

Science Education Collection

Preparing and Administering IV Push Medications

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Overview

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Intravenous (IV) push is the rapid administration of a small volume of medication into a patient's vein via a previously inserted IV catheter. Preparations for IV push administration are commonly provided in vials or ampules for withdrawal into a syringe. This method is used when a rapid response to a medication is required, or when the medication cannot be administered via the oral route. For instance, medications commonly administered via IV push are the ones used to treat moderate or severe pain.

Before administering IV push, it is important to confirm the correct placement of the IV catheter, because the push medication can cause irritation and damage to the lining of the blood vessel and to surrounding tissues. Since IV push medications act quickly, the patients need to be closely monitored after the drug has been administered, and any error can be especially dangerous. It is imperative that the nurse adheres to the five "rights" and three checks of safe medication administration and is knowledgeable about the medication purpose and adverse effects. The nurse should determine the appropriate medication dose, based upon the medication concentration in the container. If the patient receives other IV medications, the nurse needs to ensure the compatibility of the IV push medication with other fluids present in the IV line and should understand the proper IV push administration rate of the medication. The following video will demonstrate how to prepare and administer an IV push injection.

Procedure

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

1. Upon first entering the patient's room, perform hand hygiene. Wash hands with soap and warm water, applying vigorous friction for at least 20 s. Alternatively, if the hands are not visibly soiled, you may use hand sanitizers, also applying vigorous friction.
2. Log into the patient's electronic health record at the bedside computer and review the patient's medical history and previous administration times. Verify with the patient any medication allergies and discuss his/her physical allergic responses and reactions.
3. At the bedside computer, pull up the Medication Administration Record (MAR).
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, determine the compatibility of the push medication with IV fluids/medication currently being administered using a drug guide.
5. Leave the patient's room and wash hands, as described above (step 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 entitled "Safety Checks for Acquiring Medications from a Medication Dispensing Device" to review these steps in detail.

3. Next, prepare the IV push medication according to best practices and procedures.

1. Open the medication box and pull out the medication vial. "Pop off" the plastic cap on the top of the vial.
2. Remove an alcohol wipe from the package and scrub the top of the medication vial, with friction and intent, for 20 s. Use the clock to make sure that you have scrubbed for the appropriate amount of time.
3. From the syringe drawer, obtain the smallest syringe that will accommodate the volume of solution to be aspirated from the medication vial.
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 onto the counter. Move the syringe between your dominant ring finger and middle finger, taking special care not to contaminate the syringe tip or the area of the plunger that extends into the barrel by touching them to any surface or fingers.
5. 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 onto the counter.
6. Using aseptic technique, connect the needle to the syringe tip. If any of the connection points are contaminated, you must obtain new supplies and start over.
7. Take the cap off of the needle and place it onto the counter, taking care not to contaminate the point of the needle.
8. Secure the medication vial with your non-dominant hand and insert the needle into the soft, rubber portion of the vial.
9. While holding the vial and the syringe together, invert them and bring them to eye-level. Take special care not to contaminate the syringe tip and the needle.

10. 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 that the needle tip is below the solution level at all times. The volume to be withdrawn is calculated based upon medication dosage and the medication concentration in the vial.
11. Assess the syringe for air bubbles and the appropriate volume. If air bubbles are present, gently tap the syringe with your finger or a pen to release the air bubbles and then eject the air. Adjust needle tip to below the level of the fluid and withdraw more fluid until the desired volume is reached.
12. Withdraw the needle from the vial, taking care not to contaminate the needle tip. Set the vial down on the counter while holding the needle and syringe upright in the air.
13. Engage the needle safety device using your dominant thumb.
14. Set the syringe with the needle and the medication down on the counter.
15. Using tape or a pre-printed medication label (if available), write the medication name and dosage amount on the label and place it on the syringe. Some institutions may require more information, depending upon their medication labeling policies.
16. Dispose of any wrappers or packages in the garbage. If the medication vial contains any unused medications, dispose of the medication fluid according to institutional policies. Dispose of the empty medication vial in the sharps container, according to institutional policies.

4. In the medication preparation area itself, complete the second safety check using the five "rights" of medication administration.

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

Administration

6. Upon first entering the patient's room, set the medications down on the counter and wash your hands, as described in step 1.1.

7. Perform the third and final safety check, adhering to the five "rights."

8. Prepare the patient for the IV push medication.

1. Before administering the push, assess the peripheral IV insertion site for redness, swelling, increased or decreased temperature, or bleeding. If any of these conditions are present, do not use this peripheral intravenous catheter (PIV) for administering the IV push medication. In this case, the PIV should be discontinued and a new PIV placed.
2. Wash your hands, as described in step 1.1, and put on clean gloves.
3. Prepare the 0.9% saline flush.
 1. Open the package of the 0.9% saline syringe.
 2. Holding the syringe with your dominant hand, unscrew and remove the syringe cap with your non-dominant hand.
 3. Place the cap upright on a table or counter, taking care not to contaminate the end of the cap. Gently turn the plunger to break the seal on the saline flush.
 4. Holding the syringe upright with your non-dominant hand, gently push the plunger with your dominant hand to expel the air.
 5. Pick up the syringe cap, taking care not to contaminate the end of the cap, and gently screw the cap onto the 0.9% saline syringe. Place the syringe on the table.
4. Cleanse the PIV needless injection site.
 1. Open an alcohol wipe and hold it with your dominant hand.
 2. Holding the PIV needless injection site with your non-dominant hand, wrap the alcohol wipe around the site and scrub it with friction and intent for at least 15 s. Allow the needless injection site to dry while continuing to hold it with your non-dominant hand, taking care not touch the site.

9. Flush the peripheral IV.

1. Hold the PIV needless injection site between your non-dominant thumb and forefinger, pick up the 0.9% saline syringe with your other hand, place the syringe cap between the non-dominant middle and ring finger, and unscrew the cap.
2. Attach the syringe to the needless port by gently pushing the tip of the syringe into the center portion of the needless injection site, turning the syringe clockwise.
3. Unclamp the plastic PIV clamp by gently pushing it open. Gently push the plunger on the 0.9% saline syringe 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 he/she is experiencing any pain as the sterile saline is being pushed into the line. 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.
4. Unscrew the 0.9% syringe from the needless injection port and place the used syringe on the counter.

10. Administer the IV push medication.

1. Pick up the medication syringe with your dominant hand, grasp the capped needle using the middle and ring finger of your non-dominant hand, and unscrew and remove the needle.
2. Attach the medication syringe to the needless port, as described above (step 9.2).
3. Administer the medication over the appropriate amount of time, as indicated in the nursing drug guide. For instance, if you have 10 mL of fluid to be administered over 1 min, you should administer 0.5 mL over approximately 3 s. This should be a continuous administration. Avoid pushing a large volume and then waiting a long duration, as results in administering small doses of the medication at a faster and inappropriate rate.
4. Continue to hold the needless injection with your non-dominant hand, and clamp the PIV with your dominant hand. Gently unscrew the medication syringe from the needless injection port and place the used syringe on the counter.

11. Administer the post-medication 0.9% saline flush, as described above (step 9).

Make sure to administer the post-medication 0.9% saline flush at the same rate (the same saline volume of over the same amount of time) as the medication. 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 and will enter the blood stream at an increased rate.

12. Document medication administration in the electronic MAR.

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

13. Leave the patient's room. Upon exiting the room, wash hands as describe in step 1.1.

Applications and Summary

This video demonstrates the administration of IV push medications. Because dosage variations in the institutional pharmacy may be limited, it is important for the nurse to verify that the correct medication dose is withdrawn from the medication vial and is prepared according to the dose indicated in the patient's MAR. Common errors in IV 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 the IV line hub prior to administration, causing a risk of infection and sepsis.

References

1. Institute of Medicine. To Err is Human: Building a Safer Healthcare System. Academic Press. Washington, DC. (2000).