

Insulin Measurement in safeMedicate

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Following feedback from some administrators and students, we recently changed to include only the 50 units/0.5mL insulin syringe within the practices and assessments of the **safeMedicate** Future Nurse Suite. Based on educator input, we decided to remove the 100 unit/mL syringe because some users were incorrectly using this syringe to measure odd-number (e.g., 3, 5, 7, 9 insulin unit doses) on a graduation measure marked in even-numbered unit graduations (e.g., 2, 4, 6, 8, 10-unit doses). This was leading to confusion by users who chose the less accurate syringe and believed their “guesstimate” was correct. **safeMedicate**’s Learning Environment continues to illustrate and explain the design of the two typical insulin syringes, the 50 unit/0.5mL syringe and the the U-100 syringe (100 units/1mL and 50 units/ 0.5mL), commonly used in clinical practice.

To reinforce that ONLY INSULIN SYRINGES should be used to measure insulin doses, and to highlight the syringe to be selected and used for measuring insulin within the safeMedicate Future Nurse Suite, the insulin syringe barrels in **safeMedicate** are clearly marked with the measurement nomenclature ‘UNITS,’ to distinguish them from 1mL capacity and other capacity volumetric syringes. Volumetric syringes are not designed to measure units of insulin and should NEVER be used to measure insulin doses. This is a MAJOR PATIENT SAFETY issue that is well documented across the globe as being the cause of patient morbidity and death due to significant overdoses of insulin being measured and administered via volumetric parenteral syringes.

The rationale for only using an insulin syringe to measure units of insulin doses, and why the use of a 1mL or other capacity volumetric parenteral syringe is specifically contraindicated for the measurement of insulin is:

- Insulin is not dosed using conventional SI unit measurements, e.g., mg/mL.
- Insulin is measured using a standardized international unit (IU): 1 International Unit (IU) = 0.0347mg insulin human.
- Insulin must be measured in insulin syringes calibrated using this international unit graduation, and not via volumetric parenteral syringes, calibrated using SI units of volume (mL), or decimal fractions of SI units of volume (0.1mL, 0.01mL, etc).