

Gestational Diabetes (GDM) & Neonatal Hypoglycemia

Who should you screen for GDM ?

EVERYONE!

Screening should occur between 24-28 weeks

Two options :

- 1-step 75g OGTT
- 2-step 50g GCT + 75g OGTT if positive first test

SOGC website for table with diagnostic cut offs:

<https://www.pregnancyinfo.ca/your-pregnancy/routine-tests/glucose-testing/>

Diabetes Canada Healthcare Tool :

<https://guidelines.diabetes.ca/health-care-provider-tools/gdm>



Involve Friends as Needed !

- Diabetes Nurse Educators
- Dietitians
- OBGYNs
- MFMS

Management :

Goal 1 : Optimize blood sugars

- Diet modification (spreading meals out in the day, selecting low glycemic index foods)
- Medications (Insulin)

Why : Improved sugar control reduces the risk of fetal macrosomia, which helps reduce risk of delivery complications such as shoulder dystocia, assisted vaginal delivery, or C-section.

Goal 2 : Ensure fetal well-being

Discuss with local providers regarding typical protocol for additional ultrasounds to assess growth as well as other antenatal screening tests (may include NST, AFI, BPP).

Why : Antenatal testing helps assess fetal status and can help inform delivery planning (e.g. assesses fetal well-being & growth)



Goal 3 : Delivery planning

Induction of labour typically occurs between 38+0 and 40+6 weeks depending on individual patient factors (type & degree of control, fetal complications, etc.). Organize for delivery in a centre with capabilities to manage neonatal hypoglycemia.

Why : The risk for stillbirth increases at earlier gestation in pregnancies complicated by GDM as compared to pregnancies without GDM. Newborns are at higher risk of hypoglycemia when born to parents with gestational diabetes.

Risk Factors for Neonatal Hypoglycemia

- Gestational parent with diabetes (GDM, T1DM, T2DM)
- Large for Gestational Age (LGA)
- Small for Gestational Age (SGA)
- Labetalol exposure
- Preterm infants
- Perinatal asphyxia

 *Hypoglycemia beyond*
72 hours
requires further investigation! 

Hypoglycemia Cut Off : $\leq 2.6\text{mmol/L}$

CPS Management Sequence

https://cps.ca/uploads/documents/Management_of_Hypoglycemia_algorithm_FINAL-EN.pdf

Mainstay of Treatment is INCREASE SUGAR availability

- 1) Breastfeed (if infant is well & maintaining blood sugars)
- 2) Supplement with formula (if no maternal desire to breastfeed/no colostrum or milk to supply)
- 3) 40% Dextrose Gel
- 4) IV D10%W (FIRST LINE if infant is symptomatic or cannot feed or glucose $\leq 1.8\text{mmol/L}$)

REFERENCES

ACOG Practice Bulletin No. 190: Gestational Diabetes Mellitus. *Obstet Gynecol.* 2018 Feb;131(2):e49-e64. doi: 10.1097/AOG.0000000000002501. PMID: 29370047.

Alberta Health Services. Healthy Eating with Gestational Diabetes. 2016. Retrieved December 13, 2022 from <https://www.albertahealthservices.ca/assets/info/nutrition/if-nfs-healthy-eating-gestational-diabetes.pdf>

Berger H, Gagnon R, Serner M. SOGC Clinical Practice Guideline : Guideline No. 393- Diabetes in Pregnancy. *JCOG.* 2019;41(12):1814-1825. <https://doi.org/10.1016/j.jogc.2019.03.008>

Caughey AB. Gestational diabetes mellitus : Obstetric issues and management. Eds. Werner EF, Barss VA. UpToDate. 2023. https://www.uptodate.com/contents/gestational-diabetes-mellitus-obstetric-issues-and-management?search=gestational%20diabetes%20post-partum%20care&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1#H9

Chapter 7 Fluid & Glucose Management. In: Boulton JE, Coughlin K, O'Flaherty D, Solimano A. *Acute Care of At-Risk Newborns*, 2nd edition. Vancouver, BC. AcORN Neonatal Society. 2021:7-1 – 7-32.

Diabetes Canada Clinical Practice Guidelines Expert Committee. *Diabetes Canada 2018 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada.* *Can J Diabetes.* 2018;42(Suppl 1):S1-S325. <https://guidelines.diabetes.ca/cpg/chapter36>

Diabetes Canada Clinical Practice Guidelines Expert Committee. *Diabetes Canada 2018 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada.* *Can J Diabetes.* 2018;42(Suppl 1):S1-S325. <https://guidelines.diabetes.ca/cpg/chapter4>

Government of Alberta. My Health Alberta : Gestational Diabetes : Dealing with Low Blood Sugar. 2023. <https://myhealth.alberta.ca/Health/Pages/conditions.aspx?hwid=aa111456&lang=en-ca#tp16404>

Gunderson EP, Lewis CE, Lin Y, Sorel M, Gross M, Sidney S, Jacobs DR, etc. Lactation duration and progression to diabetes in women across the childbearing years. *JAMA Intern Med.* 2018. 178(3): 323-337. doi: [10.1001/jamainternmed.2017.7978](https://doi.org/10.1001/jamainternmed.2017.7978)

Narvey MR, Marks SD, Canadian Pediatric Society Fetus and Newborn Committee. The screening and management of newborns at risk for low blood glucose. *Paediatr Child Health.* 2019. 24(8):536-544. <https://cps.ca/en/documents/position/newborns-at-risk-for-low-blood-glucose>

Plows JF, Stanley JL, Baker PN, Reynolds CL, Vickers MH. The pathophysiology of gestational diabetes mellitus. *Int J Mol Sci.* 2018. 19(11):3342. doi: [10.3390/ijms19113342](https://doi.org/10.3390/ijms19113342)

Powe CE. Pregestational (preexisting) and gestational diabetes: Intrapartum and postpartum glucose management. Eds. Nathan DM, Werner EF, Barss VA. 2023. https://www.uptodate.com/contents/pregestational-preexisting-and-gestational-diabetes-intrapartum-and-postpartum-glucose-management?search=gestational%20diabetes%20post-partum%20care&topicRef=4800&source=see_link

Thompson D, Berger H, Feig D, Gagnon R, Kader T, Keely E, Kozak S, Ryan E, Serner M, Vinokuroff C. Clinical Practice Guidelines Diabetes and Pregnancy. *Canadian Journal of Diabetes.* 2013. (S168-S183). https://guidelines.diabetes.ca/app_themes/cdacpg/resources/cpg_2013_full_en.pdf

Tsakiridis I, Giouleka S, Mamopoulos A, Kourtis A, Athanasiadis A, Filopoulou D, Dagklis T. Diagnosis and Management of Gestational Diabetes Mellitus: An Overview of National and International Guidelines. *Obstet Gynecol Surv.* 2021 Jun;76(6):367-381. doi: 10.1097/OGX.0000000000000899. PMID: 34192341.