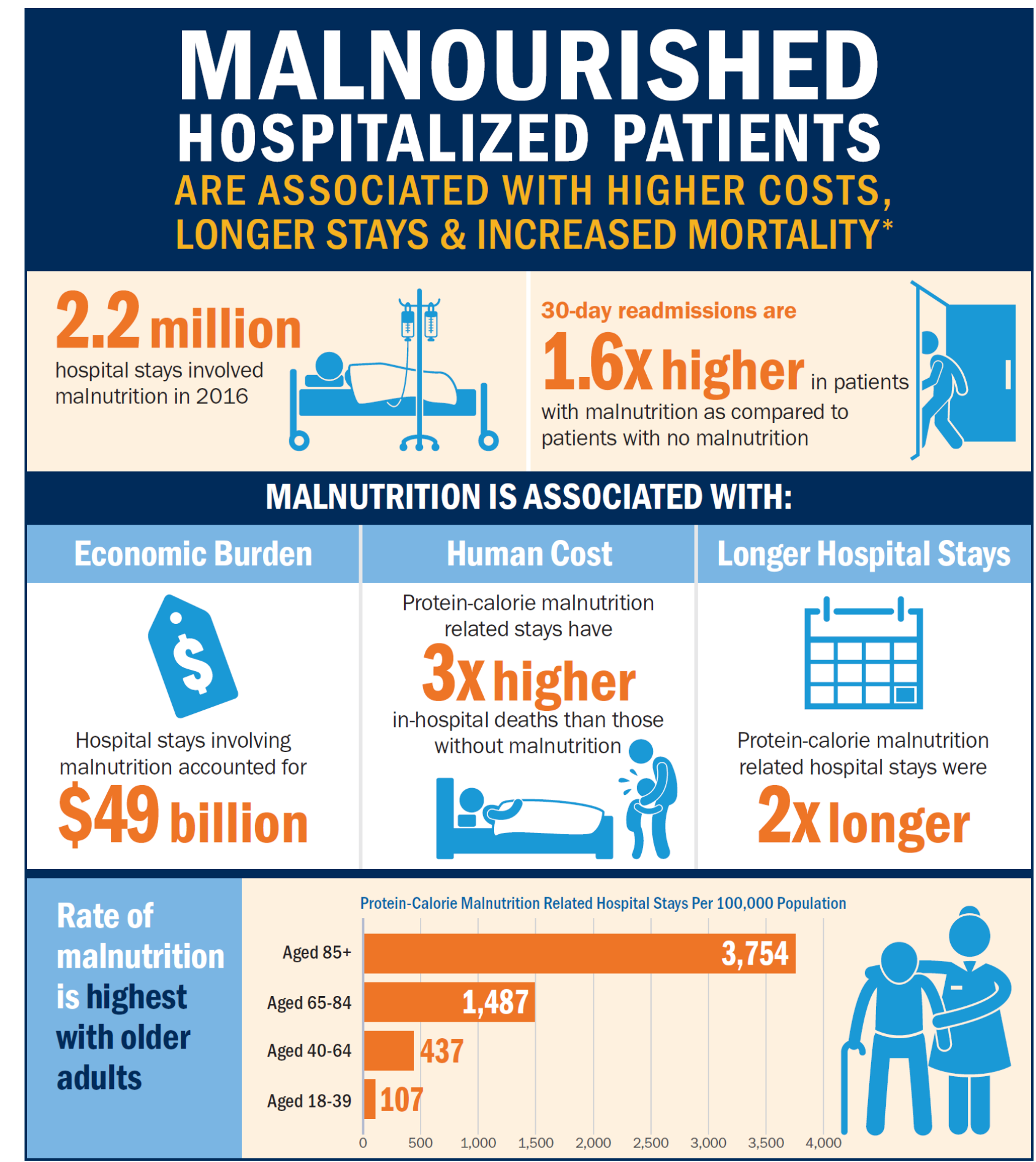


Effectiveness of the Malnutrition Screening Tool to predict hospitalized patients at high-risk for malnutrition

Lisa Hillmann, MS¹; Brittany Hante, NDTR¹; Rachael Mills¹; Allison Krall, RDN, LD, CNSC^{1,2}; Cassie Fackler, RDN, LD, CNSC²; Amy Patton, RDN, LD, CNSC, CSO²; Julie Kennel, PhD, RDN, LD¹, ¹Human Nutrition, The Ohio State University; ²The Ohio State University Wexner Medical Center, James Cancer and Solove Research Center

BACKGROUND
Malnutrition is a major cause of morbidity and mortality in the acute care setting¹. The literature suggests 15-60% of patients in a healthcare setting are estimated to be malnourished². When observed in an inpatient setting, malnutrition can negatively affect clinical outcomes and patient recovery (Figure 1).

Figure 1: ASPEN Malnutrition Infographic



American Society for Parenteral and Enteral Nutrition: <https://www.nutritioncare.org/malnutrition/>. Accessed April 15, 2020.

Rapid identification and treatment of malnutrition in the acute care setting contributes to the improvement of patient outcomes. Although comprehensive nutrition assessment can be time-consuming, a variety of nutrition screening tools have been validated for use in assessing nutritional risk. Efficient streamlining of the identification of nutritionally at-risk patients relies on brief screening tools that can be administered by any healthcare provider.

The Academy of Nutrition and Dietetics (AND) released a position statement in 2019 stating, "based upon current evidence, the Malnutrition Screening Tool (MST) should be used to screen adults for malnutrition (undernutrition) regardless of their age, medical history, or setting"³. This statement demonstrates AND's confidence in the effectiveness of the MST in the adult population.

Using the MST in a large tertiary care setting should aid in the identification of nutritionally high-risk admissions. The staff RDN is primed to make appropriate malnutrition diagnoses and initiate treatment measures, thereby contributing to the improvement of clinical outcomes and demonstrating a vital role in the interdisciplinary health care team.

In 2019, the Ohio State University Wexner Medical Center (OSUWMC) began implementation of the MST to aid in identifying in patients at high-risk for malnutrition.

The MST (Figure 2) is a three-question tool assessing recent unintentional weight loss and appetite. A sum score of ≥ 2 indicates risk for malnutrition. A patient's uncertainty of recent weight loss results in a mandatory MST score of 2 and a positive screen for malnutrition risk.

Figure 2: MST Evaluation Form

alliance Malnutrition Screening Tool (MST)
to Advance Patient Nutrition

STEP 1: Screen with the MST

1 Have you recently lost weight without trying?

No	0
Unsure	2

If yes, how much weight have you lost?

2-13 lb	1
14-23 lb	2
24-33 lb	3
34 lb or more	4
Unsure	2

Weight loss score: _____

2 Have you been eating poorly because of a decreased appetite?

No	0
Yes	1

Appetite score: _____

Add weight loss and appetite scores

MST SCORE: _____

STEP 2: Score to determine risk

MST = 0 OR 1 NOT AT RISK
Eating well with little or no weight loss
If length of stay exceeds 7 days, then rescreen, repeating weekly as needed.

MST = 2 OR MORE AT RISK
Eating poorly and/or recent weight loss
Rapidly implement nutrition interventions. Perform nutrition consult within 24-72 hrs, depending on risk.

STEP 3: Intervene with nutrition for your patients at risk of malnutrition.

Notes: _____

AbbottNutrition:http://static.abbottnutrition.com/cmsprod/malnutrition.com/img/Alliance_Malnutrition_Screening_Tool_2014_v1.pdf. Accessed April 8, 2020.

OBJECTIVE

The purpose of this study is to determine the effectiveness of the MST in predicting malnutrition in hospitalized patients at OSUWMC once identified as nutritionally high risk.

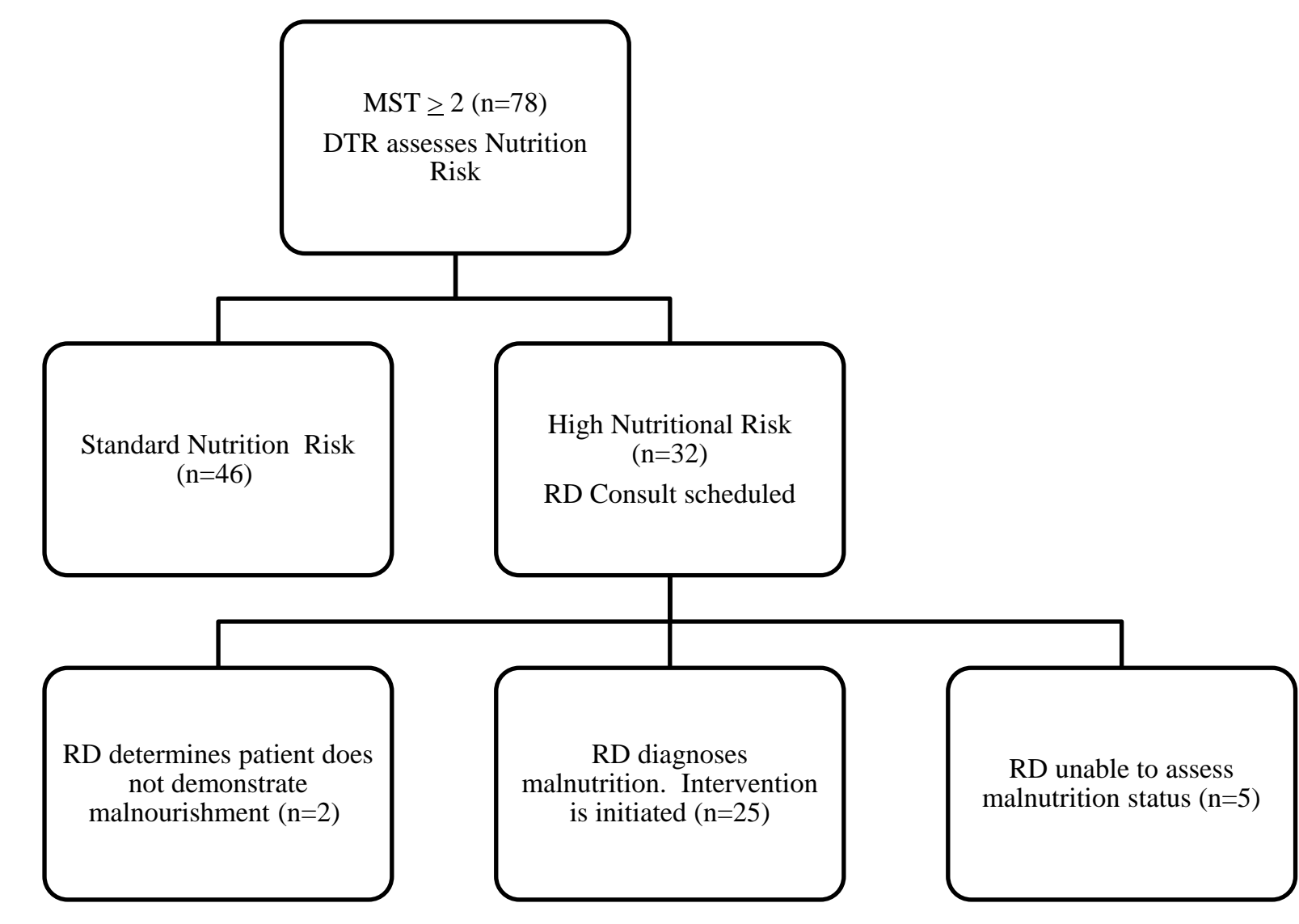
METHODS

This retrospective chart review includes electronic medical records representative of general medicine patients admitted to four floors of the OSUWMC during December 2019.

Eligibility for study inclusion is all patients admitted to four specific units during December 2019 with an MST score of ≥ 2 . The absence of a recorded MST score excluded the record from the study.

OSUWMC protocol dictates that all patients with an MST ≥ 2 are screened by a diet technician within 48 hours of admission to determine nutrition risk. Patients deemed high-risk are referred to the registered dietitian nutritionist (RDN) for malnutrition assessment. The diet technician's designation of high-risk for malnutrition (yes/no), and the RDN malnutrition diagnosis (yes/no) were recorded and analyzed (Figure 3).

Figure 3. Patient Nutritional Risk Assessment Flowchart



RESULTS

The MST predicted high-risk for malnutrition in 32/78 (41%) of patients (Figure 4a). Of the high-risk patients, 78% (n=25) were diagnosed with malnutrition. Five patients (6%) were unable to be assessed for malnutrition (Figure 4b).

Overall, 32% (25/78) of patients with a positive MST score were diagnosed with malnutrition during their admission. Of the patients diagnosed with malnutrition, 9 (36%) were non-severe while 16 (64%) were severe. Since screening occurred at the time of admission, all malnutrition diagnoses were determined to have been present prior to admission.

Figure 4a: MST Screening Results

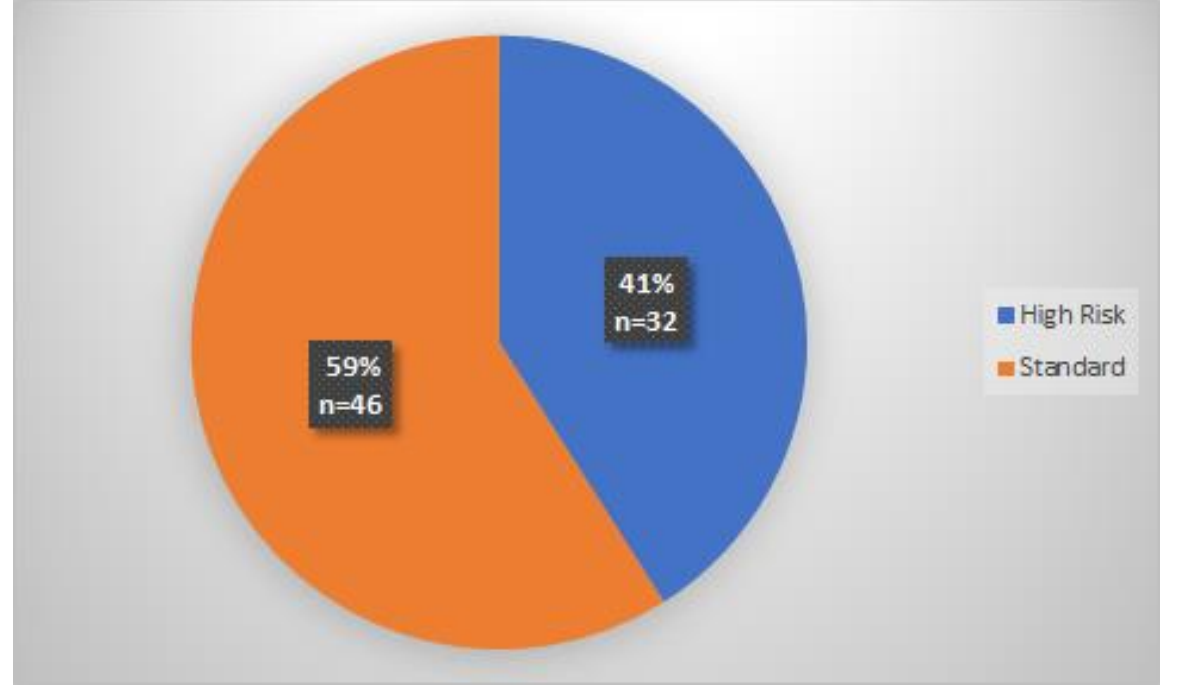
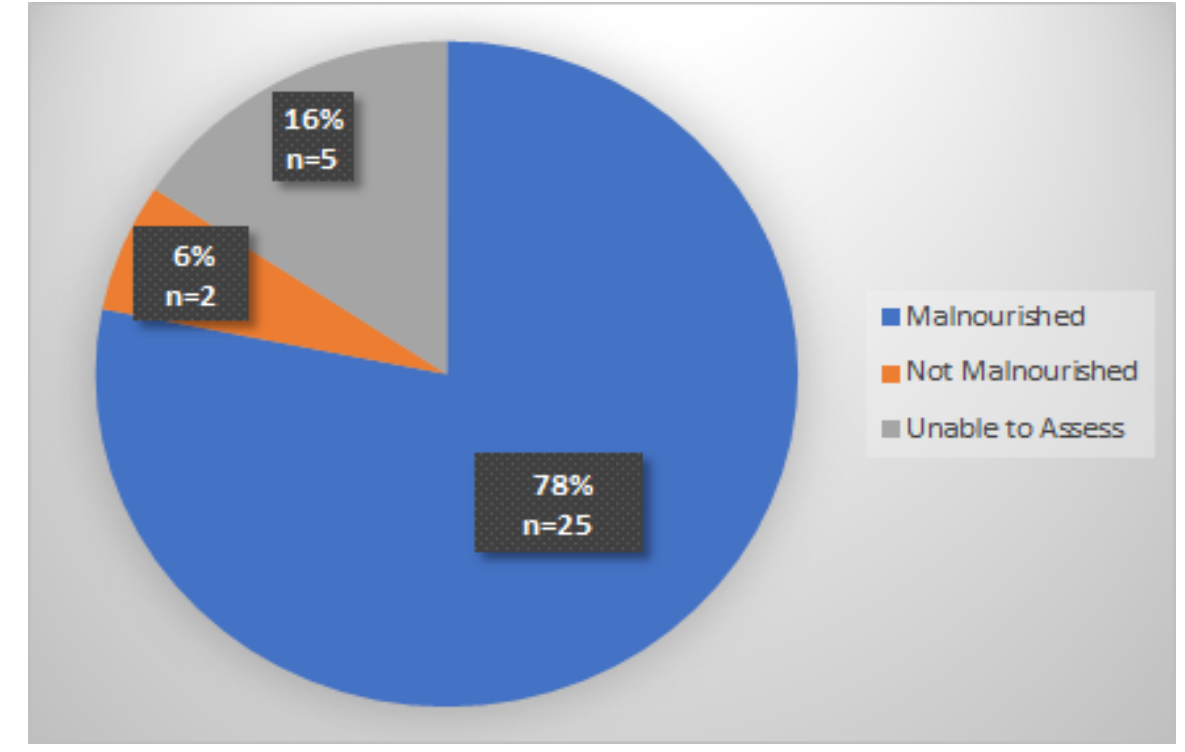


Figure 4b: RDN Diagnoses of High-Risk Patients



CONCLUSIONS

Our data concur with the AND position statement that the MST is an effective tool at identifying patients at high risk for malnutrition. Overall, out of our 78 patients, 32% of patients included in the study were diagnosed with malnutrition, consistent with the literature suggesting that 15-60% of inpatients are malnourished.

Greater than 75% of MST-identified high-risk patients were diagnosed with malnutrition and were subsequently provided RDN-administered nutrition care. Malnutrition is a prevalent medical problem, contributing to morbidity and mortality in the inpatient hospital setting. MST screening coupled with RDN malnutrition diagnostic abilities and treatment provides the RDN an opportunity to make a valuable contribution toward improving patient outcomes.

BIBLIOGRAPHY

1. L Badosa E, B Tahull M, V Casas N, E Sangrador G, Faz Méndez C, H Meseguer I, I González À, L Urdiales R, O Burguete FJ, T Molas M, V Farré C, L Talaveron JM. Hospital malnutrition screening at admission: malnutrition increases mortality and length of stay. *Nutr Hosp*. 2017 Jul 28;34(4):907-913.
2. Mueller C, Compher C, Druyan ME; the American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Board of Directors. A.S.P.E.N. clinical guidelines: nutrition screening, assessment, and intervention. *JPEN J Parenter Enteral Nutr*. 2011;35:16-24.
- 3 Position of the Academy of Nutrition and Dietetics: Malnutrition (Undernutrition) Screening Tools for All Adults Skipper, Annalynn et al. *Journal of the Academy of Nutrition and Dietetics*, Volume 120, Issue 4, 709 - 713