Insulin Issues with New U-500 Syringes

Since the introduction of the new BD U-500 insulin syringes, there have been reports of confusion with patients who were previously using a U-100 insulin product. The following errors have occurred:

- **Wrong insulin concentration:** U-500 syringes should only be used to measure insulin concentrations of U-500. If a patient is currently using a U-100 insulin product with the new U-500 syringe, the measurement could result in a 5-fold under-dosage.
- **Prescribing mistakes:** U-500 syringes have been prescribed in error within electronic prescribing systems as the U-500 designation often comes at the end of the product name. Administrators and pharmacists should move "U-500" to the beginning of the entry to make it more prominent.
- **Lack of needle guard:** U-500 syringes do not include a needle guard to protect staff from needle stick injuries. Some hospitals will not stock the syringe without this safety feature making it difficult for staff to educate patients on the proper use of the syringe. If U-500 syringes are not stocked, staff may consider using the U-500 insulin pen to prevent dosing errors.
- **Limited to 250 units:** U-500 syringes measure up to 250 units and U-500 pens measure up to 300 units. While many patients are typically prescribed lower doses, some patients may require more than 250 or 300 units per dose. Higher doses may force practitioners to administer the insulin in two subcutaneous injections or to revert to using tuberculin (TB) or U-100 syringes.
- **"Syringe unit" errors:** Remind staff that when reconciling drug histories, to confirm the type of insulin syringe the patient is using when they state their dose. If the patient is still using a U-100 syringe with U-500 insulin vials and they state their dose in "syringe units", they may incorrectly receive the wrong dose.
- **Mix-ups at home**: there is a risk of mix-ups and errors if multiple family members in the same household use insulin with different concentrations and if both U-500 and U-100 syringes are available. Educate patients and family members to take extra precautions to ensure they are utilizing the correct syringe with their prescribed insulin concentration.

References

1. Institute for Safe Medication Practices. (2017). *Nurse Advise-ERR.* Retrieved from Institute for Safe Medication Practices: http://www.ismp.org/newsletters/nursing/issues/NurseAdviseERR201708.pdf