

# Understanding enteral feeding systems and methods

An enteral feeding system may be open or closed.

- With an *open system*, a bolus of formula from a container is placed in the feeding tube with a syringe or poured into a feeding bag and delivered through the tube. This system allows continuous feedings when closed ready-to-hang options aren't available.



- With a *closed ready-to-hang system*, a container of prefilled formula is spiked by the feeding tube and delivered by pump. A closed system offers better protection against contamination by limiting contact between the enteral nutrition formula and the outside environment.



## Enteral feeding methods

Be sure you understand how to care for patients receiving enteral feedings through the various methods. Generally, check gastric residual volume (GRV) every 4 hours during the first 48 hours for gastrically fed patients. Once the feeding goal rate is achieved, check GRV every 6 to 8 hours, unless the patient is critically ill. In that case, continue to monitor every 4 hours. If GRV is 250 ml or greater after a second residual check, notify the healthcare provider, who may order a promotility agent.

If GRV exceeds 500 mL, withhold the feeding and reassess the patient's tolerance by evaluating GI status and glycemic control. If possible, minimize sedation and give a promotility agent, as prescribed.

Review the nursing considerations below for the three main types of enteral feeding methods.

### Gravity-feed infusion

- Check GRV before starting every infusion.
- Know that this method can be used only with prepyloric tubes.
- Attach syringe without piston to unclamped tube, elevate tube above stomach level to create flow of fluid into stomach, and pour in feeding solution until ordered amount is delivered or as tolerated (whichever comes first).

### Intermittent pump feeding

- Check GRV before starting every infusion.

- For high-risk patients\*, check GRV every 4-6 hours (or according to facility policy) while infusion is running.
- Know that A.S.P.E.N. guidelines don't require routine GRV checks for patients without signs or symptoms of intolerance.
- Be aware that closed system is preferred to avoid formula contamination. Change system every 24 hours.
- When closed system isn't available, hang only 8 hours' worth of formula at a time.

### Continuous pump feeding

- Check GRV before starting infusion and every 6-8 hours thereafter.
- For high-risk patients, check GRV every 4-6 hours (or according to facility policy) for first 48 hours if patient tolerates feedings.
- Stop feeding and contact healthcare provider for GRV > 500 mL, unless lower threshold is ordered.
- Know that A.S.P.E.N. guidelines don't require routine residual checks for patients without signs or symptoms of intolerance.
- Be aware that closed system is preferred to avoid formula contamination. Change system every 24 hours.
- When closed system isn't available, pour only 8 hours' worth of feeding volume into open system; refill open system every 8 hours until system is due to be changed (usually every 24 hours).

\*High-risk patients are those with endotracheal tubes or known feeding intolerance and those receiving medications that relax the upper esophageal sphincter.  
A.S.P.E.N. = American Society for Parenteral and Enteral Nutrition