

What Peer Review?

Sally Houston, MD, Sr. VP/CMO
Chuck Bombard, Director, Quality Improvement

For those who may not be aware, and there appear to be a few, the medical staff peer review process is alive and well at Tampa General Hospital. There is a very active Medical Staff Peer Review Committee that meets on a monthly basis and Committee members represent most specialties practicing at the hospital. The Committee is chaired by a physician appointed by the Chief of Staff and Committee members are selected and appointed in the same manner. The peer review process is governed by hospital policy PI-5 and overseen by the office of the Chief Medical Officer. Medical staff peer review is mandated by the Joint Commission and is subjected to evaluator scrutiny during triennial surveys.

Each month requests for peer reviews are funneled through the Chief Medical Officer and processed by the Quality Improvement Coordinator, Stacy Himert, who runs the Physician Peer Review Office. Stacy selects a peer reviewer from the Committee or from a specialty not represented on the Committee to review cases. A case is always reviewed by a peer from the same specialty; however, given the complexity of our patients, the case may be reviewed concurrently or subsequently by a different specialty, pharmacy or nursing to assure that all aspects of care are evaluated. Following the review, the reviewer is then responsible for presenting the case to the Committee.



At Committee meetings, cases are discussed in confidence and there is a hospital attorney present to insure availability of legal expertise. Most cases are determined to meet a standard of care equivalent to that provided by peers; however, there are a number of cases where the standard of care differs from care provided by peers. When such a determination is made, the case is discussed with the attending physician by the Peer Review Committee member reviewing the case, the Chief of the Section/Department, or the Chief Medical Officer.



The peer review process is an integral part of our performance improvement effort at Tampa General. While peer review is used primarily as an educational vehicle to improve the quality of medical services provided by the hospital, it may detect substandard patterns of care or individuals with questionable skills. When this occurs, the physician is referred to the medical staff leadership, which may take corrective action following an investigation. However, the emphasis of the Peer Review Committee is to look for process improvements that can help prevent errors from occurring in the future. The committee is dedicated to improving patient safety at Tampa General.

Humulin® R U-500: Concentrated Human Insulin Regular

Amy Talmage, PharmD



Severe insulin resistance is defined as requiring greater than 200 units of insulin per day or more than 2 units of insulin per kilogram per day.⁴ Patients requiring greater than 200 units of insulin daily are considered good candidates for a concentrated form of insulin called Humulin® R U-500. Humulin® R U-500 is a favorable treatment option in these patients as it is five times more concentrated than insulin U-100 (100 units per mL). Humulin® R U-500 (500 units per mL) allows for large doses of insulin to be administered less frequently, with a decrease in total daily volume of insulin, and, ultimately, a cost savings on insulin, on a unit per unit basis, and insulin supplies.⁴

As the incidence of insulin resistance grows, the use of Humulin® R U-500 is becoming more prevalent. Increased usage of Humulin® R U-500 and the risk for “look-alike/sound-alike” with regular insulin enhances the risk for medication errors. It is important that those prescribing, dispensing, and administering Humulin® R U-500 are knowledgeable of this high-risk medication, the differences between insulin products, and the policies and procedures for prescribing Humulin R® U-500 at Tampa General Hospital (TGH).

Due to its 5-fold increased concentration, Humulin® R U-500 has a prolonged duration of action of up to 24 hours that allows for less frequent, twice daily (BID), dosing.¹ Although a prolonged duration of action allows for less frequent dosing, this increases the risk for **delayed, secondary hypoglycemic reactions** that may occur 18-24 hours after injection.¹ Thus, it is important to monitor for delayed hypoglycemic reactions.

Another safety concern that sets Humulin® R U-500 apart from other insulin is related to the type of syringe used. Regular insulin syringes are designed specifically for insulin U-100. When regular insulin syringes are used for Humulin® R U-500, the dose does not correspond to the measurement units on the regular insulin syringe. To reduce the risk of error associated with this lack of correspondence, the Institute of Safe Medication Practices (ISMP) recommends that tuberculin (TB) syringes be used for Humulin® R U-500 administration.⁴ Nevertheless; patients on Humulin® R U-500 often use a regular insulin syringe at home because of greater availability, lower costs, and smaller needle size. The disparity in syringe types used in the community setting creates potential for dosing error upon admission to the hospital. It is imperative to ask all patients admitted to the hospital with Humulin® R U-500 how they administer their doses at home. **All patients should be asked what type of syringe is used at home, how many units per dose, and what measurement unit the insulin is drawn up to.** While regular insulin syringes may be used at home, **specially prepared, primed TB syringes are used exclusively at TGH for Humulin® R U-500 administration.** The formulas below can be used to convert units and volumes of Humulin® R U-500 based on the type of syringes used.

- Dosing in TB syringe: Humulin® R U-500 (actual units) x 0.002 = volume in TB syringe⁴
- Dosing in insulin syringe: Humulin® R U-500 (actual units) x 0.2 = unit markings on U-100 insulin syringe⁴

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When a patient is admitted to TGH, the provider must determine the exact dose of Humulin® R U-500 taken at home using a regular insulin syringe to convert to the correct volume of Humulin® R U-500 to be measured in a TB syringe.

Safety is also a consideration when prescribing Humulin® R U-500. Due to the increased risks associated with Humulin® R U-500, precise ordering of Humulin® R U-500 is essential. A **physician order must clearly state the dosage in units (of actual units of Humulin® R U-500) AND the volume (in mL) to be measured on a TB syringe.**³ Writing the order in both unit-measurements and volume-measurements reduces the risk of inaccurate interpretation of the physician order and ensures patients receive the correct dose. Additionally, **Humulin® R U-500 can only be administered subcutaneously.**⁴ Humulin® R U-500 cannot be given via the intravenous (IV) route.

The following is an example of how to correctly write an order for Humulin® R U-500:

Correct Order	3/1/11	Humulin R U-500 Inject 150 units (0.3 mL) SQ BID
	0800	Dr. Doctor

Below are some real life examples of inadequate orders for Humulin® R U-500 that had potential to or led to a medication error:

Incorrect Order #1	3/1/11	Humulin R U-500 45 units BID
	0800	Dr. Doctor

Correction of Incorrect Order #1	3/1/11	Humulin R U-500 225 units (0.45 mL) SQ BID
	0800	Dr. Doctor

The above incorrect order #1 does not specify the volume of insulin required in the syringe nor does it indicate the subcutaneous route of administration. With no specification of volume it causes risk for misinterpretation of the order. It is unclear whether the provider is indicating the patient receive 45 actual units of Humulin® R U-500 or if the provider is ordering the Humulin® R U-500 to be drawn to the 45 unit-measurement marking on a regular insulin syringe (corresponding to 225 units of Humulin® R U-500). In this case the provider is likely ordering the latter, as Humulin® R U-500 is indicated for those patients requiring greater than 200 units of insulin per day or more than 2 units of insulin per kilogram per day. The correct order should include both the actual dosage of Humulin® R U-500 in units AND the volume measured in a TB syringe.

Incorrect Order #2	3/1/11	Start Humulin R 500 120 units (24 units on the special syringe) SC BID w/ meals
	0800	Dr. Doctor

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Correction of Incorrect Order #2	3/1/11	Start Humulin R U-500 120 units (0.24 mL) SQ BID
	0800	with meals
		Dr. Doctor

TGH only uses TB syringes, as per ISMP's recommendations, to help reduce medication errors. This order should clarify, in parentheses, the volume of insulin prescribed.

The incidence of patients with severe insulin resistance treated with Humulin® R U-500 is increasing. Humulin® R U-500 is a very effective medication for this indication. As with other insulin, Humulin® R U-500 is listed on ISMP's list of high-alert medications and has potential to cause harm to patients if used inaccurately.² In particular, there is an even greater risk for harm with Humulin® R U-500 due to the 5-fold increased concentration and risk for "look-alike/sound-alike" with other insulin. It is important to maintain awareness of this high-risk medication. Obtaining the correct information from patients about home regimens and accurately prescribing, dispensing, and administering Humulin® R U-500 is crucial for patient safety and effective treatment of diabetes.

References:

1. Cochran, E. U-500 Insulin: When More With Less Yields Success. *Diabetes Spectrum*. 2009;22(2):116-122.
2. Institute for Safe Medication Practices. ISMP's List of High-Alert Medications. *ISMP.org*. 2008.
3. Samaan, KH, Dahlke, M, and Stover, J. Addressing safety concerns about U-500 insulin in a hospital setting. *Am J Health-Syst Pharm*. 2011;68:63-8.
4. Segal, AR, Brunner, JE, Burch, T, and Jackson, JA. Use of concentrated insulin human regular (U-500) for patients with diabetes. *Am J Health-Syst Pharm*. 2010;67(18):1526-1535.



Physician Resource Center (PRC)

**An on-line directory of the Medical Staff, AHPs, Nurse Managers/Directors/VPs,
Hospital Departments and Administration**

We are happy to announce that the Physician Resource Center is now available on the TGH Portal. The PRC has been designed to provide easy access to frequently requested contact information for Nurse Managers/Directors/VPs, Hospital Departments and Administration. Conveniently located below the PRC, is also an on-line directory of the Medical Staff and Allied Health Practitioners (AHPs) and Privileges. We encourage each of you to utilize the PRC, the Provider Profile and the Privileges Portal as you continue to strive to provide excellent patient care services.



WE'RE ON THE WEB
WWW.TGH.ORG

TGH Welcomes our new Physicians



The physicians below were added to TGH staff: 2/28/2011

Jose M. De La Torre, MD
David E. Eisenhauer, DO
Natasha L. Flemens, MD
Anne M. Lenz, MD
Leslie Miller, MD
Tri D. Nguyen, MD
Jamil U. Rehman, MD
Christopher J. Sutton, MD
Ivan Wilmot, MD

Physical Medicine & Rehabilitation
Orthopaedic Surgery
Obstetrics/Gynecology
Pediatrics
Internal Medicine/Cardiology
Radiological Services
Surgery/Urology
Anesthesiology
Pediatrics

KUDOS TO OUR PHYSICIANS!

Congratulations to the following physicians who were recognized by their patients in the form of personal letters to TGH leadership.

Dr. Ali Bozorg & Dr. Fernando Vale



This newsletter is produced by Tampa General Hospital's Quality Improvement Department.

All comments, responses or suggestions are welcome and should be directed to:

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