Evidenced Based Guidelines for Intravenous Push Medications

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What started as a casual conversation by two colleagues in a hospital hallway turned into an important investigation of how nurses are taught and practice an unsafe and unnecessary process of dilution of intravenous push (IVP) medications prior to administration.

Are you a direct patient care nurse? Are you using evidenced based guidelines for IVP medications? To dilute or not to dilute, that is the question. The Institute for Safe Medication Practices (ISMP) conducted its first survey of nurses regarding this topic in 2014. "The survey was completed by 1,777 respondents, mostly staff level (82%) nurses. Overall, 83% of nurses responding to our survey reported they further dilute certain IV push medications for adult patients prior to administration" (J. Smetzer, p.18). This started our investigation of what nurses were taught in nursing schools in Arizona and what nurses were practicing in hospitals and other post-acute centers.

Our survey of Academic Clinical Educators throughout Arizona demonstrated that there is no consistency in regards to teaching our future nurses how to administer IVP medications. Our research, in talking with direct patient care nurses, demonstrated that there is a vast variety how IVP medications are being unsafely and unnecessarily diluted against manufacturer or pharmacy recommendations. There are a variety of reasons why nurses further dilute IVP medications, and none of them are done with any intention of harm to the patient. For example, nurses dilute to be able to administer slowly or there is less than one milliliter of the drug to administer.

Highlighted below are **some** of the important Evidence-based Safe Practice Guidelines for dilution of IVP medications from Lippincott Nursing Center's Nursing 2019. If you would like to read the full article and full list of guidelines, it can be retrieved online at https://www.nursingcenter.com/cearticle?an=00152193-201610000-00012 .

- Dilute IVP medications **only** when recommended by the manufacturer, supported by evidence in peer reviewed biomedical literature, or in accordance with approved institutional guidelines. Dilution of medications before administering a medication IVP may be required by the manufacturer; whenever possible, this should occur in the pharmacy before the medication is dispensed. Unnecessary dilution adds complexity to the drug administration process and introduces an avoidable risk of making medication errors and contaminating sterile IV medications or solutions.
- If dilution or reconstitution of an IVP medication becomes necessary outside of the pharmacy sterile compounding area, perform these tasks immediately before administration in a clean, uncluttered, and functionally separate location using organization-approved, readily available drug information resources and sterile equipment and supplies.
- Provide instructions and access to the proper diluent when reconstitution or dilution is necessary outside of the pharmacy sterile compounding area.
- **Do not withdraw IVP medications from commercially available, cartridge-type syringes into another syringe for administration.**
- **Do not dilute or reconstitute IVP medications by drawing up the contents into a commercially available, prefilled syringe of 0.9% sodium chloride. Commercially available prefilled syringes of 0.9% sodium chloride and heparin are regulated by the FDA as devices, not as medications. These devices have been approved for the flushing of vascular access devices, not for the reconstitution, dilution, and or subsequent administration of IVP medications. Such use would be considered "off label" and isn't how manufacturers intended these products to be used. These prefilled flush syringes haven't been tested for product safety.**
- **Never use IV solutions in containers for infusion, including mini bags, as common-source containers (multiple dose products) to prepare IVP syringes or to dilute or reconstitute medications for one or more patients in a clinical area.**
- **Appropriately label all clinician-prepared syringes of IVP medications or solutions, unless the medication or solution is prepared at the patient's bedside and is immediately administered to the patient without any break in the process.**
- Perform an appropriate clinical and vascular access site assessment of the patient before and after the administration of IVP medications.
- Assess the patency of central venous access devices using, at a minimum, a 10 mL diameter-sized syringe filled with preservative-free 0.9% sodium chloride. **Once patency has been confirmed, IVP administration of the medication can be given in a syringe appropriately sized to measure and administer the required dose.**

The author of these guidelines is the Institute for Safe Medication Practices and was published in Lippincott Nursing Center, Source Nursing 2019.

For questions or comments related to this discussion please contact: azgroupsafemediv@gmail.com

References

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