



GDM Screening and Treatment in Pregnancy

Kartik K Venkatesh, MD, PhD

When in doubt, how to reach THE OSUWMC Diabetes in Pregnancy Program

- <https://wexnermedical.osu.edu/obstetrics-gynecology/high-risk-pregnancy/diabetes-in-pregnancy-program>
- MFM Providers: Steven Gabbe, Mark, Landon, Christine Field, Shaylyn Vickers, Kartik Venkatesh
- Endocrinologist: Elizabeth Buschur
- MFM Diabetes Nurses: Bridget Iadicicco, Lisa Buccilla, Melissa Rainier Julie Somppi, Brenda Widmayer, Kori Fenner
- Nutrition: Alma Simmons



Highlights of our program

- Provide diabetes in pregnancy co-management to >800 pregnant women with diabetes in pregnancy across Ohio every year
- THANK YOU: Our referrals have increased by >50% over the past 5 years
- Our mission is to provide patient-centered, evidence-based diabetes in pregnancy care
 - Most patients deliver in their community close to family and with their primary OB/GYN
 - We are primarily a co-management program to support providers in the community and at OSU

Objectives

- **5-part story: a clinical case of Portia Buckeye**
- #1: Early screening
- #2: Routine screening
- #3: Postpartum screening
- #4: Pharmacotherapy options
- #5: Continuous glucose monitors

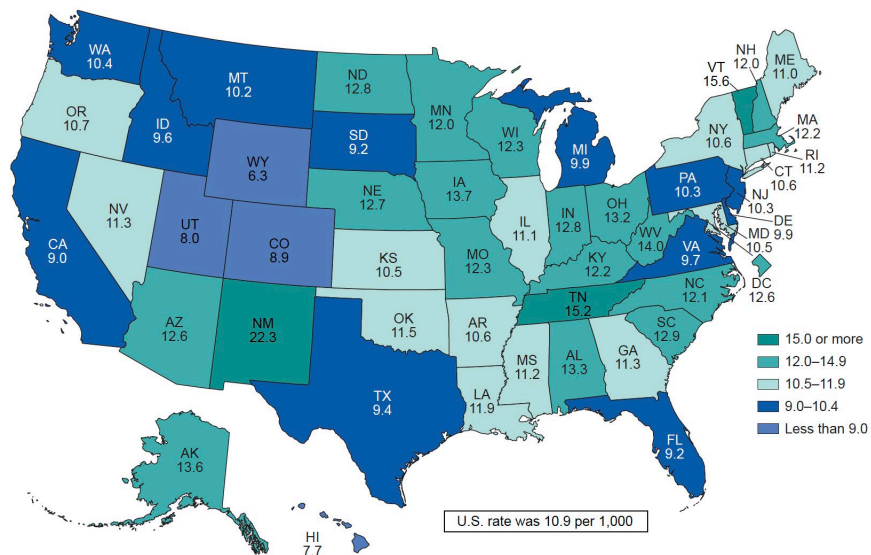
Portia presents for prenatal care

- 32-year-old G3P2 with prior GDM
- She presents for her initial prenatal visit at 12 weeks.
 - Pregnancy #1: dx at 26 weeks
 - Pregnancy #2: early screen and dx at 15 weeks
 - Treated with medication in pregnancy #2
 - Did not undergo pp screening
- **What, if any, diabetes screening should she receive at this point in her pregnancy?**

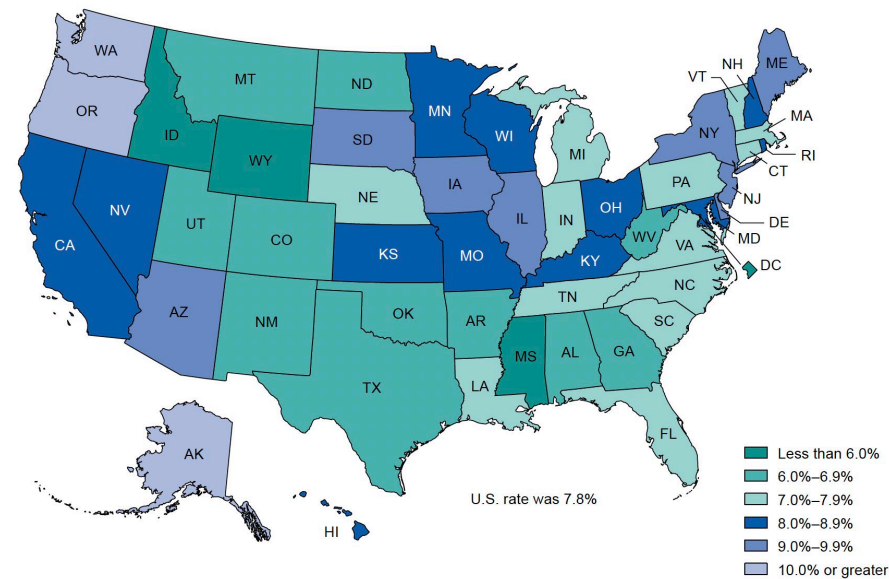


Pregestational & Gestational Diabetes

Pregestational Diabetes

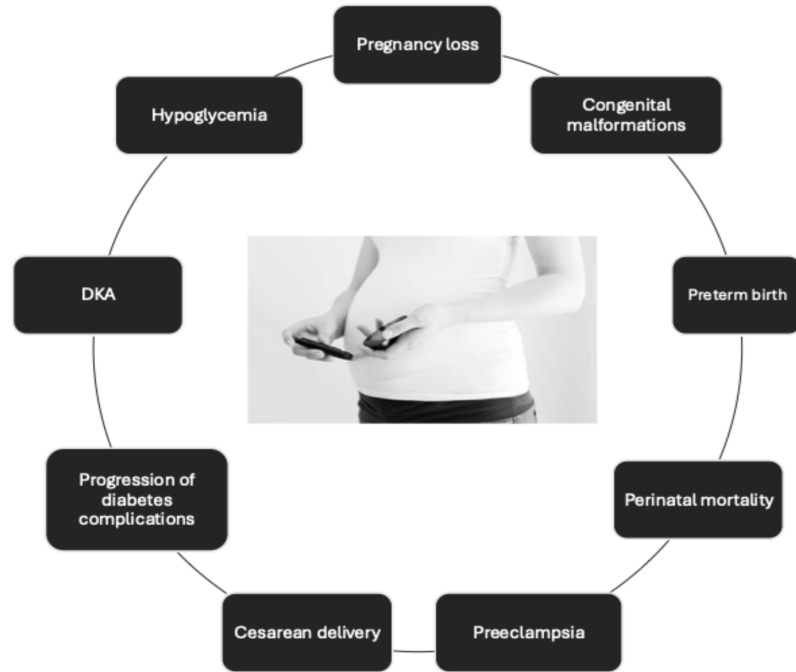


Gestational Diabetes

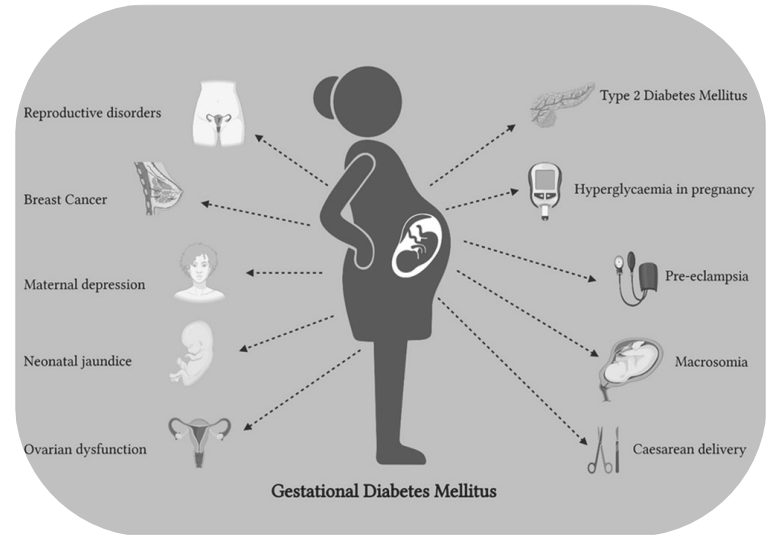


Adverse Pregnancy Outcomes and Diabetes

Pregestational Diabetes



Gestational Diabetes



Part #1: Early screening

- Our patient is screened for pregestational diabetes at 12 weeks
- Hemoglobin A1c is 6.0%.
- She receives nutrition counseling
- **What, if any, additional screening does she need during this pregnancy?**





NEW ACOG Recommendations: Early Screening

Screen BEFORE 24 WEEKS for:

- Pregestational diabetes

Who to screen:

- Overweight or obese with one or more additional risk factor

How to screen: *'insufficient data' for best screening modality*

- 75 g 2-hour glucose tolerance test
- Hemoglobin A1c

How to manage:

- If diabetes ($A1c \geq 6.5\%$, fasting ≥ 126 , 2 hr ≥ 200) → treat as pregestational
- If impaired glucose tolerance ($A1c$ 5.7-6.4%, 2 hr 140-199) → nutritional counseling
- If negative → screening at 24-28 weeks



Table 1. Criteria for Screening for Pregestational Diabetes

Testing should be considered in adults with overweight or obesity (ie, have a body mass index greater than or equal to 25 kg/m² or greater than or equal to 23 kg/m² in Asian Americans) who have one or more of the following factors:

- First-degree relative with diabetes
- Black, Hispanic, Native American, Asian American, and Pacific Islander individuals
- History of cardiovascular disease
- Hypertension (ie, greater than or equal to 140/90 mmHg or on therapy for hypertension)
- Prior history of hyperlipidemia (ie, high-density lipoprotein cholesterol level less than 35 mg/dL (0.90 mmol/L), a triglyceride level greater than 250 mg/dL (2.82 mmol/L))
- Women with polycystic ovary syndrome
- Physical inactivity
- Other clinical conditions associated with insulin resistance (eg, severe obesity, acanthosis nigricans)
- Prediabetes (ie, A1c greater than or equal to 5.7% [39 mmol/mol], impaired glucose tolerance, or impaired fasting glucose)
- Previous gestational diabetes diagnosis
- Age 35 years or greater
- HIV
- Or other factors suggestive of an increased risk for pregestational diabetes

Modified from: Classification and diagnosis of diabetes: standards of medical Care in diabetes—2022. American Diabetes Association Professional Practice Committee. Diabetes Care 2022;45:S17–38. doi: 10.2337/dc22-S002.



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PART #2: Routine screening

- She undergoes screening at 24 weeks (NOT 28!!)
 - She is diagnosed with GDM.
 - She requires pharmacotherapy to achieve glucose control.
 - She has a term delivery without complications
- What, if any, diabetes screening should she receive postpartum?





ACOG Recommendations: Routine Screening

Screen for:

- Gestational diabetes

When to screen:

- 24-28 weeks

**OSU Recommendation:
Aim for 24 weeks**

Who to screen:

- All patients without pregestational diabetes

How to screen:

- Two step approach: 50-g non-fasting screen followed by 100-g 3-hour diagnostic OGTT
- Use Carpenter Coustan criteria



Special scenario #1: Metformin use without diabetes

- Some women take metformin pre-pregnancy for PCOS or prediabetes
- **Recommend**
 - Discontinue with initiation of prenatal care
 - If continued during pregnancy, discontinue 1 week prior to routine screening with OGTT



PART #3: Postpartum screening

- The patient recognizes that as few as 1 in 3 patients complete a postpartum screening test for diabetes after GDM
- **What, if any, diabetes screening should she receive postpartum?**





Prior ACOG Recommendations: Postpartum Screening

Screen for:

- Type 2 diabetes

Who to screen:

- Patients with gestational diabetes

How to screen:

- 75 g 2-hour glucose tolerance test

When to screen:

- Outpatient at 4-12 weeks postpartum



A randomized controlled trial of **D**iabetes screening **I**mmEDIATELY **P**ostpartum **(DIP)**

- RCT of immediate inpatient postpartum OGTT prior to delivery discharge versus 4-12 week outpatient postpartum OGTT
- Outcome: frequency of postpartum diabetes screening and patient satisfaction
- ***Results anticipated in late 2025***



New ACOG Recommendations: Postpartum Screening

Screen for:

- Type 2 diabetes

Who to screen:

- Patients with gestational diabetes

How to screen:

- 75 g 2-hour glucose tolerance test

When to screen:

- Outpatient at 4-12 weeks postpartum
- During delivery hospitalization immediately postpartum is a 'reasonable alternative'



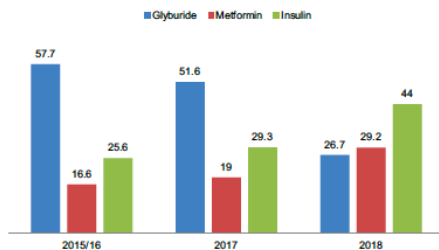
PART #4: Pharmacotherapy for GDM

- Portia has engaged in diet and activity changes x 4 weeks
 - She is now 28 weeks
 - Mean fasting of 100
- **How would you counsel her about pharmacotherapy?**



Metformin for achieving glycemic control with GDM

Rising frequency of metformin use



Prevention of adverse pregnancy outcomes: equivalent between metformin and insulin

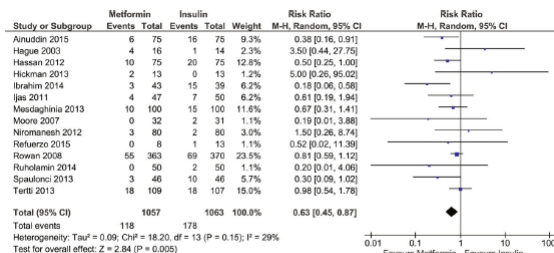


FIGURE 3 Metformin compared with insulin for neonatal hypoglycaemia.

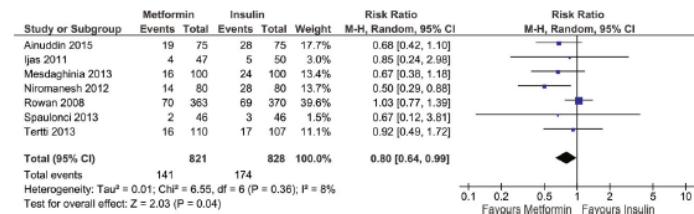


FIGURE 5 Metformin compared with insulin for large for gestational age.

Postnatal safety of Metformin appears safe

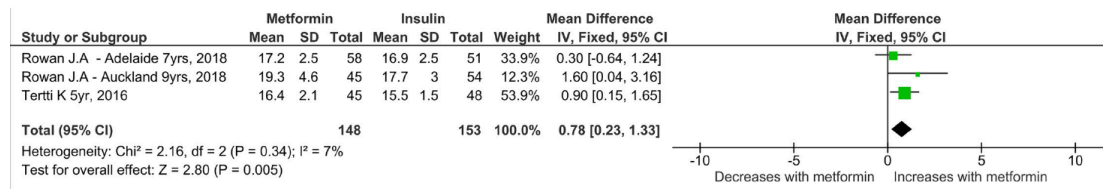


Fig 14. Childhood BMI. Expressed as mean differences (fixed effects model) and 95% CI. IV, mean difference.

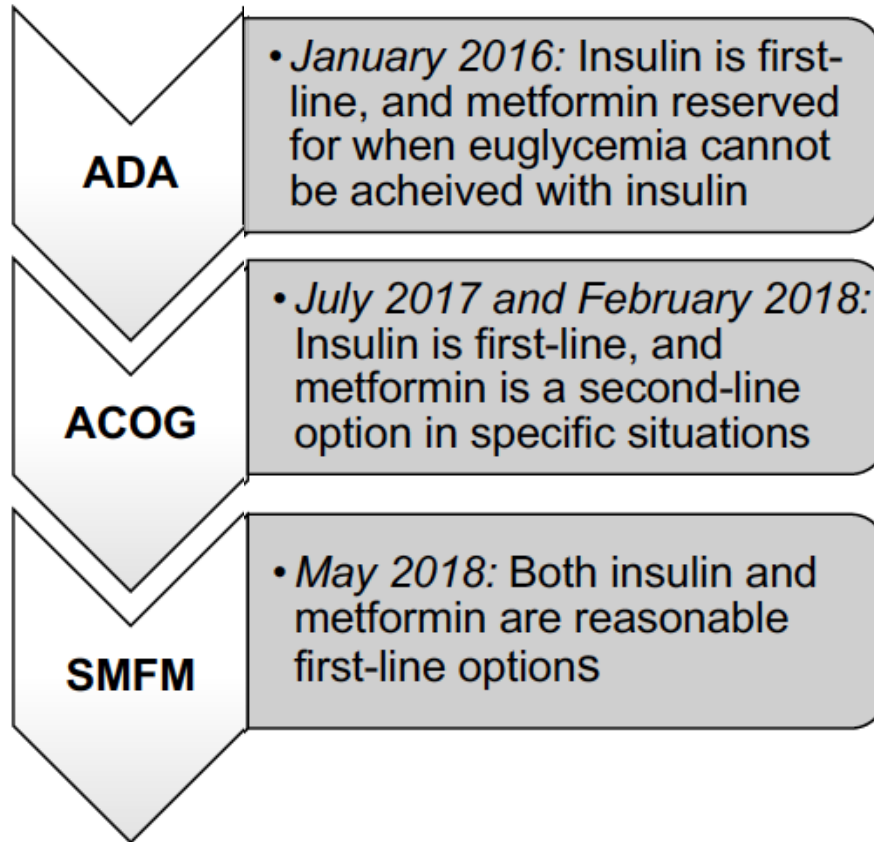
Butalia et al. 2017. Diabetes Medicine.

Balsells et al. 2015. BMJ



Venkatesh et al, 2022. BJOG. 129(3): 173-483.

Tarry Adkins, et al. PLoS Med. 2019, 2020.

Evolution of GDM Treatment Guidelines



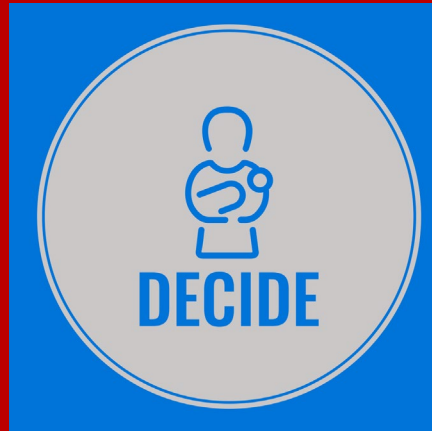
Advantages vs. Disadvantages of Metformin vs. Insulin

Advantages vs. Disadvantages of Metformin		
	Metformin	Insulin
Advantages 	<ul style="list-style-type: none">• Convenience of an oral pill• Lower cost/less resources• No maternal hypoglycemia• Less weight gain• Improved adherence	<ul style="list-style-type: none">• Historically, first-line agent• Does not cross the placenta• Confirmed fetal safety
Disadvantages 	<ul style="list-style-type: none">• Crosses the placenta• Possible low birthweight• Possible risk of child obesity• Gastrointestinal distress• Risk of supplemental insulin	<ul style="list-style-type: none">• Injections/inconvenient• Higher cost/high resources• Maternal hypoglycemia• Impractical for short-term use

DECIDE

www.decidestudy.org

A Comparative Effectiveness Trial of Oral Metformin versus Injectable Insulin for the Treatment of Gestational Diabetes

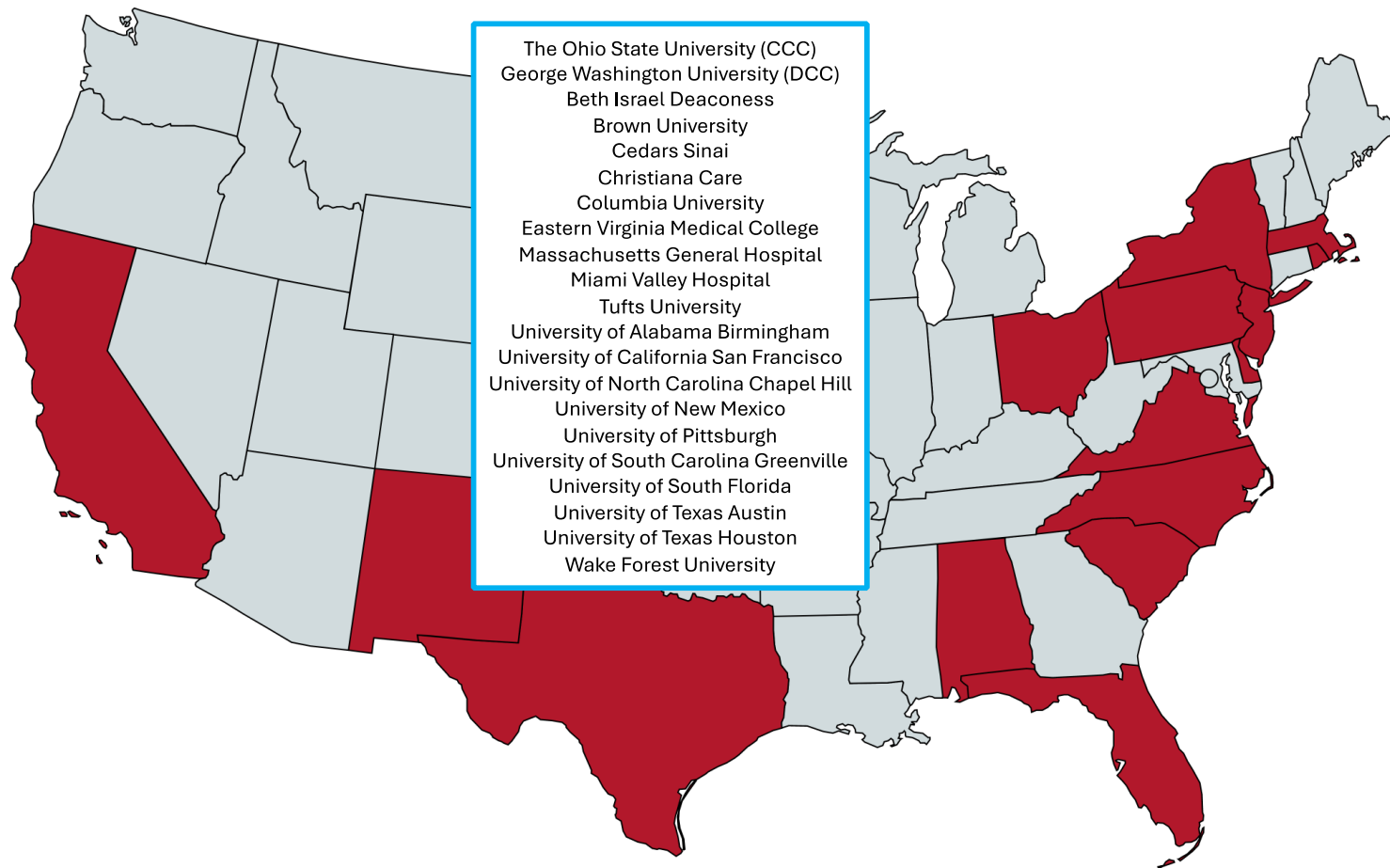


VIDEOS

<https://decide.bsc.gwu.edu/web/decide/aboutgdm>

What is DECIDE?

1. A non-inferiority RCT of metformin versus insulin to prevent adverse outcomes for pregnant individuals with GDM who need medication to achieve glucose control
2. Postpartum follow-up through 2 years to confirm safety of fetal exposure and assess maternal and child cardiometabolic outcomes
3. Assess patient-centered treatment and medication strategies to optimize the pregnancy experience with GDM



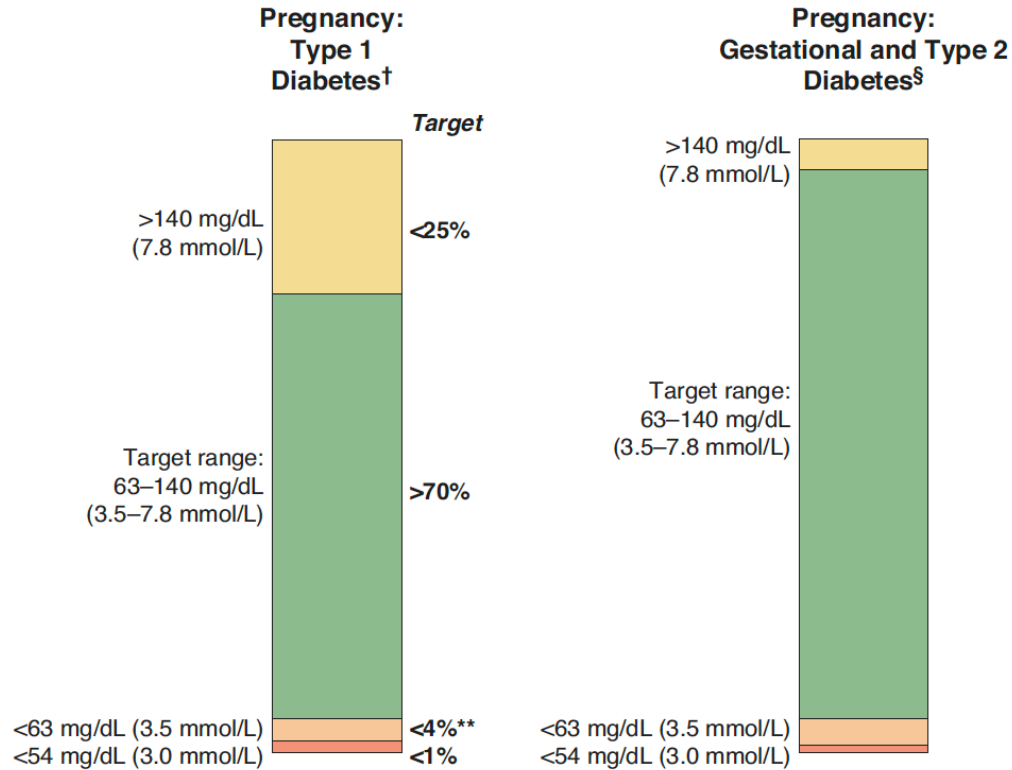


PART #5: CGM for GDM

- Portia is 30 weeks and is tired of poking herself four times a day
 - She watched the Superbowl and saw commercials for a device called a CGM
 - She notes it can be bought over the counter
- How would you counsel her about CGM use for GDM?



CGM targets for pregnancy



Our recommendations

T1D CGM: Offer CGM to all

- CGM is associated with better glucose control and pregnancy outcomes

T2D CGM: Consider CGM

- Emerging data suggest better glucose control, robust data lacking
- Complete glucose logs!
-

GDM CGM: Do not recommend CGM use, but may individualize

- Data are lacking
- Complete glucose logs!

Brief antepartum management

- Antenatal testing twice weekly at 32 weeks (T1D T2D)
- **Antenatal testing ONCE WEEKLY (well controlled A2 GDM)**
- Adequate glycemic control delivery in the 39th week (A2 GDM, T1D T2D)
- Suboptimal glycemic control delivery in the 37th or 38th week
- A1 GDM may opt for elective IOL at 39 weeks
- Cutoff for primary cesarean delivery for macrosomia with diabetes (EFW 4500 grams)

Conclusion

- PART #1: Screen early for pregestational diabetes, but NOT GDM
- Part #2: Timely screening (24 weeks) for GDM is critical
- Part #3: Remember to screen for diabetes postpartum
- Part #4: Opportunities for evidence-based pharmacotherapy
- Part #5: When to consider (and not) CGM for diabetes in pregnancy

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