Meeting protein provisions for the mechanically ventilated patient.

The Issue:

The COVID-19 virus has brought significant new challenges to the nutritional support of the estimated 960,000 patients who will require mechanical ventilation.

Overview:

Ventilated patients are anesthetized using a lipid (fat) based anesthesia such as propofol that typically delivers 400-500 fat calorie per day.

Enteral tube feeding formulas do not deliver enough protein to meet the Society of Parenteral and Enteral Nutrition (ASPEN) guidelines of 1.2 -2.0 mg of actual body weight per day without over feeding calories (see attached). For example, a 225 lb. man receiving and a standard enteral tube feed would receive 1530-2040 calories but only 65-86 grams of protein. However hisprotein needs are estimated to be closer to 153-204 grams. A 150 lb. woman would receive 1020-1360 calories and 43-57 grams protein, but her protein needs are estimated to be 65-86 grams. In both cases the protein provision falls short of the estimated needs. With the addition of calories provided by lipid-based sedatives, the protein deficit would be even greater.

Modular protein supplementation must be administered to meet the protein goals. The three types of products available for this are:

1. Protein powders only contain 6 grams of protein per packet and must be mixed with 120 mL (3 fl. oz.) of water for administration down the feeding tube making it virtually impossible to meet protein requirements due to the amount of water required for dilution. In addition, mixing takes valuable nursing time, risks cross contamination and increases the potential of clogging a feeding tube if the powder is not completely dissolved. These are all well known disadvantages to using powdered proteins and is the major reason protein goals are NOT met with powered products.
2. Another option is liquid protein that has been made for oral application not tube feeding. These products are low quality proteins, contain artificial colors, glycerin which promotes tube fed diarrhea and are thick and sticky so they must be diluted with water, again taking valuable nursing time and risking cross contamination. Because of dilution and high osmolality from the glycerin it is impossible to safely administer multiple packets at one time.
3. Our product, ProSourceTF® is the only liquid protein made specifically for enteral tube feeding. It is water thin and requires no mixing or dilution reducing the risk of cross contamination and nursing time. It is a high-quality fortified liquid protein that meets the Institute of Medicine's amino acid profile for the high-quality protein with a Protein

Digestibility Corrected Amino Acid Score (PDCAAS) of 100. With 11 grams of protein per 45 mL packets, 33 grams of protein can be syringed down the feeding tube in minutes. It has no sweeteners, artificial colors or glycerin and is extremely well tolerated. ProSourceTF is used by leading hospitals and Level 1 trauma centers worldwide.

The first of ASPEN's guiding principles for SARS-CoV2 Management (see attached) is Cluster Care meaning all attempts are made to bundle care as quickly as possible to limit exposure. ProSourceTF helps meet this goal by eliminating mixing and dilution as well as the ability to safely administer multiple packets at one time. It helps nursing perform the task quickly and efficiently.

Hospital that typically do not have many mechanically ventilated patients are potentially going to be inundated with this challenge. We know that all other modular proteins can not meet the protein goals without the risk of further complicating care. This is urgent and important information that needs to go the front line of COVID 19 of care.