

**Guidelines for Pre-operative and Pre-procedure Preparation of
Adult Patients with Diabetes Mellitus (DM)**

1. A detailed assessment of each individual with diabetes is recommended because of many factors that influence blood glucose management. Specific guidelines will not fit every patient's needs. In particular, consider the following criteria when making decisions about preoperative and preprocedure diabetes medications:
 - Type 1 or type 2 diabetes – many patients are wrongly categorized; type 1 should **never** have all insulin withheld
 - Age of DM onset and duration of diagnosis – type 1 & 2 can occur at any age; long duration (over 10 years with type 2) usually means greater insulin deficiency
 - Body habitus: overweight people have more insulin resistance and require larger amounts of insulin for control
 - Type/amount/frequency of medication(s) being taken
 - Continuous insulin therapy started within 6 months of diagnosis – usually means severe insulin deficiency or type 1
 - Co-morbid conditions – document extent of complications to help avoid worsening during procedure, e.g., neuropathic, insensate feet need protection to prevent pressure ulcers
 - Blood glucose control – assess recent hemoglobin A1c result and self-monitored glucose log
 - Ability to recognize symptoms of hypoglycemia and treatment used for hypoglycemia; hypoglycemia guidelines include treating blood glucose 80 mg/dl or below with 15 grams glucose, retesting glucose in 15 minutes, and retreating/retesting every 15 minutes until glucose is at least 100 mg/dl
2. Schedule procedures early in the day or “first case” is best for those individuals with diabetes.
3. **In general, for patients with type 1 DM:**
 - **Always continue basal insulin source (NPH, Lente, Ultralente, glargine, insulin pump or intravenous insulin infusion) in order to prevent ketoacidosis;** dose may need to be adjusted for peaking insulin, i.e. NPH, Lente, Ultralente
 - **Omit fast- or rapid-acting (Regular or Humalog) injected insulin the morning of procedure**
 - **Page Diabetes Consult Service Fellow-on-call (PIC 1676) for patient using an insulin pump or for complex or high risk patients**
 - NPH insulin
 - i. Give usual dose the night before procedure
 - ii. Give 2/3 usual dose the morning of procedure; note that intravenous dextrose may be needed to decrease risk of hypoglycemia*

- iii. For a long procedure (over 4 hours), omit all subcutaneous insulin and start intravenous insulin infusion the morning of procedure; use insulin infusion protocol when indicated

*Postprocedure, test blood glucose and give remainder of usual morning dose of basal insulin with extra rapid- or short-acting insulin as needed.

- Glargine insulin (Lantus)
 - i. For patients taking glargine at bedtime, give the usual dose the night before procedure
 - ii. For patients taking glargine in the morning, give the usual dose the morning of procedure
 - iii. For a long procedure (over 4 hours), omit all subcutaneous insulin and start intravenous insulin infusion the morning of procedure

4. In general, for patients with type 2 DM:

- **Omit fast- or rapid-acting injected insulin the morning of procedure**
- **Page Diabetes Consult Service Fellow-on-call (PIC 1676) for patient using an insulin pump or for complex or high risk patients**
- NPH insulin
 - i. As for type 1 DM above
- Glargine insulin (Lantus)
 - i. For patients taking glargine at bedtime, give approximately $\frac{3}{4}$ usual dose the night before procedure
 - ii. For patients taking glargine in the morning, give approximately $\frac{3}{4}$ usual dose the morning of procedure
 - iii. For long procedure (over 4 hours), omit all subcutaneous insulin and start intravenous insulin infusion the morning of procedure; use insulin infusion protocol when indicated
- Oral medications
 - i. Omit glucophage XR the evening before procedure or for longer if the patient will be NPO longer or has decreased intake as part of the prep
 - ii. Omit glucophage and glucophage XR the morning of procedure
 - iii. Hold sulfonylureas and nonsulfonylurea secretagogues the morning of procedure; they can be restarted when patient can eat usual meals;
Exception: Hold Diabinese (chlorpropamide) 24 hours prior to procedure
 - iv. Thiazolidinediones may be continued if used as monotherapy unless concern exists for fluid retention
 - v. Patients taking 2 or more oral agents should be placed on insulin in the perioperative period
 - vi. Hold alpha-glucosidase inhibitors until patient is eating usual meals