Glucose Control Audit Tool

# Introduction

## ***Problem Statement***

While debate continues about its exact numeric value, euglycemia should be maintained perioperatively to prevent surgical site infection. Research suggests an association between hyperglycemia and post-operative complications. Perioperative blood glucose management is a complex process that requires the coordination and responsiveness of systems within and outside of the operating room. It may be difficult to achieve.

## ***Purpose of This Tool***

The purpose of this tool is to help your safety program team understand how consistently your patients maintain euglycemia throughout the perioperative period. It can help your team identify practice patterns, so you can more easily pinpoint opportunities for intervention.

## ***Please Adapt This Tool***

A team of clinicians designed this tool to evaluate glucose control in their hospital. They selected 180gm/dL as the threshold for hyperglycemia according to their hospital’s protocol. You may use a different hyperglycemia threshold in your hospital. A 2017 guideline from the Centers for Disease Control and Prevention recommends perioperative glycemic control using a target blood glucose level less than 200 mg/dL.[[1]](#footnote-1) It did not identify clinical trial evidence to support a lower target, but noted that some other organizations have made recommendations based on observational evidence. Please modify this tool to best fit your team’s needs, processes and standards.

## ***How To Use This Tool***

Complete the data table included in this tool. We recommend that you collect data from 10 surgical patents, but there is no right or wrong number of patients to review. The more patients you review, the more likely you are to identify opportunities to improve your perioperative blood glucose management.

The data you collect are for your internal use only. How you collect this data is up to you. A safety program team member may collect data retrospectively from patient charts. Alternatively, you can attach this data table on the patient chart and complete it in real time as the patient moves through your perioperative area. Only your team knows the approach that will work best in your perioperative area.

## ***How To Use Audit Data***

Though data collection may involve only a few team members, the entire improvement team is responsible for creating a cohesive plan to address performance gaps. If the data reveal variation in blood glucose management, the improvement team can design a quality improvement intervention to address it. Teams should also include a plan to use the collected data to evaluate the impact of their plan through changes in glucose management variation. You can use the materials in the AHRQ Toolkit to Promote Safe Surgery, such as the Surgical Complication Prevention guide, to guide your team through the quality improvement intervention design process.

# Instructions for Glucose Control Audit Tool Data Table

Questions 1–3: Document the patient’s name and medical record number and the date of their operation (postoperative day 0).

Question 4: Document the patient’s most recent blood glucose within 30 days prior to surgery. This may be the glucose value from a metabolic panel obtained as part of the preoperative evaluation, or a finger stick taken the day of surgery.

Question 4: Assess if the patient’s blood glucose was greater than the selected target level (e.g., 180 gm/dL) preoperatively.

If no, skip question 5 and proceed to question 6.

Question 5: If yes, then indicate if patient was on preoperative insulin or an oral antihyperglycemic medication.

Question 6: Document the patient’s highest blood glucose reading measured intraoperatively or subsequently on the operation day, defined as postoperative day 0.

Question 7: Document the patient’s highest blood glucose reading measured during the first postoperative day.

Question 8: Document the patient’s highest blood glucose reading measured during the second postoperative day.

If the patient **did not** have a blood glucose measurement above 180 gm/dL on postoperative days 0, 1, or 2, do not enter any further data.

If the patient **did** have a blood glucose measurement above 180 gm/dL, please complete questions 9 and 10.

Question 9: Indicate whether a hyperglycemia management regimen was initiated in the perioperative period.

Question 10: If insulin or an antihyperglycemic was given, specify at which point during the perioperative period at which the insulin or oral antihyperglycemic was initiated.

# Glucose Control Audit Tool Data Table

| **PARAMETER** | **DATA** |
| --- | --- |
| 1. Patient name |  |
| 1. Medical record number |  |
| 1. Date of operation (postoperative day 0) |  |
| 1. Most recent preoperative blood glucose   (<30 days preoperative)  Was blood glucose >180 gm/dL?  If NO, skip to question 6. | \_\_\_\_\_\_gm/dL or NA  Yes □ No □ |
| 1. Was patient on insulin or an oral antihyperglycemic medication preoperatively? | Yes □ No □ |
| 1. Highest blood glucose intraoperative or other time on postoperative day 0 | \_\_\_\_\_\_gm/dL or NA |
| 1. Highest blood glucose postoperative day 1 | \_\_\_\_\_\_gm/dL or NA |
| 1. Highest blood glucose postoperative day 2   If the patient **DID NOT** have a blood glucose measurement above 180 gm/dL, stop here. Do not enter any further data.  If the patient **DID** have a blood glucose measurement above 180 gm/dL, continue completing data table. | \_\_\_\_\_\_gm/dL or NA |
| 1. Was insulin or an oral antihyperglycemic medication ordered in the perioperative period? | Yes □ No □ |
| 1. If YES to question 9, at what point was the insulin or oral antihyperglycemic used? | Preoperative □  Intraoperative □  Postoperative □  *(Check all that apply)* |

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1. 1. Berrios-Torres SI, Umscheid CA, Bratzler DW, et al. Centers for Disease Control and Prevention Guideline for the Prevention of Surgical Site Infection, 2017. JAMA Surgery. 2017;152(8):784-791.

   [↑](#footnote-ref-1)