

**JoVE: Science Education**  
**Administering Medications via an Enteric Tube**  
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## Clinical Skills Education Title

Administering medications via an enteric tube

## Overview

An enteric tube is a tube that is inserted and passed into the stomach or intestines. Enteric tubes have multiple purposes including: stomach decompression (through removal of air and gastric contents and secretions), and/or to administer medications, oral contrast or enteric feedings. Enteric tubes are also clinically indicated for patients who have impaired swallowing, neurologic conditions that increase the risk of aspiration, or for patients who are unable to consume the appropriate amounts of fluid or calories orally. There are multiple types of enteric tubes, with generic names assigned according to insertion site and gastrointestinal termination point. For instance, one of the common types of enteric tube is the nasogastric tube, which is inserted through a nostril and passed along the upper gastrointestinal tract into the stomach.

When administering medications through an enteric tube, it is important to ensure that the tube terminates in the intended gastrointestinal location. When enteric tubes are initially placed, tube termination is confirmed through an x-ray. Due to gastric peristalsis, enteric tubes may migrate out of their intended termination location and it is important to confirm appropriate placement. Medications administered through an enteric tube are typically oral medications that must be crushed or prepared by pharmacy into a liquid preparation or suspension. Prior to crushing any oral medications, it is important to confirm that it is appropriate and safe to do so. It is also important to consider the tube lumen size when administering medications because smaller bore tubes are more likely to become clogged if medications are not prepared properly or flushed with an appropriate amount of fluid.

This video presents the process of assessing enteric tube placement and administering medications through an enteric tube.

## Procedure and representative findings

### Preparation

1. Enteral tube 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).

1.3.1 Review the medications that are due to be administered, and clarify with the patient if they have a preference or concerns prior to acquiring and preparing the medication. Some patients are sensitive to large volumes of fluid administered through the enteral tube or request fluids and medications to be administered slowly to avoid nausea.

1.3.2 Review the medications that are scheduled to be given via the enteric tube. Medications that are provided in tablet form will need to be crushed, while capsules will need to be opened to release the powder or granules. Before crushing a tablet or opening a capsule you must ensure that that it is safe to do so. Enteric-coated medication, extended/sustained release medications

**Commented [AS1]:** I am not sure what it means, perhaps, if the preparation can be used if crushed ?

should never be crushed.

1.3.3 There are many medications that can be provided in a liquid form; this is preferred for enteric tube administration to decrease the likelihood of clogging the tube. Consult with a pharmacist to determine liquid preparation availability.

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

2. Go to the Medication Preparation area (this area may be in a secured room or in a secured portion of the nurses' station) and complete the first safety check using the 5 rights of medication administration. (Refer to the video "Safety Checks and Five Rights of Medication Administration for Acquiring Medications from a Medication Dispensing Device")

2.1. The nurse must now maintain a distraction/disruption free environment while dispensing and administering medications to prevent medication errors.

2.2. Acquire the enteric tube medications from the medication-dispensing device using the 5 rights during the first safety check.

3. In the medication preparation area, prepare the enteric tube medication as indicated in the MAR, pharmacy instructions, nurse drug guide, and according to best practices and institutional policies/procedures. Be mindful to prepare the medications in a manner that will allow you to correctly identify the medication.

3.1 Open oral medication packaging and prepare for medication preparation.

3.2 For tablets, use a pill mortar and pestle or pill-crusher to crush the tablet into a powder. Ensure that you create fine powder to decrease the likelihood of clogging the enteric tube. Empty the contents of the mortar or pill crusher into a medication cup. Take care to ensure that you create a fine powder to decrease the likelihood of clogging the enteric tube.

3.3 For capsules, empty the contents the capsule by grasping both ends of the capsule, twisting and pulling gently, and then empty the contents into a medication cup. Be careful not to lose any of the contained medications.

3.4 Premixed liquid oral medications will require gentle shaking of the medication for a few seconds to ensure equal distribution of the medication within the liquid.

3.4.1. Place medication cup on level surface and crouch until you are at eye level with the volume measurement. Pour premixed liquid medication into the medication cup until it reaches the correct volume. Liquid poured while standing and looking down at the medication cup will cause an insufficient volume to be dispensed and a medication error.

3.4.2. Return multi-dose container to medication dispensing device. If single-dose liquid medication container is used, dispose of remaining volume according to institutional policy.

3.5. All medications that have been removed from original packaging must be labeled with the medication and medication dose prior to leaving the medication preparation room. 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.

3.6. Dispose of all medication packaging in the proper disposal receptacle.

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 needed supplies, including: two 60mL catheter tip syringes, graduated cylinder, a

bottle of sterile water or normal saline, plastic medication cups, 2 washcloths or small towels, pH indicator strip bottle/package, roll of silk or cloth tape, and an indelible marker. Take the supplies into the patient's room.

### **Administration**

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

6.1. Prepare the patient and supplies.

6.1.2. Place a washcloth or small towel at the base of the neck and over the chest of the patient. This will protect patient skin and gown if fluid inadvertently leaks from the tube or syringe during the assessment and administration processes.

6.1.3. Pull the bedside table within reach.

6.1.4. Open the bottle of sterile water/normal saline and pour 30 to 60mL of fluid into the graduated cylinder.

6.1.5. Open both packages of 60 mL catheter tip syringes, and place the syringes on a clean washcloth or towel.

6.1. Confirm enteric tube termination location.

6.1.1. Don clean gloves.

6.1.2. Remove one 60 mL catheter tip syringe from package, and remove protective cover from catheter tip.

6.1.3. With your non-dominant hand, grasp the end of the enteric tube between your thumb and forefinger, and with your dominant hand, grasp the enteric tube plug and gently remove the plug.

6.1.4. Hold the 60mL catheter tip syringe in your dominant hand and gently place the end of the catheter into the enteric tube opening until it is secure.

6.1.5. With your dominant hand, gently pull back on the plunger of the syringe until fluid appears on the syringe.

6.1.6. While continuing to hold the end of the enteric tube between the thumb and forefinger of your non-dominant hand, gently twist the syringe while pulling outward to remove the catheter tip from the end of the enteric tube. Place the syringe on the bedside table.

6.1.7. Grasp the enteric tube plug between the thumb and forefinger of your dominant hand and insert the plug into the end of the enteric tube, and gently let go of the enteric tube.

6.1.8. Open the pH indicator strip bottle or packaging and remove one pH strip and hold it between the thumb and forefinger of your non-dominant hand.

6.1.9. Hold the syringe with your dominant hand, place the pH test strip at the end of the catheter tip, and with your dominant hand gently depress the plunger until a drop of fluid forms and saturates the end of the pH test strip.

6.1.10. After 3 to 5 seconds, or until the test strip color stabilizes, compare the test strip to the pH chart on the pH bottle or packaging. A pH below 6 is consistent with the pH associated with gastric fluids and indicates the end of the enteric tube is in the gastrointestinal tract. Note: If the pH is above 6, this suggests the tube may not be within the gastrointestinal tract. Contact the medical provider and obtain radiographic confirmation of enteric tube termination prior to instilling any medications or fluid into the tube.

6.1.11. Hold the syringe with your non-dominant hand and place the catheter tip into the fluid in the graduated cylinder, and withdraw 15 mL of fluid.

6.1.12. With your non-dominant hand, grasp the end of the enteric tube between your thumb and forefinger, and with your dominant hand, grasp the enteric tube plug and gently remove the plug.

6.1.13. Hold the 60 mL catheter tip syringe in your dominant hand and gently place the end of the catheter into the enteric tube opening until it is secure, and hold the syringe upright.

6.1.14. With the thumb of your dominant hand, gently depress the plunger, pushing the fluid into the tube and “flushing” the fluid line.

6.1.15. While continuing to hold the end of the enteric tube between the thumb and forefinger of your non-dominant hand, gently twist the syringe while pulling outward to remove the catheter tip from the end of the enteric tube. Place the syringe on the bedside table.

7. Perform the third, and final, medication safety check adhering to the 5 rights of medication administration. (Refer to the video “Preparing and Administering Oral and Liquid Medications”).

8. Prepare medications and remaining supplies.

8.1. For powdered medications, gently pour 10 to 15mL of sterile water or normal saline into each medication cup, and gently stir with the catheter tip of the syringe. Allow time for the powder to dissolve into the liquid.

8.2. For liquid medications that are not in a medication cup, gently squirt or pour the medication into a medication cup.

8.3. Hold the syringe with your non-dominant hand and place the catheter tip into the fluid in the graduated cylinder, and withdraw 15 mL to 60 mL of fluid. Note: The amount of fluid you withdraw depends on the number of medications that are administered, with each medication requiring at a 10 to 15 mL post-medication administration fluid flush.

9. Administer enteric tube medications.

9.1. Hold the syringe in your dominant hand, and with your non-dominant hand hold the medication cup between the thumb and forefinger of your non-dominant hand.

9.2. Place the syringe into the medication cup and gently stir the medication cup with the syringe held in your dominant hand while pushing upward on the plunger with the thumb of your dominant hand until all of the fluid and medication is withdrawn from the cup. Place the cup and syringe onto the bedside table.

9.3. With your non-dominant hand, grasp the end of the enteric tube between your thumb and forefinger, and with your dominant hand, grasp the enteric tube plug and gently remove the plug.

9.4. Hold the 60mL catheter tip syringe in your dominant hand and gently place the end of the catheter into the enteric tube opening until it is secure.

9.5. With the thumb of your dominant hand, gently depress the plunger, pushing the fluid into the tube.

9.6. While continuing to hold the end of the enteric tube between the thumb and forefinger of your non-dominant hand, gently twist the syringe while pulling outward to remove the catheter tip from the end of the enteric tube. Place the syringe on the bedside table.

9.7. Pick up the syringe containing only sterile water or normal saline with your dominant hand, and gently place the end of the catheter into the enteric tube opening until it is secure.

9.8. With the thumb of your dominant hand, gently depress the plunger, pushing 10 ml to 15 mL

of fluid into the enteric tube, flushing the enteric tube.

9.9. Repeat steps 9.1 through 9.8 until all medications have been administered. Note: After the final medication has been administered, the post-flush volume should be at least 30mL of sterile water or normal saline to ensure all medications have been cleared out of the enteric tube.

9.10. Clean supplies and dispose of waste into appropriate receptacles.

9.10.1. Take syringes and graduated cylinder to the sink.

9.10.2. Add 100 mL of fluid or more into the graduated cylinder. For the syringe that was used to administer medications, pull 30 to 60 mL of fluid into the syringe and then push the fluid out into the sink to clean the syringe. Repeat the process until medication residue is cleared from the syringe.

9.10.3. Pour remaining fluid from the graduated cylinder.

9.10.4. Using the tape and marker, label each syringe, cylinder and bottle of fluid with the current date and time. These supplies are to be replaced every 24 hours to prevent growth of pathogens. If unlabeled supplies are present in the room, these should be discarded and new supplies should be acquired.

9.10.5 Dispose medication cups and packaging into appropriate receptacles.

9.10.6. Remove cloth from patient and bedside table and place in dirty linen receptacle.

10. Document enteric tube medication administration in the patient's EHR.

10.1 In the patient's EHR, record the date, time and location/site of the enteric tube medication administration, and the findings of the enteric tube termination assessment.

10.2. Record the total volume of fluid administered (including medication fluid administration and post-administration flushes) in the fluid intake section of the EHR.

11. Leave the patient room. Upon exiting the room, wash hands as describe in step 1.

## Summary

This video details the process of administering medications into an enteric tube. Prior to instilling any fluid or medication into the enteric tube, it is important to confirm that the enteric tube terminates in the gastrointestinal tract using the pH strip confirmation method. Flushing the enteric tube prior to, in between and after medication administration helps to prevent medications from remaining in the line and occlusion of the line. A common error associated with administering enteric tube medications is drawing all medications into the 60mL catheter tip syringe at the same time, thus administering all medications in one syringe. Doing so may result in inadvertent clogging of the enteric tube or exposure of medications to each other in a non-acidic environment. This could potentially result in alterations of medication action and an adverse reaction in the patient. Another common error is failing to flush the enteric tube between and following medication administration which could result in enteric tube occlusion requiring replacement of the tube.

## Figures

Figure 1: Types of enteric tube based on entrance and termination locations

Figure 2: Example of stomach decompression tube

Figure 3: Example of enteric feeding tube

**References:**

1. Potter, P.A., Perry, A.G., Stockert, P.A., & Hall A. (2015). Essentials for Nursing Practice, Eighth Edition. Elsevier Publishing Co., St. Louis, MO.