

ADULT ENTERAL FORMULA



CHS 431

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Enteral Nutrition



Nutrition support is a vital component of medical care.

- Enteral nutrition (EN) can be defined as the provision of nutrient via the gastrointestinal (GI) tract through a feeding tube, catheter or stoma.
- It is the preferred route for the provision of nutrient for patients who cannot meet their nutrition needs through voluntary oral intake.

Classification of Enteral Formula



Standard (polymeric)

Elemental & Semi-Elemental

Disease - Specific

Blenderized

Modular

Standard (polymeric)

- ❑ Formula containing intact nutrition (protein, fat, and CHO) which require normal or near normal digestive and absorptive capacity and are complete with respect to vitamin, minerals, and trace elements at specified volume .
- ❑ Most are lactose free, gluten free, low viscosity 300- 500 mOsm/kg.
- ❑ Contain 1-1.2 kcal/ ml and are used as over the counter oral supplement and tube feeding formula. protein content 30 – 40 gm/L

Example of Standard Formula



ENSURE



OSMOLITE



Nutren1.0



Isosource HN



IMPACT

Calorie Dense

Standard formula are often concentrated to provide 1.5-2 kcal/ml when fluid restriction is required for patient.

Example of Calorie Dense Formula



ENSURE
Plus



Nutren® 2.0



Isosource 1.5



IMPACT
1.5



TwoCal® HN

FortiCare

- FortiCare is a nutritionally complete, high energy (1.6 kcal/ml), high protein, ready to drink, milk shake style nutritional supplement.
- It is enriched with n-3 fatty acids, antioxidants and fiber.
- for the dietary management of cachexia in oncology patients.



Blenderized Feeding

- ✿ Used for patient that cannot tolerate semi-synthetic formulas or who wish to consume family food.
- ✿ Formulize with a mixture of blenderized food source .
- ✿ Maintenance of aseptic technique is essential to prevent bacterial contamination.

Blenderized Feeding

- Natural feeding contain
 - ▣ Starch (rice): $\frac{1}{2}$ cup = 1 ex.
 - ▣ Milk (powder whole fat/ low)
 - ▣ Fruit (apple juice): $\frac{1}{2}$ cup = 1 ex.
 - ▣ Veg ($\frac{1}{2}$ cup = 1 ex.)
 - ▣ Meat (lean; chicken $\frac{1}{2}$ cup = 1ex.)
 - ▣ Fat (1 tsp = 1 ex – 1 Tbs = 3 ex.)



Blenderized Feeding



❑ **Developed for Patients with Intolerance to Standard Formulas.**

- Formulated with real food:
 - chicken, peas, carrots, tomatoes and cranberry juice cocktail
- Cranberry Juice helps support urinary tract health
- The fiber blend with BENEFIBER®◆ soluble fiber helps promote beneficial bacterial growth and normal bowel function

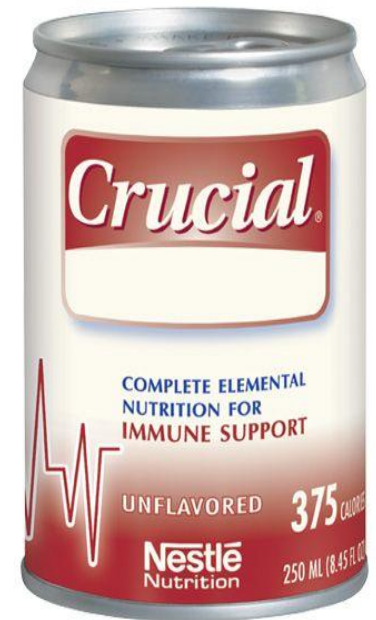
Elemental & Semi-Elemental

- Contain partially or completely hydrolyzed nutrient (elemental).
- Formula have been hydrolyzed to contain short chain carbohydrate or simple sugar and peptides or amino acid.
- The use of peptide based formula has been shown to be superior to free A.A in promoting greater nitrogen absorption in both healthy and disease gut.
- They are used with condition of maldigestion or malabsorption.

Example of Elemental & Semi-Elemental

❑ Crucial :

- High calorie (1.5 kcal/mL) and 25% protein.
- complete elemental peptide-based formula.
- for immune support, wound healing, trauma, major surgery, hypermetabolism, burns, malabsorption, head injury and chronic pressure ulcers.
- lactose-free, gluten-free, low-residue, for fluid restricted patients



Example of Elemental & Semi-Elemental

□ ALITRAQ:

- Is an elemental formula specifically designed for metabolically stressed patient with impaired GI function.
- helps maintain nutritional status and provides supplemental glutamine to nourish GI tract and help restore glutamine depleted during catabolic states.
- Glutamine is thought to be a conditionally essential nutrient during situations of metabolic stress.



Example of Elemental & Semi-Elemental

□ Peptamen®:

- Balanced peptide profile promotes proximal through distal GI absorption and integrity
- Protein source is 100% whey, enzymatically hydrolyzed, to enhance absorption and facilitate gastric emptying.
- 70% of fat from MCT to decrease potential for fat malabsorption



Example of Elemental & Semi-Elemental

□ vivonex TEN:

- 100% free amino acids diet for severely compromised GI patients
- Only 3% of calories from fat to help speed gastric emptying and digestion, reduce pancreatic stimulation and improve tolerance
- Enriched with glutamine to meet the total nutritional needs of patients with gastrointestinal impairment
- Complete oral or tube feeding.



Example of Elemental & Semi-Elemental

❑ PIVOT 1.5 Cal:

- Is a very-high-protein, calorically dense.
- Immune- enhancing, semi-elemental enteral formula containing a peptide-based protein system.
- Added arginine, glutamine, structured lipid, fructooligosaccharides (scFOS) and elevated levels of antioxidants.
- Use in the metabolically stressed, immunosuppressed patient & fluid restricted patients.
- Not for parenteral use.



Example of Elemental & Semi-Elemental



□ PERATIVE:

- ready-to-feed formula designed for metabolically stressed patients with **pressure ulcers**, multiple **fractures**, **wounds**, **burns**, or **surgery** who can benefit from supplemental **arginine**.
- Calorically dense (**1.3 Cal/mL**) for the elevated energy needs of metabolically stressed patients
- **High in protein** (20.5% of calories) for the elevated protein needs of metabolically stressed patients
- **Peptide-based**, hydrolyzed protein for easier absorption. Well tolerated as a tube feeding
- Gluten-free; suitable for lactose intolerance.

Example of Elemental & Semi-Elemental



□ Vital® 1.0 Cal

- is a **peptide-based** elemental formula for patients experiencing malabsorption, maldigestion, or impaired GI function and/or feeding intolerance.
- For tube or oral feeding
- An advanced blend of hydrolyzed protein, structured lipid and **prebiotic** to promote tolerance and absorption
- Elevated levels of antioxidant **vitamins C and E** to help reduce free radical damage
- **Gluten-free**; suitable for lactose intolerance

Disease Specific

- ❑ Used in organ dysfunction or specific metabolic condition (for patients with specific disease states).
- ❑ May not be nutritionally complete, most are hyperosmolar.
- ❑ They are generally much more expensive than standard formula.

Disease Specific Formulas For Immune-Enhancing

- ❑ Contain supplement amount of L-arginine, L- glutamine nucleotide and EPA, DHA fatty acids
- ❑ The premise for these formula is they improve immune cell function, modulate inflammation and reduce infection.
- ❑ Appropriate for major elective surgery, trauma, burns, head and neck cancer and ICU on mechanical ventilation, wound healing.
- ❑ Caution in Pt with sever sepsis.

Disease Specific Formulas For Immune-Enhancing



Enteral Formula Categories

Fiber-Containing

Containing a source of fiber; reportedly beneficial for prevention/treatment of altered bowel function in enterally fed patients may be useful in the dietary management of diarrhea and constipation



Mostly for
tube feeding
only



FIBERSOURCE HN®
for constipation

Modular Product

- provides protein, fat, or carbohydrate as single nutrients or modular mixtures to allow adjustment of macronutrient mix.
- However these methods require more labor and increase risk of microbial contamination.

Modular Product

- **MCT oil** : is hydrolyzed fat, require less enzymes and bile acids for digestion, use for decrease pancreatic lipase
- **Benefiber**: Bowel management, high fiber (3g /1 Tbsp or packet), lactose free

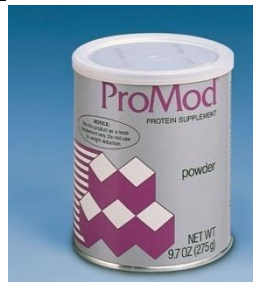


Modular Product

- **Beneprotein:** High protein diet, renal (dialysis), wound prevention and treatment programs, lactose free.

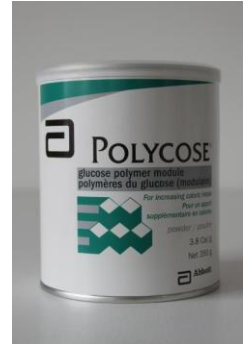


- **ProMod® :** concentrated source of high-quality protein for people with increased protein needs or those who are unable to meet their protein needs with a normal diet. Use as an addition to an oral supplement or to tube-administered enteral products.



Modular Product

- **Polydose:** Source of CHO calorie for use when additional calorie are required, lactose, gluten free and low residue.



- **Thicken up:**

Dietary management for individuals with dysphagia, instant thickener for hot and cold foods and beverages, thickens quickly without lumping and its consistency over time, lactose free and low residue.



Oral Supplements

- ❖ Between meals
- ❖ Added to foods
- ❖ Added into liquids for medication pass by nursing
 - ❖ Enhances otherwise poor intake
- ❖ May be needed by children or teens to support growth

Oral Supplements

❁ Factor in the selection of oral supplement include:

1. **Taste** : providing a variety of flavors can increase intake.
2. **Nutrient density**: if Pt need Kcal supplement = 250 give 1kcal/ml but if he need more than 500kcal provide > 1 kcal / ml.
3. **Special nutrient requirement.**

Oral Supplements



