MALNUTRITION QUALITY IMPROVEMENT INITIATIVE

Advancing evidence-based, high-quality, patient-driven care for hospitalized older adults who are malnourished or at-risk of malnutrition

A project of the Academy of Nutrition and Dietetics, Avalere, and other stakeholders who providedexpert input through a collaborative partnership

Second Edition, 2018

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Complete Toolkit

A comprehensive guide to malnutrition quality improvement intended for printed use.

Foreword

Acknowledgements

The MQii Toolkit ("the Toolkit") is developed and distributed by the Malnutrition Quality Improvement Initiative (MQii), a project of the Academy of Nutrition and Dietetics, Avalere, and other stakeholders providing guidance through key technical expert and advisory roles.

Special thanks to the members of the MQii Advisory Committee for their guidance in designing and informing the content of the Toolkit; to the members of the Technical Expert Panel for their guidance in specifying and testing the malnutrition electronic clinical quality measures (eCQMs); and to the members of the MQii Learning Collaborative for their work to implement the MQii Toolkit and eCQMs, and provide feedback to inform revisions and future iterations to MQii tools.

Support for the MQii provided by Abbott.

About the Collaborators

Academy of Nutrition and Dietetics

The Academy of Nutrition and Dietetics (Academy) is the world's largest organization of food and nutrition professionals and the association that represents credentialed nutrition and dietetics practitioners—registered dietitian nutritionists (RDNs) and nutrition and dietetics technicians, registered (NDTRs). The Academy is committed to improving health and advancing the profession of dietetics through research, education and advocacy. The Academy collaborates to solve the greatest food and nutrition challenges now and in the future; focuses on system-wide impact across the food, wellness, and health sectors; and has a global impact in eliminating all forms of malnutrition. For more information, please visit https://www.eatrightpro.org/.

Avalere

Avalere, part of Avalere Health, is a strategic advisory company whose core purpose is to create innovative solutions to complex healthcare problems. Based in Washington, D.C., the firm delivers actionable insights, product solutions, and custom analytics for leaders in healthcare business and policy. Avalere's experts span 230 staff drawn from Fortune 500 healthcare companies, the federal government (e.g., Centers for Medicare & Medicaid Services (CMS), Office of Management and Budget (OMB), Congressional Budget Office (CBO) and the Congress)), top consultancies and nonprofits. The firm offers deep substance on the full range of healthcare business issues affecting the Fortune 500 healthcare companies. Avalere's focus on strategy is supported by a rigorous, in-house analytic research group that uses public and private data to generate quantitative insight. Through events, publications and interactive programs, Avalere insights are accessible to a broad range of customers. For more information, visit avalere.com, or follow us on LinkedIn @avalere.

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About the MQii

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These materials were developed by the Malnutrition Quality Improvement Initiative (MQii), a project of the Academy of Nutrition and Dietetics, Avalere Health, and other stakeholders who provided guidance and expertise through a collaborative partnership. Support provided by Abbott.

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About the Malnutrition Quality Improvement Initiative

The Malnutrition Quality Improvement Initiative (MQii) is a multi-year effort that began in 2013 when a variety of stakeholder organizations began to highlight gaps in existing malnutrition care and the impact of these gaps on patient outcomes. Based on the results of subsequent literature reviews, landscape assessments, engagements with key stakeholders, and best practices research, the MQii was established in partnership with the Academy of Nutrition and Dietetics, Avalere, and other stakeholders providing guidance through key technical expert and advisory roles. The engagement was undertaken to advance evidence-based, high quality, patient-centered care for hospitalized older adults (age 65 and older[i]) who are malnourished or at-risk for malnutrition. Support for the MQii was provided by Abbott.

MQii Objectives

- ✓ **Support healthcare institutions in achieving malnutrition standards of care** through use of an interdisciplinary, evidence-based malnutrition quality improvement toolkit and a set of malnutrition electronic clinical quality measures
- ✓ **Advance the adoption of malnutrition best practices at healthcare institutions**—through a nationwide MQii Learning Collaborative with the goal of improving outcomes that are important to patients and clinicians
- ✓ **Improve nutrition risk identification and care as patients transition across care settings**, for example, through integration into existing care transition pathways and accountable care models

The MQii places the patient at the center of the quality improvement process and uses widely-accepted quality improvement practices to support healthcare organizations in achieving better malnutrition quality of care. Such established practices and models include Plan-Do-Study-Act, LEAN, and Six Sigma. The MQii Principles and Models of Quality Improvement resource provides additional information on these models and how to implement them in your facility.

The design and implementation of the MQii are based on several guiding principles. The guiding principles provide a snapshot of the overall intention of the MQii, and should be used as a reference as sites employ different approaches to support the uptake of the clinical workflow and other components of the Toolkit

The MQii Toolkit

The Toolkit is a collection of evidence-based malnutrition care best practices and resources and is intended for use by all members of the care team (e.g., nurses, dietitians, physicians, patients and caregivers) who engage in care for older adult patients who are malnourished or at risk of malnutrition. By using this Toolkit to support quality improvement (QI), healthcare institutions may be able to:

- Reduce variation in clinical practice in malnutrition care across different care providers
- Improve clinicians' knowledge of the importance of malnutrition and best practices for optimal malnutrition care delivery
- Explore how optimal malnutrition care impacts cost of care proxies such as average length of stay and 30-day all-cause readmissions for patients who are malnourished or at risk for malnutrition

[i] While the MQii materials were developed with a focus on the 65 and older population, most MQii materials are applicable to all adult hospitalized patients ages 18 and older.

The MQii Toolkit was tested over a three-month implementation period in 2016 through a multi-site Demonstration and Learning Collaborative. The Toolkit's use demonstrated that the introduction of recommended malnutrition quality improvement actions helps healthcare institutions achieve performance goals in nutrition care.

The MQii Toolkit (and the accompanying Tools and Resources) intend to help hospitals and health systems implement this initiative. As hospitals use the MQii Toolkit to achieve malnutrition standards of care, they are encouraged to evaluate the impact of their quality improvement project using a set of malnutrition electronic clinical quality measures (additional information provided below) and/or the additional quality indicators outlined in the Toolkit.

Please note that while the Toolkit addresses care for patients ages 65+, most recommendations and tools referenced in the Toolkit are applicable to all adults ages 18+.

Note: The Glossary of Terms may be useful as you read through this document.

The Malnutrition Electronic Clinical Quality Measures (eCQMs)

The Academy of Nutrition and Dietetics and Avalere developed and tested a set of four malnutrition eCQMs throughout 2015-2016. The four eCQMs are:

- **NQF #3087:** Completion of a Malnutrition Screening Within 24-hours of Admission[ii]
- **NQF #3088:** Completion of a Nutrition Assessment for Patients Identified as At-Risk for Malnutrition Within 24-hours of a Malnutrition Screening
- **NQF #3089:** Nutrition Care Plan for Patients Identified as Malnourished After a Completed Nutrition Assessment
- **NQF #3090:** Appropriate Documentation of a Malnutrition Diagnosis

Building upon these four foundational measures, the Academy and Avalere have also developed a malnutrition composite measure. This measure intends to evaluate whether evidence-based care takes place throughout the malnutrition clinical workflow. The malnutrition composite measure is currently under review by the Centers for Medicare & Medicaid Services (CMS) for proposed adoption into the Hospital Inpatient Quality Reporting Program.

The MQii Learning Collaborative

In 2016, the Academy and Avalere established the MQii Learning Collaborative. This Collaborative brings together leading hospitals and health systems across the U.S. to support acceleration and dissemination of malnutrition best practices for patients. Learning Collaborative participants undertake a data-driven, patient-centered, malnutrition quality improvement project at their respective institutions using a best practices Toolkit, and are encouraged to use the malnutrition eCQMs to track and monitor improvement. **Figure 1** highlights this dual-pronged approach, whereby healthcare institutions can more rapidly and effectively achieve malnutrition care standards through joint use of these tools.

[ii] The first eCQM ("Completion of a Malnutrition Screening within 24-hours of Admission") is intended for use in patients ages 18+. This aligns with previous Joint Commission nutrition screening standards. In addition, the MQii eCQM Technical Expert Panel recommended focusing the screening measure on patients ages 18+ to enhance ease of patient screening upon admission. The remaining three eCQMs are specified for use in patients ages 65+.

The MQii Toolkit provides practical resources to enable healthcare institutions achieve optimal nutrition standards of care

Data reported from eCQMs will help healthcare institutions demonstrate their success in meeting the standards of care

Figure 1: Dual-Pronged Approach Helps Hospitals Achieve Malnutrition Standards of Care

In 2017, fifty hospitals across the U.S. participated in the Learning Collaborative and showed meaningful improvements in the delivery of malnutrition care. In 2018, the Learning Collaborative is further expanding to demonstrate the scalability of these activities in a diverse array of healthcare institutions throughout the United States and beyond. In addition, the Academy and Avalere are working with Learning Collaborative participants to explore opportunities to better screen for and provide care to malnourished patients and patients at risk of malnutrition as they transition across care settings. Should you be interested in learning more about the Learning Collaborative or how you can get involved, please click here.

Additional Background on the Development of MQii

To learn more about how the MQii was informed by key stakeholders in malnutrition care, feel free to review the dialogue proceedings (links provided below) from three multi-stakeholder roundtables, hosted by Avalere and the Academy of Nutrition and Dietetics, which were held to identify and discuss solutions to salient areas for malnutrition quality improvement.

Dialogue Proceedings: Measuring the Quality of Malnutrition in the Hospitalized Elderly Patient. This dialogue was held to explore approaches to measuring and improving the quality of care for patients with malnutrition. Participants identified a set of specific measurement and improvement areas and prioritized three main areas for initial action: (1) execution of a nutrition care plan, (2) defining malnutrition as a "never event," and (3) the use of an electronic health record template (Health Information Technology Infrastructure) to support nutrition care.

Dialogue Proceedings: Launching the Malnutrition Quality Improvement Initiative. During this second dialogue event, Avalere and the Academy shared progress to date on malnutrition quality improvement activities with key stakeholders, officially introduced the MQii, and obtained expert input on pathways for successful implementation. This input informed the design of the MQii and development of the Toolkit.

Dialogue Proceedings: Advancing Patient-Centered Malnutrition Care Transitions. In a third dialogue event, a multi-stakeholder group of health and community leaders and advocates met to develop real-world solutions to better integrate nutrition risk identification and care into existing care transition pathways and accountable care models. These proceedings outline key considerations and recommendations for clinicians/community and social service providers, patients/caregivers, payers, and policymakers to advance patient-centered malnutrition care transitions.

The MQii Toolkit

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Introduction to the MQii Toolkit

This MQii Toolkit ("the Toolkit") is a guide for identifying and implementing clinical quality improvements for malnutrition care. It is grounded in key principles of quality improvement and highlights best practices for screening, assessing, diagnosing, and treating adults, age 65+ years[iii], admitted to the hospital who are malnourished or may be at risk of malnutrition. This Toolkit is designed to support changes in the Care Team's clinical knowledge of and use of best practices for malnutrition care. It aims to do so by promoting a patient-centered approach, improving coordination across the Care Team, and raising awareness of best practices for optimal malnutrition care delivery.

The main audience for this document is individuals at a hospital or health system who assume responsibility for leading implementation of the MQii. Going forward, these individuals will be referred to as the "Project Team," whose primary members include the executive sponsor, project champion/ lead(s), dietitian, nurse, and/or physician champion, IT developer and/or report analyst, patient advocate/ patient representation. (Detailed descriptions of the various Project Team roles for this initiative can be found in Table 1: MQii Project Team Roles and Responsibilities of this Toolkit.) These individuals are most responsible for gaining support for the initiative across the organization and introducing the initiative to other staff members. However, as the initiative gets underway, other members of the Project Team or Care Team may wish to consult this document throughout implementation of the initiative. Feel free to encourage use of this document or the additional support materials provided at www.MQii.today.

In addition to the MQii Toolkit, the MQii provides a number of additional tools and resources to assist you in engaging your leadership, establishing your Project and Care Teams, evaluating your current malnutrition clinical workflow, implementing your project, and evaluating your results. You can access these resources on the MQii Tools & Resources page. You and your Project Team may find it helpful to use some or all of these tools to support your implementation of your quality improvement project at your hospital.

Key Items to Keep in Mind as You Review and Implement the Toolkit

- **Feel free to tailor the use of this Toolkit by referencing the most relevant sections for implementation at your hospital.** This Toolkit is intended to help you with full implementation of the MQii. It supports teams with varying levels of experience implementing quality improvement initiatives. Therefore, more experienced teams may find some of the background sections less relevant for their organization, while less experienced teams will find the same background information helpful for understanding the fundamentals of quality improvement activities and how to introduce them to their facilities.
- **Think about the availability of staff and resources to help you implement the clinical improvements recommended in this Toolkit.** Every organization has varying levels of ability to take on new quality improvement projects. Be sure to connect with your immediate Care Team colleagues, relevant clinical leadership, and hospital leadership to make sure you have the support you need to effectively implement the changes you decide to target to improve malnutrition care. If you have more limited resources or staff, consider introducing small changes to begin and grow the project over time.
- **Use all resources at your disposal to reach your malnutrition quality improvement goals.** Using this Toolkit as your primary guide, you will find that there are many additional resources that can support your teams to improve their quality of malnutrition care. Supporting resources to help you implement your improvement goals can be found at www.MQii.today in the MQii Tools & Resources section. Use whichever materials help most to train and educate your team for achieving optimal care and outcomes.

[iii] The first eCQM ("Completion of a Malnutrition Screening within 24-hours of Admission") is intended for use in patients ages 18+. This aligns with previous Joint Commission nutrition screening standards. In addition, the MQii eCQM Technical Expert Panel recommended focusing the screening measure on patients ages 18+ to enhance ease of patient screening upon admission. The remaining three eCQMs are for use in patients ages 65+.

Why Implement the MQii in Your Facility

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Section Takeaways

Following your completion of this section, you will know:

- The importance and impact of best practice malnutrition care to your organization
- How implementing the MQii could improve malnutrition care in your organization

The Case for the MQii

Malnutrition is most simply defined as the inadequate intake of protein and/or energy over prolonged periods of time and can include under- and over-nutrition. Malnutrition results in loss of fat stores and/or muscle wasting including starvation-related malnutrition, chronic disease-related malnutrition, and acute disease or injury-related malnutrition.[3]

Malnutrition is a leading cause of morbidity and mortality, especially among older adults.

20-50 percent of patients are at risk of malnutrition or already malnourished upon hospital admission[1]

Evidence suggests that 20 to 50 percent of patients are at risk for malnutrition or are already malnourished at the time of hospital admission,[4] but only 8 percent receive a diagnosis of malnutrition – meaning many patients may be going unrecognized and untreated.[5] The inability to identify and diagnose these patients leaves them at risk for other medical complications.

Older adults age 65+ years in particular are at an increased risk of malnutrition.[6] As many as 65 percent of older adults admitted to the hospital may be malnourished.[6] Given that increased age is a major risk factor for malnutrition and its associated complications, malnutrition can further exacerbate the risk of poor outcomes in this age group.

Furthermore, patients who are malnourished while in the hospital have a greater risk of complications, readmissions, hospital-acquired conditions, and increased length of stay.[3,5]

Malnutrition increases hospital length of stay by 4 to 6 days & costs by up to 300 percent[3]

A 2016 analysis of U.S. hospital discharges reported that average hospital costs for all non-neonatal and non-maternal hospitals stays were $12,500, while patients diagnosed with malnutrition had hospital costs averaging up to $25,500 depending on the type of malnutrition indicated.[7] Further, readmissions associated with malnutrition have an average cost per readmission of $16,900 per patient for those with protein-calorie malnutrition and $17,900 per patient for those with post-surgery nonabsorption. This is 26 and 34 percent higher respectively than readmissions costs for patients without malnutrition.[8]

Yet despite the evidence that demonstrates the benefits of nutrition for healing and recovery, and a clinical consensus model for implementing optimal malnutrition care, significant performance gaps remain in hospitals with respect to malnutrition screening, assessment, intervention, monitoring, and overall care. A 2014 study highlights that while most hospitals report malnutrition screening is taking place within 24 hours of admission, fewer than half were knowledgeable about the 2012 Consensus Statement from the Academy of Nutrition and Dietetics/American Society for Parenteral and Enteral Nutrition (ASPEN) that recommends specific markers and characteristics for diagnosis of malnutrition.[9] Additionally, several care gaps were identified, including a lack of interdisciplinary clinician participation in the delivery of malnutrition care, inadequate knowledge about or use of nutrition tools, and inadequate training of family caregivers to help treat malnutrition.[9]

The MQii seeks to make tools and processes available to hospitals to close these gaps in care and knowledge, and potentially improve patient outcomes. **Figure 2** indicates how the MQii is designed to address these gaps by establishing a clear aim to demonstrate an improvement in the quality of malnutrition care at your facility. Reducing variability in clinical practice for malnutrition care is a primary driver for change. By introducing clinical improvements or activities that address each of the change concepts in **Figure 2**, it is anticipated that a facility can reduce clinical practice variability and demonstrate critical improvements in malnutrition care. These changes, in turn, may also improve patient outcomes that potentially lower the cost of care in your facility (see the "Outcomes of Interest" in **Figure 2**).

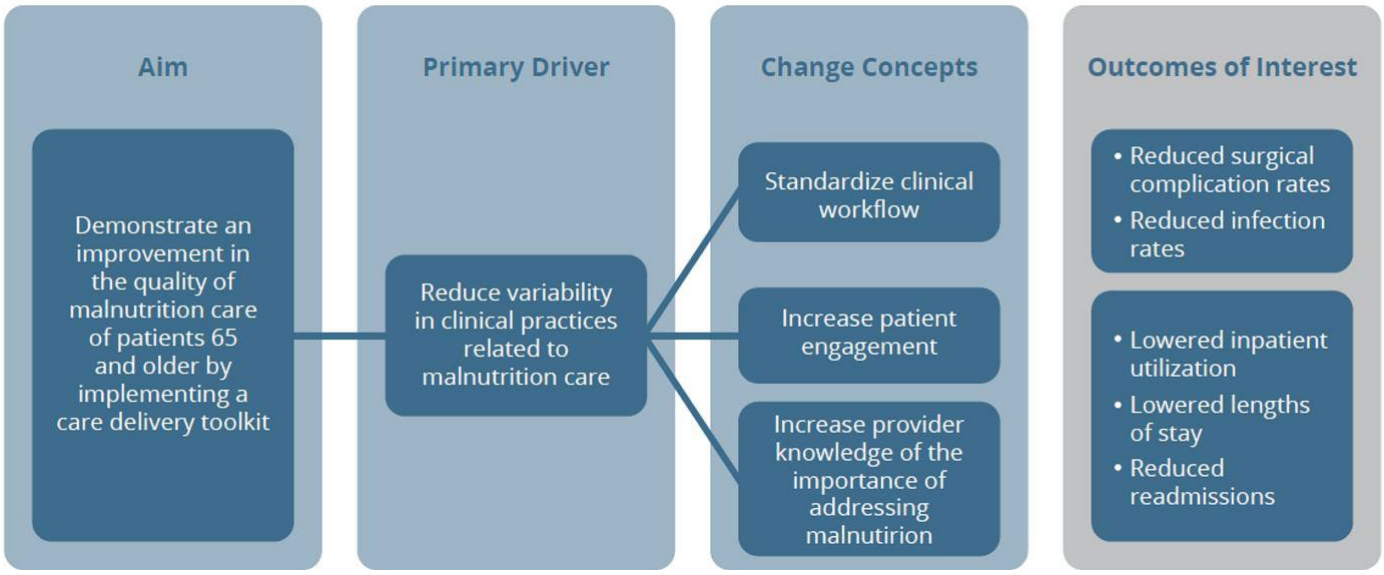

Figure 2: Driver Diagram Illustrating the MQii Theory of Change

Plan Your Initiative

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Section Takeaways

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

- Prepare to engage key individuals to build internal support for the project
- Build your Project Team
- Build your Care Team

Raise Awareness of the MQii at Your Organization

Depending on the level of malnutrition awareness in your facility, you may want to review and circulate educational information from the following sources regarding the burden and impact of malnutrition and how addressing it can improve patient and hospital outcomes:

- Briefing: The Value of Quality Malnutrition Care
- Characteristics of Hospital Stays Involving Malnutrition, 2013 (AHRQ HCUP Report)[7]
- All-Cause Readmissions Following Hospital Stays for Patients with Malnutrition, 2013 (AHRQ HCUP Report)[8]
- Malnutrition: A Serious Concern for Hospitalized Patients (***Today's Dietitian*** article)[10]

Once you have generated awareness about the prevalence and burden of malnutrition, undertake the following key steps to plan and implement your initiative.

Key Steps for Implementing a Quality Improvement Project

1. Assess your readiness to implement a malnutrition quality improvement project using the MQii Readiness Questionnaire
   - For individuals or teams with less familiarity with or direct experience implementing clinical quality improvement initiatives, please review the Principles and Models of Quality Improvement
2. Build internal support and buy-in from key leadership
3. Identify a strong MQii Project Team and Care Team to implement a clinical improvement activity
4. Work with your MQii teams to select a malnutrition-related clinical activity on which to focus a quality improvement project
5. Plan for data collection to track improvement on the selected activity for clinical improvement
6. Begin implementation, starting with training the relevant Care Team members on the selected clinical improvement and making sure changes are consistently carried out among all Care Teams and units
7. Continue to track progress over time to help ensure the improvements sustain themselves or are further modified after the initial implementation phase

Assess Your Readiness to Implement the MQii

Before getting started, see how ready you are to begin or take on a QI initiative by taking this MQii Readiness Questionnaire.

For individuals or teams with less familiarity with or direct experience implementing clinical quality improvement initiatives, please review the primer in Appendix 2 titled the MQii Principles and Models of Quality Improvement. Additionally, it may be beneficial to review some of the online quality improvement resources listed below:

- American Society for Quality (ASQ) Quality Tools A to Z (Resources and templates for data collection, statistics, and reporting for quality improvement)[11]
- HRSA Quality Improvement (QI) Resources (Including the Importance of QI, Establishing an Organizational Foundation for QI, QI Programs: The Improvement Journey, Supporting the QI Program: Keep the Momentum Going)[12]
- Institute for Healthcare Improvement Flowchart Resources[13]
- Ways to Approach the Quality Improvement Process Improve[14]
- CMS Toolkit for Making Written Material Clear and Effective (Health literacy resource to ensure readable and usable materials)[15]

Build Internal Support

Prior to implementing the MQii at your hospital, as with any quality improvement initiative, **be sure that there is institutional alignment with the goals, processes, and resource allocation necessary to properly implement the initiative.** Institutional support—from your executive staff, administrative staff, and clinician leaders—is essential for ensuring effective implementation and that resources are available to support the initiative. Key talking points and sample letter templates are available on the MQii Tools and Resources page that can be used to reach out to stakeholders (e.g. key leadership, administrative staff, patients and family caregivers, and others) to inform them of their role in this initiative.

Key management activities that are recommended to occur prior to project implementation and to ensure institutional alignment include:

- Identify a Project Champion (or Champions)[iv]
- Secure support from senior executive leadership
- Identify Project Team members and define roles and responsibilities
- Identify the project focus (i.e., the clinical improvement activity to be implemented)
- Gain approval from executive leadership for resources needed to support implementation

Build Your Initiative Teams

With a Project Champion and executive commitment in place for the initiative, the next step is to establish a well-defined, interdisciplinary MQii Project Team and Care Team. The **MQii Project Team** is responsible

[iv] The Project Champion leads day-to-day efforts for this initiative, including developing project management processes, spreading enthusiasm across the hospital for this project, reviewing all educational webinars, attending expert webinars, and spearheading project implementation (e.g., leads clinician training). If you are the individual leading this effort at your organization, you are likely the Project Champion.

for communicating the goals and objectives of the MQii to the Care Team and overseeing general management for achieving those goals. An interdisciplinary team brings different perspectives to what is often a cross-functional problem and helps promote effective resource use. Such a diverse team will help ensure cohesive action and ongoing collaboration in support of the goals and objectives of the initiative. (See Table 1: MQii Project Team Roles and Responsibilities for descriptions of different roles suggested for the Project Team.)

Your facility can employ a degree of customization with the roles and assigned individuals for the Project Team, as needs vary by organization depending on the existing organizational structure. Not only may your team decide that not all Project Team roles are necessary for implementation, but an individual may take on more than one role.

Take the time to think of who should be on the Project Team and make a list of anyone you feel is a good candidate to consider. Identify which roles or specific individuals should be required to help make this a successful initiative. Among the key individuals, it is strongly recommended that a physician champion be identified early on to help garner buy-in from hospital executives and other leadership staff. If available at your facility, you may also consider representation from a Patient Advisory Council to provide a patient perspective. That said, customize your project to the staff and resources that are available to support your efforts; you can start with a smaller team and grow it as your project gains momentum and visibility.

Table 1: MQii Project Team Roles and Responsibilities

Project Team Role	Recommended Individual	Responsibilities	Estimated Time[v]
Executive Sponsor	Senior executive hospital leader (e.g., Chief Medical Officer, Chief Quality Officer)	Hospital Leader to champion the effort from a leadership perspective, and works to maintain executive leadership buy-in. A representative from the hospital's C-Suite is highly recommended.	~1 hour per month to review progress and approach
Project Champion / Lead(s)	Team leader (i.e., clinical leader or quality improvement director and different from the clinician "Champion")	Leads day-to-day efforts for this initiative. Develops project management processes and spreads enthusiasm across the hospital for this project. Reviews all educational webinars, attends expert webinars, participates in discussion boards and leads project implementation (e.g., leads clinician training).	10 - 15 hours per month (depends on QI focus and resources)
Dietitian Champion	Dietitian	If the Project Champion is not a dietitian, we recommend securing buy-in from a dietitian leader (CNM or Director) who will champion this effort in the nutrition department and make sure targeted QI changes are adopted. If the Project Champion is a dietitian, this role would overlap.	4 – 6 hours per month (Depends on QI focus) or refer to Project Champion if dietitian is project champion
Nurse Champion	Nurse (includes NP, CRNP, and other nurse-level professionals)	Nurses are the first line of defense to identify malnourished patients. They also play a critical role in implementing interventions and discharge planning. Having a nurse champion involved can facilitate training and education of nursing staff to make sure their nutrition care responsibilities are implemented effectively.	3 – 4 hours per month (Depends on QI focus)
Physician Champion	Physician	Clinician who generates support and buy-in for the project by all relevant parties and can communicate to other physicians in the hospital. Steps in when needed to move the project forward. Physician Champion should meet at least monthly with the Project Champion to provide input and update communication to physicians.	2 - 3 hours per month
IT Developer and/ or Report Analyst*	Informatics team member/ Data analytics representative	Assists with extraction of data elements required for eCQMs, length-of-stay, readmissions, as well as any other necessary data.	40 hours total on average
Patient Advocate / Patient Representation	Individual from the hospital's Patient and Family Advisory Council (if available)	Although this may take slightly different forms across different health systems, the role of the patient voice is pivotal to the success of quality improvement. A patient's perspective may add essential insights about their experiences within the healthcare system that can inform the direction of a particular project.	Dependent on frequency of project team or steering committee meetings

[v] Note that these are *estimate*s, and the actual time commitment may vary based on factors, such as the team structure and size or data collection needs.

The **MQii Care Team** consists of the providers who will be responsible for direct patient care within the units implementing the initiative. Care Team members may not necessarily serve on the Project Team and its composition will differ between units. Care Team members who will likely play a role on both the Care Team and Project Team are the "champions" or Care Team leaders for each staff role on the team (e.g., physician, nurse, or dietitian champions).

To the extent possible, MQii Care Teams should consist of interdisciplinary clinicians and include patient and family caregivers. Patient and family caregivers are considered integral members of the Care Team and there are ample opportunities for them to play a role in effectively implementing the clinical work flow. Table 2: MQii Care Team Roles and Responsibilities outlines the roles and responsibilities that should be applied to specific members of the MQii Care Team, highlighting best practices identified in the literature. For organizations that do not employ the staff listed, the roles and responsibilities should be appropriately assigned to other staff on the Care Team. Given the varying availability of hospital Care Team resources, Care Teams must be flexible in their team structure and approach.

Just as you did for the Project Team, take the time to think of who should be on the Care Team and make a list of anyone you feel is a good candidate to consider. Identify which specific individuals should be required to help make this a successful initiative.

Table 2: MQii Care Team Roles and Responsibilities

Care Team Role	Roles & Responsibilities
Physician[16]	• Incorporate malnutrition care into systematic care processes • Check medical record for initial malnutrition screening of admitted patients • Support hospital procedures that provide an interim nutrition intervention in accordance with the patient's care plan for patients identified as malnourished or "at risk" • Ensure malnutrition diagnosis is included as a patient complication in coding • Ensure malnutrition care plan is documented or updated in patient's medical record • Include malnutrition care plan considerations in daily patient monitoring and status assessment • Ensure malnutrition follow-up care is included in discharge planning • Engage with patients/family caregivers around malnutrition status and goals
Dietitian[17]	• Ensure hospital procedures that support an interim nutrition intervention in accordance with the patient's care plan in patients identified as malnourished or "at risk" • Conduct nutrition assessment, recommend diagnosis, and record recommended malnutrition diagnosis in the patient medical record • Develop and implement interdisciplinary malnutrition care plan (including nutrition intervention) to address malnutrition diagnosis • Document malnutrition care plan to address malnutrition diagnosis in the patient record • Update documentation of changes to the malnutrition care plan, as needed • Provide interdisciplinary Care Team with direction around therapy options to support implementation of nutrition intervention • Help interdisciplinary Care Team establish patient monitoring processes and track key patient outcome measures to evaluate effectiveness of the nutrition intervention • Contribute malnutrition expertise and engage other team members on progress made • Participate in interdisciplinary hospital rounds • Ensure patient/family caregiver understanding of malnutrition care and education plan during hospitalization and upon discharge, including consideration of follow-up appointments, use of community nutrition services, and communication with primary care provider • Document nutrition interventions' impact on patient outcomes for hospital Quality Committee
Nurse[18] **(includes NP, CRNP, and other nurse-level professionals)**	• Provide malnutrition screening of all patients age 65+ years within 24 hours of admittance • Communicate and document screening results in the paper or electronic medical record • Rescreen patients at high risk for malnutrition due to chronic conditions (e.g., stroke, COPD, diabetes, and certain cancers) every 72 hours and communicate changes in clinical status • Malnutrition screening should be added to the protocols for select primary diagnoses if it does not already exist in current hospital procedures • Implement the malnutrition care plan in collaboration with other Care Team members • For patients determined to be at risk for malnutrition during screening, issue a nutrition intervention (such as dietitian consult and malnutrition-risk diet orders) • Monitor nutrition intervention implementation and communicate patient status to attending physician, dietitian, and other Care Team members as necessary • Work with the Care Team to develop a comprehensive discharge malnutrition care and education plan • Reinforce importance of malnutrition care and follow-up post discharge to patient/caregiver
Patient or Family Caregiver	• Engage with providers around causes for diagnosis • Ensure understanding of inpatient treatment and any treatment for the post-discharge setting • Obtain a completed discharge plan at time of discharge for any outpatient treatment • Be an active participant in communicating patient preferences and scheduling follow-up care • Offer suggestions and solutions to address root cause of malnutrition • Be an active participant in care, communication preferences around the malnutrition care plan and accounting for progress whenever possible

Figure 3 shows how the MQii Project Team and the Care Team may overlap with one another. As you reach out to staff to fill these roles, you may want to refer to the Implementation Training Presentation. These slides can help you share the outlined expectations with the identified team members and help clarify their role on the teams and involvement in this initiative.

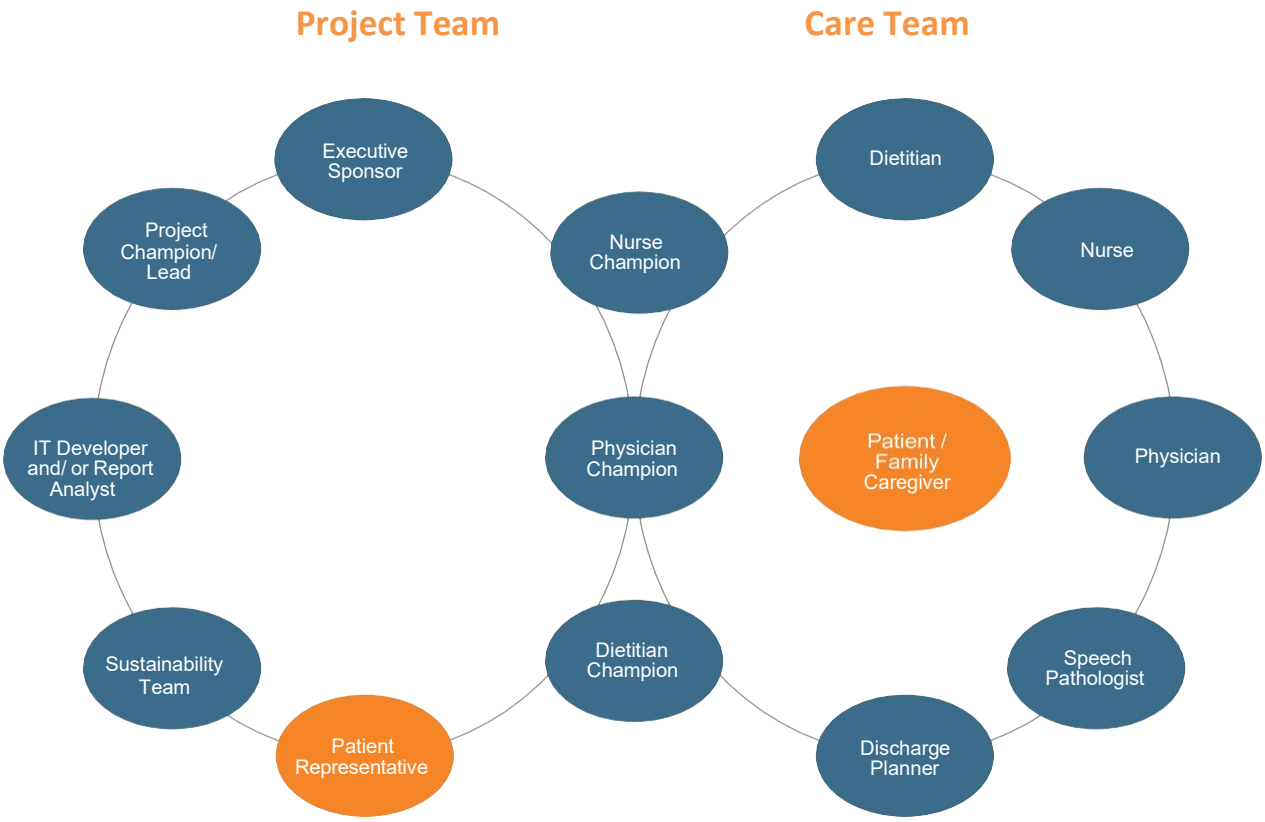

Figure 3: Example of Project Team and Care Team Overlapping Relationship

Note: This figure is illustrative only. Project and Care Teams may include more members, fewer members responsible for multiple roles, or have varying overlap among team roles.

Once the MQii Project Team has been established, the Project Manager should convene a kick-off meeting. This meeting will be used to:

1. Introduce the team members to each other
2. Review and explain the MQii
3. Describe each person's role and expectations for participation in the initiative
4. Establish ground rules to promote communication and collaboration among team members

In addition to clearly assigning and communicating the roles and responsibilities to all team members, project timelines should also be firmly established. To facilitate timely implementation and review of performance toward MQii goals, the Project Manager (or supporting team member) should schedule regular team meetings (bi-weekly, or monthly) for Project and select Care Team members to attend. Creating agendas in advance of each meeting will help direct the topics for discussion and review. A sample meeting agenda is provided at www.MQii.today.

Please note: During your implementation phase, you are encouraged to establish and identify a few Project and/or Care Team members to serve on a Sustainability Team. These individuals do not need to be Project Champions or leads, but can instead be individuals who understand the value of malnutrition quality improvement and are actively engaged in your project. The Sustainability Team will work together to ensure improvement efforts (and any progress achieved) are sustained once implemented. See the Keep It Going section for additional information on the Sustainability Team and sustaining your gains.

In addition to the Care Team members listed in Table 2, other healthcare professionals may play an important role on the team when patient needs require their services. The following list includes additional medical and non-medical staff members who can play a role on the Care Team depending on the hospital's organizational structure and the patient's unique needs:

- Pharmacists
- Physician assistants
- Social workers
- Case managers
- Discharge planners
- Speech pathologists
- Wound care providers
- Hospital administrators
- Therapists

Additional Resources

It may also help to familiarize all your team members with key aspects of malnutrition care that should be expected of individual Care Team members. The online resources linked below (from the Alliance to Advance Patient Nutrition) highlight this specific information:

- Role of the Dietitian[17]
- Role of the Physician[16]
- Role of the Nurse[18]
- Role of the Hospital Administrator[19]

Select Your Quality Improvement Focus

These materials were developed by the Malnutrition Quality Improvement Initiative (MQii), a project of the Academy of Nutrition and Dietetics, Avalere Health, and other stakeholders who provided guidance and expertise through a collaborative partnership. Support provided by Abbott.

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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:

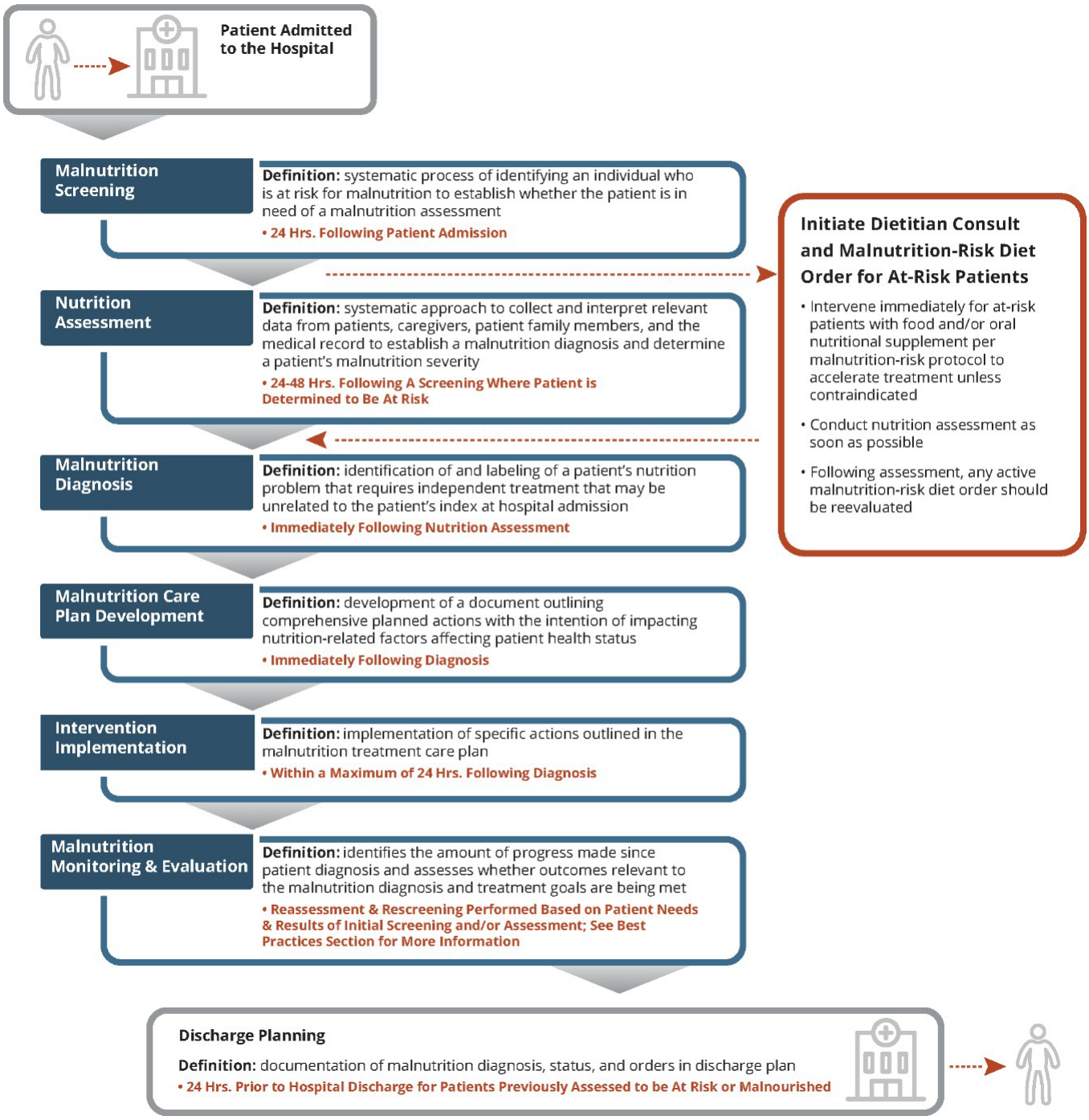
- Malnutrition Screening
- Nutrition Assessment
- Malnutrition Diagnosis
- Malnutrition Care Plan Development
- Intervention Implementation
- Malnutrition Monitoring and Evaluation
- Discharge Planning Related to At-Risk or Malnourished Patients

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



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.

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

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.

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]

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.

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. 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.

Plan for Data Collection

These materials were developed by the Malnutrition Quality Improvement Initiative (MQii), a project of the Academy of Nutrition and Dietetics, Avalere Health, and other stakeholders who provided guidance and expertise through a collaborative partnership. Support provided by Abbott.

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Section Takeaways

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

- Identify indicators or metrics to track the impact of your improvement activities
- Evaluate and prepare sources for data capture
- Be familiar with the suggested MQii electronic clinical quality measures (eCQMs) and quality indicators

Consider Opportunities to Track Improvement

Throughout your project, you will want to assess the effectiveness of your quality improvement activities. Malnutrition quality measures and/or indicators offer one ideal way to evaluate your progress toward your malnutrition care goals. **The Project Champion / Lead and IT Developer / Report Analyst should identify quality measures and/or indicators that best align with your project objectives, fit the needs of your organization and Project Team, and capture changes to the clinical workflow.**

Determine a Data Capture Mechanism

To help inform your selection of quality measures or indicators, you will want to consider the method you will use for collecting performance data. A standardized and consistent method of data collection should be used to collect data during the pre-, during, and post-implementation period for your quality improvement activities. Data collected during and following implementation will be used for comparison against any baseline data (collected prior to implementation) and help determine whether any change in malnutrition quality resulted from implementation of the MQii. A standardized method of data collection will make it easier to compare results and will alleviate questions or concerns regarding data capture.

It is recommended that data be collected using a hospital's electronic health record (EHR) system when possible. Using the EHR system typically allows for quicker and lower cost data abstraction compared with paper-based methods. As this varies by EHR system, work with your IT Developer / Report Analyst to **explore what data your system has available to collect on the selected malnutrition quality measures or indicators and your ability to run custom reports.** You may determine that you want or need to revise the way that nutrition data is captured in your EHR to enable more standardized capture of structured information. While this may require additional work in the beginning, most facilities find this initial work helpful to support easier implementation and data analysis during and following implementation.

Review the Suggested MQii eCQMs and Quality Indicators

Depending on the improvement activities you have selected to implement in your hospital, you may choose to use the electronic clinical quality measures (eCQMs) and/or quality indicators in Table 7: Suggested MQii eCQMs and Quality Indicators. Collecting data on these suggested eCQMs or indicators will provide evidence that can be used to assess where you may have existing care gaps, track progress against quality improvement activities over time, and evaluate and communicate the benefits of improved malnutrition care both within and outside of your facility.

If you are able to extract nutrition care data from the EHR, you are strongly encouraged to collect data to calculate the malnutrition eCQMs. These measures are being used at a national level to evaluate

malnutrition care quality and will enable you to consider your performance compared to that of other hospitals across the United States. The four malnutrition eCQMs are:

- **NQF #3087/MUC16-294:** Completion of a Malnutrition Screening within 24 hours of Admission
- **NQF #3088/MUC16-296:** Completion of a Nutrition Assessment for Patients Identified as At-Risk for Malnutrition within 24 hours of a Malnutrition Screening
- **NQF #3089/MUC16-372:** Nutrition Care Plan for Patients Identified as Malnourished after a Completed Nutrition Assessment
- **NQF #3090/MUC16-344:** Appropriate Documentation of a Malnutrition Diagnosis

In addition to the eCQMs, you may also consider collecting data on some of the MQii quality indicators outlined in Table 7, or you may identify other indicators that meet your specific quality improvement goal(s). You may collect data on as many measures or indicators as are relevant to your improvement goals. Quality measures or indicators should be identified prior to implementation of the selected improvement activity, along with the mechanism for their data capture, and communicated to the Care Team.

Please note: These suggested eCQMs and indicators are specified for use with patients age 65+ years in alignment with the MQii Toolkit ("the Toolkit"). However, the first listed eCQM ("Completion of a Malnutrition Screening within 24-hours of Admission") is specified for patients ages 18+ years due to align with previous Joint Commission nutrition screening standards. In addition, the MQii eCQM Technical Expert Panel recommended focusing the screening measure on patients ages 18+ years to enhance ease of patient screening upon admission. A full set of specifications for the eCQMs can be found in the eCQMs Specifications Manual, while indicator specifications can be found in the MQii Data Management Guide. The Data Management Guide also provides tools for performance feedback on the indicators, while the MQii Performance Calculator offers a way to evaluate your performance on the malnutrition eCQMs.

Should your facility wish to focus on and collect data for all hospitalized adults who are malnourished or at-risk of malnutrition, you can refine the population for the measure or indicators to encompass all hospitalized adults ages 18+.

Table 7: Suggested MQii eCQMs and Quality Indicators

Recommended Clinical Workflow Stage	Recommended eCQMs	Other Potential MQii Quality Indicators
Malnutrition Screening	Completion of a Malnutrition Screening within 24 hours of Admission	1. Percentage of patients age 65+ years admitted to hospital who received a malnutrition screening with a validated screening tool 2. Percentage of patients age 65+ years admitted to hospital who received a malnutrition screening 3. Percentage of patients age 65+ years identified as "at risk" through a malnutrition screening who had a malnutrition-risk diet order 4. Length of time between hospital admission and completion of malnutrition screening 5. Length of time between identification of a patient age 65+ years as "at risk" based on a malnutrition screening and implementation of a malnutrition-risk diet order, but before a nutrition assessment with a standardized tool 6. Length of time between admission and implementation of a malnutrition-risk diet order in patients age 65+ years identified as "at risk" based on a malnutrition screening, but before a nutrition assessment with a standardized tool
Malnutrition Assessment	Completion of a Nutrition Assessment for Patients Identified as At-Risk for Malnutrition within 24 hours of a Malnutrition Screening	1. Percentage of patients age 65+ years identified as "at risk" for malnutrition based on a malnutrition screening who also had a completed nutrition assessment with a standardized tool 2. Length of time between patients age 65+ years identified as "at risk" for malnutrition based on a malnutrition screening and completion of a nutrition assessment using a standardized tool 3. Length of time between admission and completion of a nutrition assessment with a standardized tool for patients age 65+ years identified as "at risk" for malnutrition based on a malnutrition screening
Malnutrition Diagnosis	Appropriate Documentation of a Malnutrition Diagnosis	1. Percentage of patients age 65+ years identified as malnourished with a nutrition assessment using a standardized tool who have a documented dietitian-based malnutrition diagnosis 2. Percentage of patients age 65+ who have a documented provider medical diagnosis of malnutrition 3. Percentage of patients age 65+ years identified as malnourished with a nutrition assessment using a standardized tool who have a documented dietician-based malnutrition diagnosis and a provider medical diagnosis of malnutrition

Malnutrition Care Plan Development	Nutrition Care Plan for Patients Identified as Malnourished after a Completed Nutrition Assessment	1. Percentage of patients age 65+ years with a completed nutrition assessment and a documented malnutrition diagnosis who have a documented malnutrition care plan
Intervention Implementation		1. Percentage of patients age 65+ years with a documented malnutrition diagnosis who had a nutrition intervention implemented 2. Length of time between documented malnutrition diagnosis and implementation of a nutrition intervention for patients age 65+ years diagnosed as malnourished 3. Length of time between admission and implementation of a nutrition intervention for patients age 65+ years diagnosed as malnourished
Discharge Planning		1. Percentage of patients age 65+ years with a malnutrition diagnosis as a result of a nutrition assessment with a standardized tool who have a malnutrition care plan included as part of their post-discharge care plan

In addition to these MQii eCQMs and quality indicators, you may also find quality indicators from the American Society for Parenteral and Enteral Nutrition (ASPEN) useful to implement as well. They are well-aligned with the MQii indicators and may provide additional areas for performance measurement.

Other quality indicators that your organization may wish to track as a part of this initiative are listed below. These quality indicator concepts assess aspects of patient-centered care and high-priority clinical outcomes anticipated to be affected by MQii implementation. Although these concepts may not be directly related to MQii outcomes, improvements in malnutrition care may impact them.

Suggested Patient-Centered Quality Indicators

- Consideration of patient preference in initiating a malnutrition-risk diet order
- Confirmation of malnutrition screening by the patient at discharge
- Confirmation of receipt of malnutrition education by patient and/or family caregiver at discharge
- Consideration of patient or family preference initiating a feeding tube during end-of-life care

Suggested Outcome Quality Indicators

- Length of Stay
    - Year-over-year comparison of average length of stay for patients receiving malnutrition care (e.g., screening, assessment, diagnosis, and care plan development) for the three months during/following MQii implementation and the same three months the year prior
    - Average length of stay for malnourished patients between pre-implementation and post-implementation of the MQii
- Readmissions Rates
    - Year-over-year comparison of 30-day all-cause readmission rates for patients receiving malnutrition care (e.g., screening, assessment, diagnosis, and care plan development) for the three months during/following MQii implementation and the same three months the year prior
    - Readmission rate for malnourished patients between pre-implementation and post-implementation of the MQii
- Pressure Ulcer Rates
    - Year-over-year comparison of hospital-acquired pressure ulcer rates for patients receiving malnutrition care (e.g., screening, assessment, diagnosis, and care plan development) for the three months during/following MQii implementation and the same three months the year prior
    - Pressure ulcer rate for malnourished patients between pre-implementation and post-implementation of the MQii
- Infection Rates
    - Year-over-year comparison of hospital-acquired infection rates for patients receiving malnutrition care (e.g., screening, assessment, diagnosis, and care plan development) for the three months during/following MQii implementation and the same three months the year prior
    - Hospital-acquired infection rate for malnourished patients between pre-implementation and post-implementation of the MQii

Begin Implementation

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Section Takeaways

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

- Plan for your quality improvement activities
- Train team members and implement the selected clinical improvement
- Begin to collect and analyze data to assess your impact

Step 1: Define Your Plan of Action

To formally kick-off the implementation phase, hold an "action planning" meeting with the Project Team to revisit the project goals, desired results, and expectations for sustaining those results. This initial meeting can be used to develop action plans that will serve as day-to-day guides for the project. You will also want to develop a set timeline for your project. For example, you may want to implement the change over a three-month period, with retrospective data collection for one or two months prior to implementation (to serve as your baseline) and continued data collection for one or two months following implementation to assess whether the Care Team is able to maintain the change.

Depending on the clinical improvement selected for the MQii, **the teams should consider the feasibility of tackling multiple activities at once. It is often helpful to first focus on small, rapid cycles of change.**[41] This involves first implementing one or two changes to the existing clinical workflow that align with the recommended care workflow (e.g., ensuring all admitted patients age 65+ years receive a malnutrition screening).

Once that first modification is sufficiently established in your clinical workflow, the teams can then build upon it as the Care Team becomes more comfortable with implementing changes to align more closely with the recommended standards of care (e.g., ensuring that once patients age 65+ years receive a malnutrition screening, as well as a malnutrition-risk diet order, a dietitian consult, and a nutrition assessment, if identified as "at risk" of malnutrition). This will allow the Care Team to focus on one particular aspect of the clinical workflow at a time and more easily identify and address any barriers to effective implementation.

Additionally, implementing one or two clinical improvements at a time allows the Project Team to communicate any implementation facilitators across Care Teams and address any barriers that arise. While a gradual implementation approach is recommended, it is important to note that addressing all components of the recommended workflow is optimal for achieving high-quality malnutrition care.

Throughout project implementation, you should test, monitor, and evaluate changes for each phase of the clinical workflow. To do so, **you may wish to follow a Plan-Do-Study-Act or similar quality improvement approach.** You can find sample PDSA cycle worksheets at www.MQii.today in the MQii Tools & Resources section (and in the Select Your Quality Improvement Focus section of this Toolkit) that may help guide how to structure your tests of change. The sample PDSA cycles are for illustrative purposes only. You will need to create your own PDSA cycle to reflect the changes you plan to introduce at your hospital to improve malnutrition care.

Aim to answer the following questions for each clinical improvement:

What are we trying to accomplish?

- The Project and Care Teams should work together to set achievable, measurable and time-bound aims for each phase of work flow implementation. To do so, you may wish to collect baseline data on quality measures or indicators (prior to implementation of improvement activities and review malnutrition care best practices to identify targets for quality improvement.
- **Example Target: In the next 3 months, achieve a 30% increase in the percentage of patients who are at risk for malnutrition who receive a nutrition assessment within 24-hours of screening**

How will we know that a change is an improvement?

- Performance improvements on specific measures or indicators identified will help the teams know when an improvement has occurred. By collecting data on these indicators, analyzing them frequently (e.g., monthly), and sharing feedback with the Care Team, project participants will be able to track progress towards the target(s) for each phase. (Please refer to the Plan for Data Collection section to support this step).
- **Example Measure: Percentage of patients identified as at risk for malnutrition based on a malnutrition screening who have a nutrition assessment documented in the medical record within 24 hours of the most recent malnutrition screening**

What additional changes to current practices can we make that will result in improvement?

- As changes are introduced to the existing clinical workflow, the Care Team may identify additional actions or changes that may be needed to achieve the targets for each phase of the clinical workflow. This might include defining barriers to optimal care and outlining ways to overcome these challenges. Best practices outlined for each stage of the clinical workflow in the Select Your QI Focus section and the resources on the MQii Tools and Resources page may provide useful tools as the team determines how best to continue effecting change and achieve targets.
- **Example Additional Activity: Revise the EHR to automatically generate a dietitian consult if the result of a malnutrition screening determines that a patient is "at risk."**

Plan for Data Collection

During Step 1, if you have not already done so, you will want to select the measures/indicators you will track throughout and following implementation, as well as your targets for each of these measures/indicators following your quality improvement activity (see Table 7 for recommended measures/indicators). To help achieve the targets and monitor progress on selected quality measures and/or indicators, you will need to establish:

- Who is responsible for each action and within what time frame
- The data capture mechanism (e.g., EHR) that will be used for data collection during each cycle to analyze the inform calculation of the quality measures or indicators
- The baseline data for each quality measure/indicator of interest
    - Note: If data are not available, such as in the case of new clinical actions, you may need to collect data from your first test of change to establish a baseline rate

Remember to monitor your progress and determine if sufficient improvement has been achieved before adding another improvement activity or moving on to the next phase of implementation.

Step 2: Train the Care Team and Implement the Change

In order to implement your malnutrition quality improvement activities as part of the MQii, it will be necessary to make all Care Teams aware of the nutrition care focus areas selected for quality improvement. Your Project Team should also inform them of current gaps in nutrition care processes and necessary changes or modifications to the clinical workflow to better align with best practices (including where barriers exist and training on how to address them).

To provide context for implementing the MQii improvement activities, all members of the Care Team should receive education on the prevalence and impact of malnutrition (please see Briefing: The Value of Quality Malnutrition Care). To the extent that such information can be made specific to your hospital's performance on malnutrition care (e.g., if you can pull statistics highlighting the prevalence of malnutrition in your facility and rates of readmissions or hospital length of stay in these patients compared to non-malnourished patients), the more impactful it will be.

Similarly, it is beneficial to share the MQii recommended clinical workflow and related best practices with the Care Team prior to implementation so that they understand the extent of potential improvement that can be made to your existing workflow. The goal is to ensure the Care Team's knowledge attainment around the importance of evaluating patients for malnutrition, as well as best practices associated with an optimal clinical workflow.

The Project Team can then formally train the Care Team on the quality improvement activities that were identified as the implementation focus for the MQii at your facility. When possible, the Care Team should be trained as a group during grand rounds or lunch-and-learn sessions to allow for a greater appreciation of how individual members will work together. Adopt the approach to information sharing that best fits your organization – this may include sharing videos or PowerPoint presentations at group meetings, using pocket cards, posting flyers in break rooms, or other tools to raise awareness of malnutrition and optimal care practices. **All team members should understand their role within the Care Team, how data are being collected, and the quality measures and/or quality indicators that the data collection is assessing.**

Below is a list of recommended training presentations for the Project Team to use with the Care Team to prepare them for implementation. These presentations and other helpful resources can be found on the MQii Tools & Resources page:

1. MQii Overview Presentation**:** Outlines the main goals and approach of the MQii and includes education on the burden of malnutrition on hospitals and patients. Can also be shared with other staff beyond the Care Team (e.g., executive leadership, administrative staff)
2. Project Teams and Workflow Mapping Presentation**:** A review of team roles and responsibilities and instructions for mapping and comparing your Care Team's current malnutrition care practices to the recommended care workflow
3. Implementation Training Presentation**:** Training for Care Team leaders and members on how to support MQii goals and implement the recommended clinical workflow

To help highlight key aspects of malnutrition care that should be expected of individual Care Team members, refer to Table 2: MQii Care Team Roles and Responsibilities. You may also find the following resources from the Alliance to Advance Patient Nutrition helpful to share with various Care Team members:

- Role of the Dietitian[17]
- Role of the Physician[16]

- Role of the Nurse[18]
- Role of the Hospital Administrator[19]

Depending on the improvement activities chosen for this initiative, the implementation tools in Table 8 may also be helpful for training the clinical Care Team on specific activities. Each tool is labeled and categorized according to the stage of the clinical workflow for which its application is most suitable. Each of these is also available at www.MQii.today in the MQii Tools & Resources section.

Table 8: Care Team Tools to Support Clinical Improvement Implementation

Implementation Tool	Clinical Workflow Stage
Recognizing Malnutrition: A visual guide for diagnosis and assessment	• Malnutrition Screening • Assessment & Diagnosis
Sample Validated Screening Tool: The Malnutrition Screening Tool	• Malnutrition Screening
Nutrition Focused Physical Exam * Nutrition Focused Physical Exam Mini-Session webinar recording available to MQii Learning Collaborative participating organizations	• Assessment & Diagnosis
Nutrition Care Process Tutorial Videos	• Assessment, Diagnosis, Intervention, & Monitoring and Evaluation
Sample Patient Discharge Template for Continued Malnutrition Care Planning[42]	• Discharge

Additional online resources to help educate your Care Team members on key aspects of malnutrition care include:

- Alliance Nutrition Care Model and Toolkit (Nutrition Care Model, Toolkit Resources, and Nursing Educational Models Videos)[43]
- Academy of Nutrition and Dietetics Standards of Excellence Metric Tool (A self-assessment tool to measure and evaluate an organization's program, services and initiatives that identify areas of improvement to enhance food and nutrition quality)[44]

Once the Care Team has been educated on the importance of malnutrition and how it can affect patient outcomes, and how to implement the clinical improvement activities, the Care Team can then begin implementing the targeted changes to your clinical workflow. Please refer to the MQii Tools & Resources for additional materials to help support your MQii implementation efforts.

Please note that not all sites may focus on clinician education and training for their quality improvement activities. For example, some may choose to change how data is captured in the EHR to improve documentation and care coordination. Others may include "hard stops" or reminders in the EHR to ensure certain steps in the recommended clinical workflow take place. These actions are also important mechanisms to ensure the provision of high-quality care and meet the goals of quality improvement-focused changes.

Step 3: Collect Data and Study Your Progress

Proper documentation of nutrition care is critical to support high quality data collection and to assess changes that take place as a result of your quality improvement activities. It also benefits the patient, as it helps enable effective care coordination within the hospital as well as transitions when the patient leaves the hospital. All nutrition data collected should be recorded in the patient's medical record (electronic medical records or paper medical records, as applicable) and use a standardized data collection template or process, where possible and appropriate.

You should aim to regularly collect data and evaluate your progress throughout implementation, as well as assess whether your change is maintained following implementation. For example, assuming an implementation timeline of 3 to 6 months, you may wish to collect data and evaluate your change following the first one or two months of implementation to see whether you have made progress, or if additional education, training, or other changes to support your quality improvement activities are necessary.

The MQii suggested quality measures and indicators inform the type and level of data you will need. To see needed data elements and calculation instructions for the eCQMs, see the Malnutrition Measures Specifications Manual and the Performance Calculator; to see the data elements and calculation instructions for the indicators, see the MQii Data Management Guide. These resources provide a description of all of denominator and numerator criteria and a description of how to use each of the variables gathered for calculating performance rates. All of these resources are available at www.MQii.today in the MQii Tools & Resources section.

Ideally, the data needed to calculate the measures/indicators would be collected in the EHR (this is necessary to calculate the eCQMs). As such, much of the data may come through routine clinical documentation as part of the workflow implementation. If some data are not available in the EHR, the Care Team may need to abstract the data from a paper medical record/chart, or capture it using some other data collection tool. An example of the data collection necessary for MQii Quality Indicator 1 is provided below.

Variables and Calculation for MQii Quality Indicator 1

MQii Quality Indicator 1: Percentage of patients age 65+ years admitted to hospital who received a malnutrition screening with a validated screening tool

The data captured (variables needed to collect) for MQii Quality Indicator 1 are:

1. A unique patient identifier
2. Patient gender (optional)
3. Patient age on admission (calculated using admission date - birthdate = age on admission)
4. Presence of a completed malnutrition screening tool record (date and time)

To then calculate the performance rate for this indicator:

1. Count the number of patients admitted to each participating clinical unit who are age 65+ years at the time of admission
2. Count the number of patients in step 1 who also have a malnutrition screening record
3. Divide the number of patients in Step 2 by the number of patients in Step 1

If a specific activity has been attempted for 3 months without any success or sign of improvement, it may be an opportunity to reassess the implementation approach or identify a different root cause that would be more beneficial to address. As implementation of selected activities are tested, there should also be consideration for suggested best practices for patient engagement, staffing, and care coordination.

Step 4: Interpret and Analyze the Data

Results from data collected on the quality measures/indicators should be interpreted by the Care Team on a continuous basis to inform further improvements in the clinical workflow. Displaying the data graphically (e.g., using run charts) makes it easy to discuss the process of care and to pinpoint specific events and tie change, or lack of change, in the measurement over time as it relates to clinical improvement activities.

In **Figure 5** below, a sample run chart displays data that suggest the targeted quality improvement – increasing rates of malnutrition screening – has been very successful towards a stated goal of 100%. The record also shows the point in time where specific clinical improvements were performed to permit the Care Team to make decisions around the effectiveness of the selected clinical improvements in creating or sustaining improvement. The Care Team is able to track progress on a weekly basis and determine that the changes introduced have been effective.

To ensure a level of validity to your findings (i.e., confirm that the results represent what is really taking place), you may wish to follow a set of signal rules.[45] Signal detection rules are used to show that the changes that are identified in a chart are non-random. Most of the rules require at least 6 and as many as 12 data points on either side of the median to be considered a signal.[45]

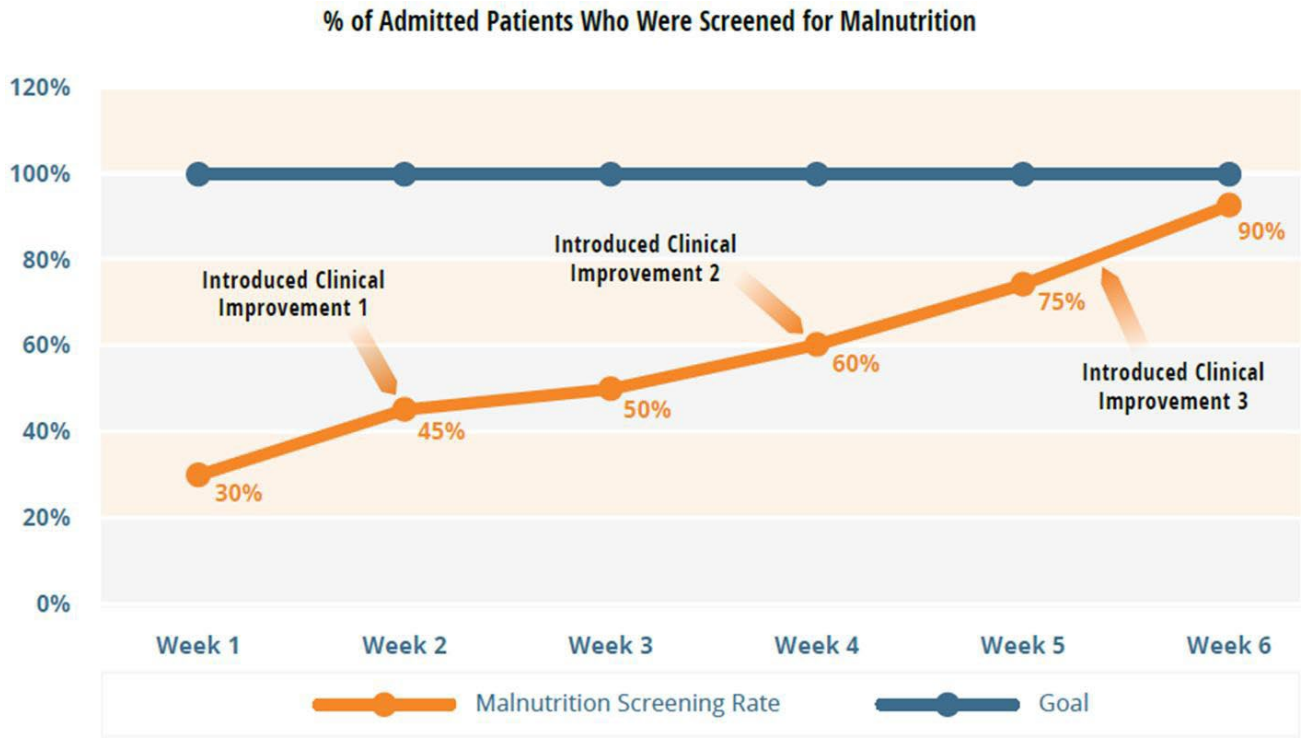

Figure 5: Sample Run Chart to Track Initiative Data

Run charts also enable comparison of performance against a specific standard and may help the Care Team identify problem areas. In the second sample chart on the next page (**Figure 6**), the same team has seen an overall increase in the number of eligible patients who receive a nutrition assessment. However, the assessments are not being completed within their desired time frame of 24-hours. By comparing the two charts, the team may choose to explore the reasons why, despite higher screening rates, the nutrition assessments are not completed in a timely fashion. The Care Team should review data as a group to gain these types of insights and work on problems and potential solutions together. By having the Project and

Care Teams collaborate on interpretation, you will ensure that perspectives of the different Care Team members are included in the problem-solving process.

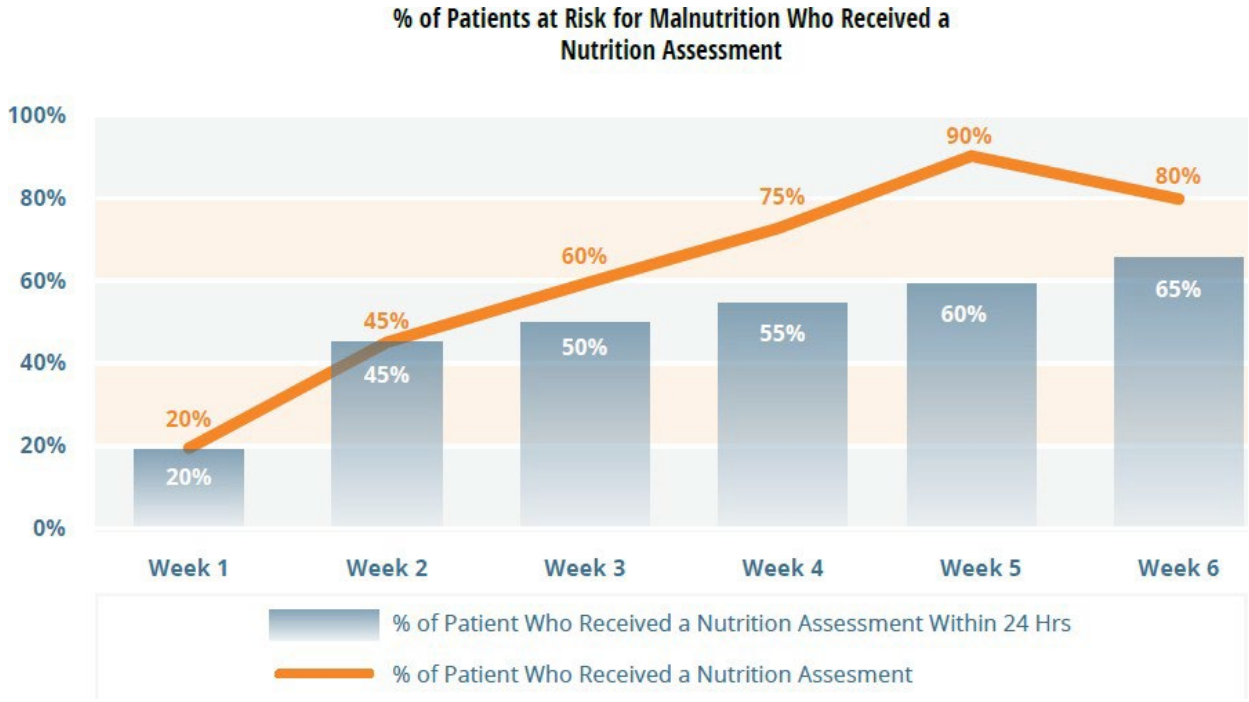

Figure 5: Sample Bar Chart to Track Initiative Data

The Care Team can use these results to identify specific aspects of the care process that might be adjusted to help bring about the desired outcome. It can be something as simple as a reminder pop-up on an intake assessment to additional training for the intake and transport staff. Ideally, the changes should be individual and incremental to be able to isolate and measure the effect of the change. Once the change is shown to be beneficial, that act of improvement should be shared with the broader Care Team.

Step 5: Spread the Change

Once the recommended clinical workflow is fully established and a high level of performance is attained across the targeted quality measures/indicators, you may benefit from further spreading the changes to other units within your hospital or other hospitals within your health system. It is important to share lessons learned from your implementation to avoid duplication of effort or challenges for which you have identified a solution. Encouraging the spread of best practices across the Care Teams and focusing on other patient populations is another way of promoting ongoing rigor in the quality of malnutrition care.[46]

Keep It Going

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Section Takeaways

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

- Prepare to track ongoing implementation progress
- Consider methods for dissemination

Continue to Track Progress Over Time

It is important to continue to monitor performance beyond the initial implementation phase. Continuous evaluation and tracking of performance over time creates the opportunity to remove or modify practices that are no longer working or are not as effective as initially anticipated. Ongoing evaluation following the project's conclusion gives teams an overall picture of nutrition care strengths or weaknesses and the opportunity to refine components of change in a targeted and systematic way for the future.

While you may not need to evaluate the quality measures/indicators as frequently as you did during your initial implementation of the initiative, regular assessment of the quality measures/indicators will enable your team to identify any declines in performance. In addition, there are a number of outcomes, such as infection rates and length of stay, that could be assessed once the workflow is fully established and there are sufficient data to support more accurate analyses.

To ensure you sustain your project gains over time, you are encouraged to create a Sustainability Team. This team can consist of Project Team members and do not necessarily need to be the clinician champions. The Sustainability Team will help collect data, evaluate progress and share findings with team members, and support refinements to the process as needed (e.g., re-education or additional training). The Sustainability Team may decide how frequently progress data will be reviewed; at a minimum, they are encouraged to evaluate performance on a quarterly basis.

The MQii Sustainability Template provides a helpful resource for you to build your Sustainability Team and plan to ensure the continued implementation of your quality improvement gains. You can find additional templates to aid tracking and reporting activities over time on the American Society for Quality's website.

Disseminate Findings

While identifying where a quality improvement process can be refined is important, celebrating successes is also important. Acknowledge when your team has achieved positive results, regardless of how small, to encourage everyone to continue their good work.

In addition to celebrating successes and quality improvement, the Project Team should consider avenues for disseminating findings, such as journal publications, conferences, and online forums (e.g., the AHRQ Health Care Innovations Exchange).[47]

You may even seek nomination to healthcare excellence awards such as the John M. Eisenberg Patient Safety and Quality Awards.[48] This not only advertises the success of the organization at effectively implementing a quality improvement program, but is a mechanism for disseminating best practices to other organizations and ultimately promoting the overall goal of the initiative—to advance high-quality patient-centered care for patients with malnutrition.

Glossary of Terms

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Glossary of Terms

Care Team The clinicians and providers who will be responsible for the direct patient care within the hospital implementing the MQii.

Clinical Practice Variability The extent to which clinical practitioners' behavior departs from established, evidence-based practices that represent timely and effective care. (For this project, the MQii Toolkit ("the Toolkit") reduces clinical practice variability to the extent that it facilitates greater alignment with evidence-based recommendations on malnutrition care processes and timing.)

Data Tools/Sources[1] Mechanisms that support data collection and provide information regarding patient care throughout the clinical workflow. Data sources may or may not be applicable depending on the stage in the clinical workflow. Examples of where this type of information may come from include:

- Validated screening tools such as the Malnutrition Screening Tool (MST)[21]
- Modified versions of validated tools
- Screening tools developed internally that are appropriate to the hospital's patient population
- Medical or health records
- Physician referral form
- Standardized nutrition assessment tools such as the Subjective Global Assessment (SGA)
- Patient/family caregiver interviews
- Community-based surveys and focus groups
- Statistical reports and epidemiologic studies
- Relevant clinical guidelines
- Current literature evidence base
- Results from documented quality improvement initiatives
- Reminder and communications tools embedded within electronic health records
- Patient self-monitoring data
- Anthropometric measures
- Biochemical data and medical tests
- Remote follow-up, including telephone and electronic health record messaging systems
- Patient and family caregiver surveys

Driver Diagram[49] A visual tool that helps translate the goals of an improvement project. They provide a way of systematically laying out aspects of an improvement project so that they can be discussed and agreed upon, providing a framework for monitoring progress toward project goals.

Malnutrition[3] Most simply defined as the inadequate intake of protein and/or energy over prolonged periods of time resulting in loss of fat stores and/or muscle wasting including starvation-related malnutrition, chronic disease-related malnutrition and acute disease or injury-related malnutrition.

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

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

Malnutrition-Risk Diet Order An interim diet order that is initiated for patients identified as at risk based on malnutrition screening upon admission and pending a Dietitian consult and nutrition assessment. Various diet orders utilized by facilities for patients at malnutrition-risk are as follows:

- High-Calorie, High-Protein Nutrition Therapy
- High-Calorie Nutrition Therapy
- Underweight Nutrition Therapy
- Nutrient Dense
- High Nutrient
- Three (3) small meals with snacks high in complex carbohydrates and low in simple sugars (fewer than 10g/serving); small amounts of rehydration solution between meals
- Small portions and frequent feedings of calorie dense foods and drinks containing fat and sugar
- Soft diet with nutritional supplements to meet energy requirements
- The malnutrition-risk diet order should be reevaluated and updated based upon the nutrition assessment.

Malnutrition Intervention Implementation The implementation of specific actions to address malnutrition outlined in the care plan.

Malnutrition Screening[20, 21] 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.

Monitoring and Evaluation[1] The systematic process to identify the amount of progress made since patient diagnosis and assesses whether outcomes relevant to the malnutrition diagnosis and treatment goals are being met.

Nutrition Assessment[1] The systematic approach to collect and interpret relevant data from patients, family caregivers, and patient family members to determine a patient's malnutrition severity and establish a malnutrition diagnosis.

Patient-Centered[50] Healthcare that establishes a partnership among practitioners, patients, and their families (when appropriate) to ensure that decisions respect patients' wants, needs, and preferences and that patients have the education and support they need to make decisions and participate in their own care.

Patient Engagement[51] An ongoing process in which patients take an active role in their own health care.

PDSA Plan-Do-Study-Act (PDSA) Cycle, a systematic series of steps for gaining valuable learning and knowledge for the continual improvement of a product or process.

Project Team An interdisciplinary team responsible for ensuring cohesive action and ongoing collaboration in support of the goals and objectives of the MQii.

Quality[52] A direct correlation between the level of improved health services and the desired health outcomes of individuals and populations.

Quality Improvement[53] Systematic activities that are organized and implemented by an organization to monitor, assess, and improve its healthcare with the goal of seeking continuous improvement in the care delivered to the patients the organization serves.

Quality Indicator[54] "[M]easurable [element] of practice performance for which there is evidence or consensus that it can be used to assess the quality, and hence change in the quality of care provided."

Quality Measure[55] Tools that help us measure or quantify healthcare processes, outcomes, patient perceptions, and organizational structure and/or systems that are associated with the ability to provide high-quality healthcare and/or that relate to one or more quality goals for healthcare.

Rapid Cycles of Change (or Rapid Improvement Cycles)[56] "A quality improvement method that identifies, implements and measures changes made to improve a process or a system." A commonly used 4-stage strategy for rapid improvement is the Plan-Do-Study-Act (PDSA) Cycle. "The PDSA cycle is shorthand for testing a change—by planning it, implementing it, observing the results, and acting on what is learned. This is the scientific method used for action-oriented learning."

Shared Decision-Making[57] Is the process of communication, deliberation, and decision making during which:

- One or more clinicians share with the patient information about relevant testing or treatment options, including the severity and probability of potential harms and benefits and alternatives of these options given the specific nature of the patient's situation;
- The patient explores and shares with the clinician(s) his or her preferences regarding these harms, benefits, and potential outcomes; and
- Through an interactive process of reflection and discussion, the clinician(s) and patient reach a mutual decision about the subsequent treatment or testing plan.

MQii Toolkit References

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Appendices

These materials were developed by the Malnutrition Quality Improvement Initiative (MQii), a project of the Academy of Nutrition and Dietetics, Avalere Health, and other stakeholders who provided guidance and expertise through a collaborative partnership. Support provided by Abbott.

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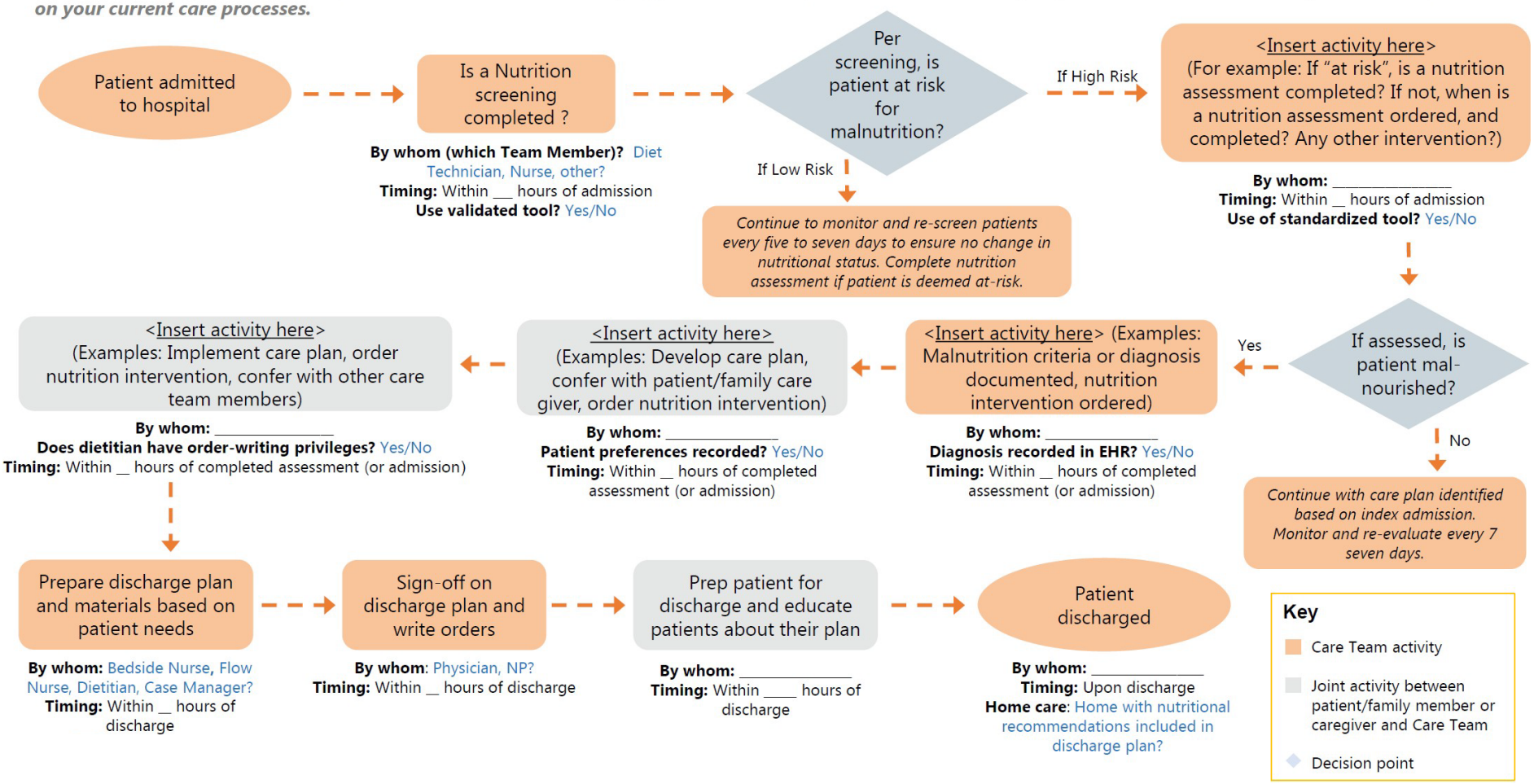
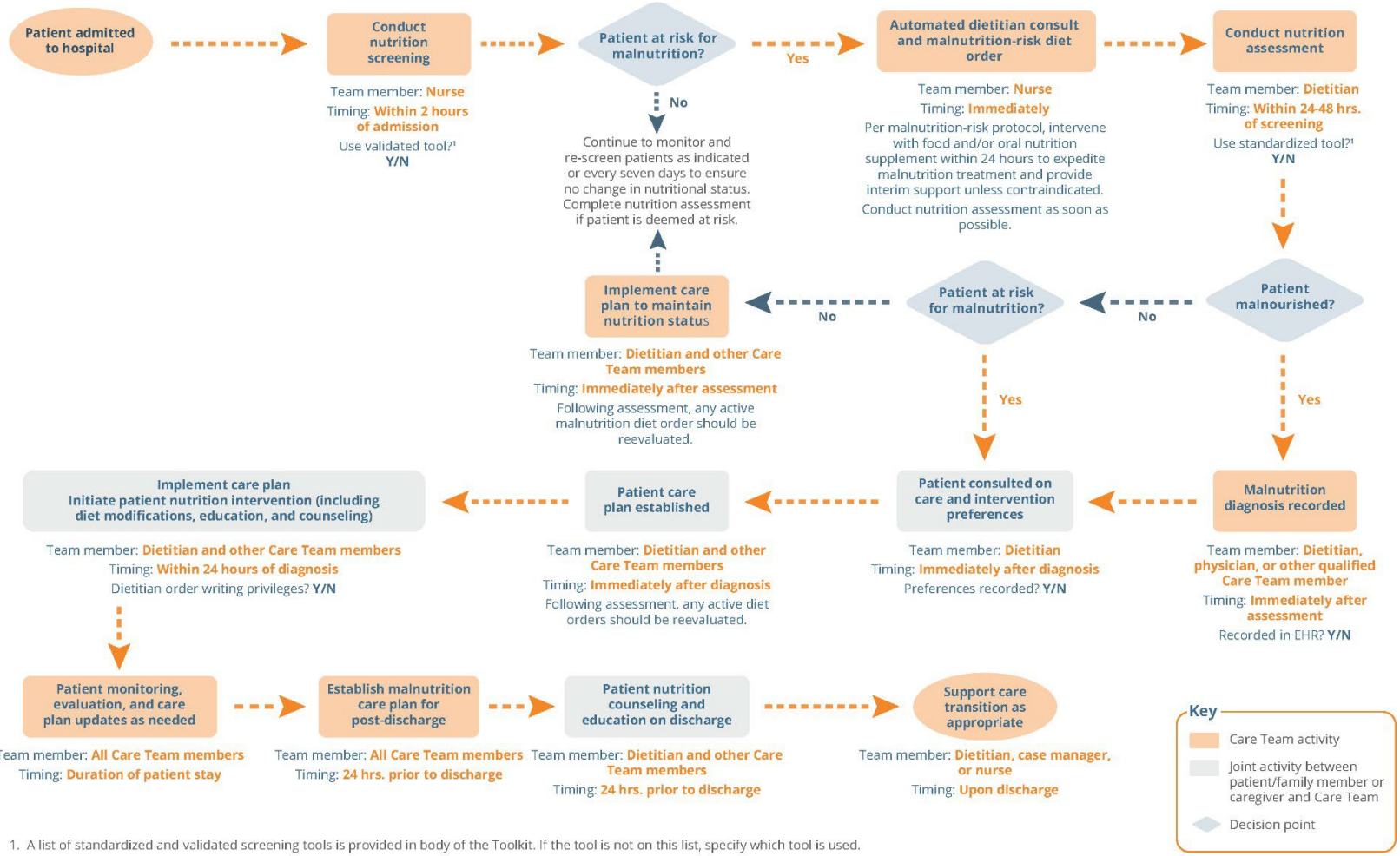
Appendix 1: MQii Sample Flowchart for Recommended Malnutrition Care

Flowchart Template for YOUR Current Malnutrition Care Workflow. ***Use the sample flowchart for recommended care (on next slide) as a point of comparison to help you complete your own flowchart and identify opportunities for QI. Fill in, Add, or modify steps, boxes, actors, and timing for each step based on your current care processes.***



MALNUTRITION QUALITY IMPROVEMENT INITIATIVE

Appendix 1: MQii Sample Flowchart Template and Best Practices Flowchart for Recommended Malnutrition Care



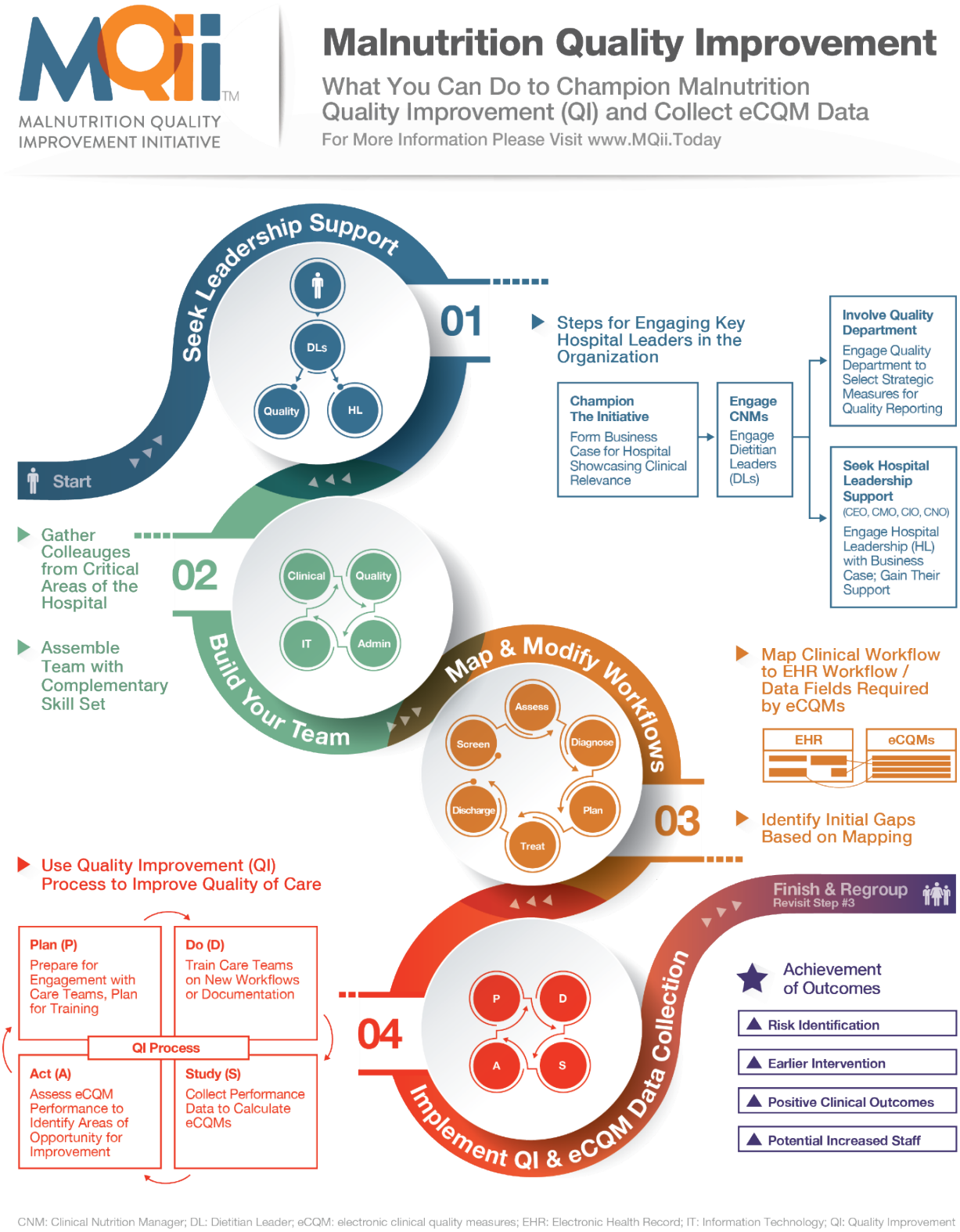
1. A list of standardized and validated screening tools is provided in body of the Toolkit. If the tool is not on this list, specify which tool is used.
2. A list of standardized and validated assessment tools is provided in body of the Toolkit. If the tool is not on this list, specify which tool is used.

MALNUTRITION QUALITY IMPROVEMENT INITIATIVE

Appendix 2: MQii Guiding Principles

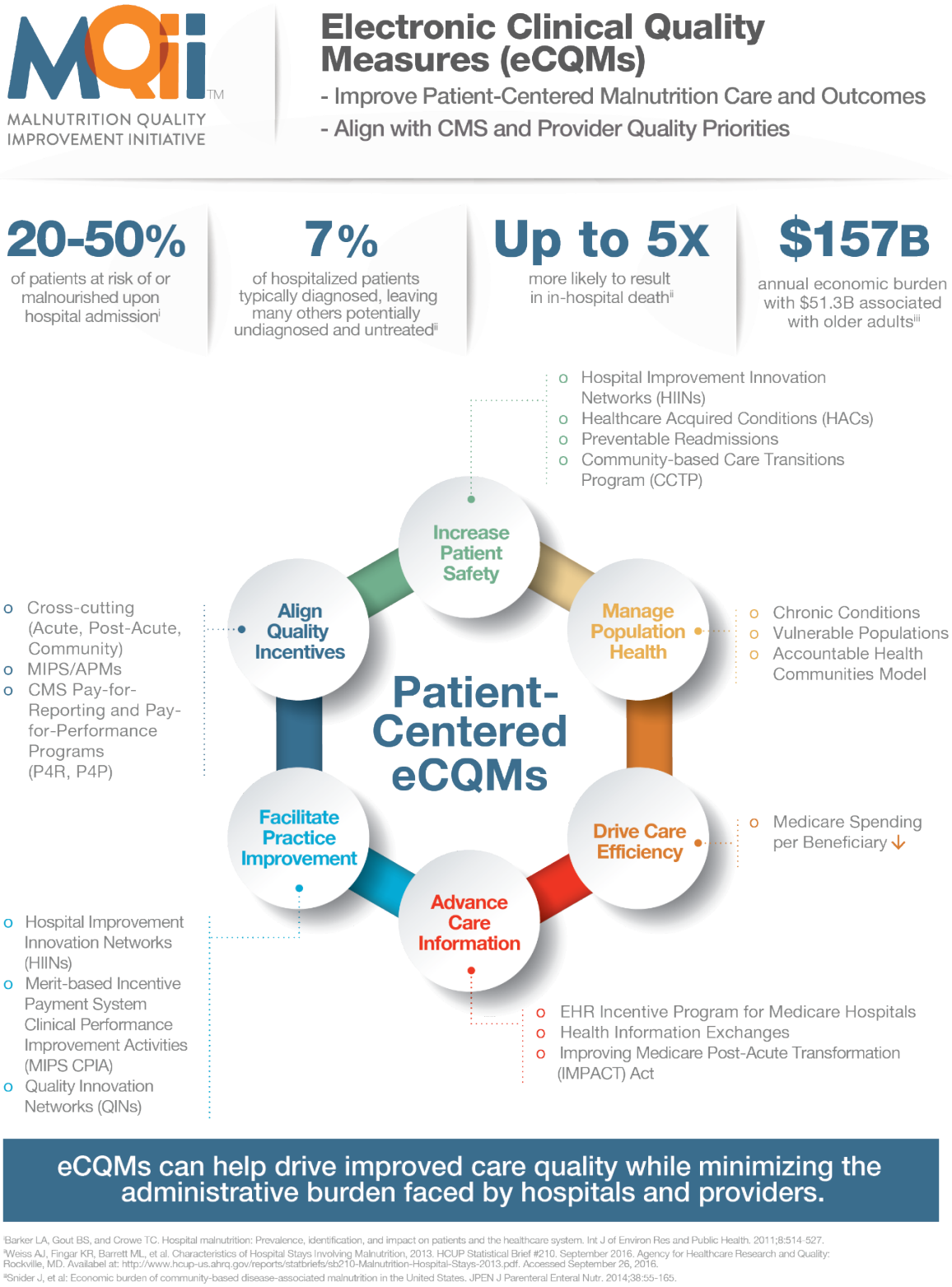
The design and implementation of the MQii are based on several guiding principles. The guiding principles provide a snapshot of the overall intention of the MQii and should be used as a reference as sites employ different approaches to support the uptake of the clinical workflow and other components of the toolkit.

Appendix 3: Malnutrition Quality Improvement Journey



CNM: Clinical Nutrition Manager; DL: Dietitian Leader; eCQM: electronic clinical quality measures; EHR: Electronic Health Record; IT: Information Technology; QI: Quality Improvement

Appendix 4: eCQM Infographic



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Electronic Clinical Quality Measures (eCQMs)

- Improve Patient-Centered Malnutrition Care and Outcomes
- Align with CMS and Provider Quality Priorities

An Innovative Approach: The MQii Toolkit provides practical, interdisciplinary tools and resources to help hospitals implement malnutrition best practices. Data reported from the eCQMs will help hospitals measure their success in meeting the standards of care.

The MQii Toolkit is an interdisciplinary, patient-centered resource that includes recommended, evidence-based best practices to support an optimal malnutrition-focused clinical workflow. The de novo malnutrition eCQMs for hospitalized older adults assess the alignment of care with nutrition best practices while minimizing administrative burden through electronic reporting.

eCQM Measurement Objectives

Measure Description	Measure Objective
Completion of a Malnutrition Screening Within 24 hours of Admission	Patients received a malnutrition screening and results documented in their medical record within 24 hours of their admission to the hospital
Completion of a Nutrition Assessment for Patients Identified as At-Risk for Malnutrition within 24 hours of a Malnutrition Screening	Patients who were identified to be at-risk of malnutrition from a screening were provided a nutrition assessment within 24 hours of the screening
Appropriate Documentation of a Malnutrition Diagnosis	Patients who were assessed and found to be malnourished should have a physician confirmed diagnosis of malnutrition documented in their medical record to ensure care plan implementation and transfer of necessary medical information upon discharge
Nutrition Care Plan for Patients Identified as Malnourished after a Completed Nutrition Assessment	Patients who were assessed and found to be malnourished should also have a documented nutrition care plan in their medical record

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