Select Your Quality Improvement Focus

Section Takeaways

Following your completion of this section, you will know how to:

- Map your organization's existing clinical workflow
- Understand the recommended clinical workflow
- Determine your project focus (clinical improvement to implement)
- Define your quality indicators of interest and necessary data to collect

Understand Your Existing Malnutrition Care Workflow

To prepare for implementing the MQii, **the interdisciplinary Project and Care Team members must work together to understand existing clinical and documentation workflows (i.e., how care is delivered and information is communicated to other care providers) specific to malnutrition care in your facility. It is also important to understand how clinicians in different units may work together within the hospital to support the MQii's goals.**

Understanding the nutrition care workflow (i.e. your standard process of care for nutrition) prior to implementation will enable the teams to identify differences between the existing clinical workflow and the recommended clinical workflow. This will help determine which stages of the clinical workflow have the most opportunity for improvement and what type of clinical improvement(s) or activities to introduce. For example, understanding the hospital's existing clinical workflow may help identify areas where continuity of communication breaks down between the Care Team members and potential solutions for bridging that communication. Or it may highlight where in the clinical workflow evidence-based care recommendations are not consistently followed and the need to for education and awareness building to better align with care standards.

To assess your current clinical workflow for malnutrition care, we suggest mapping it using a process flowchart format. (A sample flowchart is provided in Appendix 3). A process flowchart provides a picture of the separate steps of a process in sequential order to help develop an understanding of a how a process is carried out. A flowchart template is available at www.MQii.today in the MQii Tools & Resources section for your use.

At a minimum, your flowchart should capture the process, timing, Care Team members involved, and documentation/hand off processes for each of the following steps of the malnutrition clinical care process:
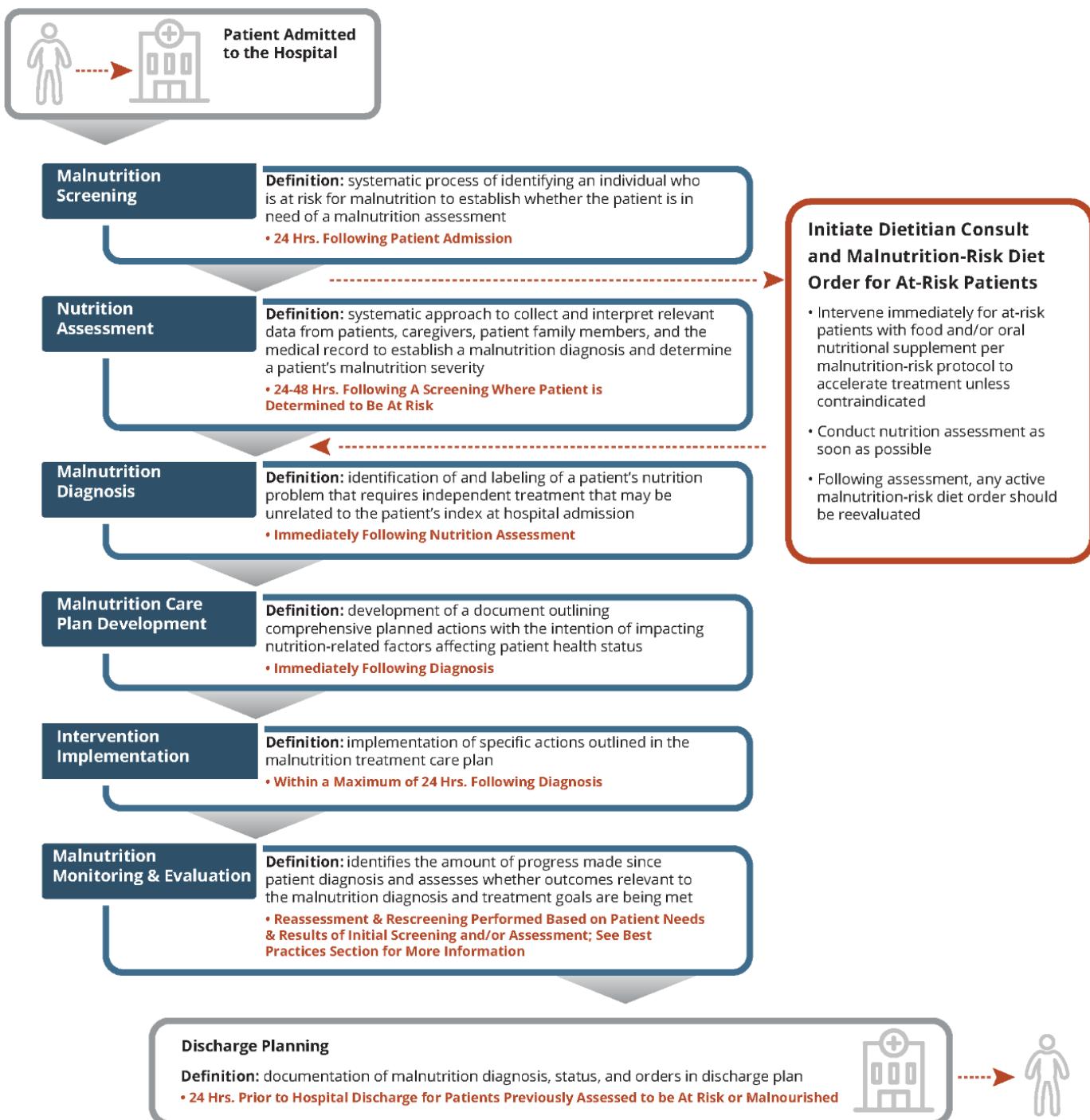
- Malnutrition Screening
- Nutrition Assessment
- Malnutrition Diagnosis
- Malnutrition Care Plan Development
- Intervention Implementation
- Malnutrition Monitoring and Evaluation
- Discharge Planning Related to At-Risk or Malnourished Patients

Once completed, you can compare your flowchart to the recommended flowchart to evaluate how your current practices align with evidence-based standards. **Figure 4** outlines the recommended process for nutrition care, including providing a definition of each of the steps outlined above and highlighting how each of these steps, including timing considerations, can fit together in your facility.

To further assist in selecting your quality improvement project, complete the Malnutrition Care Assessment and Decision Tool. This resource asks a series of questions regarding your current care provision across each of the steps highlighted above to help your Project Team recognize where care is not aligned with best practices and opportunities for improvement exist.

Finally, if you have malnutrition data available – for example, if you have collected data to evaluate the quality of your current clinical care provision using the malnutrition electronic clinical quality measures (eCQMs) or indicators – you can review the findings from that data analysis to determine where your performance may be lower than you expected or hoped. If you are consistently performing below a certain percentage (e.g., 90%) on screening, assessment, care plan development, etc. or if your timing is below recommended averages, these may suggest areas to target for quality improvement.

Figure 4: MQii Recommended Nutrition Clinical Process

Patient Admitted to the Hospital

Malnutrition Screening

Definition: systematic process of identifying an individual who is at risk for malnutrition to establish whether the patient is in need of a malnutrition assessment
• **24 Hrs. Following Patient Admission**

Nutrition Assessment

Definition: systematic approach to collect and interpret relevant data from patients, caregivers, patient family members, and the medical record to establish a malnutrition diagnosis and determine a patient's malnutrition severity
• **24-48 Hrs. Following A Screening Where Patient is Determined to Be At Risk**

Malnutrition Diagnosis

Definition: identification of and labeling of a patient's nutrition problem that requires independent treatment that may be unrelated to the patient's index at hospital admission
• **Immediately Following Nutrition Assessment**

Malnutrition Care Plan Development

Definition: development of a document outlining comprehensive planned actions with the intention of impacting nutrition-related factors affecting patient health status
• **Immediately Following Diagnosis**

Intervention Implementation

Definition: implementation of specific actions outlined in the malnutrition treatment care plan
• **Within a Maximum of 24 Hrs. Following Diagnosis**

Malnutrition Monitoring & Evaluation

Definition: identifies the amount of progress made since patient diagnosis and assesses whether outcomes relevant to the malnutrition diagnosis and treatment goals are being met
• **Reassessment & Rescreening Performed Based on Patient Needs & Results of Initial Screening and/or Assessment; See Best Practices Section for More Information**

Initiate Dietitian Consult and Malnutrition-Risk Diet Order for At-Risk Patients

• Intervene immediately for at-risk patients with food and/or oral nutritional supplement per malnutrition-risk protocol to accelerate treatment unless contraindicated

• Conduct nutrition assessment as soon as possible

• Following assessment, any active malnutrition-risk diet order should be reevaluated

Discharge Planning

Definition: documentation of malnutrition diagnosis, status, and orders in discharge plan
• **24 Hrs. Prior to Hospital Discharge for Patients Previously Assessed to be At Risk or Malnourished**

MQii
™
MALNUTRITION QUALITY IMPROVEMENT INITIATIVE

22

Identify and Select Your Clinical Improvement(s) to Implement

Once your existing workflow is well understood by team members, **compare the recommended best practices for malnutrition care to the existing workflow processes you just mapped.** Assessing where there are differences or gaps compared to your current workflow may help identify more specific areas to target for improvement. Actions for improvement (or "improvement activities") may even include those that indirectly support uptake of the recommended workflow.

Example: Evaluate whether templates used for patient intake include a section for recording results of a malnutrition screening. If these documents are separate, it creates an additional step for nurses during patient intake and may decrease the likelihood that screening results get captured in the patient record. Addressing this documentation issue would be a clinical improvement your Care Team can implement for this initiative.

Key Steps for Identifying Your Quality Improvement Focus

1. **Create** a workflow map of existing care practices to address malnutrition among admitted older adults

2. **Compare** your Care Team's current workflow processes to recommended care practices (see **Figure 4** and the recommended workflow template) to identify where improvement efforts would be most beneficial

3. **Identify** a clinical improvement activity to enhance your facility's malnutrition care workflow (e.g., related to screening, assessment, diagnosis, discharge, etc.)

4. **Review** best practices and sample PDSA cycles for ideas of potential clinical improvements to implement with your Care Teams

You do not need to implement all of the components of the recommended malnutrition care workflow at this time – focus your initial efforts on areas that are most impactful (i.e., offer the biggest opportunity for change and are most feasible to implement) for your organization. Once a first component has been addressed, your teams can work on tackling the other components in an organized fashion.

Please note: In evaluating your workflow, you should exclude patients excluded admitted for less than 24 hours, hospice patients, and those enrolled in clinical trials.

The recommended clinical workflow and related best practices presented in this section are based on existing consensus-based, clinical guidance documents from professional societies and research results at leading hospitals.

MQii
™
MALNUTRITION QUALITY
IMPROVEMENT INITIATIVE

Malnutrition Screening

A. Responsible team member

- Nurse or qualified Care Team[vi] member

B. Definition[vii]

The systematic process of identifying an individual who is malnourished or who is at risk for malnutrition to establish whether the patient is in need of a nutrition assessment[20]

C. Data sources/tools

1. Validated screening tools such as the Malnutrition Screening Tool (see Table 3: List of Validated Malnutrition Screening Tools)[21], or some other valid and reliable screening tool
2. Medical or health records
3. Patient/family interviews to obtain additional history
4. Attending physician referral form

D. Data to collect and record

1. Assessment of recent weight loss[21]
2. Assessment of decreased appetite[22]
3. Height
4. Weight

F. Malnutrition screening and follow-up steps

- Screen patient with screening tool[22]
- Score patient to determine risk[22]
- Document results of patient screening in the EHR
- For patients determined to be at risk for malnutrition refer immediately (within 24 hours) for nutrition consult and assessment[22]
- For patients determined to be at risk for malnutrition during screening, expedite nutrition intervention within 24 hours with food and/or oral nutrition supplement per malnutrition-risk protocol to accelerate treatment, unless contraindicated
- Consult patient and/or family caregiver, or refer to information in the patient's medical record, regarding diet restrictions, difficulties swallowing, and preferences when issuing the malnutrition-risk diet order

G. Decision points for continuation of care

1. If the patient is determined to be at risk for malnutrition from either the initial or a secondary screening test during hospital stay, a nutrition assessment is needed[21]

Best Practices

1. Screening is recommended to be conducted by a qualified nurse but can be conducted by any qualified member of the Care Team [vii]
2. Use a validated tool in the screening for malnutrition in a standardized way consistent with the recommendations from tool developers[23] (See Table 3)
3. Establish a policy to order a nutrition consult and assessment for all patients at nutritional risk
4. Establish policy and protocol to feed patients within 24 hours of malnutrition screen where patient is determined to be "at risk"
5. Screen surgical patients upon admission for malnutrition who have not received a malnutrition screening (as evidenced by the medical record) within 7 days prior to admission
6. Complete malnutrition screening 24 hours prior to surgery for patients who are NPO and screen again within 24 hours following surgery
7. Rescreening patients
    - Within 72 hours, rescreen patients age 65+ years who are at high-risk for malnutrition due to chronic conditions including stroke, COPD, diabetes, and certain cancers
    - Rescreen every seven days if the overall length of stay allows for it[22]
8. Leverage EHR to standardize malnutrition documentation, facilitate clinical flow, and build in advisory or reminders
    - Install a validated malnutrition screening tool into the nurses' workflow and where other admission processes are housed

---

[vi] Qualified Care Team members are those who have undergone appropriate training or certification.
[vii] Initial patient screening should occur within 24 hours of hospital admission.

Table 3: List of Validated Malnutrition Screening Tools

Birmingham Nutrition Risk (BNR)

Malnutrition Screening Tool (MST)[21]

Malnutrition Universal Screening Tool (MUST)

Mini Nutrition Assessment (MNA)

Nutrition Risk Classification (NRC)

Nutritional Risk Index (NRI)

Nutritional Risk Screening (NRS) 2002

Short Nutrition Assessment Questionnaire (SNAQ)

SAMPLE PDSA Cycle: Malnutrition Screening

Project: Malnutrition Quality Improvement Initiative
Objective of this PDSA cycle: Test completion of malnutrition screening using a validated tool for all admitted patients age 65+ years

PLAN:

Questions: Will all newly admitted patients age 65+ years receive malnutrition screening?
Predictions: All patients age 65+ years will receive malnutrition screening
Plan for change: Who, what, when, where
Complete malnutrition screening using a validated tool for all newly admitted patients who are age
65+ years during a 24 hour period
- During the intake process, nurse will screen all eligible patients using a validated screening tool

Plan for data collection: Who, what, when, where
- Nurse documents the results of the screening (i.e., "at risk" or "not at risk" for malnutrition) in the patient's medical record or electronic health record (EHR)
- Nurse documents any issues that arise with the screening process and reasons for inability to complete the screening for any patients
- If EHR does not already generate automatic dietitian requests or reminders for malnutrition-risk diet orders based on screenings that have identified patients "at risk" for malnutrition, this may be something to request assistance with from an Informatics Representative to program in the EHR

DO:

Carry out the change: Collect data and begin analysis
- Conduct the malnutrition screening test during a 24 hour period
    - For patients found to be at risk for malnutrition, attempt to have the EHR generate an automatic request to the dietitian to complete an assessment
    - For patients found to be at risk for malnutrition, attempt to have the EHR generates an automatic reminder to place a malnutrition-risk diet order
- Review medical records for 15 eligible patients admitted during the 24 hour period
- Record results of data collected (e.g., the nurse could not complete the screening for 5 out of 15 patients because screening slowed the intake process and there was a backlog of patients)

STUDY:

Complete analysis of data
- **Debrief:** Discuss whether patients could be stratified to support the screening of patients during the intake process. For example, could a screening be completed for planned admissions in the outpatient setting and prior to admission?

Verify predictions
- How closely did the results of this cycle match the prediction that was made earlier?
- Summarize any new knowledge gained by completing this cycle. For example, malnutrition screening for planned cases can be completed during the preadmission phase so that nurses will focus on emergent cases at admission. Nurse will still screen all planned cases who were not screened prior to admission.

ACT:

Identify actions
- List actions to take as a result of this cycle
- Repeat this test for another 24 hours after initiating preadmission malnutrition screening in the outpatient clinic. Plan for the next cycle (adapt change, another test, implementation cycle): Run a second PDSA cycle for another 24 hour period.

Nutrition Assessment

A. Responsible team member
   - Dietitian

B. Definition

   Systematic approach to collect and interpret relevant data from patients and family caregivers, to determine a malnutrition diagnosis[1] and severity of malnutrition

C. Data sources/tools[24]
   1. Results from initial patient screening
   2. Standardized nutrition assessment tools such as the Subjective Global Assessment[22] (see Table 4: Standardized Nutrition Assessment Tools for additional tools)
   3. Patient/family caregiver interviews to obtain additional history
   4. Medical or health records

D. Data to collect and record[1]
   1. Review data collected for factors that affect nutrition and health status, including:
      a) Food and nutrition patient history
      b) Anthropometric measurements
      c) Biochemical data
      d) Physical exam information
      e) Patient history

E. Nutrition Assessment Steps
   - Conduct nutrition assessment within 24 to 48 hours after malnutrition screening[24]
   - Review data that may impact nutrition or overall health status[1]
   - Consult with other members of the Care Team[1]
   - Conduct interview with patient and family caregiver
   - Compare data to a predefined assessment scale
   - on the tool to allow for a determination of what is a healthy score[1]

F. Decision points for continuation of care[1]
   1. Patients who are not determined to be malnourished do not warrant a malnutrition care plan
   2. Providers may need to consider patient/family decisions around seeking malnutrition treatment, particularly in end-of-life care

Best Practices

1. Nutrition assessment is recommended to be completed by a dietitian
2. Complete nutrition assessment for patients at risk of malnutrition within 24 to 48 hours after malnutrition screening[2]
3. Consider completing a cognitive assessment during the assessment to inform whether a patient can remember and carry out aspects of the care plan
4. Use a standardized tool (see Table 4 for a list of standardized tools) to conduct a nutrition assessment in a standardized way consistent with recommendations from the tool developer[1]
5. Current clinical standards do not recommend the use of serum albumin and prealbumin levels to inform whether a patient is diagnosed as malnourished, noting the limited relevance of laboratory tests of acute-phase protein levels to indicate malnutrition[25]
6. Consider the patient and their family caregivers as an integral part of the assessment process
7. Leverage EHR to standardize malnutrition documentation, facilitate clinical workflow, and build in advisory reminders
8. Utilize a standardized nutrition assessment template for consistent assessment and ease of incorporation into electronic health records
   - Mark the nutrition data in the EHR so it can easily be queried

MQii
MALNUTRITION QUALITY
IMPROVEMENT INITIATIVE

Table 4: Standardized Nutrition Assessment Tools

Standardized Assessment Tool Name	Patient Population	Nutrition Assessment Parameters	Criteria for Risk of Malnutrition
Subjective Global Assessment (SGA) Validated	Surgery, Geriatric, Oncology, Renal	Includes medical history (weight, intake, GI symptoms, functional capacity) and physical examination	Categorizes patients as: • SGA A (well nourished) • SGA B (mild-moderate malnutrition) • SGA C (severe malnutrition)
Patient Generated Subjective Global Assessment (PG-SGA) Validated	Oncology, Renal, Stroke	Includes medical history (weight, intake, GI symptoms, functional capacity) and physical examination	Categorizes patients as: • SGA A (well nourished) • SGA B (mild-moderate malnutrition) • SGA C (severe malnutrition) Also provides a numerical score for triaging. Global categories assessed as per SGA.
Nutrition Focused Physical Exam (NFPE)[viii] Not Validated	Adult, Elderly, Pediatric	• Assesses muscle wasting and fat loss • Evaluates the presence of edema or fluid accumulation • Identifies clinical signs of micronutrient deficiencies and toxicities • Measures functional status using handgrip strength dynamometer	Used for comprehensive assessment especially for micronutrients as the SGA does not assess micronutrients. Incorporate the assessment of fat and muscle loss.

[viii] A pre-recorded mini-session on how to perform the Nutrition Focused Physical Exam is available to MQii Learning Collaborative members on the Member Portal.

SAMPLE PDSA Cycle: Nutrition Assessment

Project: Malnutrition Quality Improvement Initiative
Objective of this PDSA cycle: Test completion of nutrition assessment using a standardized tool for all admitted patients age 65+ years

PLAN:

Questions: 1. Will all patients age 65+ years identified as "at risk" for malnutrition following a malnutrition screening receive a nutrition assessment? 2. Will the diagnosis of malnutrition be properly documented in the electronic health record using structured data?

Predictions: All patients age 65+ years identified as "at risk" for malnutrition will receive a nutrition assessment and a diagnosis will be correctly documented using structured data

Plan for change: Who, what, when, where
Complete nutrition assessment using a standardized tool within a 24 to 48 hour period for all patients age 65+ years who are identified as "at risk" for malnutrition following a malnutrition screening

- Following malnutrition screening, dietitian or qualified clinician will assess all eligible patients for malnutrition using a validated nutrition assessment tool
- Plan for data collection: Who, what, when, where
- Dietitian or qualified clinician documents the results of the assessment (e.g. cause of malnutrition diagnosis) in the EHR
- Dietitian or qualified clinician documents any issues that arise with the assessment process and reasons for inability to complete the assessment for any patients

Plan for data collection: Who, what, when, where

- Part of the EHR documentation process includes a required field to document a diagnosis using structured data
- Plan for data collection: Who, what, when, where
- Nurse documents the results of the screening (i.e., "at risk" or "not at risk" for malnutrition) in the electronic health record (EHR)
- Nurse documents any issues that arise with the screening process and reasons for inability to complete the screening for any patients
- If EHR does not already generate automatic dietitian requests or reminders for malnutrition-risk diet orders based on screenings that have identified patients "at risk" for malnutrition, this may be something to request assistance with from an Informatics Representative to program in the EHR

DO:

Carry out the change: Collect data and begin analysis

- Conduct the assessment within a 24 to 48 hour period following the malnutrition screening through which patients identified as "at risk"
- Review EHR records for 5 eligible patients identified as "at risk" for malnutrition
- Record results of data collection (e.g., the dietitian or qualified clinician was able to complete assessment during a 24 to 48 hour period for all eligible patients but was unable to document specific elements of the assessment results in structured data fields)

STUDY:

Complete analysis of data

- **Debrief:** Discuss whether there are modifications the hospital can make to the EHR to support the documentation of the results of nutrition assessment. For example, could the EHR template be modified to include the most frequently used data fields needed to document assessment results. Additionally, consider whether all dietitians or clinicians have received appropriate training on the documentation of results.
- Verify predictions
- How closely did the results of this cycle match the prediction that was made earlier?
- Summarize any new knowledge gained by completing this cycle. For example, limitations in the EHR documentation template during nutrition assessment may prevent the documentation of screening results in a timely manner.

ACT:

Identify actions

- List actions to take as a result of this cycle
- Repeat this test for another 72 hours after providing modifications to the EHR template. Plan for the next cycle (adapt change, another test, implementation cycle): Run a second PDSA cycle for another 72 hour period.

Malnutrition Diagnosis

A. Responsible team member
  • Dietitian or qualified Care Team member

B. Definition

The identification of and labeling of a patient's malnutrition problem that requires independent treatment that may be secondary to the patient's index hospital admission[1]

C. Data sources/tools
  1. Results from the most recently completed nutrition assessment[1]
  2. SNOMED, ICD-9, and ICD-10 codes recommended for use in diagnosing patients as malnourished or at risk for malnutrition (refer to Table 5: Sample Diagnosis Codes and Code Descriptors to Document a Malnutrition-related Diagnosis in the EHR on subsequent page for code descriptors)

D. Data to collect and record
  1. There are three distinct components that should be included in determining and recording information in the medical record regarding a malnutrition diagnostic statement[1]:
     a) Description of alterations in a patient's status
     b) Malnutrition signs and symptoms
     c) Malnutrition etiology
  2. The patient's diagnosis code should also be captured in the medical record and the "problem list" for the facility to ensure the diagnosis is fully documented

E. Malnutrition Diagnosis Steps
  • Record diagnosis in the medical record and the "problem list"
  • Establish possible causes from the nutrition assessment and other patient data
  • Consider conditions unique to the patient that may impact malnutrition status and diagnosis
  • Communicate the diagnosis to the attending physician
  • Communicate the diagnosis to the patient and family caregiver
  • Address patient and family caregiver immediate questions

F. Decision points for continuation of care
  1. Continuation of malnutrition care should only proceed if the provider identifies a malnutrition-related diagnosis[1] and if is in alignment with patient/family wishes, particularly for end-of-life care

Best Practices

1. The diagnosis should be made by a dietitian or clinician on the Care Team with the appropriate qualifications (this will vary according to state regulations for order-writing privileges)
2. The diagnosis should be clear, concise, utilize a standardized set of codes, and take into account the unique needs of the patient[1]
3. The clinician should clearly state the Problem, Etiology, and Signs & Symptoms
4. The diagnosis should be recorded in the patient medical record and the "problem list"
5. Recommend hospitals grant dietitians ordering privileges to facilitate efficient and timely diagnosis, pending accordance with state law. (Note: This may require a physician co-sign.)
6. If the Dietitian making the diagnosis does not have order-writing privileges, dietitian must communicate the diagnosis with the attending physician and agree on a treatment plan processes are housed

Providers should select appropriate diagnosis codes to document a malnutrition-related diagnosis in patients' medical records or in the EHR. Table 5 provides a list of codes providers can use to indicate a patient's malnutrition status. However, this is not an exhaustive list and users should verify most recent diagnosis codes from available sources.

Table 5: Sample Diagnosis Codes and Code Descriptors to Document a Malnutrition-related Diagnosis in the EHR

SNOMEDCT

238107002	Deficiency of macronutrients (disorder)
272588001	Malnutrition (calorie)
190602008	Moderate protein-calorie malnutrition (weight for age 60-74% of standard)
190603003	Mild protein-calorie malnutrition (weight for age 75-89% of standard)
360549009	Severe protein-calorie malnutrition (Gomez: less than 60% of standard weight)
190605005	Mild protein energy malnutrition (disorder)
190606006	Moderate protein energy malnutrition
65404009	Undernutrition - Malnutrition
70241007	Nutritional Deficiency - Malnutrition
238107002	Deficiency of macronutrients (disorder)
665128014	Malnutrition (calorie) (disorder)
407752010	Malnutrition (Calorie)
2920802017	Malnutrition, calorie

LOINC

54816-4	Protein or calorie malnutrition or at risk for malnutrition in last 7 days
75305-3	Nutrition status

ICD-9

260	Kwashiorkor
261	Nutritional marasmus
262	**Other severe protein-calorie malnutrition**
263	Malnutrition of moderate degree
263.8	**Other protein-calorie malnutrition**
263.9	**Unspecified protein-calorie malnutrition**
799.4	Cachexia

ICD-10

E40	Kwashiorkor
E41	Nutritional marasmus
E42	Marasmic kwashiorkor
E43	**Unspecified severe protein-calorie malnutrition**
E44.0	**Moderate protein-calorie malnutrition**
E44.1	Mild protein-calorie malnutrition
E46	**Unspecified protein-calorie malnutrition**
E64	Sequelae of protein-calorie malnutrition

Note: **Bolded codes** are those most commonly used to indicate a patient's malnutrition status as they specify severity of illness. However, the selection of diagnosis codes is based on a dietitian or physician assessment of individual patients.

MQii
MALNUTRITION QUALITY
IMPROVEMENT INITIATIVE

SAMPLE PDSA Cycle: Malnutrition Diagnosis

Project: Malnutrition Quality Improvement Initiative
Objective of this PDSA cycle: Test completion of documentation of patient diagnosis in the medical record for all patients age 65+ years identified as malnourished.

PLAN:

Questions: Will all patients age 65+ years identified as malnourished via a malnutrition assessment receive a malnutrition diagnosis?
Predictions: All patients age 65+ years identified as malnourished will receive a malnutrition diagnosis
Plan for change: Who, what, when, where
Record a diagnosis in the patient medical record and the "problem list" as soon as possible (within 24 hours) following a malnutrition assessment where the patient is identified as malnourished.
- Following the malnutrition assessment, the dietitian or qualified member of the Care Team should enter a medical diagnosis corresponding to the findings of the malnutrition assessment

Plan for data collection: Who, what, when, where
- Dietitian or other qualified member of the Care Team should document the malnutrition diagnostic statement in the patient's treatment record, this statement should include:
- Description of alternations in a patient's status
  - Malnutrition signs and symptoms
  - Malnutrition etiology
  - In addition to the diagnostic statement, the dietitian or other qualified member of the Care Team also documents the associated malnutrition diagnosis code(s)
- Dietitian or other qualified member of the Care Team documents any issues associated with establishing a diagnosis and documenting it in the medical record
- If EHR does not already provide a list of available diagnostic codes for easy selection by Care Team member, this may be something to request assistance with from an Informatics Representative to program in the EHR

DO:

Carry out the change: Collect data and begin analysis
- Implement change of process including training, policy, incentives, and technology adjustments.
- Enter the malnutrition diagnosis in patients found to be malnourished immediately following a malnutrition assessment
- Review EHR records for 15 eligible patients identified as malnourished
- Record results of data collected (e.g., a complete diagnosis was not entered for 5 out of 15 patients because providers were unaware of information)

STUDY:

Complete analysis of data
- **Debrief:** Discuss how to modify diagnosis entry processes to support the capture of complete diagnostic information. For example, could EHR templates be modified to include more diagnosis codes or more clearly indicate information necessary to capture?

Verify predictions
- How closely did the results of this cycle match the prediction that was made earlier?
- Summarize any new knowledge gained by completing this cycle. For example, diagnosis documentation is typically completed by a dietitian at the end of the work day when they complete administrative duties. However, an informal diagnosis is often listed in patient notes to support formal documentation.

ACT:

Identify actions
- List actions to take as a result of this cycle
- Repeat this test for another 48 hours after providing clearer instructions to the Care Team regarding diagnosis details to be captured or after appropriate modifications have been made in the data collection processes in the EHR. Plan for the next cycle (adapt change, another test, implementation cycle): Run a second PDSA cycle for another 48 hour period.

Malnutrition Care Plan Development

A. Responsible team member
   • Dietitian

B. Definition

   The development of a document outlining comprehensive planned actions with the intention of impacting malnutrition-related factors affecting patient health status[1]

C. Data sources/tools
   1. Relevant clinical practice guidelines[1]
   2. Current literature evidence base[1]
   3. Local practice protocols
   4. Patient/family caregiver interviews from assessment stage

D. Data to collect and record
   1. Description of malnutrition care plan in patient medical record

E. Malnutrition Care Plan Steps
   • Confer with patient and family caregiver to develop a malnutrition care plan specific to the patient's preferences (including food preferences), goals, needs, diagnosis, and values
   • Any malnutrition-risk diet order issued following a malnutrition screening determining the patient to be "at risk" should be reevaluated based on the result of the nutrition assessment

   • Work with all care providers and patient and family caregiver to formulate the malnutrition care plan Record the malnutrition care plan in the patient's electronic medical record
   • Communicate malnutrition care plan to members of the patient's clinical Care Team (e.g. the patient's nursing team) via the most appropriate mechanism
   • For each element of the malnutrition care plan, identify the appropriate Care Team member to complete and document relevant tasks. For example, a nurse will monitor and document intake changes, facilitate adherence, and reinforce education. Physicians include malnutrition diagnosis and care plan in daily problem list and discuss in team huddles
   • Determine and document appropriate hand-off procedures among Care Team members and during changes in shifts
   • Communicate the malnutrition care plan to the patient/family caregiver and ensure the care plan goals
   • are well understood
   • Follow-up and monitor to ensure implementation of the malnutrition care plan, including coordination with primary care physicians and other providers who may interact with
   • the patient following discharge from the hospital

F. Decision points for continuation of care
   1. Specific actions outlined in the malnutrition care plan will be specific to particular provider types as appropriate for execution

---

Best Practices

1. Malnutrition care plan should be developed by the dietitian (see Table 6)
2. Recommend hospitals grant dietitians ordering privileges to facilitate efficient care and timely interventions, if in accordance with state law (Note: This may require a physician co-sign)
3. Develop malnutrition care plan immediately following diagnosis (within 24 hours)
4. Engage patients and their family caregivers throughout the development and implementation of the malnutrition care plan where appropriate; i.e., patient should understand the goal of the components of the malnutrition care plan and how these play a role in recovery and healing
5. Design malnutrition care plan for execution by a multi-disciplinary team including dietitians, nurses, physicians, and patient and family caregiver[2]
6. Consider assigning different intervention care levels depending on the malnutrition risk to promote resource prioritization
7. Leverage EHR to standardize malnutrition documentation, facilitate malnutrition care plan, and build in alerts
   • Consider including a prompt in the electronic medical record to ask if a malnutrition care plan has been created when the patient malnutrition-related diagnosis is entered
   • Consider including a prompt (reminder) to reevaluate any malnutrition-risk diet order issued when developing the malnutrition care plan
8. The malnutrition care plan should support care efficiency by also being designed for incorporation into broader patient care plans[1]

![MQii logo — MALNUTRITION QUALITY IMPROVEMENT INITIATIVE]

The components highlighted in Table 6 are items that should be included in any malnutrition care plan developed by the dietitian. Users may print the table below to serve as a malnutrition care plan template or simply use the content to develop their own malnutrition care plans.

Table 6: Recommended Malnutrition Care Plan Components[ix]

Date and time stamp
Prioritization based on symptom severity
Clearly established goals developed in consultation with the patient and/or family caregiver
Goals and prescription that consider a patient's individualized recommended dietary intake
The prescribed treatment/intervention, which may include the following: a. Standard diet b. Specialized diet c. Oral nutrition supplement d. Liquid nutrition via tube feeding e. Parenteral nutrition f. Patient education g. Lab orders or culture assessments h. Physician consults or referrals i. Anthropometrics j. Physical activity (e.g., weight lifting) k. Suggested calorie counts
Identification of members of the Care Team
Timeline for patient follow-up, including recommendations for the attending physician regarding post-discharge planning

---

[ix] List of Recommended Malnutrition Care Plan Components provided by the Academy of Nutrition and Dietetics. Recommendations supplemented with findings from Avalere's best practices research.

MQii
MALNUTRITION QUALITY
IMPROVEMENT INITIATIVE

SAMPLE PDSA Cycle: Malnutrition Care Plan Development and Implementation

Project: Malnutrition Quality Improvement Initiative
Objective of this PDSA cycle: Test the documentation and implementation of a malnutrition care plan for all patients age 65+ years diagnosed as malnourished

PLAN:
Questions: Will all patients age 65+ years with a malnutrition diagnosis have record in the EHR of a developed and implemented malnutrition care plan?
Predictions: All patients age 65+ years with a malnutrition diagnosis will have documentation in the EHR of a developed and implemented malnutrition care plan
Plan for change: Who, what, when, where
Enter in the EHR a malnutrition care plan and documentation that it has been initiated within 24 hours of documentation of malnutrition diagnosis for all eligible patients age 65+ years

- Following diagnosis, dietitian or qualified clinician will enter a malnutrition care plan for all eligible patients with a malnutrition diagnosis, including identification of the interdisciplinary Care Team. The role of the patient should also be clearly defined.
- Following documentation of the malnutrition care plan, members of the interdisciplinary Care Team will begin implementing it within 24 hours

Plan for data collection: Who, what, when, where

- Dietitian or qualified clinician documents the malnutrition care plan (i.e. treatment goals, prescribed treatment/ intervention) in the EHR
- Care Team members responsible for components of the malnutrition care plan document completion or stage of execution of various components in the EHR

DO:
Carry out the change: Collect data and begin analysis

- Conduct the assessment during a 24 hour period following the documentation of a diagnosis in the EHR
- Review EHR records for 15 eligible patients identified as malnourished
- Record results of date collected (e.g., components of the malnutrition care plan were not implemented for 3 out of 15 patients because Care Team roles were not clearly delineated)

STUDY:
Complete analysis of data

- Debrief: Discuss how to facilitate greater Care Team coordination and communication to ensure all elements of the malnutrition care plan are implemented. For example, could a member of the Care Team be designated to ensure that the roles and responsibilities of implementing the malnutrition care plan are communicated to all members?

Verify predictions

- How closely did the results of this cycle match the prediction that was made earlier?
- Summarize any new knowledge gained by completing this cycle. For example, documentation of the malnutrition care plan and Care Team roles and responsibilities in the EHR is not sufficient to ensure effective team coordination
- List actions to take as a result of this cycle
- Repeat this test for another 48 hours after providing clearer instructions to the Care Team regarding diagnosis details to be captured or after appropriate modifications have been made in the data collection processes in the EHR. Plan for the next cycle (adapt change, another test, implementation cycle): Run a second PDSA cycle for another 48-hour period.

ACT:
Identify actions

- List actions to take as a result of this cycle
- Repeat this test for another 96 hours after designating a Care Team member responsible for team communication. Plan for the next cycle (adapt change, another test, implementation cycle): Run a second PDSA cycle for another 96-hour period.

Intervention Implementation

A. Responsible team member
   - All relevant Care Team members

B. Definition

   The implementation of specific actions outlined in the malnutrition care plan

C. Data sources/tools
   1. Established malnutrition care plan
   2. Relevant clinical guidelines
   3. Current literature evidence base to help guide implementation best practices

D. Data to collect and record
   1. Noted completion of each malnutrition care plan component in patient medical record

E. Intervention Implementation Steps
   - Carry out patient care as outlined by the malnutrition care plan
   - Continue ongoing communication of the malnutrition care plan to the patient/family caregiver, and all members of the Care Team.
   - Collaborate with additional providers outside the original Care Team as necessary
   - Engage with patient and family caregiver around actions they can take to support the malnutrition care plan
   - Document completion of each element of the malnutrition care plan in the patient medical record

F. Decision points for continuation of care
   1. Patient malnutrition care plan may be modified prior to discharge should the patient meet the goals of the initial care plan intervention
   2. Modifications to the malnutrition care plan may also occur if the patient's medical condition changes or if the original plan is not meeting the patient's needs

Best Practices

1. Strive to begin implementation of the malnutrition care plan within 24 hours of diagnosis
2. Deliver food, oral nutrition supplements, or other malnutrition support to patient as soon as is feasible
3. Implementation of the malnutrition care plan should be a collaboration between all members of the Care Team
4. Modify malnutrition care plan (with the patient or family caregiver's input) as necessary depending on changes in condition and patient response to treatment. Document all modifications in the patient medical record
5. Include re-assessment in malnutrition care plan for patients who were diagnosed as "at risk" or malnourished at any point during their hospital stay if their last assessment did not occur within 24 hours prior to the discharge
6. Leverage EHR to standardize malnutrition documentation, integrate malnutrition care plan into broader care plan and build in prompts or reminders
7. Ensure patient safety, including communication of patient allergies, no conflicts between patient's feeding schedule and medication administration
8. Build nutrition intervention plan options into either the Diet line or Supplements line housed within the Diet Orders section of the EHR so clinician can select the most appropriate plan for the patient

Malnutrition Monitoring and Evaluation

A. Responsible team member
   - All relevant Care Team members

B. Definition

   Identifies the amount of progress made since patient diagnosis and assesses whether outcomes relevant to the malnutrition diagnosis and treatment goals are being met[1]

C. Data sources/tools[1]
   1. Patient self-monitoring data (e.g., food diaries kept prior to admission, fatigue, appetite)
   2. Anthropometric measures (e.g., height and weight for body mass index calculation, body circumference, etc.)
   3. Biochemical data and medical tests
   4. Patient and family caregiver interviews
   5. SNOMED codes to record implementation and evaluation of malnutrition care plan components in a standardized nomenclature
   6. Physical exam (e.g., Nutrition Focused Physical Exam) results
   7. Calorie counts
   8. Diet tolerance information
   9. Nutrient intake information
   10. Intake and output measurements

D. Data to collect and record
   1. Changes in baseline from both biochemical and medical tests, anthropometric data, patient intake, and other relevant data points to malnutrition diagnosis[22]

E. Monitoring and evaluation Steps
   - Establish whether the malnutrition care plan is producing any positive or negative outcomes[1] through a reassessment completed after a recommended time frame
   - Receive feedback from patient and/or family caregiver as to the effect of the malnutrition care plan[1]
   - Document findings in the patient medical record
   - Perform follow-up and re-assessment by dietitian as necessary
   - Consider impact of any new patient diagnoses, treatments, or other clinical events
   - Adjust malnutrition care plan as necessary to ensure positive outcomes[1]

F. Decision points for continuation of care
   1. Malnutrition care may continue if patient has not attained all treatment goals. This may include care following hospital discharge and should be coordinated with providers in the post-discharge setting
   2. Patients who do meet the goals of the malnutrition care plan should be monitored for a change in status [1]

Best Practices[1, 2]

1. Multiple providers on the multi-disciplinary Care Team may be responsible for ongoing malnutrition monitoring and evaluation depending on the care plan
2. Monitor the care process
3. Ensure patient/family caregiver understanding and compliance with malnutrition care plan
4. Identify positive and negative outcomes and whether the intervention is or is not impacting patient malnutrition status
5. Support findings with evidence and provide reasoning for improvement or lack of progress
6. Measure outcomes by assessing progress, using outcome indicators relevant to the malnutrition diagnosis, symptoms, and malnutrition care plan goals
7. Evaluate outcomes: compare current status with status at time of diagnosis and against treatment goals
   - Monitoring and evaluating results will inform modifications to the malnutrition care plan and implementation process

Discharge Planning

A. Responsible team member
   - All relevant Care Team members

B. Definition

   Determines a patient's appropriate post-hospital discharge destination, identifies what is required to facilitate a smooth and safe transition from the hospital to the discharge destination, and helps to identify services and/or care a patient may need post-discharge in alignment with their nutritional and medical needs[26]

C. Data sources/tools
   1. Patient's malnutrition diagnosis
   2. Patient's malnutrition care plan details
   3. Documented progress towards goals of the malnutrition care plan
   4. Biochemical data and medical tests
   5. Post-discharge nutrition re-assessment
   6. Patient and family caregiver interviews

D. Data to collect and record
   1. Note documentation of discharge
   2. Malnutrition-related components in discharge template

E. Discharge Planning Steps

   Begin discharge planning 24 hours prior to the planned discharge
   - Include malnutrition-related components of a discharge plan (e.g., malnutrition status, diagnosis, patient education on importance of malnutrition in overall recovery)
   - Establish a follow-up appointment date and time for the patient
   - Support implementation of the malnutrition care plan beyond the inpatient setting by:
      a) Communicating the plan's key components and goals to the patient/family caregiver, and any other post-discharge provider or caregiver
      b) Ensuring patient/caregiver has access to ongoing education to ensure understanding of malnutrition care plan
   - Document all malnutrition-related components in the discharge template

F. Decision points for continuation of care
   1. The inclusion of nutrition-related components in the discharge plan is only necessary for those patients identified as at-risk or malnourished during the inpatient stay

Best Practices

1. Create a designated space for nutrition information in the discharge planning template
2. Tailor nutrition orders for discharge to the individual patient's needs and obtain input from all members of the Care Team
   - Include take-home information including malnutrition education and malnutrition care plan instruction materials that are in the patient's preferred language
   - Provide information directed to the patient and/or family caregiver related to best practices for self-management and links to community services; i.e., home delivered meals and Area Agency on Aging
   - Include a specific plan (e.g. specific appointment times for follow-up visits with the clinical Care Team) for monitoring and evaluating the patient's progress so that the patient's malnutrition care plan can be adjusted as necessary
   - Encourage patients to continue to work with their dietitian and offer information to help facilitate this relationship (e.g. ensure patients have appropriate contact information, etc.)
3. Leverage EHR (when possible) to prepare discharge plan and coordinate care post-hospitalization
   - Include inpatient malnutrition diagnosis and nutrition intervention plan in the discharge summary. If possible via EHR linking, allow for auto-population of diagnosis into discharge plan
   - Create a template in the discharge summary that includes the patient's diet plan into the diet section of the summary
4. Ensure appropriate policies and procedures are in place for patients lacking a support system outside of the hospital to facilitate effective and efficient discharge planning that is inclusive of malnutrition-related education and specific instruction

SAMPLE PDSA Cycle: Discharge Planning

Project: Malnutrition Quality Improvement Initiative
Objective of this PDSA cycle: Test the inclusion of malnutrition related components in the discharge planning for all patients age 65+ years diagnosed as malnourished

PLAN:

Questions: Will all patients age 65+ years with a malnutrition diagnosis have malnutrition related recommendations and orders included in their discharge plan?
Predictions: All patients age 65+ years with a malnutrition diagnosis will have malnutrition components included in their discharge plan
Plan for change: Who, what, when, where
Include malnutrition-specific discharge materials tailored to the individual patient in the patient's overall discharge materials for all eligible patients age 65+ years with a malnutrition diagnosis
- 24 hours prior to discharge, all members of the Care Team will provide input on the malnutrition components that should be included in the patient's discharge plan for all eligible patients with a malnutrition diagnosis, including care transition documents for the provider in the post-discharge setting

Plan for data collection: Who, what, when, where
- All members of the interdisciplinary Care Team are eligible to provide documentation in the discharge template of malnutrition components (i.e. education materials) that should be included in the discharge plan SAMPLE PDSA Cycle: Discharge Planning

DO:

Carry out the change: Collect data and begin analysis
- Conduct the assessment during a 24 hour period prior to the discharge of patients with a malnutrition diagnosis
- Review EHR records for 10 eligible patients identified as malnourished
- Record results of data collected (e.g., malnutrition discharge planning materials were not provided for 2 out of 10 patients because there is no reminder system in place to alert the Care Team to the need to provide these materials)

STUDY:

Complete analysis of data
- Debrief: Discuss what kinds of reminder systems could be employed to help ensure the Care Team provides malnutrition discharge materials for eligible patients. For example, could a reminder system be incorporated into the EHR system to alert providers 24 hours prior to discharge that malnutrition discharge materials should be prepared?

Verify predictions
- How closely did the results of this cycle match the prediction that was made earlier?
- Summarize any new knowledge gained by completing this cycle. For example, the lack of a designated reminder system to alert the Care Team 24 hours before patient discharge that malnutrition discharge planning materials should be prepared and provided decreases the likelihood that these components will be included in the discharge materials

ACT:

Identify actions
- List actions to take as a result of this cycle
- Repeat this test for another 24 hours after providing modifications to the EHR system. Plan for the next cycle (adapt change, another test, implementation cycle): Run a second PDSA cycle for another 24 hour period

Best Practices Beyond the Malnutrition Clinical Care Stages

For organizations with more advanced malnutrition care practices (optimal or near-optimal care processes compared to the recommended clinical workflow), or those simply looking to implement improvement activities that reach beyond the clinical care stages of malnutrition, below are additional practices to consider focusing on. These best practices are categorized by various "cross-cutting" topics that can be introduced across stages of the malnutrition workflow.

Malnutrition Considerations for Surgical Patients and/or Patients on NPO (nothing by mouth) Orders[27]

- Providers should engage with patients around the decision to implement NPO orders as part of care shared decision-making processes[28, 29]

- All patients who have not received a malnutrition screening (as evidenced by the medical record) within 7 days prior to admission should be screened at admission[24, 25]

- Patients with an NPO order should be screened for malnutrition within 24-hours of beginning the NPO diet order[30]

- Surgical patients who are NPO should have a completed malnutrition screening or nutrition assessment 24-hours prior to surgery[30]

- The clinical workflow timeline for assessment and the malnutrition care plan implementation goes into effect following completed surgical/NPO patient screening[31]

Enhancing Care Efficiency Throughout the Episode of Care[27]

- Hospitals are recommended to grant dietitians ordering privileges to facilitate efficient care and timely interventions, if in accordance with state law
  - This may require co-signing from a physician

- While the electronic medical record serves a critical role in documenting the patient status and care plan, providers are advised to use verbal communication with colleagues to ensure efficient and timely interventions

- Consider assigning different intervention care levels depending on the malnutrition risk of the patient to promote resource prioritization

Shared Decision-Making

- Identify a staff liaison to work directly with patients or family caregivers

- Patients and family caregivers should be made aware of the specific roles they play in implementing the malnutrition care plan, particularly as it relates to discharge planning

- Patient engagement and shared decision-making should be supported through tools such as decision aids designed for a low level of health literacy and by encouraging patients and family caregivers to ask questions of their providers

- Providers should ensure that not only do all adult patients have an advance care directive related to food preferences, but that malnutrition considerations (such as placement of a feeding tube) are included in the decision-making process

- Providers should ensure that patient preference and feedback is incorporated into the malnutrition care plan (e.g., adjustments to meals for patient preferences, "protected" meal

times, etc.), and that reasons for not incorporating any feedback be clearly explained to the patient or family caregiver

Patient Education

- Throughout the clinical workflow patients and family caregivers should be provided with educational resources designed to enhance understanding of the patient diagnosis and malnutrition care plan goals

- Patient education should include information on the benefits of proper nutrition and tips for maintaining good nutrition at home such as those available from the Alliance to Advance Patient Nutrition[32]

- Patient education should focus on ensuring the patient and family caregiver understand the patient's needs, available nutrition resources, and the importance of ongoing treatment

- Patient education may include paper-based resources with reference to further electronic materials

- Note: You can refer to CMS's Toolkit for Making Written Material Clear and Effective for more information on how to ensure patient education materials are clear and effective

Care Coordination

- Consistent and accurate documentation of patient care in the EHR can help support team coordination
    - When considering how best to use the EHR to support patient care and team coordination, Project and Care Teams should consider mechanisms for reducing "alert fatigue"

- Core Care Team members and other healthcare professionals involved in patient care must coordinate to ensure patient safety, including:
    - Communication of patient allergies
    - No conflicts between patient's feeding schedule and medication administration
    - Effective transitions to care settings outside of the hospital

Additional Resources

If other information is needed or desired regarding any of the best practices highlighted on the previous pages, please refer to the **clinical guidance documents** for nutrition care listed below. They contain the relevant information on the most recent standards of nutrition care:

- ASPEN Clinical Guidelines: Nutrition Screening, Assessment, and Intervention in Adults[20]

- Nutrition Care Process and Model: Part I (Structure and Framework for Nutrition Professionals to Use When Delivering Nutrition Care)[33][23]

- Nutrition Care Process: Using the International Dietetics and Nutrition Terminology to Document the Nutrition Care Process[34]

Additional resources for patient engagement for effective malnutrition care include:

- Health Policy Brief: Patient Engagement (Frameworks and considerations for patient engagement)[35]

- Fostering Successful Patient and Family Engagement: Nursing's Critical Role[36]

- Nutrition Take Home Information and Guide for Patients[32]

- Patient-Centered Care Guiding Principles[37]

- National Quality Partners Playbook: Shared Decision Making in Healthcare Summary[38]

- Malnutrition in Older Adults Video – Alliance for Aging Research[39]

- National Council on Aging: Older Adult Malnutrition and Chronic Disease Toolkit[40]

In the next section—Plan for Data Collection—you will find examples of suggested quality measures and indicators to assess the impact of your selected improvement activities. You can collect data and use it to calculate quality measures/indicators to track your progress toward your quality improvement goals. Monitoring your progress through regular review of the data collection will inform whether any changes need to be made to the selected improvement activity or where to focus additional training or education efforts to enhance its effectiveness.