

## **Appendix 1. Pregnancy Risk Assessment Monitoring System (PRAMS) Working Group**

The authors would like to acknowledge the PRAMS Working Group (Alabama: Izza Afgan, MPH; Alaska: Kathy Perham Hester, MS, MPH; Arkansas: Mary McGehee, PhD; Colorado: Rickey Tolliver, MPH; Connecticut: Jennifer Morin, MPH; Delaware: George Yocher, MS; Florida: Elizabeth C. Stewart, MSPH; Georgia: Florence A. Kanu, MPH; Hawaii: Matt Shim, PhD, MPH; Illinois: Patricia Kloppenburg, MT [ASCP], MPH; Iowa: Jessica Egan; Kentucky: Tracey D. Jewell, MPH; Louisiana: Rosaria Trichilo, MPH; Maine: Tom Patenaude, MPH; Maryland: Laurie Kettinger, MS; Massachusetts: Emily Lu, MPH; Michigan: Peterson Haak; Minnesota: Mira Grice Sheff, PhD, MS; Mississippi: Brenda Hughes, MPPA; Missouri: David McBride, PhD; Montana: Emily Healy, MS; Nebraska: Jessica Seberger; New Hampshire: David J. Laflamme, PhD, MPH; New Jersey: Sharon Smith Cooley, MPH; New Mexico: Oralia Flores; New York State: Anne Radigan; New York City: Pricila Mullachery, MPH; North Carolina: Kathleen Jones Vessey, MS; North Dakota: Grace Njau, MPH; Ohio: Connie Geidenberger, PhD; Oklahoma: Ayesha Lampkins, MPH, CHES; Oregon: Claudia W. Bingham, MPH; Pennsylvania: Tony Norwood; Rhode Island: Karine Tolentino Monteiro, MPH; South Carolina: Kristin Simpson, MSW, MPA; Texas: Tanya Guthrie, PhD; Tennessee: Ramona Lainhart, PhD; Utah: Nicole Stone; Vermont: Peggy Brozicevic; Virginia: Sara Varner, MPH; Washington: Linda Lohdefinck; West Virginia: Melissa Baker, MA; Wisconsin: Christopher Huard; and Wyoming: Lorie Chesnut, PhD); and Centers for Disease Control and Prevention PRAMS Team, Applied Sciences Branch, Division of Reproductive Health.

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**Appendix 2. Comparison of Those Who Were Included the Final Analytic Sample to Those Who Were Excluded Due to Missing Data on Covariates Adjusted in the Multivariable Models**

	Missing data (n=5375) n (wt. %)	Analytic sample (n=222408) n (wt. %)	p
<b>Maternal age (years)</b>			0.166
<20	492 (8.4)	18629 (7.7)	
20 - 24	1185 (21.5)	51246 (22.1)	
25 - 34	2811 (54.3)	120282 (55.7)	
≥ 35	878 (15.8)	32251 (14.5)	
Missing (n=399)			
<b>Maternal race/ethnicity</b>			<0.001
Non-Hispanic white	487 (43.7)	116878 (59.9)	
Non-Hispanic black	177 (16.9)	36796 (13.4)	
Hispanic	229 (22.2)	34671 (18.1)	
Other	425 (17.2)	34063 (8.5)	
Missing (n=4057)			
<b>Parity</b>			0.178
Primipara	1775 (43.9)	94072 (41.2)	
Multipara	2287 (56.1)	128336 (58.8)	
Missing (n=1313)			
<b>Prepregnancy BMI (kg/m<sup>2</sup>)</b>			0.252
Underweight (<18.5)	476 (8.5)	20883 (9.2)	
Normal (18.5–24.9)	2639 (49.2)	105459 (48.1)	
Overweight (25.0–29.9)	1249 (23.7)	50795 (22.9)	
Obese (≥30.0)	1011 (18.6)	45271 (19.8)	
<b>Gestational weight gain</b>			<0.001

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Inadequate	1959 (32.5)	65682 (26.5)	
Normal	1435 (26.5)	67525 (30.4)	
Excessive	1981 (40.9)	89201 (43.1)	
<b>Hypertension</b>			0.267
No	4874 (93.7)	204847 (94.3)	
Yes	433 (6.3)	17561 (5.7)	
Missing (n=68)			
<b>Prenatal smoking</b>			0.034
Non-smokers for > 2 years	3938 (72.2)	162091 (75.2)	
Quit before pregnancy	162 (3.4)	6203 (2.8)	
Quit during pregnancy	666 (12.6)	26621 (11.8)	
No of cigarette reduced	373 (7.7)	17712 (6.7)	
No of cigarette same/more	236 (4.1)	9781 (3.5)	
<b>Gestational diabetes</b>			0.284
No	5030 (94.2)	209511 (94.7)	
Yes	345 (5.8)	12897 (5.3)	

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Abbreviations: wt.%: weighted percent. Weighted percent were obtained to control for complex sample design. BMI: body mass index; kg/m<sup>2</sup>: kilograms per meter square

### Appendix 3.

#### Unadjusted Association Between Prenatal Smoking and Gestational Diabetes Mellitus Stratified by Gestational Weight

	Inadequate (n=65682)		Normal (n=67525)		Excessive (n=89201)	
	Crude OR (95% CI)	p	Crude OR (95% CI)	p	Crude OR (95% CI)	p
<b>Prenatal smoking</b>						
Non-smokers for > 2 years	Reference		Reference		Reference	
Quit before pregnancy	0.83 (0.57- 1.17)	0.286	0.90 (0.63 - 1.28)	0.564	0.70 (0.51 - 0.95)	0.023
Quit during pregnancy	0.71 (0.59 - 0.86)	0.001	0.96 (0.78 - 1.15)	0.632	0.97 (0.83 - 1.12)	0.637
No of cigarette reduced	0.71 (0.57 - 0.88)	0.002	0.80 (0.63 - 1.01)	0.064	1.23 (1.03 - 1.47)	0.022
No of cigarette same/more	1.00 (0.78 - 1.27)	0.988	1.40 (1.07 - 1.83)	0.013	1.41 (1.07 - 1.85)	0.014

#### Unadjusted Association Between Prenatal Smoking and Gestational Diabetes Mellitus Stratified by Prepregnancy Body Mass Index

	Underweight (n=20883)		Normal (n=105459)		Overweight (n=50795)		Obese (45271)	
	Crude OR (95% CI)	p	Crude OR (95% CI)	p	Crude OR (95% CI)	p	Crude OR (95% CI)	p
<b>Prenatal smoking</b>								
Non-smokers for > 2 years	Reference		Reference		Reference		Reference	
Quit before pregnancy	0.81 (0.47 - 1.41)	0.460	0.87 (0.63 - 1.20)	0.386	0.75 (0.51 - 1.11)	0.150	0.63 (0.43- 0.92)	0.018
Quit during pregnancy	0.62 (0.45 - 0.86)	0.005	0.88 (0.75 - 1.04)	0.13	0.89 (0.73 - 1.08)	0.221	0.83 (0.69 - 1.00)	0.055

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No of cigarette reduced	0.45 (0.30 - 0.68)	<0.001	0.95 (0.77 - 1.16)	0.587	0.83 (0.64 - 1.07)	0.156	1.09 (0.89 - 1.33)	0.412
No of cigarette same/more	0.93 (0.60 - 1.45)	0.754	1.43 (1.08 - 1.89)	0.013	1.23 (0.93 - 1.62)	0.148	1.11 (0.85 - 1.46)	0.431

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#### Appendix 4. Subanalysis Recategorizing Smoking Status According to Number of Cigarettes Smoked During Pregnancy

##### Association Between Prenatal Smoking and Gestational Diabetes Mellitus (n = 222207)

	AOR (95% CI)	p
<b>Maternal age (years)</b>		
<20	Reference	
20 - 24	0.96 (0.82 - 1.12)	0.580
25 - 34	1.27 (1.10 - 1.48)	0.001
≥ 35	1.94 (1.65 - 2.28)	<0.001
<b>Maternal race/ethnicity</b>		
Non-Hispanic white	Reference	
Non-Hispanic black	1.73 (1.59 - 1.89)	<0.001
Hispanic	2.28 (2.08 - 2.49)	<0.001
Other	2.87 (2.64 - 3.12)	<0.001
<b>Parity</b>		
Primipara	Reference	
Multipara	1.07 (1.00 - 1.15)	0.044
<b>Prepregnancy BMI (kg/m<sup>2</sup>)</b>		
Underweight (<18.5)	1.68 (1.50 - 1.87)	<0.001
Normal (18.5–24.9)	Reference	
Overweight (25.0–29.9)	1.52 (1.40- 1.65)	<0.001

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Obese ( $\geq 30.0$ )	2.19 (2.01 - 2.38)	<0.001
<b>Gestational weight gain</b>		
Inadequate	1.32 (1.22 - 1.44)	<0.001
Normal	Reference	
Excessive	0.89 (0.82 - 0.96)	0.004
<b>Hypertension</b>		
No	Reference	
Yes	1.47 (1.31 - 1.66)	<0.001
<b>Prenatal smoking</b>		
Non-smokers for >2 years	Reference	
Quit before pregnancy	0.88 (0.72 - 1.08)	0.239
Quit during pregnancy	1.05 (0.95 - 1.18)	0.297
No of cigarette 1-10	1.28 (1.15 - 1.42)	<0.001
No of cigarette >10	1.49 (1.19 - 1.87)	<0.001

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Abbreviations: AOR: Adjusted odds ratio; CI: Confidence interval. Multivariable model adjusted for maternal age, race/ethnicity, parity, prepregnancy BMI, gestational weight gain and hypertension during pregnancy. BMI: body mass index; kg/m<sup>2</sup>: kilograms per meter square

### Association Between Prenatal Smoking and Gestational Diabetes Mellitus Stratified by Gestational Weight Gain

	Inadequate (n=65603)		Normal (n=67480)		Excessive (n=89124)	
	AOR (95% CI)	p	AOR (95% CI)	p	AOR (95% CI)	p
<b>Prenatal smoking</b>						
Non-smokers for > 2 years	Reference		Reference		Reference	
Quit before pregnancy	0.95 (0.66 - 1.38)	0.795	1.01 (0.70 - 1.47)	0.937	0.78 (0.26 - 1.07)	0.125
Quit during pregnancy	0.89 (0.73 - 1.07)	0.231	1.09 (0.90 - 1.32)	0.359	1.15 (0.99 - 1.34)	0.070
No of cigarette 1-10	1.05 (0.86 - 1.28)	0.632	1.13 (0.91 - 1.39)	0.262	1.58 (1.34 - 1.87)	<0.001
No of cigarette >10	1.18 (0.82 - 1.69)	0.377	1.68 (1.15 - 2.46)	0.007	1.66 (1.08 - 2.52)	0.002

Models adjusted for age, race/ethnicity, parity, pre-pregnancy BMI and hypertension during pregnancy

### Association Between Prenatal Smoking and Gestational Diabetes Mellitus Stratified by Prepregnancy Body Mass Index

	Underweight (n=20849)		Normal (n=105381)		Overweight (n=50739)		Obese (45238)	
	AOR (95% CI)	p	AOR (95% CI)	p	AOR (95% CI)	p	AOR (95% CI)	p
<b>Prenatal smoking</b>								
Non-smokers for > 2 years	Reference		Reference		Reference		Reference	
Quit before pregnancy	1.09 (0.60 - 1.96)	0.782	0.96 (0.68 - 1.34)	0.802	0.89 (0.59 - 1.33)	0.579	0.75 (0.50 - 1.10)	0.143
Quit during pregnancy	1.00 (0.71 - 1.42)	0.977	1.06 (0.90 - 1.26)	0.466	1.12 (0.92 - 1.36)	0.256	1.01 (0.84 - 1.23)	0.848
No of cigarette 1-10	0.96 (0.67 - 1.35)	0.803	1.37 (1.12 - 1.67)	0.002	1.15 (0.92 - 1.43)	0.206	1.39 (1.16 - 1.66)	<0.001

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No of cigarette >10	2.07 (1.07 - 4.02)	0.031	1.48 (1.02 - 2.14)	0.037	1.28 (0.85 - 1.91)	0.238	1.48 (0.96 - 2.27)	0.074
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Models adjusted for age, race/ethnicity, parity, gestational weight gain and hypertension during pregnancy