

Peripartum and Postpartum Management of Diabetes

General Principles

- Glucose goal ~ 100 mg/dL (70-110 mg/dL)
- Labor is EXERCISE with increased metabolic demands.
- Insulin requirements decrease however the stress response of labor contributes to a more insulin-resistant state.
- Elevated maternal glucose contributes to neonatal hypoglycemia.
- ALL women with diabetes (including GDMA1) should have glucose checks upon admission and every 1-2 hours during active labor and every 1 hour if on insulin drip. Note: GDMA1 and A2 rarely require insulin in labor.

Before Admission – Home regimen

- Usual NPH dose in the evening before admission.
- T2DM: 1/2 NPH dose in am if induction and no NPH if cesarean.
T1DM: 1/3 NPH dose in am or if insulin pump continue pump settings.
- For long acting glargine (lantus) – administer 1/3 dose at bedtime
- For evening admission, take usual insulin regimen during the day including evening NPH.

Admission

Latent	Active
<ul style="list-style-type: none"> • Monitor BG every 4 hours • BG targets: 70-110 mg/dl • If ≥ 2 abnormal values, begin insulin drip protocol for GDM/T2DM • T1DM should be on insulin drip throughout labor and delivery unless on insulin pump • All patients on drip should have BG checks every hour 	<ul style="list-style-type: none"> • Monitor BG every hour • BG targets: 70-110 mg/dl • If ≥ 2 abnormal values, begin insulin drip protocol for GDM/T2DM • Glucose infusion with drip is not necessary until BG < 100 (D5LR or D5NS)

IV Insulin Management

1. Initiate the insulin drip starting at Algorithm 2 – (do not start at algorithm level >2)

2. Adjust the Rate According to the Following Criteria:

- If the present BG level has **declined by more than 100 mg/dl in one hour**, move down to the next lesser algorithm. If already using Algorithm 1, decrease insulin infusion by half.
- If the **previous** BG was **greater than 200 mg/dl** and the present BG has **not decreased by at least 60 mg/dl in one hour (or there is an increase)**, move up to the next Algorithm.
- If the **previous** BG was **140-200 mg/dl** and the present BG has not **decreased by at least 30 mg/dl (or there is an increase)** in one hour, move up to the next Algorithm.
- If the **previous** BG was **110-139 mg/dl** and the present BG has not **decreased by at least 15 mg/dl (or there is an increase)** in one hour, move up to the next Algorithm.
- If the present BG level is **less than 70 mg/dl**, treat hypoglycemia and move down to the next lesser Algorithm. If already using Algorithm 1, decrease insulin infusion by half. (See next page for hypoglycemia management.)
- If the present BG is **70-109**, continue in the same Algorithm and adjust the rate as indicated.

Algorithm 1		Algorithm 2		Algorithm 3		Algorithm 4		Algorithm 5		Algorithm 6	
BG	Rate	BG	Rate	BG	Rate	BG	Rate	BG	Rate	BG	Rate
Less than 70	Off	Less than 70	Off	Less than 70	Off	Less than 70	Off	Less than 70	Off	Less than 70	Off
70-109	0.2	70-109	0.5	70-109	1	70-109	1.5	70-109	2	70-109	3
110-124	0.5	110-124	1	110-124	2	110-124	3	110-124	5	110-124	8
125-149	1	125-149	1.5	125-149	3	125-149	5	125-149	8	125-149	13
150-179	1.5	150-179	2	150-179	4	150-179	7	150-179	12	150-179	18
180-209	2	180-209	3	180-209	5	180-209	9	180-209	15	180-209	23
210-239	2	210-239	4	210-239	6	210-239	12	210-239	18	210-239	28
240-269	3	240-269	5	240-269	8	240-269	16	240-269	24	240-269	36
270-299	3	270-299	6	270-299	10	270-299	20	270-299	30	270-299	45
300-329	4	300-329	7	300-329	12	300-329	24	300-329	39	300-329	58
330-359	4	330-359	8	330-359	14	330-359	28	330-359	40	330-359	66
Greater than 360	6 units Call LIP	Greater than 360	12 units Call LIP	Greater than 360	16 units Call LIP	Greater than 360	28 units Call LIP	Greater than 360	40 units Call LIP	Greater than 360	66 units Call LIP

Patient Monitoring:

- Bedside blood glucose monitoring every hour until stable between 70-109 mg/dl for four consecutive hours then decrease to every 2 hours.
- Resume hourly blood glucose monitoring with any of the following:
 - Change in insulin drip rate Significant change in clinical status
 - Change in nutritional support, Glucocorticoid supplementation

Hypoglycemia Management:

- If blood sugar is less than 70 mg/dl, **STOP THE INFUSION.** Notify the LIP. Give 15 grams of PO carbohydrate. Recheck blood glucose every 15 minutes. Restart insulin infusion using the next lesser Algorithm when blood glucose is greater than 85 mg/dl. If already using Algorithm 1, decrease the infusion by half.
- If blood glucose is less than 50 mg/dl, **STOP THE INFUSION.** Notify LIP. If patient alert and able to take fluids, give 15 grams of PO carbohydrate. If patient confused or unconscious or NPO, give 25 ml of 50 % dextrose IV. Recheck blood glucose every 15 minutes. Repeat PO carbohydrate or IV 50 % dextrose every 15 minutes until the blood glucose is greater than 70 mg/dl. Resume insulin infusion at the next lesser Algorithm when blood glucose is greater than 85 mg/dl. If already using Algorithm 1, decrease the infusion by half.

Notify the Physician and Document:

- Any blood glucose change of greater than 100mg/dl in 1 hour
- If BG is < 70 mg/dl
- If BG is > 250 mg/dl
- If BG is not controlled on Algorithm 6
- Any hypoglycemia unresolved within 30 minutes of stopping insulin drip
- When advance in algorithms do not result in targeted BG levels

Transitions off Insulin Drip:

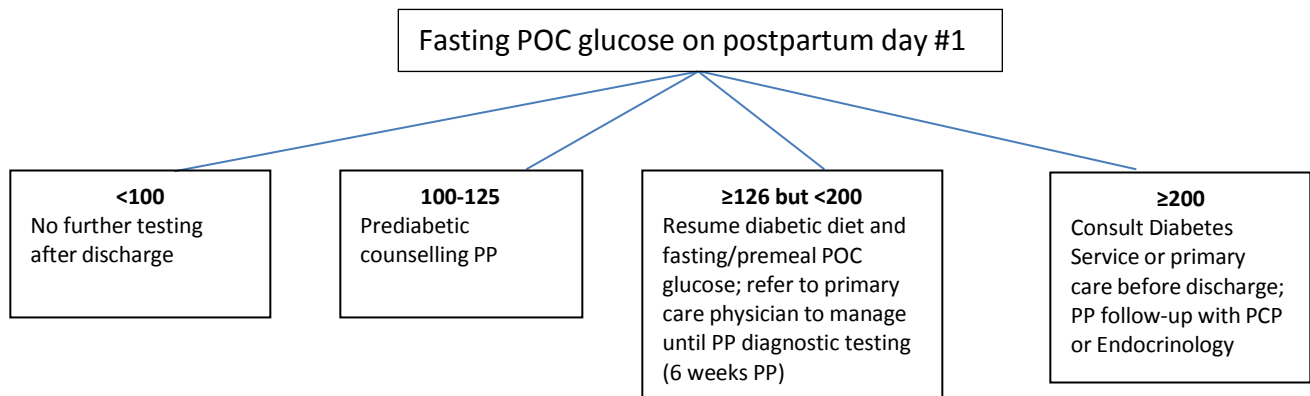
- Stop drip after delivery of the placenta for GDM/T2DM.
- If IV insulin is to be continued, algorithm should be cut in half until patient is able to tolerate PO carbohydrate intake.
- When intermediate or long acting insulin can be started, proceed as follows: **give the long acting insulin and continue monitoring the blood glucose every hour for at least 2 hours before discontinuing the drip.**

Postpartum Glucose Monitoring

KEY: Breastfeeding decreases the likelihood of mothers with GDM developing T2DM within the next 2 years by 53% and next 19 years by 40%

- Up to 30% of women with GDM continue to have glucose impairment
- 50-70% risk of developing T2DM in the next 5-10 years
- 2 hours postprandial goal is 100-160 mg/dL and avoidance of HYPOGLYCEMIA, NOT tight pregnancy control

Gestational Diabetes



Pregestational Diabetes

<p><u>T2DM, oral meds:</u> POC glucose q4 hours postop until intake is normal, and may then resume normal checks/prepregnancy meds. Metformin is contraindicated for at least 48 hours after surgery.</p>	<p><u>Insulin SQ:</u> Return to prepregnancy regimen if T2DM T1DM – usually 60-70% of prepregnancy doses (determined by Rhonda Fruhling, ARNP Med Endo)</p>	<p><u>Insulin pump:</u> Restart after delivery. If delivered at night, EITHER 50% of late pregnancy OR pre-pregnancy settings may be used (determined by primary diabetes provider)</p>
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Breastfeeding mothers may require lower doses while breastfeeding and should be counseled to watch for hypoglycemia.

References:

<http://perinatology.com/Reference/CDAPP%20SS%20Guidelines%202012.pdf>

<https://www.ohsu.edu/xd/health/services/women/for-healthcare-providers/upload/CWH-21473169-DAPP-Guideline-FINAL-lo-res.pdf>

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