MARYLAND PRAMS
Pregnancy Risk Assessment Monitoring System

Focus on

Perinatal Factors in Maryland Counties and Baltimore City

February 2011

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 jurisdictons, this report presents county and Baltimore city data from the PRAMS survey. The Healthy People 2010 (HP2010) 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 2001-2009 birth years permitted limited analysis of certain factors.

Limitations for rural counties

Despite using nine years of data, small sample sizes may be problematic, especially in sparsely populated counties. For example, 77% (CI 58-98) of mothers in rural Talbot County reported that they initiated prenatal care during the 1st trimester of pregnancy. The wide CI (58-98) reflects the relatively small number of responses and indicates that, 95% of the time, the prevalence most likely lies somewhere between 58-98%. The wide CI lessens the preciseness of the 77% prevalence point. In urban Montgomery County, 75% (CI, 72-78) of mothers reported 1st trimester care. The relatively narrow range of the CI (72-78) 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 2009 births, the counties with the largest percentage of mothers who delivered in D.C. or another state are Prince George's (26%), Cecil (25%), Montgomery (13%), Garrett (13%), Charles (9%) and Kent (7%). In Baltimore City and all other counties the percentage of out-of-state births ranged from <1% to 3%.

*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.

Maryland Jurisdictions

Table I. Percentage of Mothers Reporting Smoking, Binge Drinking*, or Obesity (Body Mass Index, BMI) Before Pregnancy, Maryland, 2001-2009

Jurisdiction	Smoking During the 3 Months Pre-Pregnancy		Binge Drinking* During the 3 Months Pre-Pregnancy		Obese Weight (BMI ≥30) Just Before Pregnancy	
	%	(95% CI)	%	(95% CI)	%	(95% CI)
Maryland	**18**	**(17-19)**	**16**	**(15-17)**	**19**	**(18-20)**
Allegany	35	(22-48)	35	(17-54)	15	(6-23)
Anne Arundel	21	(18-24)	22	(18-25)	15	(12-17)
Baltimore	20	(18-23)	20	(17-23)	17	(15-20)
Baltimore City	19	(16-22)	14	(12-17)	24	(21-27)
Calvert	24	(16-33)	22	(13-31)	16	(9.24)
Caroline	34	(15-53)	8	(0-16)	23	(8-37)
Carroll	18	(13-23)	25	(18-31)	14	(9-19)
Cecil	29	(17-41)	16	(7-25)	18	(9-27)
Charles	23	(16-31)	12	(6-17)	21	(14-28)
Dorchester	42	(21-64)	19	(1-37)	28	(7-48)
Frederick	28	(22-33)	17	(12-22)	16	(11-20)
Garrett	26	(8-45)	11	(0-25)	16	(0-36)
Harford	19	(14-24)	21	(16-27)	17	(13-22)
Howard	10	(7-13)	13	(9-17)	16	(12-20)
Kent	27	(2-52)	13	(0-27)	35	(6-64)
Montgomery	6	(5- 8)	10	(8-12)	11	(10-13)
Prince George's	12	(9-14)	12	(10-15)	20	(17-23)
Queen Anne's	18	(7-29)	14	(3-25)	20	(4-36)
Somerset	52	(26-79)	22	(0-44)	46	(20-73)
St. Mary's	24	(15-33)	20	(11-28)	29	(19-39)
Talbot	16	(5-28)	31	(10-51)	45	(26-65)
Washington	31	(24-39)	18	(12-24)	23	(16-30)
Wicomico	19	(11-27)	15	(8-22)	31	(21-41)
Worcester	33	(17-49)	23	(8-39)	22	(7-37)

* 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, 2001-2009

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)
HP2010 Goal	**70***		**80****		**90**	
Maryland	**58**	**(57-59)**	**31**	**(30-32)**	**77**	**(76-78)**
Allegany	52	(36-67)	19	(9-28)	86	(78.- 94)
Anne Arundel	67	(63-70)	34	(31-38)	84	(82- 87)
Baltimore	62	(58-65)	37	(34-41)	83	(81- 86)
Baltimore City	40	(36-43)	23	(20-26)	69	(66- 73)
Calvert	63	(53-73)	38	(28-48)	93	(87- 99)
Caroline	45	(25-64)	23	(4-42)	91	(84- 99)
Carroll	73	(66-80)	48	(41-55)	92	(88- 95)
Cecil	60	(47-72)	24	(14-34)	90	(84- 96)
Charles	55	(46-63)	25	(18-32)	79	(72- 86)
Dorchester	46	(26-65)	16	(5-27)	71	(50- 93)
Frederick	67	(61-73)	34	(29-40)	83	(78- 87)
Garrett	76	(57-94)	35	(12-58)	86	(72-100)
Harford	66	(60-72)	40	(34-47)	90	(86-93)
Howard	71	(66-76)	40	(34-45)	89	(85- 92)
Kent	79	(59-99)	2	(0- 4)	88	(68-100)
Montgomery	69	(66-71)	35	(33-38)	75	(72- 78)
Prince George's	52	(48-55)	26	(23-29)	65	(61- 68)
Queen Anne's	82	(71-92)	31	(16-47)	90	(80- 99)
Somerset	30	(6-53)	6	(0-14)	89	(77-100)
St. Mary's	60	(49-70)	35	(24-45)	85	(78- 92)
Talbot	67	(47-86)	23	(10-37)	77	(58-97)
Washington	56	(48-65)	29	(21-36)	77	(70- 85)
Wicomico	47	(36-58)	28	(19-37)	71	(61- 82)
Worcester	55	(38-73)	52	(35-70)	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, 2001-2009

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)
HP2010 Goal**	**2**		**94**		**100**	
Maryland	**10**	**(9-10)**	**92**	**(91-93)**	**99**	**(99-<100)**
Allegany	20	(10-30)	95	(90-100)	100	(100-100)
Anne Arundel	10	(8-12)	88	(86-91)	100	(99-100)
Baltimore	11	(9-13)	90	(88-92)	100	(99-100)
Baltimore City	11	(9-13)	92	(91-94)	99	(99-100)
Calvert	6	(2- 9)	91	(84-97)	100	(100-100)
Caroline	25	(6-43)	99	(97-100)	100	(99-100)
Carroll	8	(4-11)	92	(89-96)	100	(99-100)
Cecil	20	(10-30)	96	(90-100)	100	(100-100)
Charles	13	(7-19)	96	(93-99)	99	(98-100)
Dorchester	20	(3-37)	98	(96-100)	100	(100-100)
Frederick	10	(7-14)	93	(90-96)	100	(99-100)
Garrett	7	(0-16)	100	(99-100)	100	(100-100)
Harford	10	(6-13)	93	(91-96)	100	(100-100)
Howard	4	(2-7)	89	(86-92)	100	(100-100)
Kent	25	(0-50)	100	(100-100)	100	(100-100)
Montgomery	2	(2-3)	91	(89-92)	100	(99-100)
Prince George's	5	(4-7)	94	(92-96)	99	(98-100)
Queen Anne's	7	(1-12)	93	(86-99)	100	(100-100)
Somerset	37	(10-63)	99	(96-100)	100	(100-100)
St. Mary's	14	(7-20)	92	(87-98)	100	(100-100)
Talbot	9	(0-17)	95	(89-100)	99	(98-100)
Washington	20	(13-26)	94	(91-98)	100	(100-100)
Wicomico	14	(6-21)	96	(92-100)	100	(100-100)
Worcester	20	(6-33)	88	(76- 99)	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 HP2010 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 unintended pregnancy (70%, Somerset—18%, Queen Anne's) and pre-pregnancy daily folic acid use (2%, Kent—52% Worcester) (Table 2). The least variation was found for "no binge drinking during the last three months of pregnancy" —99-100% for all jurisdictions (Table 3).

The HP 2010 Objective for pre-pregnancy folic acid use (80%) was not met by any jurisdiction (Table 2). Maryland was most successful in meeting HP2010 postpartum objectives (Table 4). The majority of jurisdictions (15/24) met the HP2010 objective for breastfeeding initiation (75%), with nearly all women in Montgomery (93%) and Howard (90%) counties reporting breastfeeding. The HP2010 objective for placing an infant to sleep on his back (70%) was met by 14 of 24 jurisdictions. First trimester prenatal care initiation and placement of an infant on his back to sleep was lowest in Baltimore City and Prince George's County (Table 2 and 4).

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

a) smoking (Washington, Worcester, Caroline, Allegany, Dorchester and Somerset),

b) binge drinking (Talbot, Allegany), and

c) an obese BMI (Kent, Talbot and Somerset).

Table 4. Percentage of Mothers Reporting Breastfeeding Initiation and Placing Infants on Their Backs to Sleep, Maryland, 2001-2009

Jurisdiction	Breastfeeding Initiation		Places Infant on Back to Sleep	
	%	(95% CI)	%	(95% CI)
HP2010 Goal	**75**		**70**	
Maryland	**78**	**(77-79)**	**67**	**(66-68)**
Allegany	51	(35-67)	75	(63-86)
Anne Arundel	82	(79-85)	74	(71-78)
Baltimore	77	(74-80)	71	(68-74)
Baltimore City	66	(62-69)	56	(53-60)
Calvert	87	(80-94)	73	(64-82)
Caroline	60	(40-80)	68	(49-86)
Carroll	78	(71-84)	78	(72-84)
Cecil	61	(49-74)	69	(56-83)
Charles	75	(67-82)	70	(62-77)
Dorchester	65	(47-83)	64	(45-83)
Frederick	80	(75-85)	73	(68-78)
Garrett	64	(41-87)	76	(58-94)
Harford	76	(70-81)	73	(68-79)
Howard	90	(87-94)	74	(69-79)
Kent	77	(54-100)	75	(50-100)
Montgomery	93	(91-94)	71	(68-74)
Prince George's	84	(81-86)	57	(53-60)
Queen Anne's	80	(69-92)	74	(61-87)
Somerset	51	(25-77)	67	(44-91)
St. Mary's	75	(66-84)	57	(47-68)
Talbot	80	(68-93)	69	(49-89)
Washington	68	(60-76)	70	(62-78)
Wicomico	70	(59-80)	72	(63-82)
Worcester	75	(60-90)	65	(48-82)

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 14,194 Maryland mothers who delivered live born infants between January 30, 2001 and December 31, 2009 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

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http://www.healthypeople.gov/2020/default.aspx

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