IV GlucoStabilizer: How Insulin and Dextrose 50% are calculated

The IV GlucoStabilizer is a computer program calculator for insulin dosing and calculates the insulin requirements based on glucose measurements, and carbohydrate intake.

How does the calculator work?
(Blood glucose – 60) x the multiplier = infusion rate.
The multiplier is the factor in the equation that determines the infusion rate. The standard default multiplier at initiation of the program is 0.02 but may be customized to the individual needs of your patient (ie. 0.01 for the type 1 patient). The multiplier then adjusts automatically in the program related to the glucose value.

- The multiplier increases by 0.01 when blood glucose is above ordered target range to provide more insulin.
- The multiplier decreases by 0.01 when blood glucose is below ordered target range to provide less insulin.
- The program acts on the current blood glucose and looks at previous use in the multiplier.

Example: multiplier is 0.04; target range is 100-150 mg/dl; blood glucose 165 mg/dl
Multiplier increases by 0.01 to 0.05
Program calculates (165-60) x 0.05 = 5.25 units/ hour

Example: multiplier is 0.04; target range is 100-150 mg/dl; blood glucose is 95 mg/dl
Multiplier decreases by 0.01 to 0.03
Program calculates (95-60) x 0.03 = 1.05 units/ hour

An audible alert will notify the nurse when blood glucose measurements are needed and when insulin dosing is due.

Carbohydrate coverage is also calculated (total grams of carbohydrate / carbohydrate ratio = units IV bolus Regular) Grams of carbohydrate: - the total number of grams of carbohydrate that are consumed during a meal or bolus of tube feeding. The standard default carbohydrate ratio is 1:10 but may be customized to the individual needs of your patient.

A hypoglycemic treatment dose is calculated for the nurse to give the patient based on the blood glucose level (100-blood glucose x 0.4) = Dextrose 50 % dose. The insulin infusion is held until the glucose is above hypoglycemia threshold (greater than 70 mg/dL, 60 mg/dL in pregnancy). There is a 15 minute follow up alarm to the hypoglycemic episode to remind the nurse to re-check the blood glucose and assure resolution of hypoglycemia.

If 3 or more blood glucose values of the past 8 are 70 mg/dL or less (60 mg/dL or less in pregnancy), the multiplier will automatically reduce by 50%, cutting the infusion rate in half.