Samford University
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# Eliminating Gastric Residual Volume Checks to Enhance Nutrition in Critically Ill Patients

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## Problem

Nutrition is an evidence based aspect of care delivery in the Intensive Care Unit (ICU). At UAB Hospital, gastric residual volume (GRV) checks are the preferred method for measuring nutritional tolerance; however, evidence suggests that this practice is out of date for three reasons:

1. GRV checks are an inaccurate tool that may be affected by multiple factors such as patient position, feeding tube locations, and syringe size (Ozen et al., 2016).
2. GRV checks are ineffective in predicting outcomes such as mortality, ventilator associated pneumonia, and aspiration events (Bruen et al., 2020)
3. GRV checks play a role in malnutrition based on perceived intolerance by nursing staff. On a national level, a survey of nurses found that 25% of respondents reported interrupting enteral feeds for GRV of 125mL or less (Wang et al., 2018).

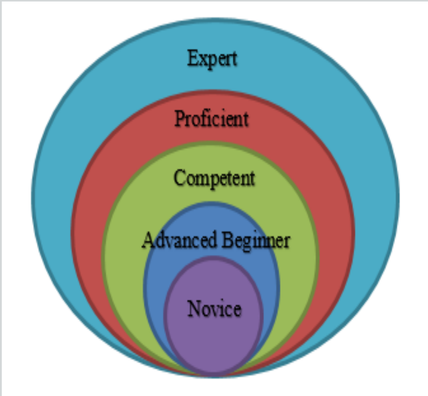
## Purpose

The purpose of this project is to implement and evaluate evidence-based practice by eliminating GRV checks in order to enhance patient nutrition and improve outcomes.

## Theoretical Framework

Patricia Benner's novice to expert theory explains how nurses develop the skills and understanding to provide high quality patient care over time. For this project, Benner's five levels of proficiency can be defined as follows:

- **NOVICE -** may be able to perform tasks such as measure gastric residual or perform a GI assessment.
- **ADVANCED BEGINNER –** can perform basic tasks but may struggle to form connections and determine appropriate interventions such as when to turn off the enteral feeding without the help of their preceptor.
- **COMPETENT & PROFICIENT –** confident in their clinical performance and knowledgeable about hospital policies regarding enteral feedings in order to make connections and provide patient care.
- **EXPERT -** able to demonstrate clinical judgment, identify GI intolerance, and make the clinical decision to suspend enteral feedings when appropriate.




## Methods

**POLICY APPROVAL –** The UAB Nursing policy was updated in November 2019 to reflect evidence based practice; however, current nursing practice had not been changed. Because the policy was already in place, approval was obtained from the Medical Director and Assistant Medical Director to implement this practice for patients on the MICU service.
**CLINICAL INFORMATICS** – A new order set was created to match the policy and appropriate reasons for enteral feeding hold were determined and approved by the Assistant Medical Director, Medical Director, and Nurse Manager. Collaboration with Clinical Informatics was needed to update the order set and nursing documentation.
**EDUCATION –** Verbal and written education was provided to physicians, advanced practice providers, and nursing staff that care for MICU patients.
**PRACTICE CHANGE –**Nurses no longer performed GRV checks but held the enteral feedings and notified the MD for abdominal distension, abdominal pain, or vomiting.
**DATA COLLECTION –** A weight was recorded on day one (admission) and day seven for all patients admitted to the MICU service.
**DATA EVALUATION –** Weight change from baseline was evaluated based on the criteria from the American Society of Parenteral and Enteral Nutrition and the Academy of Nutrition and Dietetics. According to this criteria, percent change in weight is one way to determine patient nutritional status.

## Results & Evaluation

Number of patients receiving enteral feedings = 37
Mean weight on day one vs day seven = 93.9 kg vs 100 kg
% change in weight = +6.2%

- 24/37 patients gained weight
- 10/37 patients lost weight

| Formative Evaluation | Summative Evaluation |
|---|---|
| ▪ Frequent rounding on nursing staff, advanced practice providers, and physicians to answer questions and discuss barriers such as resistance to change and supporting evidence | ▪ Survey of nurses found that 81% of staff felt like elimination of GRV checks improved patient nutrition<br>▪ Survey of nurses found that 95% of staff reported improved nursing workflow<br>▪ Analysis of % weight change from day one to day seven as listed above |

## Implications for Practice

Objective data confirmed that the elimination of GRV checks resulted in patient weight gain. Ultimately, these results could prevent malnutrition in critically ill patients over time. Appropriate reasons for holding enteral feedings such as abdominal pain, abdominal distension, and vomiting were also communicated with the nursing staff which may have decreased the amount of residual being inappropriately discarded. According to Benner, it also fostered the development of clinical judgment among staff. Based on these results, the elimination of GRV checks will improve quality of care and enhance patient nutrition.

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Team Leader: Dr. Ellen Buckner
Team Member(s): Bonny Joly

Location: UAB Hospital Medical ICU