



Focus on Perinatal Factors in Maryland Counties and Baltimore City

December 2015



Healthy People provides 10-year national objectives for improving the health of all Americans. These benchmarks are established by the U.S. Department of Health and Human Services (DHHS) to encourage:

- collaborations across sectors,
- assessment of health trends,
- informed health decisions, and
- increased prevention activities.

Maryland Data by Jurisdictions

To compare perinatal data by Maryland jurisdictions, this report presents county and Baltimore City data from the PRAMS survey. The Healthy People 2020 (HP2020) objectives were chosen for presentation in Tables 2-4 because they represent key indicators of maternal and infant health before, during and after pregnancy. Additional pre-pregnancy risk factors have also been included in Table 1. Data are reported by prevalence and 95% confidence interval* (CI).

State Data

The Centers for Disease Control and Prevention (CDC) provides every PRAMS state with an annual weighted dataset of that state's PRAMS survey responses. This weighting process ensures that the state's data are representative of all the postpartum mothers who reside and deliver in that state.

Jurisdictional Data

To report the Maryland PRAMS results by jurisdiction, the data was re-weighted to reflect the distribution of mothers who lived and delivered in each of the state's 23 counties and Baltimore City. The aggregation of data for 2004-2013 birth years permitted limited analysis of certain factors.

*What does the 95% confidence interval mean?

Statisticians use a concept called the 95 percent confidence interval (95% CI) to try to describe the amount of uncertainty in a result. Put another way, the prevalence might fall outside of the 95% CI 5 out of 100 times.

Limitations for rural counties

Despite using ten years of data, small sample sizes may be problematic, especially in sparsely populated counties. For example, 79% (CI 59-99) of mothers in rural Talbot County reported that they initiated prenatal care during the 1st trimester of pregnancy. The wide CI (59-99) reflects the relatively small number of responses and indicates that, 95% of the time, the prevalence most likely lies somewhere between 59-99%. The wide CI lessens the preciseness of the 79% prevalence point. In urban Montgomery County, 75% (CI, 72-77) of mothers reported 1st trimester care. The relatively narrow range of the CI (72-77) indicates that the 75% point prevalence is fairly precise.

Limitations for out-of-state births

Counties with a large percentage of out-of-state births should be aware that PRAMS only samples mothers who live and deliver in Maryland. For 2013 births, the counties with the largest percentage of mothers who delivered in D.C. or another state are Prince George's (24%), Cecil (24%), Garrett (14%), Montgomery (12%), Charles (11%) and Kent (10%). In Baltimore City and all other counties, the percentage of out-of-state births ranged from <1% to 6%.

Maryland Jurisdictions

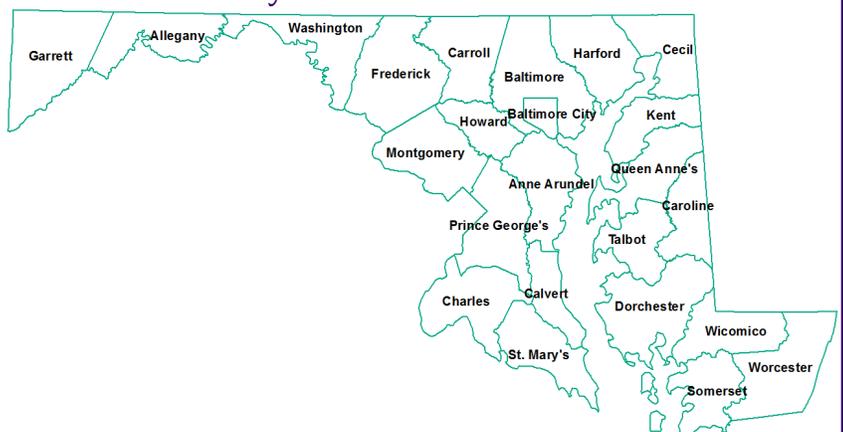


Table I. Percentage of Mothers Reporting Smoking, Binge Drinking*, or Obesity (Body Mass Index, BMI) Before Pregnancy, Maryland, 2004-2013

Jurisdiction	Smoking During the 3 Months Pre-Pregnancy		Binge Drinking* During the 3 Months Pre-Pregnancy		Obese Weight (BMI \geq 30) Just Before Pregnancy	
	%	(95% CI)	%	(95% CI)	%	(95% CI)
Maryland	17	(16 - 18)	18	(17 - 19)	20	(19 - 21)
Allegany	33	(19 - 47)	37	(19 - 55)	16	(6 - 26)
Anne Arundel	19	(16 - 22)	22	(19 - 25)	17	(14 - 20)
Baltimore	19	(17 - 22)	20	(18 - 23)	20	(17 - 22)
Baltimore City	20	(17 - 23)	18	(15 - 21)	27	(24 - 30)
Calvert	29	(20 - 39)	28	(18 - 38)	18	(10 - 26)
Caroline	39	(19 - 59)	30	(10 - 50)	34	(15 - 54)
Carroll	20	(13 - 27)	28	(20 - 36)	19	(12 - 26)
Cecil	46	(33 - 58)	22	(11 - 33)	21	(11 - 31)
Charles	20	(13 - 26)	12	(6 - 17)	22	(15 - 29)
Dorchester	28	(10 - 46)	14	(3 - 24)	33	(14 - 52)
Frederick	26	(21 - 32)	20	(15 - 24)	18	(14 - 23)
Garrett	25	(4 - 47)	20	(0 - 40)	22	(0 - 49)
Harford	22	(17 - 27)	27	(21 - 33)	23	(18 - 28)
Howard	8	(5 - 11)	15	(11 - 19)	18	(14 - 22)
Kent	34	(6 - 61)	12	(0 - 26)	42	(12 - 72)
Montgomery	6	(5 - 7)	12	(10 - 14)	13	(11 - 15)
Prince George's	12	(9 - 14)	12	(10 - 14)	21	(18 - 24)
Queen Anne's	18	(9 - 28)	16	(5 - 27)	24	(8 - 40)
Somerset	32	(10 - 54)	20	(0 - 42)	28	(7 - 49)
St. Mary's	25	(17 - 34)	24	(15 - 32)	33	(23 - 43)
Talbot	12	(2 - 22)	30	(9 - 50)	18	(5 - 32)
Washington	27	(20 - 34)	19	(13 - 25)	20	(14 - 27)
Wicomico	21	(13 - 29)	22	(14 - 30)	35	(25 - 44)
Worcester	36	(18 - 54)	21	(6 - 36)	32	(13 - 51)

* Binge drinking was defined as 5 or more drinks in one sitting before 2009 births, and 4 or more drinks in one sitting since 2009

Table 2. Percentage of Mothers Reporting Intended Pregnancy*, Pre-Pregnancy Folic Acid Use, and First Trimester Prenatal Care, Maryland, 2004-2013**

Jurisdiction	Intended Pregnancy* (wanted pregnancy "then" or "sooner")		Daily Multi-vitamin Use**, One Month Pre-Pregnancy		First Trimester (<13 weeks gestation) Prenatal Care Initiation	
	%	(95% CI)	%	(95% CI)	%	(95% CI)
HP2020 Goal	56*		33**		78	
Maryland	59	(58 - 60)	33	(32 - 34)	79	(78 - 80)
Allegany	62	(46 - 79)	29	(16 - 43)	89	(82 - 96)
Anne Arundel	65	(61 - 69)	37	(34 - 41)	86	(83 - 89)
Baltimore	61	(58 - 64)	36	(33 - 39)	83	(81 - 86)
Baltimore City	42	(39 - 46)	23	(20 - 26)	73	(69 - 76)
Calvert	62	(52 - 73)	43	(33 - 54)	88	(80 - 95)
Caroline	43	(24 - 62)	23	(5 - 41)	91	(83 - 99)
Carroll	73	(66 - 81)	42	(34 - 50)	93	(89 - 96)
Cecil	58	(47 - 70)	24	(14 - 33)	79	(69 - 89)
Charles	55	(46 - 63)	23	(16 - 30)	79	(72 - 86)
Dorchester	49	(32 - 66)	20	(8 - 33)	77	(58 - 95)
Frederick	63	(58 - 69)	35	(29 - 40)	84	(80 - 88)
Garrett	64	(38 - 89)	30	(3 - 58)	89	(74 - 100)
Harford	66	(60 - 72)	39	(33 - 46)	90	(87 - 94)
Howard	68	(63 - 72)	41	(36 - 45)	89	(86 - 92)
Kent	69	(44 - 95)	13	(0 - 35)	98	(96 - 100)
Montgomery	67	(65 - 70)	37	(34 - 39)	75	(72 - 77)
Prince George's	53	(49 - 56)	28	(25 - 31)	68	(65 - 71)
Queen Anne's	69	(57 - 82)	37	(22 - 53)	94	(88 - 100)
Somerset	31	(12 - 49)	23	(7 - 39)	87	(75 - 100)
St. Mary's	65	(55 - 75)	35	(25 - 45)	88	(82 - 94)
Talbot	64	(43 - 85)	30	(12 - 49)	79	(59 - 99)
Washington	57	(48 - 65)	29	(22 - 37)	81	(74 - 88)
Wicomico	51	(41 - 61)	29	(21 - 38)	72	(62 - 82)
Worcester	49	(31 - 68)	46	(27 - 64)	88	(78 - 97)

*PRAMS data only includes information on pregnancies that end in live birth and not all pregnancies as in HP objective

**all multivitamins contain 400ug folic acid

Table 3. Percentage of Mothers Reporting Smoking, No Alcohol Use, and No Binge Drinking* During the Last Three Months of Pregnancy, Maryland, 2004-2013

Jurisdiction	Smoking, Last 3 Months of Pregnancy		No Alcohol Use, Last 3 Months of Pregnancy		No Binge Drinking*, Last 3 Months of Pregnancy	
	%	(95% CI)	%	(95% CI)	%	(95% CI)
HP2020 Goal**	2		98		100	
Maryland	8	(8 - 9)	91	(91 - 92)	99	(99-100)
Allegany	20	(9 - 32)	98	(96 - 100)	100	(100 - 100)
Anne Arundel	9	(7 - 11)	90	(87 - 92)	99	(99 - 100)
Baltimore	10	(8 - 12)	90	(88 - 92)	99	(99 - 100)
Baltimore City	11	(9 - 13)	90	(88 - 92)	99	(99 - 100)
Calvert	7	(2 - 12)	91	(84 - 97)	100	(100 - 100)
Caroline	31	(12 - 51)	99	(97 - 100)	100	(99 - 100)
Carroll	10	(5 - 15)	92	(89 - 96)	100	(99 - 100)
Cecil	27	(15 - 38)	93	(87 - 99)	100	(99 - 100)
Charles	11	(6 - 17)	95	(91 - 99)	99	(98 - 100)
Dorchester	11	(3 - 20)	93	(86 - 100)	100	(99 - 100)
Frederick	11	(7 - 14)	93	(91 - 96)	99	(98 - 100)
Garrett	5	(0 - 10)	100	(99 - 100)	100	(100 - 100)
Harford	10	(6 - 13)	93	(90 - 95)	100	(100 - 100)
Howard	4	(2 - 5)	90	(87 - 92)	100	(99 - 100)
Kent	21	(0 - 44)	100	(100 - 100)	100	(100 - 100)
Montgomery	2	(1 - 3)	91	(89 - 92)	100	(99 - 100)
Prince George's	3	(2 - 5)	94	(92 - 96)	99	(98 - 100)
Queen Anne's	9	(2 - 16)	94	(89 - 100)	100	(100 - 100)
Somerset	25	(3 - 47)	100	(99 - 100)	100	(100 - 100)
St. Mary's	12	(6 - 18)	89	(81 - 96)	100	(99 - 100)
Talbot	9	(0 - 18)	82	(65 - 100)	99	(98 - 100)
Washington	16	(10 - 22)	93	(89 - 97)	100	(100 - 100)
Wicomico	15	(8 - 22)	92	(87 - 97)	100	(100 - 100)
Worcester	13	(1 - 24)	90	(79 - 100)	100	(100 - 100)

*Binge drinking was defined as 5 or more drinks in one sitting before 2009 births, and 4 or more drinks in one sitting since 2009

**The HP2020 objectives in Table 3 refer to the entire pregnancy, not just the last 3 months of pregnancy as shown with PRAMS data

Discussion

There were wide variations among the jurisdictions for most of the perinatal indicators presented. The widest variations were found for intended pregnancy (73%, Carroll—31%, Somerset) (Table 2) and pre-pregnancy smoking (46%, Cecil—6% Montgomery) (Table 1). The least variation was found for “no binge drinking during the last three months of pregnancy” —99-100% for all jurisdictions (Table 3).

HP2020 objectives were not met by most jurisdictions for drinking (19/24) and smoking (23/24) in the last 3 months of pregnancy, daily multivitamin use (13/24), and breastfeeding (16/24). Maryland was most successful in meeting the HP2020 prenatal care initiation objective (Table 2). The majority of jurisdictions (15/24) met the HP2020 objective for placing infants on their back to sleep (76%) but was lowest in Worcester (61%) and Prince George’s (64%).

Pre-pregnancy unhealthy behaviors were especially prevalent in the rural counties (Table 1). Over 30% of women reported:

a) smoking (Cecil, Worcester, Caroline, Allegany, Kent and Somerset),

b) binge drinking (Talbot, Allegany and Caroline), and

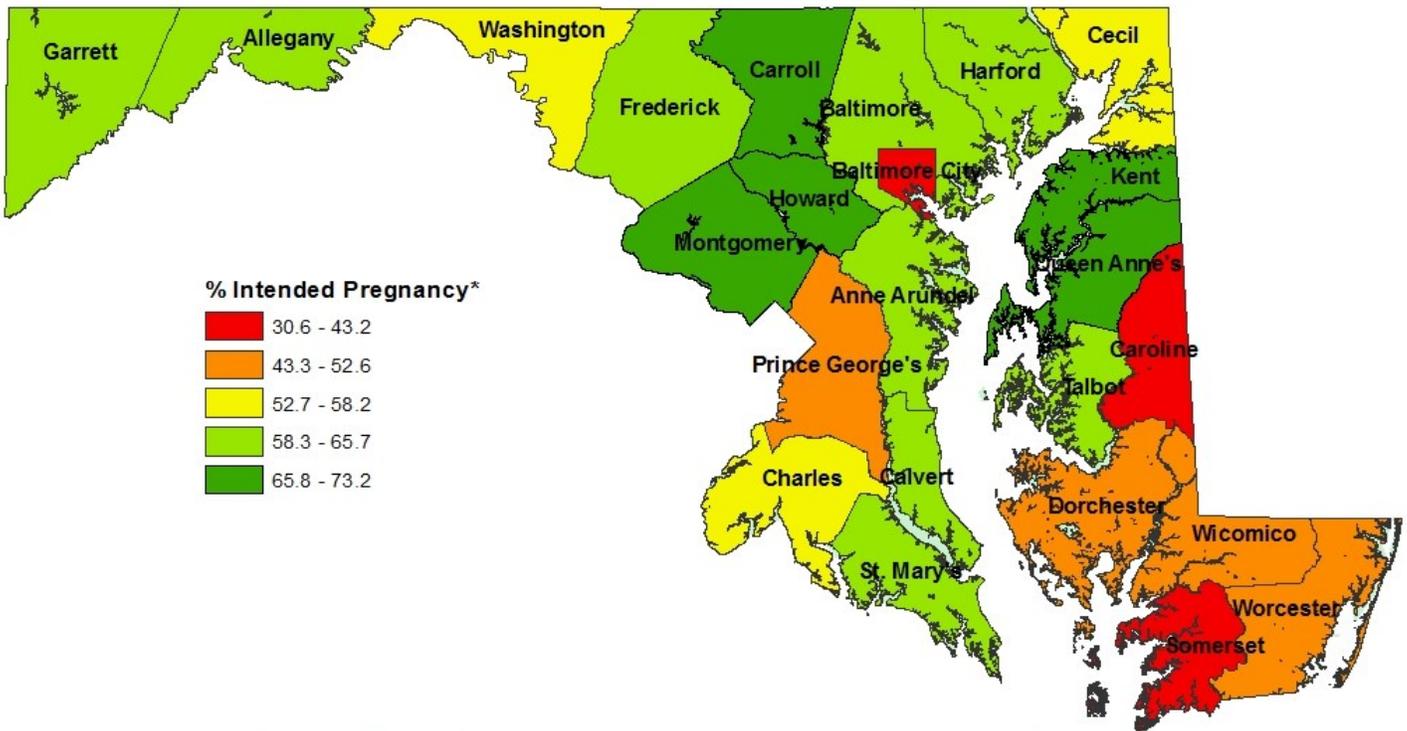
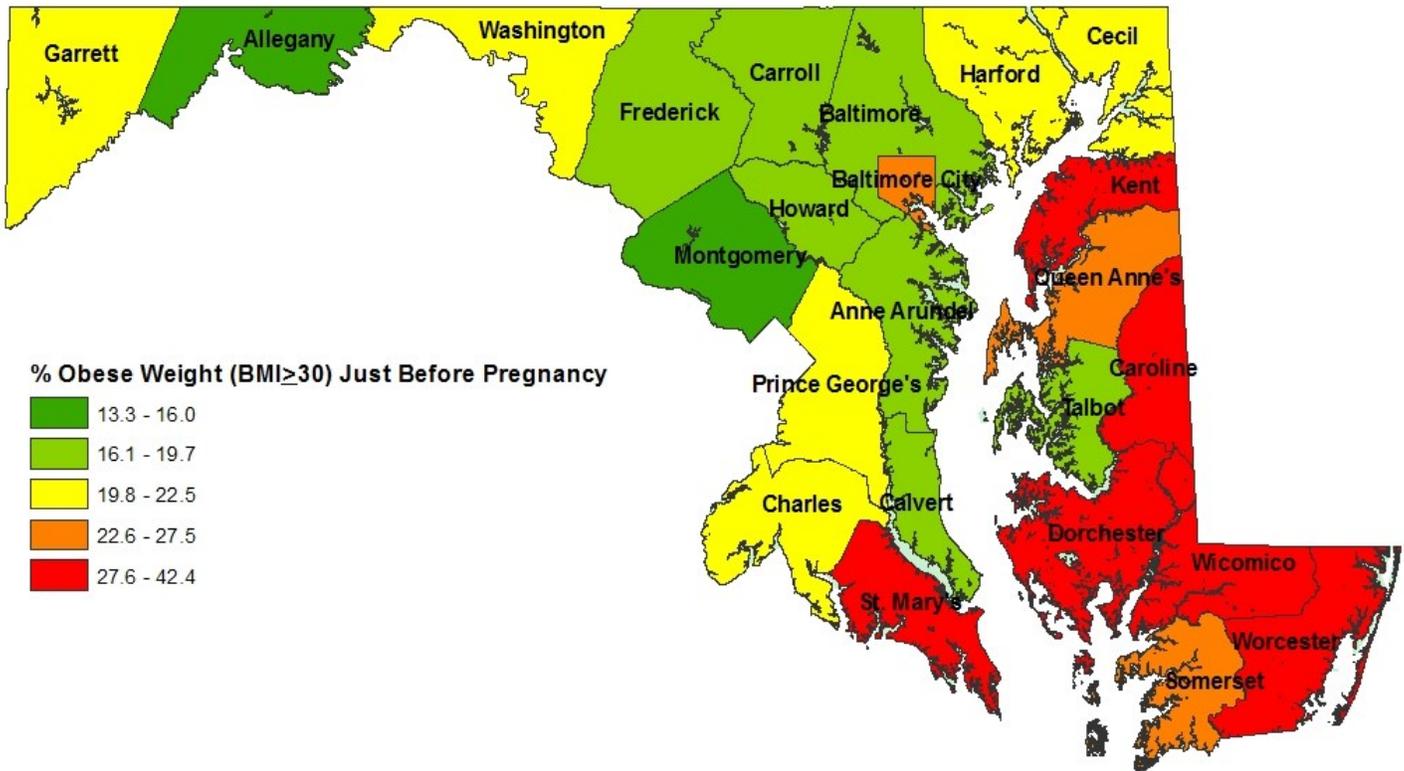
c) an obese BMI (Worcester, St. Mary’s, Dorchester, Caroline, Wicomico and Kent).

The finding that many of the county rates did not change significantly from our previous 2001-2009 county brief supports the stability of the estimated rates.

Table 4. Percentage of Mothers Reporting Breastfeeding Initiation and Placing Infants on Their Backs to Sleep, Maryland, 2004-2013

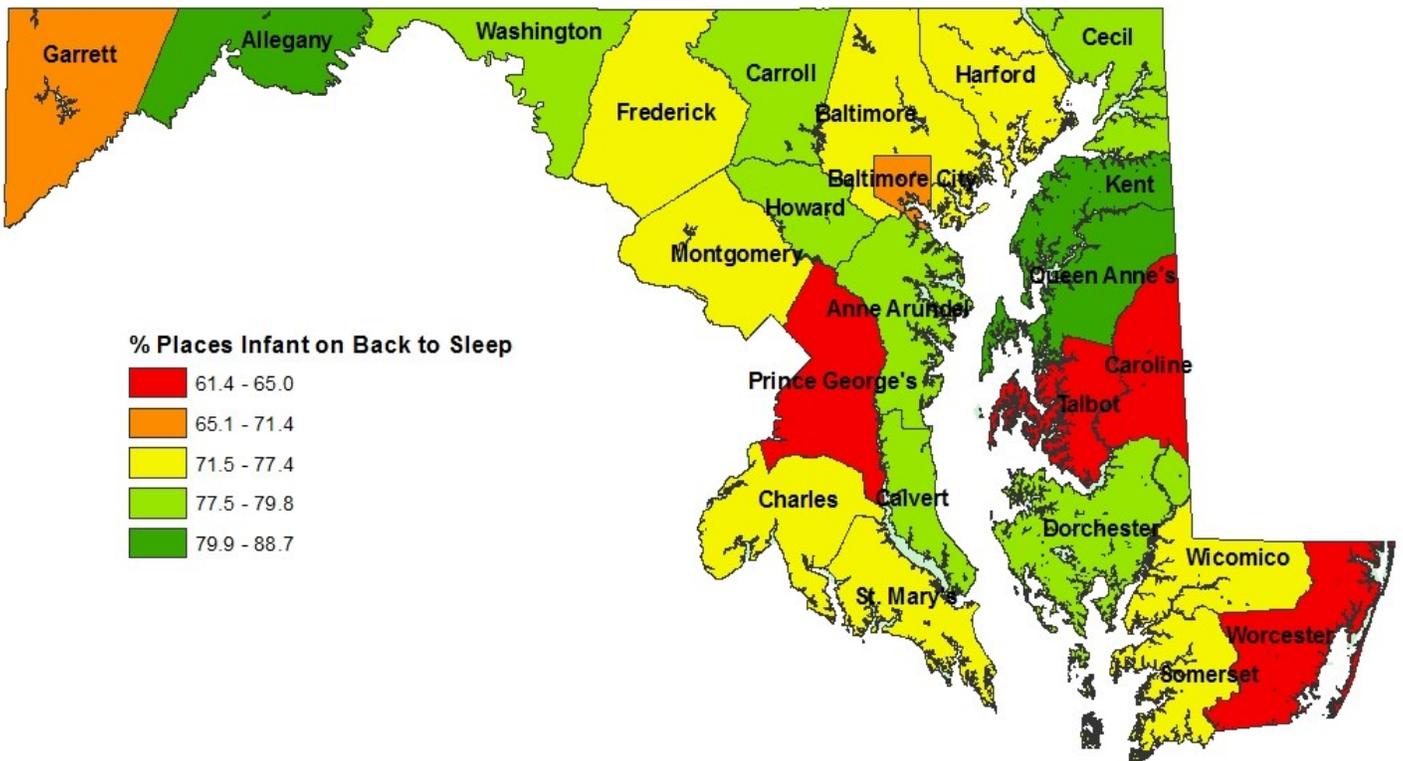
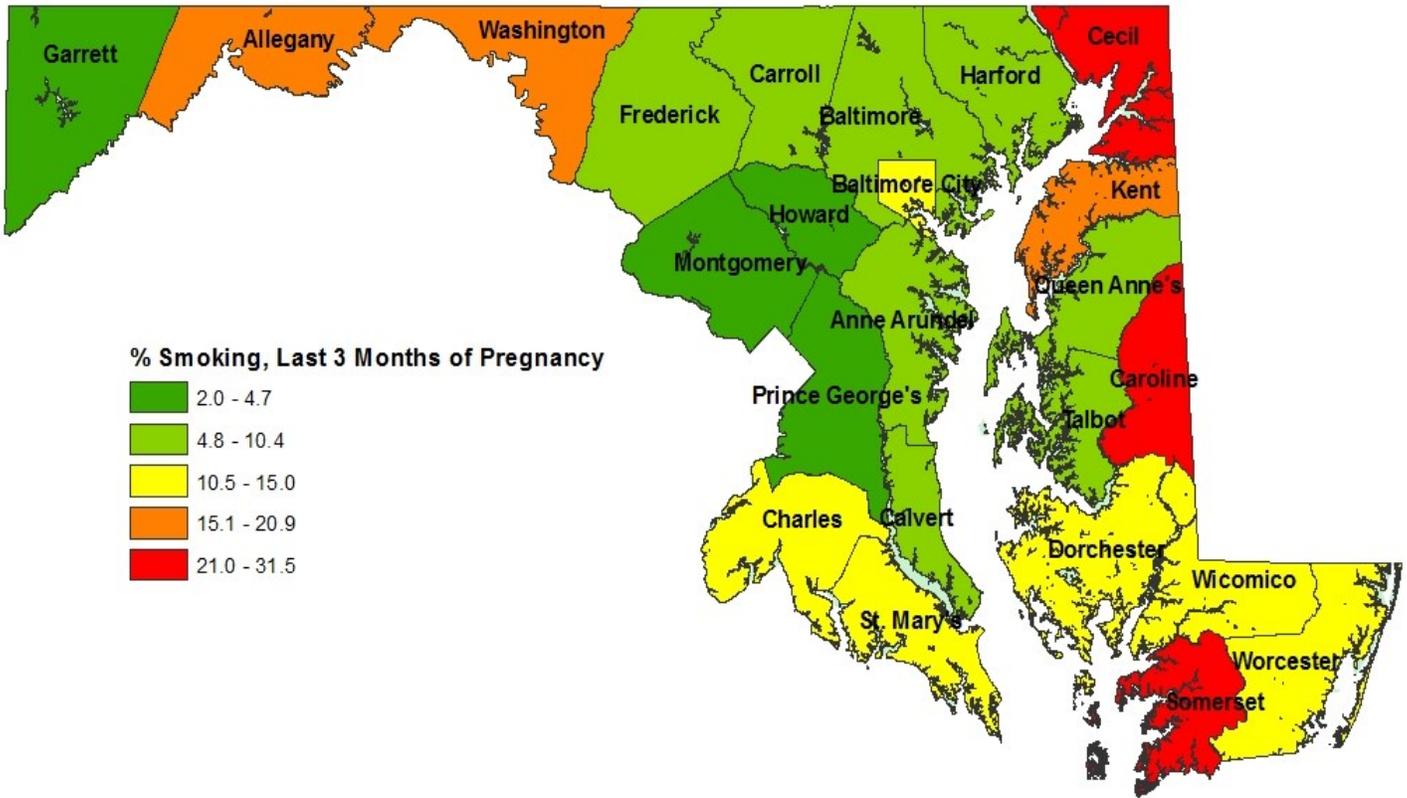
Jurisdiction	Breastfeeding Initiation		Places Infant on Back to Sleep	
	%	(95% CI)	%	(95% CI)
HP2020 Goal	82		76	
Maryland	82	(81 - 83)	74	(73 - 76)
Allegany	60	(43 - 77)	86	(77 - 94)
Anne Arundel	83	(80 - 86)	78	(75 - 82)
Baltimore	83	(80 - 85)	77	(75 - 80)
Baltimore City	71	(68 - 74)	68	(65 - 72)
Calvert	82	(73 - 91)	79	(70 - 88)
Caroline	64	(44 - 83)	65	(44 - 85)
Carroll	79	(72 - 86)	80	(73 - 86)
Cecil	64	(53 - 76)	79	(70 - 88)
Charles	75	(67 - 82)	76	(70 - 83)
Dorchester	72	(59 - 86)	78	(67 - 90)
Frederick	81	(76 - 85)	76	(71 - 81)
Garrett	66	(39 - 93)	71	(48 - 95)
Harford	76	(70 - 81)	76	(71 - 82)
Howard	91	(88 - 94)	79	(75 - 84)
Kent	78	(54 - 100)	86	(63 - 100)
Montgomery	93	(92 - 95)	77	(74 - 79)
Prince George's	87	(85 - 90)	64	(60 - 67)
Queen Anne's	78	(67 - 90)	89	(78 - 99)
Somerset	77	(60 - 94)	76	(59 - 94)
St. Mary's	79	(71 - 87)	74	(65 - 83)
Talbot	76	(59 - 92)	65	(44 - 86)
Washington	75	(67 - 82)	79	(72 - 86)
Wicomico	82	(75 - 89)	76	(67 - 85)
Worcester	82	(68 - 96)	61	(42 - 81)

PRAMS Maps



* Wanted pregnancy "then" or "sooner". PRAMS data only includes information on pregnancies that end in live birth and not all pregnancies as in HP objectives

PRAMS Maps





Production Team:

Lawrence Reid, PhD, MPH
Diana Cheng, MD

Maternal and Child Health Bureau
Maryland Department of Health
and Mental Hygiene (DHMH)

For further information,
please contact:

Diana Cheng, M.D.
PRAMS Project Director
Medical Director, Women's
Health
Maternal and Child Health Bureau
Maryland Department of Health
and Mental Hygiene
201 W. Preston St, Room 314
Baltimore, MD 21201

Phone: (410) 767-6713
Fax: (410) 333-5233

or visit:

www.marylandprams.org

PRAMS Methodology

Data included in this report were collected through the Pregnancy Risk Assessment Monitoring System (PRAMS), a surveillance system established by the Centers for Disease Control and Prevention (CDC) to obtain information about maternal behaviors and experiences that may be associated with adverse pregnancy outcomes.

In Maryland, the collection of PRAMS data is a collaborative effort of the Department of Health and Mental Hygiene and the CDC.

Each month, a sample of approximately 200 Maryland women who have recently delivered live born infants are surveyed by mail or by telephone, and responses are weighted to make the results representative of all Maryland births.

This report is based on the responses of 16,384 Maryland mothers who delivered live born infants between January 30, 2004 and December 31, 2013 and were surveyed two to six months after delivery.

Limitations of Report

PRAMS data are retrospective and therefore subject to recall bias. It is also based on the mother's perception of events and may not be completely accurate.

Studies have shown that surveys of maternal smoking and alcohol use may underestimate the prevalence of these behaviors by a significant amount, due to factors related to social desirability.

Jurisdictions with small populations have

prevalence estimates with wide confidence intervals, so these estimates should be interpreted with caution.

PRAMS data include responses by mothers whose infants were born in Maryland. Maryland residents whose infants are delivered out-of-state may differ from those who deliver in-state. Jurisdictions with large numbers of out-of-state births should interpret these jurisdictional results with caution.

Resources

Healthy People
U.S. Department of Health and Human Services
<https://www.healthypeople.gov/>



Maryland Department of Health and Mental Hygiene
Maternal and Child Health Bureau • Vital Statistics Administration

Larry Hogan, Governor; Boyd Rutherford, Lieutenant Governor; Van Mitchell, Secretary

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