

Enteral Nutrition Optimization Program for Children Undergoing Blood & Marrow Transplantation: A Quality Improvement Project

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Background

- Many pediatric BMT patients experience malnutrition (rates 5-50%)
 - contributes to morbidity and mortality
 - lack of standard of care measures to address
- Enteral nutrition is recommended as 1st line, has improved outcomes over parenteral
- High rates of malnutrition at project site and lack of protocol to address

Purpose/Aims

- To evaluate the impact of an evidence-based nutritional support program to optimize the use of enteral nutrition support for BMT patients aged 0-18
- Aimed to address if patient outcomes were improved by interventions as well as acceptance of program by clinical staff; goal of integration into standard of care practice
 1. Impact on nutritional status (weight loss, MUAC, malnutrition rates)
 2. Impact on transplant-associated complications (infection rates, incidence/severity of GVHD)
 3. Impact on transplant-related outcomes (LOS, engraftment time)
 4. Feasibility & acceptance of interventions by clinical staff

Methods

Design: Pre-post intervention design and post-implementation survey

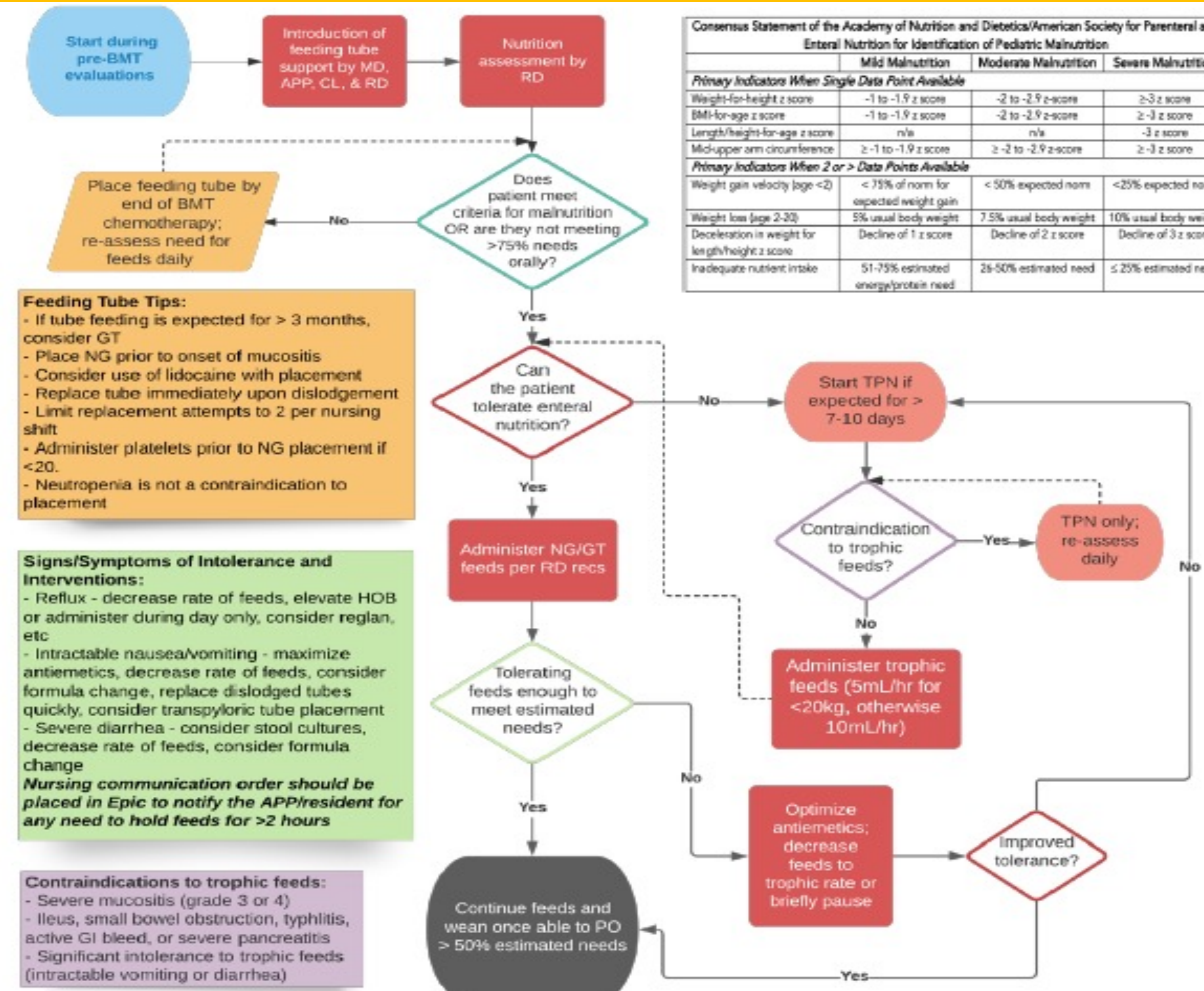
Setting: Pediatric oncology division of an academic children's center within a large, urban academic hospital in the Mid Atlantic

Sample: Aim 1-3 = Children and young adults (0-18y) admitted for BMT during the 16-week implementation period; Aim 4 = Clinical staff (APPs, MDs, RNs, RDs) for post-implementation survey

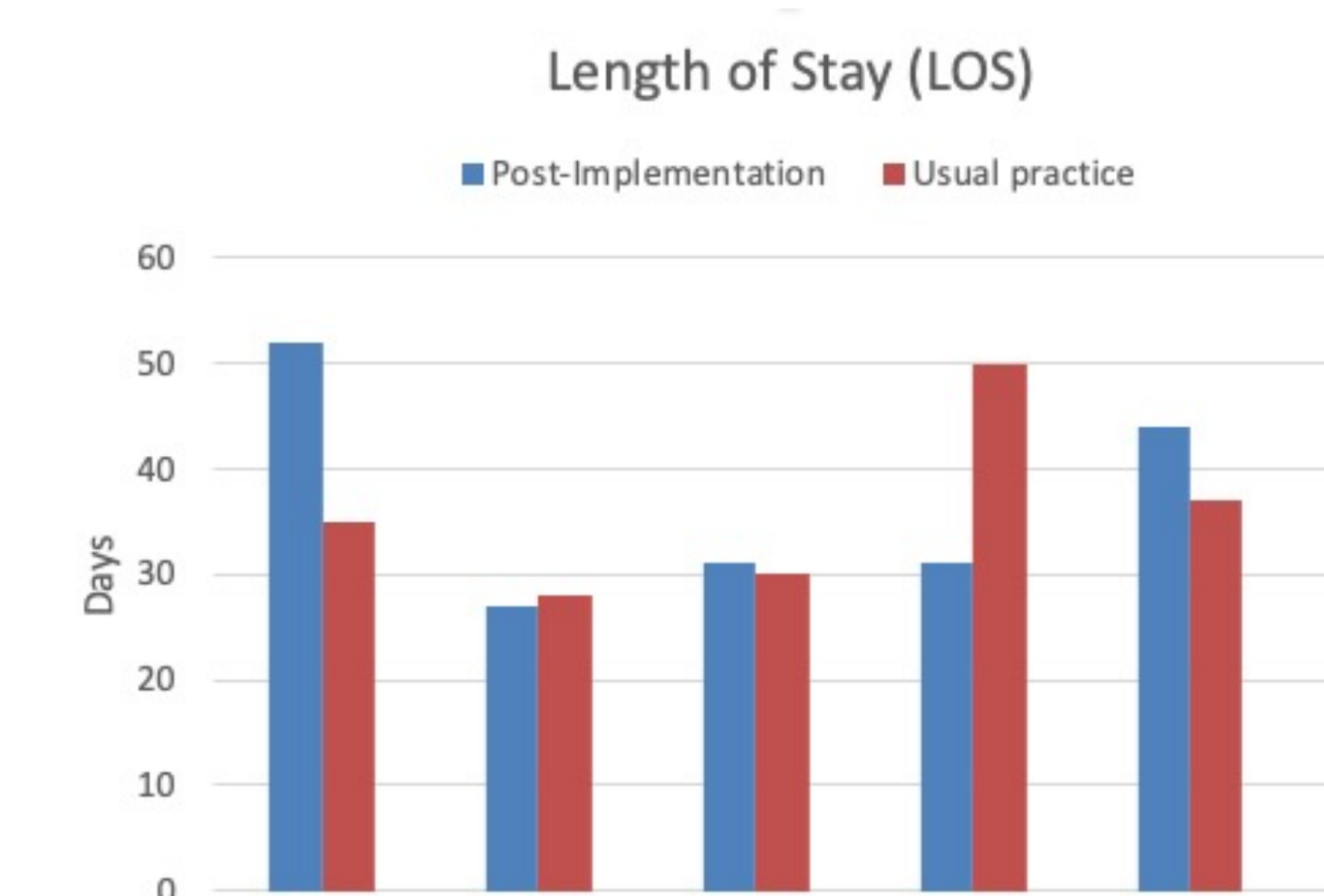
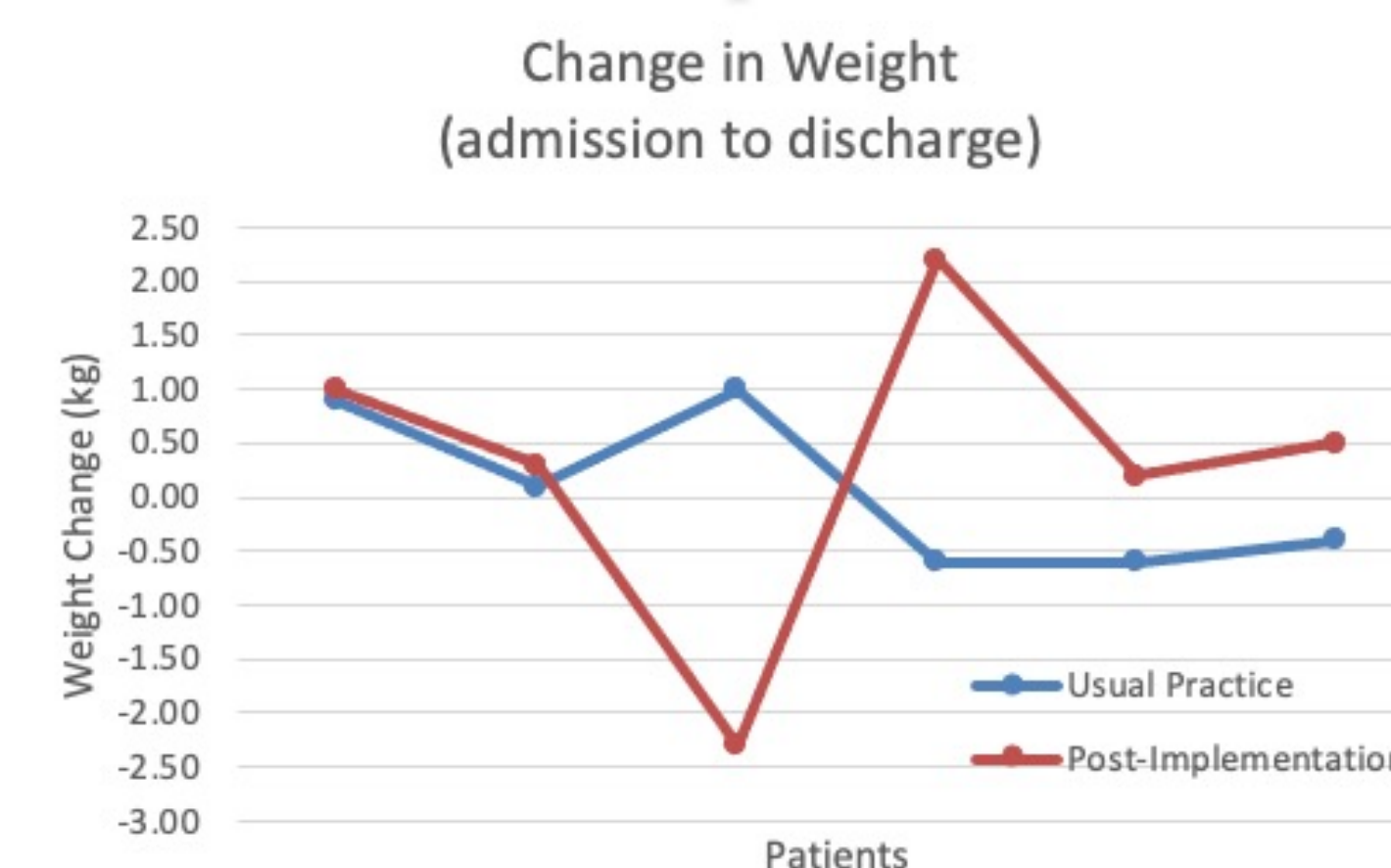
Measures: Aim 1 = weight change from admission to discharge, MUAC, Academy/ASPEN Consensus malnutrition criteria. Aim 2= Epic chart review of infections, GVHD using MAGIC criteria, Aim 3 = length of hospitalization, time to neutrophil & platelet engraftment using CIBMTR criteria, Aim 4 = 5 question Likert-style survey

Analysis: Mann Whitney U, Fisher's exact, Chi-square, descriptive statistics

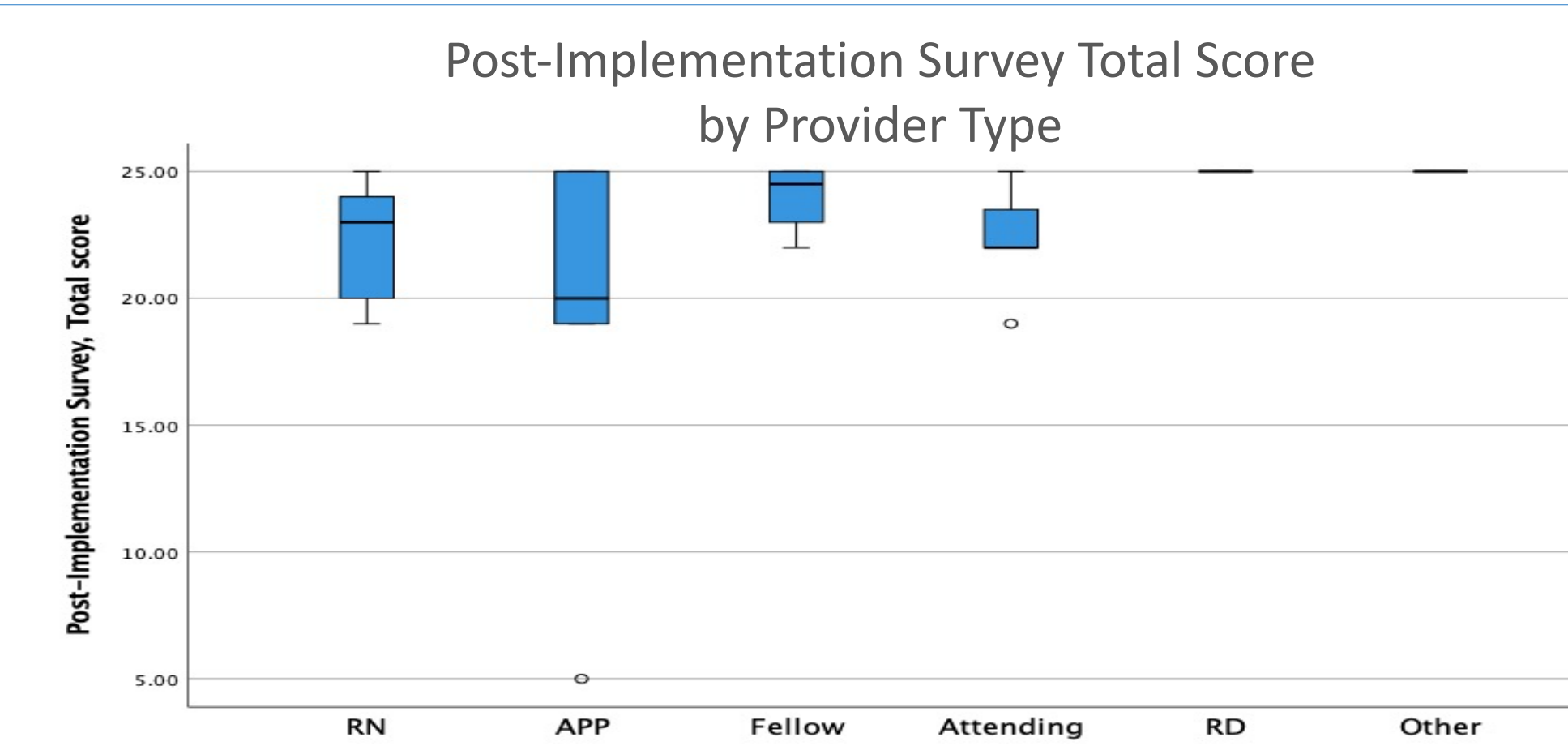
Algorithm



Results



Participant Feasibility and Acceptability Rankings (n=45)		Agreed or Strongly Agreed, N %
The BMT Enteral Nutrition Optimization Program (EN-Opt) was easy to follow		41 (91.1%)
The BMT EN-Opt increased my focus on nutritional support for our patients		43 (95.5%)
The BMT EN-Opt helped to increase enteral nutritional support during BMT admissions		38 (84.5%)
The BMT EN-Opt was beneficial to our patients		42 (93.4%)
The BMT EN-Opt should be adopted as the standard of care approach for our patients		40 (88.9%)



Discussion

- Six patients received the intervention, with 12 total patients evaluated
- No statistical differences between groups on measured evaluations
- Provider sample of 45 participants fully completed the post-implementation survey
 - Overall feasibility and acceptance of the intervention
- Increased the education that parents, patients, and staff received on importance of nutritional support and means to address
- Increased use of G-tubes

Limitations: small sample size and inability to obtain MUACs due to COVID-19 pandemic, NG tube dislodgements, newly created survey

Conclusion

A novel nutritional support program was successfully implemented to address optimizing nutritional support in pediatric BMT patients, and was noted to have high feasibility and acceptance

- Resulted in overall culture shift, and increased use of NG and g-tubes
- No noted clinical significance, but interpretation is limited due to small sample size
- Implementation of the program has continued without gaps since project completion – new standard of care within the division
- A similar program to address the nutritional support needs for the general oncology population is anticipated

References

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