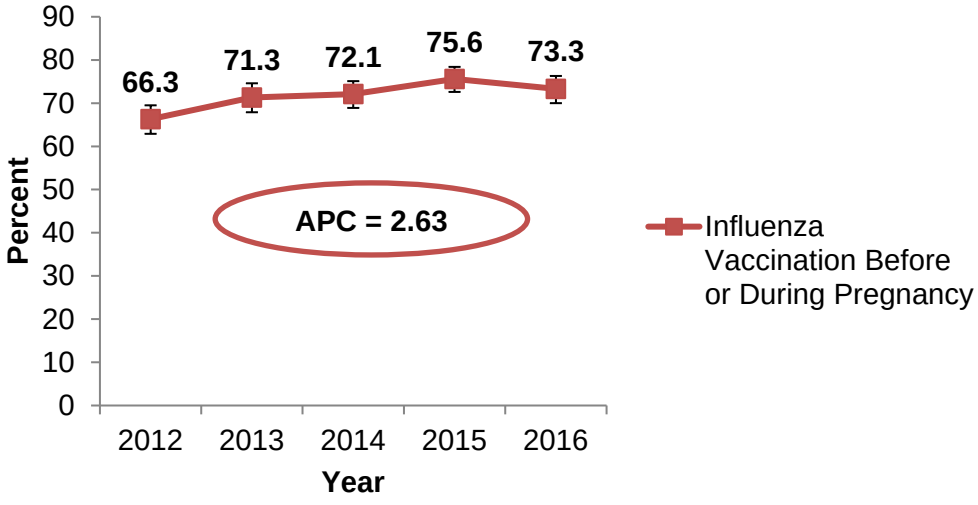
Pregnancy: Influenza vaccination before or during pregnancy

Vaccines help to protect a mother and her baby against serious diseases. The Centers for Disease Control and Prevention recommends getting an influenza vaccine before or during each pregnancy. Research showed that getting an influenza vaccine has significant clinical effectiveness, with a reduction of 63% in laboratory-proven influenza illness in infants up to six months of age and reductions of 29% and 36% in rates of respiratory illness with fever in infants and mothers, respectively (Zaman et al., 2008).

During 2012–2016, the trend for maternal influenza vaccination among Massachusetts mothers did not change significantly (Figure 16). During 2015–2016, higher prevalence was observed among mothers aged 30-39 years (77.9%) compared to those aged 20-29 years (68.7%); those with a college degree (79.9%) compared to those with some college education (68.6%), a high school diploma (66.7%) and less than a high school education (68.8%); those born outside of the US (79.6%) compared to US-born mothers (72.0%); and those who were married (78.1%) compared to those who were unmarried (67.1%) (Table 24).

Compared to 2012–2014, there is a significant increase in receiving an influenza vaccine before or during pregnancy during 2015–2016 among Asian, non-Hispanic mothers (73.4% vs. 82.7%); mothers who were living at or below 100% of the FPL (61.4% vs. 70.5%); mothers born outside of the US (70.8% vs. 79.6%); and mothers without a disability (70.0% vs 74.8%) (Table 24).

Figure 16. Trend in receiving influenza vaccination before or during pregnancy by maternal race/ethnicity, MA PRAMS, 2012–2016



APC = Annual Percent Change

P-value for trend is not statistically significant.

Table 24. Prevalence of receiving influenza vaccination before or during pregnancy by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	140,793	69.9	68.0	-	71.7	99,980	74.4	72.2	-	76.5
Maternal race/ethnicity										
White, non-Hispanic	85,691	69.7	66.8	-	72.4	57,324	72.9	69.5	-	76.0
Black, non-Hispanic	12,488	67.4	63.5	-	71.0	8,595	68.5	63.5	-	73.1
Hispanic	25,153	72.0	68.9	-	75.0	19,141	77.9	74.4	-	81.0
Asian, non-Hispanic	12,206	73.4	69.8	-	76.8	10,138	82.7	79.1	-	85.8
Other, non-Hispanic	3,541	63.0	53.9	-	71.3	3,106	76.9	62.4	-	86.9
Maternal age (years)										
<20	3,453	56.9	45.6	-	67.5	2,364	69.8	55.2	-	81.3
20-29	50,488	62.9	59.7	-	66.0	33,000	68.7	64.7	-	72.5
30-39	80,904	**75.6**	**73.2**	**-**	**77.9**	60,040	**77.9**	**75.2**	**-**	**80.5**
40+	5,948	72.8	63.2	-	80.7	4,575	77.2	66.2	-	85.4
Maternal education										
<High school	13,144	**66.7**	**60.5**	**-**	**72.3**	8,074	**68.8**	**61.0**	**-**	**75.6**
High school diploma	19,801	**62.5**	**57.0**	**-**	**67.6**	13,259	**66.7**	**60.1**	**-**	**72.7**
Some college	30,243	**61.6**	**57.6**	**-**	**65.4**	20,396	**68.6**	**63.7**	**-**	**73.1**
College graduate	75,211	77.4	74.9	-	79.7	54,886	79.9	77.0	-	82.5
Household poverty level										
≤100% FPL	29,794	**61.4**	**57.4**	**-**	**65.2**	19,059	70.5	65.5	-	75.0
>100% FPL	101,987	72.6	70.4	-	74.8	74,550	75.5	72.9	-	77.9
Maternal nativity										
Non-US-born	44,174	70.8	68.1	-	73.4	33,808	**79.6**	**76.8**	**-**	**82.1**
US-born	96,391	69.5	66.9	-	71.9	66,172	72.0	69.0	-	74.8
Marital status										
Unmarried	41,509	**62.0**	**58.4**	**-**	**65.4**	30,227	**67.1**	**62.8**	**-**	**71.2**
Married	99,265	73.8	71.6	-	75.9	69,611	78.1	75.5	-	80.4
Disability										
No	131,810	70.0	68.1	-	71.9	89,651	74.8	72.4	-	77.0
Yes	7,521	66.9	58.1	-	74.7	8,689	69.1	61.0	-	76.3

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

Additional Topics

Pregnancy: Being Offered an HIV test and receiving an HIV testing during pregnancy

Human immunodeficiency virus (HIV) is the virus that causes acquired immunodeficiency syndrome (AIDS). HIV testing is very important during prenatal care. Universal HIV testing for all pregnant women is recommended by the American Congress of Obstetricians and Gynecologists (ACOG). If a pregnant woman has HIV infection, without treatment she has a one in four chance of passing the infection to her baby during pregnancy, at delivery, or during breastfeeding (ACOG, 2011). With a positive diagnosis, special HIV medications during pregnancy and possibly a cesarean delivery will be recommended to improve a mother's health and protect the health of her baby.

Being offered an HIV test

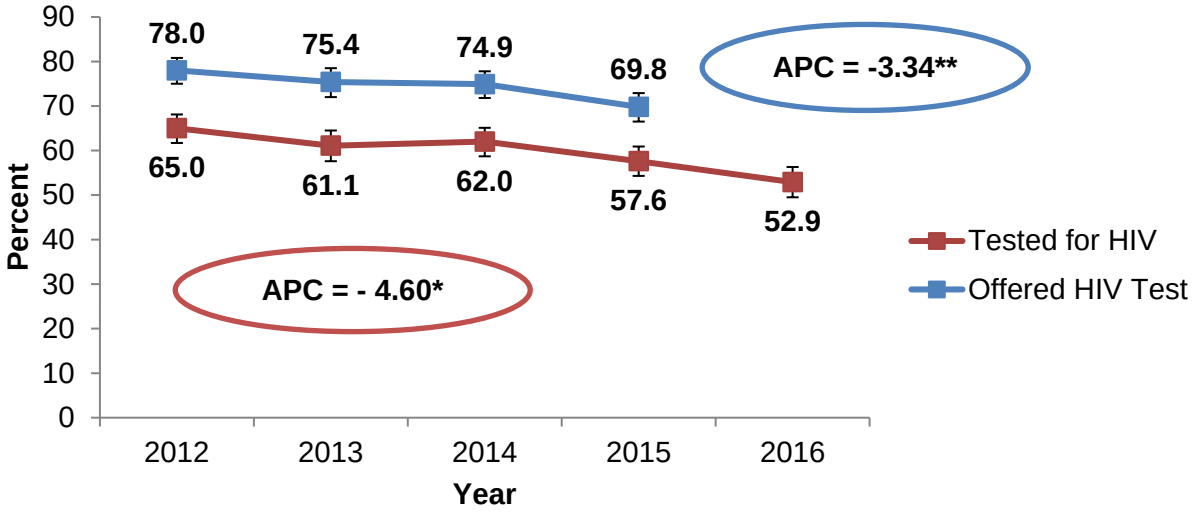
The trend of being offered an HIV test during pregnancy did not change significantly during 2012–2015 (Figure 17). The 2016 data are not included on the trend graph since there was a change in the wording of the question in the phase 8 survey. During 2014-2015, Black, non-Hispanic and Hispanic mothers reported the highest prevalence of being offered an HIV test (84.8% and 84.2%, respectively) compared to White, non-Hispanic mothers (66.9%) (Table 25). In addition, 2014-2015 data show that higher prevalence of being offered a test was also observed among mothers with less than a high school education and a high school diploma (84.0% and 79.2%, respectively) compared to those with a college degree (66.6%); those who were living at or below of the FPL (83.7%) compared to those living above 100% of the FPL (68.6%); those born outside of the US (77.9%) compared to US-born mothers (69.7%); and those who were unmarried (81.1%) compared to married mothers (67.9%) (Table 25).

Receiving an HIV test during pregnancy

The prevalence of receiving an HIV test during pregnancy significantly went down from 65.0% in 2012 to 52.9% in 2016 (Figure 17). During 2015–2016, Black, non-Hispanic and Hispanic mothers reported the highest prevalence of receiving an HIV test (71.7% and 68.4%, respectively) compared to White, non-Hispanic mothers (49.0%) (Table 26). Higher prevalence was reported among mothers with less than a high school and some college education (67.0% and 60.0%, respectively) compared to those with a college degree (49.3%); those who were living at or below of the FPL (66.4%) compared to those living above 100% of the FPL (52.7%); those born outside of the US (63.0%) compared to US-born mothers (51.6%); and those who were unmarried (65.1%) compared to married mothers (50.1%) (Table 26).Compared to 2012–2014, there is a significant decrease in receiving HIV testing during 2015–2016 among White non-Hispanic mothers (55.9% vs. 49.0%), Hispanic mothers (76.7% vs. 68.4%), Asian, non-Hispanic mothers (63.5% vs. 51.0%); among those aged 20-29 years (68.6% vs. 55.9%); among those with some college education (70% vs. 60.0%); among mothers who were living at or below 100% of the FPL (74.8% vs. 66.4%); among mothers who were living above 100% of the FPL (58.4% vs. 52.7%); among mothers born outside of

the US (69.9% vs. 63.0%); among unmarried mothers (73.0% vs. 65.1%); among married mothers (57.5% vs. 50.1%); and mothers without a disability (62.3% vs. 55.0%). (Table 26).

Figure 17. Trends in being offered an HIV test during pregnancy, MA PRAMS, 2012–2015 and receiving an HIV test during pregnancy, MA PRAMS, 2012–2016



APC = Annual Percent Change

*P-value for trend <0.05

**This question was not used in the phase 8 survey (2016). Only 2012–2015 data are available and the p-value for trend is not statistically significant.

Table 25. Prevalence of being offered an HIV test by socio-demographic characteristics, MA PRAMS, 2012–2013 and 2014–2015**

Characteristic	2012–2013 Weighted n	Weighted %	95% CL			2014–2015* Weighted n	Weighted %	95% CL		
Total	100,834	76.7	74.5	-	78.8	94,264	72.4	70.1	-	74.5
Maternal race/ethnicity										
White, non-Hispanic	56,830	71.3	67.8	-	74.5	51,442	66.9	63.4	-	70.3
Black, non-Hispanic	10,872	**88.9**	**86.0**	**-**	**91.2**	10,630	**84.8**	**81.1**	**-**	**87.9**
Hispanic	20,360	**87.3**	**84.0**	**-**	**90.1**	20,243	**84.2**	**81.1**	**-**	**86.9**
Asian, non-Hispanic	7,913	76.8	73.2	-	80.0	7,894	70.4	65.9	-	74.5
Other, non-Hispanic	3,206	83.7	75.5	-	89.6	2,395	68.9	54.9	-	80.1
Maternal age (years)										
<20	4,221	86.5	75.6	-	93.0	2,495	85.3	71.0	-	93.2
20-29	42,885	79.0	75.4	-	82.2	36,115	74.7	71.0	-	78.1
30-39	49,690	73.9	70.8	-	76.9	52,150	71.0	67.9	-	73.9
40+	4,038	80.2	68.9	-	88.1	3,505	63.2	51.4	-	73.6
Maternal education										
<High school	11,826	**87.2**	**81.6**	**-**	**91.3**	9,694	**84.0**	**78.1**	**-**	**88.6**
High school diploma	16,247	**79.8**	**73.6**	**-**	**84.9**	16,273	**79.2**	**73.2**	**-**	**84.1**
Some college	27,409	**81.9**	**77.5**	**-**	**85.5**	22,728	74.5	69.9	-	78.6
College graduate	43,235	70.3	66.8	-	73.5	42,848	66.6	63.1	-	69.9
Household poverty level										
≤100% FPL	27,735	**84.7**	**80.6**	**-**	**88.1**	26,074	**83.7**	**79.9**	**-**	**86.9**
>100% FPL	66,799	73.5	70.7	-	76.1	62,108	68.6	65.8	-	71.4
Maternal nativity										
Non-US-born	33,884	**82.8**	**80.0**	**-**	**85.3**	33,211	**77.9**	**74.8**	**-**	**80.7**
US-born	66,691	73.9	70.9	-	76.7	61,053	69.7	66.6	-	72.6
Marital status										
Unmarried	37,351	**83.7**	**79.7**	**-**	**87.0**	35,723	**81.1**	**77.5**	**-**	**84.2**
Married	63,483	73.2	70.4	-	75.8	58,399	67.9	65.0	-	70.7
Disability										
No	93,640	76.5	74.1	-	78.6	86,585	71.7	69.4	-	74.0
Yes	6,061	80.0	69.9	-	87.4	6,244	79.2	69.8	-	86.3

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

***This question was not used in the phase 8 survey (2016). Only 2012–2015 data are available.

Table 26. Prevalence of receiving an HIV test by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	130,192	62.7	60.8	-	64.6	76,008	55.3	52.9	-	57.6
Maternal race/ethnicity										
White, non-Hispanic	70,250	55.9	53.0	-	58.8	39,205	49.0	45.4	-	52.6
Black, non-Hispanic	15,104	**77.6**	**74.6**	**-**	**80.4**	9,338	**71.7**	**67.0**	**-**	**75.9**
Hispanic	28,166	**76.7**	**73.8**	**-**	**79.4**	17,418	**68.4**	**64.5**	**-**	**72.0**
Asian, non-Hispanic	10,890	**63.5**	**60.0**	**-**	**66.7**	6,344	51.0	46.4	-	55.7
Other, non-Hispanic	4,128	**71.3**	**63.4**	**-**	**78.0**	1,925	46.3	32.5	-	60.8
Maternal age (years)										
<20	4,476	70.1	59.1	-	79.1	2,254	66.6	52.1	-	78.5
20-29	56,680	68.6	65.6	-	71.5	27,536	55.9	51.8	-	59.9
30-39	63,653	**57.7**	**55.1**	**-**	**60.4**	42,397	53.8	50.7	-	56.9
40+	5,383	63.5	54.1	-	71.9	3,821	62.4	51.2	-	72.4
Maternal education										
<High school	15,276	**73.6**	**68.3**	**-**	**78.3**	8,472	**67.0**	**59.9**	**-**	**73.3**
High school diploma	22,595	**67.3**	**62.1**	**-**	**72.1**	11,785	58.1	51.8	-	64.1
Some college	35,229	**70.0**	**66.3**	**-**	**73.5**	18,142	**60.0**	**55.0**	**-**	**64.9**
College graduate	54,802	55.2	52.3	-	58.0	34,452	49.3	46.0	-	52.7
Household poverty level										
≤100% FPL	37,701	**74.8**	**71.3**	**-**	**78.0**	18,387	**66.4**	**61.5**	**-**	**71.0**
>100% FPL	83,813	58.4	56.0	-	60.8	52,906	52.7	49.8	-	55.5
Maternal nativity										
Non-US-born	45,734	**69.9**	**67.3**	**-**	**72.4**	27,612	**63.0**	**59.8**	**-**	**66.1**
US-born	84,352	59.4	56.8	-	61.9	48,396	51.6	48.5	-	54.7
Marital status										
Unmarried	50,818	73.0	69.8	-	76.1	30,248	65.1	60.9	-	69.1
Married	79,373	**57.5**	**55.1**	**-**	**59.8**	45,617	**50.1**	**47.3**	**-**	**53.0**
Disability										
No	120,454	62.3	60.3	-	64.2	67,320	55.0	52.5	-	57.5
Yes	8,192	71.6	63.4	-	78.6	7,775	61.3	53.3	-	68.8

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

Additional Topics

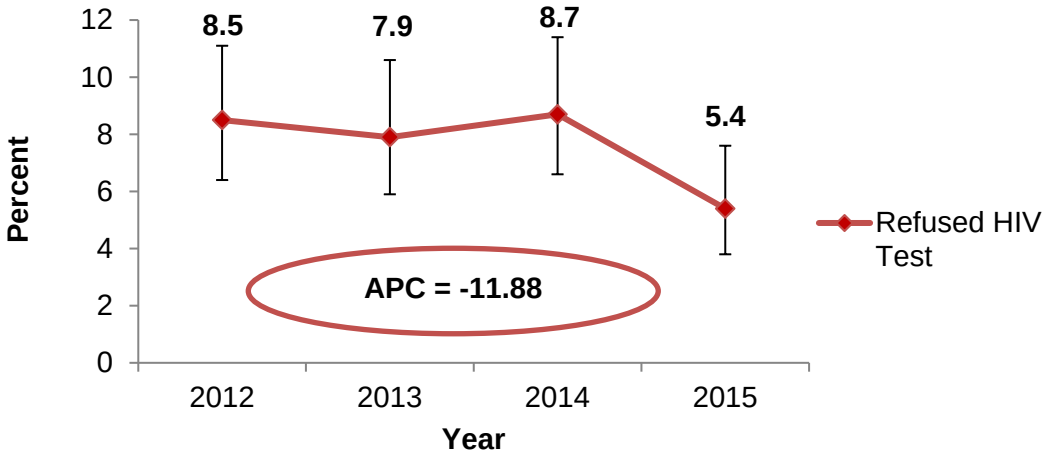
Pregnancy: Refusal of HIV testing during pregnancy

Under an opt-out testing approach, every pregnant woman should be informed by her physician that routine blood work will include HIV testing and that she can decline the testing (CDC, 2017).

During 2012–2015, the trend for refusing HIV testing by Massachusetts mothers had not changed significantly (Figure 18). The highest prevalence was reported by White, Non-Hispanic mothers (10.3%) compared to Black, non-Hispanic (4.0%) and Hispanic (2.5%) mothers. (Table 27).

No 2016 data are available as this question was not included in the phase 8 survey. In addition, in the phase 8 survey the question about reasons for refusing testing was re-worded to reasons why a mother did not receive an HIV test. Furthermore, three new reasons "I was not offered a test", "I did not want to have a test", and "I already knew my HIV status" were added to the list of answers. In 2016, of those mothers who did not receive a test, the main reasons included "Test was not offered" and "I already knew my status" (Figure 19).

Figure 18. Trend in refusal of HIV testing during pregnancy, MA PRAMS, 2012–2015*

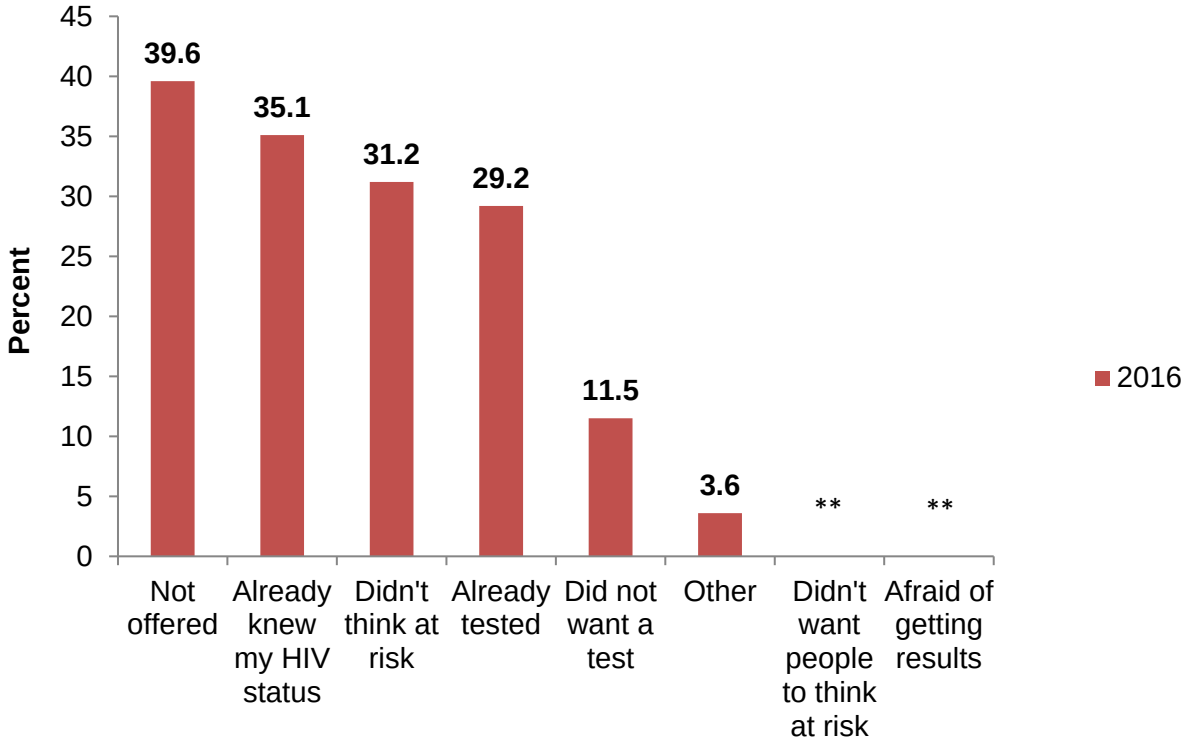


APC = Annual Percent Change

P-value for trend is not statistically significant.

*This question was not used in the phase 8 survey (2016). Only 2012–2015 data are available.

Figure 19. Reasons for not receiving an HIV testing during pregnancy, MA PRAMS, 2016



**Insufficient data to report: Less than five mothers.

Table 27. Prevalence of refusing HIV testing by socio-demographic characteristics, MA PRAMS, 2012–2013 and 2014–2015

	2012–2013					2014–2015*				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	8,245	8.2	6.7	-	10.0	6,685	7.1	5.7	-	8.8
Maternal race/ethnicity										
White, non-Hispanic	6,326	11.2	8.8	-	14.2	5,280	10.3	7.9	-	13.4
Black, non-Hispanic	284	**2.6**	**1.6**	**-**	**4.4**	429	**4.0**	**2.7**	**-**	**6.1**
Hispanic	662	**3.3**	**1.9**	**-**	**5.5**	509	**2.5**	**1.4**	**-**	**4.6**
Asian, non-Hispanic	531	6.7	4.0	-	11.0	325	**4.1**	**2.6**	**-**	**6.6**
Other, non-Hispanic	176	5.5	3.0	-	9.9	103	4.3	1.8	-	9.8
Maternal age (years)										
<20	*Insufficient Data To Report*					*Insufficient Data To Report*				
20-29	2,206	5.2	3.4	-	7.8	1,965	5.5	3.6	-	8.1
30-39	5,713	**11.6**	**9.1**	**-**	**14.6**	4,431	8.5	6.5	-	11.1
40+	*Insufficient Data To Report*					255	7.3	2.4	-	20.1
Maternal education										
<High school	127	**1.1**	**0.4**	**-**	**2.6**	305.0	3.2	1.1	-	8.7
High school diploma	1,135	7.1	3.8	-	12.9	873	5.4	2.7	-	10.5
Some college	1,194	**4.4**	**2.6**	**-**	**7.3**	1,620	7.1	4.7	-	10.7
College graduate	5,523	12.9	10.2	-	16.2	3,848	9.0	6.8	-	11.9
Household poverty level										
≤100% FPL	494	**1.8**	**0.8**	**-**	**4.1**	1,568	6.0	3.7	-	9.5
>100% FPL	7,551	11.4	9.2	-	14.0	4,859	7.8	6.1	-	10.1
Maternal nativity										
Non-US-born	1,295	**3.8**	**2.6**	**-**	**5.6**	1,507	4.5	3.0	-	6.9
US-born	6,950	10.5	8.3	-	13.1	5,178	8.5	6.6	-	10.9
Marital status										
Unmarried	1,344	**3.6**	**2.1**	**-**	**6.2**	1,586	4.4	2.8	-	7.0
Married	6,902	11.0	8.8	-	13.5	5,099	8.8	6.9	-	11.2
Disability										
No	8,072	8.7	7.1	-	10.6	6,496	7.5	6.0	-	9.3
Yes	91	**1.5**	**0.6**	**-**	**3.7**	*Insufficient Data To Report*				

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

*****This question was not used in the phase 8 survey (2016). Only 2012–2015 data are available.

Additional Topics

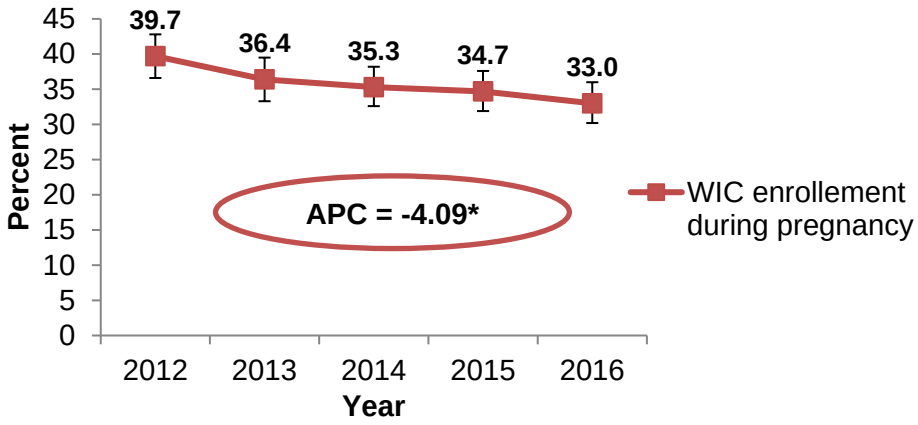
Pregnancy: WIC enrollment during pregnancy

The Women, Infants, and Children (WIC) Program is a supplemental food and nutrition program for low-income pregnant, postpartum and breastfeeding mothers and children up to age 5 years who are at risk for poor nutrition. The WIC program serves low-income women and offers financial assistance in purchasing food, education on healthy eating, breastfeeding support and referrals to medical and other community providers. Women who are enrolled in prenatal WIC services improve their nutrition, have healthier pregnancies and give birth to healthier babies (Carlson & Neuberger, 2017).

The prevalence of WIC enrollment during pregnancy significantly declined from 39.7% in 2012 to 34.7% in 2016 (Figure 20). During 2015–2016, higher prevalence was reported among Black, non-Hispanic, Hispanic, and Other, non-Hispanic mothers (67.6%, 74.1%, and 38.1%, respectively) compared to White, non-Hispanic mothers (17.5%); those aged less than 20 years (83.7%) compared to those aged 20-29 years (49.3%); those with less than a high school education, high school diploma and some college education (84.5%, 69.2%, and 50.4%, respectively) compared to mothers with a college degree (7.8%); those who were living at or below 100% of the FPL (82.2%) compared to those who were living above 100% of the FPL (18.2%); those born outside of the US (52.2%) compared to US-born mothers (25.3%); those who were unmarried (65.8%) compared to those who were married (17.5%); or those with a disability (59.1%) compared to mothers without a disability (31.2%) (Table 28).

Compared to 2012–2014, there is a significant decrease in WIC enrollment during pregnancy during 2015–2016 among Asian, non-Hispanic mothers (29.3% vs. 21.7%) (Table 28).

Figure 20. Trend in WIC enrollment during pregnancy, MA PRAMS, 2012–2016



APC = Annual Percent Change

P-value for trend is not statistically significant.

A Massachusetts mother says:

"The WIC program made me more conscious about my eating habits during pregnancy and really helped out."

Table 28. Prevalence of WIC enrollment during pregnancy by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	75,975	37.1	35.4	-	38.9	46,157	33.9	31.9	-	35.9
Maternal race/ethnicity										
White, non-Hispanic	27,056	21.7	19.2	-	24.5	13,890	17.5	14.7	-	20.7
Black, non-Hispanic	13,345	**71.4**	**67.7**	**-**	**74.8**	8,687	**67.6**	**62.9**	**-**	**71.9**
Hispanic	27,247	**75.7**	**72.6**	**-**	**78.5**	18,578	**74.1**	**70.5**	**-**	**77.3**
Asian, non-Hispanic	4,955	**29.3**	**26.1**	**-**	**32.7**	2,674	21.7	18.1	-	25.8
Other, non-Hispanic	2,396	**42.3**	**33.6**	**-**	**51.4**	1,582	**38.1**	**24.9**	**-**	**53.3**
Maternal age (years)										
<20	4,931	**78.4**	**66.6**	**-**	**86.9**	2,835	**83.7**	**69.5**	**-**	**92.1**
20-29	45,671	55.9	52.7	-	59.0	23,970	49.3	45.3	-	53.3
30-39	23,818	**22.0**	**20.1**	**-**	**24.0**	17,587	**22.5**	**20.2**	**-**	**25.0**
40+	1,556	**18.8**	**13.4**	**-**	**25.7**	1,765	**28.9**	**20.2**	**-**	**39.5**
Maternal education										
<High school	16,302	**80.4**	**74.7**	**-**	**85.1**	10,308	**84.5**	**78.1**	**-**	**89.3**
High school diploma	23,502	**71.3**	**66.0**	**-**	**76.2**	13,865	**69.2**	**62.7**	**-**	**75.0**
Some college	27,382	**54.9**	**51.0**	**-**	**58.8**	15,186	**50.4**	**45.5**	**-**	**55.4**
College graduate	7,226	7.4	6.2	-	8.8	5,388	7.8	6.3	-	9.5
Household poverty level										
≤100% FPL	42,053	**84.1**	**80.9**	**-**	**86.8**	22,522	**82.2**	**77.7**	**-**	**86.0**
>100% FPL	26,164	18.4	16.8	-	20.2	18,251	18.2	16.3	-	20.4
Maternal nativity										
Non-US-born	35,370	**55.4**	**52.7**	**-**	**58.1**	22,667	**52.2**	**49.0**	**-**	**55.3**
US-born	40,396	28.7	26.5	-	31.1	23,490	25.3	22.7	-	28.1
Marital status										
Unmarried	49,144	**71.9**	**68.5**	**-**	**75.1**	30,214	**65.8**	**61.5**	**-**	**69.9**
Married	26,812	19.7	18.1	-	21.4	15,800	17.5	15.8	-	19.4
Disability										
No	16,096	12.4	11.0	-	14.0	37,972	31.2	29.1	-	33.3
Yes	59,059	**80.2**	**77.3**	**-**	**82.8**	7,466	**59.1**	**51.0**	**-**	**66.6**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

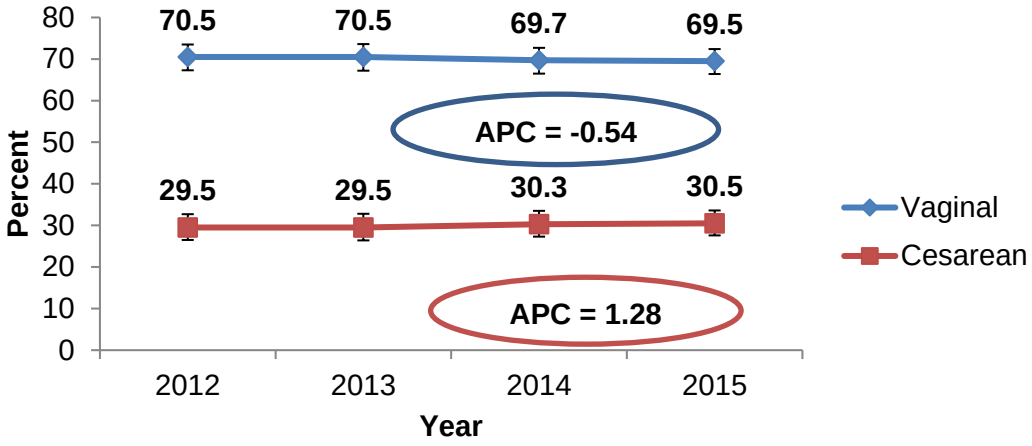
Additional Topics

Pregnancy: Method of delivery

Vaginal delivery is the most common and safest type of childbirth. If a woman is unable to have natural delivery, cesarean delivery (C-section) may be necessary for the safety of mother and her child. The need for a cesarean delivery is usually determined during labor when unexpected problems happen during delivery (March of Dimes, 2013). In some instances, when medical complications are known and expected, a health care provider may recommend a C-section before labor.

According to the National Center for Health Statistics, the national cesarean delivery rate decreased from 32.2% in 2014 to 32.0% in 2015 (Martin et al., 2017). In Massachusetts, during 2012–2015*, the prevalence of vaginal delivery decreased by 1.0% and prevalence of cesarean delivery increased by 1.0%, but neither of these trends changed significantly (Figure 21). During 2014-2015, higher prevalence of cesarean delivery was observed among mothers aged 30-39 years and 40 years old and older (45.7% and 32.6%, respectively) compared to those aged 20-29 years (19.1%) (Table 29).

Figure 21. Trends in vaginal and cesarean deliveries, MA PRAMS, 2012–2015*



APC = Annual Percent Change

P-value for trends is not statistically significant.

*This question was not used in the phase 8 survey (2016). Only 2012–2015 data are available.

Massachusetts mothers say:

"When I decided to do the C-section, the baby was breech. They were very supportive as to trying to flip her first rather than running to C-section. They were very adamant we did it before labor to decrease risk."

"Recovering from C-section is tough. Let it not be a shock to others as it happened to me. Educate, inform 1st time C-section mothers on what to expect [and] experience during post-partum. Despite the tough experience, the baby keeps me smiling. He is my bundle of joy."

Table 29. Prevalence of cesarean delivery by socio-demographic characteristics, MA PRAMS, 2012–2013 and 2014–2015

	2012–2013					2014–2015*				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	40,484	29.5	27.3	-	31.8	41,516	30.4	28.3	-	32.6
Maternal race/ethnicity										
White, non-Hispanic	25,278	30.1	26.9	-	33.5	24,402	30.1	26.9	-	33.4
Black, non-Hispanic	4,470	35.9	31.2	-	40.8	4,313	34.2	29.6	-	39.2
Hispanic	6,509	27.3	23.9	-	31.1	7,611	30.8	27.4	-	34.5
Asian, non-Hispanic	2,934	27.0	23.5	-	30.9	3,504	29.2	25.4	-	33.3
Other, non-Hispanic	897	21.8	14.8	-	31.0	1,043	28.4	18.5	-	41.1
Maternal age (years)										
<20	570	**11.4**	**5.4**	**-**	**22.6**	570	19.1	10.7	-	31.8
20-29	14,719	26.4	23.0	-	30.1	12,802	25.8	22.6	-	29.3
30-39	22,685	31.8	28.8	-	35.0	25,498	**32.6**	**29.8**	**-**	**35.6**
40+	2,510	**47.0**	**35.5**	**-**	**58.8**	2,646	**45.7**	**35.0**	**-**	**56.7**
Maternal education										
<High school	3,669	25.8	19.9	-	32.8	3,196	26.8	21.2	-	33.3
High school diploma	6,505	30.2	24.7	-	36.4	6,574	30.5	25.2	-	36.4
Some college	10,340	30.3	26.1	-	35.0	10,704	34.4	30.0	-	39.0
College graduate	19,404	29.9	26.8	-	33.3	19,955	29.2	26.2	-	32.3
Household poverty level										
≤100% FPL	9,577	28.1	24.0	-	32.5	8,559	26.8	23.1	-	30.8
>100% FPL	28,571	29.9	27.3	-	32.7	30,248	31.5	28.9	-	34.3
Maternal nativity										
Non-US-born	12,360	29.3	26.4	-	32.5	13,816	31.1	28.2	-	34.2
US-born	28,075	29.6	26.7	-	32.6	27,700	30.1	27.3	-	33.0
Marital status										
Unmarried	12,643	27.4	23.7	-	31.5	12,344	27.4	24.0	-	31.1
Married	27,842	30.5	27.9	-	33.3	29,152	31.9	29.3	-	34.7
Disability										
No	37,596	29.3	27.1	-	31.6	38,799	30.5	28.3	-	32.8
Yes	2,583	32.1	23.0	-	42.7	2,458	29.8	22.5	-	38.3

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

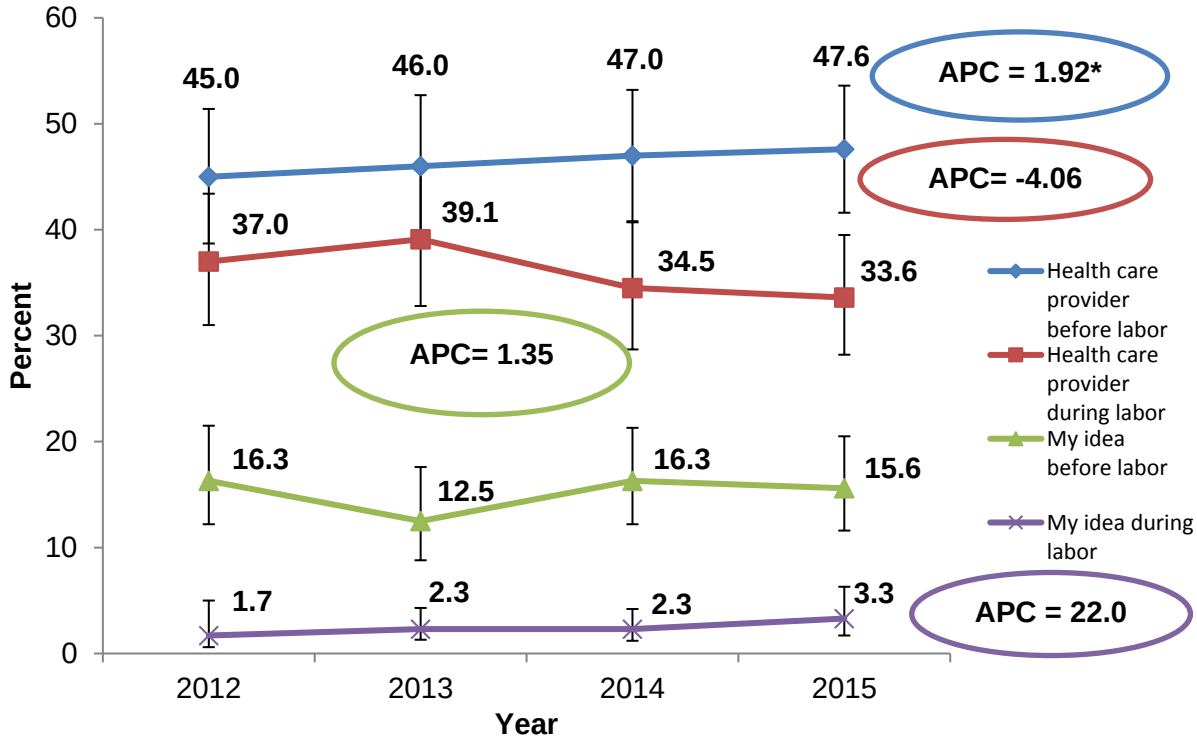
*This question was not used in the phase 8 survey (2016). Only 2012–2015 data are available.

Additional Topics

Pregnancy: Cesarean delivery by request

A health care provider may recommend a cesarean delivery if a mother has had a previous cesarean delivery or other surgery in which the uterus was cut open, if there is some mechanical obstruction that prevents or complicates vaginal delivery, if a mother has diabetes and her infant is unusually large, if a mother has an active infection, such as herpes or HIV, that could be transmitted to her infant during vaginal delivery, if birth involves multiple gestation (twins, triplets), if a mother has cervical cancer or is diagnosed with placenta previa, or if an infant has increased risk of bleeding (Berghella, 2018). Some women may prefer cesarean delivery and request it without a medical reason. Although in recent years obstetrical providers have focused their efforts on reducing non-medically indicated cesarean delivery (Martin et al., 2017), it is estimated that about 3% of all deliveries resulted in cesarean delivery by maternal request (Ecker, 2013). In Massachusetts, the trend for cesarean delivery by maternal request during labor increased from 1.7% in 2012 to 3.3% in 2015**, but it was not significant (Figure 22). The trend for cesarean delivery recommended by a health care provider before labor increased significantly from 45.0% in 2012 to 47.6% in 2015** (Figure 22).

Figure 22. Trends for source and timing of cesarean delivery request among mothers who delivered by cesarean, MA PRAMS, 2012–2015**



APC = Annual Percent Change

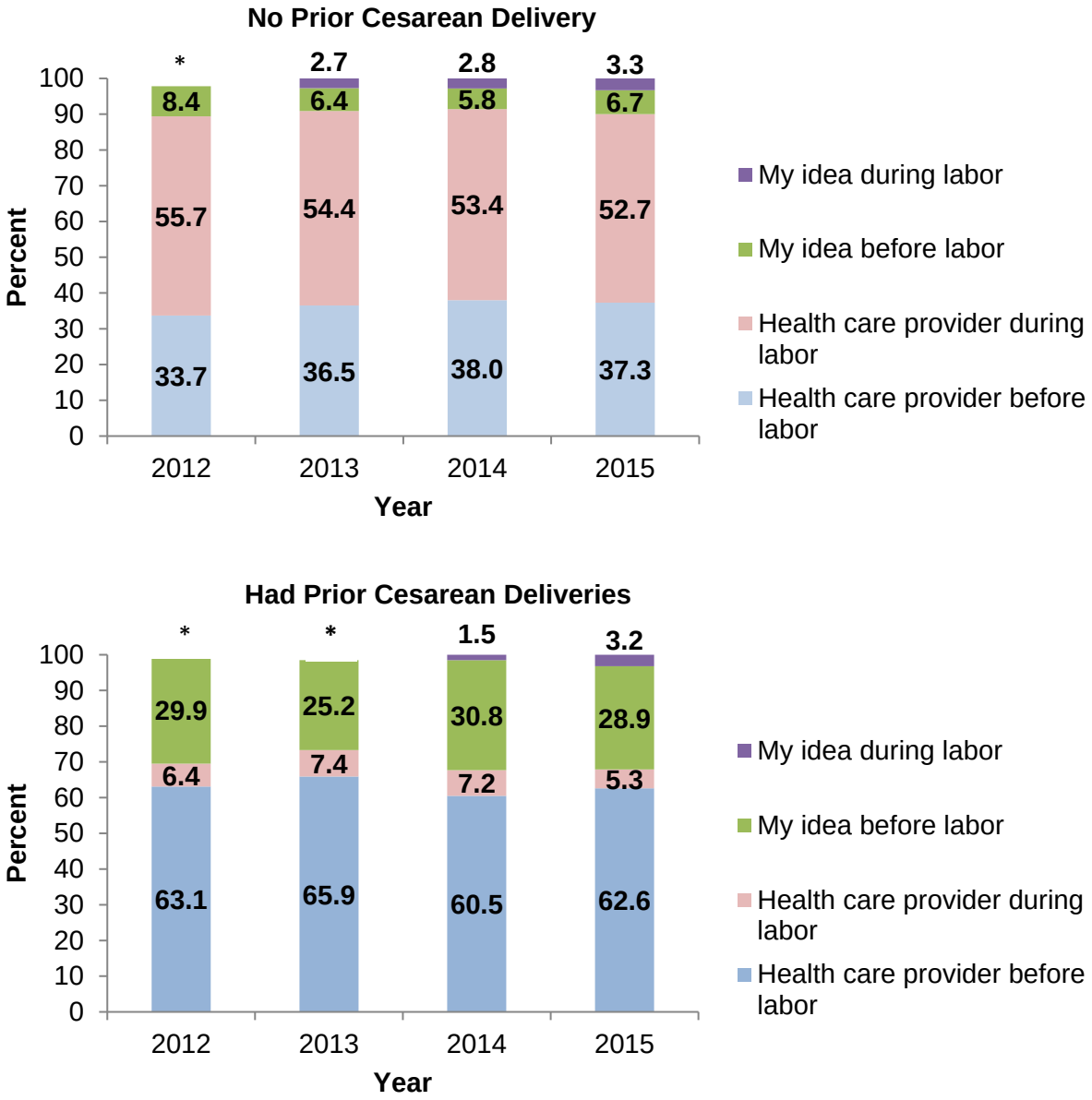
*P-value for trend < 0.05

**This question was not used in phase the 8 survey (2016). Only 2012–2015 data are available.

History of Cesarean Delivery

Prior history of a cesarean delivery often leads to subsequent cesarean births. When compared by the status of prior history of cesarean delivery, lower prevalence of Massachusetts mothers without a prior cesarean delivery requested a cesarean delivery before or during labor (2.9% and 6.8%, respectively) or had a health care provider recommending a cesarean delivery before labor (36.4%). Of those who've had prior cesarean deliveries, the majority reported that their health care provider recommended having a cesarean delivery before labor (63.0%) (Figure 23).

Figure 23. Source and timing of cesarean delivery request among mothers who delivered by cesarean by prior-birth history, MA PRAMS, 2012–2015**



*Insufficient data to report: Less than five mothers.

**This question was not included in the phase 8 survey. Only 2012–2015 data are available.

Additional Topics

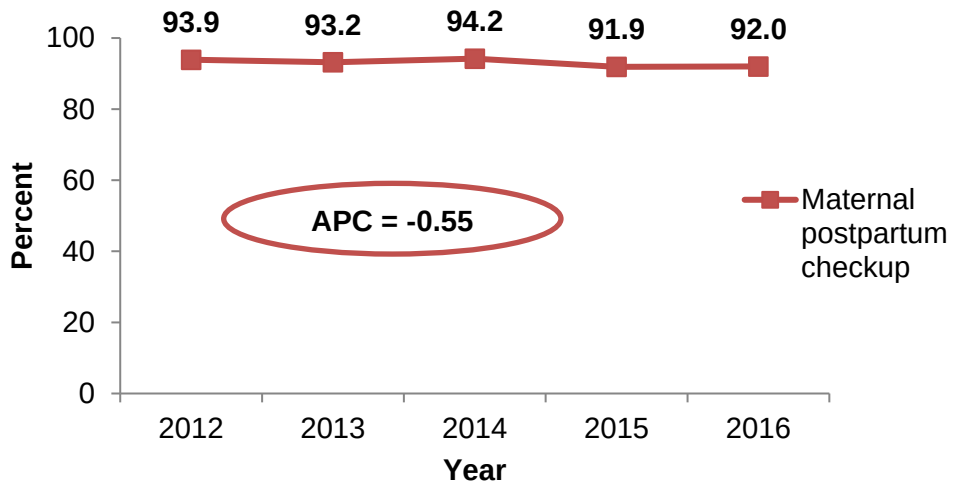
Postpartum: Maternal postpartum check-up

The American College of Obstetricians and Gynecologists (OB/GYN) recommends that a woman see her OB/GYN provider four to six weeks after delivery (ACOG, 2016). Postpartum care is important as after giving birth a mother goes through multiple physical and psychological changes. The postpartum visit offers an opportunity for a mother to discuss any health-related and mental health concerns with her provider, ask questions about birth control and breastfeeding, and identify other health care professionals who will comprise the postpartum care team for herself and her infant.

The proportion of mothers who attended their postpartum checkup did not change significantly from 2012 to 2016 (Figure 24). During 2015–2016, lower prevalence was observed among Black, non-Hispanic and Hispanic mothers (88.8% and 85.5%, respectively) compared to White, non-Hispanic mothers (94.5%); those aged 20-29 years (89.3%) compared to those aged 30-39 years (94.5%); those with less than a high school education, high school diploma and some college education (76.0%, 83.9%, and 92.5%, respectively) compared to mothers with a college degree (96.8%); those who were living at or below 100% of the FPL (82.2%) compared to those who were living above 100% of the FPL (95.0%); those who were unmarried (85.7%) compared to those who were married (95.1%); or those with a disability (85.8%) compared to mothers without a disability (92.7%) (Table 30).

Compared to 2012–2014, there is a significant decrease in postpartum checkup during 2015–2016 among mothers aged 40 years and older (97.4% vs. 87.7%) (Table 30).

Figure 24. Trend in receiving a postpartum checkup, MA PRAMS, 2012–2016



APC = Annual Percent Change

P-value for trend is not statistically significant.

Table 30. Prevalence of receiving a maternal postpartum checkup by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	192,002	93.8	92.8	-	94.6	124588	92.0	90.5	-	93.2
Maternal race/ethnicity										
White, non-Hispanic	119,783	96.0	94.5	-	97.0	74,637	94.5	92.4	-	96.0
Black, non-Hispanic	16,532	**88.7**	**86.1**	**-**	**90.9**	11,372	**88.8**	**84.2**	**-**	**92.2**
Hispanic	31,546	**88.0**	**85.5**	**-**	**90.2**	21,303	**85.5**	**82.1**	**-**	**88.3**
Asian, non-Hispanic	15,911	93.9	91.8	-	95.5	11,462	93.8	91.3	-	95.7
Other, non-Hispanic	5,409	95.3	92.3	-	97.1	3,415	84.4	67.5	-	93.4
Maternal age (years)										
<20	5,286	83.3	**75.2**	**-**	**89.2**	2,639	79.6	63.8	-	89.6
20-29	74,837	92.2	90.4	-	93.7	43,490	89.3	86.3	-	91.7
30-39	103,681	95.3	**94.0**	**-**	**96.3**	73,089	**94.5**	**93.0**	**-**	**95.7**
40+	8,198	97.4	**95.3**	**-**	**98.6**	5,370	87.7	77.5	-	93.6
Maternal education										
<High school	16,945	**84.3**	**79.9**	**-**	**88.0**	9,177	**76.0**	**68.6**	**-**	**82.0**
High school diploma	29,311	**89.2**	**85.7**	**-**	**92.0**	16,609	**83.9**	**78.2**	**-**	**88.3**
Some college	46,593	**94.0**	**92.0**	**-**	**95.5**	27,537	**92.5**	**89.5**	**-**	**94.7**
College graduate	95,632	97.0	95.9	-	97.9	67,111	96.8	95.4	-	97.8
Household poverty level										
≤100% FPL	44,182	**88.4**	**85.7**	**-**	**90.6**	22,480	**82.2**	**77.7**	**-**	**85.9**
>100% FPL	137,611	96.2	95.2	-	97.0	95,052	95.0	93.6	-	96.2
Maternal nativity										
Non-US-born	58,417	**91.8**	**90.1**	**-**	**93.2**	39,357	91.4	89.2	-	93.1
US-born	133,346	94.7	93.4	-	95.7	85,231	92.2	90.3	-	93.8
Marital status										
Unmarried	61,238	**89.7**	**87.5**	**-**	**91.5**	38,927	**85.7**	**82.3**	**-**	**88.5**
Married	130,725	95.8	94.8	-	96.7	85,519	95.1	93.7	-	96.2
Disability										
No	181,110	94.1	93.1	-	94.9	112,869	92.7	91.2	-	93.9
Yes	10,222	90.1	84.0	-	94.0	10,642	**85.8**	**79.2**	**-**	**90.5**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

Additional Topics

Postpartum: Maternity leave

Maternity leave refers to the period of time that a mother takes off from work following delivery. It provides an important time for a mother to recover after delivery as well as to bond with her child. According to the US Department of Labor, only 12% of US private sector workers have access to paid family leave (2015). Paid maternity leave has been linked to increased rates of breastfeeding (Huang & Yang, 2015) and decreased risks of adverse birth outcomes such as low birth weight and premature birth (Sterns, 2015).

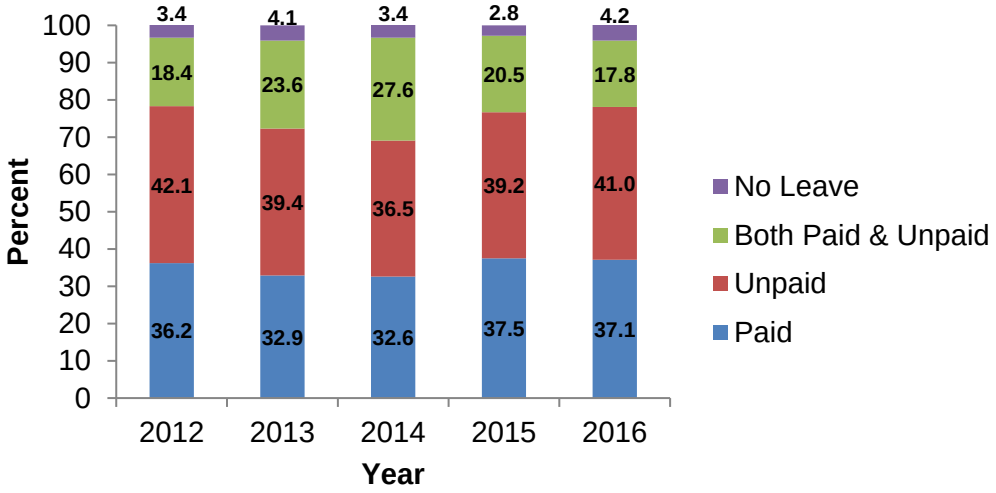
It is also important to recognize social and racial inequalities that exist in accessing paid maternity leave. Research has shown that low-wage and part-time workers, minority workers, and less-educated workers often lack access to paid leave (Ben-Ishai, 2014). Only 43% of African-American and 25% of Hispanic workers have access to paid parental leave (Glynn & Farell, 2012). In 2008, only 19% of first-time mothers with less than a high school education reported having paid maternity leave (Laughlin, 2011).

Unpaid leave is covered under the Family and Medical Leave Act and allows a parent to take up to twelve weeks off without pay after the birth of a child. According to Institute for Women's Policy Research, nationwide only about half of working mothers aged 18 to 34 years qualified for job-protected unpaid leave in 2012.

Taking unpaid leave can be very costly, especially to low-income families. Many parents cannot afford to take unpaid leave because of the loss of income. Some parents choose to cut their leave short because of financial or workplace pressures (DOL, 2015). Not having access to paid maternity leave can negatively affect the health of a mother and a child.

During 2012–2016, about 40% of Massachusetts mothers reported taking unpaid maternity leave only, followed by 35% taking paid leave only, and 22% taking both paid and unpaid leave. About 4% of mothers reported not taking any maternity leave (Figure 25).

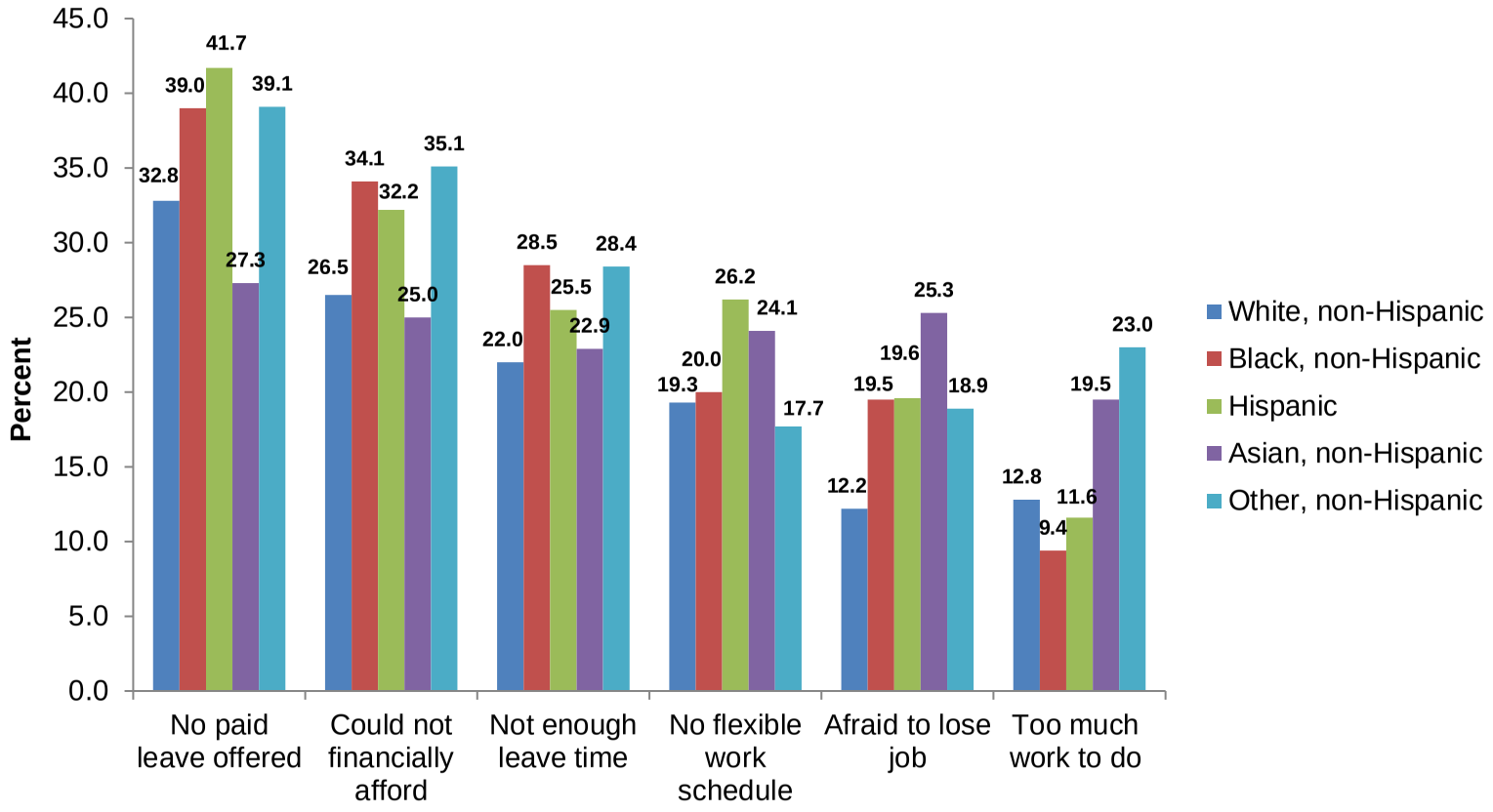
Figure 25. Prevalence of types of maternity leave, MA PRAMS, 2012–2016



Factors Affecting Maternal Decisions about Taking Leave from Work

During 2012–2016, the two most common factors affecting mothers' decisions about taking leave from work included "no paid leave offered" and "I could not financially afford to take leave." When compared by race/ethnicity, higher prevalence of "no paid leave offered" and "could not financially afford leave" was reported among Black, non-Hispanic (39.0% and 34.1%, respectively), Hispanic (41.7% and 32.2%, respectively), and Other, non-Hispanic mothers (39.1% and 35.1%, respectively) compared to White, non-Hispanic mothers (32.8% and 26.5%, respectively) (Figure 26).

Figure 26. Factors affecting mothers' decisions about taking leave from work, MA PRAMS, 2012–2016



Maternity Leave Types

Paid Leave only

During 2015–2016, lower prevalence of paid maternity leave was observed among Black, non-Hispanic and Hispanic mothers (27.3% and 27.9%, respectively) compared to White, non-Hispanic mothers (39.3%); those aged 20-29 years (29.7%) compared to those aged 30-39 years (41.0%); those with less than a high school education, high school diploma, and some college education (17.5%, 23.1%, and 30.9%, respectively) compared to mothers with a college degree (42.9%); those who were living at or below 100% of the FPL (15.0%) compared to those who were living above 100% of the FPL (40.1%); or those who were unmarried (27.4%) compared to those who were married (40.8%) (Table 31).

Unpaid Leave only

During 2015–2016, higher prevalence was observed among Black, non-Hispanic and Hispanic mothers (51.9% and 52.7%, respectively) compared to White, non-Hispanic mothers (37.8%); those aged 20-29 years (53.6%) compared to those aged 30-39 years (34.6%); those with less than a high school education, high school diploma, and some college education (50.8%, 63.8%, and 54.5%, respectively) compared to mothers with a college degree (30.8%); those who were living at or below 100% of the FPL (75.1%) compared to those who were living above 100% of the FPL (35.7%); or those who were unmarried (56.9%) compared to those who were married (34.1%) (Table 32).

Paid and Unpaid Leave only

During 2015–2016, higher prevalence was observed among White, non-Hispanic mothers (20.6%); those aged 30-39 years and 40 years and older (21.8% and 27.8, respectively) compared to those aged 20-29 years (12.4%); mothers with a college degree (24.6%) compared to those with a high school education (5.8%); those who were living above 100% of the FPL (21.5%) compared to those who were living below 100% of the FPL (2.6%); US-born mothers (20.2%) compared to mothers born outside of the US (15.8%); those who were married (22.8%) compared to those who were unmarried (8.7%); or mothers without a disability (19.8%) compared to mothers with a disability (8.5%). Compared to 2012–2014, there is a significant decrease in both paid and unpaid maternity leave during 2015–2016 among mothers aged 30-39 years (28.5% vs. 21.8%); and among mothers with a college degree (31.6% vs. 24.6%) (Table 33).

No Leave

During 2015–2016, higher prevalence was observed among Black, non-Hispanic and Hispanic mothers (7.5% and 8.3%, respectively) compared to White, non-Hispanic mothers (2.3%); those with less than a high school education and high school diploma (27.7% and 7.3%, respectively) compared to mothers with a college degree (1.7%); those who were living at or below 100% of the FPL (7.2%) compared to those who were living above 100% of the FPL (2.7%); those born outside of the US (8.3%) compared to

US-born mothers (1.9%); or those who were unmarried (7.0%) compared to those who were married (2.3%) (Table 34).

Massachusetts mothers say:

"I feel like mothers don't get enough time to take the proper time [that] they need to care for themselves or their babies. We live in a society where we can't afford to survive without an income of 2 people. I believe if all women were offered paid maternity leave and the ability to take time off after the baby [was born], they would be better parents and workers. I only got 6 weeks off and I didn't get paid. She is now 3 months old and I am still trying to recover financially from the loss of wages. I was also more worried about losing my job and getting back to work than actually enjoying the time off with my baby."

"MA should require employers to provide paid leave for new mothers. Unpaid leave, even for someone like me who is financially stable, is incredibly stressful & no doubt causes long-term problems."

Table 31. Prevalence of paid maternity leave only by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	38,243	33.9	31.4	-	36.5	29,443	37.3	34.3	-	40.4
Maternal race/ethnicity										
White, non-Hispanic	27,228	35.2	31.8	-	38.7	20,270	39.3	35.1	-	43.6
Black, non-Hispanic	2,468	**25.7**	**21.3**	**-**	**30.6**	1,834	**27.3**	**22.0**	**-**	**33.3**
Hispanic	3,379	**26.2**	**21.7**	**-**	**31.3**	2,817	**27.9**	**22.8**	**-**	**33.6**
Asian, non-Hispanic	3,700	43.4	38.6	-	48.4	3,032	48.3	41.9	-	54.8
Other, non-Hispanic	1,102	36.6	25.0	-	50.0	789	30.6	16.6	-	49.3
Maternal age (years)										
<20	*Insufficient Data to Report*					0	0.0	.	-	.
20-29	9,904	27.2	23.1	-	31.7	7,289	29.7	24.6	-	35.5
30-39	26,227	**37.7**	**34.4**	**-**	**41.0**	20,585	**41.0**	**37.3**	**-**	**44.9**
40+	1,930	35.3	24.6	-	47.5	1,570	40.2	28.1	-	53.7
Maternal education										
<High school	639	**16.0**	**9.2**	**-**	**26.5**	390	**17.5**	**10.2**	**-**	**28.5**
High school diploma	3,560	27.7	20.6	-	36.0	1,990	**23.1**	**16.0**	**-**	**32.2**
Some college	7,801	**29.3**	**24.6**	**-**	**34.4**	5,332	**30.9**	**24.9**	**-**	**37.5**
College graduate	25,702	38.0	34.7	-	41.5	20,652	42.9	38.9	-	46.9
Household poverty level										
≤100% FPL	1,964	**14.5**	**10.0**	**-**	**20.6**	1,243	**15.0**	**9.4**	**-**	**23.2**
>100% FPL	35,015	36.6	33.8	-	39.5	27,202	40.1	36.8	-	43.6
Maternal nativity										
Non-US-born	8,341	31.2	27.4	-	35.2	6,940	35.1	30.7	-	39.7
US-born	29,902	34.8	31.7	-	38.0	22,503	38.0	34.3	-	41.9
Marital status										
Unmarried	7,441	**26.4**	**22.0**	**-**	**31.5**	5,708	**27.4**	**22.0**	**-**	**33.4**
Married	30,783	36.4	33.4	-	39.4	23,735	40.8	37.3	-	44.5
Disability										
No	37,017	34.1	31.6	-	36.8	27,776	37.7	34.6	-	40.9
Yes	1,200	29.4	18.8	-	42.9	1,566	30.6	20.3	-	43.2

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

Table 32. Prevalence of unpaid maternity leave only by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	44,349	39.3	36.7	-	42.0	31,707	40.1	37.1	-	43.3
Maternal race/ethnicity										
White, non-Hispanic	27,618	35.7	32.2	-	39.3	19,501	37.8	33.6	-	42.2
Black, non-Hispanic	5,345	**55.6**	**49.8**	**-**	**61.2**	3,491	**51.9**	**45.7**	**-**	**58.1**
Hispanic	7,030	**54.6**	**49.4**	**-**	**59.7**	5,325	**52.7**	**46.6**	**-**	**58.7**
Asian, non-Hispanic	2,556	30.0	25.4	-	35.1	1,748	27.9	22.6	-	33.7
Other, non-Hispanic	1,347	44.8	32.7	-	57.4	1,236	47.9	30.4	-	65.8
Maternal age (years)										
<20	834	67.6	38.4	-	87.5	295	70.8	42.7	-	88.7
20-29	20,267	55.6	50.8	-	60.3	13,136	53.6	47.7	-	59.4
30-39	21,156	**30.4**	**27.4**	**-**	**33.6**	17,360	**34.6**	**31.0**	**-**	**38.4**
40+	2,093	**38.2**	**27.2**	**-**	**50.7**	917	**23.5**	**15.0**	**-**	**34.8**
Maternal education										
<High school	2,367	**59.5**	**46.1**	**-**	**71.6**	1,130	**50.8**	**36.8**	**-**	**64.7**
High school diploma	7,526	**58.5**	**50.0**	**-**	**66.4**	5,485	**63.8**	**54.4**	**-**	**72.2**
Some college	14,876	**55.8**	**50.4**	**-**	**61.1**	9,427	**54.5**	**47.8**	**-**	**61.1**
College graduate	18,978	28.1	25.0	-	31.4	14,862	30.8	27.2	-	34.8
Household poverty level										
≤100% FPL	9,767	**72.1**	**65.5**	**-**	**77.9**	6,208	**75.1**	**67.0**	**-**	**81.8**
>100% FPL	33,102	34.6	31.8	-	37.5	24,194	35.7	32.4	-	39.1
Maternal nativity										
Non-US-born	11,523	43.0	39.0	-	47.2	8,079	40.9	36.4	-	45.5
US-born	32,779	38.1	35.0	-	41.4	23,628	39.9	36.1	-	43.8
Marital status										
Unmarried	16,613	**59.0**	**53.6**	**-**	**64.2**	11,876	**56.9**	**50.6**	**-**	**63.1**
Married	27,736	32.8	29.9	-	35.8	19,831	34.1	30.7	-	37.7
Disability										
No	42,343	39.0	36.4	-	41.7	28,928	39.2	36.1	-	42.5
Yes	1,892	46.4	32.8	-	60.6	2,779	54.2	42.1	**-**	65.9

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

Table 33. Prevalence of both paid and unpaid maternity leave by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	26,098	23.1	20.9	-	25.5	15,064	19.1	16.7	-	21.7
Maternal race/ethnicity										
White, non-Hispanic	20,664	26.7	23.6	-	30.0	10,651	20.6	17.4	-	24.3
Black, non-Hispanic	1,299	**13.5**	**10.1**	**-**	**17.8**	895	13.3	10.0	-	17.5
Hispanic	1,290	**10.0**	**7.2**	**-**	**13.7**	1,124	**11.1**	**8.0**	**-**	**15.2**
Asian, non-Hispanic	1,846	21.7	17.6	-	26.4	1,373	21.9	16.9	-	27.8
Other, non-Hispanic	495	16.4	9.8	-	26.2	440	17.0	8.0	-	32.7
Maternal age (years)										
<20	0	0.0	.	-	.	0	0.0	.	-	.
20-29	5,034	13.8	10.8	-	17.5	3,030	12.4	9.1	-	16.6
30-39	19,808	**28.5**	**25.4**	**-**	**31.7**	10,949	**21.8**	**18.8**	**-**	**25.3**
40+	1,256	22.9	14.3	-	34.7	1,084	**27.8**	**17.3**	**-**	**41.4**
Maternal education										
<High school	*Insufficient Data to Report*					*Insufficient Data to Report*				
High school diploma	983	**7.6**	**4.0**	**-**	**14.0**	497	**5.8**	**2.7**	**-**	**11.8**
Some college	3,138	**11.8**	**8.8**	**-**	**15.6**	1,840	**10.6**	**7.4**	**-**	**15.1**
College graduate	21,365	31.6	28.4	-	35.0	11,841	24.6	21.2	-	28.2
Household poverty level										
≤100% FPL	376	**2.8**	**1.5**	**-**	**5.1**	219	**2.6**	**1.4**	**-**	**5.1**
>100% FPL	25,256	26.4	23.8	-	29.1	14,574	21.5	18.8	-	24.4
Maternal nativity										
Non-US-born	4,545	**17.0**	**13.9**	**-**	**20.6**	3,123	**15.8**	**12.4**	**-**	**19.9**
US-born	21,553	25.1	22.3	-	28.0	11,941	20.2	17.3	-	23.4
Marital status										
Unmarried	2,611	**9.3**	**6.5**	**-**	**13.0**	1,819	**8.7**	**6.0**	**-**	**12.5**
Married	23,487	27.8	25.0	-	30.7	13,245	22.8	19.8	-	26.0
Disability										
No	25,292	23.3	21.0	-	25.7	14,628	19.8	17.4	-	22.6
Yes	806	19.8	10.6	-	33.8	436	**8.5**	**4.0**	**-**	**17.0**

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

Table 34. Prevalence of no maternity leave by socio-demographic characteristics, MA PRAMS, 2012–2014 and 2015–2016

	2012–2014					2015–2016				
Characteristic	**Weighted n**	**Weighted %**	**95% CL**			**Weighted n**	**Weighted %**	**95% CL**		
Total	4,099	3.6	2.8	-	4.7	2,769	3.5	2.6	-	4.8
Maternal race/ethnicity										
White, non-Hispanic	1,923	2.5	1.5	-	4.0	1,189	2.3	1.2	-	4.3
Black, non-Hispanic	499	5.2	3.5	-	7.6	501	**7.5**	**4.9**	**-**	**11.1**
Hispanic	1,179	**9.2**	**6.8**	**-**	**12.3**	840	**8.3**	**5.6**	**-**	**12.2**
Asian, non-Hispanic	415	4.9	3.3	-	7.2	122	1.9	0.8	-	4.6
Other, non-Hispanic	*Insufficient Data to Report*					*Insufficient Data to Report*				
Maternal age (years)										
<20	*Insufficient Data to Report*					*Insufficient Data to Report*				
20-29	1,257	3.4	2.3	-	5.1	1,060	4.3	2.8	-	6.7
30-39	2,429	3.5	2.5	-	4.9	1,254	2.5	1.5	-	4.1
40+	196	3.6	1.3	-	9.6	333	8.5	3.1	-	21.5
Maternal education										
<High school	894	**22.5**	**12.5**	**-**	**37.0**	617	**27.7**	**15.1**	**-**	**45.3**
High school diploma	804	**6.2**	**3.8**	**-**	**10.0**	630	**7.3**	**4.0**	**-**	**12.9**
Some college	835	3.1	2.1	-	4.7	684	4.0	2.4	-	6.5
College graduate	1,522	2.3	1.4	-	3.5	838	1.7	0.9	-	3.3
Household poverty level				-					-	
≤100% FPL	1,432	**10.6**	**7.3**	**-**	**15.1**	596	**7.2**	**4.6**	**-**	**11.1**
>100% FPL	2,313	2.4	1.7	-	3.4	1,803	2.7	1.7	-	4.0
Maternal nativity										
Non-US-born	2,359	**8.8**	**6.6**	**-**	**11.7**	1,635	**8.3**	**5.8**	**-**	**11.6**
US-born	1,740	2.0	1.3	-	3.1	1,134	1.9	1.1	-	3.3
Marital status										
Unmarried	1,482	5.3	3.6	-	7.7	1,453	**7.0**	**4.4**	**-**	**10.8**
Married	2,617	3.1	2.2	-	4.3	1,315	2.3	1.5	-	3.4
Disability										
No	3,845	3.5	2.7	-	4.6	2,390	3.2	2.3	-	4.5
Yes	180	4.4	1.8	-	10.2	342	6.7	3.1	-	13.9

Non-overlapping 95% Confidence Limits (95% CL) indicates a difference between the reference group and the comparison group. The reference groups: White, non-Hispanic, 20-29 years, college graduate, >100% FPL, US-born, married, and without a disability.

Appendix A: PRAMS Advisory Committee Members

Name	Organization
Dolores Acevedo-Garcia	Brandeis University
Craig Andrade	Massachusetts Department of Public Health (MDPH), Bureau of Family Health & Nutrition
Sarah Ball	Abt Associates
Candice Belanoff	Boston University School of Public Health
Debra Bercuvitz	MDPH, Perinatal Substance Use Initiative
Meg Blanchet	MDPH, Bureau of Environmental Health
Sandra Broughton	MDPH, Perinatal, Early Childhood and Special Health Needs Community Support
Brittany Brown	MDPH, Office of Oral Health
Catherine Brown	MDPH, Division of Epidemiology and Immunization
Nancy Byatt	University of Massachusetts Medical School, Massachusetts Child Psychiatry Access Project for Moms
Paula Callahan	Massachusetts Department of Children and Families
Jill Clark	MDPH, Division of Health Access
Jennifer Cochran	MDPH, Refugee and Immigrant Health Program
Rachel Colchamiro	MDPH, Nutrition Division
Eugene Declercq	Boston University School of Public Health
Karin Downs	MDPH, Division of Pregnancy, Infancy and Early Childhood
Julie Dunn	MDPH, Center for Birth Defects Research and Prevention
Justine Egan	MDPH, Bureau of Community Health & Prevention
Christina Gebel	Massachusetts Chapter March of Dimes
Lauren Hanley	Massachusetts General Hospital
Chien-Chi Huang	Asian Women for Health
Sunah Hwang	University of Colorado School of Medicine & Children's Hospital Colorado

Name	Organization
Erin Jones	Northeast Regional March of Dimes, Advocacy and Government Affairs
Pamela Joshi	Brandeis University
Milton Kotelchuck	Massachusetts General Hospital for Children
Monica Le	MassHealth Primary Care Clinician Plan
Susan Lett	MDPH, Immunization Program
Susan Manning	MDPH, CDC Maternal and Child Health Epidemiology Assignee
Heavenly Mitchell	Boston Public Health Commission
Monika Mitra	Brandeis University
Rodrigo Monterrey	MDPH, Office of Health Equity
Tiffany A. Moore Simas	University of Massachusetts Medical School, Research Division, Dept. Ob/Gyn
Vera Mouradian	MDPH, Division of Violence and Injury Prevention
Vanessa Neergheen	MDPH, Registry of Vital Records & Statistics
Candace Nelson	MDPH, Office of Data Management and Outcomes Assessment, Institutional Review Board and Data Access
Natalie Nguyen Durham	MDPH, Office of Data Management and Outcomes Assessment
Paul Oppedisano	MDPH, Commissioner's Office
Sarah Scotland	MDPH, Division of Epidemiology and Immunization
Vincent Smith	Beth Israel Deaconess Medical Center
Katie Stetler	MDPH, Maternal and Child Health Initiatives
Sarah L. Stone	MDPH, WIC Program, Nutrition Division
Rebekah Thomas	MDPH, Division of Violence and Injury Prevention
Ellen Tolan	MDPH, WIC Program, Nutrition Division
Maria Vu	MDPH, Registry of Vital Records & Statistics

Appendix B: MA PRAMS 2012–2015 survey (Phase 7)

Please check the box next to your answer or follow the directions included with the question. You may be asked to skip some questions that do not apply to you.

BEFORE PREGNANCY

The first questions are about *you*.

1. How tall are *you* without shoes?

____ Feet ____ Inches

OR ____ Centimeters

2. *Just before* you got pregnant with your *new* baby, how much did you weigh?

____ Pounds OR ____ Kilos

3. What is *your* date of birth?

____ / ____ / _____

Month Day Year

4. *Before* you got pregnant with your new baby, did you ever have any other babies who were born alive?

❑ No → **Go to Question 7**

❑ Yes

5. Did the baby born *just before* your new one weigh 5 pounds, 8 ounces (2.5 kilos) or *less* at birth?

❑ No

❑ Yes

6. Was the baby *just before* your new one born *earlier* than 3 weeks before his or her due date?

❑ No

❑ Yes

The next questions are about the time *before* you got pregnant with your *new* baby.

7. At any time during the *12 months before* you got pregnant with your new baby, did you do any of the following things? For each item, check **No** if you did not do it or **Yes** if you did it.

	No	Yes
a. I was dieting (changing my eating habits) to lose weight	❑	❑
b. I was exercising 3 or more days of the week	❑	❑
c. I was regularly taking prescription medicines other than birth control	❑	❑
d. I visited a health care worker and was checked for diabetes	❑	❑
e. I visited a health care worker and was checked for high blood pressure	❑	❑
f. I visited a health care worker and was checked for depression or anxiety	❑	❑
g. I talked to a health care worker about my family medical history	❑	❑
h. I had my teeth cleaned by a dentist or dental hygienist	❑	❑

8. During the *month before* you got pregnant with your new baby, what kind of *health insurance* did you have?

Check ALL that apply

- ❑ Private health insurance from my job or the job of my husband, partner, or parents
- ❑ Private health insurance purchased directly from an insurance company
- ❑ Medicaid or MassHealth
- ❑ Commonwealth Care
- ❑ Some other kind of health insurance → Please tell us:

  _____
- ❑ I did not have any health insurance during the *month before* I got pregnant

9. During the *month before* you got pregnant with your new baby, how many times a week did you take a multivitamin, a prenatal vitamin, or a folic acid vitamin?

- ❑ I didn't take a multivitamin, prenatal vitamin, or folic acid vitamin in the *month before* I got pregnant
- ❑ 1 to 3 times a week
- ❑ 4 to 6 times a week
- ❑ Every day of the week

10. *Before* you got pregnant with your new baby, did a doctor, nurse, or other health care worker talk to you about how to improve your health before pregnancy?

- ❑ No
- ❑ Yes

11. *Before* you got pregnant, would you say that, in general, your health was—

- ❑ Excellent
- ❑ Very good
- ❑ Good
- ❑ Fair
- ❑ Poor

12. *Before* you got pregnant with your new baby, did a doctor, nurse, or other health care worker tell you that you had any of the following health conditions? For each one, check **No** if you did not have the condition or **Yes** if you did.

	No	Yes
a. Type 1 or Type 2 diabetes (NOT the same as gestational diabetes or diabetes that starts during pregnancy)	❑	❑
b. High blood pressure or hypertension	❑	❑
c. Depression	❑	❑

The next questions are about the time when you got pregnant with your new baby.

13. Thinking back to *just before* you got pregnant with your new baby, how did you feel about becoming pregnant?

Check ONE answer

- ❑ I wanted to be pregnant later
- ❑ I wanted to be pregnant sooner
- ❑ I wanted to be pregnant then
- ❑ I didn't want to be pregnant then or at any time in the future
- ❑ I wasn't sure what I wanted

→ **Go to Question 15**

Go to Question 14

14. How much longer did you want to wait to become pregnant?

- ❑ Less than 1 year
- ❑ 1 year to less than 2 years
- ❑ 2 years to less than 3 years
- ❑ 3 years to 5 years
- ❑ More than 5 years

15. When you got pregnant with your new baby, were you trying to get pregnant?

- ❑ No
- ❑ Yes → **Go to Question 18**

16. When you got pregnant with your new baby, were you or your husband or partner doing anything to keep from getting pregnant? Some things people do to keep from getting pregnant include using birth control pills, condoms, withdrawal, or natural family planning.

- ❑ No
- ❑ Yes → **Go to Page 4, Question 20**

Go to Question 17

17. What were your reasons or your husband's or partner's reasons for not doing anything to keep from getting pregnant?

Check ALL that apply

- ❑ I didn't mind if I got pregnant
- ❑ I thought I could not get pregnant at that time
- ❑ I had side effects from the birth control method I was using
- ❑ I had problems getting birth control when I needed it
- ❑ I thought my husband or partner or I was sterile (could not get pregnant at all)
- ❑ My husband or partner didn't want to use anything
- ❑ I forgot to use a birth control method
- ❑ Other → Please tell us:

_____

If you were <u>not trying</u> to get pregnant when you got pregnant with your new baby, go to Page 4, Question 20.

18. Did you take any fertility drugs or receive any medical procedures from a doctor, nurse, or other health care worker to help you get pregnant with your new baby? This may include infertility treatments such as fertility-enhancing drugs or assisted reproductive technology.

- ❑ No → **Go to Page 4, Question 20**
- ❑ Yes

Go to Page 4, Question 19

19. Did you use any of the following fertility treatments *during the month you got pregnant* with your new baby?

Check ALL that apply

- ❑ Fertility-enhancing drugs prescribed by a doctor (fertility drugs include Clomid®, Serophene®, Pergonal®, or other drugs that stimulate ovulation)
- ❑ Artificial insemination or intrauterine insemination (treatments in which sperm, but NOT eggs, were collected and medically placed into a woman's body)
- ❑ Assisted reproductive technology (treatments in which BOTH a woman's eggs and a man's sperm were handled in the laboratory, such as in vitro fertilization [IVF], gamete intrafallopian transfer [GIFT], zygote intrafallopian transfer [ZIFT], intracytoplasmic sperm injection [ICSI], frozen embryo transfer, or donor embryo transfer)
- ❑ Other medical treatment → Please tell us:

  _____
- ❑ I wasn't using fertility treatments *during the month* that I got pregnant with my new baby

DURING PREGNANCY

The next questions are about the prenatal care you received during your most recent pregnancy. Prenatal care includes visits to a doctor, nurse, or other health care worker before your baby was born to get checkups and advice about pregnancy. (It may help to look at the calendar when you answer these questions.)

20. How many weeks *or* months pregnant were you when you had your first visit for prenatal care? Do not count a visit that was only for a pregnancy test or only for WIC (the Special Supplemental Nutrition Program for Women, Infants, and Children).

_____ Weeks **OR** _____ Months

- ❑ I didn't go for prenatal care → **Go to Question 24**

21. During *your most recent* pregnancy, what kind of *health insurance* did you have to pay for your *prenatal care*?

Check ALL that apply

- ❑ Private health insurance from my job or the job of my husband, partner, or parents
- ❑ Private health insurance purchased directly from an insurance company
- ❑ Medicaid or MassHealth
- ❑ Commonwealth Care
- ❑ Some other kind of health insurance → Please tell us:

  _____
- ❑ I did not have any health insurance to pay for my *prenatal care*

22. ***During any of your prenatal care visits,*** **did a doctor, nurse, or other health care worker talk with you about any of the things listed below?** *Please count only discussions,* not reading materials or videos. For each item, check **No** if no one talked with you about it or **Yes** if someone did.

	No	Yes
a. How much weight I should gain during my pregnancy	❑	❑
b. How smoking during pregnancy could affect my baby	❑	❑
c. Breastfeeding my baby	❑	❑
d. How drinking alcohol during pregnancy could affect my baby	❑	❑
e. Using a seat belt during my pregnancy	❑	❑
f. Medicines that are safe to take during my pregnancy	❑	❑
g. How using illegal drugs could affect my baby	❑	❑
h. Doing tests to screen for birth defects or diseases that run in my family	❑	❑
i. The signs and symptoms of preterm labor (labor more than 3 weeks before the baby is due)	❑	❑
j. Getting tested for HIV (the virus that causes AIDS)	❑	❑
k. What to do if I feel depressed during my pregnancy or after my baby is born	❑	❑
l. Physical abuse to women by their husbands or partners	❑	❑

23. How did you feel about the prenatal care you got during ***your most recent*** **pregnancy?** If you went to more than one place for prenatal care, answer for the place where you got *most* of your care. For each item, check **No** if you were not satisfied or **Yes** if you were satisfied.

Were you satisfied with—

	No	Yes
a. The amount of time you had to wait after you arrived for your visits	❑	❑
b. The amount of time the doctor, nurse, or midwife spent with you during your visits	❑	❑
c. The advice you got on how to take care of yourself	❑	❑
d. The understanding and respect that the staff showed toward you as a person	❑	❑

24. At any time during ***your most recent*** **pregnancy or delivery, did you have a test for HIV (the virus that causes AIDS)?**

❑ No
❑ Yes → **Go to Page 6, Question 28**
❑ I don't know

25. Were you ***offered*** **an HIV test during** ***your most recent*** **pregnancy or delivery?**

❑ No → **Go to Page 6, Question 28**
❑ Yes

26. Did you turn down the HIV test?

❑ No → **Go to Page 6, Question 28**
❑ Yes

Go to Page 6, Question 27

27. Why did you turn down the HIV test?

Check ALL that apply

- ❑ I did not think I was at risk for HIV
- ❑ I did not want people to think I was at risk for HIV
- ❑ I was afraid of getting the result
- ❑ I was tested before this pregnancy, and did not think I needed to be tested again
- ❑ Other → Please tell us:

_____

28. During the 12 months *before the delivery* of your new baby, did a doctor, nurse, or other health care worker *offer* you a flu shot or *tell* you to get one?

- ❑ No
- ❑ Yes

29. During the 12 months *before the delivery* of your new baby, did you *get* a flu shot?

Check ONE answer

- ❑ No → **Go to Question 31**
- ❑ Yes, before my pregnancy
- ❑ Yes, during my pregnancy

30. During what month and year did you get the flu shot?

____ / 20____

Month Year

- ❑ I don't remember

31. This question is about the care of your teeth *during your most recent* pregnancy. For each item, check **No** if it is not true or does not apply to you or **Yes** if it is true.

	No	Yes
a. I knew it was important to care for my teeth and gums during my pregnancy	❑	❑
b. A dental or other health care worker talked with me about how to care for my teeth and gums	❑	❑
c. I had my teeth cleaned by a dentist or dental hygienist	❑	❑
d. I had insurance to cover dental care during my pregnancy	❑	❑
e. I needed to see a dentist for a **problem**	❑	❑
f. I went to a dentist or dental clinic about a **problem**	❑	❑

32. During *your most recent* pregnancy, did you take a class or classes to prepare for childbirth and learn what to expect during labor and delivery?

- ❑ No
- ❑ Yes

33. During *your most recent* pregnancy, did a home visitor come to your home to help you prepare for your new baby? A home visitor is a nurse, a health care worker, a social worker, or other person who works for a program that helps pregnant women.

- ❑ No
- ❑ Yes

34. During *your most recent* pregnancy, were you on WIC (the Special Supplemental Nutrition Program for Women, Infants, and Children)?

- ❑ No
- ❑ Yes

35. During *your most recent* pregnancy, were you told by a doctor, nurse, or other health care worker that you had gestational diabetes (diabetes that started during *this* pregnancy)?

- ❑ No → **Go to Question 37**
- ❑ Yes

36. During *your most recent* pregnancy, when you were told that you had gestational diabetes, did a doctor, nurse, or other health care worker do any of the things listed below? For each item, check **No** if it was not done or **Yes** if it was done.

	No	Yes
a. Refer you to a nutritionist	❑	❑
b. Talk to you about the importance of exercise	❑	❑
c. Talk to you about getting to and staying at a healthy weight after delivery	❑	❑
d. Suggest that you breastfeed your new baby	❑	❑
e. Talk to you about your risk for Type 2 diabetes	❑	❑

The next questions are about smoking cigarettes around the time of pregnancy (before, during, and after).

37. Have you smoked any cigarettes in the *past 2 years*?

- ❑ No → **Go to Page 8, Question 41**
- ❑ Yes

Go to Question 38

38. In the *3 months before* you got pregnant, how many cigarettes did you smoke on an average day? A pack has 20 cigarettes.

- ❑ 41 cigarettes or more
- ❑ 21 to 40 cigarettes
- ❑ 11 to 20 cigarettes
- ❑ 6 to 10 cigarettes
- ❑ 1 to 5 cigarettes
- ❑ Less than 1 cigarette
- ❑ I didn't smoke then

39. In the *last 3 months* of your pregnancy, how many cigarettes did you smoke on an average day? A pack has 20 cigarettes.

- ❑ 41 cigarettes or more
- ❑ 21 to 40 cigarettes
- ❑ 11 to 20 cigarettes
- ❑ 6 to 10 cigarettes
- ❑ 1 to 5 cigarettes
- ❑ Less than 1 cigarette
- ❑ I didn't smoke then

40. How many cigarettes do you smoke on an average day *now*? A pack has 20 cigarettes.

- ❑ 41 cigarettes or more
- ❑ 21 to 40 cigarettes
- ❑ 11 to 20 cigarettes
- ❑ 6 to 10 cigarettes
- ❑ 1 to 5 cigarettes
- ❑ Less than 1 cigarette
- ❑ I don't smoke now

The next questions are about drinking alcohol around the time of pregnancy (before and during).

41. **Have you had any alcoholic drinks in the *past 2 years*?** A drink is 1 glass of wine, wine cooler, can or bottle of beer, shot of liquor, or mixed drink.

- ❑ No → **Go to Question 44**
- ❑ Yes

42. **During the *3 months before* you got pregnant, how many alcoholic drinks did you have in an average week?**

- ❑ 14 drinks or more a week
- ❑ 7 to 13 drinks a week
- ❑ 4 to 6 drinks a week
- ❑ 1 to 3 drinks a week
- ❑ Less than 1 drink a week
- ❑ I didn't drink then

43. **During the *last 3 months* of your pregnancy, how many alcoholic drinks did you have in an average week?**

- ❑ 14 drinks or more a week
- ❑ 7 to 13 drinks a week
- ❑ 4 to 6 drinks a week
- ❑ 1 to 3 drinks a week
- ❑ Less than 1 drink a week
- ❑ I didn't drink then

Pregnancy can be a difficult time for some women. The next questions are about things that may have happened *before* and *during* your most recent pregnancy.

44. **This question is about things that may have happened during the *12 months before your new baby was born*.** For each item, check **No** if it did not happen to you or **Yes** if it did. (It may help to look at the calendar when you answer these questions.)

	No	Yes
a. A close family member was very sick and had to go into the hospital	❑	❑
b. I got separated or divorced from my husband or partner	❑	❑
c. I moved to a new address	❑	❑
d. I was homeless or had to sleep outside, in a car, or in a shelter	❑	❑
e. My husband or partner lost his job	❑	❑
f. I lost my job even though I wanted to go on working	❑	❑
g. My husband, partner, or I had a cut in work hours or pay	❑	❑
h. I was apart from my husband or partner due to military deployment or extended work-related travel	❑	❑
i. I argued with my husband or partner more than usual	❑	❑
j. My husband or partner said he didn't want me to be pregnant	❑	❑
k. I had problems paying the rent, mortgage, or other bills	❑	❑
l. My husband, partner, or I went to jail	❑	❑
m. Someone very close to me had a problem with drinking or drugs	❑	❑
n. Someone very close to me died	❑	❑

45. During the *12 months before you got pregnant* with your new baby, did your husband or partner push, hit, slap, kick, choke, or physically hurt you in any other way?

- ❑ No
- ❑ Yes

46. During *your most recent* pregnancy, did your husband or partner push, hit, slap, kick, choke, or physically hurt you in any other way?

- ❑ No
- ❑ Yes

The next questions are about your labor and delivery.

47. When was your new baby born?

____ / ____ / 20____

Month Day Year

48. How was your new baby delivered?

- ❑ Vaginally
- ❑ Cesarean delivery (c-section)

49. By the end of *your most recent* pregnancy, how much weight had you gained?

Check ONE answer and fill in blank if needed

- ❑ I gained ____ pounds
- ❑ I didn't gain any weight, but I lost ____ pounds
- ❑ My weight didn't change during my pregnancy
- ❑ I don't know

AFTER PREGNANCY

The next questions are about the time since your new baby was born.

50. After your baby was delivered, was he or she put in an intensive care unit (NICU)?

- ❑ No
- ❑ Yes
- ❑ I don't know

51. After your baby was delivered, how long did he or she stay in the hospital?

- ❑ Less than 24 hours (less than 1 day)
- ❑ 24 to 48 hours (1 to 2 days)
- ❑ 3 to 5 days
- ❑ 6 to 14 days
- ❑ More than 14 days
- ❑ My baby was not born in a hospital
- ❑ My baby is still in the hospital → **Go to Question 54**

52. Is your baby alive now?

- ❑ No → *We are very sorry for your loss.* **Go to Page 10, Question 61**
- ❑ Yes

53. Is your baby living with you now?

- ❑ No → **Go to Page 10, Question 60**
- ❑ Yes

54. Did you ever breastfeed or pump breast milk to feed your new baby, even for a short period of time?

- ❑ No → **Go to Page 10, Question 58**
- ❑ Yes

Go to Page 10, Question 55

55. Are you currently breastfeeding or feeding pumped milk to your new baby?

- ❑ No
- ❑ Yes → **Go to Question 57**

56. How many weeks or months did you breastfeed or pump milk to feed your baby?

____ Weeks **OR** ____ Months

❑ Less than 1 week

If your baby was not born in a hospital, go to Question 58.

57. This question asks about things that may have happened at the hospital where your new baby was born. For each item, check No if it did not happen or Yes if it did happen.

	No	Yes
a. Hospital staff gave me information about breastfeeding	❑	❑
b. My baby stayed in the same room with me at the hospital	❑	❑
c. Hospital staff helped me learn how to breastfeed	❑	❑
d. I breastfed in the first hour after my baby was born	❑	❑
e. I breastfed my baby in the hospital	❑	❑
f. My baby was fed only breast milk at the hospital	❑	❑
g. Hospital staff told me to breastfeed whenever my baby wanted	❑	❑
h. The hospital gave me a breast pump to use	❑	❑
i. The hospital gave me a gift pack with formula	❑	❑
j. The hospital gave me a telephone number to call for help with breastfeeding	❑	❑
k. Hospital staff gave my baby a pacifier	❑	❑

58. Have you ever heard or read about what can happen if a baby is shaken?

- ❑ No
- ❑ Yes

If your baby is still in the hospital, go to Question 60.

59. In which *one* position do you *most often* lay your baby down to sleep now?

Check ONE answer

- ❑ On his or her side
- ❑ On his or her back
- ❑ On his or her stomach

60. *Since your new baby was born,* has a home visitor come to your home to help you learn how to take care of yourself or your new baby? A home visitor is a nurse, a health care worker, a social worker, or other person who works for a program that helps mothers of newborns.

- ❑ No
- ❑ Yes

61. Are you or your husband or partner doing anything *now* to keep from getting pregnant? Some things people do to keep from getting pregnant include using birth control pills, condoms, withdrawal, or natural family planning.

- ❑ No
- ❑ Yes → **Go to Question 63**

Go to Question 62

62. What are your reasons or your husband's or partner's reasons for not doing anything to keep from getting pregnant *now*?

Check ALL that apply

- ❑ I am not having sex
- ❑ I want to get pregnant
- ❑ I don't want to use birth control
- ❑ I am worried about side effects from birth control
- ❑ My husband or partner doesn't want to use anything
- ❑ I have problems getting birth control when I need it
- ❑ I had my tubes tied or blocked
- ❑ My husband or partner had a vasectomy
- ❑ I am pregnant now
- ❑ Other → Please tell us:

If you or your husband or partner is not doing anything to keep from getting pregnant *now*, go to Question 64.

63. What kind of birth control are you or your husband or partner using *now* to keep from getting pregnant?

Check ALL that apply

- ❑ Tubes tied or blocked (female sterilization, Essure®, Adiana®)
- ❑ Vasectomy (male sterilization)
- ❑ Birth control pill
- ❑ Condoms
- ❑ Injection (Depo-Provera®)
- ❑ Contraceptive implant (Implanon®)
- ❑ Contraceptive patch (OrthoEvra®) or vaginal ring (NuvaRing®)
- ❑ IUD (including Mirena® or ParaGard®)
- ❑ Natural family planning (including rhythm method)
- ❑ Withdrawal (pulling out)
- ❑ Not having sex (abstinence)
- ❑ Other → Please tell us:

64. *Since your new baby was born*, have you had a postpartum checkup for yourself? A postpartum checkup is the regular checkup a woman has about 4-6 weeks after she gives birth.

- ❑ No
- ❑ Yes

65. *Since your new baby was born*, how often have you felt down, depressed, or hopeless?

- ❑ Always
- ❑ Often
- ❑ Sometimes
- ❑ Rarely
- ❑ Never

66. *Since your new baby was born*, **how often have you had little interest or little pleasure in doing things?**

- ❑ Always
- ❑ Often
- ❑ Sometimes
- ❑ Rarely
- ❑ Never

67. **What kind of *health insurance* do you have *now*?**

Check ALL that apply

- ❑ Private health insurance from my job or the job of my husband, partner, or parents
- ❑ Private health insurance purchased directly from an insurance company
- ❑ Medicaid or MassHealth
- ❑ Commonwealth Care
- ❑ Some other kind of health insurance → Please tell us:

_____

- ❑ I do not have health insurance *now*

OTHER EXPERIENCES

The next questions are on a variety of topics.

68. ***Before* you got pregnant with your new baby, did your husband or partner ever try to keep you from using your birth control so that you would get pregnant when you didn't want to?** For example, did he hide your birth control, throw it away or do anything else to keep you from using it?

- ❑ No
- ❑ Yes

69. **At any time during *your most recent* pregnancy, did you *ask for help* for depression from a doctor, nurse, or other health care worker?**

- ❑ No
- ❑ Yes

If you did not have a cesarean delivery, go to Question 71.

70. **Which statement best describes whose idea it was for you to have a cesarean delivery (c-section)?**

Check ONE answer

- ❑ My health care provider recommended a cesarean delivery ***before*** I went into labor
- ❑ My health care provider recommended a cesarean delivery while I was in labor
- ❑ I asked for the cesarean delivery ***before*** I went into labor
- ❑ I asked for the cesarean delivery while I was in labor

71. **At any time during *your most recent* pregnancy, did you work at a job for pay?**

- ❑ No → **Go to Question 75**
- ❑ Yes

72. **Have you returned to the job you had during *your most recent* pregnancy?**

Check ONE answer

- ❑ No → **Go to Question 75**
- ❑ No, but I will be returning
- ❑ Yes

Go to Question 73

73. Which of the following describes the leave or time you took off from work *after* your new baby was born?

Check ALL that apply

- ❑ I took *paid* leave from my job
- ❑ I took *unpaid* leave from my job
- ❑ I did not take leave

74. Did any of the things listed below affect your decision about taking leave from work *after* your new baby was born? For each item, check **No** if it does not apply to you or **Yes** if it does.

	No	Yes
a. I could not financially afford to take leave	❑	❑
b. I was afraid I'd lose my job if I took leave or stayed out longer	❑	❑
c. I had too much work to do to take leave or stay out longer	❑	❑
d. My job does not have paid leave	❑	❑
e. My job does not offer a flexible work schedule	❑	❑
f. I had not built up enough leave time to take any or more time off	❑	❑

If your baby is not alive, is not living with you, or is still in the hospital, go to Question 77.

75. How often does your new baby sleep or nap on the same sleep surface with you and/or anyone else? (This can include a bed, crib, futon, couch, recliner, or any other sleep surface used for sleeping.)

Check ONE answer

- ❑ Always
- ❑ 5 or more times per week, but not always
- ❑ 1 to 4 times per week
- ❑ Less than once a week, but on occasion
- ❑ Never

76. Please read each statement below. For each statement, check **No** or **Yes** to best describe how you feel about your baby's crying or how you manage his or her crying.

	No	Yes
a. I can almost always get my baby to stop crying	❑	❑
b. I would like to learn more about how to comfort my baby when he or she is crying	❑	❑
c. In the past week, I have carried my baby in my arms or in a cloth baby carrier for 5 or more hours every day	❑	❑
d. I think that picking up a baby every time he or she cries will spoil the baby	❑	❑
e. I sometimes feel overwhelmed by my baby's crying	❑	❑

77. *Since your new baby was born*, have you been tested for diabetes or high blood sugar?

- ❑ No
- ❑ Yes

78. Are you limited in any way in any activities because of physical, mental, or emotional problems?

- ❑ No
- ❑ Yes

79. Which of these groups would you say best represents your race?

Check ALL that apply

- ❑ White
- ❑ Black or African American
- ❑ Hispanic or Latina
- ❑ Asian or Pacific Islander
- ❑ American Indian
- ❑ Other → Please tell us:

80. How do other people usually classify you in this country? That is how other people usually classify you in this country, which might be different from how you classify yourself. **Check ONE answer**

- ❑ White
- ❑ Black or African American
- ❑ Hispanic or Latina
- ❑ Asian or Pacific Islander
- ❑ American Indian
- ❑ Other → Please tell us:

_____

81. How often do you think about your race? If you cannot decide between two categories, check the lower time frequency of the two categories. **Check ONE answer**

- ❑ Constantly
- ❑ Once a day
- ❑ Once a week
- ❑ Once a month
- ❑ Once a year
- ❑ Never

82. This question is about things that may have happened during the *12 months before* your new baby was born. For each item, check **No** if it didn't happen to you or **Yes** if it did. It may help to use the calendar.

	No	Yes
a. I felt that my race or ethnic background contributed to the stress in my life	❑	❑
b. I felt emotionally upset (for example, angry, sad, or frustrated) as a result of how I was treated based on my race or ethnic background	❑	❑
c. I experienced physical symptoms (for example, a headache, an upset stomach, pounding heart) that I felt were related to how I was treated based on my race or ethnic background	❑	❑

The last questions are about the time during the *12 months before* your new baby was born.

83. During the *12 months before* your new baby was born, what was your yearly total household income before taxes? Include your income, your husband's or partner's income, and any other income you may have received. *All information will be kept private* and will not affect any services you are now getting.

- ❑ $0 to $15,000
- ❑ $15,001 to $19,000
- ❑ $19,001 to $22,000
- ❑ $22,001 to $26,000
- ❑ $26,001 to $29,000
- ❑ $29,001 to $37,000
- ❑ $37,001 to $44,000
- ❑ $44,001 to $52,000
- ❑ $52,001 to $56,000
- ❑ $56,001 to $67,000
- ❑ $67,001 to $79,000
- ❑ $79,001 or more

84. During the *12 months before* your new baby was born, how many people, *including yourself*, depended on this income?

____ People

85. What is today's date?

____ / ____ / 20____

Month Day Year

Please use this space for any additional comments you would like to make about your experiences around the time of your pregnancy or the health of mothers and babies in Massachusetts.

Thanks for answering our questions!

Your answers will help us work to make Massachusetts mothers and babies healthier.

Appendix B continued: MA PRAMS 2016–2019 survey (Phase 8)

Please check the box next to your answer or follow the directions included with the question. You may be asked to skip some questions that do not apply to you.

BEFORE PREGNANCY

The first questions are about *you*.

1. How tall are *you* without shoes?

____ Feet ____ Inches

OR ____ Centimeters

2. *Just before* you got pregnant with your *new* baby, how much did you weigh?

____ Pounds OR ____ Kilos

3. What is *your* date of birth?

____ / ____ / ____

Month Day Year

The next questions are about the time *before* you got pregnant with your *new* baby.

4. *Before* you got pregnant with your new baby, did you ever have any other babies who were born alive?

- ☐ No → **Go to Question 6**
- ☐ Yes

5. Was the baby *just before* your new one born *earlier* than 3 weeks before his or her due date?

- ☐ No
- ☐ Yes

6. During the *3 months before* you got pregnant with your *new* baby, did you have any of the following health conditions? For each one, check **No** if you did not have the condition or **Yes** if you did.

	No	Yes
a. Type 1 or Type 2 diabetes (**not** gestational diabetes or diabetes that starts during pregnancy)	☐	☐
b. High blood pressure or hypertension	☐	☐
c. Depression	☐	☐

7. During the *month before* you got pregnant with your new baby, how many times a week did you take a multivitamin, a prenatal vitamin, or a folic acid vitamin?

- ☐ I didn't take a multivitamin, prenatal vitamin, or folic acid vitamin in the *month before* I got pregnant
- ☐ 1 to 3 times a week
- ☐ 4 to 6 times a week
- ☐ Every day of the week

8. In the *12 months before* you got pregnant with your new baby, did you have any health care visits with a doctor, nurse, or other health care worker, including a dental or mental health worker?

- ☐ No → **Go to Page 2, Question 11**
- ☐ Yes

Go to Page 2, Question 9

9. What type of health care visit did you have in the *12 months before* you got pregnant with your new baby?

Check ALL that apply

- ❑ Regular checkup at my family doctor's office
- ❑ Regular checkup at my OB/GYN's office
- ❑ Visit for an illness or chronic condition
- ❑ Visit for an injury
- ❑ Visit for family planning or birth control
- ❑ Visit for depression or anxiety
- ❑ Visit to have my teeth cleaned by a dentist or dental hygienist
- ❑ Other → Please tell us:

10. During any of your health care visits in the *12 months before* you got pregnant, did a doctor, nurse, or other health care worker *do* any of the following things? For each item, check **No** if they did not or **Yes** if they did.

	No	Yes
a. Tell me to take a vitamin with folic acid	❑	❑
b. Talk to me about maintaining a healthy weight	❑	❑
c. Talk to me about controlling any medical conditions such as diabetes or high blood pressure	❑	❑
d. Talk to me about my desire to have or not have children	❑	❑
e. Talk to me about using birth control to prevent pregnancy	❑	❑
f. Talk to me about how I could improve my health before a pregnancy	❑	❑
g. Talk to me about sexually transmitted infections such as chlamydia, gonorrhea, or syphilis	❑	❑
h. Ask me if I was smoking cigarettes	❑	❑
i. Ask me if someone was hurting me emotionally or physically	❑	❑
j. Ask me if I was feeling down or depressed	❑	❑
k. Ask me about the kind of work I do	❑	❑
l. Test me for HIV (the virus that causes AIDS)	❑	❑

The next questions are about your *health insurance coverage* before, during, and after your pregnancy with your *new* baby.

11. During the *month before* you got pregnant with your new baby, what kind of health insurance did you have?

Check ALL that apply

- ❑ Private health insurance from my job or the job of my husband or partner
- ❑ Private health insurance from my parents
- ❑ Private health insurance from the Health Insurance Marketplace or mahealthconnector.org or HealthCare.gov
- ❑ Medicaid or MassHealth
- ❑ ConnectorCare
- ❑ TRICARE or other military health care
- ❑ Other health insurance → Please tell us:
- ❑ I did not have any health insurance during the *month before* I got pregnant

12. During your *most recent pregnancy*, what kind of health insurance did you have for your *prenatal care*?

Check ALL that apply

- ❑ I did not go for prenatal care → **Go to Question 13**
- ❑ Private health insurance from my job or the job of my husband or partner
- ❑ Private health insurance from my parents
- ❑ Private health insurance from the Health Insurance Marketplace or mahealthconnector.org or HealthCare.gov
- ❑ Medicaid or MassHealth
- ❑ ConnectorCare
- ❑ TRICARE or other military health care
- ❑ Other health insurance → Please tell us:
- ❑ I did not have any health insurance for my *prenatal care*

13. What kind of health insurance do you have *now*?

Check ALL that apply

- ☐ Private health insurance from my job or the job of my husband or partner
- ☐ Private health insurance from my parents
- ☐ Private health insurance from the Health Insurance Marketplace or mahealthconnector.org or HealthCare.gov
- ☐ Medicaid or MassHealth
- ☐ ConnectorCare
- ☐ TRICARE or other military health care
- ☐ Other health insurance → Please tell us:

_____

- ☐ I do not have health insurance *now*

14. Thinking back to *just before* you got pregnant with your new baby, how did you feel about becoming pregnant?

Check ONE answer

- ☐ I wanted to be pregnant later
- ☐ I wanted to be pregnant sooner
- ☐ I wanted to be pregnant then
- ☐ I didn't want to be pregnant then or at any time in the future
- ☐ I wasn't sure what I wanted

15. When you got pregnant with your new baby, were you trying to get pregnant?

- ☐ No
- ☐ Yes → **Go to Question 18**

16. When you got pregnant with your new baby, were you or your husband or partner doing anything to keep from getting pregnant? Some things people do to keep from getting pregnant include having their tubes tied, using birth control pills, condoms, withdrawal, or natural family planning.

- ☐ No
- ☐ Yes → **Go to Page 4, Question 20**

Go to Question 17

17. What were your reasons or your husband's or partner's reasons for not doing anything to keep from getting pregnant?

Check ALL that apply

- ☐ I didn't mind if I got pregnant
- ☐ I thought I could not get pregnant at that time
- ☐ I had side effects from the birth control method I was using
- ☐ I had problems getting birth control when I needed it
- ☐ I thought my husband or partner or I was sterile (could not get pregnant at all)
- ☐ My husband or partner didn't want to use anything
- ☐ I forgot to use a birth control method
- ☐ Other → Please tell us:

_____

If you were <u>not trying</u> to get pregnant when you got pregnant with your new baby, go to Page 4, Question 20.

18. Did you take any fertility drugs or receive any medical procedures from a doctor, nurse, or other health care worker to help you get pregnant with your *new* baby? This may include infertility treatments such as fertility-enhancing drugs or assisted reproductive technology.

- ☐ No → **Go to Page 4, Question 20**
- ☐ Yes

Go to Page 4, Question 19

19. Did you use any of the following fertility treatments *during the month you got pregnant* with your *new* baby?

Check ALL that apply

- ❑ Fertility-enhancing drugs prescribed by a doctor (fertility drugs include Clomid®, Serophene®, Pergonal®, or other drugs that stimulate ovulation)
- ❑ Artificial insemination or intrauterine insemination (treatments in which sperm, but NOT eggs, were collected and medically placed into a woman's body)
- ❑ Assisted reproductive technology (treatments in which BOTH a woman's eggs and a man's sperm were handled in the laboratory, such as in vitro fertilization [IVF], gamete intrafallopian transfer [GIFT], zygote intrafallopian transfer [ZIFT], intracytoplasmic sperm injection [ICSI], frozen embryo transfer, or donor embryo transfer)
- ❑ Other medical treatment → Please tell us: _____
- ❑ I wasn't using fertility treatments *during the month* that I got pregnant with my new baby

DURING PREGNANCY

The next questions are about the prenatal care you received during your most recent pregnancy. Prenatal care includes visits to a doctor, nurse, or other health care worker before your baby was born to get checkups and advice about pregnancy. (It may help to look at the calendar when you answer these questions.)

20. How many weeks *or* months pregnant were you when you had your first visit for prenatal care?

_____ Weeks **OR** _____ Months

- ❑ I didn't go for prenatal care → **Go to Question 22**

Go to Question 21

21. *During any of your prenatal care visits*, did a doctor, nurse, or other health care worker ask you any of the things listed below? For each item, check **No** if they did not ask you about it or **Yes** if they did.

		No	Yes
a.	If I knew how much weight I should gain during pregnancy	❑	❑
b.	If I was taking any prescription medication	❑	❑
c.	If I was smoking cigarettes	❑	❑
d.	If I was drinking alcohol	❑	❑
e.	If someone was hurting me emotionally or physically	❑	❑
f.	If I was feeling down or depressed	❑	❑
g.	If I was using drugs such as marijuana, cocaine, crack, or meth	❑	❑
h.	If I wanted to be tested for HIV (the virus that causes AIDS)	❑	❑
i.	If I planned to breastfeed my new baby	❑	❑
j.	If I planned to use birth control after my baby was born	❑	❑

22. At any time during *your most recent* pregnancy or delivery, did you have a test for HIV (the virus that causes AIDS)?

- ❑ No
- ❑ Yes
- ❑ I don't know

→ **Go to Question 24**

23. Why didn't you have an HIV test during your most recent pregnancy or delivery?

Check ALL that apply

- ❑ I was not offered the test
- ❑ I did not want to have the test
- ❑ I already knew my HIV status
- ❑ I did not think I was at risk for HIV
- ❑ I did not want people to think I was at risk for HIV
- ❑ I was afraid of getting the result
- ❑ I was tested *before* this pregnancy, and did not think I needed to be tested again
- ❑ Other reason → Please tell us: _____

24. During the 12 months *before the delivery* of your new baby, did a doctor, nurse, or other health care worker *offer* you a flu shot or *tell* you to get one?

- ❑ No
- ❑ Yes

25. During the 12 months *before the delivery* of your new baby, did you *get* a flu shot?

Check ONE answer

- ❑ No
- ❑ Yes, before my pregnancy
- ❑ Yes, during my pregnancy

26. During *your most recent* pregnancy, did you get a Tdap shot or vaccination? A Tdap vaccination is a tetanus booster shot that also protects against pertussis (whooping cough).

- ❑ No
- ❑ Yes
- ❑ I don't know

27. During *your most recent* pregnancy, did you have your teeth cleaned by a dentist or dental hygienist?

- ❑ No
- ❑ Yes

28. This question is about other care of your teeth *during your most recent* pregnancy. For each item, check **No** if it is not true or does not apply to you or **Yes** if it is true.

	No	Yes
a. I knew it was important to care for my teeth and gums during my pregnancy	❑	❑
b. A dental or other health care worker talked with me about how to care for my teeth and gums	❑	❑
c. I had insurance to cover dental care during my pregnancy	❑	❑
d. I needed to see a dentist for a **problem**	❑	❑
e. I went to a dentist or dental clinic about a **problem**	❑	❑

29. Did any of the following things make it hard for you to go to a dentist or dental clinic during *your most recent* pregnancy? For each item, check **No** if it was not something that made it hard for you to go to a dentist during pregnancy or **Yes** if it was.

	No	Yes
a. I could not find a dentist or dental clinic that would take pregnant patients	❑	❑
b. I could not find a dentist or dental clinic that would take MassHealth patients	❑	❑
c. I did not think it was safe to go to the dentist during pregnancy	❑	❑
d. I could not afford to go to the dentist or dental clinic	❑	❑

30. During *your most recent* pregnancy, were you on WIC (the Special Supplemental Nutrition Program for Women, Infants, and Children)?

- ❑ No
- ❑ Yes

31. During *your most recent* pregnancy, did you have any of the following health conditions? For each one, check **No** if you did not have the condition or **Yes** if you did.

	No	Yes
a. Gestational diabetes (diabetes that **started** during *this* pregnancy)	❑	❑
b. High blood pressure (that **started** during *this* pregnancy), pre-eclampsia or eclampsia	❑	❑
c. Depression	❑	❑

32. During *your most recent* pregnancy, did a doctor, nurse, or other health care worker give you a series of weekly shots of a medicine called progesterone, Makena®, or 17P (17 alpha-hydroxyprogesterone) to try to keep your new baby from being born too early?

- ❑ No
- ❑ Yes
- ❑ I don't know

The next questions are about smoking cigarettes around the time of pregnancy (before, during, and after).

33. Have you smoked any cigarettes in the *past 2 years*?

- ❑ No → **Go to Question 37**
- ❑ Yes

34. In the 3 *months* before you got pregnant, how many cigarettes did you smoke on an average day? A pack has 20 cigarettes.

- ❑ 41 cigarettes or more
- ❑ 21 to 40 cigarettes
- ❑ 11 to 20 cigarettes
- ❑ 6 to 10 cigarettes
- ❑ 1 to 5 cigarettes
- ❑ Less than 1 cigarette
- ❑ I didn't smoke then

35. In the *last 3 months* of your pregnancy, how many cigarettes did you smoke on an average day? A pack has 20 cigarettes.

- ❑ 41 cigarettes or more
- ❑ 21 to 40 cigarettes
- ❑ 11 to 20 cigarettes
- ❑ 6 to 10 cigarettes
- ❑ 1 to 5 cigarettes
- ❑ Less than 1 cigarette
- ❑ I didn't smoke then

36. How many cigarettes do you smoke on an average day *now*? A pack has 20 cigarettes.

- ❑ 41 cigarettes or more
- ❑ 21 to 40 cigarettes
- ❑ 11 to 20 cigarettes
- ❑ 6 to 10 cigarettes
- ❑ 1 to 5 cigarettes
- ❑ Less than 1 cigarette
- ❑ I don't smoke now

The next questions are about using other tobacco products around the time of pregnancy.

E-cigarettes (electronic cigarettes) and other electronic nicotine products (such as vape pens, e-hookahs, hookah pens, e-cigars, e-pipes) are battery-powered devices that use nicotine liquid rather than tobacco leaves, and produce vapor instead of smoke.

A **hookah** is a water pipe used to smoke tobacco. It is not the same as an e-hookah or hookah pen.

37. Have you used any of the following products in the *past 2 years*? For each item, check **No** if you did not use it or **Yes** if you did.

	No	Yes
a. E-cigarettes or other electronic nicotine products	❑	❑
b. Hookah	❑	❑

If you used e-cigarettes or other electronic nicotine products in the *past 2 years*, go to Question 38. Otherwise, go to Question 40.

38. During the 3 *months* before you got pregnant, on average, how often did you use e-cigarettes or other electronic nicotine products?

- ❑ More than once a day
- ❑ Once a day
- ❑ 2-6 days a week
- ❑ 1 day a week or less
- ❑ I did not use e-cigarettes or other electronic nicotine products then

39. During the *last 3 months* of your pregnancy, on average, how often did you use e-cigarettes or other electronic nicotine products?

- ❑ More than once a day
- ❑ Once a day
- ❑ 2-6 days a week
- ❑ 1 day a week or less
- ❑ I did not use e-cigarettes or other electronic nicotine products then

The next questions are about drinking alcohol around the time of pregnancy.

40. Have you had any alcoholic drinks in the *past 2 years*? A drink is 1 glass of wine, wine cooler, can or bottle of beer, shot of liquor, or mixed drink.

- ❑ No → **Go to Question 42**
- ❑ Yes

41. During the *3 months before* you got pregnant, how many alcoholic drinks did you have in an average week?

- ❑ 14 drinks or more a week
- ❑ 8 to 13 drinks a week
- ❑ 4 to 7 drinks a week
- ❑ 1 to 3 drinks a week
- ❑ Less than 1 drink a week
- ❑ I didn't drink then

Pregnancy can be a difficult time. The next questions are about things that may have happened *before* and *during* your most recent pregnancy.

42. This question is about things that may have happened during the *12 months before* your new baby was born. For each item, check **No** if it did not happen to you or **Yes** if it did. (It may help to look at the calendar when you answer these questions.)

		No	Yes
a.	A close family member was very sick and had to go into the hospital	❑	❑
b.	I got separated or divorced from my husband or partner	❑	❑
c.	I moved to a new address	❑	❑
d.	I was homeless or had to sleep outside, in a car, or in a shelter	❑	❑
e.	My husband or partner lost their job	❑	❑
f.	I lost my job even though I wanted to go on working	❑	❑
g.	My husband, partner, or I had a cut in work hours or pay	❑	❑
h.	I was apart from my husband or partner due to military deployment or extended work-related travel	❑	❑
i.	I argued with my husband or partner more than usual	❑	❑
j.	My husband or partner said they didn't want me to be pregnant	❑	❑
k.	I had problems paying the rent, mortgage, or other bills	❑	❑
l.	My husband, partner, or I went to jail	❑	❑
m.	Someone very close to me had a problem with drinking or drugs	❑	❑
n.	Someone very close to me died	❑	❑

43. In the *12 months before you got pregnant* with your new baby, did any of the following people push, hit, slap, kick, choke, or physically hurt you in any other way? For each person, check **No** if they did not hurt you during this time or **Yes** if they did.

	No	Yes
a. My husband or partner	❑	❑
b. My ex-husband or ex-partner	❑	❑
c. Another family member	❑	❑
d. Someone else	❑	❑

44. During *your most recent pregnancy*, did any of the following people push, hit, slap, kick, choke, or physically hurt you in any other way? For each person, check **No** if they did not hurt you during this time or **Yes** if they did.

	No	Yes
a. My husband or partner	❑	❑
b. My ex-husband or ex-partner	❑	❑
c. Another family member	❑	❑
d. Someone else	❑	❑

AFTER PREGNANCY

The next questions are about the time since your new baby was born.

45. When was your new baby born?

____ / ____ / 20____

Month Day Year

46. After your baby was delivered, how long did he or she stay in the hospital?

- ❑ Less than 24 hours (less than 1 day)
- ❑ 24 to 48 hours (1 to 2 days)
- ❑ 3 to 5 days
- ❑ 6 to 14 days
- ❑ More than 14 days
- ❑ My baby was not born in a hospital
- ❑ My baby is still in the hospital → **Go to Question 49**

47. Is your baby alive now?

- ❑ No → *We are very sorry for your loss.* **Go to Page 10, Question 61**
- ❑ Yes

48. Is your baby living with you now?

- ❑ No → **Go to Page 10, Question 60**
- ❑ Yes

49. *Before or after your new baby was born*, did you receive information about breastfeeding from any of the following sources? For each one, check **No** if you did not receive information from this source or **Yes** if you did.

	No	Yes
a. My doctor	❑	❑
b. A nurse, midwife, or doula	❑	❑
c. A breastfeeding or lactation specialist	❑	❑
d. My baby's doctor or health care provider	❑	❑
e. A breastfeeding support group	❑	❑
f. A breastfeeding hotline or toll-free number	❑	❑
g. Family or friends	❑	❑
h. Other	❑	❑

Please tell us:

_____

50. Did you ever breastfeed or pump breast milk to feed your new baby, even for a short period of time?

- ❑ No → **Go to Question 55**
- ❑ Yes

51. Are you currently breastfeeding or feeding pumped milk to your new baby?

- ❑ No
- ❑ Yes → **Go to Question 53**

52. How many weeks or months did you breastfeed or feed pumped milk to your baby?

- ❑ Less than 1 week

_____ Weeks **OR** _____ Months

53. How old was your new baby the first time he or she had liquids other than breast milk (such as formula, water, juice, or cow's milk)?

_____ Weeks **OR** _____ Months

- ❑ My baby was less than 1 week old
- ❑ My baby has not had any liquids other than breast milk

If your baby was not born in a hospital, go to Question 55.

54. This question asks about things that may have happened at the hospital where your new baby was born. For each item, check **No** if it did not happen or **Yes** if it did.

		No	Yes
a.	Hospital staff gave me information about breastfeeding	❑	❑
b.	My baby stayed in the same room with me at the hospital	❑	❑
c.	I breastfed my baby in the hospital	❑	❑
d.	Hospital staff helped me learn how to breastfeed	❑	❑
e.	I breastfed in the first hour after my baby was born	❑	❑
f.	My baby was placed in skin-to-skin contact within the first hour of life	❑	❑
g.	My baby was fed only breast milk at the hospital	❑	❑
h.	Hospital staff told me to breastfeed whenever my baby wanted	❑	❑
i.	The hospital gave me a breast pump to use	❑	❑
j.	The hospital gave me a gift pack with formula	❑	❑
k.	The hospital gave me a telephone number to call for help with breastfeeding	❑	❑
l.	Hospital staff gave my baby a pacifier	❑	❑

If your baby is still in the hospital, go to Page 10, Question 60.

55. In which *one* position do you *most often* lay your baby down to sleep now?

Check ONE answer

- ❑ On his or her side
- ❑ On his or her back
- ❑ On his or her stomach

56. In the *past 2 weeks*, how often has your new baby slept alone in his or her own crib or bed?

- ❑ Always
- ❑ Often
- ❑ Sometimes
- ❑ Rarely
- ❑ Never → **Go to Question 58**

57. When your new baby sleeps alone, is his or her crib or bed in the same room where *you* sleep?

- ❑ No
- ❑ Yes

58. Listed below are some more things about how babies sleep. How did your new baby *usually* sleep in the *past 2 weeks*? For each item, check **No** if your baby did not *usually* sleep like this or **Yes** if he or she did.

	No	Yes
a. In a crib, bassinet, or pack and play	❑	❑
b. On a twin or larger mattress or bed	❑	❑
c. On a couch, sofa, or armchair	❑	❑
d. In an infant car seat or swing	❑	❑
e. In a sleeping sack or wearable blanket	❑	❑
f. With a blanket	❑	❑
g. With toys, cushions, or pillows, including nursing pillows	❑	❑
h. With crib bumper pads (mesh or non-mesh)	❑	❑

59. Did a doctor, nurse, or other health care worker tell you any of the following things? For each thing, check **No** if they did not tell you or **Yes** if they did.

	No	Yes
a. Place my baby on his or her back to sleep	❑	❑
b. Place my baby to sleep in a crib, bassinet, or pack and play	❑	❑
c. Place my baby's crib or bed in my room	❑	❑
d. What things should and should not go in bed with my baby	❑	❑

60. *Since your new baby was born*, has a home visitor come to your home to help you learn how to take care of yourself or your new baby? A home visitor is a nurse, a health care worker, a social worker, or other person who works for a program that helps mothers of newborns.

- ❑ No
- ❑ Yes

61. Are you or your husband or partner doing anything *now* to keep from getting pregnant? Some things people do to keep from getting pregnant include having their tubes tied, using birth control pills, condoms, withdrawal, or natural family planning.

- ❑ No
- ❑ Yes → **Go to Question 63**

62. What are your reasons or your husband's or partner's reasons for not doing anything to keep from getting pregnant *now*?

Check ALL that apply

- ❑ I want to get pregnant
- ❑ I am pregnant now
- ❑ I had my tubes tied or blocked
- ❑ I don't want to use birth control
- ❑ I am worried about side effects from birth control
- ❑ I am not having sex
- ❑ My husband or partner doesn't want to use anything
- ❑ I have problems paying for birth control
- ❑ Other → Please tell us:

_____

If you or your husband or partner is not doing anything to keep from getting pregnant *now*, go to Question 64.

63. What kind of birth control are you or your husband or partner using *now* to keep from getting pregnant?

Check ALL that apply

- ❑ Tubes tied or blocked (female sterilization or Essure®)
- ❑ Vasectomy (male sterilization)
- ❑ Birth control pills
- ❑ Condoms
- ❑ Shots or injections (Depo-Provera®)
- ❑ Contraceptive patch (OrthoEvra®) or vaginal ring (NuvaRing®)
- ❑ IUD (including Mirena®, ParaGard®, Liletta®, or Skyla®)
- ❑ Contraceptive implant in the arm (Nexplanon® or Implanon®)
- ❑ Natural family planning (including rhythm method)
- ❑ Withdrawal (pulling out)
- ❑ Not having sex (abstinence)
- ❑ Other → Please tell us:

64. *Since your new baby was born*, have you had a postpartum checkup for yourself? A postpartum checkup is the regular checkup a woman has about 4-6 weeks after she gives birth.

- ❑ No → **Go to Question 66**
- ❑ Yes

Go to Question 65

65. *During your postpartum checkup*, did a doctor, nurse, or other health care worker do any of the following things? For each item, check **No** if they did not do it or **Yes** if they did.

	No	Yes
a. Tell me to take a vitamin with folic acid	❑	❑
b. Talk to me about healthy eating, exercise, and losing weight gained during pregnancy	❑	❑
c. Talk to me about how long to wait before getting pregnant again	❑	❑
d. Talk to me about birth control methods I can use after giving birth	❑	❑
e. Give or prescribe me a contraceptive method such as the pill, patch, shot (Depo-Provera®), NuvaRing®, or condoms	❑	❑
f. Insert an IUD (Mirena®, ParaGard®, Liletta®, or Skyla®) or a contraceptive implant (Nexplanon® or Implanon®)	❑	❑
g. Ask me if I was smoking cigarettes	❑	❑
h. Ask me if someone was hurting me emotionally or physically	❑	❑
i. Ask me if I was feeling down or depressed	❑	❑
j. Test me for diabetes	❑	❑

66. *Since your new baby was born*, how often have you felt down, depressed, or hopeless?

- ❑ Always
- ❑ Often
- ❑ Sometimes
- ❑ Rarely
- ❑ Never

67. *Since your new baby was born*, how often have you had little interest or little pleasure in doing things you usually enjoyed?

- ❑ Always
- ❑ Often
- ❑ Sometimes
- ❑ Rarely
- ❑ Never

OTHER EXPERIENCES

The next questions are on a variety of topics.

68. *Before* you got pregnant with your new baby, did your husband or partner ever try to keep you from using your birth control so that you would get pregnant when you didn't want to? For example, did they hide your birth control, throw it away or do anything else to keep you from using it?

- ❑ No
- ❑ Yes

69. At any time during *your most recent* pregnancy, did you work at a job for pay?

- ❑ No → **Go to Question 74**
- ❑ Yes

70. Have you returned to the job you had during *your most recent* pregnancy?

Check ONE answer

- ❑ No, and I do not plan to return → **Go to Question 74**
- ❑ No, but I will be returning
- ❑ Yes

71. Did you take leave from work *after* your new baby was born?

Check ALL that apply

- ❑ I took *paid* leave from my job
- ❑ I took *unpaid* leave from my job
- ❑ I did not take any leave → **Go to Question 73**

72. How many weeks *or* months of leave, in total, did you take or will you take?

_____ Weeks **OR** _____ Months

- ❑ Less than 1 week

73. Did any of the things listed below affect your decision about taking leave from work *after* your new baby was born? For each item, check **No** if it does not apply to you or **Yes** if it does.

	No	Yes
a. I could not financially afford to take leave	❑	❑
b. I was afraid I'd lose my job if I took leave or stayed out longer	❑	❑
c. I had too much work to do to take leave or stay out longer	❑	❑
d. My job does not have paid leave	❑	❑
e. My job does not offer a flexible work schedule	❑	❑
f. I had not built up enough leave time to take any or more time off	❑	❑

If your baby is not alive, is not living with you, or is still in the hospital, go to Question 76.

74. *Since your new baby was born*, would you have the kinds of help listed below if you needed them? For each one, check **No** if you would not have it or **Yes** if you would.

	No	Yes
a. Someone to loan me $50	❑	❑
b. Someone to help me if I were sick and needed to be in bed	❑	❑
c. Someone to talk with about my problems	❑	❑
d. Someone to help me if I were tired and feeling frustrated with my new baby	❑	❑
e. Someone to take me and my baby to the doctor's office if I had no other way of getting there	❑	❑

75. *Since your new baby was born*, how often does your new baby's father contribute things such as money, food, clothing, shelter, or health care to provide for your new baby's basic needs?

- ❑ Always
- ❑ Often
- ❑ Sometimes
- ❑ Rarely
- ❑ Never

76. *Since your new baby was born*, how often does your husband or partner provide you with encouragement and emotional support?

- ❑ Always
- ❑ Often
- ❑ Sometimes
- ❑ Rarely
- ❑ Never

77. *Since your new baby was born*, have you had your teeth cleaned by a dentist or dental hygienist?

- ❑ No
- ❑ Yes

78. Do you have serious difficulty walking or climbing stairs?

- ❑ No
- ❑ Yes

79. Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions?

- ❑ No
- ❑ Yes

80. In what country were you born?

Check ONE answer

- ❑ United States → **Go to Question 82**
- ❑ Puerto Rico
- ❑ Other Country → Please tell us:

_____

81. How old were you when you moved to the United States?

_____ Age in years

82. How often do you think about your race?

Check ONE answer

- ❑ Constantly
- ❑ Once a day
- ❑ Once a week
- ❑ Once a month
- ❑ Once a year
- ❑ Never

83. This question is about things that may have happened during the *12 months before your new baby was born*. For each item, check **No** if it did not happen to you or **Yes** if it did.

	No	Yes
a. I felt that my race or ethnic background contributed to the stress in my life	❑	❑
b. I felt emotionally upset (for example, angry, sad, or frustrated) as a result of how I was treated based on my race or ethnic background	❑	❑
c. I experienced physical symptoms (for example, a headache, an upset stomach, or a pounding heart) that I felt were related to how I was treated based on my race or ethnic background	❑	❑

The last questions are about the time during the *12 months before* your new baby was born.

84. During the *12 months before* your new baby was born, what was your yearly total household income before taxes? Include your income, your husband's or partner's income, and any other income you may have received. *All information will be kept private* and will not affect any services you are now getting.

- ☐ $0 to $16,000
- ☐ $16,001 to $20,000
- ☐ $20,001 to $24,000
- ☐ $24,001 to $28,000
- ☐ $28,001 to $32,000
- ☐ $32,001 to $40,000
- ☐ $40,001 to $48,000
- ☐ $48,001 to $57,000
- ☐ $57,001 to $60,000
- ☐ $60,001 to $73,000
- ☐ $73,001 to $85,000
- ☐ $85,001 or more

85. During the *12 months before* your new baby was born, how many people, *including yourself*, depended on this income?

_____ People

86. What is today's date?

____ / ____ / 20____

Month Day Year

Please use this space for any additional comments you would like to make about your experiences around the time of your pregnancy or the health of mothers and babies in Massachusetts.

Thanks for answering our questions!

Your answers will help us work to keep mothers and babies in Massachusetts healthy.

Appendix C: PRAMS Methodology

Sampling methodology

The MA PRAMS is an ongoing, population-based surveillance system designed to identify and monitor selected maternal attitudes, experiences and behaviors that occur before, during and after pregnancy. The PRAMS survey consists of three types of questions. All surveys include a required set of questions ("Core" questions), which allow for multi-state analyses. Each state can select additional questions from a CDC-approved-questions list ("Standard" questions), or can create questions tailored to meet its needs ("State-developed" questions). See Appendix B for a copy of the 2012–2015 (phase 7) and 2016–2019 (phase 8) MA PRAMS surveys. The survey was administered in English and Spanish only.

PRAMS survey participants were sampled from a frame of eligible birth certificates which included all live-born infants of Massachusetts resident mothers, delivered in the state, for whom a birth certificate was available. Based on CDC's PRAMS protocol, stillbirths, fetal deaths, induced abortions and multiple-births with quadruplets or more were excluded from the sampling frame.

Since 2007, Massachusetts has used a stratified sampling methodology, sampling disproportionately from four racial and Hispanic ethnic groups: (1) White, non-Hispanic; (2) Black, non-Hispanic; (3) Hispanic; and (4) Other, non-Hispanic. All but White, non-Hispanic mothers were oversampled to improve precision in examining disparities by race and ethnicity. For oversampling purposes, the category of Other, non-Hispanic includes all racial and ethnic groups besides White, Black, and Hispanic. Similar to previous reports, in the 2012–2016 report, Massachusetts separates Asian, non-Hispanics from the "Other, non-Hispanic" category for analytical purposes. Therefore, the "Other, non-Hispanic" group has a small sample size which resulted in having prevalence estimates with wider 95% confidence limits (95% CL) and the findings in this group should be interpreted with caution. Disability status was ascertained by participants' response to the PRAMS question: "Are you limited in any way in any activities because of physical, mental, or emotional problems?" Additional demographic information was obtained from the birth file, including maternal education, age, marital status, parity, and nativity.

About three percent of Massachusetts mothers with a live birth in our study period were sampled, and received up to three mailed paper surveys. Mothers who did not respond to the survey after the third mailing were contacted by telephone. The survey data were weighted using selected maternal demographics to account for non-response and adjusted for sampling probabilities and coverage to represent the Massachusetts birth population in 2012–2016.

Analyses for the MA PRAMS 2012–2016 report accounted for the stratified sampling method and included the final survey weights. SAS v9.3 and SUDAAN v11.0 were used to calculate prevalence and bivariate statistics. Joinpoint v4.6 was used to examine trends. Joinpoint is a trend analysis tool developed by the National Cancer Institute. It creates a regression model (graph) that best describes the trend in events. It shows the Annual Percentage Change (APC) for each trend and whether it is statistically significance ($P < 0.05$). The 95% CLs are included whenever possible in this report. When comparing estimates, if the 95% CLs do not overlap, we indicate that there is a statistically significant difference. Otherwise, differences that are not significant are reported as having no statistical difference or not statistically significant.

Limitations

The data presented in this report are generalizable only to pregnancies resulting in a live birth of singletons or multiples of fewer than four, to Massachusetts residents who gave birth in the state.

The PRAMS survey is currently only administered in English and Spanish. This might present a limitation in collecting data from mothers with limited proficiency in either of these languages.

Because PRAMS is based on self-reported information, there is the potential for misclassification error. Bias may occur if some groups of mothers recall experiences more or less accurately than others.

Income data were collected; however, about 9% of respondents declined to report income, and analyses involving household poverty could not include these respondents. In general, income data tend to be underreported on surveys.

Lastly, while PRAMS data are weighted to reflect the population of mothers giving birth in Massachusetts in 2012–2016, about 38% of those surveyed did not respond and results may be biased if weighting did not account for certain characteristics or experiences associated with non-response.

Table 35. PRAMS sample size, response rates and total births, 2012–2016

Data Years Presented in this Report	Sample Size	Number of Respondents	Weighted Response Rate	Total Massachusetts Births*
All Mothers	**12,658**	**7,199**	**62.4**	**345,248**
2012 (Feb. 1 – Dec. 31)	2,495	1,539	67.5	66,853
2013	2,585	1,473	62.0	71,618
2014	2,847	1,546	60.0	71,867
2015	2,328	1,330	62.5	71,484
2016	2,403	1,311	59.9	71,319

Source: 2012–2016 Massachusetts PRAMS, Office of Data Translation, Massachusetts Department of Public Health. Note: Estimated PRAMS coverage is 99.8%.

*Massachusetts Births, 2012–2016, Registry of Vital Records and Statistics, Massachusetts Department of Public Health.

Table 36. PRAMS sample characteristics (weighted), 2012–2016

2012–2016				
Characteristics	**Number of Respondents**	**Weighted Number**	**PRAMS Percent**	**Statewide Percent* from MA BC**
Maternal Race/Ethnicity (BC)				
White, non-Hispanic	1,983	208,140	60.3	61.1
Black, non-Hispanic	1,483	32,862	9.2	9.8
Hispanic	1,834	62,690	18.2	17.9
Asian, non-Hispanic	1,527	30,132	8.7	9.0
Other/Unknown	372	11,424	3.3	2.2
Maternal Age (BC)				
Less than 20 years	233	9,774	2.8	3.4
20-29 years	2,799	131,851	38.2	38.0
30-39 years	3,850	189,021	54.7	54.0
40 years and older	317	14,603	4.2	4.6
Maternal Education (BC)				
Less than high school	842	33,402	9.9	9.9
High school	1,158	53,879	16.0	16.8
Some college	1,833	80,522	23.9	25.8
College graduate	3,208	169,181	50.2	47.6
Marital Status (BC)				
Married	4,663	229,031	66.4	66.4
Other	2,533	116,035	33.6	33.6
Maternal Nativity (BC)				
Non-US-born	3,671	109,237	31.7	31.4
US-born	3,522	235,752	68.3	68.6
Preferred Language (BC)				
English	6,226	312,306	91.0	89.9
Spanish	565	20,039	5.8	5.2
Other	367	10,840	3.2	4.9
Federal Poverty Level (FPL)				
Below or at 100% FPL	1,943	78,077	24.2	-
Above 100% FPL	4,648	243,894	75.8	-
Maternal Disability (PRAMS)				
No	6,520	315,839	92.9	-
Yes	533	24,113	7.1	-
Parity (BC)				
No previous live births	3,114	148,571	43.2	44.9
Previous live births	4,070	195,172	56.8	55.1

*Massachusetts Births, 2012–2016, Registry of Vital Records and Statistics, Massachusetts Department of Public Health. BC = Birth Certificate.

PRAMS Sample characteristics compared to Massachusetts birth population

Race/Hispanic ethnicity and nativity

After applying sampling weights, MA PRAMS 2012–2016 respondents were largely reflective of the overall population of Massachusetts mothers giving birth to a live-born infant by race/Hispanic ethnicity. White, non-Hispanics represented 60.3% of the PRAMS sample, Black, non-Hispanics, 9.2%, Hispanics 18.2%, Asian, non-Hispanics, 8.7%, and Other, non-Hispanics/unknown, 3.3%. About 32% of the respondents were not born in the United States and this profile is similar to what was reported according to birth certificate records in Massachusetts (Table 53).

Age

The majority of the respondents (54.7%) were aged 30-39 years, followed by 38.2% of mothers aged 20-29 years. The age distribution of the respondents is similar to the distribution of mothers giving birth according to birth certificate records.

Education

Approximately 50% of the respondents had at least a college degree. The educational profile of the respondents is similar to that of all mothers giving birth in Massachusetts according to birth certificate records.

Marital status

The majority of the respondents (66.4%) were married, similar to mothers giving birth in Massachusetts according to birth certificate records.

Preferred language

The majority of PRAMS respondents, 91.0%, preferred to read or discuss health-related materials in English, followed by Spanish, 5.8%, and all other languages, 3.2%. The preferred language distribution of the respondents is similar to that of all mothers giving birth in Massachusetts according to birth certificate records.

Income

About 24% of the respondents reported living at or below 100% of the Federal Poverty Level in the year before their child was born. For a family of four, the household income at 100% Federal Poverty Level was $24,300 in 2016. Income and household size are not currently collected on the birth certificate.

Disability

Seven percent of the respondents reported having a current emotional or physical disability. Disability status is not currently collected on the birth certificate.

Parity

About 43% of respondents were first-time mothers and this profile is similar to the prevalence of first-time mothers giving birth in Massachusetts according to the birth certificate.

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