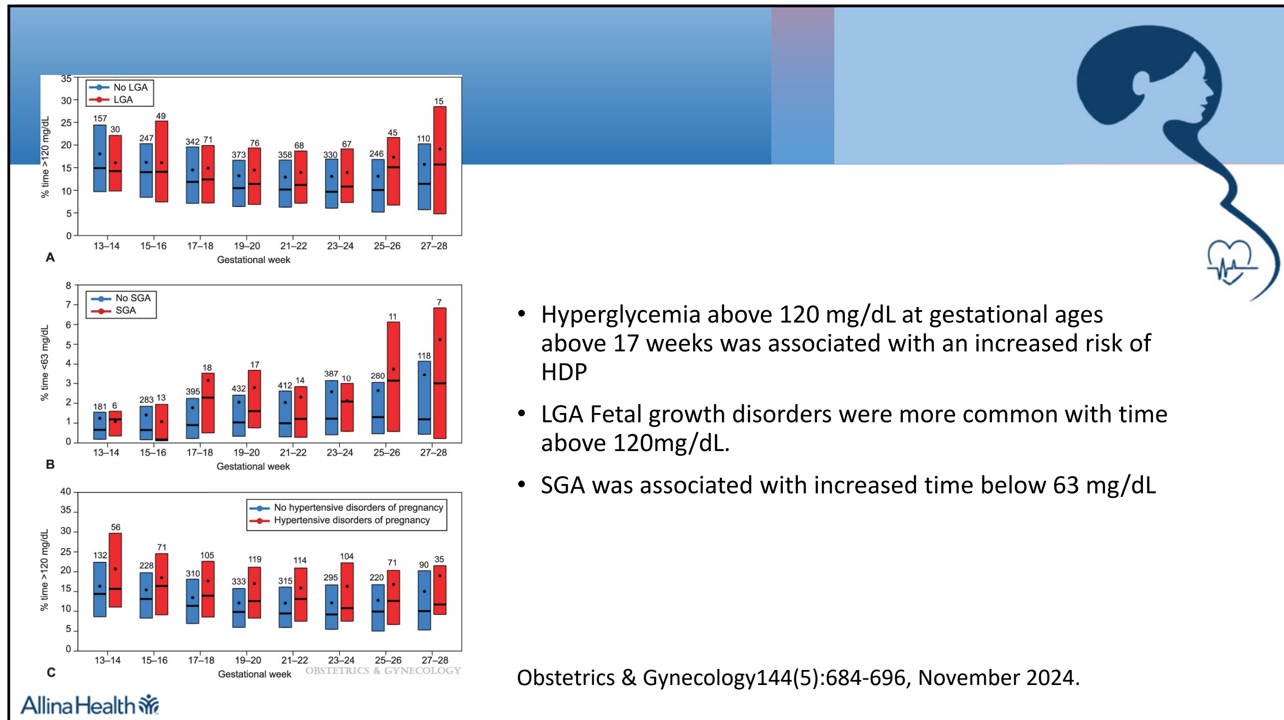


22

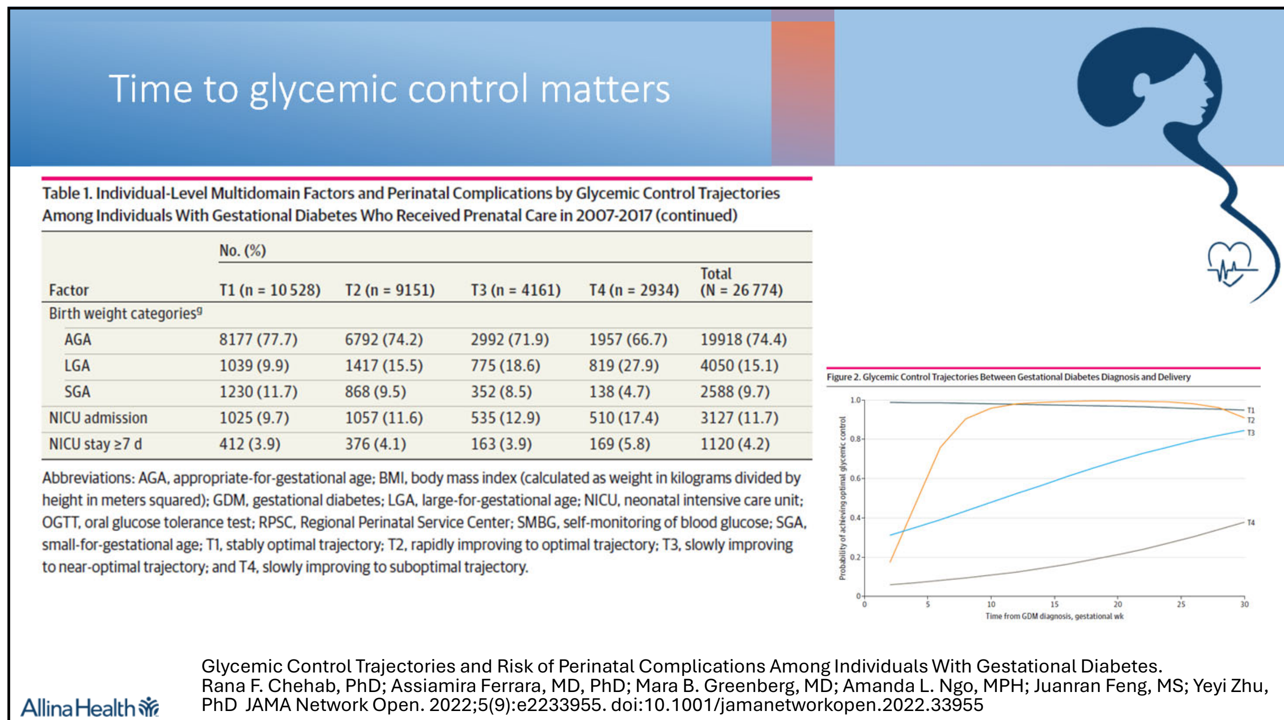
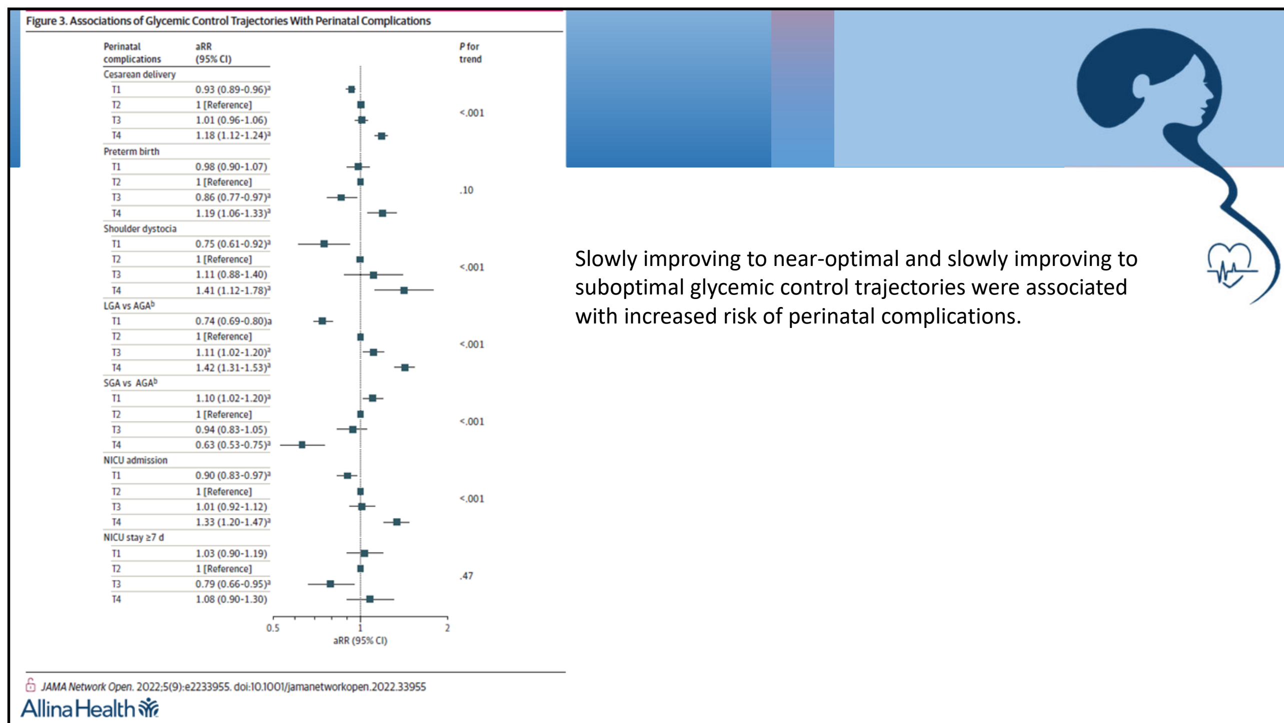


Table 1. Individual-Level Multidomain Factors and Perinatal Complications by Glycemic Control Trajectories Among Individuals With Gestational Diabetes Who Received Prenatal Care in 2007-2017 (continued)

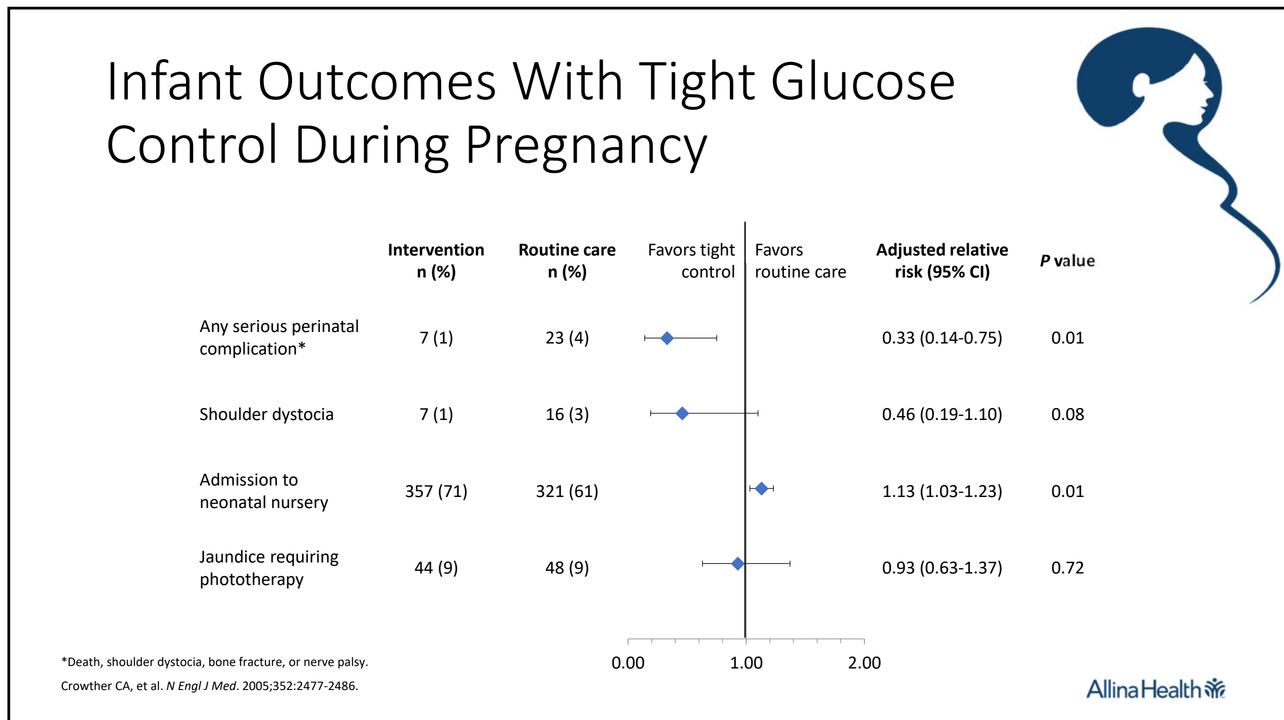
	No. (%)				
Factor	T1 (n = 10 528)	T2 (n = 9151)	T3 (n = 4161)	T4 (n = 2934)	Total (N = 26 774)
Birth weight categories[g]					
AGA	8177 (77.7)	6792 (74.2)	2992 (71.9)	1957 (66.7)	19918 (74.4)
LGA	1039 (9.9)	1417 (15.5)	775 (18.6)	819 (27.9)	4050 (15.1)
SGA	1230 (11.7)	868 (9.5)	352 (8.5)	138 (4.7)	2588 (9.7)
NICU admission	1025 (9.7)	1057 (11.6)	535 (12.9)	510 (17.4)	3127 (11.7)
NICU stay ≥7 d	412 (3.9)	376 (4.1)	163 (3.9)	169 (5.8)	1120 (4.2)

Abbreviations: AGA, appropriate-for-gestational age; BMI, body mass index (calculated as weight in kilograms divided by height in meters squared); GDM, gestational diabetes; LGA, large-for-gestational age; NICU, neonatal intensive care unit; OGTT, oral glucose tolerance test; RPSC, Regional Perinatal Service Center; SMBG, self-monitoring of blood glucose; SGA, small-for-gestational age; T1, stably optimal trajectory; T2, rapidly improving to optimal trajectory; T3, slowly improving to near-optimal trajectory; and T4, slowly improving to suboptimal trajectory.

23

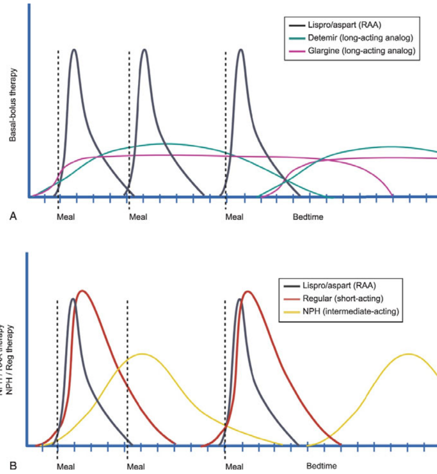


24



25

Insulin pharmacodynamics

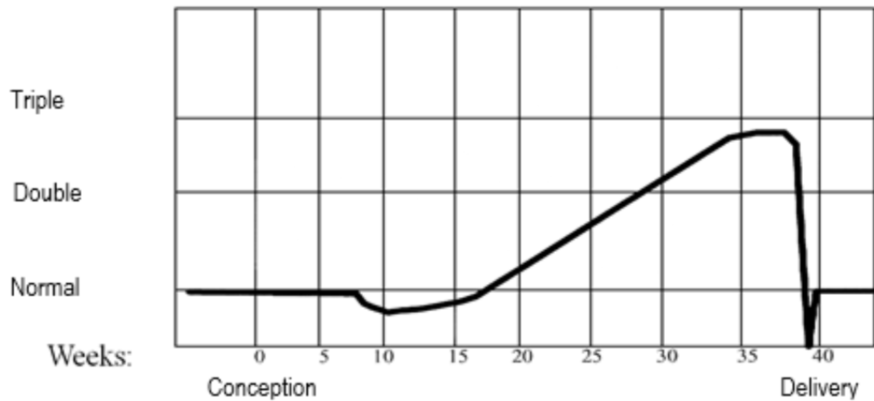


Pharmacodynamics of insulin-dosing strategies. Goals of insulin therapy are to individualize regimens to meet the glycemic needs and metabolic characteristics of the patient. The pharmacodynamics are different for the various insulin types, and the timing of delivery is critical to safely improve glycemia to achieve pregnancy-specific glucose targets. A. Basal–bolus therapy uses long-acting insulin analog (glargine or detemir) with rapid-acting insulin analogs (lispro or aspart) before meals. B. Intermediate-acting human insulin neutral protamine Hagedorn (NPH) can be used in combination with rapid-acting insulin analogs (RAAs) or regular insulin (Reg) before meals. To effectively administer regular insulin to cover postprandial hyperglycemia and reduce the risk for hypoglycemia 3–4 hours after the meal, it should be taken about 60 minutes before breakfast, dinner, or both. Figure created with BioRender.com.

Insulin Management for Gestational and Type 2 Diabetes in Pregnancy
Valent, Amy M.; Barbour, Linda A.
Obstetrics & Gynecology144(5):633-647, November 2024.
doi: 10.1097/AOG.0000000000005640

26

Insulin requirements during pregnancy



27

©AllinaHealthSystems

Typical insulin dosing

Fasting hyperglycemia	Postprandial hyperglycemia	Fasting and postprandial elevations
Dose 0.1-0.2U/kg at bedtime NPH or Glargine/detemir	Dose 0.2-0.4 U/kg divided with meals Rapid acting insulins	Dose 0.5-1.0 U/kg TDD Divided 2/3 NPH (2/3 AM and 1/3 HS)and 1/3 rapid Div before Breakfast and Dinner Or 40-50% Glargine/Detemir and 50-60% rapid divided with meals
Titrate as needed	Titrate as needed	Titrate as needed

28

Glycemic Targets

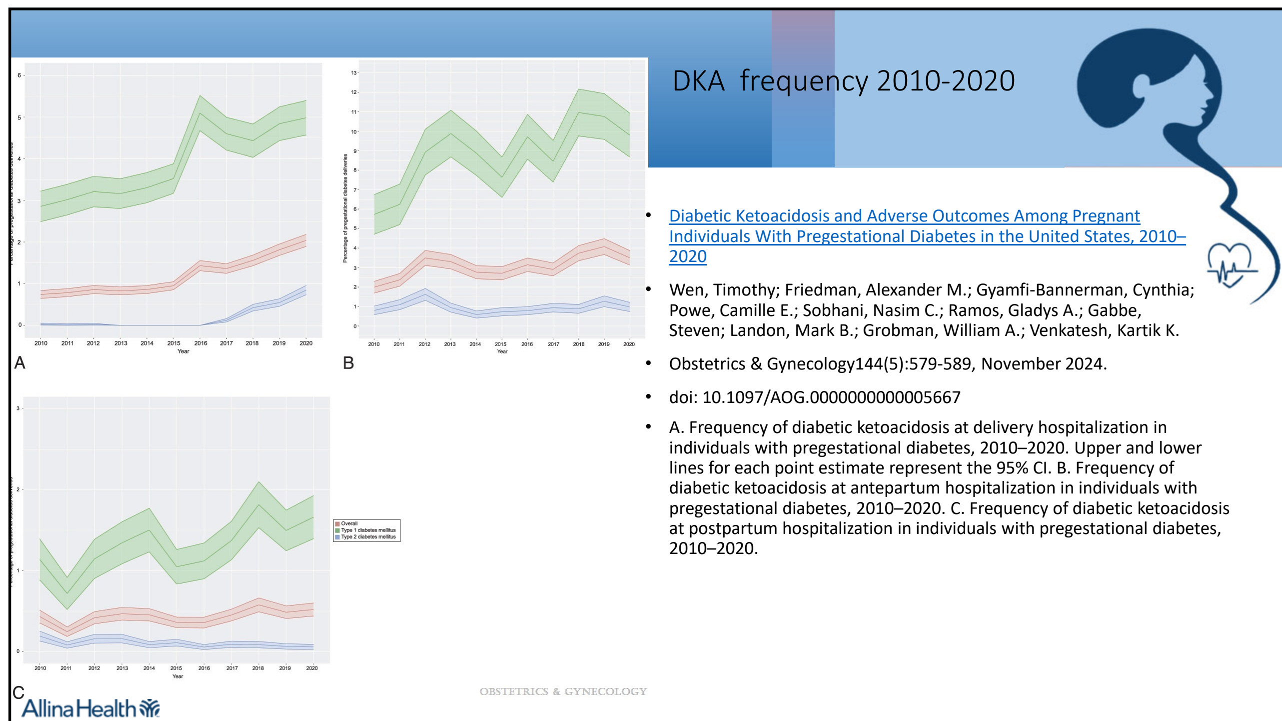
- ADA
- Fasting 70-95
- 1 hour PP 140
- 2 hour PP 140

- Our Practice
- Fasting 60-90
- 1 or 2 hour PP 120

Optimal CGMS parameters are not well established. Our practice targets 95-100 with review of individual daily patterns. Time in range as noted in the previous study may be another means of assessing optimal control.

29

©AllinaHealthSystems



30

DKA

- ICU management is recommended- consider transfer if team not able to care for both patient and fetus/neonate
- EFM will be flat (maternal acidemia=fetal acidemia)
- Delivery is rarely needed and can worsen maternal condition.
- Correct maternal condition (Fluids, insulin, electrolytes)
- Even single doses of terbutaline and betamethasone can precipitate DKA. Check sugars before giving.
- Threshold for DKA in pregnancy as low as 180 (Typically >200), can occur in type 2 DM

AllinaHealth

31

©AllinaHealthSystems

32

Overcome the barriers to success

- Look for social barriers to obtaining quality foods or medications.
- Are the foods recommended culturally appropriate?
- Look for mental health concerns.
- Assess for misinformation about treatments.
- Establish rapport.
- Meet patients where they are. (Plan B, C?)

AllinaHealth

33

Conclusions

- Diabetes in pregnancy is increasing (GDM and pregestational). We likely still underdiagnose.
- New technologies may provide additional means of assessing GDM and have changed the management for pregestational DM.
- Don't wait. Treat aggressively to get rapid control.
- Even mild hyperglycemia may have worse outcomes.
- Watch out for DKA.
- Take a holistic approach.

AllinaHealth

34

Questions?

Thank you!

AllinaHealth

35

©AllinaHealthSystems