

Towards Health Equity – A review of disparities in maternal experiences around the time of pregnancy

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December 2019

Acknowledgment

The New Hampshire PRAMS Project Team would like to acknowledge the Centers for Disease Control (CDC) PRAMS team for their technical assistance and support, and the New Hampshire Division of Vital Records Administration for ongoing diligence in ensuring completeness of the sampling frame.

Within the New Hampshire Division of Public Health Services we thank Public Health Statistician Michael Laviolette, formerly in the Bureau of Health Statistics and Data Management, for his reweighting of the data to enable county and city-based estimates, in addition to statewide estimates.

Also, we thank Dr. Trinidad Telez, Director of the Office of Health Equity, Department of Health and Human Services, for her insights and input into this report.

Disclaimer

Research reported in this publication was supported by the National Center for Chronic Disease Prevention & Health, of the Centers for Disease Control and Prevention (CDC), under Award Number U01DP006208 for the Pregnancy Risk Assessment Monitoring System. The content does not necessarily represent the official views of the CDC.

This publication was also supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award totaling \$100,000. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS, or the U.S. Government. For more information, please visit HRSA.gov.

Suggested citation

Towards Health Equity – A review of disparities in maternal experiences around the time of pregnancy
Maternal and Child Health Section, Division of Public Health Services,
New Hampshire Department of Health and Human Services; November 2019.

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Executive Summary

This report examines a set of maternal health indicators that occur around the time of pregnancy and are pertinent to the health of women and infants.

The data source for this report is the PRAMS (Pregnancy Risk Assessment Monitoring System) survey, administered in New Hampshire (the State) in 2013-2017, to a random sample of residents who had a live birth during this period.

The statewide prevalence of each of the reviewed indicators is provided, as well as the Healthy People 2020 targets (see www.healthypeople.gov/2020/topics-objectives) for these indicators, to show if the State is on-track to meet these national targets.

Beyond the statewide figures, the data is analyzed by various socio-demographic identifiers and some social determinants of health that are often associated with disparities and inequities, namely race/ethnicity, nativity, age, education, income, and residence.

This report reveals disparities in health depending on age, education and income. Health disparities by race/ethnicity are also evident for some indicators, despite the common challenge of disparities by race or ethnicity being more difficult to discern with statistical precision due to the relatively small population sizes of racial/ethnic minority groups in the State. Additionally, disparities by residence (county or large city) are evident for several indicators; thus some counties can be considered healthier or unhealthier places to live for women giving birth.

The World Health Organization defines health inequity as “differences in health status or in the distribution of health resources between different population groups, arising from the social conditions in which people are born, grown, live, work and age.”¹ An examination of the underlying societal or systemic causes of health disparities are beyond the scope of this report and are described elsewhere. This report’s review of factors associated with maternal experiences around the time of pregnancy can begin to illuminate inequities which impact many mothers and infants in our State, and guide New Hampshire on a path towards health equity through data-driven reflection, informed conversation and action steps.

¹ https://www.who.int/features/factfiles/health_inequities/en/; accessed August 7, 2019

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Introduction

Health equity is defined by Healthy People 2020 (HP2020) as the “attainment of the highest level of health for all people” and the HP2020 goal is “to achieve health equity, eliminate disparities, and improve the health of all groups.”²

HP2020 defines health disparity as “a particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health based on their racial or ethnic group; religion; socioeconomic status; gender; age; mental health; cognitive, sensory or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion.”³

Health Indicators and Identifiable Disparities

This report is based on data collected in 2013-2017 by the Pregnancy Risk Assessment Monitoring System (PRAMS) survey in New Hampshire. PRAMS is a surveillance project of the Centers for Disease Control and Prevention (CDC) conducted through cooperative agreements with state health departments. PRAMS collects state-specific, population-based data on maternal attitudes and experiences shortly before, during, and after pregnancy.

The focus of this report is on maternal health indicators and the identification of disparities in New Hampshire women around the time of pregnancy, by race/ethnicity, nativity (foreign-born or US-born), age, educational attainment, household income (expressed as a percentage of the Federal Poverty Level), and residence. Residence is further broken down by urban/rural classification, and by county or major city (i.e. Manchester and Nashua, which are the state’s two most populous communities).

At this point in time ‘non-Hispanic White’ is the largest racial/ethnic group in New Hampshire comprising 90% of the state’s population,⁴ and nearly 89% of women who had a live birth from 2013-2017. Because all of the other racial/ethnic groups are quite small (ranging from 1.4% to 3.7% of the total), a few indicators cannot be reported for these groups, and they are collapsed into one group labelled ‘People of Color’ (POC) in order to make possible comparisons with the non-Hispanic White group. This should not be taken as an indication that there are no disparities between any of the smaller racial/ethnic groups, or between a small racial/ethnic group and the non-Hispanic

² <https://www.healthypeople.gov/2020/about/foundation-health-measures/Disparities>; accessed March 26, 2019

³ Ibid.

⁴ Population Estimates July 1, 2018 (v2018), <https://www.census.gov/quickfacts/NH> accessed 11/7/19

White group, only that their numbers are too small to report individually with the usual standard statistical confidence level of 95%.

Methods

The following sections describe statewide estimated (weighted) frequencies of 16 health indicators, stratified by race/ethnicity, nativity, age, education, household income, and residence. Other indicators that showed no disparities by these factors were omitted. The 95% confidence intervals are provided, indicating 95% certainty that the true population values lie within these intervals. Estimates are suppressed (*) when the number of affirmative answers was less than 10 or the relative standard error was greater than 0.30 of the estimate.

Each table shows the statewide prevalence of an indicator, and the prevalences of that indicator for each population sub-group (by race, by age, etc.). Prevalences that are significantly different from the statewide number are **shaded**, and those that have high variability are marked with a diamond symbol (♦).

On the graphics in the body of the report, the light blue bars show statistically significant differences from the statewide prevalence (in dark blue); the light gray bars depict frequencies that are not significantly different from the statewide prevalence.

LOW BIRTH WEIGHT (< 5.5 pounds)

		Estimated Prevalence (Percent)	95% Confidence Interval		Weighted estimate	Annual average population statewide
			Lower	Upper		
Statewide		5.0	4.8	5.1	2,917	583
Race/Ethnicity	Non-Hispanic White	4.9	4.7	5.0	2,509	502
	Non-Hispanic Black	6.6♦	3.8	11.3	53	11
	Non-Hispanic Asian	6.3	4.1	9.6	138	28
	American Indian/Alaska Native	(*)	(*)	(*)	(*)	(*)
	Other or more than one race	3.2♦	1.8	5.5	42	8
	Hispanic	5.7	4.0	8.0	124	25
Race/Ethnicity	Non-Hispanic White	4.9	4.7	5.0	2,509	502
	People of Color	5.6	4.5	6.9	373	75
Nativity	Foreign-born	5.1	4.0	6.4	303	61
	US-born	4.9	4.8	5.1	2,610	522
Age	Under 20 years of age	6.1	4.3	8.7	126	25
	20-39 years of age	4.9	4.7	5.0	2,686	537
	40+ years of age	5.9	4.0	8.5	105	21
Education	Less than high school	9.2	7.1	11.7	331	66
	High school diploma or GED	5.6	4.8	6.4	700	140
	Some college, less than 4 years	4.9	4.4	5.5	819	164
	Some college, 4 years or more	4.0	3.7	4.3	1,025	205
Income	0 to 185% of FPL	6.2	5.7	6.8	1,381	276
	>185% to <400% of FPL	4.5	3.9	5.2	598	120
	400% or more of FPL	3.9	3.4	4.3	801	160
Urban/Rural	Urban	4.8	4.5	5.1	1,792	358
	Rural	5.2	4.8	5.7	1,124	225
Residence	Belknap County	8.0	5.9	10.6	196	39
	Carroll County	4.8	3.2	7.3	78	16
	Cheshire County	4.2	3.1	5.7	133	27
	Coös County	6.1	4.0	9.1	74	15
	Grafton County	5.9	4.6	7.6	210	42
	Hillsborough County (excluding Manchester, Nashua)	4.3	3.6	5.2	363	73
	Merrimack County	5.4	4.4	6.5	344	69
	Rockingham County	4.1	3.5	5.0	521	104
	Strafford County	5.0	4.0	6.2	291	58
	Sullivan County	5.0	3.5	7.1	95	19
	Manchester	5.9	4.8	7.2	411	82
	Nashua	5.8	4.5	7.4	275	55

(*) = number suppressed.

♦ = interpret with caution; prevalence estimate has high variability.

Shaded numbers are significantly different from the statewide prevalence.

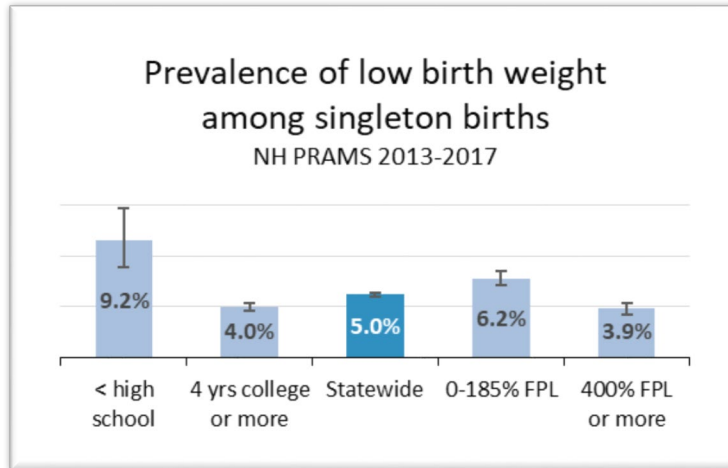
Annual average population estimate = Weighted frequency / number of years of data collected.

Only singleton births were included in the analysis of birth weight, as multiple births could skew the weights distribution.

The HP2020 target for Maternal, Infant and Child Health, MICH-8.1 is **to reduce low birth weight to 7.8%** (target is based on all live births).

In total, the birth weight distribution among singleton births has approximately 5% low birth weights (LBW), defined as less than 5.5 pounds (2500 grams). The LBW category includes very low (< 1500 grams) and moderately low (1500-2499 grams) birth weights.

While there were no significant differences based on the age of the mother, LBW was significantly more prevalent among women with less than a high school diploma, and those living at 185% or less of the Federal Poverty Level (FPL). It was also significantly less prevalent among those with four years or more of college, and those with an income of 400% or more of the FPL.



At first glance, the non-Hispanic Black and the non-Hispanic Asian women seem to have rates of LBW that are higher than the other racial/ethnic groups, but this difference is not statistically significant.

If the statewide numbers of non-White women were greater (currently, each minority racial/ethnic group makes up fewer than 4% of the total population; see the Socio-Demographic table in the Appendix), even such small differences as these in low birth weight might become significant.

Within the county/city listing of LBW prevalences, there are apparent differences between counties, with LBW prevalence ranging from 4.1% (in Rockingham County) to 8.0% (in Belknap County). But the only significant differences are between Rockingham (4.1%), Cheshire (4.2%), and Hillsborough (4.3%) counties, in comparison with Belknap County (8.0%), which is the only county with a significantly higher prevalence than the statewide figure of 5.0%.

PRETERM BIRTH (< 37 weeks gestational age)

		Estimated Prevalence (Percent)	95% Confidence Interval		Weighted estimate	Annual average population estimate
			Lower	Upper		
Statewide		6.0	5.3	6.8	3,515	703
Race/Ethnicity	Non-Hispanic White	5.8	5.1	6.6	2,978	596
	Non-Hispanic Black	(*)	(*)	(*)	(*)	(*)
	Non-Hispanic Asian	3.0	2.0	4.5	66	13
	American Indian/Alaska Native	(*)	(*)	(*)	(*)	(*)
	Other or more than one race	(*)	(*)	(*)	(*)	(*)
	Hispanic	(*)	(*)	(*)	(*)	(*)
Race/Ethnicity	Non-Hispanic White	5.8	5.1	6.6	2,978	596
	People of Color	7.1	4.7	10.8	475	95
Nativity	Foreign-born	4.6	2.8	7.5	274	55
	US-born	6.2	5.4	7.0	3,238	657
Age	Under 20 years of age	(*)	(*)	(*)	(*)	(*)
	20-39 years of age	6.0	5.3	6.8	3,284	657
	40+ years of age	(*)	(*)	(*)	(*)	(*)
Education	Less than high school	8.4	5.3	12.9	301	60
	High school diploma or GED	8.0	6.0	10.6	1,002	200
	Some college, less than 4 years	5.1	4.0	6.5	846	169
	Some college, 4 years or more	5.3	4.3	6.4	1,349	270
Income	0 to 185% of FPL	7.2	5.9	8.8	1,591	318
	>185% to <400% of FPL	6.5	4.9	8.5	861	172
	400% or more of FPL	4.8	3.8	6.0	980	196
Urban/Rural	Urban	5.8	4.9	6.9	2,154	431
	Rural	6.3	5.2	7.8	1,361	272
Residence	Belknap County	10.0♦	5.7	16.9	241	48
	Carrol County	3.5	2.2	5.6	57	11
	Cheshire County	4.9♦	2.8	8.5	158	32
	Coös County	(*)	(*)	(*)	(*)	(*)
	Grafton County	7.3	4.7	11.2	259	52
	Hillsborough County (excluding Manchester, Nashua)	6.0	4.1	8.7	506	101
	Merrimack County	4.0	2.8	5.5	252	50
	Rockingham County	4.8	3.5	6.6	592	118
	Strafford County	5.1	3.4	7.5	295	59
	Sullivan County	5.8♦	3.3	10.0	111	22
	Manchester	8.3	5.5	12.2	576	115
	Nashua	8.9	5.8	13.5	423	85

(*) = number suppressed.

♦ = interpret with caution; prevalence estimate has high variability.

Shaded numbers are significantly different from the statewide prevalence.

Annual average population estimate = Weighted frequency / number of years of data collected.

As with birth weight, only singleton births were included in the analysis of preterm births. This report uses the term “preterm births” to include all those occurring before 37 weeks’ gestational age.

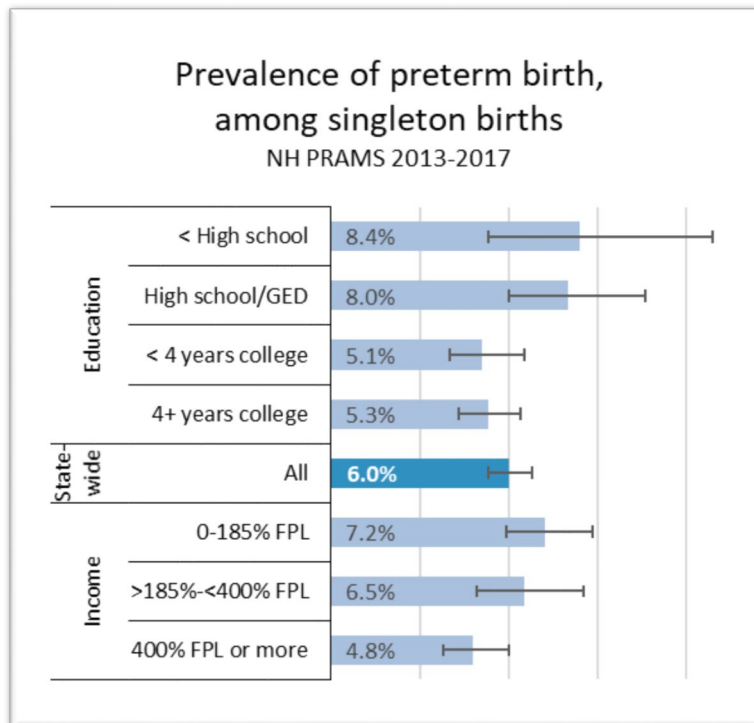
The HP2020 target for MICH-9 is **to reduce preterm births to 9.4%** (target is based on all live births).

The statewide distribution of singleton births by gestational age shows that 6.0% of births were classified as preterm, with gestational age of less than 37 weeks.

The only statistically significant difference in the prevalence of preterm births was seen among non-Hispanic Asian women, who had a significantly lower prevalence (3.0%) than the statewide prevalence of 6.0%, as well as lower than the prevalence among non-Hispanic White women which was 5.8%.

Belknap County’s prevalence of preterm birth (10.0%) is not significantly different from the statewide prevalence (6.0%), but there is a significant difference between Belknap and two other counties, namely Carroll county (3.5%) and Merrimack county (4.0%).

Another interesting feature is the pattern of decline in preterm births as education and income increase, but these differences do not attain statistical significance.



UNINTENDED PREGNANCY

		Estimated Prevalence (Percent)	95% Confidence Interval		Weighted estimate	Annual average population statewide
			Lower	Upper		
Statewide		34.5	32.4	36.6	20,389	4,078
Race/Ethnicity	Non-Hispanic White	33.6	31.4	35.8	17,410	3,482
	Non-Hispanic Black	57.2♦	37.9	74.6	462	92
	Non-Hispanic Asian	32.4	22.9	43.6	695	139
	American Indian/Alaska Native	(*)	(*)	(*)	(*)	(*)
	Other or more than one race	45.4♦	30.5	61.1	579	116
	Hispanic	43.6	32.6	55.4	918	184
Race/Ethnicity	Non-Hispanic White	33.6	31.4	35.8	17,410	3,482
	People of Color	41.4	35.0	48.1	2,699	540
Nativity	Foreign-born	33.7	27.5	40.6	1,968	394
	US-born	34.5	32.4	36.8	18,417	3,683
Age	Under 20 years of age	85.8	74.2	92.7	1,722	344
	20-39 years of age	32.6	30.6	34.8	18,089	3,618
	40+ years of age	33.3	22.8	45.8	579	116
Education	Less than high school	65.5	55.7	74.1	2,327	465
	High school diploma or GED	48.9	43.8	54.1	6,108	1,222
	Some college, less than 4 years	38.4	34.6	42.4	6,486	1,297
	Some college, 4 years or more	20.8	18.4	23.5	5,388	1,078
Income	0 to 185% of FPL	53.1	49.3	56.8	11,791	2,358
	>185% to <400% of FPL	27.4	23.6	31.6	3,695	739
	400% or more of FPL	18.1	15.5	21.0	3,810	762
Urban/Rural	Urban	32.8	30.3	35.5	12,351	2,470
	Rural	37.3	33.9	40.8	8,039	1,608
Residence	Belknap County	49.1♦	38.9	59.4	1,249	250
	Carroll County	42.3♦	30.0	55.7	694	139
	Cheshire County	37.0	28.5	46.5	1,138	228
	Coös County	48.2♦	34.1	62.5	592	118
	Grafton County	37.8	30.2	46.2	1,357	271
	Hillsborough County (excluding Manchester, Nashua)	30.3	25.2	35.9	2,590	518
	Merrimack County	29.8	23.9	36.4	1,916	383
	Rockingham County	27.2	23.2	31.7	3,472	694
	Strafford County	34.7	28.3	41.5	1,999	400
	Sullivan County	48.0♦	36.5	59.7	920	184
	Manchester	46.7	39.8	53.8	3,236	647
	Nashua	33.9	26.4	42.2	1,597	319

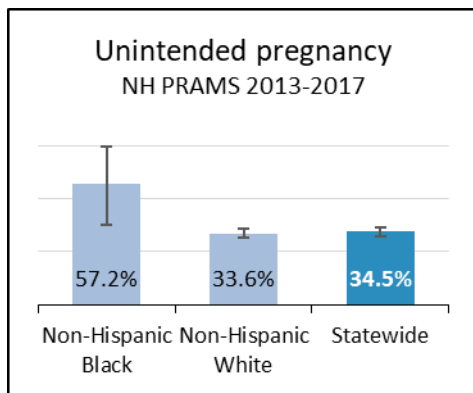
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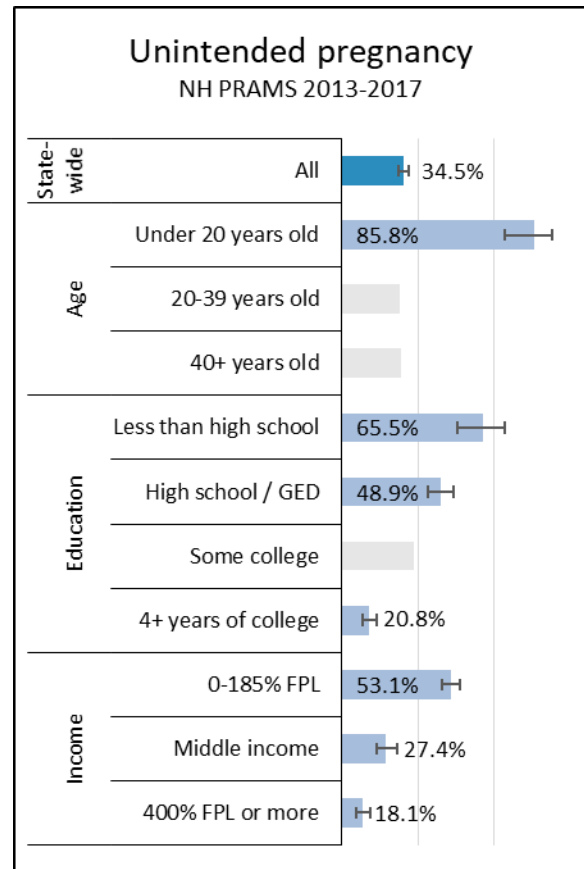
For this report, an unintended pregnancy is defined as wanting the pregnancy ‘later’, ‘never’, or ‘not sure.’ Yearly variations in pregnancy intention may be masked by these five-year averages. There is no HP2020 objective for unintended pregnancy.



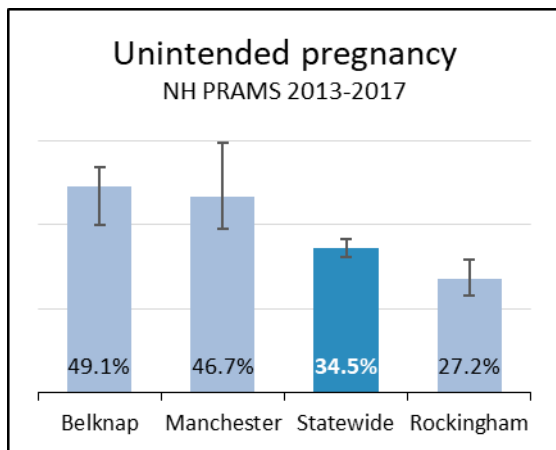
The prevalence of unintended pregnancy among non-Hispanic Black women was significantly higher (57.2%) than the statewide prevalence as well as the prevalence among non-Hispanic White women (33.6%), in spite of a high variability in that estimate resulting in the advisory statement “interpret with caution.”

There are also large and

significant differences in the prevalence of unintended pregnancy according to age, education and income, with significantly greater proportions of the youngest (less than 20 years of age), the least educated (high school or less), and the lowest income (0-185% of FPL) women having unintended pregnancies than the other members of their groupings (by age, education or income).



Legend: light blue bars depict significant differences from the statewide prevalence, with % shown; light gray bars depict frequencies that are not significantly different from the statewide prevalence.



Geographically, the prevalence of unintended pregnancies in Belknap County (49.1%) and in the city of Manchester (46.7%) was significantly higher than the statewide prevalence (34.5%); Rockingham County had a significantly lower prevalence (27.2%).

In county comparisons, both Manchester (46.7%) and Belknap County (49.1%) had significantly higher prevalences of unintended pregnancy than either Hillsborough County (30.3%), Merrimack County (29.8%), or Rockingham County (27.2%).

STARTED PRENATAL CARE (PNC) IN THE FIRST TRIMESTER

		Estimated Prevalence (Percent)	95% Confidence Interval		Weighted estimate	Annual average population statewide
			Lower	Upper		
Statewide		91.0	89.6	92.2	53,867	10,773
Race/Ethnicity	Non-Hispanic White	92.0	90.6	93.1	47,696	9,539
	Non-Hispanic Black	68.5♦	47.6	83.9	555	111
	Non-Hispanic Asian	82.2	71.6	89.4	1,757	351
	American Indian/Alaska Native	(*)	(*)	(*)	(*)	(*)
	Other or more than one race	87.2♦	72.6	94.6	1,085	217
	Hispanic	85.4	74.3	92.3	1,867	373
Race/Ethnicity	Non-Hispanic White	92.0	90.6	93.1	47,696	9,539
	People of Color	83.0	77.1	87.6	5,444	1,089
Nativity	Foreign-born	83.4	77.4	88.1	4,888	978
	US-born	91.8	90.4	93.0	48,975	9,795
Age	Under 20 years of age	78.9♦	66.7	87.5	1,647	329
	20-39 years of age	91.4	90.1	92.6	50,648	10,130
	40+ years of age	90.3	80.4	95.5	1,572	314
Education	Less than high school	75.7	66.4	83.0	2,625	525
	High school diploma or GED	86.5	82.6	89.7	10,875	2,175
	Some college, less than 4 years	91.0	88.5	93.0	15,266	3,053
	Some college, 4 years or more	95.1	93.5	96.3	24,741	4,948
Income	0 to 185% of FPL	84.4	81.5	86.9	18,704	3,741
	>185% to <400% of FPL	93.0	90.5	94.9	12,443	2,489
	400% or more of FPL	97.1	95.7	98.1	20,522	4,104
Urban/Rural	Urban	91.2	89.5	92.7	34,403	6,881
	Rural	90.4	88.2	92.4	19,464	3,893
Residence	Belknap County	92.9	86.2	96.5	2,301	460
	Carroll County	93.2	84.9	97.1	1,528	306
	Cheshire County	91.1	83.3	95.4	2,827	565
	Coös County	86.7♦	72.8	94.1	1,066	213
	Grafton County	88.7	82.6	92.9	3,167	633
	Hillsborough County (excluding Manchester, Nashua)	91.7	87.4	94.7	7,843	1,569
	Merrimack County	90.6	85.7	94.0	5,862	1,172
	Rockingham County	94.2	91.4	96.1	11,972	2,394
	Strafford County	92.6	88.1	95.5	5,402	1,080
	Sullivan County	86.1	75.0	92.8	1,662	332
	Manchester	83.3	77.2	88.0	5,832	1,166
	Nashua	90.8	84.7	94.6	4,217	843

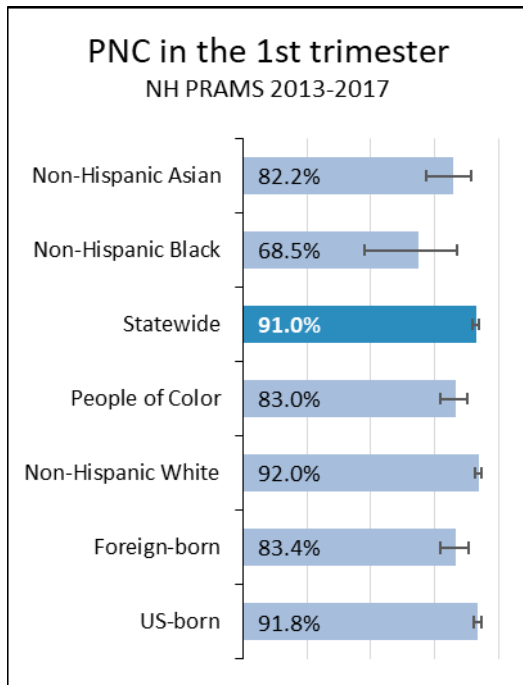
(*) = number suppressed.

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Shaded numbers are significantly different from the statewide prevalence.

Annual average population estimate = Weighted frequency / number of years of data collected.

The HP2020 target for MICH-10.1 is to **increase the proportion of pregnant women who receive prenatal care beginning in the first trimester to 77.9%.**



The statewide prevalence of beginning prenatal care (PNC) in the first trimester is 91.0%.

A significantly smaller proportion of non-Hispanic Asian women (82.2%) and non-Hispanic Black women (68.5%) initiated PNC in the first trimester, compared to non-Hispanic White women (92.0%) or the statewide figure (91.0%).

Significant disparity is also seen for the grouping People of Color, who have a combined prevalence of 83.0%, compared to 92.0% among Non-Hispanic White women.

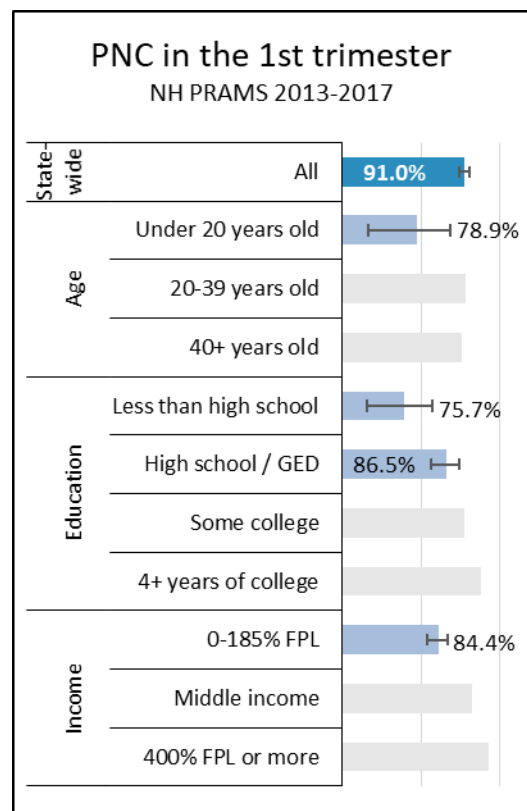
Disparity by nativity also is significant, with 83.4% of foreign-born women initiating PNC in the first trimester, compared to 91.8% of US-born women.

The youngest women (less than 20 years old), the least educated (high school or less), and the least wealthy (0-185% of FPL) have significantly lower prevalences of starting their PNC in the first trimester than the other members of their groupings (by age, by education, or by income).

Geographically, the prevalences of starting PNC in the first trimester range from a low of 83.3% (Manchester) to a high of 94.2% (Rockingham County).

Only Manchester has a significantly lower prevalence (83.3%) of starting PNC in the first trimester than the statewide figure (91.0%). Manchester's prevalence is also statistically lower than the prevalence in Strafford County (92.6%) and Rockingham County (94.2%).

Legend: light blue bars depict significant differences from the statewide prevalence, with % shown; light gray bars depict frequencies that are not significantly different from the statewide prevalence.



VITAMIN USE IN THE MONTH BEFORE PREGNANCY

		Estimated Prevalence (Percent)	95% Confidence Interval		Weighted estimate	Annual average population statewide
			Lower	Upper		
Statewide		55.9	53.7	58.0	33,485	6,697
Race/Ethnicity	Non-Hispanic White	56.5	54.2	58.8	29,601	5,920
	Non-Hispanic Black	39.1♦	23.0	57.9	328	66
	Non-Hispanic Asian	57.3	46.2	67.7	1,246	249
	American Indian/Alaska Native	(*)	(*)	(*)	(*)	(*)
	Other or more than one race	58.3♦	42.5	72.5	771	154
	Hispanic	45.1♦	34.1	56.6	996	199
Race/Ethnicity	Non-Hispanic White	56.5	54.2	58.8	29,601	5,920
	People of Color	50.7	44.1	57.3	3,400	680
Nativity	Foreign-born	56.3	49.4	63.0	3,381	676
	US-born	55.8	53.6	58.1	30,104	6,021
Age	Under 20 years of age	15.1	8.4	25.6	316	63
	20-39 years of age	56.8	54.6	59.0	31,809	6,362
	40+ years of age	75.1	63.4	84.0	1,360	272
Education	Less than high school	26.2	18.7	35.4	947	189
	High school diploma or GED	33.7	29.1	38.7	4,288	858
	Some college, less than 4 years	48.4	44.5	52.4	8,209	1,642
	Some college, 4 years or more	75.7	73.0	78.3	19,875	3,975
Income	0 to 185% of FPL	34.7	31.3	38.3	7,805	1,561
	>185% to <400% of FPL	62.2	57.8	66.4	8,417	1,683
	400% or more of FPL	75.9	72.8	78.8	16,154	3,231
Urban/Rural	Urban	58.0	55.2	60.6	22,115	4,423
	Rural	52.3	48.7	55.8	11,370	2,274
Residence	Belknap County	50.7♦	40.4	60.9	1,292	258
	Carroll County	45.1♦	32.5	58.3	740	148
	Cheshire County	48.1	39.0	57.3	1,508	302
	Coös County	53.5♦	39.1	67.3	658	132
	Grafton County	52.7	44.6	60.7	1,905	381
	Hillsborough County (excluding Manchester, Nashua)	67.4	61.7	72.5	5,825	1,165
	Merrimack County	52.9	46.2	59.5	3,442	688
	Rockingham County	64.9	60.3	69.3	8,315	1,663
	Strafford County	49.2	42.4	56.1	2,902	580
	Sullivan County	39.7♦	29.3	51.2	769	154
	Manchester	45.5	38.6	52.5	3,221	644
	Nashua	52.0	44.0	59.9	2,511	502

(*) = number suppressed.

♦ = interpret with caution; prevalence estimate has high variability.

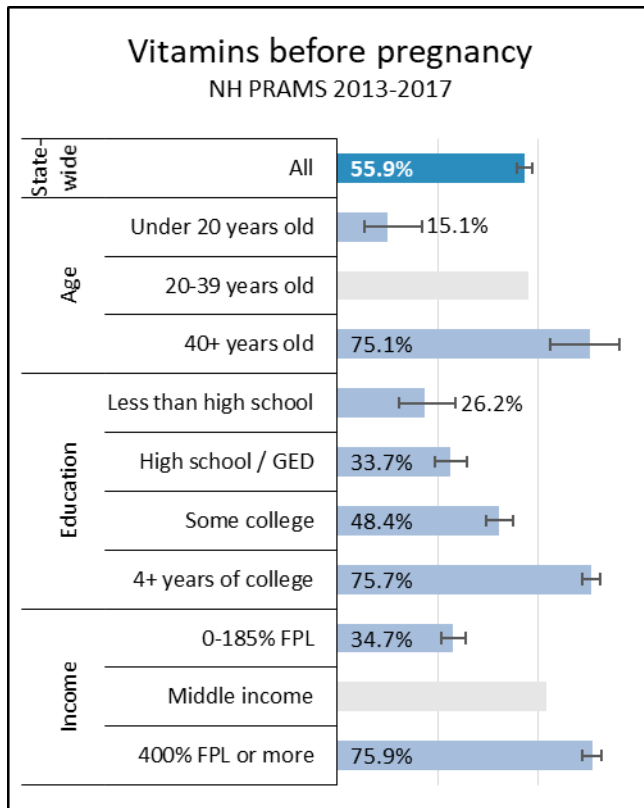
Shaded numbers are significantly different from the statewide prevalence.

Annual average population estimate = Weighted frequency / number of years of data collected.

Surveyed women were asked if they took a vitamin, prenatal vitamin, or folic acid vitamin in the month before their pregnancy. Answers were collapsed to combine all women who took a vitamin at least once a week.

The HP2020 target for MICH-16 is **to increase the proportion of women delivering a live birth who took multivitamins/folic acid prior to pregnancy to 33.3%.**

The statewide prevalence taking vitamins before pregnancy was 55.9%.



The factor that shows the greatest range of differences in taking a vitamin was education, with a significantly larger proportion of women (75.7%) in the sub-group of 4 or more years of college taking a vitamin than the statewide prevalence of taking vitamins (55.9%), and significantly smaller proportions of women in all three of the other education sub-groups taking vitamins than the statewide figure (26.2%, 33.7%, 48.4% vs. 55.9%).

Legend: light blue bars depict significant differences from the statewide prevalence, with % shown; light gray bars depict frequencies that are not significantly different from the statewide prevalence.

A similar pattern is also seen for age and income, with a significantly lower prevalence among the youngest (15.1%) and the lowest income (34.7%) women taking vitamins than the statewide prevalence, and a significantly higher prevalence of the oldest (75.1%) and highest income (75.9%) women taking vitamins than the statewide figure.

prevalence, and a significantly higher prevalence of the oldest (75.1%) and highest income (75.9%) women taking vitamins than the statewide figure.

The geographic prevalences ranged from approximately 40-65%. Two counties showed a significantly higher prevalence than the statewide figure of 55.9%, with Hillsborough County at 67.4% and Rockingham County at 64.9%.

Within the county/city distribution, both Hillsborough (67.4%) and Rockingham (64.9%) counties did significantly better than Sullivan County (39.7%) and Manchester (45.5%).

There are no significant differences by race/ethnicity or nativity.

FLU SHOT IN THE 12 MONTHS BEFORE DELIVERY

		Estimated Prevalence (Percent)	95% Confidence Interval		Weighted estimate	Annual average population statewide
			Lower	Upper		
Statewide		66.8	64.7	68.8	39,957	7,991
Race/Ethnicity	Non-Hispanic White	66.1	63.9	68.2	34,633	6,927
	Non-Hispanic Black	78.0♦	58.8	89.8	655	131
	Non-Hispanic Asian	74.6	63.9	82.9	1,575	315
	American Indian/Alaska Native	(*)	(*)	(*)	(*)	(*)
	Other or more than one race	74.2♦	57.4	85.9	957	191
	Hispanic	67.6♦	56.0	77.4	1,477	295
Race/Ethnicity	Non-Hispanic White	66.1	63.9	68.2	34,633	6,927
	People of Color	72.8	66.5	78.3	4,815	963
Nativity	Foreign-born	72.4	65.8	78.0	4,261	852
	US-born	66.2	64.0	68.3	35,692	7,138
Age	Under 20 years of age	56.2♦	43.7	68.0	1,175	235
	20-39 years of age	67.0	64.9	69.1	37,498	7,500
	40+ years of age	70.1♦	58.9	80.3	1,284	257
Education	Less than high school	58.0	48.4	67.1	2,095	419
	High school diploma or GED	54.7	49.6	59.8	6,891	1,378
	Some college, less than 4 years	61.6	57.4	65.1	10,431	2,086
	Some college, 4 years or more	77.3	74.6	79.8	20,268	4,054
Income	0 to 185% of FPL	58.3	54.6	61.9	13,073	2,615
	>185% to <400% of FPL	67.4	63.1	71.4	9,192	1,838
	400% or more of FPL	76.4	73.3	79.2	16,209	3,242
Urban/Rural	Urban	68.4	65.8	70.9	26,053	5,211
	Rural	64.0	60.5	67.3	13,904	2,781
Residence	Belknap County	57.4♦	46.9	67.4	1,444	289
	Carroll County	65.7♦	52.3	77.0	1,080	216
	Cheshire County	53.0	43.7	62.1	1,663	333
	Coös County	64.8♦	50.1	77.2	796	159
	Grafton County	69.0	60.8	76.2	2,493	499
	Hillsborough County (excluding Manchester, Nashua)	66.6	61.0	71.7	5,726	1,145
	Merrimack County	69.7	63.2	75.5	4,544	909
	Rockingham County	67.9	63.4	72.1	8,758	1,752
	Strafford County	64.7	57.8	71.0	3,810	762
	Sullivan County	60.6♦	48.8	71.2	1,173	235
	Manchester	73.3	66.6	79.1	5,138	1,028
	Nashua	65.1	57.0	72.5	3,127	625

(*) = number suppressed.

♦ = interpret with caution; prevalence estimate has high variability.

Shaded numbers are significantly different from the statewide prevalence.

Annual average population estimate = Weighted frequency / number of years of data collected.

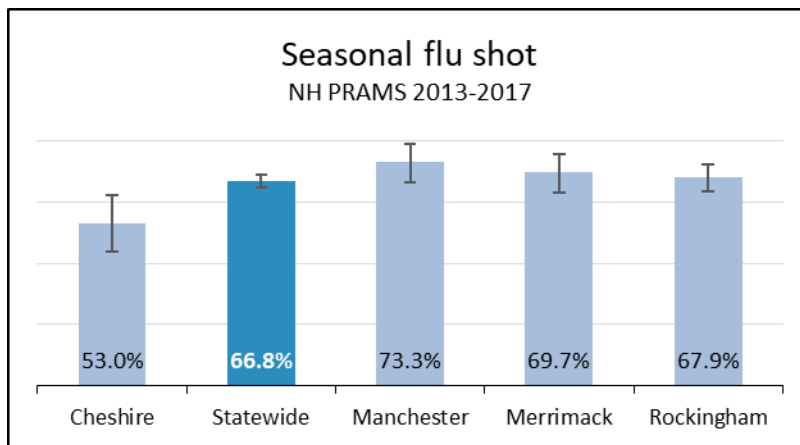
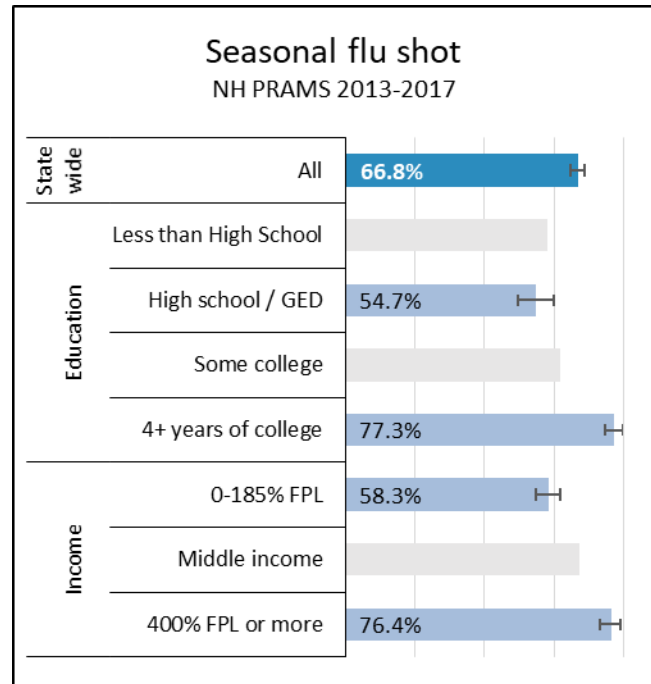
HP2020 target for IID-12.8 is to increase the percentage of pregnant women who are vaccinated against seasonal influenza to 80%.

The statewide prevalence of getting a flu shot in the 12 months before delivery was 66.8%.

There were no significant differences by race/ethnicity or by nativity.

It was found that significantly smaller proportions of women (54.7%) with high school or GED as their highest educational attainment and women (58.3%) with the lowest incomes received a flu shot than the statewide prevalence (66.8%). Significantly greater proportions of women (77.3%) with four or more years of college and women (76.4%) living on 400% or more of FPL received a flu shot than the statewide prevalence (66.8%).

Legend: light blue bars depict significant differences from the statewide prevalence, with % shown; light gray bars depict frequencies that are not significantly different from the statewide prevalence.



The county/city prevalences ranged from 53.0% to 73.3%. The only significant difference from the statewide prevalence was in Cheshire County, with a significantly lower prevalence at 53.0%.

Three geographic entities have a significantly higher prevalence than Cheshire County: the city of Manchester (73.3%), Merrimack County (69.7%), and Rockingham County (67.9%).

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TEETH CLEANED IN THE 12 MONTHS BEFORE PREGNANCY

		Estimated Prevalence (Percent)	95% Confidence Interval		Weighted estimate	Annual average population statewide
			Lower	Upper		
Statewide		63.9	61.8	66.1	35,262	7,052
Race/Ethnicity	Non-Hispanic White	65.2	62.8	67.4	31,759	6,352
	Non-Hispanic Black	37.8♦	20.3	59.3	220	44
	Non-Hispanic Asian	59.4♦	47.7	70.1	1,131	226
	American Indian/Alaska Native	(*)	(*)	(*)	(*)	(*)
	Other or more than one race	55.3♦	38.4	71.1	586	117
	Hispanic	49.5♦	37.9	61.2	999	200
Race/Ethnicity	Non-Hispanic White	65.2	62.8	67.4	31,759	6,352
	People of Color	52.6	45.6	59.5	2,972	594
Nativity	Foreign-born	57.1	49.8	64.2	2,935	587
	US-born	64.6	62.3	66.9	32,326	6,465
Age	Under 20 years of age	49.9♦	37.4	62.5	958	192
	20-39 years of age	64.3	62.0	66.5	33,085	6,617
	40+ years of age	69.4♦	57.2	79.4	1,219	244
Education	Less than high school	28.2	20.0	38.3	839	168
	High school diploma or GED	44.0	38.7	49.5	4,679	936
	Some college, less than 4 years	60.4	56.3	64.3	9,608	1,922
	Some college, 4 years or more	78.8	76.1	81.2	19,928	3,986
Income	0 to 185% of FPL	42.5	38.6	46.4	8,266	1,653
	>185% to <400% of FPL	67.0	62.6	71.2	8,499	1,700
	400% or more of FPL	83.1	80.3	85.5	17,132	3,426
Urban/Rural	Urban	63.8	61.1	66.5	22,532	4,506
	Rural	64.2	60.5	67.7	12,729	2,546
Residence	Belknap County	49.1♦	38.4	59.9	1,070	214
	Carroll County	69.4♦	55.9	80.2	989	198
	Cheshire County	62.4	52.6	71.2	1,746	349
	Coös County	52.4♦	37.5	66.9	590	118
	Grafton County	66.8	58.4	74.1	2,285	457
	Hillsborough County (excluding Manchester, Nashua)	68.6	62.9	73.8	5,625	1,125
	Merrimack County	68.7	61.8	74.9	4,015	803
	Rockingham County	69.4	64.8	73.7	8,356	1,671
	Strafford County	61.1	54.0	67.8	3,376	675
	Sullivan County	64.5♦	52.1	75.2	1,181	236
	Manchester	46.9	39.6	54.3	2,847	569
	Nashua	55.4	47.0	63.5	2,518	504

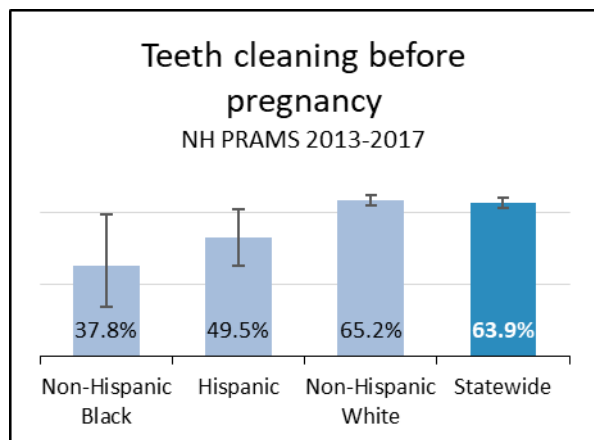
(*) = number suppressed.

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Shaded numbers are significantly different from the statewide prevalence.

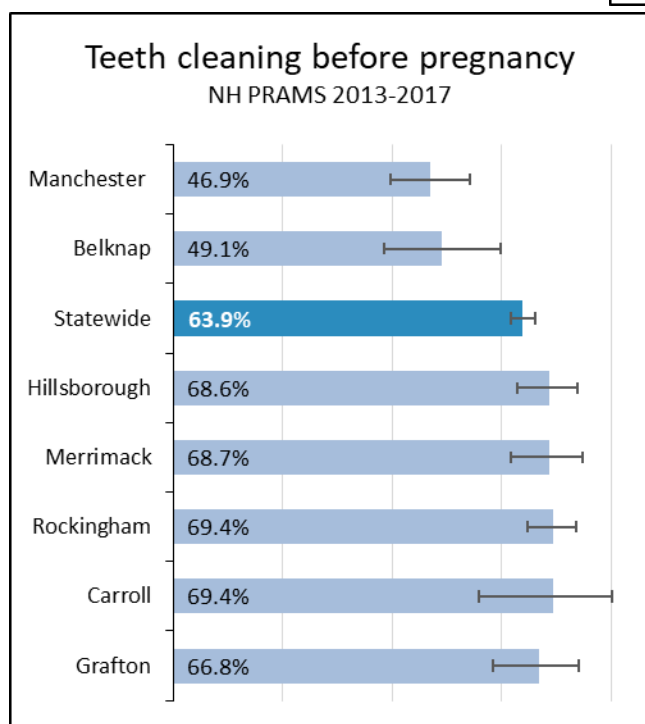
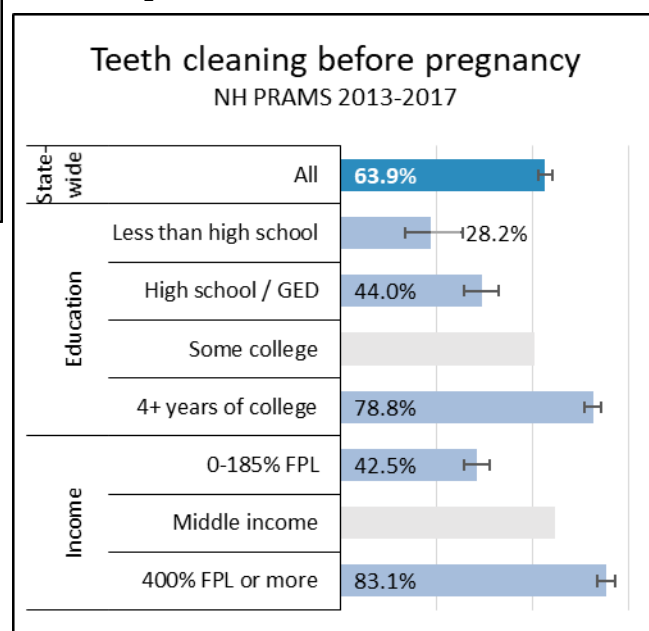
Annual average population estimate = Weighted frequency / number of years of data collected.

(There is no HP2020 objective for teeth cleaning before pregnancy.)



Non-Hispanic Black women as well as Hispanic women have a significantly lower prevalence of teeth cleaning (37.8% and 49.5%, respectively) before pregnancy than the statewide prevalence (63.9%) or that of non-Hispanic White women (62.5%).

A significantly lower prevalence of teeth cleaning was reported among the two lower education groups (28.2% and 44.0%) and the lowest income group (42.5%), and a significantly higher prevalence among the highest education group (78.8%) as well as the highest income group (83.1%), compared to the statewide figure of 63.9%.



Within the county/city ranking, two entities have a significantly lower prevalence of teeth cleaning than the state prevalence of 63.9%: the city of Manchester at 46.9% and Belknap County at 49.1%.

Also of note, Hillsborough (68.6%), Merrimack (68.7%), and Rockingham (69.4%) counties all have a significantly higher prevalence of teeth cleaning before pregnancy than Belknap County; and those three plus Carroll (69.4%) and Grafton (66.8%) counties all have a significantly higher prevalence than the city of Manchester.

TEETH CLEANED DURING PREGNANCY

		Estimated Prevalence (Percent)	95% Confidence Interval		Weighted estimate	Annual average population statewide
			Lower	Upper		
Statewide		54.8	52.6	56.9	32,696	6,539
Race/Ethnicity	Non-Hispanic White	55.7	53.4	58.0	29,223	5,845
	Non-Hispanic Black	30.0♦	15.8	49.4	234	47
	Non-Hispanic Asian	55.5♦	44.4	66.1	1,185	237
	American Indian/Alaska Native	(*)	(*)	(*)	(*)	(*)
	Other or more than one race	53.0♦	37.3	68.2	672	134
	Hispanic	41.2	30.4	53.0	878	176
Race/Ethnicity	Non-Hispanic White	55.7	53.4	58.0	29,223	5,845
	People of Color	47.2	40.6	53.9	3,055	611
Nativity	Foreign-born	50.3	43.4	57.3	2,891	578
	US-born	55.2	52.9	57.5	29,801	5,960
Age	Under 20 years of age	43.9♦	32.1	56.5	918	184
	20-39 years of age	55.0	52.7	57.2	30,684	6,137
	40+ years of age	61.2♦	48.9	72.2	1,095	219
Education	Less than high school	26.0	18.3	35.5	940	188
	High school diploma or GED	36.7	31.9	41.8	4,592	918
	Some college, less than 4 years	49.9	45.9	53.9	8,485	1,697
	Some college, 4 years or more	70.5	67.6	73.2	18,471	3,694
Income	0 to 185% of FPL	32.8	29.4	36.4	7,327	1,465
	>185% to <400% of FPL	57.6	53.2	61.9	7,806	1,561
	400% or more of FPL	76.5	73.5	79.3	16,284	3,257
Urban/Rural	Urban	55.8	53.1	58.5	21,164	4,233
	Rural	52.9	49.3	56.4	11,532	2,306
Residence	Belknap County	38.6	29.4	48.6	982	196
	Carroll County	52.0♦	39.0	64.8	869	174
	Cheshire County	50.2	41.0	59.3	1,572	314
	Coös County	49.4♦	35.4	63.6	607	121
	Grafton County	54.0	45.9	61.9	1,950	390
	Hillsborough County (excluding Manchester, Nashua)	60.2	54.5	65.6	5,184	1,037
	Merrimack County	64.2	57.5	70.4	4,151	830
	Rockingham County	60.5	55.8	65.0	7,767	1,553
	Strafford County	48.7	41.8	55.5	2,861	572
	Sullivan County	49.2♦	37.8	60.7	952	190
	Manchester	41.6	34.9	48.7	2,894	579
	Nashua	50.3	42.3	58.3	2,390	478

(*) = number suppressed.

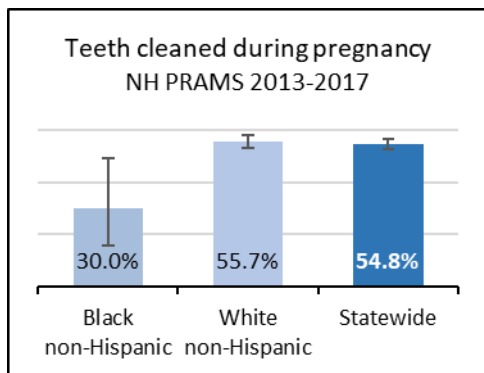
♦ = interpret with caution; prevalence estimate has high variability.

Shaded numbers are significantly different from the statewide prevalence.

Annual average population estimate = Weighted frequency / number of years of data collected.

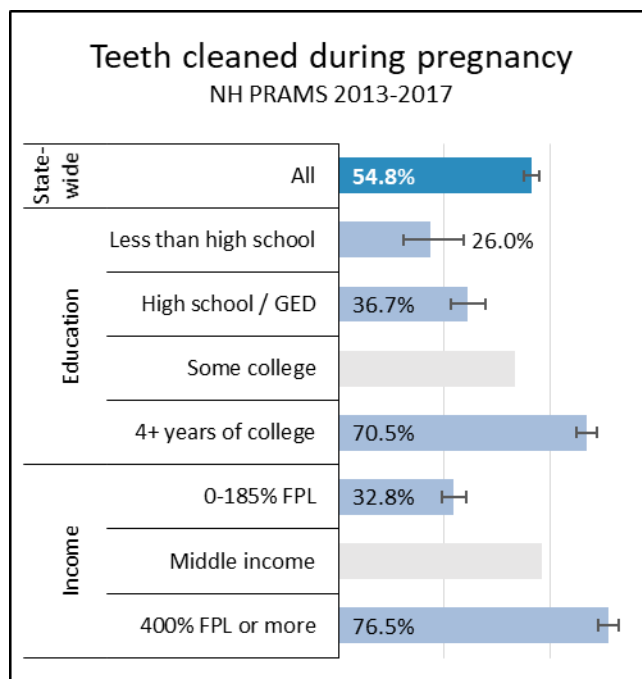
(There is no HP2020 objective for teeth cleaning during pregnancy.)

The prevalence of teeth cleaning during pregnancy is consistently lower than the prevalence of teeth cleaning before pregnancy, among all sub-groups.



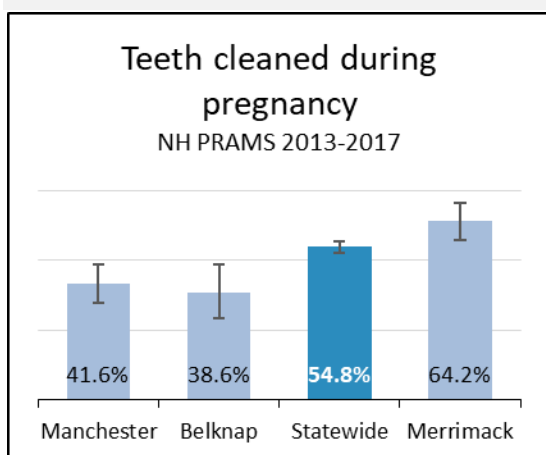
Non-Hispanic Black women had a significantly lower prevalence of teeth cleaning (30.0%) than non-Hispanic Whites (55.7%), or the statewide figure (54.8%).

A significantly smaller proportion of women in the lower education sub-groups (26.0% and 36.7%) as well as in the lowest income sub-group (32.8%) reported having their teeth cleaned during pregnancy, compared to the statewide prevalence (54.8%).



And a significantly greater proportion of women (70.5%) in the highest education sub-group as well as in the highest income sub-group (76.5%) had their teeth cleaned than the statewide figure.

Legend: light blue bars depict significant differences from the statewide prevalence, with % shown; light gray bars depict frequencies that are not significantly different from the statewide prevalence.



The prevalence by county/city shows a similar pattern as previously, with Belknap County (38.6%) and Manchester (41.6%) reporting less teeth cleaning than the statewide figure of 54.8%.

Merrimack County had a significantly higher prevalence of teeth cleaning during pregnancy (64.2%) than the statewide figure.

SMOKED CIGARETTES IN THE 3 MONTHS BEFORE PREGNANCY

		Estimated Prevalence (Percent)	95% Confidence Interval		Weighted estimate	Annual average population statewide
			Lower	Upper		
Statewide		22.1	20.3	24.1	13,230	2,646
Race/Ethnicity	Non-Hispanic White	23.6	21.6	25.6	12,320	2,464
	Non-Hispanic Black	(*)	(*)	(*)	(*)	(*)
	Non-Hispanic Asian	(*)	(*)	(*)	(*)	(*)
	American Indian/Alaska Native	(*)	(*)	(*)	(*)	(*)
	Other or more than one race	(*)	(*)	(*)	(*)	(*)
	Hispanic	(*)	(*)	(*)	(*)	(*)
Race/Ethnicity	Non-Hispanic White	23.6	21.6	25.6	12,320	2,464
	People of Color	11.5	8.0	16.4	763	153
Nativity	Foreign-born	5.8	3.3	9.9	342	68
	US-born	23.9	22.0	26.0	12,885	2,577
Age	Under 20 years of age	40.6♦	29.3	53.0	849	170
	20-39 years of age	21.7	19.9	23.7	12,132	2,426
	40+ years of age	(*)	(*)	(*)	(*)	(*)
Education	Less than high school	54.5	44.8	63.8	1,967	393
	High school diploma or GED	40.7	35.7	45.8	5,102	1,020
	Some college, less than 4 years	27.7	24.3	31.5	4,709	942
	Some college, 4 years or more	5.0	3.8	6.5	1,303	261
Income	0 to 185% of FPL	41.0	37.4	44.7	9,185	1,837
	>185% to <400% of FPL	14.2	11.3	17.6	1,939	388
	400% or more of FPL	6.5	4.9	8.5	1,381	276
Urban/Rural	Urban	20.2	18.0	22.5	7,666	1,533
	Rural	25.6	22.5	29.0	5,564	1,113
Residence	Belknap County	28.4	19.7	39.0	714	143
	Carroll County	23.2♦	13.9	36.2	375	75
	Cheshire County	21.6	14.9	30.3	685	137
	Coös County	50.4♦	36.2	64.5	620	124
	Grafton County	16.9	11.5	24.1	612	122
	Hillsborough County (excluding Manchester, Nashua)	17.9	13.7	23.1	1,532	306
	Merrimack County	25.5	19.8	32.0	1,642	328
	Rockingham County	15.4	12.3	19.2	1,978	396
	Strafford County	28.9	22.9	35.7	1,716	343
	Sullivan County	37.9♦	26.9	50.2	732	146
	Manchester	27.5	21.6	34.3	1,916	383
	Nashua	20.9	14.7	28.8	1,007	201

(*) = number suppressed.

♦ = interpret with caution; prevalence estimate has high variability.

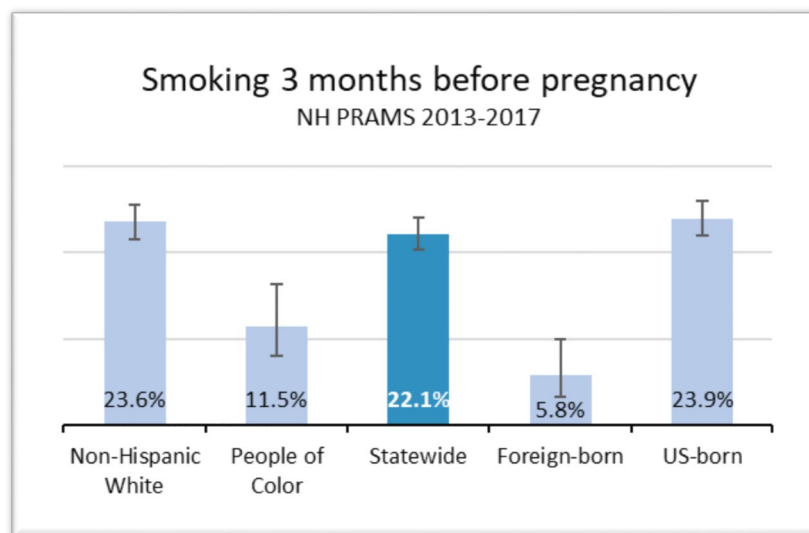
Shaded numbers are significantly different from the statewide prevalence.

Annual average population estimate = Weighted frequency / number of years of data collected.

The HP2020 target for MICH-16 is to increase the proportion of women delivering a live birth who do not smoke prior to pregnancy to 87.8%.
Or, **decrease the proportion who smoke before pregnancy to 12.2%.**

Smoking any cigarettes in the three months before pregnancy attained a reportable level only among non-Hispanic White women; when grouped together, all of the women who are People of Color had a prevalence of smoking any cigarettes that was significantly lower (11.5%) than the statewide prevalence (22.1%), or the prevalence among non-Hispanic Whites (23.6%).

Foreign-born women also had a significantly lower prevalence (5.8%) of smoking any cigarettes in the three months before pregnancy than the US-born women (23.9%).

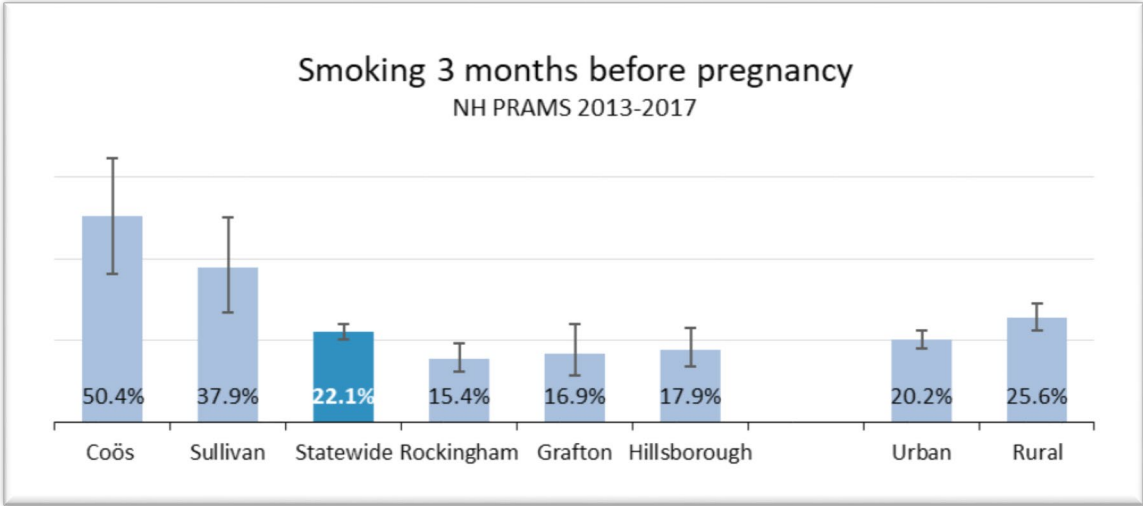


Smoking in the three months before pregnancy has a strong association with age, education and income (see graphics on page 25); it is significantly more prevalent:

- among the youngest women, under 20 years of age (40.6%) than the statewide figure or that of the other age groups;
- among the three lowest levels of educational attainment than the statewide figure or that of the highest attainment group;
- among the lowest income group (0-185% FPL) than the statewide figure or that of the middle- or high-income groups.

Coös (50.4%) and Sullivan (37.9%) counties both have a significantly higher prevalence than the statewide figure of 22.1%. And significantly lower prevalences occur in Rockingham (15.4%), Grafton (16.9%), and Hillsborough (17.9%). **NB:** The prevalence in Coös County (50.4%) is over three times higher than in Rockingham County (15.4%), although the prevalence in Coös County has high variability and should be interpreted with caution.

Neither urban nor rural dwellers show a significant difference from the statewide prevalence of 22.1%, but there is a significant difference between them, with 20.2% of urban dwellers and 25.6% of rural dwellers smoking in the three months before pregnancy.



SMOKED CIGARETTES IN THE LAST 3 MONTHS OF PREGNANCY

		Estimated Prevalence (Percent)	95% Confidence Interval		Weighted estimate	Annual average population statewide
			Lower	Upper		
Statewide		10.9	9.5	12.4	6,515	1,303
Race/Ethnicity	Non-Hispanic White	12.0	10.5	13.7	6,292	1,258
	Non-Hispanic Black	(*)	(*)	(*)	(*)	(*)
	Non-Hispanic Asian	(*)	(*)	(*)	(*)	(*)
	American Indian/Alaska Native	(*)	(*)	(*)	(*)	(*)
	Other or more than one race	(*)	(*)	(*)	(*)	(*)
	Hispanic	(*)	(*)	(*)	(*)	(*)
Race/Ethnicity	Non-Hispanic White	12.0	10.5	13.7	6,292	1,258
	People of Color	(*)	(*)	(*)	(*)	(*)
Nativity	Foreign-born	(*)	(*)	(*)	(*)	(*)
	US-born	12.0	10.5	13.6	6,460	1,292
Age	Under 20 years of age	25.2♦	16.2	37.0	527	105
	20-39 years of age	10.5	9.1	12.0	5,875	1,175
	40+ years of age	(*)	(*)	(*)	(*)	(*)
Education	Less than high school	39.6	30.6	49.3	1,429	286
	High school diploma or GED	22.6	18.5	27.2	2,839	568
	Some college, less than 4 years	12.0	9.6	14.9	2,042	408
	Some college, 4 years or more	(*)	(*)	(*)	(*)	(*)
Income	0 to 185% of FPL	24.9	21.8	28.3	5,571	1,114
	>185% to <400% of FPL	2.9	1.7	4.9	399	80
	400% or more of FPL	(*)	(*)	(*)	(*)	(*)
Urban/Rural	Urban	9.3	7.8	11.1	3,554	711
	Rural	13.6	11.2	16.4	2,960	592
Residence	Belknap County	(*)	(*)	(*)	(*)	(*)
	Carroll County	(*)	(*)	(*)	(*)	(*)
	Cheshire County	12.6	7.5	20.2	398	80
	Coös County	29.4♦	17.9	44.2	362	72
	Grafton County	11.8	7.3	18.6	426	85
	Hillsborough County (excluding Manchester, Nashua)	8.9	5.8	13.5	765	153
	Merrimack County	11.7	7.8	17.2	758	151
	Rockingham County	6.0	4.1	8.8	776	155
	Strafford County	17.1	12.3	23.3	1,018	204
	Sullivan County	23.0♦	14.2	34.9	444	89
	Manchester	11.5	7.7	16.9	811	162
	Nashua	10.7♦	6.2	17.8	516	103

(*) = number suppressed.

♦ = interpret with caution; prevalence estimate has high variability.

Shaded numbers are significantly different from the statewide prevalence.

Annual average population estimate = Weighted frequency / number of years of data collected.

HP2020 target for MICH-11.3 is to increase abstinence from cigarette smoking among pregnant women to 98.6%.
Or, **decrease the proportion of women who smoke during pregnancy to 1.4%.**

The statewide prevalence of smoking any cigarettes in the last three months of pregnancy was 10.9%.

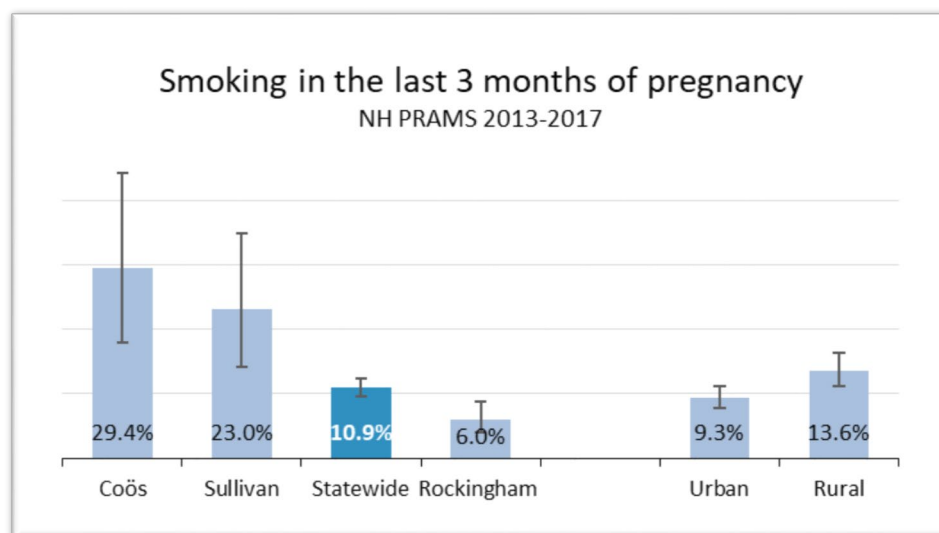
As was the case with smoking before pregnancy, only non-Hispanic White women, and US-born women, had a reportable proportion of smokers during the last three month of pregnancy.

And as previously, women who were the youngest, the least educated, and the lowest income had prevalence figures (25.2%, 39.6%, 24.9%, respectively) that were significantly higher (worse findings) than the statewide prevalence of 10.9% (see graphics on page 25).

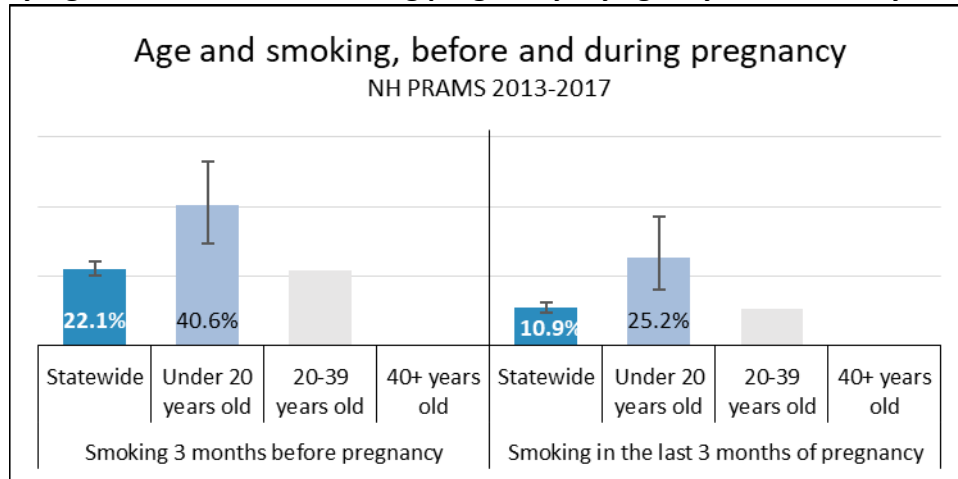
Neither urban nor rural dwellers show a significant difference from the statewide prevalence of 10.9%, but there is a significant difference between them, with 9.3% of urban dwellers and 13.6% of rural dwellers smoking in the last three months of pregnancy.

Geographically, the same high and low performers emerged for smoking any cigarettes in the last three months of pregnancy as in the three months before pregnancy, namely Coös County (29.4%) and Sullivan County (23.0%) who have a significantly higher prevalence than the statewide average, and Rockingham County (6.0%) which has a significantly lower prevalence than statewide.

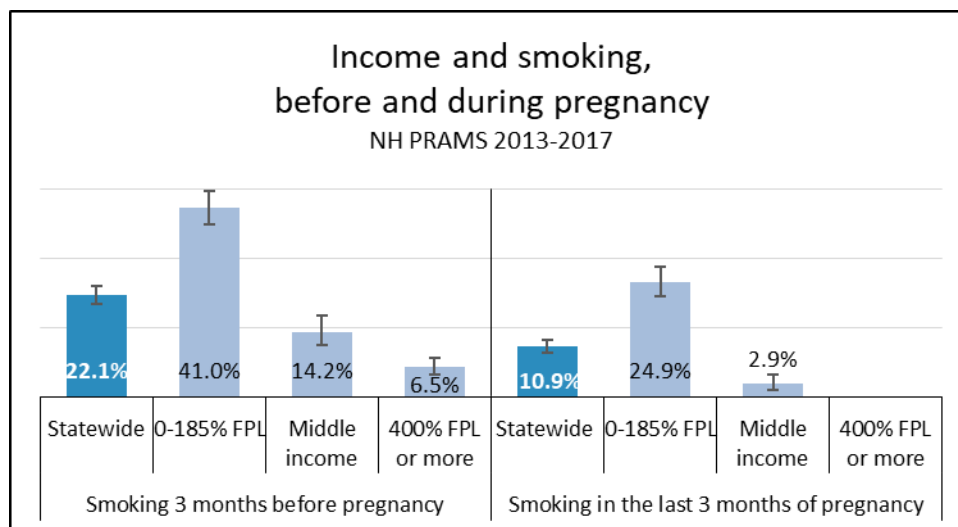
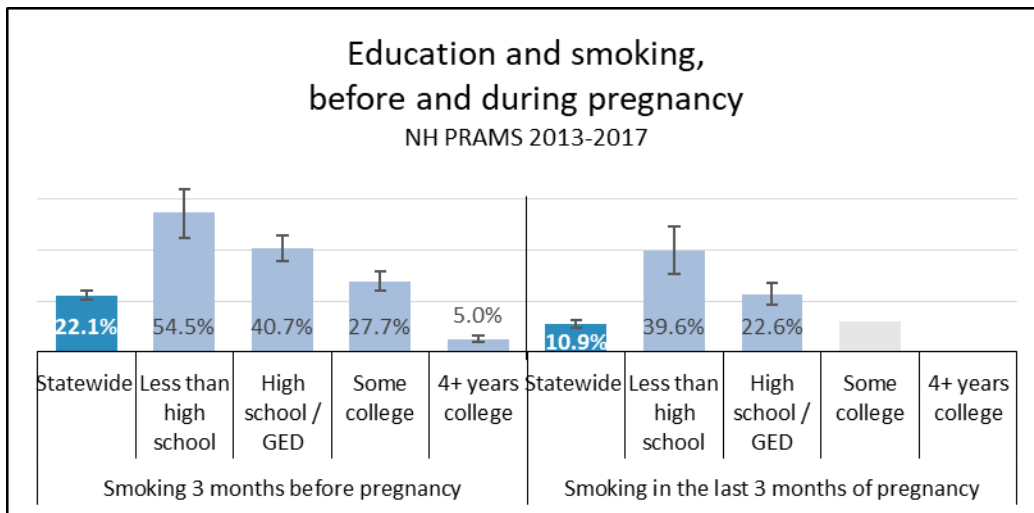
NB: The Coös County prevalence was nearly five times that of Rockingham County (29.4% vs. 6.0%).



Smoking any cigarettes before and during pregnancy—by age, by education, by income



Legend: light blue bars depict significant differences from the statewide prevalence, with % shown; light gray bars depict frequencies that are not significantly different from the statewide prevalence.



DRANK ALCOHOL IN THE 3 MONTHS BEFORE PREGNANCY

		Estimated Prevalence (Percent)	95% Confidence Interval		Weighted estimate	Annual average population statewide
			Lower	Upper		
Statewide		72.8	70.8	74.7	43,467	8,693
Race/Ethnicity	Non-Hispanic White	75.6	73.6	77.6	39,476	7,895
	Non-Hispanic Black	35.4♦	19.9	54.8	288	58
	Non-Hispanic Asian	37.7♦	27.7	48.8	819	164
	American Indian/Alaska Native	(*)	(*)	(*)	(*)	(*)
	Other or more than one race	56.9♦	41.0	71.5	751	150
	Hispanic	61.7♦	50.1	72.1	1,366	273
Race/Ethnicity	Non-Hispanic White	75.6	73.6	77.6	39,476	7,895
	People of Color	48.5	41.9	55.1	3,237	647
Nativity	Foreign-born	49.7	42.9	56.5	2,974	595
	US-born	75.4	73.4	77.3	40,492	8,098
Age	Under 20 years of age	40.0♦	28.6	52.5	835	167
	20-39 years of age	74.0	72.0	75.9	41,341	8,268
	40+ years of age	73.7♦	61.3	83.2	1,291	258
Education	Less than high school	49.7	40.2	59.2	1,813	363
	High school diploma or GED	64.2	59.2	69.0	8,100	1,620
	Some college, less than 4 years	73.0	69.3	76.4	12,354	2,471
	Some college, 4 years or more	80.2	77.7	82.6	20,951	4,190
Income	0 to 185% of FPL	62.8	59.2	66.3	14,044	2,809
	>185% to <400% of FPL	79.3	75.5	82.6	10,797	2,159
	400% or more of FPL	81.6	78.8	84.2	17,330	3,466
Urban/Rural	Urban	73.2	70.7	75.6	27,810	5,562
	Rural	72.1	68.8	75.2	15,657	3,131
Residence	Belknap County	72.5	62.1	80.9	1,820	364
	Carroll County	74.4♦	61.5	84.1	1,217	243
	Cheshire County	55.3	45.9	64.2	1,752	350
	Coös County	73.6♦	59.0	84.3	904	181
	Grafton County	73.3	65.7	79.8	2,621	524
	Hillsborough County (excluding Manchester, Nashua)	75.1	69.8	79.7	6,456	1,291
	Merrimack County	74.4	68.2	79.8	4,812	962
	Rockingham County	78.7	74.6	82.3	10,132	2,026
	Strafford County	74.8	68.4	80.3	4,352	870
	Sullivan County	70.2♦	57.9	80.1	1,358	272
	Manchester	65.3	58.3	71.8	4,613	923
	Nashua	64.4	56.3	71.7	3,091	618

(*) = number suppressed.

♦ = interpret with caution; prevalence estimate has high variability.

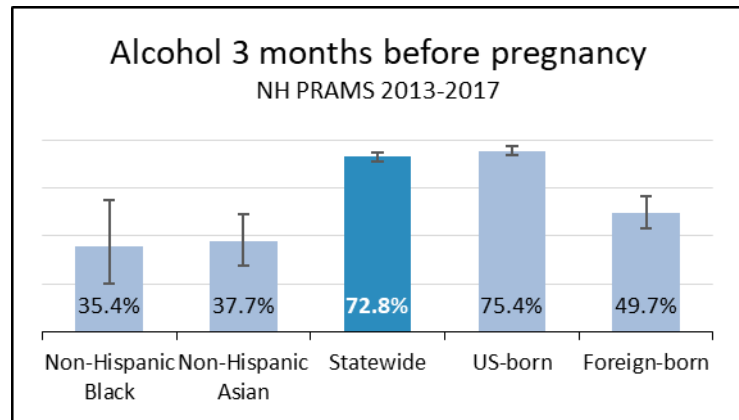
Shaded numbers are significantly different from the statewide prevalence.

Annual average population estimate = Weighted frequency / number of years of data collected.

The HP2020 target for MICH-16.4 is to increase the proportion of women delivering a live birth who did not drink alcohol prior to pregnancy to 55.6%.
Or decrease the proportion who drink before pregnancy to 44.4%.

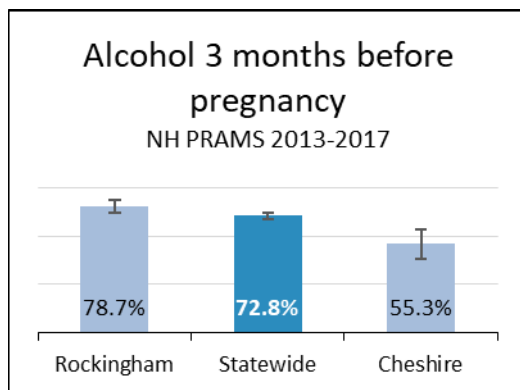
The statewide prevalence of drinking alcohol (any amount) in the three months before pregnancy was 72.8%.

Drinking any amount of alcohol in the three months before pregnancy has several sub-groups performing better (lower prevalences) than the statewide average. Non-Hispanic Black women and non-Hispanic Asian women had a prevalence approximately half that of the statewide figure (35.4% and 37.7% respectively vs. 72.8%).



Likewise, a significantly smaller proportion foreign-born women (49.7%) drank any alcohol before pregnancy than US-born women (75.4%).

Unlike consumers of cigarettes, consumers of alcohol before pregnancy are the women with the highest educational attainment (prevalence 80.2%) and the middle or highest income (prevalence 79.3% and 81.6%, respectively)—see graphics on page 30.



Whereas Rockingham County had the lowest prevalence of smoking before pregnancy, for drinking before pregnancy, Rockingham has the highest prevalence, and it is the only county with a significantly higher prevalence (78.7%) than the statewide figure (72.8%).

DRANK ALCOHOL IN THE LAST 3 MONTHS OF PREGNANCY

		Estimated Prevalence (Percent)	95% Confidence Interval		Weighted estimate	Annual average population statewide
			Lower	Upper		
Statewide		11.2	9.6	13.1	4,034	807
Race/Ethnicity	Non-Hispanic White	11.0	9.3	13.0	3,463	693
	Non-Hispanic Black	0	0	0	0	0
	Non-Hispanic Asian	(*)	(*)	(*)	(*)	(*)
	American Indian/Alaska Native	(*)	(*)	(*)	(*)	(*)
	Other or more than one race	(*)	(*)	(*)	(*)	(*)
	Hispanic	(*)	(*)	(*)	(*)	(*)
Race/Ethnicity	Non-Hispanic White	11.0	9.3	13.0	3,463	693
	People of Color	11.5	7.2	17.7	469	94
Nativity	Foreign-born	10.2	6.0	16.7	333	67
	US-born	11.3	9.6	13.3	3,701	740
Age	Under 20 years of age	(*)	(*)	(*)	(*)	(*)
	20-39 years of age	11.4	9.7	13.3	3,772	754
	40+ years of age	(*)	(*)	(*)	(*)	(*)
Education	Less than high school	(*)	(*)	(*)	(*)	(*)
	High school diploma or GED	6.7	4.1	10.6	526	105
	Some college, less than 4 years	10.8	8.1	14.2	1,146	229
	Some college, 4 years or more	15.5	12.7	18.7	2,278	456
Income	0 to 185% of FPL	7.5	5.4	10.3	1,054	211
	>185% to <400% of FPL	10.2	7.3	14.3	800	160
	400% or more of FPL	16.9	13.7	20.5	2,087	417
Urban/Rural	Urban	10.4	8.5	12.7	2,378	476
	Rural	12.6	9.9	15.8	1,656	331
Residence	Belknap County	(*)	(*)	(*)	(*)	(*)
	Carroll County	(*)	(*)	(*)	(*)	(*)
	Cheshire County	(*)	(*)	(*)	(*)	(*)
	Coös County	(*)	(*)	(*)	(*)	(*)
	Grafton County	19.8	13.0	28.9	455	91
	Hillsborough County (excluding Manchester, Nashua)	15.3	10.6	21.5	772	154
	Merrimack County	8.5♦	5.0	14.3	315	63
	Rockingham County	9.7	6.7	13.8	723	145
	Strafford County	11.7	7.2	18.5	406	81
	Sullivan County	(*)	(*)	(*)	(*)	(*)
	Manchester	10.2♦	6.0	16.7	480	96
	Nashua	(*)	(*)	(*)	(*)	(*)

(*) = number suppressed.

♦ = interpret with caution; prevalence estimate has high variability.

Shaded numbers are significantly different from the statewide prevalence.

Annual average population estimate = Weighted frequency / number of years of data collected.

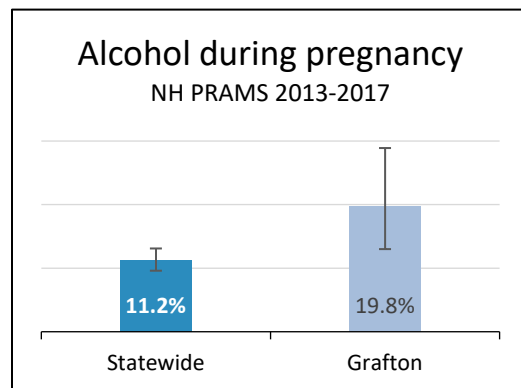
The HP2020 target for MICH-11.1 is to increase abstinence from alcohol among pregnant women to 98.3%.
Or **reduce the proportion who drink alcohol during pregnancy to 1.7%.**

The prevalence of drinking alcohol (any amount) in the last three months of pregnancy was 11.2% statewide, with only small (non-significant) differences by sub-group, with two exceptions.

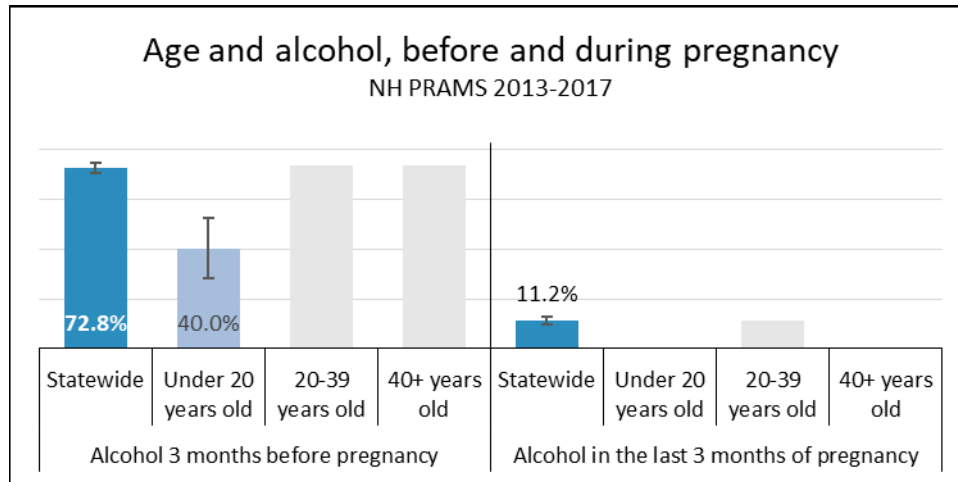
The wealthiest women (400% of FPL or higher) had a significantly higher prevalence (16.9%) of drinking any alcohol in the last three months of pregnancy than the statewide prevalence (11.2%)—see graphics on page 30.

And the women residing in Grafton County attained a significantly higher prevalence (19.8%) than the statewide figure (11.2%).

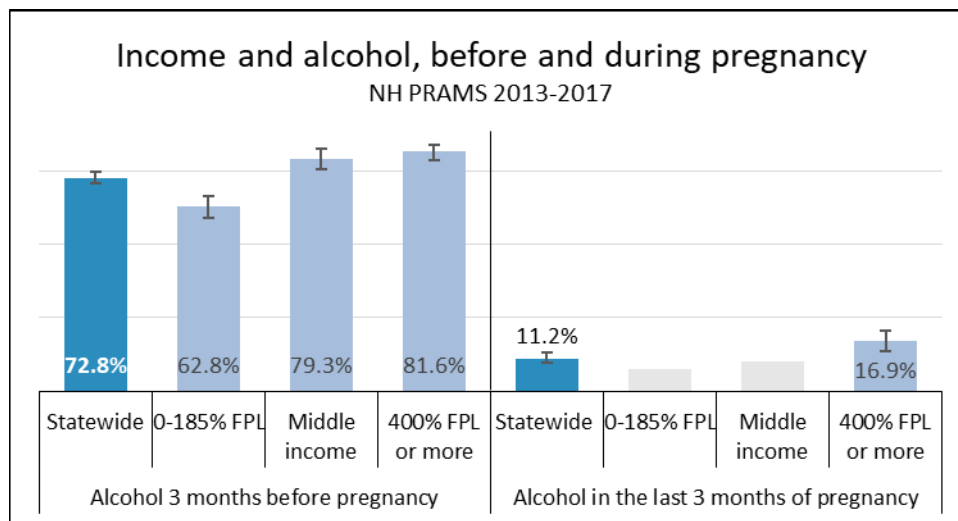
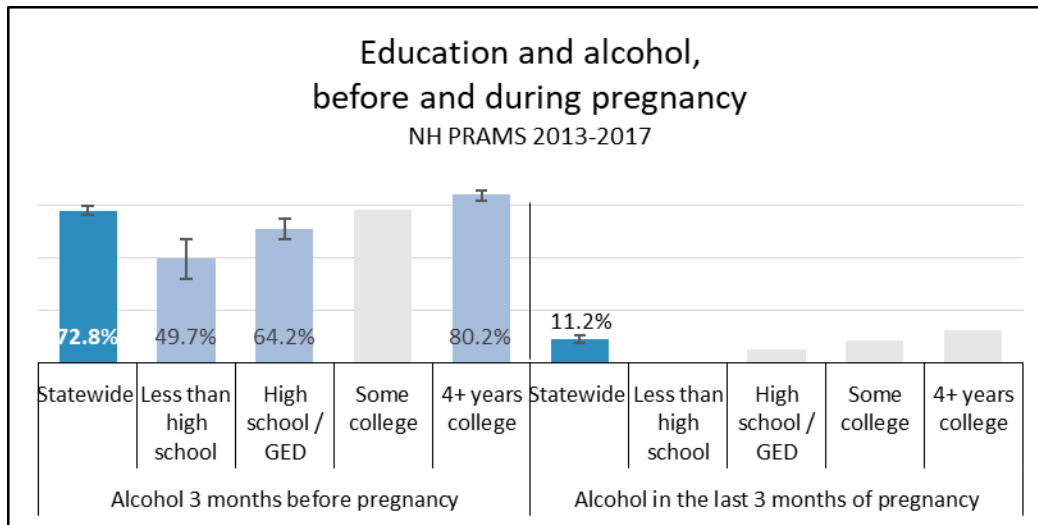
Rockingham County reported a slightly lower prevalence (9.7%) of drinking during pregnancy than the statewide figure (11.2%) but this difference does not attain statistical significance.



Any alcohol before and during pregnancy—by age, by education, by income



Legend: light blue bars depict significant differences from the statewide prevalence, with % shown; light gray bars depict frequencies that are not significantly different from the statewide prevalence.



EVER BREASTFED

		Estimated Prevalence (Percent)	95% Confidence Interval		Weighted estimate	Annual average population statewide
			Lower	Upper		
Statewide		90.5	89.1	91.7	54,046	10,809
Race/Ethnicity	Non-Hispanic White	90.3	88.9	91.6	47,172	9,434
	Non-Hispanic Black	92.9	78.6	97.9	774	155
	Non-Hispanic Asian	97.5	90.5	99.4	2,119	424
	American Indian/Alaska Native	(*)	(*)	(*)	(*)	(*)
	Other or more than one race	83.7♦	66.8	92.9	1,080	216
	Hispanic	87.8	77.5	93.7	1,928	386
Race/Ethnicity	Non-Hispanic White	90.3	88.9	91.6	47,172	9,434
	People of Color	91.1	86.2	94.4	6,088	1,218
Nativity	Foreign-born	97.2	93.7	98.8	5,777	1,155
	US-born	89.8	88.3	91.1	48,265	9,653
Age	Under 20 years of age	78.0♦	66.0	86.7	1,569	314
	20-39 years of age	91.4	90.0	92.5	51,065	10,213
	40+ years of age	77.9	66.5	86.2	1,411	282
Education	Less than high school	78.4	69.7	85.2	2,798	560
	High school diploma or GED	83.5	79.3	86.9	10,538	2,108
	Some college, less than 4 years	90.2	87.5	92.3	15,287	3,057
	Some college, 4 years or more	95.6	94.2	96.7	25,041	5,008
Income	0 to 185% of FPL	86.7	84.0	89.0	19,339	3,868
	>185% to <400% of FPL	93.3	90.7	95.3	12,664	2,533
	400% or more of FPL	93.5	91.5	95.0	19,902	3,980
Urban/Rural	Urban	90.0	88.2	91.5	34,213	6,843
	Rural	91.4	89.1	93.2	19,833	3,967
Residence	Belknap County	96.8	89.5	99.1	2,421	484
	Carroll County	87.8	76.3	94.2	1,466	293
	Cheshire County	91.1	83.6	95.4	2,890	578
	Coös County	71.0♦	56.4	82.3	871	174
	Grafton County	93.4	88.1	96.4	3,302	660
	Hillsborough County (excluding Manchester, Nashua)	91.8	88.1	94.4	7,897	1,579
	Merrimack County	93.0	88.8	95.7	6,017	1,203
	Rockingham County	88.5	85.0	91.3	11,395	2,279
	Strafford County	90.7	85.8	94.1	5,330	1,066
	Sullivan County	92.6	83.6	96.8	1,784	357
	Manchester	89.2	84.2	92.8	6,245	1,249
	Nashua	88.3	81.4	92.9	4,254	851

(*) = number suppressed.

♦ = interpret with caution; prevalence estimate has high variability.

Shaded numbers are significantly different from the statewide prevalence.

Annual average population estimate = Weighted frequency / number of years of data collected.

Women were asked if they ever breastfed their baby, even for a short period of time.

The HP2020 target for MICH-21.1 is **to increase the proportion of infants who are ever breastfed to 81.9%**.

The reported statewide prevalence of ever breastfeeding was 90.5%.

There were no significant differences by race/ethnicity but the foreign-born women had a significantly higher prevalence of ever breastfeeding (97.2%) than the US-born women (89.8%) or the statewide prevalence (90.5%).

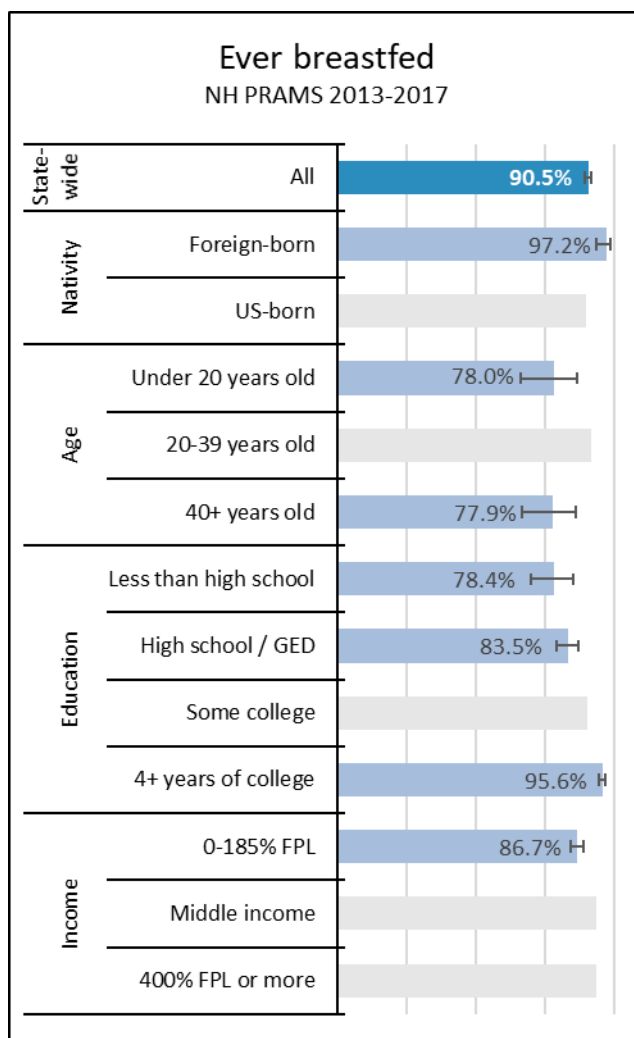
The main statistical differences from this statewide average occur among the youngest women, of whom 78.0% reported ever breastfeeding; among those with the least educational attainment, of whom 78.4% and 83.5% reported ever breastfeeding; and the lowest income women, of whom 86.7% reported ever breastfeeding.

Only one group has a significantly higher prevalence than the statewide figure: 95.6% of women with 4 or more years of college reported ever breastfeeding.

Legend: light blue bars depict significant differences from the statewide prevalence, with % shown; light gray bars depict frequencies that are not significantly different from the statewide prevalence.

Geographically, only Coös County had a significantly different prevalence of ever breastfeeding than the statewide average: 71.0% compared to 90.5%.

Belknap County had the highest prevalence of all the counties, at 96.8%, followed by Grafton (93.4%), Merrimack (93.0%), Sullivan (92.6%), Hillsborough (91.8%), and Cheshire counties (91.1%).



The cities of Manchester and Nashua reported slightly lower prevalences (89.2% and 88.3%, respectively) than the statewide figure (90.5%), as did Carroll and Rockingham counties (87.8% and 88.5%, respectively) but these did not attain statistical significance.

BREASTFEEDING 8 WEEKS OR LONGER

		Estimated Prevalence (Percent)	95% Confidence Interval		Weighted estimate	Annual average population statewide
			Lower	Upper		
Statewide		65.3	63.2	67.4	38,714	7,743
Race/Ethnicity	Non-Hispanic White	65.0	62.8	67.2	33,809	6,762
	Non-Hispanic Black	65.0♦	45.4	80.6	512	102
	Non-Hispanic Asian	87.0	78.2	92.7	1,839	368
	American Indian/Alaska Native	(*)	(*)	(*)	(*)	(*)
	Other or more than one race	59.3♦	42.6	74.1	737	147
	Hispanic	50.0♦	38.5	61.5	1,059	212
Race/Ethnicity	Non-Hispanic White	65.0	62.8	67.2	33,809	6,762
	People of Color	67.0	60.4	73.0	4,320	864
Nativity	Foreign-born	81.3	75.2	86.1	4,661	932
	US-born	63.6	61.4	65.8	34,053	6,811
Age	Under 20 years of age	30.4♦	19.9	43.5	612	122
	20-39 years of age	66.4	64.3	68.5	36,872	7,374
	40+ years of age	69.7♦	57.9	79.4	1,229	246
Education	Less than high school	36.1	27.1	46.2	1,228	246
	High school diploma or GED	43.3	38.3	48.5	5,417	1,083
	Some college, less than 4 years	61.6	57.7	65.4	10,361	2,072
	Some college, 4 years or more	82.2	79.7	84.4	21,521	4,304
Income	0 to 185% of FPL	50.2	46.5	54.0	10,981	2,196
	>185% to <400% of FPL	73.7	69.6	77.4	9,996	1,999
	400% or more of FPL	77.5	74.5	80.3	16,474	3,295
Urban/Rural	Urban	64.1	61.4	66.7	24,159	4,832
	Rural	67.4	63.9	70.7	14,555	2,911
Residence	Belknap County	59.3♦	48.6	69.2	1,479	296
	Carroll County	61.3♦	47.9	73.1	1,022	204
	Cheshire County	69.2	60.0	77.1	2,196	439
	Coös County	51.3♦	36.8	65.5	617	123
	Grafton County	69.3	61.1	76.4	2,469	494
	Hillsborough County (excluding Manchester, Nashua)	69.7	64.2	74.7	6,011	1,202
	Merrimack County	69.8	63.2	75.6	4,410	882
	Rockingham County	63.5	58.8	67.9	8,124	1,625
	Strafford County	67.0	60.1	73.3	3,922	784
	Sullivan County	70.1♦	58.1	79.9	1,323	265
	Manchester	57.8	50.6	64.6	3,986	797
	Nashua	54.8	46.6	62.7	2,576	515

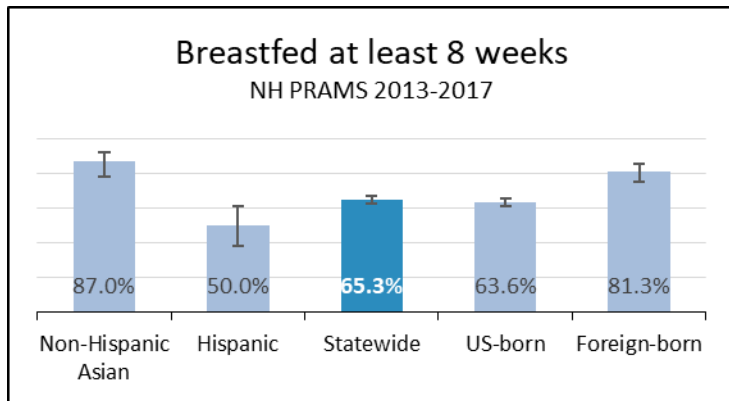
(*) = number suppressed.

♦ = interpret with caution; prevalence estimate has high variability.

Shaded numbers are significantly different from the statewide prevalence.

Annual average population estimate = Weighted frequency / number of years of data collected.

The closest equivalent HP2020 objective on breastfeeding is MICH-21.2, **to increase the proportion of infants who are breastfed at six months of age; the target is 60.6%.**



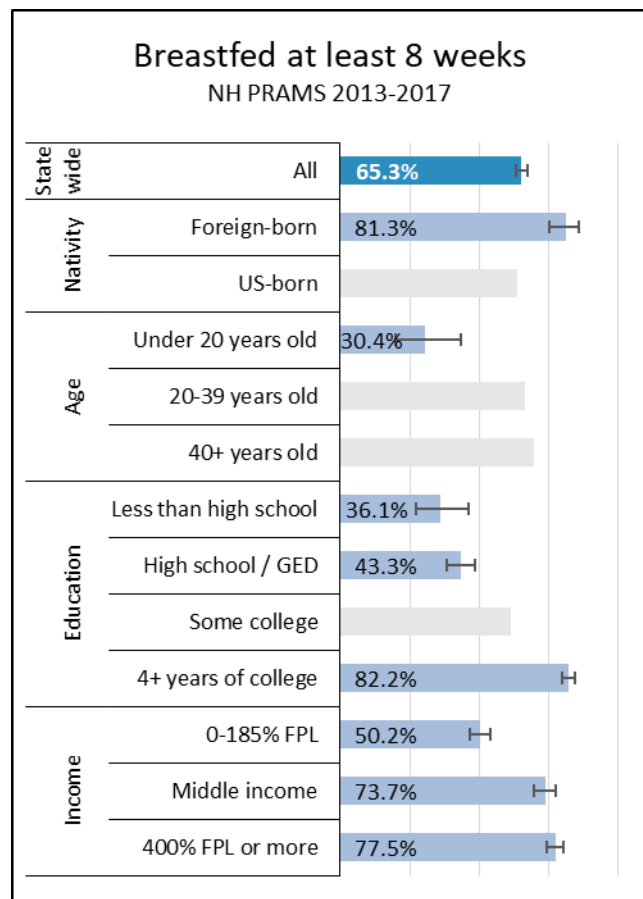
The PRAMS survey is implemented when infants are typically two months of age (although a small number are 3-5 months old), so the PRAMS data on breastfeeding duration is limited to breastfeeding at least eight weeks, when the infant is two months old. Statewide, 65.3% of women reported breastfeeding at least eight weeks.

A significantly larger proportion of non-Hispanic Asian women (87.0%) and a significantly smaller proportion of Hispanic women (50.0%) reported breastfeeding at least eight weeks than the statewide average.

Among foreign-born women the prevalence of breastfeeding at least eight weeks was 81.3%, significantly higher than the prevalence among US-born women (63.6%) as well as the statewide average of 65.3%.

Regarding age, education and income, the same pattern was seen as previously, with significantly smaller proportions of the younger (30.4%), of the less educated (36.1% and 43.3%), and of the lowest income (50.2%) women breastfeeding at least eight weeks than the statewide average (65.3%).

The prevalences by county/city ranged from 54.8% in Nashua to 70.1% in Sullivan County. The only significant difference from the statewide average was the low prevalence of 54.8% in Nashua.



Legend: light blue bars depict significant differences from the statewide prevalence, with % shown; light gray bars depict frequencies that are not significantly different from the statewide prevalence.

POSTPARTUM CHECKUP

		Estimated Prevalence (Percent)	95% Confidence Interval		Weighted estimate	Annual average population statewide
			Lower	Upper		
Statewide		93.8	92.7	94.8	56,062	11,212
Race/Ethnicity	Non-Hispanic White	94.1	92.9	95.1	49,356	9,871
	Non-Hispanic Black	97.9	95.3	99.1	736	147
	Non-Hispanic Asian	85.3	75.5	91.6	1,855	371
	American Indian/Alaska Native	(*)	(*)	(*)	(*)	(*)
	Other or more than one race	99.4	98.3	99.8	1,311	262
	Hispanic	91.1	82.3	95.8	1,957	391
Race/Ethnicity	Non-Hispanic White	94.1	92.9	95.1	49,356	9,871
	People of Color	91.7	87.5	94.6	6,005	1,201
Nativity	Foreign-born	90.7	86.0	93.9	5,294	1,059
	US-born	94.2	93.0	95.2	50,764	10,153
Age	Under 20 years of age	82.2	70.7	89.9	1,688	338
	20-39 years of age	94.4	93.3	95.4	52,758	10,552
	40+ years of age	89.0	78.4	94.7	1,616	323
Education	Less than high school	81.7	73.5	87.8	2,887	577
	High school diploma or GED	91.3	88.0	93.7	11,458	2,292
	Some college, less than 4 years	93.0	90.7	94.8	15,876	3,175
	Some college, 4 years or more	97.3	96.0	98.1	25,458	5,097
Income	0 to 185% of FPL	88.4	85.8	90.5	19,764	3,953
	>185% to <400% of FPL	97.2	95.4	98.3	13,168	2,634
	400% or more of FPL	97.6	96.3	98.5	20,785	4,157
Urban/Rural	Urban	95.0	93.6	96.0	36,167	7,233
	Rural	91.8	89.6	93.6	19,895	3,979
Residence	Belknap County	90.7	82.2	95.4	2,264	453
	Carroll County	94.6	83.4	98.4	1,578	316
	Cheshire County	91.6	85.2	95.4	2,904	581
	Coös County	93.2	82.6	97.5	1,120	224
	Grafton County	91.6	85.1	95.4	3,282	656
	Hillsborough County (excluding Manchester, Nashua)	94.2	90.7	96.5	8,125	1,625
	Merrimack County	92.3	87.8	95.2	5,958	1,192
	Rockingham County	96.7	94.4	98.0	12,480	2,496
	Strafford County	95.4	91.2	97.7	5,626	1,125
	Sullivan County	82.9	71.7	90.3	1,580	316
	Manchester	92.0	87.3	95.0	6,430	1,286
	Nashua	96.1	92.4	98.0	4,617	923

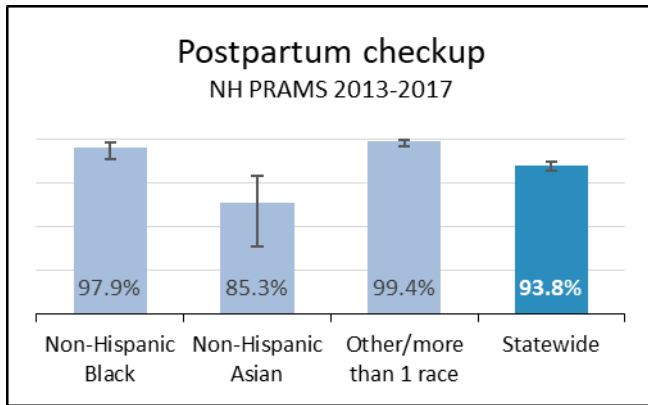
(*) = number suppressed.

◆ = interpret with caution; prevalence estimate has high variability.

Shaded numbers are significantly different from the statewide prevalence.

Annual average population estimate = Weighted frequency / number of years of data collected.

The HP2020 objective MICH-19 seeks to increase the proportion of women giving birth who attend a postpartum care visit to 90.8%.



The statewide prevalence of postpartum visits is 93.8% (and 95.8% among women participating in Home Visiting from 10.1.16 - 9.30.17), thus surpassing the HP2020 objective. However, there are inequities by race/ethnicity—the prevalence is significantly higher (97.9%) among non-Hispanic Black women, as well as among women of Other or More than one race (99.4%), but significantly lower (85.3%) among non-Hispanic Asian women.

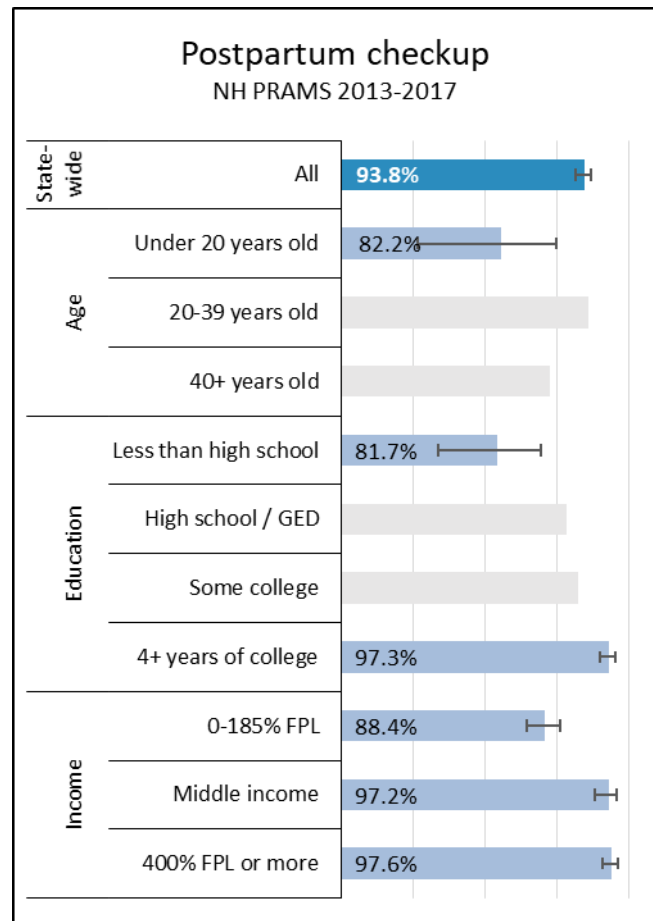
There was no significant difference in prevalence by nativity.

The youngest women (<20 years) had a significantly lower prevalence (82.2%) than the statewide figure (93.8%), as did those with the lowest educational attainment (81.7%), and those with the lowest income (88.4%).

And conversely, a significantly greater proportion (97.3%) of women with the highest educational attainment, as well as those of middle or high income (97.2% and 97.6%, respectively) had a postpartum visit than the statewide prevalence for this indicator.

Geographically, only Sullivan County had a significantly lower prevalence (82.9%) than the statewide average of 93.8%. Rockingham County fared the best, with a prevalence of 96.7%, followed by the city of Nashua (86.1%), Strafford County (95.4%), Carroll County (94.6%) and Hillsborough County (94.2%).

Legend: light blue bars depict significant differences from the statewide prevalence, with % shown; light gray bars depict frequencies that are not significantly different from the statewide prevalence.



POSTPARTUM DEPRESSION (SUMMARY INDICATOR)

		Estimated Prevalence (Percent)	95% Confidence Interval		Weighted estimate	Annual average population statewide
			Lower	Upper		
Statewide		12.8	11.4	14.3	7,670	1,534
Race/Ethnicity	Non-Hispanic White	12.3	10.8	13.9	6,447	1,289
	Non-Hispanic Black	(*)	(*)	(*)	(*)	(*)
	Non-Hispanic Asian	15.4♦	8.9	25.2	330	66
	American Indian/Alaska Native	(*)	(*)	(*)	(*)	(*)
	Other or more than one race	(*)	(*)	(*)	(*)	(*)
	Hispanic	15.8♦	8.7	26.9	341	68
Race/Ethnicity	Non-Hispanic White	12.3	10.8	13.9	6,447	1,289
	People of Color	17.5	12.9	23.1	6,665	1,333
Nativity	Foreign-born	16.7	12.0	22.6	989	198
	US-born	12.4	10.9	14.0	6,681	1,336
Age	Under 20 years of age	28.1♦	18.4	40.3	586	117
	20-39 years of age	12.2	10.8	14.0	6,863	1,373
	40+ years of age	12.2	6.3	22.5	222	44
Education	Less than high school	32.8	24.4	42.4	1,195	239
	High school diploma or GED	16.1	12.6	20.2	2,034	407
	Some college, less than 4 years	14.4	11.8	17.4	2,453	491
	Some college, 4 years or more	7.5	6.0	9.2	1,957	391
Income	0 to 185% of FPL	19.4	16.6	22.6	4,375	875
	>185% to <400% of FPL	9.8	7.5	12.7	1,342	268
	400% or more of FPL	6.8	5.3	8.8	1,454	291
Urban/Rural	Urban	13.3	11.5	15.3	5,070	1,014
	Rural	11.9	9.8	14.5	2,600	520
Residence	Belknap County	(*)	(*)	(*)	(*)	(*)
	Carroll County	(*)	(*)	(*)	(*)	(*)
	Cheshire County	16.1	10.3	24.2	509	102
	Coös County	(*)	(*)	(*)	(*)	(*)
	Grafton County	13.0	8.3	19.7	469	94
	Hillsborough County (excluding Manchester, Nashua)	7.9	5.5	11.4	684	137
	Merrimack County	15.9	11.4	21.6	1,027	205
	Rockingham County	10.3	7.8	13.5	1,333	267
	Strafford County	14.2	10.0	19.9	848	170
	Sullivan County	17.1♦	9.8	28.0	330	66
	Manchester	19.4	14.2	26.1	1,373	275
	Nashua	16.5	11.3	23.5	789	158

(*) = number suppressed.

♦ = interpret with caution; prevalence estimate has high variability.

Shaded numbers are significantly different from the statewide prevalence.

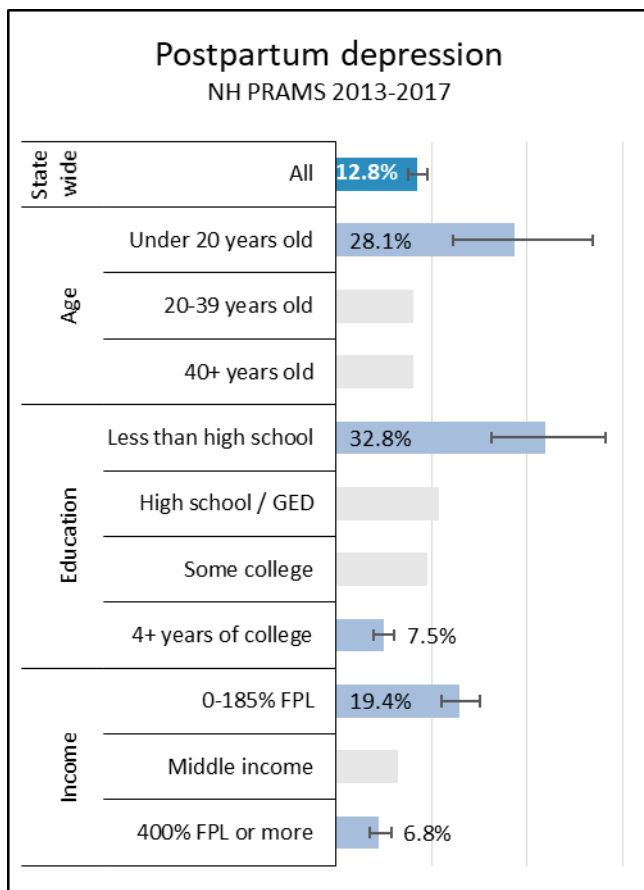
Annual average population estimate = Weighted frequency / number of years of data collected.

Postpartum depression was determined from combined answers of ‘always’ or ‘often’ feeling down, depressed, hopeless, or ‘always’ or ‘often’ having little interest or pleasure in doing things.

Under development: HP2020 objective MICH-34 will seek to decrease the proportion of women delivering a live birth who experience postpartum depressive symptoms.

The statewide prevalence of postpartum depression was 12.8%.

There were no significant differences by race/ethnicity or nativity.

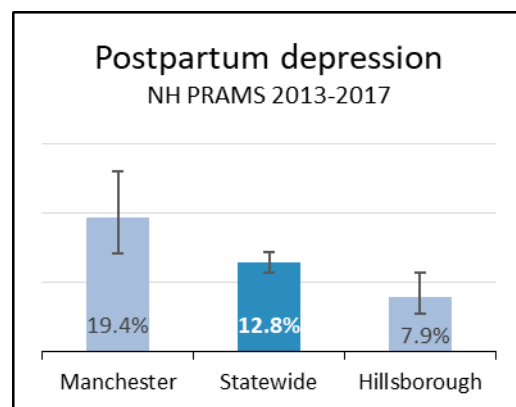


There were significant differences by age, education, and income. The youngest women (< 20 years) reported a significantly higher prevalence (28.1%) of postpartum depression than the statewide average, as did the women with the lowest educational attainment (32.8%) and those with the lowest income (19.4%).

Women who reported a significantly lower prevalence of postpartum depression included those with the highest educational attainment (7.5%), and those with the highest income (6.8%).

Legend: light blue bars depict significant differences from the statewide prevalence, with % shown; light gray bars depict frequencies that are not significantly different from the statewide prevalence.

There were two significant differences by geography, with a significantly smaller proportion of women in Hillsborough County (7.9%) reporting postpartum depression, and a significantly larger proportion of women in Manchester (19.4%) reporting postpartum depression. Several counties had prevalences too small to report.



Summary

When stratifying by race/ethnicity, some percentages may not be statistically different from each other or from a comparison group (e.g. non-Hispanic White, or Statewide), because the numbers are small. Despite small numbers, eight indicators showed disparities by race/ethnicity (see the table below).

Five indicators had disparities by nativity, with the foreign-born women reporting lower prevalences of starting PNC in the first trimester, smoking three months before the pregnancy, and drinking alcohol before pregnancy, and higher prevalences of ever breastfeeding and breastfeeding at least eight weeks.

Disparities in indicators by demographics	Race/ethnicity	Nativity	Age	Education	Income
Low birth weight				X	X
Preterm birth	X				
Unintended pregnancy	X		X	X	X
PNC 1 st trimester	X	X	X	X	X
Vitamins before pregnancy			X	X	X
Flu shot before delivery				X	X
Teeth cleaned before pregnancy	X			X	X
Teeth cleaned during pregnancy	X			X	X
Smoking before pregnancy		X	X	X	X
Smoking during pregnancy			X	X	X
Alcohol before pregnancy	X	X	X	X	X
Alcohol during pregnancy					X
Ever breastfed		X	X	X	X
Breastfed at least 8 weeks	X	X	X	X	X
Postpartum checkup	X		X	X	X
Postpartum depression			X	X	X

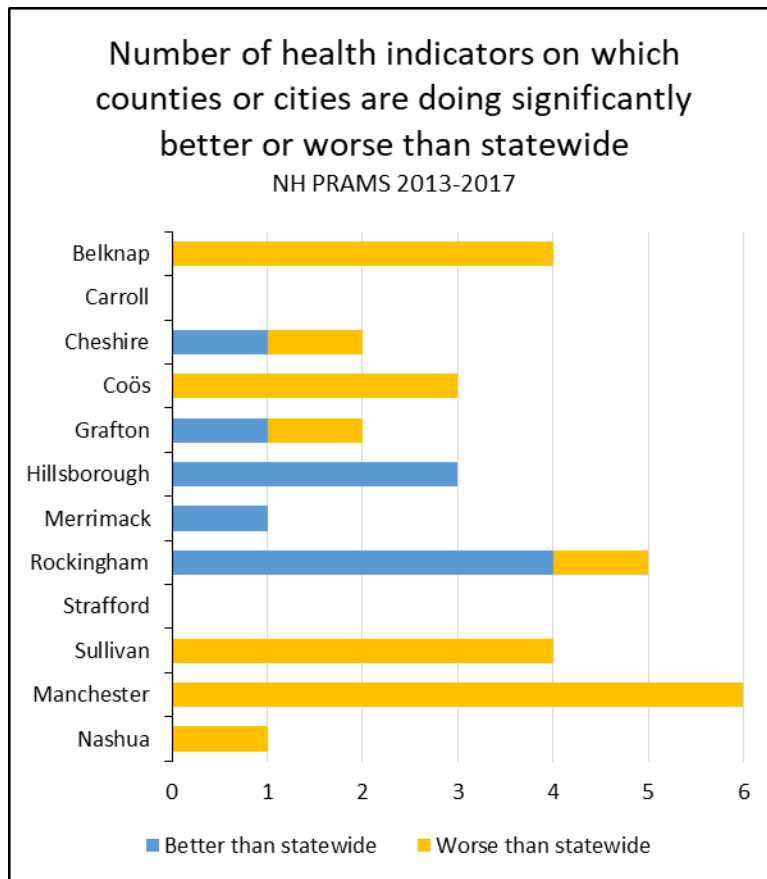
The population characteristics showing the greatest number of disparities are age, education, and income (%FPL): 10 of 16 indicators show a disparity by age, 14 of 16 show a disparity by education, and 15 of 16 show a disparity by income.

It is not surprising to find disparities by all three factors (age, education, income) in a single indicator, because these are often the same women—the youngest mothers are often the ones with the lowest educational attainment and the lowest incomes:

- 29% of women under 20 had less than a high school education (compared to 5% of those 20-39 years of age, and 4% of those 40+ years of age)
- 91% of women under 20 had an income of 0-185% FPL (compared to 38% of those 20-29 and 28% of those 40+ years of age)

There were no statistical differences from the statewide prevalences according to urban or rural residence, although there are three instances where the urban and the rural prevalences are significantly different from each other (smoking before pregnancy, smoking during pregnancy, postpartum checkup).

When stratifying by county or city, there were many significant differences from the statewide prevalences (as well as between counties or cities). The graphic below shows the total number of disparities, by county or city:



Carroll and Strafford counties had no significantly different prevalences than the statewide percentage on any of the 16 indicators.

Rockingham County was the best performer overall, with statistically better results than the statewide numbers on four of 16 indicators, and a worse performance than the statewide average on only one indicator (drinking alcohol in the three months before pregnancy).

Hillsborough County likewise was a high performer, with better results than the statewide average on three indicators.

Five localities (Manchester, Belknap County, Sullivan County, Coös County and Nashua) only had differences from the statewide percentage that were significantly worse, none were significantly better than statewide. See the breakdown of indicators by localities in the table below.

Disparities in indicators by County or City	Belknap	Carroll	Cheshire	Coös	Grafton	Hillsborough	Merrimack	Rockingham	Strafford	Sullivan	Manchester	Nashua
Low birth weight	-											
Preterm birth												
Unintended pregnancy	-							+			-	
PNC 1 st trimester											-	
Vitamins before pregnancy						+		+		-	-	
Flu shot before delivery			-									
Teeth cleaned before pregnancy	-										-	
Teeth cleaned during pregnancy	-						+				-	
Smoking before pregnancy				-	+	+		+		-		
Smoking during pregnancy				-				+		-		
Alcohol before pregnancy			+					-				
Alcohol during pregnancy					-							
Ever breastfed				-								
Breastfed at least 8 weeks												-
Postpartum checkup										-		
Postpartum depression						+					-	

+ = better than statewide - = worse than statewide = No difference from statewide

The city of Manchester is the site with the most reported inequity, with six of 16 indicators having a significantly worse prevalence than the statewide average; these include: unintended pregnancy, starting PNC in the first trimester, taking vitamins before pregnancy, having teeth cleaned before pregnancy, having teeth cleaned during pregnancy, and having postpartum depression.

Belknap and Sullivan counties each had a worse prevalence than the statewide numbers on four indicators. In Belknap County these were: low birth weight, unintended pregnancy, teeth cleaning before pregnancy, and teeth cleaning during pregnancy. In Sullivan County the significantly worse prevalences were in: taking vitamins before pregnancy, smoking before pregnancy, smoking during pregnancy, and getting a postpartum checkup. Neither county did better than the statewide figures on any indicator.

Coös County similarly had a worse prevalence than the statewide average on three indicators, and a better-than-statewide performance on none. The three significantly worse indicators were: smoking before pregnancy, smoking during pregnancy, and ever breastfeeding.

Rockingham County scored significantly better than the statewide prevalences on four indicators: unintended pregnancy, vitamins before pregnancy, smoking before pregnancy, smoking during pregnancy. Hillsborough County similarly scored better on three indicators: vitamins before pregnancy, smoking before pregnancy, and postpartum depression.

The 2018 County Health Rankings Report⁵ (using 2012-2016 data from sources such as the National Center for Health Statistics, the Behavioral Risk Factor Survey, the American Community Survey, and others) shows a similar picture for the state, with rankings based on various health factors (adult smoking, adult obesity, food environment index, physical inactivity, access to exercise opportunities, excessive drinking, alcohol-impaired driving deaths, sexually transmitted infections, and teen births) and health outcomes (premature death, poor or fair health, poor physical health days, poor mental health days, low birthweight).

2018 County Health Rankings	Belknap	Carroll	Cheshire	Coös	Grafton	Hillsborough	Merrimack	Rockingham	Strafford	Sullivan
Health factors	6	7	3	10	2	4	5	1	8	9
Health outcomes	9	4	6	10	1	5	3	2	8	7
Average rank	7.5	5.5	4.5	10	1.5	4.5	4	1.5	8	8

The five counties with the best average rankings (i.e. lowest number rank; shaded) on the County Health Rankings Report are Cheshire, Grafton, Hillsborough, Merrimack,

⁵ https://www.countyhealthrankings.org/sites/default/files/state/downloads/CHR2018_NH_v2.pdf; accessed August 8, 2019

and Rockingham counties. These were the only counties that had at least one indicator with a significantly better prevalence than the statewide average in this report.

The graphic below shows the range in prevalences (i.e. the disparity) for each indicator, with each county/city represented by a dot.

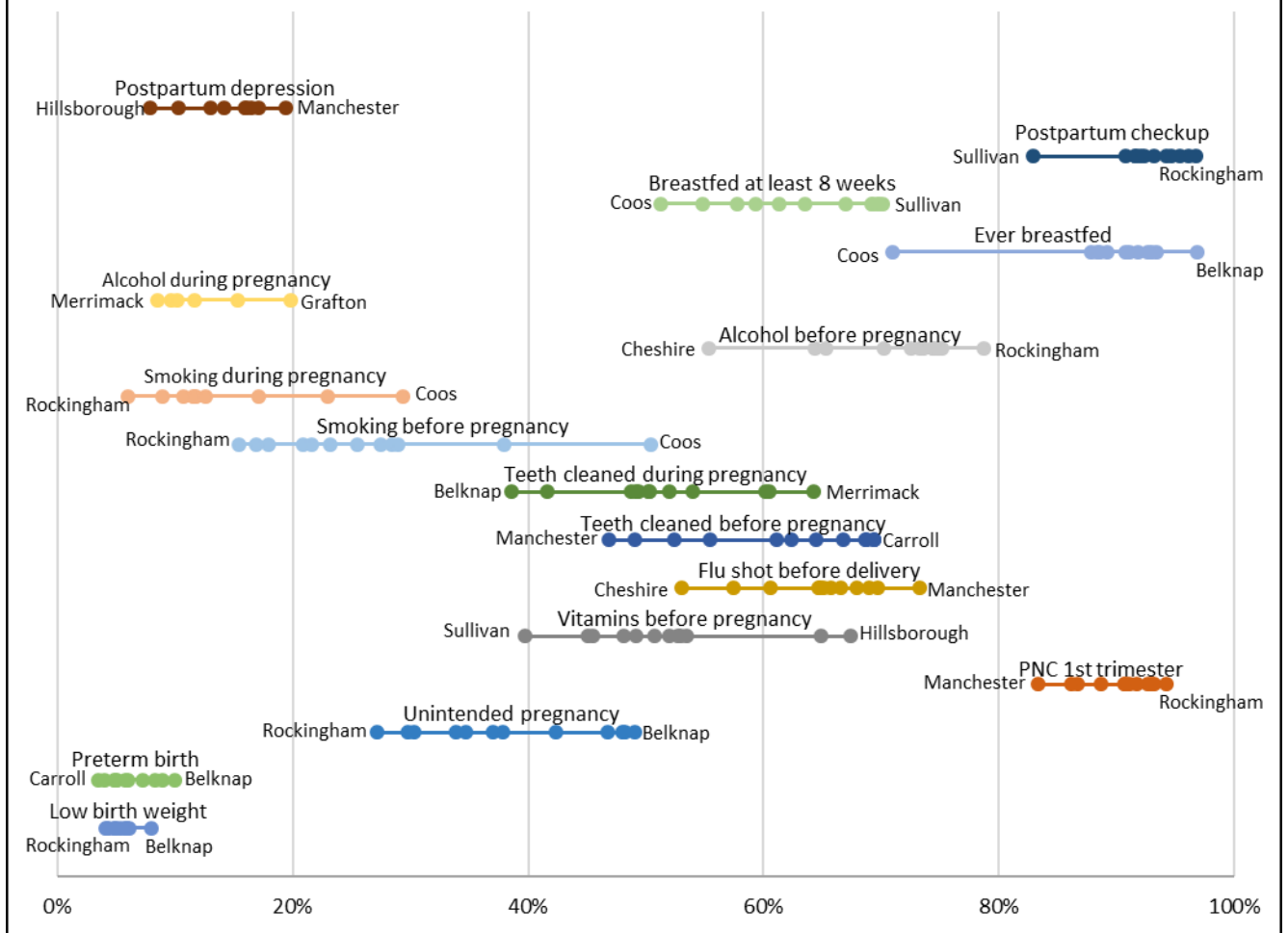
For example, for the indicator Low birth weight (on the bottom left corner of the graphic below), the lowest prevalence was found in Rockingham County (4.1%) and the highest in Belknap County (8.0%). This is only a four percentage point difference, but it represents a large disparity in that the rate of low birth weights in Belknap is double that in Rockingham.

The largest disparity (35 percentage points) was found for the indicator Smoking before pregnancy (in the center of the graphic below), with a prevalence of 15.4% in Rockingham County and 50.4% in Coös County. This is more than a tripling of the rate of Smoking before pregnancy, although the prevalence in Coös County has high variability and should be interpreted with caution.

The range in prevalence for each indicator shows the best prevalence that is currently being attained (and where), and how far off this mark are all of the others.

Range of disparity in health indicators, by County or City

NH PRAMS 2013-2017



Conclusion

Programs and interventions to promote health equity must be tailored to particular situations and conditions including social determinants of health. Additionally, according to the CDC,⁶ “certain actions are prudent in support of efforts to reduce health disparities and their antecedents.” These include:

1. Increasing community awareness of disparities as problems with solutions;
2. Setting priorities among disparities to be addressed;
3. Articulating valid reasons to expend resources to reduce and ultimately eliminate priority disparities;
4. Implementing a dual strategy of universal and targeted intervention programs; and
5. Allocating resources in proportion to need, to achieve a faster rate of improvement among disadvantaged groups.

⁶ Rational for Regular Reporting on Health Disparities and Inequalities – United States; MMWR supplement January 14, 2011 / 60(01);3-10; https://www.cdc.gov/mmwr/preview/mmwrhtml/su6001a2.htm?s_cid=su6001a2_w

Appendix

Socio-demographic characteristics of all NH women who had a live birth in 2013-2017

	Weighted Prevalence (Percent)	95% Confidence Interval		Weighted Frequency	Average Annual Popn. Estimate
		Lower	Upper		
<i>Maternal race/ethnicity (n=2,999)</i>					
Non-Hispanic White	88.7	87.2	90.0	52,691	10,538
Non-Hispanic Black	1.4	1.0	2.1	843	169
Non-Hispanic Asian	3.7	3.0	4.6	2,211	442
American Indian/Alaska Native	(*)	(*)	(*)	(*)	(*)
Native Hawaiian/Other Pacific Islander	0	0	0	0	0
Other or more than one race	2.2	1.6	3.0	1,323	265
Hispanic	3.7	3.0	4.7	2,213	443
<i>Maternal race/ethnicity (n=3,001)</i>					
Non-Hispanic White	88.6	87.1	89.9	52,691	10,538
People of Color	11.4	10.1	12.9	6,776	1,355
<i>Maternal nativity (n=3031)</i>					
Foreign-born	10.0	8.8	11.4	6,048	1,210
US-born	90.0	88.6	91.2	54,235	10,847
<i>Maternal age (n=3,032)</i>					
Under 20 years of age	3.5	2.7	4.4	2,090	418
20-39 years of age	93.5	92.3	94.5	56,380	11,276
40+ years of age	3.0	2.4	3.8	1,816	363
<i>Maternal education (n=3,016)</i>					
Less than high school diploma	6.1	5.1	7.3	3,651	730
High school diploma or GED	21.3	19.5	23.2	12,756	2,551
Some college, less than 4 years	28.6	26.7	30.6	17,126	3,425
Some college, 4 years or more	44.0	41.9	46.1	26,362	5,272
<i>Household poverty level (n=2,903)</i>					
0 to 185% of FPL	39.2	37.1	41.4	22,613	4,523
>185% to <400% of FPL	23.7	21.9	25.6	13,680	2,736
400% or more of FPL	37.0	35.0	39.1	21,352	4,270
<i>Residence (urban-rural) (n=3032)</i>					
Urban	63.7	61.6	65.7	38,404	7,681
Rural	36.3	34.3	38.4	21,882	4,376
<i>Residence (county) (n=3,031)</i>					
Belknap County	4.2	3.4	5.2	2,548	510
Carroll County	2.8	2.1	3.6	1,669	334
Cheshire County	5.3	4.4	6.4	3,209	642
Coös County	2.0	1.5	2.7	1,229	246
Grafton County	6.0	5.1	7.0	3,616	723
Hillsborough County (excluding Manchester, Nashua)	14.4	13.0	15.9	8,650	1,730
Merrimack County	10.8	9.5	12.3	6,527	1,305
Rockingham County	21.5	19.8	23.3	12,968	2,594
Strafford County	9.9	8.7	11.2	5,955	1,191

Sullivan County	3.2	2.5	4.0	1,935	387
Manchester	11.8	10.3	13.4	7,092	1,418
Nashua	8.1	6.9	9.4	4,874	975

(*) = number suppressed.

◆ = interpret with caution; prevalence estimate has high variability.

Annual average population estimate = Weighted frequency / number of years of data collected.

Data are suppressed (*) when:

- the number of affirmative answers is less than 10 or
- the relative standard error is greater than 0.30.

Data are tagged ‘interpret with caution’ (◆) when:

- the 95% CI is greater than 20%, or
- the 95% CI is wider than the value of the prevalence estimate.

Weighting

Counties and cities were weighted using the following variables:

1. Education
2. Age (NAPHSIS grouping)
3. Public health region
4. County or city (with Hillsborough excluding Manchester and Nashua) by two-level education:

Belknap, HS or less	Belknap, Some college
Carroll, HS or less	Carroll, Some college
Cheshire, HS or less	Cheshire, Some college
Coos, HS or less	Coos, Some college
Grafton, HS or less	Grafton, Some college
Hillsborough other, HS or less	Hillsborough other, Some college
Merrimack, HS or less	Merrimack, Some college
Rockingham, HS or less	Rockingham, Some college
Strafford, HS or less	Strafford, Some college
Sullivan, HS or less	Sullivan, Some college
Manchester, HS or less	Manchester, Some college
Nashua, HS or less	Nashua, Some college
5. County (unstratified)
6. Year

All other stratifiers and indicators were weighted using the CDC-provided weights.

Pregnancy Risk Assessment Monitoring System

Survey Methodology

The Pregnancy Risk Assessment Monitoring Survey (PRAMS) is a surveillance project of the CDC, conducted through cooperative agreements with state health departments. PRAMS collects self-reported data on maternal behaviors and experiences that occur shortly before, during and after pregnancy. In New Hampshire (NH), PRAMS-eligible women are all residents who have a live birth; approximately one in 12 women are randomly selected and asked to complete the survey between two and six months after giving birth. NH residents who give birth out-of-state are included in the sampling plan due to the high proportion of births occurring out-of-state (approximately 10% annually).

Data collected through PRAMS are linked to birth certificate data, which allows the survey data to be weighted to reflect the total population of resident women who have a live birth. Sampling, non-response and non-coverage weights are applied. Population estimates are obtained using the analysis weights and survey design variables. See the [NH PRAMS 2017 Data Book](#) [external link] for more information.

Data analysis

Analysis for this report was done using SAS survey analysis procedures for complex survey design (version 9.4). Associations between demographic variables, health behaviors and health outcomes were examined.

When the number of affirmative answers is less than 10 or the relative standard error is greater than 0.30, estimates are statistically unreliable and therefore not reported. Differences characterized as ‘significant’ have a 95% probability of being truly different, and not the result of random chance.

All prevalences with their 95% confidence intervals are listed in the data table provided for each indicator; the total (weighted) frequency and the annual population estimate are also provided. The 95% confidence interval denotes the range within which the true population value falls, with a 95% degree of certainty.

Limitations

PRAMS data are self-reported and may be subject to social desirability bias or inaccuracies leading to reporting bias. The survey is typically administered two to four months after the birth occurs, so recall bias should be limited but cannot be excluded. The survey is available only in English, so mothers with limited English proficiency may perhaps not participate. This report presents unadjusted associations between variables—causal relationships cannot be inferred.