## Adult Peri-Operative Glucose Management

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### PRESENTATION

**Guidelines for Pre-operative Referrals**

**DISPOSITION**

#### 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 hemoglobin A1c > 8.5%
- History of diabetic ketoacidosis (DKA)
- On systemic steroids with NEW onset hyperglycemia (glucose > 200 mg/dL)
- New onset hyperglycemia in a patient on immune-checkpoint inhibitor therapy

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

#### Patient with known Type 2 DM or known steroid induced diabetes, and surgery planned < 1 month away:
- Hemoglobin A1c 8% - 9.9% or
- Random glucose 180 mg/dL - 299 mg/dL

#### Patient without known Type 2 DM, and surgery planned < 1 month away:
- Hemoglobin A1c 6.5% - 9.9% or
- Random glucose 180 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 180 mg/dL - 299 mg/dL

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**POEM = Peri-Operative Evaluation and Management**

**POEM-IM = Peri-Operative Evaluation and Management-Internal Medicine**

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**Note:** This algorithm is intended for operative procedures in the Main and/or Mays operating rooms.
**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

Obtain POC glucose in pre-operative area

POC glucose > 250 mg/dL?

**YES**

POC glucose > 400 mg/dL

[Flowchart branch: Proceed to surgery]

POC glucose 351-400 mg/dL

[Flowchart branch: See Page 3]

POC glucose 251-350 mg/dL

[Flowchart branch: See Page 4]

**NO**

**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

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**BMI** = body mass index

**POC** = point of care

**ACCC** = Acute Cancer Care Center

1 Refer to Hand-Off Communication Policy (#CLN0513)
**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) and anion-gap > 12
    - Yes
      - Proceed with surgery?
    - No
      - Reschedule the case
      - Obtain BMP

- No
  - Delay the case for results

**Does patient have bicarbonate < 18 mEq/L and anion-gap > 12?**

- Yes
  - Consult Endocrinology-Diabetes Service and discuss whether to proceed with surgery
  - Proceed with surgery?
    - 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
    - No
      - Transport patient to ACCC for further management and provide handoff to the ACCC health care providers
  - No
    - Reschedule the case
    - Obtain BMP

- No
  - Delay the case for results

**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

**DISPOSITION**

- Consult Endocrinology-Diabetes Service and discuss whether to proceed with surgery

**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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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 If patient has an anion gap > 12 [anion gap = sodium – (chloride + bicarbonate)] without a metabolic acidosis (bicarbonate < 18 mEq/L and anion gap ≤ 12), DKA is not likely and other etiologies should be evaluated based on patient risk factors
4 If anion-gap metabolic acidosis based on i-STAT results, send STAT basic metabolic panel 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 Hand-Off Communication Policy (#CLN0513)
7 Post-operative management:
**PRESENTATION**

Patient symptomatic?  
- Yes: Start insulin infusion and proceed with surgery\(^6,7\) 
- No: Consider rescheduling surgery

Known history of DM?  
- Yes: Start insulin infusion and proceed with surgery\(^6,7\) 
- No:  
  - A: Obtain BMP\(^2\) prior to procedure  
    - Does patient have bicarbonate < 18 mEq/L and anion gap > 12\(^3,4,7\)?  
      - Yes: Consult Endocrinology-Diabetes Service\(^5\) and discuss\(^6\) whether to proceed with surgery  
      - No: Start insulin infusion and proceed with surgery\(^6,7\)
  - B: i-STAT or sent to lab  
    - If patient has an anion gap > 12 [anion gap = sodium – (chloride + bicarbonate)] without a metabolic acidosis (bicarbonate < 18 mEq/L) or a normal anion gap metabolic acidosis (bicarbonate < 18 mEq/L and anion gap ≤ 12), DKA is not likely and other etiologies should be evaluated based on patient risk factors

Is rescheduling an option?  
- Yes: Consult the inpatient Endocrinology-Diabetes Team A by the on-call system with direct provider to provider communication
- No: Joint discussion to be held between anesthesia and surgical teams regarding medical urgency of the planned procedure

**DISPOSITION**

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

Start insulin infusion and proceed with surgery\(^7\)  
- Yes:  
  - Transport patient to ACCC for further management  
  - Provide handoff to the ACCC health care providers\(^8\)
- No: See Box A

\(^1\) Patient symptomatic with polyuria, polydypsia, nausea/vomiting

\(^2\) i-STAT or sent to lab

\(^3\) If patient has an anion gap > 12 [anion gap = sodium – (chloride + bicarbonate)] without a metabolic acidosis (bicarbonate < 18 mEq/L) or a normal anion gap metabolic acidosis (bicarbonate < 18 mEq/L and anion gap ≤ 12), DKA is not likely and other etiologies should be evaluated based on patient risk factors

\(^4\) If anion-gap metabolic acidosis based on i-STAT results, send STAT basic metabolic panel 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 Hand-Off Communication Policy (#CLN0513)
**SUGGESTED READINGS**


MD Anderson Institutional Policy #CLN0513 - Hand-Off Communication Policy


This practice consensus statement is based on majority opinion of the Peri-operative Glucose Management experts at the University of Texas MD Anderson Cancer Center for the patient population. These experts included:

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