

MARYLAND ENDOCRINE PA

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Type 2 Diabetes in the Peri-operative Period

DATE:

TO: **Anesthesiology/Surgery/Hospitalist**

Re:

DOB:

This patient has type 2 diabetes and uses multiple daily injections. Such patients generally make little insulin and thus need insulin whether they eat or not. They are well enough controlled from a diabetes standpoint to proceed with a procedure or surgery, with the following instructions on handling their diabetes.

Total Daily Dose:	XX units per day
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Endocrinologist:

Contact:

- Rapid-acting insulin (_____) is injected subcutaneously to both cover meals and give correction insulin to lower blood glucose
- The basal insulin (_____) is the patient's background or basal insulin and is needed to prevent the development of diabetic ketoacidosis (DKA) whether or not the patient is eating.
- Basal insulin should generally be $\frac{1}{2}$ of the patient's total daily insulin dose.
- **The patient needs basal insulin whether or not they eat.**
- **"Sliding scale" insulin is NEVER an adequate replacement for basal insulin and can result in the development of *iatrogenic* diabetic ketoacidosis.**

Medical Staff Instructions

- Post op, the patient's basal insulin must be replaced by either continuous IV insulin infusion or a SQ regimen that includes scheduled basal insulin (NPH human insulin, insulin glargine/Basalgar/Lantus/ Semglee/Toujeo, insulin detemir/Levemir or insulin degludec/Tresiba), **and not just a "sliding scale."**
- If the patient is eating, then pre-meal rapid-acting insulin (insulin aspart/NovoLog; fast insulin aspart/Fiasp; insulin lispro/Humalog-Admelog, insulin lispro-aabc/Lyumjev; insulin glulisine/Apidra; or human regular insulin) will also be needed.
- If the patient were to develop low (<90 mg/dL) blood glucose **before the operation and if IV is not available**, consider oral glucose tablets or glucose gel as treatment if allowed by the requirements of the procedure. NOTE: glucose tablets or gel leave no residual material in the stomach. If unable to take by mouth, then IV glucose is needed as **discussed below**.

- Blood glucoses should be checked every 30-60 minutes while the patient is under anesthesia and treatment with IV glucose given for a level <90 mg/dL. **If the patient is using a continuous glucose monitor system (CGM) (see below), the results should not be acted on without fingerstick verification, since accuracy in an operative environment is uncertain.**
- If the patient develops hypoglycemia **during** the operation, then IV glucose should be given immediately to correct the low blood glucose.

If patient uses a Continuous Glucose Monitor (CGM) for their blood glucose monitoring:

- Not applicable, this patient is not on CGM
- Patient using CGM
 - Dexcom G6 or G7
 - Freestyle Libre
 - Guardian Connect with Medtronic (530G, 630G, 670G, 730G, 770G, 780G)
 - Eversense implanted CGM
- The CGM device reading should not be used without verification during surgery because accuracy in an operative environment is not certain. For example, the person lying on the sensor can lead to a falsely low blood glucose reading.
- Blood glucose monitoring via fingerstick or lab with fast turnaround is recommended as verification.
- If on a Medtronic CGM: Post-op, once it is feasible, s/he should not be given medications that contain acetaminophen-APAP because they give a false high glucose reading with Medtronic CGM. Once the patient is off such medications, s/he should be able to restart use of their Medtronic CGM, which they can do themselves.
- If on a Dexcom G6/G7, Freestyle Libre, or Eversense CGM, s/he may be given medications with APAP without affecting the accuracy of the CGM device.

If you have any questions, call the physician responsible for the patient's diabetes care, or if admission needed, consult an endocrinologist or diabetes team if available.

Patient Instructions:

**Bring this letter with you when going for your surgery or procedure.
Remember to bring CGM (if applicable) supplies with you.**

Adjustments in insulin around surgery:

- Night before: _____
- Day of surgery: _____
- After Surgery: _____

Always call with questions if you are not sure what to do about your insulin.

Signed