# SUPPLEMENTAL MATERIAL

## Supplemental Table 1: Maternal characteristics by overall PTB and PTB subtypes

| **Maternal Characteristics** | **Term**  **(N=5507)** | **PTB**  **(N=2069)** | **Spontaneous PTB**  **(N=1353)** | **Medically indicated PTB**  **(N=716)** |
| --- | --- | --- | --- | --- |
|  | **%** | **%** | **%** | **%** |
| Maternal race/ethnicity |  |  |  |  |
| Non-Hispanic Black1 | 71.8 | 28.2 | 17.6 | 10.6 |
| Non-Hispanic White | 70.1 | 29.9 | 21.3 | 8.6 |
| Hispanic | 75.1 | 24.9 | 16.9 | 8.0 |
| Other | 73.5 | 26.5 | 18.2 | 8.3 |
| Missing | 73.3 | 26.7 | 13.3 | 13.3 |
| Age in years |  |  |  |  |
| <20 | 75.7 | 24.3 | 18.3 | 6.0 |
| 20-34 | 73.7 | 26.3 | 17.7 | 8.6 |
| 35+ | 66.2 | 33.8 | 18.6 | 15.2 |
| Missing | 73.3 | 26.7 | 13.3 | 13.3 |
| Nativity (US born) |  |  |  |  |
| Not born in US | 75.3 | 24.7 | 15.6 | 9.1 |
| Born in US | 68.5 | 31.5 | 21.5 | 10.1 |
| Missing | 82.4 | 17.6 | 13.2 | 4.4 |
| Education |  |  |  |  |
| Less than high school | 72.9 | 27.1 | 18.5 | 8.6 |
| High School/GED | 70.8 | 29.2 | 18.8 | 10.4 |
| College or more | 74.2 | 25.8 | 16.4 | 9.3 |
| Missing | 73.1 | 26.9 | 17.9 | 9.0 |
| Marital Status |  |  |  |  |
| Married | 74.5 | 25.5 | 15.8 | 9.8 |
| Unmarried | 71.4 | 28.6 | 19.3 | 9.3 |
| Missing | 80.2 | 19.8 | 11.1 | 8.6 |
| Receipt of public assistance 2 |  |  |  |  |
| No | 70.7 | 29.3 | 17.8 | 11.5 |
| Yes | 73.1 | 26.9 | 17.9 | 9.1 |
| Parity |  |  |  |  |
| Multiparous | 69.1 | 30.9 | 20.5 | 10.3 |
| Nulliparous | 74.0 | 26.0 | 16.9 | 9.1 |
| Missing | 77.8 | 22.2 | 16.7 | 5.6 |
| Cigarette smoking |  |  |  |  |
| Never | 74.4 | 25.6 | 16.2 | 9.4 |
| Ever | 68.2 | 31.8 | 21.1 | 10.7 |
| Continuous in pregnancy | 64.5 | 35.5 | 26.7 | 8.8 |
| Missing | 74.7 | 25.3 | 12.6 | 12.6 |
| Alcohol consumption |  |  |  |  |
| No | 73.2 | 26.8 | 17.6 | 9.2 |
| Yes | 68.5 | 31.5 | 20.8 | 10.7 |
| Missing | 71.7 | 28.3 | 16.0 | 12.3 |
| Stress 3 |  |  |  |  |
| No | 74.0 | 26.0 | 17.3 | 8.6 |
| Yes | 67.6 | 32.4 | 19.8 | 12.5 |
| Missing | 73.5 | 26.5 | 17.6 | 8.8 |
| BMI |  |  |  |  |
| Underweight | 70.1 | 29.9 | 23.5 | 6.5 |
| Overweight | 74.4 | 25.6 | 17.9 | 7.8 |
| Obese | 70.9 | 29.1 | 17.8 | 11.3 |
| Missing | 75.0 | 25.0 | 15.0 | 10 |
| Preeclampsia disorders 4 |  |  |  |  |
| No | 76.1 | 23.9 | 19.3 | 4.6 |
| Yes | 48.6 | 51.4 | 7.7 | 43.7 |
| Intrauterine infection/inflammation |  |  |  |  |
| No | 73.7 | 26.3 | 15.9 | 10.3 |
| Yes | 61.5 | 38.5 | 31.0 | 7.5 |
| Missing | 84.8 | 15.2 | 11.6 | 3.6 |
| Diabetes Mellitus |  |  |  |  |
| No | 73.6 | 26.4 | 17.6 | 8.8 |
| Gestational Diabetes Mellitus | 64.0 | 36.0 | 22.1 | 14.0 |
| Diabetes Mellitus | 48.7 | 51.3 | 22.7 | 28.6 |
| Missing | 75.8 | 24.2 | 16.7 | 7.6 |
| Folate intake in preconception |  |  |  |  |
| None | 72.6 | 27.4 | 17.9 | 9.5 |
| Any | 74.1 | 25.9 | 16.6 | 9.2 |
| First trimester |  |  |  |  |
| None (ref) | 69.5 | 30.5 | 21.6 | 9.0 |
| 1-2x a week | 67.8 | 32.2 | 21.3 | 11.0 |
| 3-5x a week | 73.3 | 26.7 | 17.2 | 9.5 |
| >5x a week | 73.8 | 26.2 | 16.7 | 9.5 |
| Second trimester |  |  |  |  |
| None (ref) | 68.9 | 31.1 | 21.7 | 9.4 |
| 1-2x a week | 67.1 | 32.9 | 23.2 | 9.8 |
| 3-5x a week | 73.2 | 26.8 | 17.4 | 9.4 |
| >5x a week | 73.7 | 26.3 | 16.8 | 9.5 |
| Third trimester |  |  |  |  |
| None (ref) | 65.5 | 34.5 | 23.4 | 11.1 |
| 1-2x a week | 72.0 | 28.0 | 19.8 | 8.2 |
| 3-5x a week | 74.2 | 25.8 | 16.9 | 8.9 |
| >5x a week | 73.7 | 26.3 | 16.8 | 9.4 |
| Folate intake in pregnancy |  |  |  |  |
| None (ref) | 66.6 | 33.4 | 22.7 | 10.7 |
| 1-2x a week | 69.7 | 30.3 | 21.5 | 8.8 |
| 3-5x a week | 74.3 | 25.7 | 16.5 | 9.2 |
| >5x a week | 74.1 | 25.9 | 16.4 | 9.6 |
|  |  |  |  |  |

1 Non-Hispanic Black includes Black, African American, Haitian, Cape Verdian;

2 Public assistance is defined as receipt of any of the following: food stamps, WIC, AFDC, fuel or housing assistance.

3 Mother’s report of index pregnancy or life being very stressful.

4 Preeclampsia disorders are defined as the presence of preeclampsia, gestational hypertension and hemolysis, elevated liver enzymes, and low platelet (HELLP) syndrome.

Abbreviations: BMI-body mass index; N-number; PTB-preterm birth

## Supplemental Table 2: Multivitamin supplement intake unadjusted and adjusted odds of PTB subtypes

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Spontaneous PTB** | | | | **Medically indicated PTB** | | | |
| **Multivitamin supplement intake sample** | **No of cases** | **(%)** | **aOR 1** | **95% CI** | **No of cases** | **(%)** | **aOR 2** | **95% CI** |
| *Preconception* | | | | | | | | |
| None (ref) | 1,270 | 19.8 | 1.00 | n/a | 670 | 11.5 | 1.00 | n/a |
| Any | 83 | 18.3 | 0.96 | 0.75, 1.24 | 46 | 11.1 | 0.84 | 0.60, 1.17 |
| First trimester | | | | | | | | |
| None (ref) | 284 | 23.7 | 1.00 | n/a | 118 | 11.4 | 1.00 | n/a |
| 1-2x a week | 64 | 23.9 | 1.04 | 0.76, 1.43 | 33 | 13.9 | 1.29 | 0.85, 1.97 |
| 3-5x a week | 348 | 19.0 | 0.82 | 0.68, 0.99 | 191 | 11.4 | 1.07 | 0.83, 1.38 |
| >5x a week | 657 | 18.4 | 0.78 | 0.66, 0.92 | 374 | 11.4 | 1.02 | 0.81, 1.28 |
| Second trimester | | | | | | | | |
| None (ref) | 202 | 23.9 | 1.00 | n/a | 88 | 12.1 | 1.00 | n/a |
| 1-2x a week | 76 | 25.7 | 1.11 | 0.81, 1.53 | 32 | 12.7 | 1.14 | 0.73, 1.77 |
| 3-5x a week | 371 | 19.2 | 0.83 | 0.67, 1.01 | 199 | 11.3 | 1.00 | 0.76, 1.31 |
| >5x a week | 704 | 18.6 | 0.79 | 0.65, 0.95 | 397 | 11.4 | 0.96 | 0.74, 1.23 |
| Third trimester | | | | | | | | |
| None (ref) | 234 | 26.3 | 1.00 | n/a | 111 | 14.5 | 1.00 | n/a |
| 1-2x a week | 70 | 21.5 | 0.82 | 0.60, 1.12 | 29 | 10.2 | 0.69 | 0.45, 1.08 |
| 3-5x a week | 355 | 18.6 | 0.71 | 0.58, 0.86 | 188 | 10.8 | 0.75 | 0.58, 0.97 |
| >5x a week | 694 | 18.6 | 0.71 | 0.59, 0.85 | 388 | 11.3 | 0.76 | 0.60, 0.96 |
| *Pregnancy (1st to 3rd trimester)* | | | | | | | | |
| None (ref) | 149 | 25.5 | 1.00 | n/a | 70 | 13.8 | 1.00 | n/a |
| 1-2x a week | 288 | 23.6 | 0.95 | 0.75, 1.20 | 118 | 11.2 | 0.83 | 0.60, 1.15 |
| 3-5x a week | 305 | 18.2 | 0.73 | 0.58, 0.92 | 171 | 11.1 | 0.85 | 0.62, 1.15 |
| >5x a week | 611 | 18.1 | 0.72 | 0.58, 0.89 | 357 | 11.4 | 0.83 | 0.63, 1.11 |

1 Adjusted for maternal race, age, nativity, education, marital status, receipt of public assistance, parity, tobacco use, alcohol use, stress, BMI, preeclampsia disorders, intrauterine infection/inflammation and diabetes mellitus.

2 Adjusted for maternal race, age, nativity, education, marital status, receipt of public assistance, parity, tobacco use, alcohol and stress.

Abbreviation: aOR-adjusted odds ratio; CI- confidence interval; n/a-not applicable; No-number; ref-reference; PTB: preterm birth

## Supplemental Table 3: Relationship Between Multivitamin Supplement Intake and Preterm Birth among Non-Hispanic Blacks only (N=3,847)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Period** | **Preterm (N=1,803)** | | **Unadjusted** | | **Adjusted OR1** | |
|  | **N of cases** | **(%)** | **OR** | **95% CI** | **OR** | **95% CI** |
| Multivitamin supplement intake in pregnancy (1st to 3rd trimester) | | | | | | |
| Continuous (index) 2 | n/a | n/a | 0.97 | 0.95, 0.99 | 0.97 | 0.97, 0.99 |
| Categorical |  |  |  |  |  |  |
| None (reference) | 125 | 34.8 | 1.00 (reference) | n/a | 1.00 (reference) | n/a |
| 1-2x a week | 229 | 30.9 | 0.81 | 0.62, 1.05 | 0.86 | 0.65, 1.15 |
| 3-5x a week | 242 | 27.5 | 0.71 | 0.55, 0.92 | 0.79 | 0.58, 1.04 |
| >5x a week | 487 | 26.4 | 0.67 | 0.53, 0.85 | 0.75 | 0.58, 0.97 |
| Multivitamin supplement intake in specific time periods | | | | | | |
| Preconception |  |  |  |  |  |  |
| None (reference) | 1,014 | 28.2 | 1.00 (reference) | n/a | 1.00 (reference) | n/a |
| Any | 69 | 27.9 | 0.99 | 0.74, 1.32 | 0.99 | 0.73, 1.34 |
| First trimester |  |  |  |  |  |  |
| None (reference) | 224 | 30.4 | 1.00 (reference) | n/a | 1.00 (reference) | n/a |
| 1-2x a week | 59 | 32.4 | 1.10 | 0.77, 1.55 | 1.12 | 0.77, 1.62 |
| 3-5x a week | 279 | 28.4 | 0.91 | 0.74, 1.12 | 0.95 | 0.76, 1.19 |
| >5x a week | 521 | 26.8 | 0.84 | 0.69, 1.01 | 0.87 | 0.71, 1.06 |
| Second trimester |  |  |  |  |  |  |
| None (reference) | 164 | 32.9 | 1.00 (reference) | n/a | 1.00 (reference) | n/a |
| 1-2x a week | 66 | 32.4 | 0.97 | 0.69, 1.38 | 1.09 | 0.75, 1.57 |
| 3-5x a week | 301 | 26.7 | 0.82 | 0.65, 1.03 | 0.91 | 0.71, 1.16 |
| >5x a week | 552 | 26.3 | 0.73 | 0.59, 0.90 | 0.80 | 0.64, 1.00 |
| Third trimester |  |  |  |  |  |  |
| None (reference) | 202 | 36.9 | 1.00 (reference) | n/a | 1.00 (reference) | n/a |
| 1-2x a week | 59 | 27.8 | 0.66 | 0.47, 0.93 | 0.73 | 0.51, 1.05 |
| 3-5x a week | 282 | 27.4 | 0.64 | 0.52, 0.80 | 0.72 | 0.57, 0.91 |
| >5x a week | 540 | 26.2 | 0.61 | 0.50, 0.74 | 0.68 | 0.55, 0.84 |

1 Adjusted for maternal race, age, nativity, education, marital status, receipt of public assistance, parity, cigarette use, alcohol use, stress, body mass index (BMI), preeclampsia disorders, intrauterine infection/inflammation and diabetes mellitus.

2 Composite measure of supplement intake from 1st to 3rd trimester

Abbreviations: CI-confidence interval; N-number, OR-odds ratio

## Supplemental Figure 1: Plasma Folate Concentration by Gestational Age



## Supplemental Figure 2: Study Participants Flow Chart

Women enrolled in Boston Birth Cohort  
(n= 8,494)

Folic acid supplement intake data available (full sample)

(n= 7,576)

Plasma folate assay conducted (subsample)

(n =2,313)

Excluded 918 without folic acid supplement intake data

Plasma folate assay not conducted

(n =5,263)