TEXAS Health and Human Services

Evidence-Based Best Practice for Nutritional Support

Overview

Maintaining a healthy nutritional status is important for all people living in long-term care (LTC) facilities to preserve physical functioning and to reduce medical complications. Older adults residing in long-term care (LTC) facilities are more likely to have several factors that predispose them to unintended weight loss and malnutrition which can lead to a need for nutrition support. Enteral (tube feeding) or parenteral (IV) nutrition therapy may be used to provide adequate nutrition for someone who is not able to achieve it with other interventions.

Initiation and Indications for Use of Enteral Nutrition

Enteral nutrition therapy is a medical treatment that is an option for people that cannot meet their nutrient and hydration requirements orally but have a functional GI tract.

An evaluation should be performed prior to enteral nutrition (EN) use for all people that are candidates. The clinical record should contain a documented condition or valid diagnosis that indicates the need for EN therapy such as:

- dysphagia
- mechanical ventilation
- critical illness or trauma
- any condition that results in the inability to consume adequate oral intake

Enteral nutrition is contraindicated for those with:

- nonfunctional or inaccessible gastrointestinal tract
- severe short bowel syndrome (<100cm remaining)
- intractable vomiting and/or diarrhea
- intestinal obstruction
- peritonitis
- paralytic ileus
- high output fistula (unable to feed distal to fistula)
- new pressor support, increasing pressors, or multiple

In addition to determining whether a tube should be placed at all, it is important to determine when it is best to provide bolus feeding versus continuous feeding. Advantages and disadvantages by method include:

Bolus administration:

- more physiologic than continuous feeding
- no pump is required; therefore, method is less expensive and easier to administer than other methods, facilitate the portability of supplies, and increases patient mobility/independence
- poorly tolerated into the small bowel
- rapid infusion can cause gastrointestinal intolerance (eg, nausea, vomiting, abdominal distention, cramping, and diarrhea)
- associated with an increased risk of aspiration in critically ill

Intermittent (gravity-assisted/pump-assisted) administration:

- method is more physiologic than continuous feedings
- allows for increased patient mobility and independence
- slower infusion time (compared to bolus) may reduce gastrointestinal intolerance (e.g., nausea, vomiting, abdominal distention, cramping, and diarrhea)
- infusion rates with gravity drip sets can be unreliable
- reimbursement for home tube feeding equipment may be limited

Cyclic (8-20 hour/day) delivery:

- may help to increase oral intake because continuous feeding can suppress appetite
- allow for gut rest
- allows for increased patient mobility and independence
- compared to continuous feeding, method requires increased infusion rate to meet full nutrition needs (intolerance of a high infusion rate may be alleviated by changing to a more calorically dense formula)
- hyperglycemic patients will require close monitoring to maintain tight glucose control

Continuous (24 hr/day) delivery:

- ensures constant delivery with inadvertent bolus being unlikely
- compared to bolus/intermittent infusion, this method may:
    - decrease risk of gastric distention and aspiration
    - may result in fewer metabolic abnormalities (e.g., increases in post-prandial glucose, oxygen consumption, and carbon dioxide production) in critically ill patients

    - may reduce diet-induced thermogenesis
    - may increase substrate absorption after significant loss of intestinal surface area (short-gut syndrome)
- requires a pump
- limits patient mobility
- gastric pH levels may be higher than with bolus/intermittent feeding, which may promote bacterial growth

Education should be provided to the person and/or their representative on risks, benefits, and alternatives to enteral nutrition (EN) and documented in the clinical record. See Enteral Nutrition Education Form Example on our QMP website.

Decisions related to the possible provision of artificial nutrition should be made in conjunction with the person, surrogate, family, and/or legal representative, and in accordance with state law. The person's condition, prognosis, preferences, values, and choices should always be relevant considerations; and the desire for EN documented in the person's advance directives.

Administration and Monitoring of Enteral Nutrition

When initiating enteral nutrition (EN), weekly weights should be obtained and documented in the clinical record as defined by the physician/prescriber or:

- weekly for first 3 months
- monthly after weight is stabilized
- anytime the person experiences a significant change in clinical condition, such as a weight loss or intolerance to the formula

Evaluation of EN therapy tolerance often includes monitoring of subjective complaints, feelings of fullness, gastric residual volumes (GRV), GI symptoms (nausea, vomiting, diarrhea, constipation), hydration status, and abdominal distension.

For Additional details on weight monitoring, See the EBBP for Weight Management on QMP website.

Orders for EN should be prescribed using a standardized electronic order format to prevent incorrect or incomplete orders. If computerized provider order entry is not available a standardized order template should be used. Orders for enteral nutrition (EN) should include the formula name and strength, administration method, rate, duration, and volume. In addition, the EN order should include the hydration volume, administration method rate, and duration if applicable.

Examples:

- Jevity 1.2, continuous, pump assisted via PEG, 45 ml/hr X 22 hours to provide 990 ml/day
- Glucerna 1.5, bolus via PEG, 1 can, 240 ml X 5 per day to provide a total of 1200 ml/day
- Flush H2O continuous, pump assisted via PEG, 30 ml/hr X 22 hours to provide 660 ml/ day free water for hydration.
- Water flushes, bolus, via PEG, 150 ml X 5 after each feed to provide 750 ml/ day free water for hydration.

See ASPEN Safe Practices for Enteral Nutrition Therapy (2017) the Journal of Parenteral and Enteral Nutrition and the Enteral Nutrition Order resource from the QMP website for more information and examples.

General recommendations for enteral nutrition include implementing and documenting the following:

- Orders or facility procedures to elevate the head of the bed 30-45 degrees when administering a feeding or flush and for 30-60 minutes after unless otherwise ordered by the physician/prescriber (this does not include holding tube feeding for routine procedures where short periods of HOB lowering are needed)
- Tube placement checks by aspiration of gastric contents and visual inspection prior to feeding or medication administration
- Gastric residual checks as ordered and notification of the physician/prescriber if the residual exceeds acceptable parameters as identified in the orders
- Feeding syringes, bags, or closed system bottles with tubing changed every 24 hours or per the manufacturer's recommendations. Meanwhile, open-system formulas have a hang-time of up to 8 hours for ready-to-use liquid formulas
- Total intake of formula and free water should be documented every shift or every day per facility policy unless otherwise ordered by the physician/prescriber. Free water intake may include the amount of water prescribed, free water provided during medication pass, water provided every 4 hours for continuous feeding and/or before and after each intermittent feeding. The amount documented should match the amount prescribed and the amount in the pump history (if applicable/available).
- The feeding tube site should be monitored by nursing staff daily or per facility policy or order, for signs and symptoms of infection such as redness, inflammation, drainage, or a foul odor. Insertion site care should be performed daily, as needed, or as otherwise ordered. Observe for any pressure related areas as well that may develop as a result of tube

placement or position. All assessments and care should be documented in the clinical record.

Nursing staff should flush the tube regularly per policy and/or as ordered to maintain tube patency. Unless contraindicated or otherwise ordered by the physician/prescriber the following is recommended:

- Flush with at least 30 ml water before and after medications
- Flush with at least 10 ml water between medications
- Flush with at least 30 ml of water every 4 hour with during continuous feeding
- Flush before and after intermittent feeding

Formula Handling and Equipment Maintenance for Enteral Nutrition

Quality control processes should be established to ensure the safety of those receiving EN therapy, including processes for handling formula and equipment maintenance. These processes include ensuring timely turnover of enteral formula inventory well within the product expiration dates and appropriate labeling; carefully checking commercial container labels against the prescriber's order; and being aware of sound-alike or look-alike product names.

Formula labels should include the following:

- person's name and room number
- formula name and strength
- date and time formula prepared and hung
- enteral delivery site/access
- administration method (pump-assisted, gravity-assisted) route (gastric, post-pyloric) and enteral access device (gastrostomy, jejunostomy)
- rate of administration expressed as mL/h over 24 hours if continuous administration or rate not to exceed__, or volume not to exceed__.
- duration of administration and total volume to be administered within that duration
- initials of who prepared, hung, and checked the EN against the order
- appropriate hang time (expiration date and time)
- dosing weight (if appropriate)
- "Not for IV Use"

Water flush labels should include:

- administration method
- rate
- time initiated

Additional recommendations for EN handling and maintenance:

- tube feeding syringes labels changed daily should include a resident identifier, date, and the initials of the person who changed it
- enteral connector is attached properly
- feeding pump, pole, and floor shows no signs of leaked formula
- feeding pumps tested at least once every two years or any time the pump is suspected of having improper performance/malfunction
- formula prepared in a clean environment according to manufacturer's instructions
- staff respond promptly to pump alarms

Care Planning for Enteral Nutrition

Care planning for nutrition support is essential. Nutrition support should be addressed in the comprehensive care and based on the best available evidence, developed from the assessment findings, and reflect the person's wants, needs, and desires.

Initial or baseline care plans are important to ensure continuity of care and the prevention of adverse events following admission, such as decline or injury. Initial care plans should be developed within 48 hours of admission and address diet orders (including NPO), enteral feeding orders, formula product name, total volume, method of delivery, rate of delivery, feeding schedule, required water flushes, and the type of feeding pump used (if applicable). Initial goals should be based on admission orders (if applicable), such as increasing rate of feeding 10ml per hour to goal rate or providing speech therapy evaluation for upgrade of diet texture.

Comprehensive care plans should be developed within 21 days of admission, quarterly, and with a significant change in condition. A comprehensive care plan should be developed by the interdisciplinary team (IDT) including the Registered Dietitian (RD) or dietary representative and the individual.

Comprehensive care plans should include but are not limited to:

- problem or need identified through the assessment process
- measurable goals (SMART = specific, measurable, achievable, relevant, and time bound) that provide a clear sense of direction

- person-centered interventions that reflect the person's needs and preferences and are specific to EN therapy recommendations including:
    - indication and rationale for EN therapy
    - enteral formula and modular component names as appropriate
    - enteral access device and placement site
    - initial rate, goal rate, and advancement schedule, as applicable
    - schedule and amount of routine water flushes, as applicable
    - daily nutrients, total volume of formula, and free water to be provided
    - lab and adverse events monitoring
    - weight monitoring interventions
    - monitor for the presence of bowel sounds every 4-6 hours to ensure GI function
    - check residual per physician/prescriber's order
    - hold tube feeding if the residual is greater than the tolerable amount and reassess tolerance to EN
    - elevate HOB 30-45 degrees during feedings
    - monitor sensation of fullness, nausea, and vomiting
    - discontinue feeding for 30-60 minutes prior to putting a person in the head-down position unless otherwise approved by the physician/prescriber

In addition, comprehensive care plan should address risks, benefits, and alternatives to EN, as applicable, including the potential for social isolation and negative psychosocial impact.

See a sample Care Plan on our QMP website.

Facility-Wide Systems & Strategies for Enteral Nutrition

Policies and procedures for EN should be current, specific to the nursing facility, and reviewed and updated annually more often if needed. Policies and procedures for EN should provide guidelines, as applicable, for the following:

- quality control processes such as preparation, distribution, storage, handling, and administration
- standard clinical care practices, site care, formula delivery, monitoring practices, common complication assessment, acceptable hang time, and tube replacement
- notification of the registered dietitian and physician/prescriber when signs and symptoms of complications are identified

General guidelines for facility-wide systems and strategies include:

- storing formula unopened at room temperature and away from direct sunlight or in accordance with the manufacturer's instructions on the label
- storing opened formula for up to 24-48 hours if labeled, dated, reclosed or covered, and refrigerated, if allowed per manufacturer's instructions
- maintaining a 7-day supply of formula for each person at all times
- ensuring turnover of formula inventory within the product's expiration date using a process, such as "first-in, first-out" (FIFO)
- conducting periodic maintenance of feeding pumps consistent with manufacturer's instructions, including pump calibration to ensure accuracy of pump flow rate and verifying functionality of the pump alarm system

Nurse competency program for EN therapy should include education, trainings, monitoring, and performance standards. Using a nursing skills checklist on hire and at least annually, helps to ensure the following elements are covered:

- when and how tube placement should be checked
- technique to verify tube placement prior to administering feedings and medication administration
- techniques for providing personal care (e.g., skin, oral, and nasal)
- techniques for assessing stoma site care prevent irritation and infection
- frequency and volume for medication flushes, according to physician orders, policies, and procedures
- evaluation on pump technique including proficiency with alarms, calibration, troubleshooting, misconnection management
- assessments on signs and symptoms of tube feeding intolerances
- addressing complications (e.g., aspiration, leaks, tube clogging, skin irritations at the stoma cite) and physician notifications
- safe use of feeding pumps including:
    - initial set-up
    - instructions for use
    - loading pump sets
    - priming pump
    - proper hanging of feeding bag 18 inches from the top of the feeding pump
    - calibration of enteral feeding pumps
    - periodic maintenance of feeding
    - how to read the volume delivered and pump history

A Note about Parenteral Nutrition

Though parenteral nutrition (PN) administered intravenously is rare in nursing facilities, it is important that nursing homes be prepared to address those in their care that may require this service either in-facility by competent nursing staff or by transferring the person elsewhere.

Policies, procedures, and nursing staff qualified to administer PN must be in place for a facility to accept the care of a person with parental nutrition. Facilities that provide PN therapy should develop evidence-based, person-centered policies and procedures that are reviewed and revised at least annually to ensure adherence with current guidelines and standards of practice.

PN therapy policies and procedures should provide guidelines on evidenced based standardized processes for PN management in accordance with American Society for Parenteral and Enteral Nutrition (ASPEN) Safe Practices for Parenteral Nutrition including:

- informed decision making with a discussion of PN therapy risks and benefits
- ensuring staff have the expertise in PN nutrition, such as Certified Nutrition Support Clinician (CNSC)
- IDT collaboration to evaluate, clearly define, and accurately document the person's medical condition, potential complications, intolerances, and indications for PN
- confirmation of appropriate intravenous access (IV) for PN prior to prescribing PN therapy
- determination of most appropriate types of PN formulations for the population and criteria for each formulation used
- PN therapy monitoring using appropriate parameters, detection and prevention of complications, evaluation of changes, and documentation of outcomes
- monitoring of fluid requirements, serum electrolytes, glucose and triglyceride concentration, hepatic and renal function, signs and symptoms of vascular device complication, and for signs of infection
- establishing therapeutic goals for PN, including end points, response to treatment, and treatment successes and failures

Resources

American Society for Parenteral and Enteral Nutrition (ASPEN)

Academy of Nutrition and Dietetics (eatright.org)

ESPEN Guideline on Ethical Aspects of Artificial Nutrition and Hydration (ESPEN)

Best Practices for Managing Tube Feeding: A Nurse's Pocket Manual (Abbott)

Enteral Tube Feeding for People with Severe Dementia (NIH)

Current perspective for tube feeding in the elderly: from identifying malnutrition to providing of enteral nutrition (NIH)

Operating Manual: Kangaroo ePump Enteral Feed and Flush Pump with Pole Camp, Programmable