



December 7, 2021

Infusion Nurses Society and National Coalition for IV Push Safety Issues Best Practice Guidance in Response to National Shortage of 10-mL Prefilled Flush Syringes and Saline Vials

Saline Flush and Vial Shortage

- Prefilled saline flush syringes are not just a nursing convenience, they are an important part of vascular access device (VAD) maintenance and play an important role in reducing the risk of bloodstream infections.
- On August 19, 2021, Cardinal Health issued a voluntary, nationwide [recall](#) of Monoject™ Flush Prefilled Saline Syringes because of a defect that could reintroduce air back into the syringe after the air had been expelled. The affected lot numbers were dated between 2019 – 2021 and removed 267 million prefilled saline syringes from the supply chain.
- This market disruption has caused a cascade of additional shortages of 0.9% sodium chloride 10-mL, 20-mL, and 50-mL preservative-free vials. Fresenius Kabi has 0.9% sodium chloride 10 mL and 20 mL vials on back order. The company estimates a release date of early January 2022 for the 10 mL vials. Pfizer has 0.9% sodium chloride 10 mL LifeShield syringes on back order and the company estimates a release date of January 2022. The 10-mL, 20-mL, and 50-mL vials are available in limited supply.

Current Best Practices

Considering the current shortage in 10-mL prefilled flush syringes coupled with the shortage of saline vials it is imperative to review current best practices related to flushing and locking. Please refer to the *Infusion Therapy Standards of Practice* 8th Edition, Section Six: *Vascular Access Device Management*, Standard 41, *Flushing and Locking*, for the complete text.¹

- ▶ Use single-dose systems (eg, single-dose vials or prefilled labeled syringes) for all VAD flushing and locking.
 - Use commercially available prefilled syringes whenever possible.
 - If multidose vials must be used, dedicate a vial to a single patient.
 - Do not use intravenous (IV) solution containers (eg, bags or bottles) as a source for obtaining flush solutions.
- ▶ VADs are flushed and aspirated for a blood return prior to each infusion. Assess VAD function using a 10-mL diameter syringe. After confirming catheter patency, use an appropriately sized syringe for medication dose.
- ▶ Do not use prefilled flush syringes for dilution of medications.
- ▶ VADs are flushed with preservative-free 0.9% sodium chloride after each infusion to clear the infused medication from the catheter lumen.
 - Do not reuse the same saline syringe to flush prior to and after medication administration.
 - Use a minimum volume equal to twice the internal volume of the catheter system and add-on devices.
 - Do not use sterile water for flushing VADs.
- ▶ Peripheral and central VADs (CVADs) are locked after completion of the final flush. Lock CVADs with either preservative-free 0.9% sodium chloride or heparin 10 units/mL according to the manufacturers' directions for use for the VAD and needleless connector.

Mitigation Strategies During Shortages

- ▶ Collaborate with your organization utilizing a multidisciplinary approach regarding IV medication preparation. In some facilities, nurses reconstitute IV push medications at the bedside in lieu of pharmacy-prepared products. To conserve saline flush vials and/or syringes, pharmacies should consider alternative methods for reconstitution and/or dilution such as vial transfer devices, pharmacy-prepared infusions, or pharmacy-prepared IV push syringes.
- ▶ Ask the procurement department to order syringes that hold smaller volumes. Some manufacturers supply 10-mL diameter syringes with 3- or 5-mL fill volume.
- ▶ Use heparinized saline flush syringes for locking unless contraindicated.
- ▶ Establish criteria for peripheral intravenous catheter (PIVC) insertion to reduce insertion of catheters that are idle.
- ▶ Use a CVAD with the least number of lumens to reduce risk of thrombosis, infection, or occlusion.
- ▶ Use implanted port, unless contraindicated, as the preferred IV route in preference to insertion of an additional VAD.
- ▶ Remove PIVCs and CVADs if no longer included in the plan of care or if not used for 24 hours or more.

[INS](#) and the [National Coalition for IV Push Safety](#) will work together to ensure clinicians are informed as this shortage evolves and resolves. Please email INS Master Account INS@ins1.org or NCIVPS alwaysafe@ncivps.org with questions or comments.