Incidence of GDM in Ohio

Gestational Diabetes incidence refers to the annual diagnosis rate, or the number of 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 2019, the incidence of GDM in Ohio ranged from 6.7% to 16.44%.

Table 3. Summary of GDM Incidence in Ohio, multiple sources, 2012-19.

Data Source	Timeframe	GDM Incidence (%)
Medicaid Claims[1]	2012-14	12.50%
	2015-16	8.18%
	2017-18	15.04%
	2019	16.44%
Ohio Hospital Association (OHA) Discharge Data	2013	6.80%
Ohio Pregnancy Assessment Survey (OPAS)[2]	2016	8.10%
	2017	9.27%
	2018	9.39%
	2019	9.11%
Vital Statistics[3]	2012-14	6.70%
	2015-16	7.50%
	2017-18	7.94%
	2018-19	8.19%

Note:

The explanations below describe how GDM is identified in the various data sources:

1. Medicaid Claims data reflects the percent of women with a delivery who had a claim with a GDM diagnosis during the previous 9 months.
2. OPAS indicates a self-reported 'Yes' to the survey question, "During your most recent pregnancy, did you have any of the following health conditions? a) Gestational diabetes (diabetes that started during this pregnancy)".
3. Vital Statistics: The birth certificates resident file was used and the measure reflects whether the clinician indicates that a gestational diabetes diagnosis was a Risk Factor in this Pregnancy.

This table was previously labeled Table 4 in the 2019 Gestational Diabetes in Ohio Data Book.

Gestational Diabetes in Ohio, 2008-2019

According to VS, GDM prevalence has increased in Ohio overall and within most population subgroups (see Table 5a). Among women with a live birth during 2018-19, higher incidence of GDM were found among women aged 35-44 and 45 years or greater; who were not black, white or Hispanic; who were married; with some college education or a college graduate; were not insured by Medicaid, and residing in a Metropolitan area.

Table 4a. GDM incidence among women with a live birth, by demographics, Ohio, 2012 - 2019. Source: Vital statistics.

		2012-14		2015-2017		2018-2019	
		(n=411,357)		(n=416,264)		(n=270,637)	
		%	95% CI	%	95% CI	%	95% CI
Overall		**6.7**	**6.7-6.8**	**7.4**	**7.4-7.5**	**8.1**	**8.0-8.2**
Age (years)	18-24	3.9	3.8-4.0	4.1	4.0-4.3	4.4	4.3-4.6
	25-34	7.2	7.1-7.3	7.8	7.7-7.9	8.4	8.3-8.6
	35-44	12.4	12.1-12.7	13.0	12.7-13.2	13.8	13.4-14.1
	45+	18.7	15.4-22.0	16.5	13.6-19.4	16.5	13.2-19.9
Race/Ethnicity	Non-Hispanic White	6.6	6.5-6.7	7.2	7.1-7.3	7.9	7.8-8.1
	Non-Hispanic Black	5.9	5.7-6.0	6.2	6.0-6.4	7.0	6.8-7.3
	Hispanic	8.8	8.4-9.2	9.7	9.3-10.1	9.7	9.3-10.2
	Other [a]	11.9	11.4-12.4	13.8	13.2-14.3	14.9	14.2-15.6
Currently Married	Yes	7.6	7.5-7.7	8.4	8.3-8.5	9.1	9.0-9.3
	No	5.6	5.5-5.7	6.1	6.0-6.3	6.8	6.7-6.9
Education	Less than High School	4.9	4.7-5.1	5.7	5.5-5.9	6.4	6.1-6.6
	High School Graduate	6.5	6.3-6.6	6.9	6.7-7.0	7.5	7.3-7.7
	Some College	7.2	7.0-7.4	7.9	7.7-8.0	8.9	8.7-9.2
	College Graduate	7.3	7.2-7.4	8.1	8.0-8.3	8.8	8.6-9.0
Migrant Status [b]	US Born	6.4	6.3-6.5	--	--	---	---
	Foreign Born	10.0	9.7-10.3	--	--	---	---
Medicaid	Yes	6.4	6.3-6.5	6.9	6.8-7.1	8.4	8.3-8.5
	No	7.0	6.9-7.1	7.8	7.7-7.9	7.8	7.6-7.9
WIC	Yes	6.7	6.6-6.9	7.4	7.2-7.6	8.1	7.9-8.3
	No	6.8	6.7-6.9	7.5	7.4-7.6	8.2	8.0-8.3
County Type	Metropolitan	8.1	7.8-8.5	7.8	7.7-7.9	8.4	8.3-8.6
	Suburban	6.0	5.8-6.2	6.7	6.5-7.0	7.3	6.9-7.6
	Appalachian	7.7	7.5-7.9	6.5	6.3-6.7	7.3	7.0-7.6
	Rural	6.5	6.3-6.6	6.4	6.2-6.7	7.6	7.2-7.9
Birth Order	First Born	N/A	N/A	6.1	6.0-6.3	6.9	6.8-7.1
	Not First Born/Unknown	N/A	N/A	8.0	7.9-8.1	8.7	8.5-8.8

Source: Vital Statistics; Resident File was used.

Note:

a Includes those who reported multiple races;

b This variable was not available in the data set.

This table was previously labeled Table 5a in the 2019 Gestational Diabetes in Ohio Data Book.
Historic data can be found in Appendix C.

Table 4b displays GDM incidence by maternal behaviors, health status, and health care utilization. GDM incidence continued to increase through 2018-19 within all subgroups other than gestational hypertension. GDM incidence was greater among non-smokers compared with smokers. Furthermore, incidence increased with increasing BMI category; GDM incidence was almost four times higher in obese women compared to normal weight women. GDM incidence was also associated with gestational hypertension; women with hypertension had one and a half times the GDM incidence as normotensive women.

Table 4b. GDM incidence among women with a live birth, by pregnancy risk factors, Ohio, 2012 – 2019. Source: Vital Statistics.

	2012-2014		2015-2017		2018-2019	
	Percentage of Respondents with GDM in Most Recent Pregnancy					
	%	95% CI	%	95% CI	%	95% CI
Smoker						
Yes	6.4	6.3-6.6	6.6	6.3-6.8	7.1	6.8-7.4
No	6.8	6.7-6.9	7.8	7.7-7.9	8.3	8.2-8.4
First Trimester Prenatal Care						
Yes	5.1	5.1-5.2	7.9	7.8-8.0	8.5	8.4-8.7
No	1.7	1.6-1.7	6.7	6.6-6.9	7.5	7.3-7.7
Pre-pregnancy BMI (kg/m^2)						
Underweight (BMI<18.5)	2.9	2.6-3.2	3.3	3.0-3.6	3.5	3.1-3.9
Normal weight (18.5-24.99)	3.7	3.6-3.8	4.1	4.0-4.2	4.6	4.4-4.7
Overweight (25.00-29.99)	6.6	6.5-6.8	7.5	7.4-7.7	7.7	7.5-7.9
Obese (30.0+)	12.5	12.3-12.7	13.2	13.0-13.4	13.9	13.7-14.1
Weight gain during pregnancy[a]						
Inadequate	8.0	7.8-8.2	9.6	9.4-9.8	10.7	10.5-11.0
Excessive	6.0	5.9-6.1	7.0	6.9-7.2	7.4	7.2-7.5
Gestational Hypertension						
Yes	12.2	11.8-12.6	12.4	12.0-12.7	12.0	11.6-12.4
No	6.4	6.3-6.4	7.0	6.9-7.1	7.7	7.6-7.8

Source: Vital Statistics; Resident File was used.

Note:

[a] Weight gain during pregnancy defined using the IOM 2009 guidelines.

This table was previously labeled Table 5b in the 2019 Gestational Diabetes in Ohio Data Book.
Historic data can be found in Appendix C.

Gestational Diabetes in Ohio, 2008-2019

As seen in Table 5, data from the Ohio Hospital Association (OHA) shows the incidence of GDM in Ohio has varied by year. GDM incidence has increased since 2013, up to 8.9% in 2019.

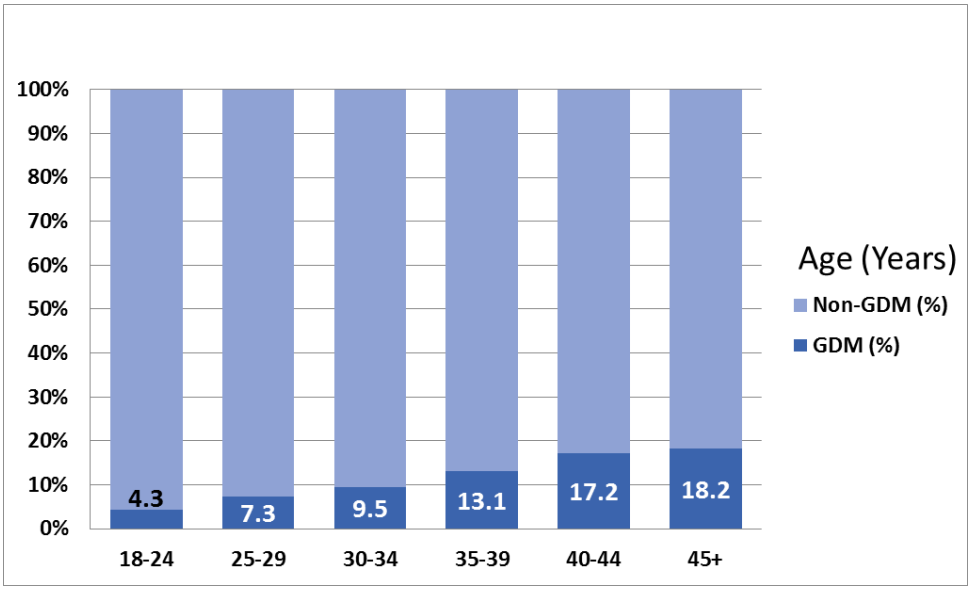
Table 5: Incidence of GDM among delivery hospitalizations, by year, Ohio, 2006 – 2019. Source: Ohio Hospital Association.

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
2018	8.1
2019	8.9

Source: Data provided by OHA.
Note: This table was previously labeled Table 6 in the 2019 Gestational Diabetes in Ohio Data Book.

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, 4.3% had GDM compared to 18.2% of women aged 45 years and older.

Figure 2. Proportion of GDM-related obstetric discharges, by age group, Ohio 2019



Source: Data provided by OHA.
Note: Age group 45+ is not truncated and may include potentially erroneous ages.

Gestational Diabetes in Ohio, 2008-2019

Table 6 displays the incidence of GDM among deliveries billed to Medicaid insurance by year from 2009-18. 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 2016-18 for women age 25-34 and 35-44, all race/ethnicity groups, and within women living in both urban and non-urban areas.

Table 6. Incidence of GDM among Ohio Medicaid deliveries, by year, 2009 – 2018. Source: Ohio Department of Medicaid.

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Overall (%)		**10.7**	**11.6**	**12.2**	**13.2**	**12.1**	**12.2**	**7.5**	**7.6**	**8.4**	**9.8**
Age (years)[a]	18-24	8.2	8.9	9.0	9.3	8.0	8.2	6.0	6.0	5.5	6.6
	25-34	14.0	14.8	15.7	15.5	14.9	14.5	8.3	8.7	9.6	11.3
	35-44	22.5	23	23.6	24.8	23.8	24.0	12.6	13.2	13.9	16.6
Race[b]	Non-Hispanic White	11.7	12.8	13.3	13.3	12.8	--	8.1	8.6	8.9	10.5
	Non-Hispanic Black	8.4	8.6	9.7	10.2	10.3	--	6.9	6.4	7.2	8.3
	Hispanic	11.0	10.5	12.1	12.9	13.8	--	5.8	5.6	9.4	10.0
	Non-Hispanic Other	12.6	13.1	13.0	14.6	10.8	--	6.9	7.0	9.1	10.8
Urbanicity	Urban	9.7	10.3	11.4	11.9	11.8	11.9	7.5	7.6	8.1	9.3
	non-Urban	11.7	12.8	13.0	13.0	12.4	12.6	7.9	8.1	8.8	10.6

Source: Analysis of 2009-11 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. 2015-2018 data from Ohio Department of Medicaid claims.

Note:

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

b Data on race and ethnicity were unavailable in 2013-2014 claims data for Medicaid enrollees.

Deliveries and gestational diabetes diagnoses were identified using the relevant ICD-9, ICD-10, CPT, and UB codes specified by HEDIS.

Gestational diabetes diagnoses were included in the analysis if they occurred during the 270 day period prior to a delivery admission.

This table was previously labeled Table 7 in the 2019 Gestational Diabetes in Ohio Data Book.

Historic data can be found in Appendix C.

Potential change in methodology may explain change from 2014-2015; additional details will be added upon further explanations from Medicaid.