Adult Peri-Operative Glucose Management

Guidelines for Pre-operative Referrals

**PRESENTATION**

- Patient with any of the following criteria:
  - Type 1 diabetes mellitus (DM)
  - On insulin pump
  - History of total pancreatectomy
  - Using U-500 insulin or on > 100 units of insulin daily and A1c > 8.5%
  - History of diabetic ketoacidosis (DKA)
  - On systemic steroids and glucose > 200 mg/dL
  - New onset hyperglycemia in a patient on immune-checkpoint inhibitor therapy

- Patient with or without known Type 2 DM:
  - Hemoglobin A1c ≥ 10% or
  - Random glucose ≥ 300 mg/dL

- Patient with or without known Type 2 DM, and surgery planned < 1 month away:
  - Hemoglobin A1c 6.5% - 9.9% and fasting glucose > 150 mg/dL or
  - Random glucose 200 mg/dL - 299 mg/dL

- Patient with or without known Type 2 DM, and surgery planned ≥ 1 month away:
  - Hemoglobin A1c 6.5% - 9.9% or
  - Fasting glucose > 125 mg/dL or
  - Random glucose 200 mg/dL - 299 mg/dL

**DISPOSITION**

- Refer to Endocrinology-Diabetes Service as soon as possible before surgery
- Document anticipated date of surgery in comments section of referral
- For urgent referral or for any patient that needs to be seen by Endocrinology-Diabetes Service within 1 week:
  - Enter order for urgent referral in EHR and select “1st on call - Outpatient Diabetes Consults Day” and
  - Page “Endocrinology-Diabetes consult-Outpatient” via the on-call system

- Consult Endocrinology-Diabetes Service urgently:
  - Place consultation request in EHR
  - Call “Endocrinology-Diabetes Outpatient Diabetes Consult Day” via on-call system and request same-day diabetes consultation

- Refer to POEM-IM to evaluate and adjust/optimize therapy
  - Refer to POEM-IM by placing outpatient “Ambulatory Referral to POEM” in EHR
  - Select “Internal Medicine in POEM” and select management of specific comorbidities (indicate reason)
  - POEM-IM to determine if patient needs referral to Endocrinology-Diabetes Service and diabetes educator

- Refer to outpatient Consultative Medicine (General Internal Medicine)

EHR = electronic health record
POEM = Peri-Operative Evaluation and Management
POEM-IM = Peri-Operative Evaluation and Management-Internal Medicine
**Adult Peri-Operative Glucose Management**

Disclaimers: This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson's specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other healthcare providers in the context of individual clinical circumstances to determine a patient's care. This algorithm should not be used to treat pregnant women.

**Measurement and Management of Hyperglycemia in the Pre-operative Area**

**PRESENTATION**

Patient with any of the following criteria:
- History of DM
- No history of DM but hemoglobin A1c ≥ 6.5%
- BMI > 35 kg/m²
- Has been receiving steroids preoperatively

**DISPOSITION**

- Cancel the case
- Transport symptomatic patients and all patients with Type 1 DM to ACCC for further management
- Provide handoff to the ACCC health care providers
- Patient with Type 2 DM or new onset hyperglycemia, refer to the Endocrine-Diabetes Service for same day visit

**POC glucose**

- > 400 mg/dL: Proceed to surgery
- 351-400 mg/dL: See Page 3
- 251-350 mg/dL: See Page 4
- < 250 mg/dL: Obtain POC glucose in pre-operative area

**BMI** = body mass index  
**POC** = point of care  
**ACCC** = Acute Cancer Care Center

1 Refer to MD Anderson Institutional Policy #CLN0513; Hand-Off Communication Policy
**Measurement and Management of Hyperglycemia in the Pre-operative Area**

**PRESENTATION**

- POC glucose 351-400 mg/dL

- **Compelling reason** to proceed with the case?
  - Yes: 
    - Obtain basic metabolic metabolic (BMP)\(^2\)
    - Delay the case for results
  - No: 
    - Reschedule the case
    - Obtain BMP\(^2\)

**DISPOSITION**

- Consult Endocrinology-Diabetes Service\(^5\) and discuss\(^3\) whether to proceed with surgery

- **Proceed with surgery?**
  - No: 
    - Provide handoff to the ACCC health care providers\(^6\)
  - Yes: 
    - Explain increased risk of infection to patient
    - Document patient’s understanding and willingness to proceed with surgery in the EHR
    - Start insulin infusion and proceed with surgery\(^7\)

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1 Joint discussion to be held between anesthesia and surgical teams regarding medical urgency of the planned procedure
2 i-STAT or sent to lab
3 Anion-gap metabolic acidosis defined as bicarbonate < 18 mEq/L and anion gap > 12 [anion gap = sodium – (chloride + bicarbonate)]
4 If anion-gap metabolic acidosis based on i-STAT results, send STAT basic metabolic panel (BMP) to lab for confirmation
5 Consult the inpatient Endocrinology-Diabetes Team A by the on-call system with direct provider to provider communication

6 Refer to MD Anderson Institutional Policy #CLN0513; Hand-Off Communication Policy
7 Post-operative management:
   - For patients admitted to inpatient care
     - Initiate post-operative glucose management (see Inpatient Hyperglycemia - Adult algorithm)
     - Consult inpatient Endocrinology-Diabetes Service
   - Ambulatory surgery patients should be referred to primary care provider or outpatient Endocrinology-Diabetes Service as indicated

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Measurement and Management of Hyperglycemia in the Pre-operative Area

**PRESENTATION**

POC Glucose 251-350 mg/dL

- **Patient symptomatic?**
  - Yes
    - **Start insulin infusion and proceed with surgery**
  - No
    - **Consider rescheduling surgery**

- **Known history of DM?**
  - Yes
    - **Start insulin infusion and proceed with surgery**
  - No
    - **Consult Endocrinology-Diabetes Service** and discuss whether to proceed with surgery

- **Does patient have anion-gap metabolic acidosis?**
  - Yes
    - **Consult Endocrinology-Diabetes Service** and discuss whether to proceed with surgery
  - No
    - **Proceed with surgery?**
      - Yes
        - **Start insulin infusion and proceed with surgery**
      - No
        - **Transport patient to ACCC for further management and provide handoff to the ACCC health care providers**

**DISPOSITION**

**Urgent outpatient same day referral to Endocrinology-Diabetes Service:**
- Place consultation request in EHR
- Specify reschedule date in consult note
- Call “Endocrinology-Diabetes Outpatient Diabetes Consult Day” via on-call system and request same-day diabetes consultation

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**Notes:**
1. Patient symptomatic with polyuria, polydypsia, nausea/vomiting
2. i-STAT or sent to lab
3. Anion-gap metabolic acidosis defined as bicarbonate < 18 mEq/L and anion gap > 12 [anion gap = sodium – (chloride + bicarbonate)]
4. If anion-gap metabolic acidosis based on i-STAT results, send STAT basic metabolic panel (BMP) to lab for confirmation
5. Consult the inpatient Endocrinology-Diabetes Team A by the on-call system with direct provider to provider communication
6. Joint discussion to be held between anesthesia and surgical teams regarding medical urgency of the planned procedure
7. Post-operative management:
   - For patients admitted to inpatient care
     - Initiate post-operative glucose management (see Inpatient Hyperglycemia - Adult algorithm)
     - Consult inpatient Endocrinology-Diabetes Service
   - Ambulatory surgery patients should be referred to primary care provider or outpatient Endocrinology - Diabetes Service as indicated
8. Refer to MD Anderson Institutional Policy #CLN0513: Hand-Off Communication Policy

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SUGGESTED READINGS


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