

Considerations when Evaluating Formulary Status of Newer Concentrated Insulin Pens

- ✓ **The primary roles of hospital pharmacists in ensuring safety of concentrated insulin use start with formulary decisions.**
 - Formulary decisions set the stage for everything else....
 - Insulin policies and procedures establish expectations for standardized care.
 - System design should support policy and procedure and take into account human imperfections and behavioral choices.
 - Good communication between healthcare professionals and the patient ensures the patient understands care they are receiving and that transitions of care are made appropriately.
- ✓ **Differing factors to consider with newer insulins on formulary**
 - For most commercially-available insulins, formulary decisions would be considering efficacy, safety, cost, and whether to stock in either a pen or vial. While the option to stock as either a pen or a vial is now true for U-500 insulin, other concentrated insulins are only available in pen format.
- ✓ **For U-500 regular insulin....improved safety**
 - For the past 64 years, U-500 regular insulin has been only been available in a vial with patients using either a U-100 insulin syringe to measure the dose in U-100 units or a tuberculin syringe to measure the dose in milliliters. Recently, the introduction of a U-500 pen and also a syringe specifically designed to measure U-500 insulin promise to significantly improve administration safety.

- Pen
 - 3 mL (1,500 units)
 - 5-unit increments
 - 5 – 300 units per injection

- Vial and U-500 syringe
 - 20 mL (10,000 units)
 - 5-unit increments
 - 5 – 250 units per injection



Actual doses displayed: Conversions eliminated!

ISMP Newsletter Acute Care Edition. July 14, 2016 (permission to use image).
Humulin R U-500 prescribing information. Indianapolis, IN: Eli Lilly and Company. July 2016.

Considerations when Evaluating Formulary Status of Newer Concentrated Insulins in Pens

- ✓ **Formulary decision-making for U-500 and the newer concentrated insulins will likely be influenced by whether or not the hospital already has insulin pens on formulary**
 - Staff education
 - A hospital already using pens is likely to have nursing and pharmacy staff familiar with appropriate preparation and administration procedures, and to have these procedures well-outlined and reinforced by regular education.
 - In a hospital not already using pens, staff may be unfamiliar with appropriate pen use. Policies and procedures and education to help ensure appropriate use must be developed. It is possible a nurse's ability to maintain insulin pen use competency may be hindered by the low frequency of using concentrated insulins.
 - System safety measures
 - Hospitals without insulin pens on formulary need to develop system safety measures to ensure appropriate preparation, dispensing, storage, and administration. Hospitals with other pens in use need to apply existing measures with or without slight modifications.
 - Pen needles
 - While most hospitals already stocking insulin pens on formulary may have pen needles provided on the patient care units, this may not be practical in hospitals only providing concentrated insulins in pen form, due to low use. In this case, pharmacy may need to provide pen needles upon dispensing the pen.