Implementing a Volume Based Tube Feeding Protocol to Overcome the Barriers to Adequate Delivery of Enteral Nutrition

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**Background:** Despite the research supporting adequate enteral nutrition in intensive care unit patients, underfeeding is still common. Current evidence suggests that enteral nutrition, started as soon as possible after acute resuscitation efforts, may serve therapeutic roles beyond providing calories and protein.

**Purpose:** To determine if transitioning to a volume-based feeding approach would lead to a significant improvement in early initiation as well as adequacy of protein and calories delivered.

**Sample/Population:** The 23-bed intensive care unit located with Wheaton Franciscan Healthcare-All Saints in Racine, Wisconsin.

**Method/Approach:** The interdisciplinary team reviewed the current process of tube feeding with our mechanically ventilated patients. A work group was formed to help identify strategies to ensure that all intensivist ICU patients had early initiation of enteral nutrition if appropriate. A literature review was completed and studies revealed that an increased amount of calories/protein per day during the early phase of ICU stay was associated with lower 60-day mortality, shorter duration of mechanical ventilation and decreased length of ICU stay. We evaluated a new protocol called PepUp. Innovative elements of the new protocol included setting daily volume based goals instead of hourly rate targets, initiating motility agents on Day 1, liberalizing the gastric residual volume threshold, and the option to use trophic feeds. A Likert scale survey was given to each ICU to assess knowledge of tube feeding. Changes were made to the PepUp protocol to individualize it to our unit. An educational plan was developed which covered the new order set, PowerPoint reviewing key points of early nutrition, informational signs for the unit, and individualized education with case studies. The team also identified super-users who received additional training. Reference tools were created for each of the ICU rooms and nursing clipboards.

**Results/Outcomes:** Prior to the roll-out of the volume based feeding protocol, a random sampling of 100 patients were screened for 24-hour totals of tube feeding administered. Patients were only receiving approximately 48% of the prescribed tube feeding. Since the inception of the volume based feeding protocol, we have seen an increase of 27% in the prescribed volume of enteral feeding. Patients are currently receiving 75% of the prescribed tube feeding. A change in standard of practice to an enteral nutrition volume based feeding approach lead to a significant improvement in adequacy of calories and protein delivered.

**Conclusions/Implications:** The ICU staff has demonstrated the ability to successfully implement a volume based feeding protocol which will ensure that the most critically ill patients will receive closer to prescribed amounts of protein and calories. With continued follow up and ongoing education, we hope to continue to see significant improvement in nutrition practices which will have a positive impact on our patients.