



# Enteral Feeding in Critically Ill Patients on Mechanical Ventilation in Prone Positioning: A Quality Endeavor

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## BACKGROUND

- Early enteral nutrition in critically ill patients is associated with improved patient outcomes and decreased hospital length of stay.<sup>1</sup>
- There has been growing evidence for tolerance of enteral nutrition in prone positioned mechanically ventilated patients in recent small-scale studies.<sup>2,3</sup>
- Research and quality improvement efforts within this domain are needed as the Covid-19 pandemic has led to an increase in the number of patients undergoing prone positioning.
- Before initiation of our project, there was not a formalized protocol in ECU Health Medical Center's MICU resulting in inconsistent practices for the provision of enteral nutrition both during and after prone positioning to patients on mechanical ventilation.

## PROJECT AIM

We aim to increase average patient enteral intake in prone positioning from 10% to 50% of recommended goal intake from January 2021 to June 2022.

## PROJECT DESIGN/STRATEGY

**Location:** MICU at ECU Health Medical Center

**Time Course:** Jan. 2021 – June 2022

**Outcome Measures:**

- % of patients receiving enteral nutrition during prone events
- % of recommended goal intake being met through enteral nutrition received during prone events

**Balancing measures:**

- Gastric residual volume (GRV)
- Episodes of emesis

Data captured via manual chart review, de-identified, and stored in Redcap database.

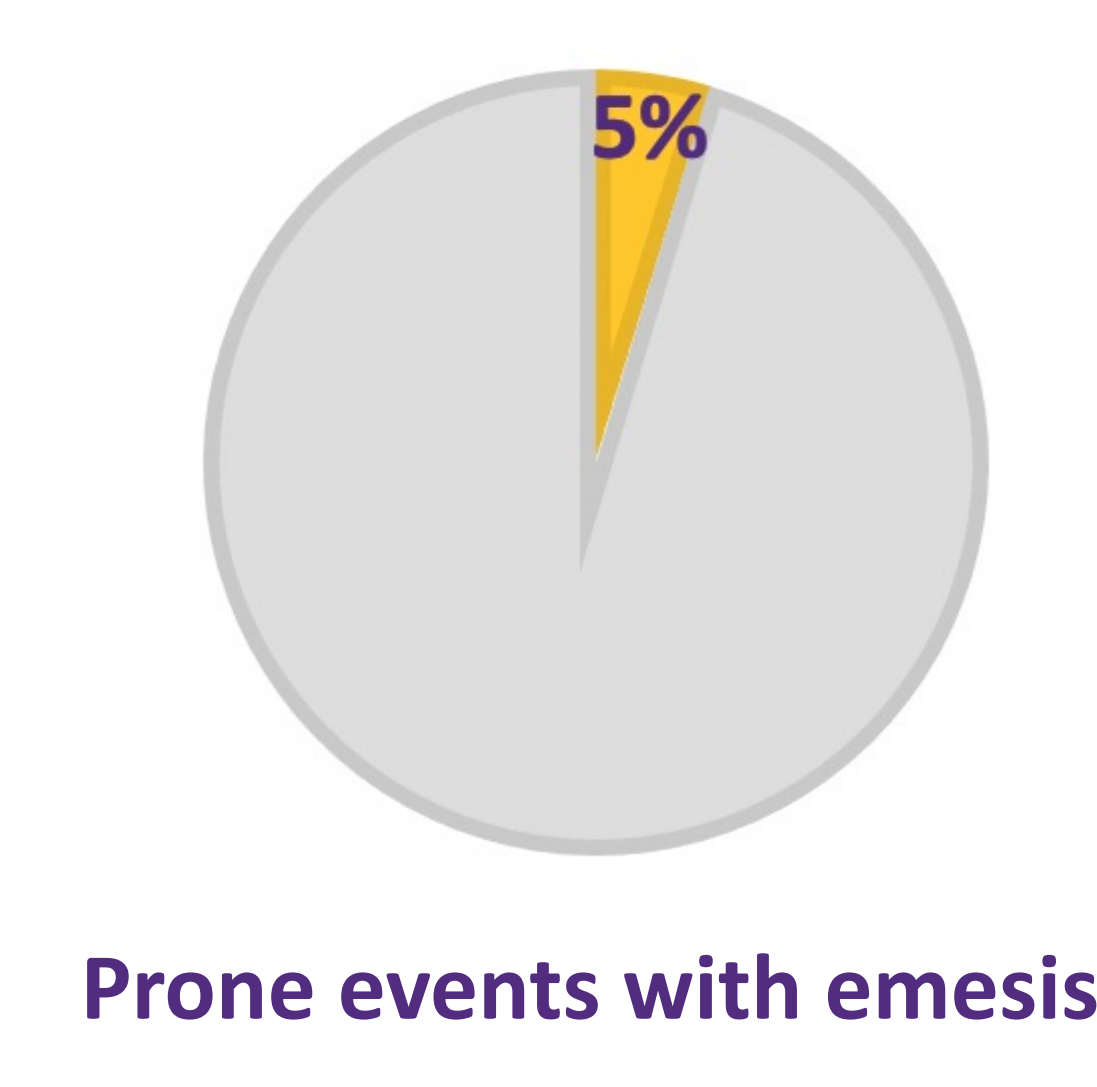
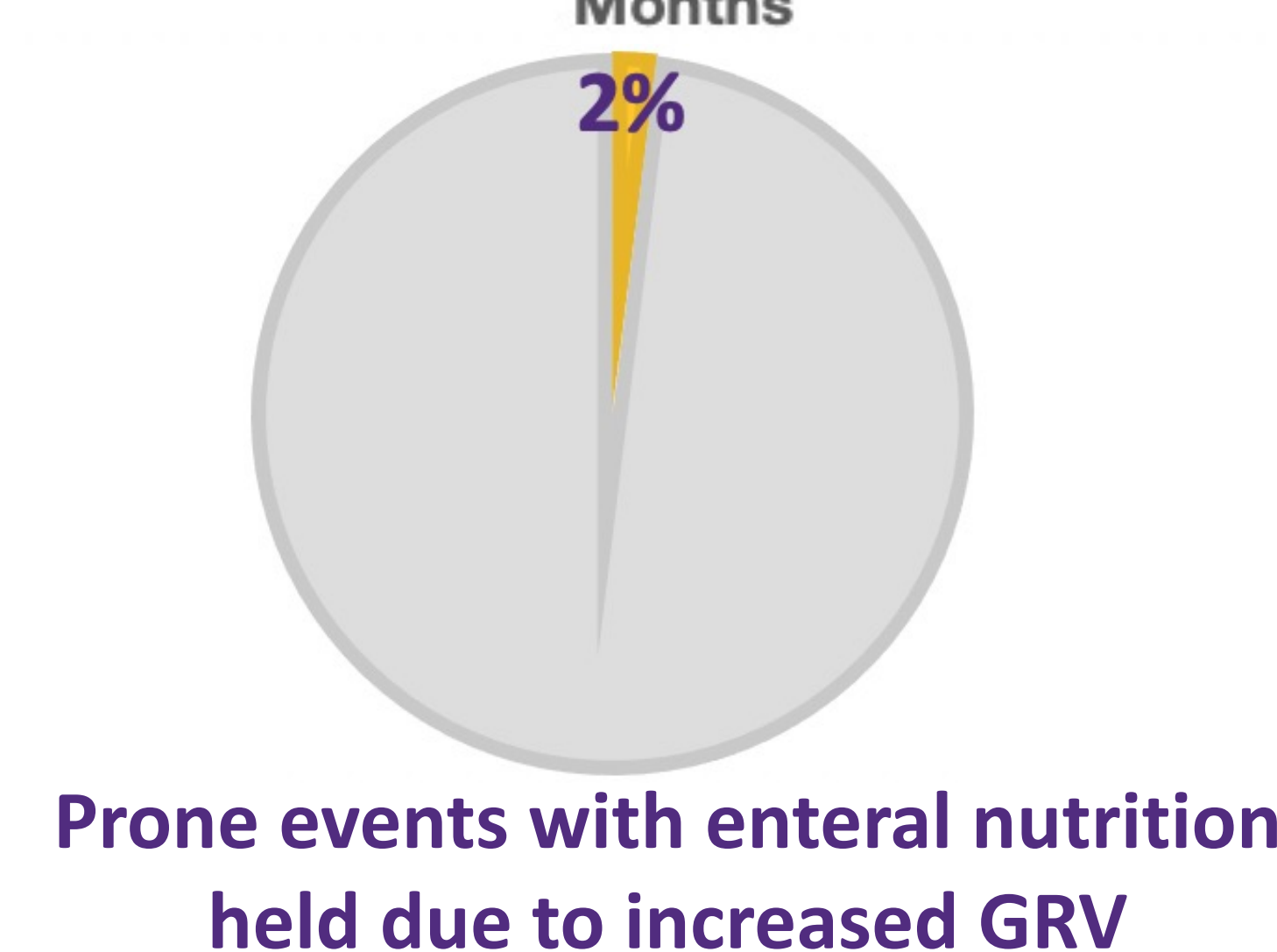
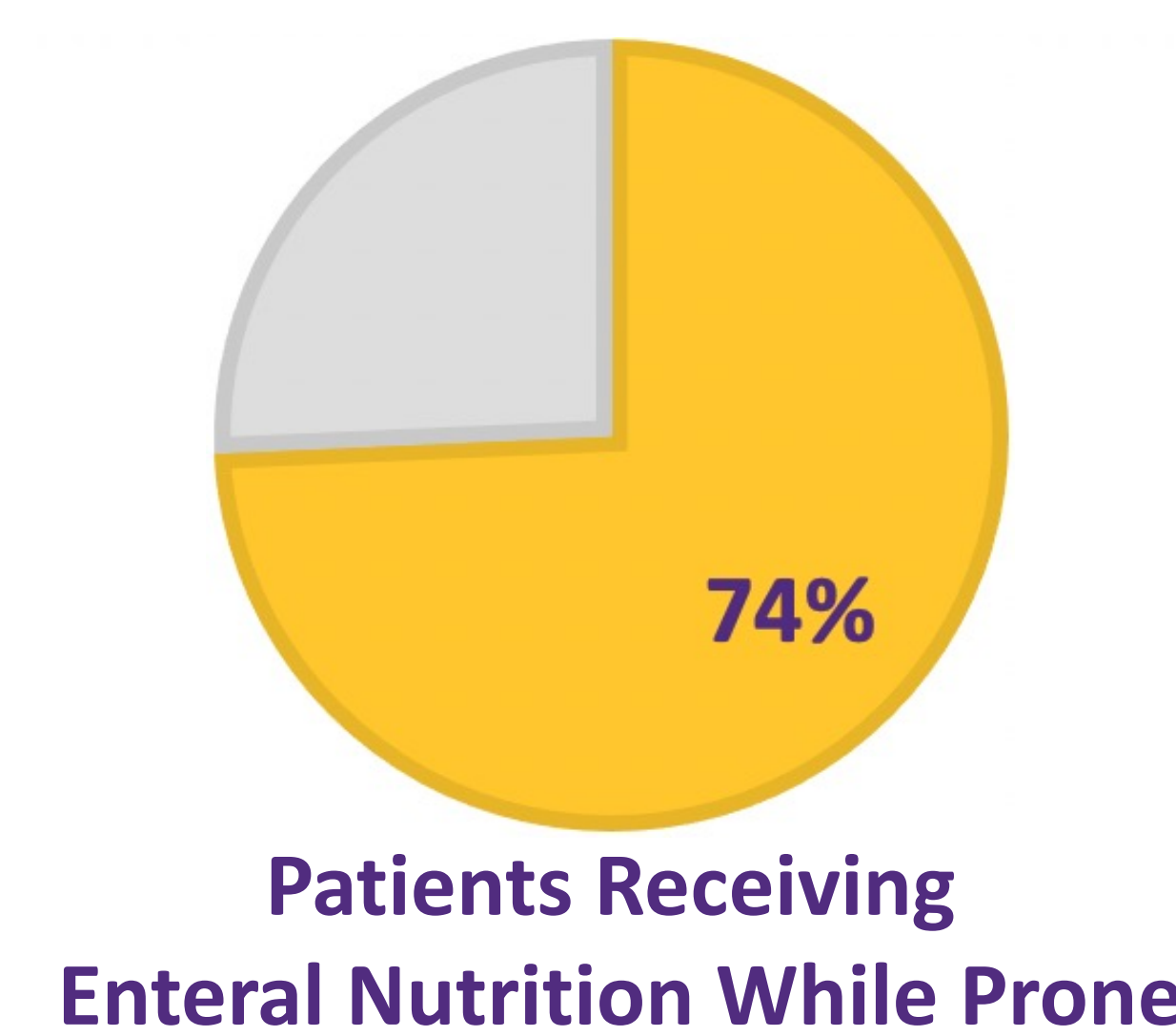
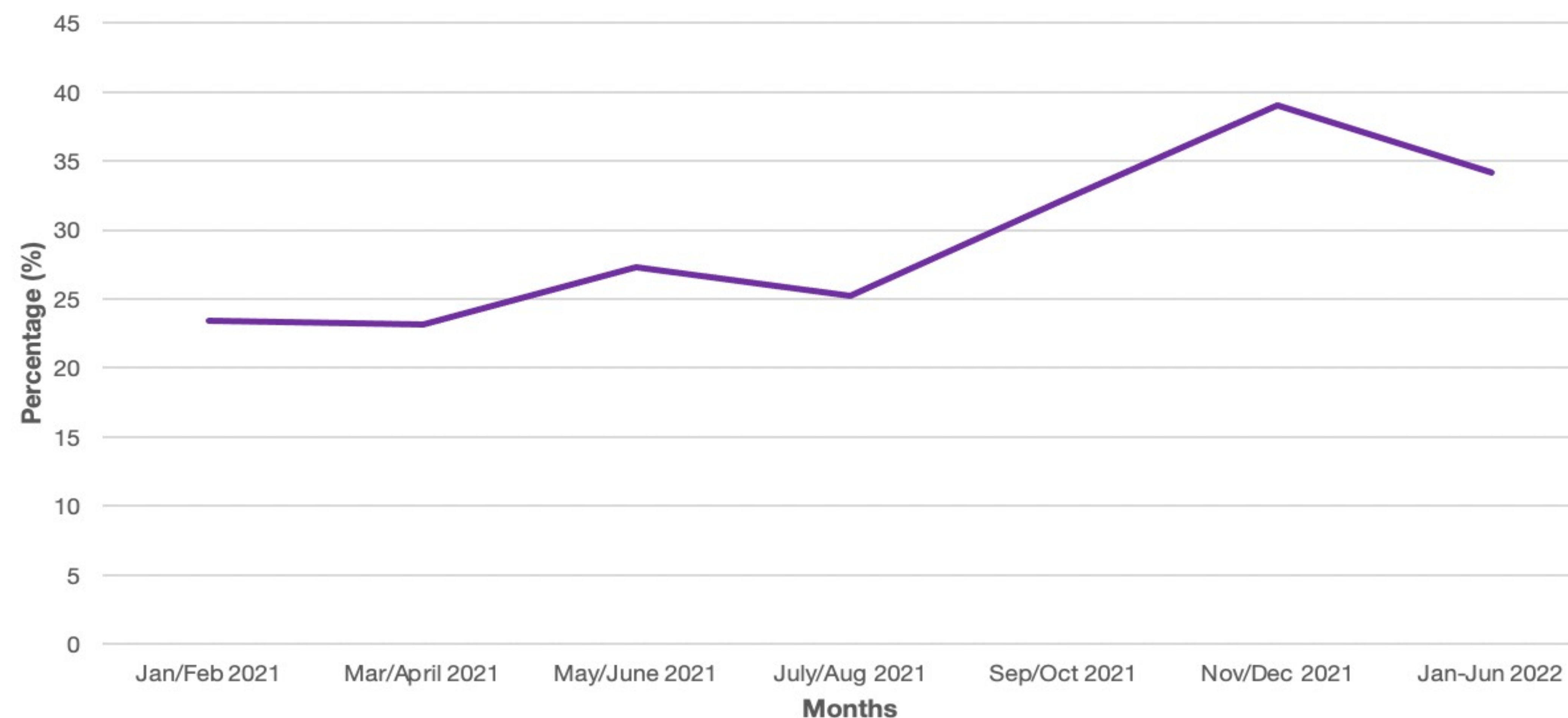
## CHANGES MADE (PDSA CYCLES) & TREATMENT PROTOCOL

- 1/21: Education efforts and distribution of protocol to MICU staff, dietitians, and pulmonary critical care fellows
- 1/18/21-2/21/21: Implementation of protocol
- 2/22/21-6/21/22: Optimization of nutrition
  1. Screen patients for inclusion and exclusion criteria
  2. Insert NG or OG tube if not already in place
  3. Prior to position change enteral formula should be disconnected from NG/OG tube
  4. Prone/supinate patient per nursing protocol
  5. 10-25 degrees reverse Trendelenburg
  6. Initiate or continue enteral feeding at minimum of 10 cc/hr titrating up to 80% of nutritional support as calculated for nutritional needs
  7. If intolerance is suspected or observed then stop enteral feeds and proceed with GI physical exam

## RESULTS/OUTCOMES

144 Patients → 257 Prone Events (>4hrs prone) → 4149 Total Hours Prone

Average Percentage of Recommended Goal Intake in Prone Positioning



## LESSONS LEARNED

- Enteral nutrition during prone positioning appears to be well tolerated with only 2% of prone event enteral nutrition held due to increased GRV and only 5% of prone events with emesis
- Optimization of nutrition is limited by critical status of patients in the MICU and the team's clinical decision to place NPO order
- Challenge of implementing new protocol that differs from previous practice within MICU

## NEXT STEPS

Continue to encourage optimization of nutrition in MICU patients in ECU Health Medical Center through use of protocol.

## ACKNOWLEDGEMENTS

The authors of this study would like to thank the LINC Scholars program as well as ECU Health Medical Center leaders, dietitians, nurses, and providers for your engagement and help with implementation of our protocol.

This poster was prepared with financial support from the American Medical Association (AMA) as part of the Accelerating Change in Medical Education Initiative. The content reflects the views of the authors and does not necessarily represent the views of the AMA or other participants in this initiative.

## REFERENCES

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