




## IV Push Medications

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# IV Push Medications

## Guideline Summary

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## About the Guideline

- The panel consisted of 56 participants representing regulatory bodies, professional organizations, frontline providers, and product vendors, attending a two-day summit in September of 2014.
- The objectives of the summit were to:
  - Identify the most common *risks* associated with IV push administration of medications.
  - Establish *safe and simple standards* for adult IV push administration of medications.
  - Concisely *communicate safe practices* associated with IV push administration of medications.
  - Establish minimum *competency guidelines* across disciplines to ensure safety.

## Current Practice Considerations

- Safe and consistent intravenous (IV) therapy practices are essential skills in modern nursing, as >90% of hospitalized patient receive some form of IV therapy.
- The risk for patient death or injury due to IV medication errors is well established in the literature.
- Safe IV injection practices are not solely a nursing issue, but nurses remain the major stakeholder due to their role at the point of administration.
- According to a 2010 ISMP survey, pharmacists and nurses alike report a sharp increase in the amount of medication preparation and manipulation required by nurses on the clinical unit.

Current Practice  
Considerations  
(cont'd.)



## Current Practice Considerations (cont'd.)

- The most error-prone practices reported in the 2012 and 2014 ISMP surveys were related to misuse of Carpuject™ cartridges, and dilution/reconstitution of IV injectable medications.
- Learned workplace practices for IV push medications without a basis in sound, scientific evidence, lead to unsafe injection practices and normalization of deviance. It is the responsibility of all frontline providers to understand established safety practices and adhere to established standards.
- This guideline includes meaningful discussions with each safe practice guideline point, and it is strongly encouraged that all nurses be familiar this guideline and examine their own practices for compliance with established standards.

# Safe Practice Guidelines

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### **Acquisition and Distribution of Adult IV Push Medications**

- **Whenever possible, adult IV push medications should be supplied in a ready-to-administer form.**
- **Vascular access devices should be flushed and locked using pharmacy-prepared prefilled syringes, or commercially available equivalents of appropriate IV solutions.**
- **The use of prefilled syringes of ready-to-administer IV push medications will minimize the need for manipulation of drugs outside of sterile compounding areas.**

## Aseptic Technique

- Strict adherence to aseptic technique is vital at each step of the process, from preparation to administration of all IV push medications.
- Aseptic technique must include the following steps:
  - Hand hygiene prior to preparation as well as after administration of medications or solutions.
  - Appropriate disinfection of the medication access diaphragm on a vial or the neck of an ampule of medication prior to withdrawing the medication or solution.
  - Appropriate disinfection of the needleless connector, IV access port, or other vascular access device (VAD) surface prior to administration of medications or solutions.
  - Whenever contact or exposure to blood/ bodily fluid is possible, the use of personal protective equipment (PPE) is required.



## Clinical Preparation

- Filter needles or straws should be used to withdraw medications from glass ampules unless specific drugs preclude their use.
- Reconstitution and dilution of medications outside of pharmacy should be done immediately prior to their administration in a clean, uncluttered location using readily-available drug information resources and sterile equipment/supplies.
- The use of pharmacy-prepared kits with instructions, labels, and proper diluent is encouraged when reconstitution or dilution is necessary outside of the pharmacy sterile compounding area.
- Do NOT withdraw IV push medications from commercially available, cartridge-type syringes into another syringe for administration. Evidence shows that the practice of withdrawing medications from ready to administer cartridge type syringes into other syringes places patients at risk for contamination and dosing errors.

Clinical  
Preparation  
(cont'd.)

# Clinical Preparation (cont'd.)

- Do NOT dilute or reconstitute IV push medications by drawing up the contents into a commercially-available, prefilled flush syringe of 0.9% sodium chloride. This unsafe practice is widespread, as health-care providers mistakenly believe that the risks associated with the practice are insignificant. It was the consensus of the summit participants that this practice must be eliminated for a variety of medical and legal reasons. The use of prefilled 0.9% sodium chloride flushes in this manner is considered an off label use of prefilled syringes (which are considered a device, not a drug), in a manner for which they were never tested by the FDA. This leaves the practitioner and employer solely to bear any legal liability stemming from adverse events as a result of this off label practice.
- Only dilute IV push medications when recommended by the manufacturer, supported by evidence in peer-reviewed biomedical literature, or in accordance with approved institutional guidelines, as discussed in section 5.
- The mixing of more than one medication in a syringe for IV push administration should be limited to the pharmacy.
- NEVER use IV solution containers such as mini bags as a common-source container (multi-dose product) to prepare flushes, or dilute medications for more than one patient.

## Labeling

- Never pre-label syringes in anticipation of their use.
- If found, immediately discard any unattended, unlabeled syringes containing any type of solution.
- Clinical units should be provided with appropriate labels to support safe labeling practice.
- Never bring labeled syringes for more than one patient to the bedside for administration.
- Appropriately label all clinician-prepared syringes of IV push medications or solutions, as discussed below.

**Labeling  
(cont'd.)**

## Labeling (cont'd.)

- Two approaches apply to the preparation and administration of multiple medications or solutions for a single patient at the bedside:
  - The *first*, is to prepare and administer one syringe of medication at a time and administer this prior to preparing the next syringe.
  - The *second*, where one must prepare multiple IV push medications for sequential administration, is to prepare each medication, labeling as it is prepared, prior to the preparation of any other syringes.
- Similarly, if a practitioner must prepare one or more medications or solutions away from the patient's bedside, best practice is to immediately label each syringe, and fully prepare each medication, one at a time, before labeling and preparing the next medication or solution.



## Clinical Administration

- Assess vascular access site for patency prior to and following the administration of all IV push medications.
- Barcode scanning or similar technology should be used immediately prior to the administration of IV push medications to confirm patient identification and the correct medication, unless it would result in a life-threatening delay or potential patient harm.
- The rate of administration of IV push medications and subsequent rate/volume of IV flushes, should be at the rate recommended by the manufacturer, or in accordance with approved institutional guidelines. This information should be supported by evidence in peer-reviewed biomedical literature, and not simply based on organizational culture.

Clinical  
Administration  
(cont'd.)



## Clinical Administration (cont'd.)

- Central line patency should be assessed (for ease of flushing and blood return) using at a *minimum*, a 10 mL diameter-sized syringe filled with preservative-free 0.9% sodium chloride. After patency has been confirmed, the IV push medication can be given in the *appropriately sized syringe* needed to measure and administer the required dose.
- When using an existing IV infusion line to administer IV push medications, it is best practice to use the needleless connector closest to the patient, unless it is contraindicated for the specific medication, or if the site is inaccessible for use, such as during a sterile procedure.
- After administration, use an appropriate volume of the subsequent IV flush to ensure that the entire drug dose has been administered into the patient

## **Drug Information Resources**

- **Readily available resources, approved for use by the facility, should be the standard used to guide the safe practice of IV push medication administration in a given system. This resource must be easily available to the end-users, and include special considerations, including unique practice locations, limitations on where medications can be administered, and patient monitoring requirements.**

## **Competency Assessment**

- **Competency standards for the administration of IV push medications must be established within organizations, standardized across disciplines, and assessed on an ongoing basis. The standards should be based on evidence from peer-reviewed biomedical literature and established guidelines.**

## **Error Reporting**

- **It is vital to collect information regarding IV push medication-related adverse events and close calls in an open, non-punitive manner, for the purpose of continuous quality improvement and to share information with external safety organizations such as ISMP for shared learning.**

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