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Preparing and Administering IV Push Medications

--Manuscript Draft--

Manuscript Number:	10262
Full Title:	Preparing and Administering IV Push Medications
Article Type:	Manuscript
Section/Category:	Manuscript Submission
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Education Title:
Preparing and Administering IV Push Medications

Overview:
Preparing and administering intravenous push medications requires the nurse to be knowledgeable about the medication purpose, adverse effects, and the patient's preferences. Adherence to the five rights and three checks of safe medication administration is imperative to prevent patient injury and harm. Prior to acquiring medications for the intravenous push injections from a medication-dispensing system (MDS), the nurse must consider if the medication is appropriate given the patient's medical conditions, allergies, current clinical status, and the timing of the prior administration of the same medication. Intravenous push preparations are commonly provided in vials or ampules for withdrawal to a syringe. The nurse should determine the appropriate medication dose based on the medication concentration in the container. The nurse should be knowledgeable about the compatibility of the IV push medication with other fluids present in the IV line, and should understand the proper IV push administration rate for the medication.

The following video will demonstrate how to prepare and administer intravenous push injection and the importance of and how to adhere to the "five rights" at the third safety checkpoint of safe medication administration, which is at the patient's bedside. The first and second medication safety check using the associated five rights will be provided in the video titled "Safety Checks for Acquiring Medications from a Medication Dispensing Device".

Procedure:

1. General medication administration considerations (review in the room, with the patient).

1.1 Upon first entering the patient's room, wash hands with soap and warm water, and vigorous friction for at least 20 seconds. Hand sanitizers may be used if the hands are not visibly soiled, but vigorous friction should also be used.

1.2 At the bedside computer, log into the patient's electronic health record and review the patient's medical history and previous administration times. Verify with the patient any medication allergies and discuss their physical allergic responses and reactions.

1.3 At the bedside computer, pull up the Medication Administration Record (MAR).

1.4 Review the patient's MAR for IV fluid orders. If the patient has a maintenance IV fluid and/or IV fluid medications currently being administered through the patient's IV, review a drug guide to determine the compatibility of the IV push medication and IV fluids.

1.4 Leave the patient's room, wash hands as described above (1.1).

2. In the Medication Preparation area (may be in a secured room or in a secured portion of the nurses' station), acquire the medication from a Medication Dispensing Device and complete the first safety check adhering to the "five rights" of medication administration. Refer to the video titled "Safety Checks for Acquiring Medications from a Medication Dispensing Device" to review these steps in detail

3. In the medication preparation area, prepare the IV push medication according to best practices and procedures.

3.1 Open the medication box and pull out the medication vial, then "pop off" the plastic cap on the top of the vial.

3.2 Remove the alcohol wipe from the package and with friction and intent scrub the top of the medication vial for 20 seconds with friction and intent .Use the clock to make sure . ~~This should be done while looking at a clock to verify that you have~~ scrubbed for the appropriate amount of time.

3.3 From the syringe drawer in the medication room, obtain the smallest syringe that will accommodate the volume of ~~fluid~~ solution to be aspirated from the medication vial.

3.4 Open the syringe package using aseptic technique by peeling the paper packaging at the syringe tip end until you are able to grasp the syringe outer barrel. You may then drop the packaging to the counter. Move the syringe to between your ring finger and middle finger of your dominant hand, taking special care not to contaminate the syringe tip, or the area of the plunger that extends into the barrel, by touching it to any surface or fingers.

3.5 While holding the syringe between ring finger and middle finger of your dominant hand, retrieve the needle package with your non-dominant hand. Open the needle package using aseptic technique by peeling the paper packaging at the needle hub end until you are able to grasp the outer cap. Take special care not to contaminate the needle hub by touching it to any surface or fingers. Drop the needle packaging on the counter.

3.6 Using aseptic technique, connect the needle to the syringe tip. Note: if any of the connection points are contaminated, you must obtain new supplies and start over.
~~Open the syringe package using aseptic technique. Hold the syringe in your dominant hand, taking special care not to contaminate the syringe tip by touching it to any surface.~~
3.8 Take the cap off the needle and place it on the counter, taking care not to contaminate the point of the needle~~, and hold the syringe in your dominant hand.~~

3.9 Secure the medication vial with your non-dominant hand, and insert the needle into the soft, rubber portion of the vial.

3.10 Holding the vial with your non-dominant hand, and the syringe and needle with your dominant hand, invert the needle and vial and bring them to . ~~Hold them at~~ the eye-level .~~and~~

~~make sure the syringe tip is below the level of the liquid in the vial.~~ Take special care not to ~~to~~

3.11 Withdraw the appropriate amount of fluid from the vial, by drawing back slowly on the syringe plunger until the "right" medication volume is obtained making sure the needle tip is below the solution level at all times. ~~–~~ The volume to be withdrawn is calculated based on medication dosage and the medication concentration in the vial.

~~3.11.1 When withdrawing medication ensure the needle tip is below the fluid level at all times.~~

3.12 Assess the syringe for air bubbles and appropriate amount of volume. If air bubbles are present, gently tap the syringe with your finger or a pen to release the air bubbles, and eject the air then adjust needle tip to below level of fluid and withdraw more fluid until the desired volume is reached.

3.13 Withdraw the needle from the vial, taking care not to contaminate the needle tip, and set the vial down on the counter while holding ~~with your non-dominant hand while continuing to~~ hold the needle and syringe upright, in the air ~~, with your dominant hand.~~

3.14 Engage the needle safety device using the thumb of your dominant hand.

~~3.14.1 If the safety device is not available, carefully place the tip of the needle in the opening of the needle cap with your dominant hand, while keeping your non-dominant hand away from the needle cap and tip. Slowly scoop the needle cap on the tip of the needle and secure the needle cap to the syringe with your non-dominant hand.~~

3.15 Set the syringe with the needle and the medication down on the counter.

3.16 Using tape or a pre-printed medication label (if available), write the medication name and dosage amount on the label, and place on the syringe. Note: some institutions may require more information according to their medication labeling policy.

3.17 Dispose of any wrappers or packages in the garbage. Dispose of the empty medication vial in the sharps ~~or BCMA~~ container according to institutional policies. Note: If the medication vial contains any unused medications, dispose of the medication fluid according to institutional policies.

4. In the medication preparation area, complete the second safety check using the 5 rights of medication administration. Refer to the video "Safety Checks for Acquiring Medications from a Medication Dispensing Device"

5. Gather supplies, including an alcohol prep wipe, non-sterile gloves, and two packages of 0.9% 5 or 10 mL syringe flushes. Take the supplies to the patient's room.

Commented [AS1]: These are commercially available preps

Administration

6. Upon first entering the patient's room, set the medications down on the counter and wash hands as described in 1.1.~~with soap and warm water, and vigorous friction for at least 20 seconds. Hand sanitizers may be used if the hands are not visibly soiled, but vigorous friction should also be used.~~

7.0. Perform the third and final safety check adhering to the 'five rights' which has been demonstrated in detail in the oral tablet administration protocol.

8.0. Prepare the patient for the intravenous push medication.

8.1. Before administrating the push ~~A~~assess the peripheral intravenous insertion site~~,~~ for redness, swelling, increased or decreased temperature or bleeding. If any of these conditions are present, do not use this ~~e~~ peripheral intravenous catheters (PIV~~-~~) for administering the intravenous push medication. The PIV should be discontinued and a new PIV placed.

8.2. Wash hands as described in 1.1 and put on clean gloves.

8.3. Open the package of the 0.9% Saline syringe. Holding ~~-~~the syringe with your dominant hand ~~. U~~unscrew and remove the syringe cap with your non-dominant hand. ~~P~~and ~~p~~lace the cap upright on a table/counter taking care not to contaminate the end of the cap. Gently turn the plunger to "break the seal" on the saline flush. Holding the syringe upright with your non-dominant hand, gently push the plunger with your dominant hand to expel the air. Pick up the syringe cap with your dominant hand, taking care not to contaminate the end of the cap, and gently screw the cap onto the 0.9% saline syringe. Place the 0.9% syringe on the table.

8.4. Cleanse the PIV needless injection site.

8.4.2 Holding the PIV needless injection site with your non-dominant hand, wrap the alcohol wipe around the PIV needless injection site and scrub the site with friction and intent (as if you were juicing an orange) for at least 15 seconds. Allow the needless injection site to dry while continuing to hold with your non-dominant hand, taking care not touch the site.

9.0. Flush the peripheral IV.

9.1. While continuing to hold the PIV needless injection site with between your thumb and forefinger of your non-dominant hand, with your dominant hand, pick up the 0.9% saline syringe. P~~Holding the 0.9% Saline Syringe in your dominant hand, p~~lace the ~~0.9% ~~saline flush syringe cap between the middle and ring finger of your non-dominant hand and unscrew the cap.

9.2. Attach the syringe to the needless port by pushing gently to insert the tip of the syringe into the center portion of the needless injection site and turning the syringe clockwise.

9.3. Unclamp the plastic PIV clamp by gently pushing ~~the plastic clamp~~it ~~-~~open. Holding the 0.9% saline syringe between your middle and forefinger of your dominant hand, use the thumb

of your dominant hand and gently push the plunger to flush the PIV line. While pushing the plunger, assess the PIV insertion site for leaking, swelling and ease of administration. Ask the patient if they are experiencing any pain as the sterile ~~0.9%~~ saline is being pushed into their line. Note: if any of these conditions occur or if it is difficult to push the 0.9% saline fluid into the line, do not administer the IV push medication. The IV site is no longer appropriate for use and should be replaced.

8.9. Continue to hold the needless injection site between your forefinger and thumb of your non-dominant hand and ~~,~~ gently unscrew the 0.9% syringe from the needless injection port. Place the used syringe on the table top or counter.

9.0. Administer the IV push medication.

9.1. P~~With your dominant hand, p~~ick up the medication syringe with your e~~. Holding the medication syringe in your~~ dominant hand, grasp the capped needle using the middle and ring finger of your non-dominant hand and unscrew and remove the needle.

9.2. Attach the medication syringe to the needless port as described above (9.2.)~~by inserting the tip of the syringe into the center portion of the needless injection site, push gently and turn the syringe clockwise with your dominant hand.~~

9.3. Administer the medication over the appropriate amount of time as indicated in the nursing drug guide. For instance, if you have 10mL of fluid to be administered over 1 minute, you should administer 0.5 mL over approximately 3 seconds. Note: This should be a continuous administration. Avoid pushing a larger volume and then waiting a longer duration, as this would result in administering small doses of the medication at a faster and inappropriate rate.

9.4. Continue to hold the needless injection site between your forefinger and thumb of your non-dominant hand, and clamp the PIV with your dominant hand. Gently unscrew the medication syringe from the needless injection port with your dominant hand. Place the used syringe on the table top or counter.

10. Administer the post-medication 0.9% saline flush as described above (9.0)~~.~~
~~10.3.~~ Make sure to ~~A~~administer the post-medication 0.9% saline flush at the same rate (~~i.e. administer~~ the same saline volume of ~~0.9% saline fluid~~ over the same amount of time) as the medication.~~)~~. Note: Administering the post-medication 0.9% saline flush at a faster rate than the medication may produce adverse effects because the medication is still present in the line.
~~10.4. Continue to hold the needless injection site between your forefinger and thumb of your non-dominant hand, and clamp the PIV with your dominant hand. Gently unscrew the medication syringe from the needless injection port with your dominant hand. Place the used syringe on the table top or counter.~~
11. Document medication administration in the electronic MAR.

Commented [AS2]: Does fast administration of saline will increase the rate at which medication enters the blood stream?

11.1. In the patient's MAR, record the date, time and location/site of intravenous push medication administration.

12. Leave the patient room. Upon exiting the room, wash hands as describe in step 1.1.

Summary:

This video demonstrates the verification and administration of intravenous push medications. Because dosage variations in the institutional pharmacy may be limited, it is important for the nurse to verify if the correct medication dose is withdrawn from the medication vial and prepared according to the dose indicated in the patient's medication administration record. Common errors in intravenous medication administration include: pushing medications too quickly causing adverse reactions, failing to verify medication compatibility with IV fluids, failing to verify IV patency prior to administration, and contaminating IV line hub prior to administration causing risks of infection and sepsis.

Figures & Legends

Figure 1: Syringe into Needless Port
Close-up of pushing IV medication into a needless port.

References

Institute of Medicine. (1999). *To err is human*. Washington, DC: Academic Press.

Scrub the Hub!

Which hubs have to be scrubbed? Every port on the system, injection ports into bags or bottles, injection ports on administration sets, needless connectors, and the hub of a catheter itself are potential portal of entry for infection. Closed catheter access systems are preferred as they are associated with fewer central line–associated bloodstream infections (CLABSIs) than open systems. Stopcocks and injection ports should be capped when not being used.

SCRUB THE HUB YOU ARE ACCESSING EVERY TIME YOU ACCESS IT!

If you continue to have a high rate of infections, consider using alcohol-impregnated port protectors, scrubbing devices, and needleless neutral displacement connectors in addition to scrubbing the hub.

How do you scrub the hub? Adequately scrubbing the hub depends on the agent you use, appropriate contact and drying time, and—most important—friction.

To Scrub the Hub

1. Perform hand hygiene.
2. Don clean or sterile gloves.
3. Use a scrubbing device with an alcohol product such as chlorhexidine with alcohol or 70% alcohol to disinfect catheter hub and stopcocks. If you are using a pad, make sure you don't contaminate it before use and use only on one hub. Prep pads should NEVER be reused.
4. Rub for 10 to 15 seconds (unless directed otherwise by the manufacturer's instructions), generating friction by scrubbing in a twisting motion as if you were juicing an orange. Make sure you scrub the top of the hub well, not just the sides.
5. Allow the hub to dry. Prevent it from touching anything while drying.
6. Access the stopcock or injection port only with sterile devices.
7. Infuse medication or draw blood.
8. Discard gloves and perform hand hygiene.

Sources:

Ryder M., et al. Differences in bacterial transfer and fluid path colonization through needlefree connector-catheter systems in vitro. Paper presented at Society for Healthcare Epidemiology of America meeting, Dallas, Apr 29, 2011.

Sweet MA, et al. Impact of alcohol-impregnated port protectors and needleless neutral pressure connectors on central line–associated bloodstream infections and contamination of blood cultures in an inpatient oncology unit. *Am J Infect Control.* 2012 Dec;40(10):931–934. doi: 10.1016/j.ajic.2012.01.025. Epub 2012 May 9.