

Incidence of GDM In Ohio

Gestational Diabetes incidence refers to the annual diagnosis rate, or the number of new cases of GDM diagnosed within pregnancies that were completed that year. Table 4 displays incidence rates estimated from several systems, though each has limitations. Between 2012 and 2016, the incidence of GDM in Ohio ranged from 6.7% to 12.5%.

Table 4. Summary of GDM Incidence in Ohio, multiple sources, 2009-16

Data Source	Timeframe	GDM Incidence (Percent)
Medicaid Claims	2012-14	12.5%
Medicaid Claims	2015-16	8.18%
Ohio Hospital Association Discharge Data	2013	6.8%
Ohio Pregnancy Assessment Survey (OPAS)	2016	8.1%
Vital Statistics	2012-14	6.7%
Vital Statistics	2015-16	7.5%

According to VS, GDM prevalence has increased in Ohio overall and with most population subgroups (see Table 5a, next page). Among women with a live birth during the years 2006-08, 2009-11, 2012-14, and 2015-16 higher incidence of GDM were found among women 45 years or greater; who were not black, white or Hispanic; who were married; with some college education; were not insured by Medicaid, and residing in a Metropolitan area.



Table 5a. GDM incidence among women with a live birth, by demographics, Ohio 2006-08, 2009-11, 2012-14, and 2015-16

		2006-08		2009-11		2012-14		2015-16	
		(n=438373)		(n=412631)		(n=411357)		(n=278761)	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI
Overall		4.9	4.8-4.9	5.8	5.8-5.9	6.7	6.7-6.8	7.3	--
Age (years)	18-24	2.7	2.6-2.8	3.3	3.2-3.4	3.9	3.8-4.0	4.1	1.4-2.2
	25-34	5.6	5.5-5.7	6.6	6.5-6.7	7.2	7.1-7.3	7.7	4.0-4.3
	35-44	9.0	8.7-9.2	10.6	10.3-10.8	12.4	12.1-12.7	12.8	7.6-7.8
	45+	12.0	9.2-14.9	13.2	10.4-16.0	18.7	15.4-22.0	17.0	12.4-13.1
Race/Ethnicity	Non-Hispanic White	4.8	4.7-4.9	5.7	5.6-5.8	6.6	6.5-6.7	7.1	7.0-7.2
	Non-Hispanic Black	4.2	4.1-4.3	5.1	5.0-5.3	5.9	5.7-6.0	6.2	6.0-6.4
	Hispanic	6.3	5.9-6.6	7.6	7.2-7.9	8.8	8.4-9.2	9.8	9.3-10.2
	Other ^a	9.0	8.5-9.6	10.8	10.2-11.3	11.9	11.4-12.4	13.1	12.5-13.8
Currently Married	Yes	5.7	5.6-5.8	6.6	6.5-6.7	7.6	7.5-7.7	8.2	8.1-8.4
	No	3.7	3.6-3.8	4.8	4.7-4.9	5.6	5.5-5.7	6.1	5.9-6.2
Education	Less than High School	3.4	3.2-3.5	4.2	4.1-4.4	4.9	4.7-5.1	5.7	5.4-5.9
	High School Graduate	4.8	4.7-5.0	5.8	5.6-5.9	6.5	6.3-6.6	6.7	6.6-6.9
	Some College	5.4	5.2-5.5	6.4	6.3-6.6	7.2	7.0-7.4	8.2	8.0-8.4
	College Graduate	5.3	5.2-5.4	6.2	6.1-6.3	7.3	7.2-7.4	7.6	7.4-7.8
Migrant Status^b	US Born	4.7	4.6-4.7	5.6	5.5-5.6	6.4	6.3-6.5	--	--
	Foreign Born	6.9	6.7-7.2	8.8	8.5-9.1	10.0	9.7-10.3	--	--
Medicaid	Yes	4.3	4.2-4.4	5.3	5.2-5.4	6.4	6.3-6.5	6.8	6.7-7.0
	No	5.3	5.3-5.4	6.2	6.1-6.3	7.0	6.9-7.1	7.6	7.5-7.8
WIC	Yes	4.5	4.4-4.6	5.7	5.6-5.8	6.7	6.6-6.9	7.2	7.0-7.4
	No	5.1	5.0-5.2	6.0	5.9-6.1	6.8	6.7-6.9	7.4	7.3-7.5
County Type	Metropolitan	4.8	4.5-5.1	6.6	6.3-7.0	8.1	7.8-8.5	7.7	7.6-7.8
	Suburban	4.7	4.6-4.9	5.4	5.2-5.5	6.0	5.8-6.2	6.6	6.3-6.9
	Appalachian	4.4	4.3-4.6	6.1	5.9-6.3	7.7	7.5-7.9	5.9	5.6-6.2
	Rural	4.7	4.5-4.8	5.5	5.3-5.6	6.5	6.3-6.6	6.4	6.1-6.7
Birth Order	First Born	7.6	6.0-9.6	7.4	5.5-9.9	N/A	N/A	6.0	5.9-6.2
	Not First Born/Unknown	10.9	9.5-12.6	11.2	9.4-13.3	N/A	N/A	7.9	7.8-8.0

Source: Vital Statistics; Resident File was used.

Footnotes:^a Includes those who reported multiple races^b This variable was not available in the data set.

Table 5b displays GDM incidence by maternal behaviors, health status, and health care utilization. GDM incidence increased from 2006-08 to 2015-16 within all subgroups. Incidence was greater among non-smokers compared with smokers. Furthermore, incidence increased with increasing BMI category; GDM incidence was about three times higher in obese women compared to normal weight women. GDM incidence was also associated with gestational hypertension; women with hypertension had almost two times the GDM incidence as normotensive women.

Table 5b. GDM incidence among women with a live birth, by pregnancy risk factors, Ohio 2006-08, 2009-11, 2012-14, and 2015-16

	2006-08		2009-11		2012-14		2015-16	
	Percentage of Respondents with GDM In Most Recent Pregnancy							
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Smoker								
Yes	4.3	4.2-4.4	5.8	5.6-5.9	6.4	6.3-6.6	6.7	6.5-6.9
No	5.3	5.3-5.4	5.9	5.8-6.0	6.8	6.7-6.9	7.5	7.4-7.6
First Trimester Prenatal Care								
Yes	3.7	3.6-3.7	4.4	4.4-4.5	5.1	5.1-5.2	7.8	7.6-7.9
No	1.1	1.1-1.2	1.4	1.3-1.4	1.7	1.6-1.7	6.7	6.5-6.8
Pre-pregnancy BMI (kg/m2)								
Underweight (BMI<18.5)	2.0	1.8-2.2	2.4	2.2-2.7	2.9	2.6-3.2	3.3	3.0-3.7
Normal weight (18.5-24.99)	2.6	2.6-2.7	3.3	3.2-3.3	3.7	3.6-3.8	4.1	4.0-4.2
Overweight (25.00-29.99)	5.1	4.9-5.2	6.0	5.8-6.1	6.6	6.5-6.8	7.4	7.2-7.6
Obese (30.0+)	9.7	9.5-9.9	11.1	10.9-11.3	12.5	12.3-12.7	--	--
Obese Class I (30.0 - 34.99)	--	--	--	--	--	--	10.8	10.5-11.2
Obese Class II (35.0 - 39.99)	--	--	--	--	--	--	13.5	13.0-13.9
Obese Class III (>40.0)	--	--	--	--	--	--	15.4	15.0-15.9
Weight gain during pregnancy^a								
Inadequate	5.7	5.6-5.9	6.9	6.7-7.1	8.0	7.8-8.2	7.3	7.1-7.6
Excessive	4.4	4.3-4.5	5.3	5.2-5.4	6.0	5.9-6.1	5.9	5.7-6.0
Gestational Hypertension								
Yes	9.2	8.8-9.7	10.9	10.5-11.3	12.2	11.8-12.6	12.6	12.2-13.1
No	4.7	4.6-4.7	5.6	5.5-5.6	6.4	6.3-6.4	6.9	6.8-7.0

Source: Vital Statistics; Resident File was used.

Footnotes:

^a Weight gain during pregnancy defined using the IOM 2009 guidelines

(<http://nationalacademies.org/hmd/~media/Files/Report%20Files/2009/Weight-Gain-During-Pregnancy-Reexamining-the-Guidelines/Report%20Brief%20-%20Weight%20Gain%20During%20Pregnancy.pdf>)

Table 6: Incidence of GDM among delivery hospitalizations, by year, Ohio 2006-17

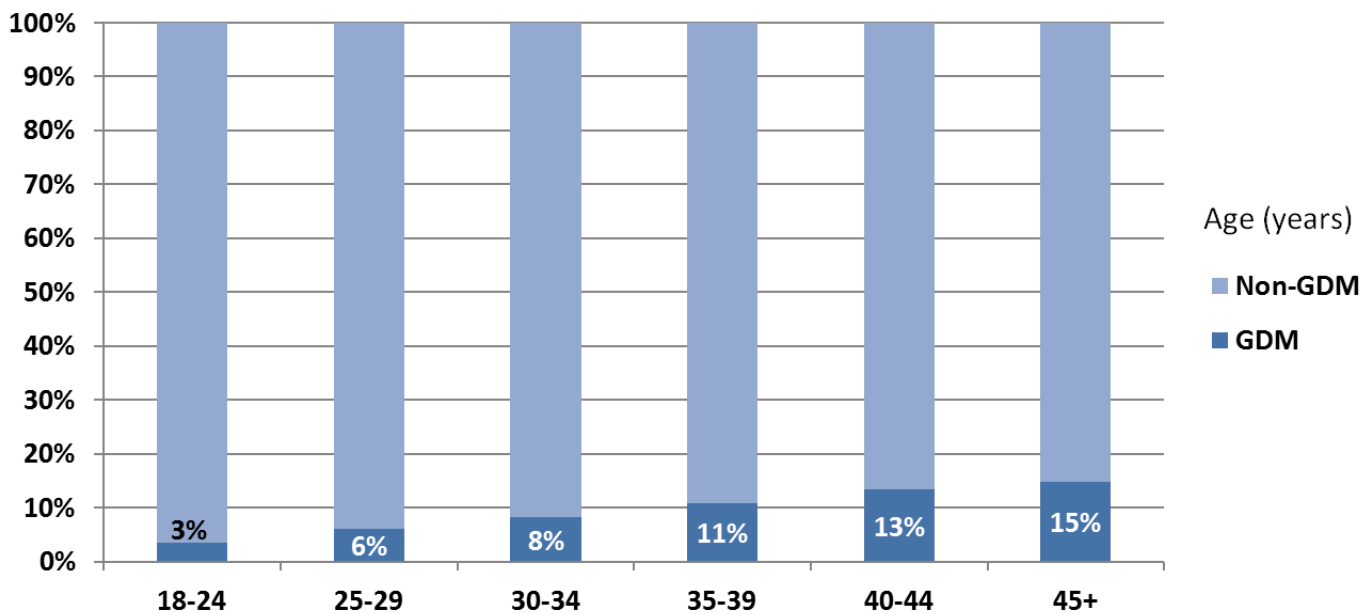
Year	GDM Incidence (%)
2006	5.1
2007	5.4
2008	5.2
2009	5.8
2010	6.1
2011	6.4
2012	6.8
2013	6.8
2014	6.9
2015	7.1
2016	7.4
2017	7.7

Source: Data provided by OHA.

As seen in Table 6, the incidence of GDM in Ohio has varied by year, increasing over the last several years up to 7.7% in 2017.

Figure 2 displays the proportion of obstetric discharges associated with a GDM diagnosis, by age group. Among Ohio women aged 18-24 years with an obstetric discharge, 3.4% had GDM compared to 14.7% of women aged 45 years and older.

Figure 2. Proportion of GDM-related obstetric discharges, by age group, Ohio 2008-17



Source: Data provided by OHA.

Note: Age group 45+ is not truncated and may include potentially erroneous ages.

Table 7 displays the incidence of GDM among deliveries billed to Medicaid insurance by year from 2007-16. The proportions of deliveries that were associated with GDM during these timeframes ranged from 7.5 percent to 13.2 percent. Furthermore, increases were observed from 2015-16 for women age 25-34 and 35-44, race/ethnicity groups of non-Hispanic white and non-Hispanic other, and within women living in both urban and non-urban areas.

Table 7. Incidence of GDM among Ohio Medicaid deliveries, by year, 2007-16

(n=552,757)		2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)	2015 (%)	2016 (%)
Overall		9.5	9.8	10.7	11.6	12.2	13.2	12.1	12.2	7.5	7.6
Age (years)^a	18-24	7.2	7.4	8.2	8.9	9.0	9.3	8.0	8.2	6.0	6.0
	25-34	13.0	13.3	14.0	14.8	15.7	15.5	14.9	14.5	8.3	8.7
	35-44	21.1	21.1	22.5	23.0	23.6	24.8	23.8	24.0	12.6	13.2
Race^b	Non-Hispanic White	10.3	10.6	11.7	12.8	13.3	13.3	12.8	--	8.1	8.6
	Non-Hispanic Black	7.6	7.7	8.4	8.6	9.7	10.2	10.3	--	6.9	6.4
	Hispanic	9.1	10.7	11.0	10.5	12.1	12.9	13.8	--	5.8	5.6
	Non-Hispanic Other	12.2	13.0	12.6	13.1	13.0	14.6	10.8	--	6.9	7.0
Urbanicity	Urban	8.9	9.0	9.7	10.3	11.4	11.9	11.8	11.9	7.5	7.6
	non-Urban	10.0	10.6	11.7	12.8	13.0	13.0	12.4	12.6	7.9	8.1

Source: Analysis of 2007-11 data obtained from Ohio Department of Medicaid QDSS (Medstat Advantage Suite® V 4.0, Truven Health Analytics) accessed April and May, 2014 by Ohio Department of Health; analysis of 2012-14 data by Ohio Department of Medicaid. 2015-2016 data from Ohio Department of Medicaid claims.

Notes:

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 days 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.

Data from the following provider types were included:

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

^a Less than 30 respondents in subpopulation for mothers ≥ 45 years therefore that age group is too small for meaningful analysis

^b After 2013 data on race and ethnicity are no longer collected for all Medicaid enrollees