

Evidence-Based Best Practice: Enteral Nutrition

Considerations for the Use of Enteral Nutrition

Like all clinical interventions, the decision to use enteral nutrition has medical, ethical, emotional, and financial dimensions. Any decision to employ enteral feeding must consider the issues listed below and address not only clinical need, but also individual and family preferences regarding artificial nutrition and hydration by feeding tube.

Potential Benefits

- Provide adequate nourishment and hydration
- Promote weight gain or maintenance except for late stage metastatic cancer, organ failure, or dementia
- Enhance comfort and quality of life except for conditions such as late stage dementia or organ failure
- Ease and convenience
- Improve skin integrity except for late stage metastatic cancer, organ failure, or dementia
- In potentially reversible conditions such as a recent stroke with decreased swallowing ability, enteral nutrition could improve clinical status and strengthen the individual to regain the ability to eat

Potential Risks

- Risk of pneumonia from aspiration of formula into the lungs
- Risk of diarrhea, gastrointestinal bleeding, nausea, vomiting, reflux or fluid overload
- Possible fluid and electrolyte imbalance
- Possible hyperglycemia
- Possible use of restraints from individual pulling out tube due to confused behavior
- Risk of infection at tube insertion site or systemic infection
- Contrary to resident's personal wishes

Burdens: Diminished quality of life

- Potential for decreased mobility and social interactions
- Discomfort while carrying out activities of daily living
- Loss of physical pleasures of tasting and eating food
- Neglect of oral or dental hygiene leading to risk of aspiration pneumonia or other health issues

Education Process for Individual and Family

- Documentation that advance directives are reviewed
- Documentation of the educational process discussing benefits, risks, burdens, and alternatives of enteral nutrition with the resident or family.

- See Enteral Nutrition Education form [attachment]

Assessment

Enteral feeding tube placement should only be considered if it is likely to benefit an individual's overall goals of care. Thus, a sound decision to use enteral nutrition requires at least the following:

- Defining and documenting the specific medical indication(s) or diagnosis for enteral nutrition. Examples of a valid diagnosis are:
 1. Parkinson's disease
 2. Pseudobulbar palsy
 3. Esophageal diverticulum
 4. Dysphagia
 5. Neuromuscular disorders
 6. Neoplastic diseases
- Identifying the resident-specific goals of enteral nutrition and incorporate goals in care plans. Goals are consistent with the advance directives
- Assessing whether those goals can be achieved through enteral nutrition
- Assessing the individual/surrogate preferences regarding enteral nutrition by documenting the presence or absence of advance directives and documenting the resident's and family's wishes regarding enteral nutrition
- Consider discontinuing enteral nutrition when the resident is able to consume adequate oral intake, or when enteral nutrition is no longer consistent with the person's overall plan of care

Management/Treatment

Before placing a feeding tube and initiating enteral nutrition (event-driven process)

- Perform a resident-centered assessment for enteral nutrition
- Develop the enteral nutrition orders and nutritional care plan
- Registered dietitian assesses resident's nutritional needs with comparison to nutrients provided by the enteral formula
- Registered dietitian assesses resident's fluid needs with comparison to total free water provided from formula and flushes
- Registered dietitian develops a nutrition-related goal for enteral nutrition that is used in the care plan
- Assess each resident's daily enteral nutrition care including clinical signs of tolerance of the formula
- Assess biochemistries and body weight
- Review the conditions in which formula is prepared and distributed.

For residents already receiving enteral nutrition

- Review the resident's assessment for enteral nutrition.
- Review the resident's enteral nutrition orders and nutritional care plan
- Registered dietitian assesses resident's nutritional needs with comparison to nutrients provided by the enteral formula
- Registered dietitian assesses resident's fluid needs with comparison to total free water provided from formula and flushes

- Registered dietitian develops a nutrition-related goal for enteral nutrition that is used in the care plan
- Assess each resident's daily enteral nutrition care including clinical signs of tolerance of enteral formula
- Assess biochemistries and body weight
- Review the conditions in which formula is prepared and distributed.

Care Plans

The plan for enteral nutrition should be incorporated into the overall care plan. Best practice multi-disciplinary care plans include the following components:

- Resident-specific measurable goals. Goals are measurable to determine effectiveness of treatment
- Individualized interventions, including type and amount of formula, how it is administered (continuous, including rate, or bolus), and frequency and amount of flushes
- Registered dietitian's assessment, findings, nutrition goals, and recommendations are considered
- An interdisciplinary approach

Attachment: Example of Best Practice Care Plan for Enteral Nutrition

Attachment: Enteral Nutrition and Medication Administration Guidelines

Mr. Chavez is 59 years old and has Amyotrophic Lateral Sclerosis (ALS), Ventilator dependence, and a Percutaneous Endoscopic Gastrostomy (PEG) feeding tube. He is alert and oriented, but totally dependent for all ADLs. Mr. Chavez is 6' tall and currently weighs 160 pounds; he recently lost 8 pounds (5%). The Registered Dietitian calculated his nutritional needs as follows: 2268 calories / 80 grams protein / 2280 cc. fluid. She recommended increasing the Fibersource enteral formula to 85 cc/hr for 22 hours each day (down time from 9:00-11:00 a.m. for ADL care), which would provide 2244 calories / 80 grams protein / 1515 cc free water. She also recommends water flushes of 50 cc before and after medication administration each shift as well as an additional 155 cc of free water each shift.

CARE PLAN

Diagnosis: ate	Problem	Goals	Approaches/Interventions	Discipline	Resolution/Review
11/19/13	<p>Enteral nutrition secondary to ALS & ventilator dependence.</p> <p>Potential for unintentional weight loss related to:</p> <ul style="list-style-type: none"> Enteral nutrition Recent Weight Loss Total ADL Dependence <p>Potential for Dehydration related to:</p> <ul style="list-style-type: none"> Enteral nutrition Recent Weight Loss Total ADL Dependence 	<p>Mr. Chavez will maintain his weight between <u>160 to 176#. CBW 161# (1/7/14)</u></p> <p>Mr. Chavez will gain between <u>1-2# per month until UBW of 168#</u> is reached.</p> <p>Mr. Chavez will tolerate enteral nutrition and water flushes providing 2244kcal, 80g protein, and 2280cc fluid with gastric residual volumes less than 15cc/shift, no diarrhea, vomiting or abdominal pain.</p> <p>Mr. Chavez will maintain hydration status as evidenced by normal laboratory values, no electrolyte imbalance or decreased urine output.</p> <p>Mr. Chavez will have no signs/symptoms of dehydration through target date.</p>	<ol style="list-style-type: none"> Provide Fibersource @ 85 cc/hr X 22 hrs/day to meet nutritional needs. <u>presently tolerating EN continue as ordered 1/16/14.</u> Monitor gastric residuals and complaints of GI upset for tolerance of continuous enteral feeding. Provide minimum of 50 cc water flushes before and after medications every shift via gravity flow. Provide additional 155 cc free water via PEG tube using gravity flow every shift. Weigh weekly until weight is stable, then weigh monthly. RD will assess tolerance and adequacy of enteral nutrition monthly until stable and then quarterly and will assess hydration needs annually or as health condition changes. Discuss with physician the need for monthly laboratory analysis to assess protein and hydration status. <u>Physician ordered Comprehensive Metabolic Panel (CMP) every six months. WNL 1/10/14</u> Assess for __weight change __B/P __skin turgor __urine __confusion __sunken eyes __cracked lips 	<p>Nursing</p> <p>Nursing</p> <p>Nursing</p> <p>Nursing</p> <p>Nursing/CNA</p> <p>RD</p> <p>RD</p> <p>Nursing/CNA</p>	<p>Resident receives adequate fluids. Review monthly</p> <p>Review weekly</p> <p>Review monthly</p> <p>Review monthly</p> <p>Review weekly until stable, then monthly</p> <p>Review quarterly and reassess annually or with change of condition</p> <p>Review monthly when available</p> <p>Monitor daily. Review monthly</p>

ENTERAL NUTRITION AND MEDICATION ADMINISTRATION GUIDELINES

U.S. Department of Health & Human Services
AHRQ Agency for Healthcare Research and Quality
National Guideline Clearinghouse
Guideline Summary NCG-7288
<http://www.guideline.gov/content.aspx?id=14718>
Date Released 2009 Jan

Guideline Objective(s)

1. To examine the available literature related to the ordering, preparation, delivery, and monitoring of enteral nutrition
2. To establish evidence-based practice guidelines for the safe and effective use of enteral nutrition

Target Population

People receiving enteral nutrition throughout the lifecycle and throughout all practice settings

The complexity of enteral nutrition (EN) feedings cannot be underestimated. All healthcare professionals should be vigilant in continuous surveillance of high risk practices, products and systems as they relate to individuals who are enterally fed. Recognition of ordering, administration, and monitoring steps of EN delivery which may increase risk of complications to the person who is enterally fed is essential.

Major Recommendations

Definitions of the grades of recommendations (**A-C**) are provided at the end of the "Major Recommendations" field.

Practice Recommendations

1. Do not add medication directly to an enteral feeding formula. (**B**)
2. Avoid mixing together medications intended for administration through an enteral feeding tube given the risks for physical and chemical incompatibilities, tube obstruction, and altered therapeutic drug responses (i.e., do not mix medications together, but do dilute them appropriately prior to administration). (**B**)
3. Each medication should be administered separately through an appropriate access. Liquid dosage forms should be used when available and if appropriate. Only immediate-release solid dosage forms may be substituted. Grind simple compressed tablets to a fine powder and mix with sterile water. Open hard gelatin capsules and mix powder with sterile water. (**B**)
4. Prior to administering medication, stop the feeding and flush the tube with at least 15 mL water. Dilute the solid or liquid medication as appropriate and administer using a

clean oral syringe (> 30 mL in size). Flush the tube again with at least 15 mL water taking into account person's volume status. Repeat with the next medication (if appropriate). Flush the tube one final time with at least 15 mL water. Note: Dilution/flush should be less for pediatric doses (minimum 50:50 volume) and at least 5 mL when fluid is not restricted. **(A)**

5. Restart the feeding in a timely manner to avoid compromising nutrition status. Only hold the feeding by 30 minutes or more when separation is indicated to avoid altered drug bioavailability. **(A)**
6. Use only oral/enteral syringes labeled with 'for oral use only' to measure and administer medication through an enteral feeding tube. **(B)**
7. Consult with a pharmacist for individuals who receive medications co-administered with enteral nutrition. **(C)**

Definitions: Grade of Recommendation

- A.** There is good research-based evidence to support the guideline (prospective, randomized trials).
- B.** There is fair research-based evidence to support the guideline (well-designed studies without randomization).
- C.** The guideline is based on expert opinion and editorial consensus.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

1. Standardized processes for enteral nutrition care including ordering, preparation, administration, and monitoring
2. Optimal care and minimal risk of error
3. Avoidance of tube obstruction, reduced drug efficacy, or increased drug toxicity

Potential Harms

Not stated

Bibliographic Source(s)

Bankhead R, Boullata J, Brantley S, Corkins M, Guenter P, Krenitsky J, Lyman B, Metheny NA, Mueller C, Robbins S, Wessel J. Medication administration. In: A.S.P.E.N. enteral nutrition practice recommendations. JPEN J Parenter Enteral Nutr 2009 Mar-Apr;33(2):158-62. [36 references]