California Malnutrition Screening and Intervention Program

Introduction

- Current U.S. health care reform has led to penalties for hospitals and Integrated Delivery Networks (IDNs) for clinical practices that lead to poor clinical outcomes, while also awarding rewards for improvements in the quality of patient care.
- Nutritional quality improvement programs, like the one presented here, can contribute to the achievement of these important clinical and financial goals.

Background:

- Definition of Malnutrition:
    - The presence of two or more of the following characteristics: insufficient energy intake, weight loss, loss of muscle mass, loss of subcutaneous fat, localized or generalized fluid accumulation, or decreased functional status.
      (Malone A and Hamilton C. The Academy of Nutrition and Dietetics/ The American Society for Parenteral and Enteral Nutrition Consensus Malnutrition Characteristics: Application in Practice. *JPEN*. 2013;28(6): 639-650.2013.)
- Malnutrition affects 30-50% of hospitalized adults.[1]
    - Another two-thirds of malnourished patients will experience further decline in their nutrition status during their hospital stay.
      (Tappenden KA, et al. Critical role of nutrition in improving quality of care: An interdisciplinary call to action to address adult hospital malnutrition. *J Acad Nutr Diet.*2013;113(9):1219-1237.)
    - About one-third of patients who were not malnourished at admission become malnourished during their hospital stay.
      (Braunschweig C, et al. Impact of declines in nutritional status on outcomes in adult patients hospitalized for more than 7 days. *J Am Diet Assoc*. 2000;100(11):1316-1322.)
- Malnutrition leads to decreased strength, impaired functionality and quality of life, increased morbidity and mortality, longer hospital stays, and increased risk for hospital readmissions.[2,3]
- Malnourished hospitalized patients have:
    - 3.8 times the risk of developing a pressure ulcer
    - 3 times the risk of surgical site infection
    - 5 times the risk of catheter associated UTI, and
    - 3 times the risk of C. diff, and 3 times the risk of Post-Operative Pneumonia.

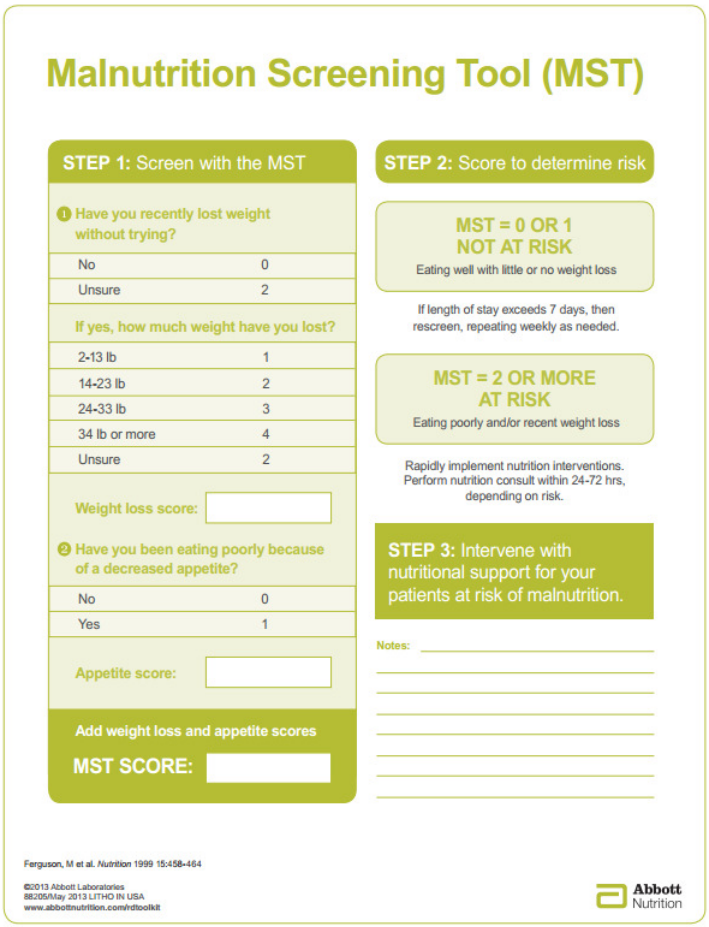
      (Fry DE,et al. Arch Surg. 2010;145:148-151)
- A study by Johns Hopkins showed that only 20% of malnourished patients received a nutritional consult.
  (Somanchi M, Xuguang T, Mullin G. *JPEN.*2011;35:209-216)

- Patients with nutritional risk factors, weight loss, and/or malnutrition are more likely to experience hospital readmission than well-nourished patients.[7-11]
- Poor nutrition status has been associated with a 300% increase of health care costs.
  (Correia MI, Waitzberg DL. The impact of malnutrition on morbidity, mortality, length of hospital stay and costs evaluated through a multivariate mode analysis. *Clin Nutr.* 2003;22(3):235-239.)
  (Amaral TF, et al. The economic impact of disease related malnutrition at hospital admission. *Clin Nutr*. 2007;26(6):778-784.)
- Oral Nutrition Supplements (ONS) have been shown in a Health Economic Study to reduce inpatient episode cost by 21.6%, length of stay by 21%, and 30-day readmission by 6.9% compared to inpatient episodes for patients who did not receive ONS.
  (Philipson, et al. Impact of Oral Nutritional Supplementation on Hospital Outcomes. *Am J Manag Care*. 2013; 19(2):121-8.)

Nutrition Screening:

- *Nutrition screening* is a process used to identify malnourished patients and those at risk for becoming malnourished.
- The Joint Commission (TJC) mandates that nutrition screening be completed within 24 hours of a patient's hospital admission. (Joint Commission Standards, 2013)
  - Majority of institutions are compliant with this Joint Commission mandate.
  - However, TJC has allowed each hospital to define their nutrition screening process.
  - In most cases, nurses are responsible for nutrition screening, while dietitians complete the nutrition assessment.
  - However, with short lengths of stay, many malnourished/at-risk patients may be discharged before they are fully assessed, a nutrition care plan can be developed, and specific nutrition interventions can be implemented.
- A specific assessment tool is not used consistently in assessing or coding patients for malnutrition.

- The only screening tool found to be both valid and reliable when used in its intended population is the *Malnutrition Screening Tool* (MST) (*See below*). (Skipper et al., 2011)



Malnutrition Screening Tool (MST)

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 nutritional support for your patients at risk of malnutrition.

Notes: _____

Ferguson, M et al. *Nutrition* 1999 15:458-464

Abbott Nutrition

http://static.abbottnutrition.com/cms-prod/malnutrition.com/img/Alliance_Malnutrition_Screening_Tool_2014_v1.pdf

- A *multidisciplinary, proactive intervention* can help treat malnourished patients at risk. The Alliance to Advance Patient Nutrition (The Alliance) has created a care model for an interdisciplinary approach to addressing malnutrition in hospitals and during the post-acute phase. This care model drives improvement in patient outcomes and preventing avoidable readmissions by emphasizing six multidisciplinary actions:

  1) Create an institutional culture where all stakeholders value nutrition;
  2) Redefine clinicians' roles to include nutrition care;
  3) Recognize and diagnose all malnourished patients and those at risk;
  4) Rapidly implement comprehensive nutrition interventions and continued monitoring;
  5) Communicate nutrition care plans to all healthcare professionals; and,
  6) Develop a comprehensive discharge nutrition care and education plan.

  (Tappenden K, et al. (2013). Critical role of nutrition in improving quality of care: An interdisciplinary call to action to address adult hospital malnutrition. J Acad Nutr Diet. 113:1219-1237)

- Themes from The Alliance care model were used to create the protocol for this program, including recognition and diagnosis of malnourished/at-risk patients, prompt implementation of interventions, and the use of a nutrition care and education plan at discharge.

Malnutrition Screening and Intervention Program

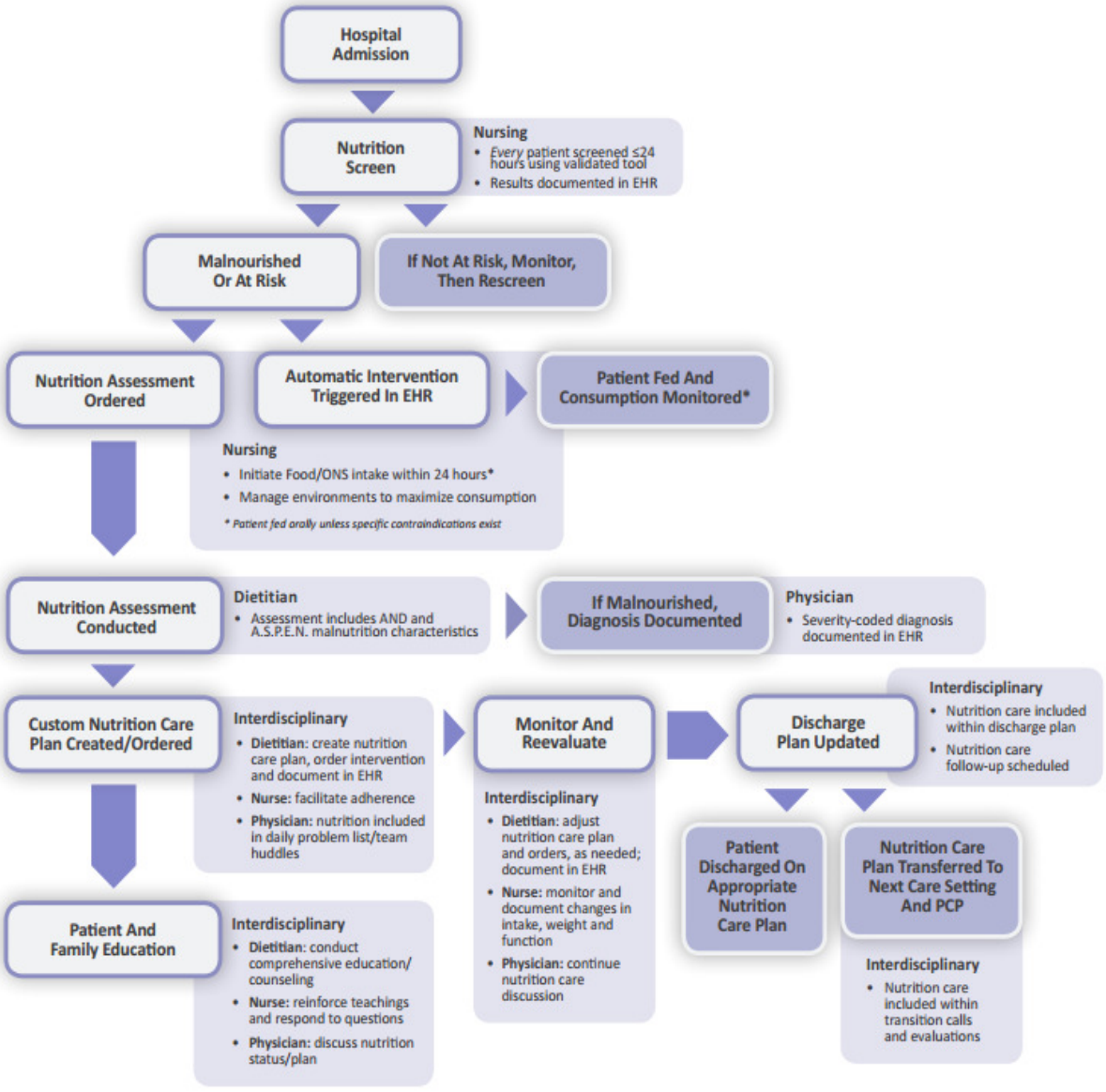
Screening and Intervention Protocol/Flowchart

Admission: screen with MST (validated nutrition screening tool) within 24 hours

Patients identified as At-Risk: automatic RD referral, start ONS at 1-2 servings/day

Discharge: ONS order, diet education, ONS Rx card, etc.

Flow Chart



http://static.abbottnutrition.com/cms-prod/malnutrition.com/img/Patient%20Care%20Flow%20Chart_2014_v1.pdf

Design

This is a three-stage program for acute care hospitals which includes baseline data collection, implementation of nutrition screening/intervening/discharge order protocol, and follow-up data collection with analysis to assess the effects of the program protocol on eligible patient readmission rates, health outcomes (length of stay, cost of care), and transitions of care.

Objectives

1. To assess baseline nutrition care data points within the hospital related to nutrition screening, intervention, and discharge orders; and
2. To determine whether instituting changes to nutrition screening, intervention, and discharge orders shows improvement in readmission rates, health outcomes (length of stay, cost of care), and transitions of care.

Program Steps:

1. **Step 1 –** *Pre-Implementation***:**

   Collect baseline data for all eligible patients—using Phase 1, 2, or 3 criteria—admitted to the hospital.

   (See *Phase 1, 2, and 3 Pre-/Post-Implementation Data Charts* below.)

2. **Step 2 –** *Implementation***:**

   Implement use of a standardized nutrition screen, intervene, and discharge plan for all diagnosed malnourished and at-risk patients.

   (See *Screening and Intervention Protocol/Flowchart* above.)

3. **Step 3 –** *Post-Implementation***:**

   Collect follow-up data for all eligible patients—using Phase 1, 2, or 3 criteria—admitted to the hospital upon whom the new standardized screen, intervene, and discharge plan was used.

   (See *Phase 1, 2, and 3 Pre-/Post-Implementation Data Charts* below.)

Measures

This program will collect data pertaining to nutrition screening, nutrition intervention, and discharge orders.

Patient Population

Inclusion Criteria:

All patients (in each of the three study phases) must meet the following criteria:

1. Patient is Medicaid-eligible.
2. Patient has an accessible electronic medical record (EMR).
3. Patient has EMR data available on admission day 1.

4. Patient is considered to be at risk for malnutrition or is malnourished (i.e., has an MST score ≥2).
5. Patient is able to consume foods/beverages orally.
6. Patient has a length of stay ≥2 days.
7. Patient receives Ensure, Nepro, or Glucerna during the course of his/her hospital stay in connection with this program's protocol.

Additional criteria will vary based on each of the three program phases:

PHASE	*PATIENT INCLUSION CHARACTERISTICS*
Phase 1	Age 65+ Post-surgical patients only
Phase 2	Age 65+ Chronic conditions: acute myocardial infarction (AMI), congestive heart failure (CHF), and pneumonia (PNA)
Phase 3	All Medicaid-eligible patients

Exclusion Criteria:

Patients (in each of the three program phases) will be excluded from the program if:

1. Patient is intubated, receiving tube feeding, or parenteral nutrition.
2. Patient has a condition that would prohibit ingestion/absorption of ONS (i.e., an allergic response to an ONS ingredient, etc.).
3. Patient has any of the following conditions: severe dementia, delirium, brain metastases, eating disorder, history of a severe neurological/psychiatric disorder that may interfere with ONS consumption as determined by the patient's physician, and/or alcoholism/substance abuse/other condition that would interfere with compliance of program protocol as determined by the patient's physician.
4. Patient is pregnant.

Setting:

The program will be conducted in the inpatient hospital setting. Hospitals can range from small to large institutions, but must have an electronic medical record system in place. Data may be collected on the entire hospital or the hospital may choose to limit their program focus to specific floors or units according to the hospital's resources or needs.

Data Collection:

Data collected is listed in the tables below, separated based on Phases 1, 2, and 3:

Phase 1 Pre-/Post-Implementation Data	
What type of hospital? (*Academic, Community, or Government*)	
Was this data collected on the entire hospital population or just a particular floor/unit?	

If specific floor/unit, what type of floor/unit?	
What is the timeframe for data collection?	
The following questions apply to the population selected/being followed:	
What is your average hospital daily census? (Specify per hospital or floor/unit)	
# of age ≥ 65 post-surgery patients?	
# of age ≥ 65 post-surgery patients identified as *No Risk* on admission MST screen?	
# of age ≥ 65 post-surgery patients identified as *At Risk* on admission MST screen?*	
# of age ≥ 65 at-risk post-surgery patients who received a RDN consult?*	
# of age ≥ 65 at-risk post-surgery patients who received ONS?*	
# of age ≥ 65 at-risk post-surgery patients who had an ONS order in the discharge orders?*	
# of age ≥ 65 at-risk post-surgery patients who were diagnosed with malnutrition per ICD-9 code 263?*	
30-day Readmission Rate (age ≥ 65 at-risk post-surgery patients)*	
Average length of stay (age ≥ 65 at-risk post-surgery patients)*	
Average cost of care (age ≥ 65 at-risk post-surgery patients)*	

* At Risk designates an MST score ≥2, which could include patients considered to be at risk for malnutrition or malnourished

Phase 2 Pre-/Post-Implementation Data	
What type of hospital? (*Academic, Community, or Government*)	
Was this data collected on the entire hospital population or just a particular floor/unit?	
If specific floor/unit, what type of floor/unit?	
What is the timeframe for data collection?	
The following questions apply to the population selected/being followed:	
What is your average hospital daily census? (Specify per hospital or floor/unit)	
# of patients age ≥ 65 with AMI?	
# of patients age ≥ 65 with CHF?	
# of patients age ≥ 65 with PNA?	
# of age ≥ 65 patients with AMI/CHF/PNA identified as *No Risk* on admission MST screen?	
# of age ≥ 65 patients with AMI/CHF/PNA identified as *At Risk* on admission MST screen?*	
# of age ≥ 65 at-risk patients with AMI/CHF/PNA who received a RDN consult?*	
# of age ≥65 at-risk patients with AMI/CHF/PNA who received ONS?*	
# of age ≥65 at-risk patients with AMI/CHF/PNA who had an ONS order in the discharge orders?*	

# of age ≥65 at-risk patients with AMI/CHF/PNA who were diagnosed with malnutrition per ICD-9 code 263?*	
30-day Readmission Rate (age ≥65 at-risk patients with AMI/CHF/PNA)*	
Average length of stay (age ≥65 at-risk patients with AMI/CHF/PNA)*	
Average cost of care (age ≥ 65 at-risk patients with AMI/CHF/PNA)*	

* At Risk designates an MST score ≥2, which could include patients considered to be at risk for malnutrition or malnourished

Phase 3 Pre-/Post-Implementation Data	
What type of hospital? (*Academic, Community, or Government*)	
Was this data collected on the entire hospital population or just a particular floor/unit?	
If specific floor/unit, what type of floor/unit?	
What is the timeframe for data collection?	
The following questions apply to the population selected/being followed:	
What is your average hospital daily census? (Specify per hospital or floor/unit)	
# of Medicaid-eligible patients?	
# of Medicaid-eligible patients identified as *No Risk* on admission MST screen?	
# of Medicaid-eligible patients identified as *At-Risk* on admission MST screen?*	
# of Medicaid-eligible at-risk patients who received a RDN consult?*	
# of Medicaid-eligible at-risk patients who received ONS?*	
# of Medicaid-eligible at-risk patients who had an ONS order in the discharge orders?*	
# of Medicaid-eligible at-risk patients who were diagnosed with malnutrition per ICD-9 code 263?*	
30-day Readmission Rate (Medicaid-eligible at-risk patients)*	
Average length of stay (Medicaid-eligible at-risk patients)*	
Average cost of care (Medicaid-eligible at-risk patients)*	

* At Risk designates an MST score ≥2, which could include patients considered to be at risk for malnutrition or malnourished

Only non-identified data will be collected in an aggregated fashion; therefore, individual patient consent will not be required. In addition, programs are exempted from institutional review board (IRB) review and approval.