Implementation of a Nutritional Management Algorithm for Pediatric Oncology Patients

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Problem Statement

- 50% of pediatric oncology patients on chemotherapy are malnourished
  - Consequences can be severe:
    - Reduced treatment success
    - Reduced survival rate

- Children's Oncology Group recommends nutrition screening at diagnosis and throughout treatment

- Current nutritional management on a pediatric unit:
  - Inconsistent
  - Lacks a standardized policy

Project Purpose

- To implement a nutritional management algorithm for pediatric oncology patients to improve early recognition of malnutrition and early nutrition interventions

- Short term goals:
  - 100% of patients receive daily weights, height x weight measured on 2 intervals and nutrition consult
  - 100% of patients have documented weight/BMI/weight for length change from baseline

- Long term goals:
  - Standard nutritional order set in EHR
  - 100% of patients have nutritional measures tracked from diagnosis until end of treatment

Methods

Setting: Inpatient pediatric unit in an academic medical center
Population: Pediatric oncology patients undergoing chemotherapy
Structure Measures:
- Nutrition management algorithm
  - Loss of 1 z-score in BMI/weight for length or ≥5% weight loss from diagnosis à algorithm referenced
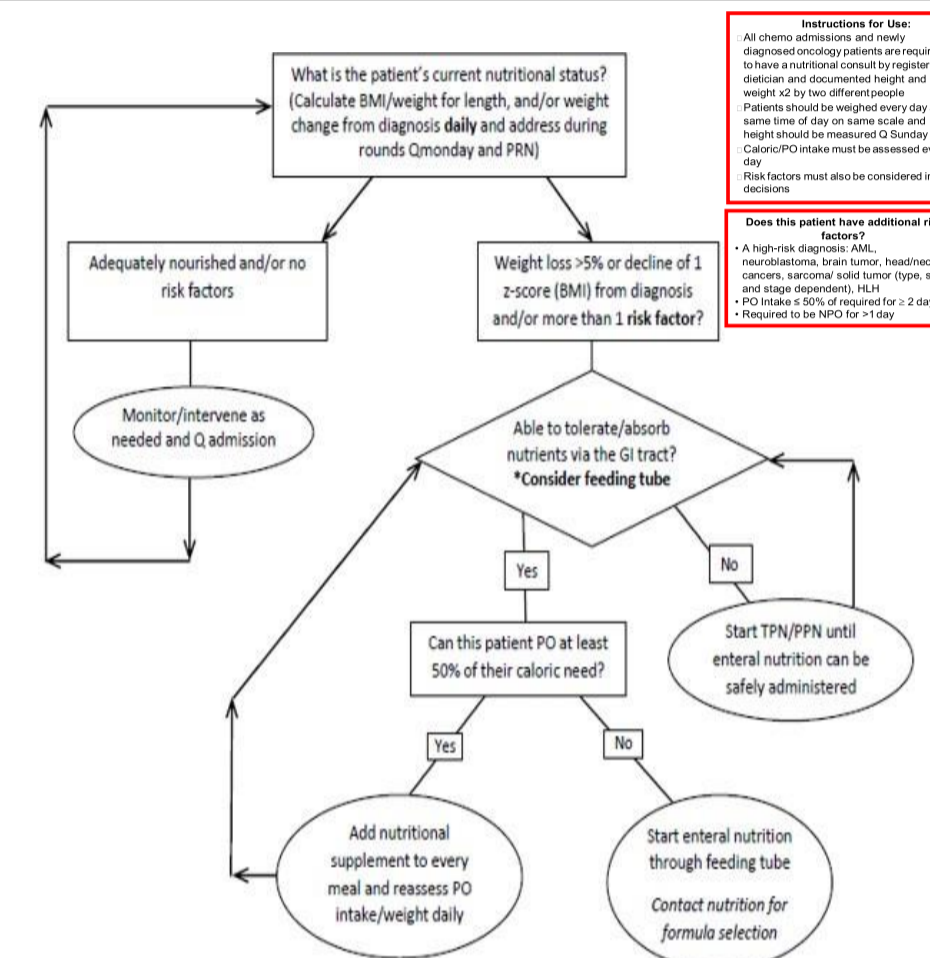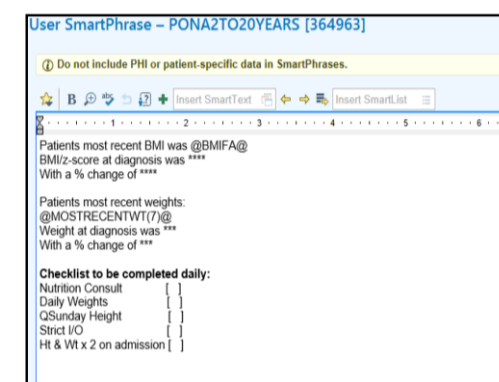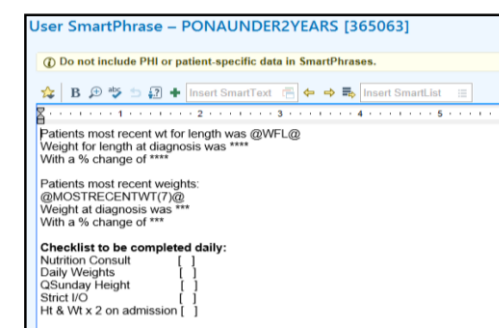- Multifaceted education
Process Measures:
- Creation of electronic smart phrases
  - Required user to input daily changes from baseline
  - Contained checklist of orders to be placed
- Staff compliance
Outcome Measures: nutritional parameters
Strategies & Tactics: attendance in multidisciplinary rounds, continuous staff education and updates

Algorithm and Smart Phrases

Figure 1- Smart phrase for patients under 2 yrs

Figure 2- Smart phrase for patient 2-20 yrs

Results

Demographics	Pre-implementation	Implementation
n	9	12
Admissions followed	25	25
Age (avg. in years)	11.06	8.13
Gender		
Female	5	11
Male	4	1
Race		
Asian	2	3
Caucasian	1	4
Hispanic	2	0
African-American	3	4
Other	1	1
Diagnosis		
Leukemia	5	6
Wilms Tumor	1	3
Osteosarcoma	2	1
Lymphoma	1	1
Neuroblastoma	0	2

Discussion

- Implementation of a nutrition management algorithm:
  - Improved compliance in tracking weight/BMI/weight for length changes
  - Improved compliance of nursing driven measures
  - Increased nutrition consults and consistent collaboration

- Smart phrases and baseline metrics database eased calculation and management decision making

Limitations:
- Short project study period
- Small sample size
- Unreliable/unavailable technology (scales/tape measures)
- COVID-19 pandemic delayed creation of EHR order set

Conclusion

- Implementation of a nutrition management algorithm improves early recognition of malnutrition and early nutritional interventions in hospitalized pediatric oncology patients
- Standardizing practice improved overall compliance by residents and nursing

- Future Steps:
  - Development of a standardized nutrition order set in EHR
  - Application to outpatient nutrition management

References

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Acknowledgments