

## Improving Hyperglycemia in the Hospital: Outcomes of a Nursing In-Service to Evaluate Acceptance of a Web-Based Insulin Infusion Calculator

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### Abstract

#### **Background:**

Many insulin infusion protocols are available for clinical use. We developed a Web-based, online intravenous insulin infusion calculator (IVIIC) for use in our intensive care and medical–surgical units.

#### **Methods:**

In September 2006, we implemented a quality improvement project: an online survey to evaluate the acceptance of this protocol by the nursing staff. Of the 103 registered nurses (RNs) who participated, there was no difference among experience levels of the RNs ( $\geq$  or  $<$ 5 years) or among durations that RNs had been working within their unit ( $\geq$  or  $<$ 2 years).

#### **Results:**

The nurses were surveyed regarding the use and interpretation of the protocol, their comfort with, confidence in, and experience in using the protocol. More than 80% of the RNs found the protocol easy to implement, easy to interpret, and successful in controlling the blood glucose levels. Approximately 71% ( $\pm 9\%$ ) of the RNs were comfortable with the tight blood glucose levels of the protocol. The nurses' confidence with the protocol was 82% ( $\pm 8\%$ ), likely because 70% ( $\pm 9\%$ ) of the nurses believed the training to be adequate. Significantly less than 25% of the RNs ( $18 \pm 7\%$ ) believed it was necessary to deviate from the protocol. More than 85% of the RNs appreciated the ability to make changes at their level of practice ( $92 \pm 5\%$ ).

#### **Conclusions:**

In summary, the IVIIC is well accepted by RNs for care of hyperglycemia in a hospital setting.

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**Abbreviations:** (ADA) American Diabetes Association, (BG) blood glucose, (CDE) certified diabetes educator, (CTICU) cardiothoracic intensive care unit, (D50W) 50% dextrose in water, (DKA) diabetic ketoacidosis, (HDTF) hospital diabetes task force, (HHNK) hyperglycemic hyperosmolar nonketotic coma, (HTML) hypertext markup language, (ICU) intensive care unit, (IV) intravenous, (IVI) intravenous insulin, (IVIIC) intravenous insulin infusion calculator, (IVP) intravenous push, (MAR) medication administration record, (MUSC) Medical University of South Carolina, (RN) registered nurse, (SCIP) Surgical Care Improvement Project

**Keywords:** diabetes, hyperglycemia, hypoglycemia, intravenous insulin, nursing, patient safety

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