After determination that a viability study is required for a given inpatient at [insert hospital name], the imaging physician will discuss the insulin glucose protocol with the patient’s nurse preferably in person whenever feasible (or on phone) and place viability orders in the computerized prescriber order entry (CPOE) system. The majority of these patients are cared for on the medical cardiology units. Contact these units if nursing information resources are needed. The steps of the procedure are listed below (adapted from American Society of Nuclear Cardiology PET Guidelines): <http://www.asnc.org/imageuploads/ImagingGuidelinesPETJuly2009.pdf>

* **For inpatients**: All orders must be entered into CPOE system, including
  + Initial fingerstick for baseline blood glucose level
  + Order for oral Trutol® [replace with name of glucose tolerance test beverage used in hospital], specifying dose
  + All repeat fingersticks
  + IV insulin administration per PET protocol
  + All doses are administered by intravenous push (IVP) (Refer to Insulin Drug-administration Guideline for IVP guidelines) [insert link to hospital guideline]

# Determine the fingerstick blood glucose level and give oral Trutol® if needed (see below)

Depending on fingerstick blood glucose level, proceed as follows:

* + If blood glucose is <150 mg/dL: Give 50 g of Trutol® (one full bottle) orally.
  + If blood glucose levels are 150-250 mg/dL: Give 25 g of Trutol® orally (half bottle).
  + If blood glucose levels are >250 mg/dL: Do not give Trutol®. Contact imaging physician [insert pager and/or phone number].

# 2. Repeat blood glucose levels 30-45 minutes after oral Trutol®

30-45 minutes after Trutol® administration check fingerstick blood glucose level, and call imaging physician [insert pager and/or phone number] to initiate the PET sliding scale insulin protocol.

# Proceed with IVP insulin administration if needed as follows

* 1. **If blood glucose is <140 mg/dL:** Repeat blood glucose in 10-15 minutes to confirm value. Call [insert phone number] to inform Nuclear Medicine technologist if blood glucose level <140 mg/dL for [F-18]-2-deoxyglucose (FDG) injection.

1. **If blood glucose levels are ≥140 mg/dL:** Administer regular insulin IVP based on the recommended doses in **Table 1** below for the following patients:

# Table 1. Suggested sliding scale of IVP regular insulin doses based on blood glucose level for

* + Non-diabetics
  + Diabetics on oral hypoglycemic medications only
  + For diabetic patients on insulin, when total daily insulin dose is more than 30 units
  + For diabetic patients on insulin whose total daily insulin dose is less than or equal to 30 units and **does not include** rapid acting insulin (regular, Humalog, Novolog, Apidra), insulin combinations (e.g., 75/25), and/or mealtime insulin injections

|  |  |
| --- | --- |
| **TABLE 1** | |
| *If blood glucose level is* | *Administer the following dose of r****egular insulin*** *IVP initially, and every 15 minutes afterward based on fingerstick blood glucose until* blood glucose level is **<** 140 mg/dL |
| >200 mg/dL | 5 units and notify physician |
| 180-200 mg/dL | 4 units |
| 160-180 mg/dL | 3 units |
| 140-160 mg/dL | Contact imaging fellow, who will determine if insulin is needed |
| <140 mg/dL | Do not give insulin |
| Adapted from American Society of Nuclear Cardiology PET Guidelines <http://www.asnc.org/imageuploads/ImagingGuidelinesPETJuly2009.pdf> | |

1. **If blood glucose levels are ≥140 mg/dL:** administer regular insulin IVP based on the recommended doses in **Table 2** below, for the following patients:

# Table 2. Suggested sliding scale of IVP regular insulin doses based on blood glucose level for

* + Diabetic patients on insulin, whose total daily insulin dose is less than or equal to 30 units and **includes** rapid acting insulin (regular, Humalog, Novolog, Apidra), insulin combinations (e.g., 75/25) and/or multiple injections of insulin (basal plus with each meal)

|  |  |
| --- | --- |
| **TABLE 2** | |
| *If blood glucose level is* | *Administer the following dose of* ***regular insulin*** *IVP initially and every 15 minutes afterward based on fingerstick blood glucose until* blood glucose level is **<** 140 mg/dL. |
| >200 mg/dL | 3 units and notify physician |
| 180-200 mg/dL | 2 units |
| 160-180 mg/dL | 1 unit |
| 140-160 mg/dL | Contact imaging fellow, who will determine if insulin is needed |
| <140 mg/dL | Do not give insulin |

# Check fingerstick blood glucose 10-15 minutes after each dose of IVP regular insulin administration

# If the blood glucose level is ≥ 140 mg/dL, continue IVP regular insulin administration and serial blood glucose measurement at 15 minute intervals per appropriate Table until the blood glucose level is < 140 mg/dL.

1. **Once blood glucose levels are < 140 mg/dL:** Repeat blood glucose measurement in 15 minutes to confirm value and if blood glucose remains < 140 mg/dL, inform Nuclear Medicine technologist [insert phone number]
   * FDG will be injected intravenously when blood glucose is < 140 mg/dL. About one hour after injection of FDG, the patient will be called to Nuclear Medicine for imaging.

# Continue checking fingerstick blood glucose every 15 minutes even after injection of FDG until blood glucose level is stable

* + Stabilization refers to two fingerstick blood glucose measurements with no decline in glucose within 10 mg/dL.

# If in doubt at any point, please page imaging fellow [insert pager number] to clarify

**8.**  **Inform patient about the possibility of hypoglycemia (if IVP regular insulin was given).** Explain symptoms associated with hypoglycemia and instruct patient accordingly. If patient becomes hypoglycemic (fingerstick blood glucose < 70 mg/dL, follow [insert hospital name] Hypoglycemia protocol). Page imaging fellow immediately. [insert link to hypoglycemia protocol]