Are 10 mL syringes needed when giving drugs via venous access devices? There seems to be some confusion in the field about the syringe size needed for IV drug administration when a medication is administered via venous access devices (VAD) such as an implanted port or a peripherally inserted central catheter (PICC). It’s well known in IV therapy circles that smaller syringes create greater amounts of pressure than larger syringes during injection. The Infusion Nurses Society (INS) has identified that the pressure generated by the flush, if too high, can damage the catheter. INS standard 45 states, “To prevent catheter damage, the size of the syringe used for flushing and locking should be in accordance with the catheter manufacturer’s directions for use. Patency is assessed with a minimum 10 mL syringe filled with preservative-free 0.9% sodium chloride. Flush syringes holding a smaller volume and/or designed to generate lower amounts of pressure may also be used to assess patency.” (Infusion Nursing Standards of Practice, Standard 45. Flushing and Locking, Practice Criteria H.)

Unfortunately, in their labeling, some IV catheter manufacturers have extended this to also include IV medication injections as well. That, in turn, has understandably led hospitals to restrict IV injections of medication to syringes of 10 mL (or 10 mL diameter) or more. Readers may not be aware that this has often led to nurses emptying the contents of prefilled medication syringes under 10 mL into a 10 mL syringe prior to injection, defeating the entire purpose of unit dose syringes, such as Carpuject or pharmacy-prepared and labeled syringes. There are multiple dangers with this practice since it does not allow the ability to perform bedside medication barcode scanning. It can lead to partial loss of the dose, will likely result in unlabeled syringe contents, and will increase the chance of accidental contamination. This may also compromise accurate measurement of tiny doses of medication intended for pediatric patients. What has been missed is that the INS standard also states, “Administration of small quantities of medication should be given in a syringe appropriately sized for the dose required following confirmation of catheter access.”

In the 16th Annual CHEERS Awards: Feel the Rhythm of Change in Medication Safety

This month, ISMP celebrated 16 years of honoring organizations and individuals who have followed their own beat to make extraordinary advances in medication error prevention. The 2013 CHEERS awardees were recognized at a dinner held this week at the Cuba Libre restaurant in Orlando. Please join us in congratulating the following winners, who have set a superlative example for the entire healthcare community.

CHEERS rang out this year for the exceptional efforts of a hospital and a medical clinic system to help address crucial safety concerns:

Cook Children’s Medical Center in Fort Worth, TX, was commended for fully incorporating the use of barcode technology in the areas of medication storage, preparation, dispensing, and bedside administration. The technology has allowed them to implement a unique breast milk tracking system to eliminate identification errors, detect expired milk, and track correct feeding containers and storage locations. Cook Children’s also is able to fully prepare and dispense barcoded, patient-specific, weight-based unit doses for inpatients and most outpatients—including all oral liquids, pharmacy compounded solutions, multi-additive IV solutions, and parenteral nutrition. The medical center is able to dispense at least four barcoded batches of patient-specific medications to each unit daily, and in key critical areas, as often as every 2 hours. A long-term team project continues to make process modifications, including redesigning armbands to 2-D barcodes so that nurses do not have to wake a sleeping child to perform a scan.

The Marshfield Clinic in Marshfield, WI, is a large, nonprofit chain of medical clinics owned by a physician group practice. The Clinic has created a comprehensive drug safety alert program to communicate FDA warnings to staff and incorporate new information into clinical practice. As a first step, the Clinic’s Drug Evaluation Committee (DEC) evaluates safety concerns identified by prescribers, the FDA, and others to determine whether internal guidelines need to be changed.

In celebration of ISMP’s 20th anniversary as a nonprofit organization in 2014, we will be launching a national medication safety initiative: the 2014-2015 Targeted Medication Safety Best Practices for Hospitals.

This initiative is intended to mobilize widespread adoption of consensus-based best practices on safety issues that continue to cause harmful errors despite prior ISMP warnings. The Targeted Best Practices deal with the following key safety issues:

- Dispensing vincristine in a minibag of a compatible solution and not in a syringe.
- Using a weekly dosage regimen default for oral methotrexate, and educating patients.
- Measuring and expressing patient weights in metric units only.
- Requiring pharmacy to dispense oral liquids in an oral syringe if they are unavailable commercially as a unit dose.
- Purchasing oral liquid dosing devices that only display the metric scale.
- Eliminating glacial acetic acid from all areas of the hospital.

Learn more about the initiative in our January 16, 2014, newsletter or visit www.ismp.org/tools/BestPractices/TMSBP-for-Hospitals.pdf for more details.
We confirmed with INS that, in most cases, extemporaneous repackaging at the bedside is not necessary once patency has been confirmed. We also spoke to a representative from Bard Access Systems, one of the largest manufacturers of IV access devices. The representative told us that, with the exception of a 1 mL prefilled syringe, a strategy now being sanctioned for the company’s catheters and ports is to initially assess catheter patency with a saline flush using a syringe with the diameter of a 10 mL syringe. Once patency is assured, medication administration in a smaller diameter syringe is acceptable. The representative told us the company is changing product labeling to reflect this newer strategy arising from its research and development department. As the Bard representative pointed out, “Each facility will have to determine the best practice for their facility based on manufacturers’ recommendations and current nursing practice, and weigh the risks vs. benefits.”

Use of “NoAC” abbreviation.
A pharmacy student on a hospital internal medicine rotation had a patient admitted to the coronary care unit (CCU) with atrial fibrillation. The patient had been taking warfarin prior to hospitalization. A new order was written for amiodarone for the arrhythmia, but this drug can interact with warfarin and enhance its anticoagulation effect. Upon review of the patient’s medical record, the student and other team members saw a cardiology note that stated, “Patient is taking Coumadin and was placed on amiodarone. There is an interaction. Instead of adjusting the Coumadin dose, consider NoAC.” The entire medical team, the pharmacy preceptor, and the student, all assumed that this meant “Due to the potential interaction between warfarin and amiodarone, consider using no anticoagulants (discontinue the warfarin).” The cardiologist was contacted to confirm this interpretation. To everyone’s surprise, the physician said he was actually using the abbreviation “NoAC” instead of writing out the words “New (or novel) Oral Anticoagulant.” He meant that instead of warfarin, one of the direct thrombin inhibitors, such as dabigatran, should be considered. A quick search of the Internet revealed frequent use of the abbreviation “NoAC,” and its use has become more popular with the introduction of the newer anticoagulants. We’ll be adding “NoAC” to our “do not use” list of potentially dangerous abbreviations and strongly suggest cautioning providers not to use it clinically. It should be noted that drug interactions can occur between amiodarone and direct thrombin inhibitors.

A healthcare organization and a government agency were lauded with CHEERS for their tireless work to prevent errors and educate practitioners and patients:

AAMI Foundation Health Technology Safety Institute (HTSI) in Arlington, VA, which is part of the Association for the Advancement of Medical Instrumentation (AAMI) Foundation, has developed valuable tools and educational resources on infusion system safety. In October 2010, AAMI and the US Food and Drug Administration (FDA) held a national summit to discuss risks with infusion systems. As a result, HTSI was formed, and a steering committee was created to follow up on the ideas generated. The committee also develops the framework for novel research projects, including a 10-hospital study aimed at reducing IV errors. Free white papers, webinars, and other programs from HTSI have focused on crucial issues such as pump integration, multiple-line infusion errors, and clinical alarm safety. HTSI also has established a National Council for Healthcare Technology Safety that serves as its multidisciplinary advisory board, helping healthcare professionals create a safer environment for patients through healthcare technology.

Centers for Disease Control and Prevention (CDC) in Atlanta, GA, has made an important contribution to medication safety with its role in two groundbreaking projects—the Safe Injection Practices Coalition and the PROTECT Initiative. Led by CDC and the Safe Injection Practices Coalition, the “One and Only” campaign targets healthcare providers and consumers in an effort to eliminate infections and outbreaks from unsafe medical injections. The campaign provides free resources, including videos, tool kits, and printed materials in English and Spanish. The PROTECT Initiative, which CDC founded, is an innovative collaboration bringing together public health agencies, professional organizations, private sector companies, patient advocates, and academic experts to keep children safe from unintentional overdoses. PROTECT has successfully promoted the addition of flow restrictors to the neck of liquid medication bottles to limit access to the medicine in the home by children and to encourage use of calibrated dosing devices (oral syringes) rather than household spoons. In a hospital setting, the flow restrictors may also help prevent accidental administration of oral liquids by the IV route.

One dedicated individual also received CHEERS for her ongoing medication safety advocacy:
Deb Saine, MS, RPh, FASHP, until recently the Medication Safety Manager at the Winchester Medical Center in Winchester, VA, was honored as a nationally recognized patient safety expert who has created invaluable safety tools. She co-authored the 2013 Medication Safety Officer’s Handbook, which is being used in more than 15 countries, and has led numerous national-level committees working to improve medication safety. She spearheaded creation of the American Society of Health-System Pharmacists Medication Safety Section Advisory Group, and served as its first chair; that group’s efforts culminated in the first annual Medication Safety Collaborative held this year. Deb has mentored students, residents and peers, which has produced new safety leaders in the US and abroad.
During the 2013 ISMP Lifetim e Achievement Award:

David Classen, MD, is an innovator who has devoted most of his career to designing healthcare information technology tools and resources for improving patient safety. He worked with ISMP to create a CPOE/EMR "flight simulator" for the Leapfrog Group and National Quality Forum (NQF) that has been used to evaluate hundreds of inpatient and ambulatory EMR systems after implementation in the US and United Kingdom. He also helped develop a method for integrating multiple hospital computer databases with pharmacy systems to signal actual or impending adverse drug events, which is being utilized by more than 500 different healthcare organizations. He served on the Institute of Medicine committee on patient safety data standards and co-chairs the NQF’s Patient Safety Common Formats Committee.

Thanks are extended to the evening’s keynote speaker, James Conway, MS, FASHIP. Conway is an adjunct lecturer at the Harvard School of Public Health, and a well-known expert in healthcare administration, safety, change management, and patient-centered care. He spoke about the need for strong leadership in quality and safety in the face of healthcare reform, with its “waterfall-like” impact on practitioners. He called for the development of systems that make use of science and informatics, patient-clinician partnerships, outcomes-oriented incentives, and a continuous learning culture.

We also would like to thank the organizations and individuals who attended and/or supported this year’s CHEERS Awards Dinner and helped us celebrate these extraordinary leaders. Visit www.ismp.org/Cheers for a list of contributors and winners. We look forward to another great year of working together to improve medication safety in 2014.

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Special Recognition... 2013 ISMP Medication Safety Alert! Clinical Advisory Board

Production of this peer-reviewed newsletter would not be possible without the assistance of a reliable and talented clinical advisory board. As 2013 nears an end, we want to thank each of the following members of the advisory board for their dedication to making this newsletter a valuable medication safety resource for clinicians.

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Happy Holidays...We wish you joy, health, and happiness this holiday season!

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