Implementation of an Intraoperative Glucose Management Clinical Decision Support System in the Electronic Health Record

PURPOSE
The purpose of this project was to improve anesthesia provider adherence to an existing evidence-based intraoperative glucose management (IGM) guideline available by email and implementing the guideline into the electronic health record (EHR) as a clinical decision support system (CDSS) tool.

BACKGROUND
The project was conducted to control intraoperative glucose levels for patients with diabetes mellitus within the intraoperative setting of a large hospital system.

METHODOLOGY
An IGM CDSS was implemented in the EHR system (Electronic Privacy Information Center or EPIC) to provide automated reminders every two hours from “Anesthesia Start” time cuing anesthesia providers in real-time to check blood glucose according to evidence-based guideline parameters and provide direct access to the institutional IGM guideline via a “Glucose Management” hyperlink within the EHR.

RESULTS
Post-project implementation, there was a 63% increase in the glucose testing of patients with diabetes every two hours from “Anesthesia Start” time. Of the diabetic patients who had glucose tested, there was a 25% increase in the identification of patients with glucose levels greater than 180mg/dL, and a 38% improvement in glucose levels in the target zone of less than 180 mg/dL.

IMPLICATIONS
Bridging computerized CDSS with healthcare has revolutionized practice for healthcare professionals. The IGM CDSS project is an example of the advantage of using a CDSS to aid in management and treatment of diabetes. The IGM CDSS improved anesthesia provider compliance to the institution’s IGM guideline and intraoperative glucose parameters.