



# Michigan Medicaid Part One

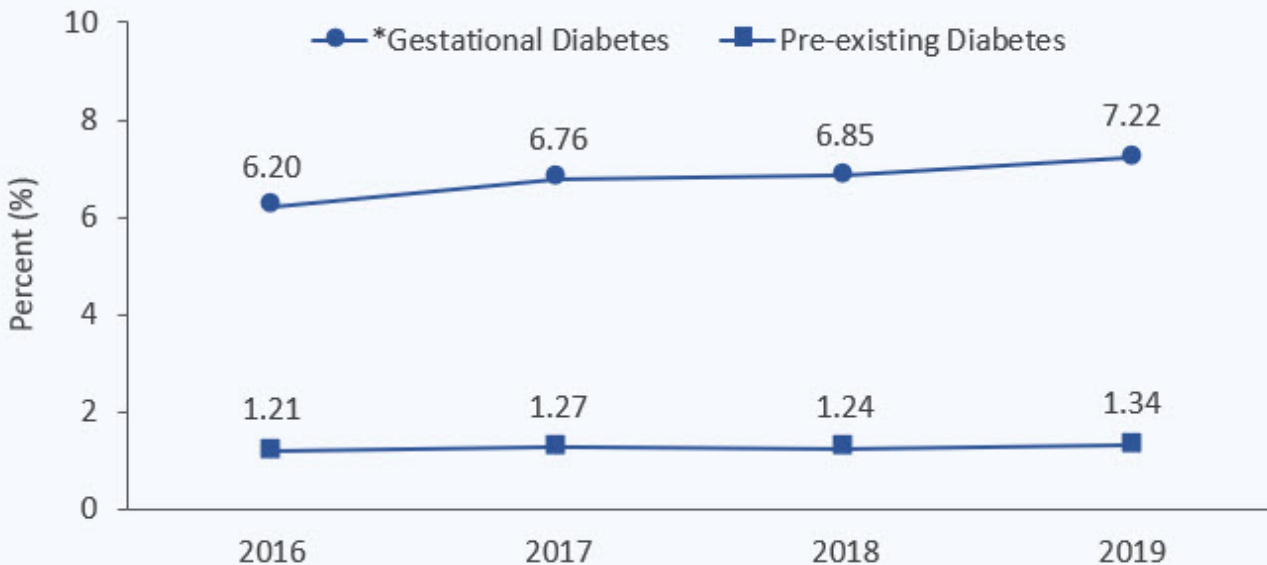
## Diabetes during Pregnancy 2016 - 2019

### Background

- Diabetes during pregnancy increases the chance of adverse pregnancy outcomes including complications during delivery as well as abnormal conditions among newborns.<sup>1-3</sup>
- Some mothers (people who gave birth) have type 1 or type 2 diabetes before pregnancy. This is called pre-existing diabetes.<sup>1</sup>
- Developing diabetes during pregnancy is called gestational diabetes mellitus (GDM), which resolves after pregnancy. However, about 50% of people who had GDM go on to have type 2 diabetes.<sup>1,2</sup>
- Known GDM risk factors include age, race/ethnicity, being overweight or obese prior to pregnancy, having a family history of diabetes, and having previously given birth.<sup>1,2</sup>
- Mothers are disproportionately affected by type 2 diabetes. For example, non-Hispanic Black mothers are at lower risk for GDM compared to non-Hispanic white mothers but are at higher risk for developing type 2 diabetes.<sup>4</sup>
- In recent years, Michigan Medicaid expanded eligibility criteria and added programs such as Maternity Outpatient Medical Services to increase the number of mothers with health care coverage during pregnancy.
- The Michigan Health Data Warehouse affords us the opportunity to study the impact of diabetes among beneficiaries participating in a Michigan Medicaid program.
- This brief reports pre-existing diabetes and GDM prevalence estimates among mothers who had at least one living newborn between 2016 and 2019 using Michigan Medicaid claims data. Disparities in diabetes among selected demographic characteristics and urban-rural classification are also reported.

### Michigan Medicaid Pre-existing Diabetes and Gestational Diabetes Trends

*Pre-existing Diabetes and Gestational Diabetes Among Mothers in a Michigan Medicaid Program, 2016-2019*



*\*Linear gestational diabetes trend was statistically significant,  $p < 0.05$*

*Source: Michigan Health Data Warehouse (2016-2019)*

- In 2019, 44,696 mothers were in a Medicaid program among whom 599 (1.34%) had pre-existing diabetes and 3,183 (7.22%) had gestational diabetes based on any Medicaid coverage at time of delivery.
- Pre-existing diabetes was comparable from 2016 to 2019 ( $p > 0.05$ ).
- Gestational diabetes prevalence showed a 16% linear increase from 2016 to 2019 ( $p < 0.001$ ).

## Disparities in Pre-existing Diabetes and Gestational Diabetes by Age Group and Race/Ethnicity

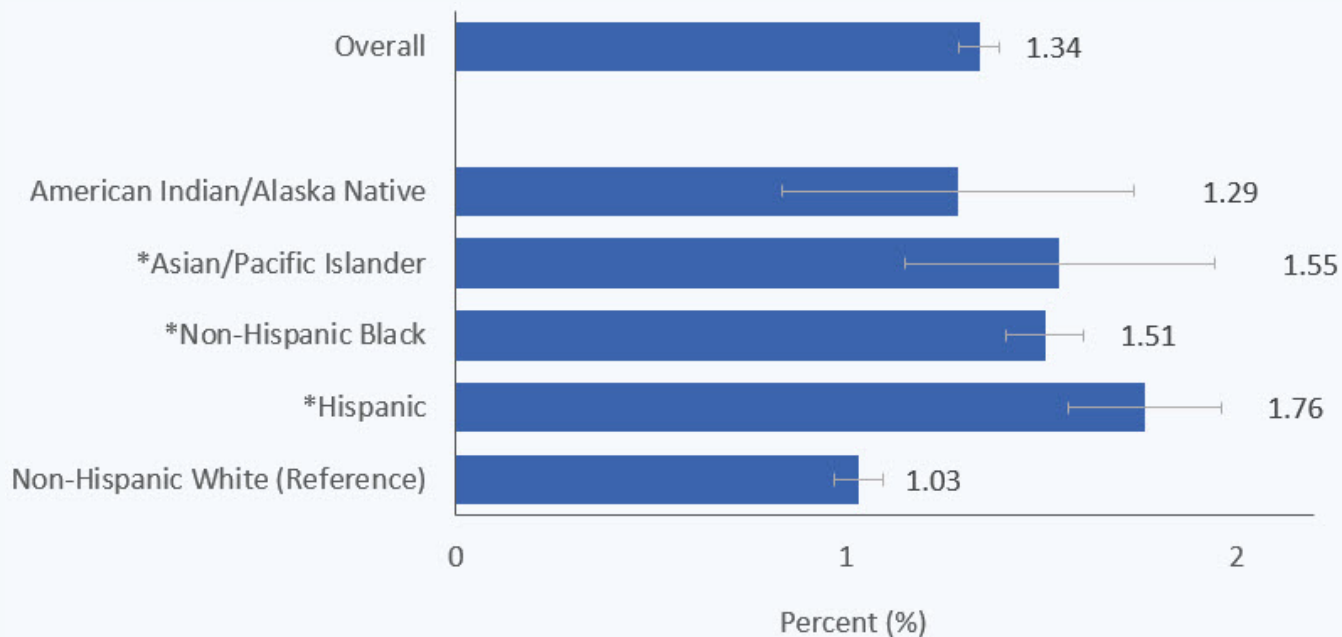
### Pre-existing Diabetes and Gestational Diabetes by Age Group Among Mothers in a Michigan Medicaid Program, 2016-2019 Combined

- Statistically significant differences were observed between the oldest age group and younger age groups for pre-existing diabetes and gestational diabetes.
- Pre-existing diabetes prevalence among mothers age 35 years and older was about seven times the prevalence of mothers under 20 years (3.17% and 0.48%, respectively).
- Gestational diabetes prevalence among the oldest age group was nine times that among the youngest age group (16.32% and 1.83%, respectively).

Age Group	Pre-existing Diabetes N % (95% CI)	Gestational Diabetes N % (95% CI)
*Less than 20 years	79 0.48% (0.37% - 0.58%)	301 1.83% (1.62% - 2.03%)
*20-24	450 0.78% (0.71% - 0.85%)	2,115 3.70% (3.55% - 3.86%)
*25-29	691 1.14% (1.05% - 1.22%)	529 6.35% (6.16% - 6.54%)
*30-34	579 1.69% (1.56% - 1.83%)	3,413 10.14% (9.82% - 10.46%)
35 and older (Reference)	562 3.17% (2.91% - 3.43%)	2,802 16.32% (15.78% - 16.87%)

\*Statistically significant difference,  $p < 0.05$   
 N – Number of beneficiaries; 95% CI – 95% Confidence Interval  
 Source: Michigan Health Data Warehouse (2016-2019 Combined)

### Pre-existing Diabetes by Race/Ethnicity Among Mothers in a Michigan Medicaid Program, 2016-2019 Combined

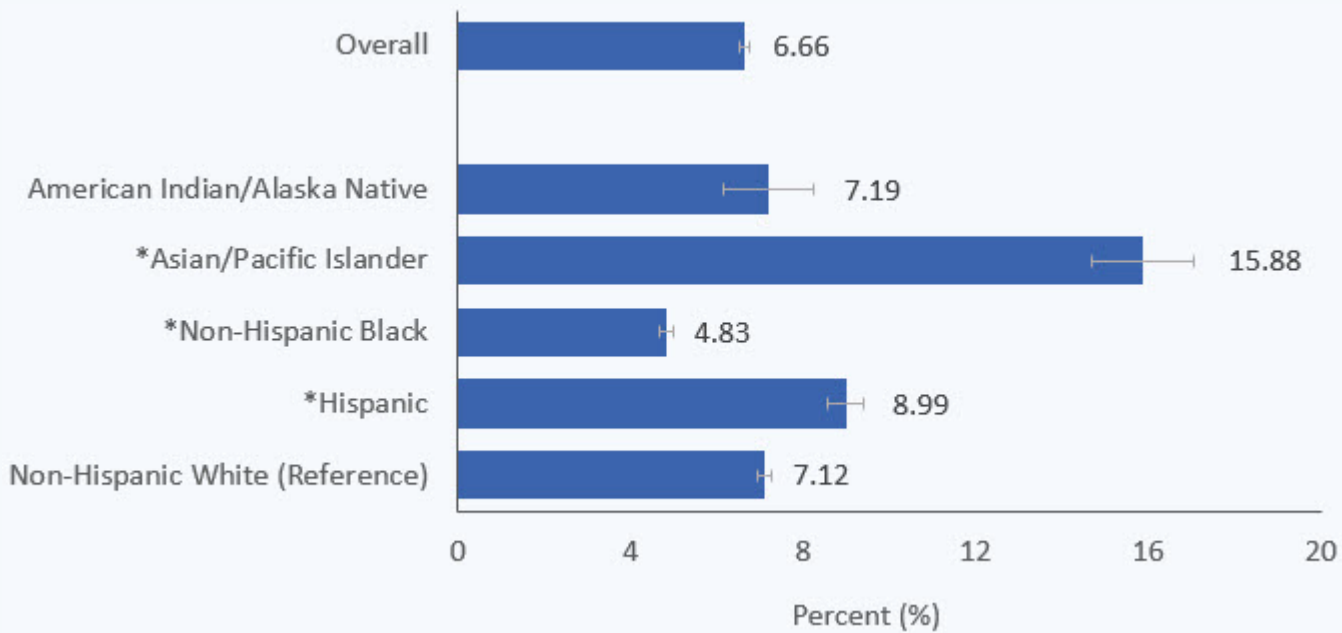


\*Statistically significant difference,  $p < 0.05$   
 Source: Michigan Health Data Warehouse (2016-2019 Combined)

- Non-Hispanic white mothers had significantly lower pre-existing diabetes prevalence (1.03%) compared to the other racial ethnic groups: Asian/Pacific Islander (1.55%), non-Hispanic Black (1.51%), and Hispanic (1.76%).
- Pre-existing diabetes among American Indian/Alaska Native mothers (1.29%) did not show a significant difference compared to any group.

## Disparities in Pre-existing Diabetes and Gestational Diabetes by Race/Ethnicity and Urban/Rural

### Gestational Diabetes by Race/Ethnicity Among Mothers in a Michigan Medicaid Program, 2016-2019 Combined



\*Statistically significant difference,  $p < 0.05$

Source: Michigan Health Data Warehouse (2016-2019 Combined)

- Gestational diabetes among Asian/Pacific Islander and Hispanic mothers was significantly higher than among non-Hispanic white mothers (15.88%, 8.99%, and 7.12%, respectively).
- Gestational diabetes among American Indian/Alaska Native mothers (7.19%) was comparable to non-Hispanic white mothers.
- Non-Hispanic Black mothers (4.83%) had the lowest gestational diabetes prevalence.

### Pre-existing Diabetes and Gestational Diabetes by Urban/Rural Designation Among Mothers in a Michigan Medicaid Program, 2016-2019 Combined

Urban/Rural Designation	Pre-existing Diabetes N % (95% CI)	Gestational Diabetes N % (95% CI)
*Small/Isolated rural area	371 1.14% (1.02% - 1.25%)	2,006 6.21% (5.95% - 6.47%)
*Large rural area	692 1.30% (1.21% - 1.40%)	3,481 6.65% (6.44% - 6.86%)
Metro area (Reference)	1,297 1.28% (1.21% - 1.35%)	6,959 6.98% (6.82% - 7.13%)

See urban/rural designation in Methods.

\*Statistically significant difference,  $p < 0.05$

N – Number of beneficiaries; 95% CI – 95% Confidence Interval

Source: Michigan Health Data Warehouse (2016-2019 Combined)

- Pre-existing diabetes (1.14%) was significantly lower among mothers residing in the small/isolated rural areas compared to large rural and metro areas (1.30% and 1.28%, respectively).
- GDM diabetes prevalence increased with size of population where mothers resided (6.21%, 6.65%, and 6.98%, respectively).

## Treatment and Prevention of Type 2 Diabetes

- More people of reproductive age have undiagnosed type 2 diabetes warranting the need for testing at the first prenatal visit for undiagnosed diabetes and gestational diabetes later in pregnancy.<sup>1</sup>
- Due to the risk of persistent diabetes or prediabetes, clinical recommendations from the American Diabetes Association's Standards of Medical Care of Diabetes stress the importance of follow-up screening 4-12 weeks postpartum for mothers who had GDM.<sup>1</sup>
- Although about 50% of mothers who had GDM go on to develop type 2 diabetes, only 10-35% receive postpartum type 2 diabetes screening.<sup>2,6</sup>
- Mothers with a history of GDM but absent persistent diabetes may reduce the risk of developing type 2 diabetes by 58% by participating in the [CDC-recognized National Diabetes Prevention Program](#).<sup>1</sup> DPP is a covered service under Medicare, and coverage is progressing within Medicaid and commercial health plans.

## Methods

Data for this report was based on Medicaid claims data extracted from the Michigan Health Data Warehouse between January 1, 2016, and December 31, 2019. The unit of analyses was delivery that resulted in at least one live birth. These deliveries were identified by querying all hospital claims through a combination of DRG and ICD-10 codes. No additional criteria related to the mother's Medicaid eligibility were applied to the query. The mother's diabetes status was determined if the hospital delivery claim included an ICD-10 diagnosis code of E10, E11, and E13 for pre-existing diabetes and O24 for gestational diabetes. Gestational diabetes can be reported as an incidence or prevalence. In this brief, the term prevalence is used.

Racial/ethnic groups were defined using the following classification in the Michigan Health Data Warehouse : 1) non-Hispanic Black mothers were those who were identified as non-Hispanic Black, 2) non-Hispanic white mothers were those who were identified as non-Hispanic white, and 3) Hispanic mothers were those who were identified as Hispanic. American Indian/Alaska Native mothers were those who were identified as American Indian or Alaska Native. Asian/Pacific Islander mothers were those who were identified as Asian American, East Indian, Pacific Islander, or mothers from an East or Southeast Asian country. Hispanic ethnicity was not specified for the American Indian/Alaska Native and Asian/Pacific Islander in the Michigan Health Data Warehouse. Urban/rural designation was developed by the National Center for Health Statistics using a classification system based on primarily metropolitan statistical and micropolitan statistical areas for the state.<sup>5</sup>

Cochran-Armitage trend test was used to determine statistically significant linear change over time. Statistical significance between reference group and specified subgroup was determined using a two-proportion z-test ( $\alpha = 0.05$ ). The terminology "significantly lower/higher" was used to represent "statistically significant difference." Ninety-five percent confidence intervals were included. Estimates were not reported in cases which numerator was non-zero less than 11 and/or the denominator was less than 20.

## Note

In this publication, mothers were defined as people who gave birth assigned as female sex at birth.

## References

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- 6) Carson MP, Ananth CV, Gyamfi-Bannerman C, Smulian J, Wapner RJ. Postpartum testing to detect persistent dysglycemia in women with gestational diabetes mellitus, *Obstetrics and Gynecology* July 2018; 132:193-198.

This publication was supported by the Grant Numbers 5 NU58DP006519-03, 5 NU58DP006519-04, and 5 NU58DP006614-03 funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the Department of Health and Human Services.

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