

**Postpartum and Ongoing Care**

**Table 9.** Proportion of women with gestational diabetes who develop prediabetes or type 2 diabetes at postpartum visit, 5 years postpartum, and 10 years postpartum

| Condition (fasting plasma glucose) | At post-partum visit | After 5 years | After 10 years        |
|------------------------------------|----------------------|---------------|-----------------------|
| Pre-diabetes (100-<126 mg/dl)      | ~25%                 | ~80%          | No studies yet, >80%? |
| Type 2 diabetes (>126 mg/dl)       | ~10%                 | ~50%          | ~70%                  |

**Sources:**

1. Kjos SL, Buchanan TA, Greenspoon JS, et al. *Gestational Diabetes mellitus: the prevalence of glucose intolerance and diabetes mellitus in the first two months postpartum.* AM J Obstet Gynec 1990; 163:93-8
2. Kim C, Newton KM, Knopp RH. *Gestational diabetes and the incidence of type 2 diabetes:a systematic review.* Diabetes Care 2002; 25(10): 1862-8
3. Dietz PM, Vesco KK, Callaghan WM et al. *Postpartum screening for diabetes after a GDM-affected pregnancy.* Obstet Gynecol 2008; 112(4): 868-74.

**Note:** Table 9 was not updated.



In Ohio, self-reported postpartum visit rates were around 90 percent among women with GDM in 2006-08 and 2009-10, and 2016 (Table 10). In 2009-10 and 2016, differences in postpartum visit rates were found by race/ethnicity. Non-Hispanic black women and women enrolled in WIC were less likely to report completing a visit following a GDM pregnancy.

**Table 10. Prevalence of self-reported postpartum visit completion, Ohio 2006-08, 2009-10, and 2016**

|                       | 2006-08           |                  |             |                    |                  |                 | 2009-10           |                  |                 |                    |                  |                 | 2016              |                  |           |                    |                  |                  |
|-----------------------|-------------------|------------------|-------------|--------------------|------------------|-----------------|-------------------|------------------|-----------------|--------------------|------------------|-----------------|-------------------|------------------|-----------|--------------------|------------------|------------------|
|                       | % With GDM        | 95% CI           | p-value     | % W/out GDM        | 95% CI           | p-value         | % With GDM        | 95% CI           | p-value         | % W/out GDM        | 95% CI           | p-value         | % With GDM        | 95% CI           | p-value   | % W/out GDM        | 95% CI           | p-value          |
| <b>Overall (n)</b>    | <b>90.5 (382)</b> | <b>86.3-93.5</b> |             | <b>90.0 (3513)</b> | <b>88.6-91.2</b> |                 | <b>91.0 (259)</b> | <b>85.4-94.6</b> |                 | <b>90.4 (2146)</b> | <b>88.6-91.9</b> |                 | <b>94.8 (275)</b> | <b>90.2-99.3</b> |           | <b>91.7 (3087)</b> | <b>89.9-93.5</b> |                  |
| <b>Age (years)</b>    |                   |                  | <b>ns</b>   |                    |                  | <b>ns</b>       |                   |                  | <b>ns</b>       |                    |                  | <b>0.05</b>     |                   |                  |           |                    |                  | <b>ns</b>        |
| <18                   | –                 | –                |             | 88.0               | 78.6-93.6        |                 | –                 | –                |                 | 86.9               | 72.5-94.3        |                 | --                | --               |           | --                 | --               |                  |
| 18-24                 | 87.5              | 77.4-93.5        |             | 86.3               | 83.5-88.7        |                 | 90.8              | 79.3-96.2        |                 | 87.1               | 83.4-90.0        |                 | 83.4              | 64.7-100.0       |           | 90.3               | 86.2 - 94.4      |                  |
| 25 - 34               | 92.2              | 86.5-95.7        |             | 92.1               | 90.4-93.6        |                 | 90.3              | 80.4-95.4        |                 | 92.2               | 89.8-94.0        |                 | 98.1              | 95.8-100.0       |           | 93.2               | 91.2 - 95.2      |                  |
| 35-44                 | 89.4              | 78.2-95.2        |             | 92.1               | 88.3-94.7        |                 | 92.0              | 80.8-96.9        |                 | 92.7               | 87.7-95.8        |                 | 97.4              | 93.8-100.0       |           | 89.5               | 84.2 - 94.8      |                  |
| 45+                   | –                 | –                |             | –                  | –                |                 | –                 | –                |                 | –                  | –                |                 | --                | --               |           | --                 | --               |                  |
| <b>Race/Ethnicity</b> |                   |                  | <b>0.04</b> |                    |                  | <b>0.02</b>     |                   |                  | <b>&lt;0.01</b> |                    |                  | <b>ns</b>       |                   |                  |           |                    |                  | <b>ns</b>        |
| Non-Hispanic White    | 90.7              | 85.5-94.1        |             | 90.9               | 89.4-92.4        |                 | 95.2              | 88.5-98.0        |                 | 91.0               | 88.9-92.8        |                 | 96.9              | 93.0-100.0       |           | 92.6               | 90.5 - 94.8      |                  |
| Non-Hispanic Black    | 85.3              | 76.4-91.3        |             | 87.1               | 84.7-89.1        |                 | 81.2              | 70.7-88.5        |                 | 86.4               | 83.1-89.1        |                 | 83.2              | 64.5-100.0       |           | 87.8               | 83.3 - 92.3      |                  |
| Hispanic              | –                 | –                |             | 87.6               | 77.8-93.4        |                 | –                 | –                |                 | 91.5               | 76.5-97.3        |                 | --                | --               |           | 88.9               | 79.5 - 98.4      |                  |
| Other                 | –                 | –                |             | 85.5               | 76.7-91.4        |                 | –                 | –                |                 | 92.6               | 83.9-96.8        |                 | --                | --               |           | 94.5               | 88.8 - 100.0     |                  |
| <b>Marital Status</b> |                   |                  | <b>0.04</b> |                    |                  | <b>&lt;0.01</b> |                   |                  | <b>ns</b>       |                    |                  | <b>&lt;0.01</b> |                   |                  | <b>ns</b> |                    |                  | <b>&lt;.0001</b> |
| Married               | 93.5              | 88.7-96.4        |             | 92.4               | 90.8-93.8        |                 | 92.3              | 84.0-96.5        |                 | 93.9               | 91.9-95.5        |                 | 97.1              | 94.5-99.7        |           | 95.1               | 93.5 - 96.7      |                  |
| Unmarried             | 84.6              | 75.6-90.7        |             | 86.4               | 84.0-88.5        |                 | 89.4              | 80.0-94.6        |                 | 85.7               | 82.5-88.4        |                 | 91.7              | 81.7-100.0       |           | 87.6               | 84.1 - 91.1      |                  |
| <b>Education</b>      |                   |                  | <b>ns</b>   |                    |                  | <b>&lt;0.01</b> |                   |                  | <b>ns</b>       |                    |                  | <b>&lt;0.01</b> |                   |                  |           |                    |                  | <b>&lt;.0001</b> |
| Less than High School | 81.8              | 65.9-91.3        |             | 81.5               | 76.7-85.5        |                 | 96.7              | 88.4-99.1        |                 | 76.2               | 69.2-82.1        |                 | --                | --               |           | 79.4               | 70.3 - 88.5      |                  |
| High School grad      | 90.1              | 81.9-94.8        |             | 86.6               | 83.5-89.1        |                 | 79.9              | 62.4-90.5        |                 | 88.2               | 84.1-91.3        |                 | 84.1              | 67.5-100.0       |           | 87.7               | 82.7 - 92.8      |                  |
| Some college          | 93.1              | 84.0-97.2        |             | 92.0               | 89.5-93.9        |                 | 95.4              | 89.1-98.1        |                 | 91.7               | 88.3-94.2        |                 | 99.2              | 97.6-100.0       |           | 92.1               | 89.0 - 95.3      |                  |
| College grad          | 92.6              | 83.5-96.8        |             | 95.7               | 94.1-96.9        |                 | 93.6              | 84.9-97.5        |                 | 97.0               | 95.1-98.1        |                 | 99.1              | 97.9-100.0       |           | 95.9               | 94.1 - 97.6      |                  |

See sources and notes following continuation of Table 10 on next page.

**Table 10 (con't).** Prevalence of self-reported postpartum visit completion, Ohio 2006-08, 2009-10, and 2016

|  | 2006-08           |                  |                  |                    |                  |                | 2009-10           |                  |             |                    |                  |                 | 2016              |                  |           |                    |                  |                  |
|--|-------------------|------------------|------------------|--------------------|------------------|----------------|-------------------|------------------|-------------|--------------------|------------------|-----------------|-------------------|------------------|-----------|--------------------|------------------|------------------|
|  | % With GDM        | 95% CI           | p-value          | % W/out GDM        | 95% CI           | p-value        | % With GDM        | 95% CI           | p-value     | % W/out GDM        | 95% CI           | p-value         | % With GDM        | 95% CI           | p-value   | % W/out GDM        | 95% CI           | p-value          |
| <b>Overall (n)</b>                       | <b>90.5 (382)</b> | <b>86.3-93.5</b> |                  | <b>90.0 (3513)</b> | <b>88.6-91.2</b> |                | <b>91.0 (259)</b> | <b>85.4-94.6</b> |             | <b>90.4 (2146)</b> | <b>88.6-91.9</b> |                 | <b>94.8 (275)</b> | <b>90.2-99.3</b> |           | <b>91.7 (3087)</b> | <b>89.9-93.5</b> |                  |
| <b>County Type</b>                       |                   |                  | <b>ns</b>        |                    |                  | <b>ns</b>      |                   |                  | <b>ns</b>   |                    |                  | <b>&lt;0.01</b> |                   |                  |           |                    |                  | <b>ns</b>        |
| Metro                                    | 91.7              | 86.9-94.9        |                  | 89.8               | 88.0-91.3        |                | 87.0              | 77.3-92.9        |             | 89.1               | 86.6-91.1        |                 | 92.8              | 86.1-99.4        |           | 91.7               | 89.8-93.6        |                  |
| Suburban                                 | 89.1              | 73.3-96.1        |                  | 89.8               | 86.0-92.6        |                | 94.3              | 78.4-98.7        |             | 95.7               | 92.2-97.7        |                 | --                | --               |           | 92.4               | 86.3-98.6        |                  |
| Appalachia                               | 87.8              | 72.0-95.2        |                  | 88.9               | 84.7-92.0        |                | 98.1              | 94.6-99.3        |             | 85.4               | 79.0-90.1        |                 | --                | --               |           | 87.1               | 80.4-93.9        |                  |
| Rural                                    | 90.2              | 75.4-96.5        |                  | 92.1               | 88.4-94.7        |                | 93.4              | 74.4-98.6        |             | 94.8               | 90.1-97.3        |                 | --                | --               |           | 95.5               | 91.2-99.9        |                  |
| <b>Insurance Status (Prenatal Care)*</b> |                   |                  |                  |                    |                  |                |                   |                  | <b>N/A</b>  |                    |                  | <b>N/A</b>      |                   |                  |           |                    |                  | <b>&lt;.0001</b> |
| Uninsured                                | N/A               | N/A              |                  | N/A                | N/A              |                | --                | --               |             | 70.7               | 53.2-83.7        |                 | --                | --               |           | 80.2               | 68.5-91.9        |                  |
| Medicaid                                 | 85.6              | 77.1-91.4        |                  | 85.6               | 82.9-87.9        |                | 86.0              | 76.0-92.3        |             | 86.0               | 82.8-88.6        |                 | 92.9              | 84.5-100.0       |           | 91.0               | 88.0-93.9        |                  |
| Health Insurance From Job                | N/A               | N/A              |                  | N/A                | N/A              |                | 97.0              | 90.1-99.1        |             | 95.8               | 93.9-97.1        |                 | 99.0              | 97.8-100.0       |           | 97.1               | 95.7-98.5        |                  |
| Health Insurance Paid For (not from job) | N/A               | N/A              |                  | N/A                | N/A              |                | --                | --               |             | 99.2               | 97.5-99.8        |                 | --                | --               |           | 88.7               | 81.0-96.5        |                  |
| TRICARE Or Other Military Health Care    | N/A               | N/A              |                  | N/A                | N/A              |                | --                | --               |             | 94.5               | 76.3-98.9        |                 | --                | --               |           | 97.4               | 93.3-100.0       |                  |
| Other                                    | N/A               | N/A              |                  | N/A                | N/A              |                | --                | --               |             | 85.6               | 73.3-92.8        |                 | --                | --               |           | 74.9               | 58.0-91.7        |                  |
| <b>Migrant Status</b>                    |                   |                  | <b>p&lt;0.01</b> |                    |                  | <b>ns</b>      |                   |                  | <b>ns</b>   |                    |                  | <b>ns</b>       |                   |                  |           |                    |                  |                  |
| U.S. Born                                | 89.6              | 85.1-92.9        |                  | 90.3               | 88.9-91.5        |                | 91.5              | 85.6-95.1        |             | 90.5               | 88.7-92.1        |                 | N/A <sup>b</sup>  | N/A <sup>b</sup> |           | N/A <sup>b</sup>   | N/A <sup>b</sup> |                  |
| Foreign-Born                             | 98.3              | 95.7-99.7        |                  | 85.6               | 78.6-90.6        |                | --                | --               |             | 88.6               | 80.2-93.7        |                 | N/A <sup>b</sup>  | N/A <sup>b</sup> |           | N/A <sup>b</sup>   | N/A <sup>b</sup> |                  |
| <b>WIC during Pregnancy</b>              |                   |                  | <b>0.05</b>      |                    |                  | <b>&lt;0.0</b> |                   |                  | <b>0.02</b> |                    |                  | <b>&lt;0.01</b> |                   |                  | <b>ns</b> |                    |                  | <b>&lt;.05</b>   |
| Yes                                      | 86.0              | 78.1-91.4        |                  | 87.3               | 84.5-89.3        |                | 86.6              | 76.7-92.7        |             | 87.2               | 84.1-89.7        |                 | 93.6              | 86.8-100.0       |           | 89.2               | 85.6-92.7        |                  |
| No                                       | 93.7              | 88.7-96.5        |                  | 91.9               | 90.2-93.9        |                | 96.9              | 91.7-98.9        |             | 93.0               | 90.9-94.7        |                 | 95.6              | 89.5-100.0       |           | 93.0               | 91.0-95.1        |                  |

Sources: 2006-2010 Pregnancy Risk Assessment Monitoring System (PRAMS), Ohio Department of Health. 2016 Ohio Pregnancy Assessment Survey (OPAS).

Notes: GDM was determined by the following questions: Phase 5 of PRAMS (2004-08), “Did you have high blood sugar (diabetes) that started during this pregnancy?”; Phase 6 (2009-11), “During your most recent pregnancy, were you told by a doctor, nurse, or other health care worker that you had gestational diabetes (diabetes that started during this pregnancy)?” OPAS 2016 Question #30 (and consistent with PRAMS Phase 7) determined GDM from the following question: “During your most recent pregnancy, did you have any of the following health conditions? a) Gestational diabetes (diabetes that started during this pregnancy).”

Based on answers to the question: Since your new baby was born, have you had a postpartum checkup yourself? (A postpartum checkup is a regular checkup a women has after she gives birth).

<sup>a</sup> Refers to insurance status for prenatal care. Significant change in structure of survey questions about health insurance for prenatal care in 2009-2010. Also, from 2009 forward mothers chose all that applied.

— too small for meaningful analysis; less than 30 respondents in subpopulation; cells with denominators less than 30 are not presented due to confidentiality concerns.

<sup>b</sup>This variable was not available in the data set.

P-values are not produced in 2016 categories with at least one group reporting zero observations.

Table 11 displays the prevalence and trends in billing for a postpartum visit among women with deliveries paid by Ohio Medicaid insurance, during 2007-09, 2010-12, 2013-14, and 2015-16. About one-third of women with GDM had a billing for a postpartum visit, but billings for postpartum visits were higher in all previous years. Women with GDM were more likely to have a postpartum visit than women without GDM. The postpartum visits did not vary by age, with the exception of women greater than 45 without GDM which was only 12 percent. While Hispanic women and Non-Hispanic women of other races were less likely to have a visit compared to Non-Hispanic white or black women in previous years; the visits did not vary by race in 2015-16. Postpartum visits also did not vary by geographic region.

**Table 11. Prevalence of trends in postpartum visit claims among women with Medicaid insurance, Ohio 2007-09, 2010-12, 2013-14, and 2015-16**

|                          | 2007-09         |                 | 2010-12         |                 | 2013-14         |                  | 2015-16         |                  |
|--------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|-----------------|------------------|
|                          | % With GDM      | % W/out GDM     | % With GDM      | % W/out GDM     | % With GDM      | % W/out GDM      | % With GDM      | % W/out GDM      |
| <b>Total</b>             | <b>n=10,481</b> | <b>n=85,969</b> | <b>n=12,621</b> | <b>n=84,959</b> | <b>n=16,282</b> | <b>n=118,045</b> | <b>n=11,855</b> | <b>n=133,762</b> |
| <b>Age (years)</b>       |                 |                 |                 |                 |                 |                  |                 |                  |
| 18-24                    | 53.6            | 49.6            | 53.0            | 50.1            | 47.8            | 42.5             | 30.4            | 26.7             |
| 25-34                    | 53.6            | 48.6            | 54.9            | 51.1            | 50.9            | 44.4             | 32.7            | 28.7             |
| 35-44                    | 50.7            | 45.1            | 53.6            | 48.4            | 47.7            | 39.1             | 32.8            | 27.5             |
| ≥45 <sup>a</sup>         | -               | -               | -               | -               | -               | -                | 31.3            | 12.7             |
| <b>Race<sup>b</sup></b>  |                 |                 |                 |                 |                 |                  |                 |                  |
| Non-Hispanic White       | 51.3            | 51.4            | 52.7            | 52.7            | -               | -                | 32.7            | 27.8             |
| Non-Hispanic Black       | 50.2            | 47.7            | 54.0            | 49.2            | -               | -                | 29.3            | 26.8             |
| Hispanic                 | 12.5            | 26.0            | 16.8            | 27.8            | -               | -                | 30.5            | 21.4             |
| Other                    | 12.8            | 34.9            | 16.7            | 38.5            | -               | -                | 34.0            | 26.4             |
| <b>Geographic Region</b> |                 |                 |                 |                 |                 |                  |                 |                  |
| Urban                    | 37.5            | 47.9            | 41.2            | 50.4            | 49.3            | 42.6             | 31.1            | 27.0             |
| Non-Urban                | 58.2            | 49.8            | 60.3            | 51.2            | 49.6            | 43.8             | 31.9            | 28.1             |

**Source:** 2007-12 data obtained from Ohio Department of Medicaid QDSS (Medstat Advantage Suite® V 4.0, Truven Health Analytics) accessed April & May, 2014, Ohio Department of Health; analyses of 2012-14 data were performed by Ohio Department of Medicaid.

<sup>a</sup> Too small for meaningful analysis; less than 30 respondents in subpopulation for mothers ≥ 45 years

<sup>b</sup> After 2013 data on race and ethnicity are no longer collected for all Medicaid enrollees. Any missing data is included in Other.

Deliveries were identified by an admission for DRG’s 765 - 768, 774 or 775. Gestational diabetes is identified by a principal or secondary diagnosis code of 64880 - 64884 on a facility or professional claim during the 270 day period prior to delivery admission. A postpartum visit is identified by ICD-9, CPT and UB codes specified by HEDIS® on a facility or professional claim during the 21 to 56 day period after delivery.

Only data from the following provider types were included in the analysis:

Comprehensive Clinic; Federally Qualified Health Center; General Hospital; Nurse Midwife; Nurse Practitioner; Physician Group; Physician Individual; Public Health Department Clinic; Rural Health Facility