Foreward
Acknowledgements

This Toolkit is developed and distributed by the Malnutrition Quality Improvement Initiative (MQii), a project of the Academy of Nutrition and Dietetics, Avalere Health 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 MQii Toolkit.

MQii Advisory Committee Members

**Alison Steiber, PhD, RDN**
Chief Science Officer
Research, International, and Scientific Affairs
Academy of Nutrition and Dietetics

**Evelyn Granieri, MD, MPH, MSEd**
Professor of Medicine
Chief, Division of Geriatric Medicine and Aging

**Karim Godamunne, MD, MBA, SFHM**
Chief Medical Officer
North Fulton Hospital

**Maureen Dailey, PhD, RN, CWOCN**
Senior Policy Advisor
Health Policy
American Nurses Association

**Ann Watt, MBA, RHIA**
Associate Director
Department of Quality Measurement
Division of Healthcare Quality Evaluation
The Joint Commission

**Howard Bregman, MD, MS**
Director of Clinical Informatics
at Epic

**Leslie Kelly Hall**
Senior Vice President, Policy
Healthwise

**Naseer Ahmed, MD**
Director
Clinical Development
Abbott Nutrition

**Peggi Guenter, PhD, RN, FAAN**
Senior Director of Clinical Practice, Quality, and Advocacy
American Society for Parenteral and Enteral Nutrition

We would also like to extend particular appreciation to members of the Academy of Nutrition and Dietetics for their review of the MQii Toolkit.

**Shari Baird, MS, RD, CPHQ, LSSBB**
**Valaree M. Williams, MS, RD, CSO LDN, FAND**
**Tamie M. Frable-Newman, MS, RD, LDN**
**Mujahed Khan, MBA, RDN, LDN**
**Sharon M. McCauley, MS, MBA, RDN, LDN, FADA, FAND**

Support for the MQii provided by Abbott.
Special Thank You

We thank Dr. Heidi J. Silver, PhD, RDN at the Vanderbilt Diet, Body Composition, and Human Metabolism Core and the staff at Vanderbilt University Medical Center for serving as the demonstration site for implementing and testing the MQii Toolkit.

We also want to recognize and thank the following participants of the MQii Learning Collaborative for their efforts and ability to affect change in malnutrition care in their hospitals:

- Tracey Heck, RD, LD, Giedre Austrauskas, RD, LD, and staff at Spring Valley Hospital
- Beverly Hernandez, PhD, RD, Haydy Rojas, RN, and staff at Tampa General Hospital
- Byron Richard, MS, RD, CDE, Cayleih Mackay, MS, RD, and staff at University of California San Diego Health System
- Kenneth Nepple, MD, FACS, Bridget Drapeaux MA, RD, LD, Doug Robertson RDN, LD, Matthew Watson RN, MBA, Keith Burrell BA, and staff at University of Iowa Hospitals and Clinics
- Jill Johnston, MS, RD, LD, and staff at West Virginia University Hospital

Each of these hospitals implemented the MQii Toolkit in unique ways and the lessons learned from each site informed valuable enhancements to this Toolkit and its online version.
About the Collaborators

Academy of Nutrition and Dietetics

The Academy of Nutrition and Dietetics (formerly the American Dietetic Association) is the world’s largest organization of nutrition and dietetics practitioners. The Academy is committed to optimizing health through food and nutrition and advancing the profession of dietetics through research, education, and advocacy. For more information, please visit www.eatright.org.

Avalere Health

Avalere Health, an Inovalon Company, 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, business intelligence tools, 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., CMS, OMB, CBO and the Congress), top consultancies, and nonprofits. The firm offers deep substance on the full range of healthcare business and policy issues. 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 Twitter @avalerehealth.
# Table of Contents

- Foreward .......................................................................................................................... i
  - Acknowledgements ........................................................................................................ ii
  - About the Collaborators ................................................................................................ iv
- About the MQii ..................................................................................................................... 01
  - Introduction to the Malnutrition Quality Improvement Initiative ...................................... 03
- The MQii Toolkit ................................................................................................................ 06
  - Introduction to the MQii Toolkit ....................................................................................... 08
- Why Implement the MQii in Your Facility .......................................................................... 09
  - The Case for the MQii ....................................................................................................... 11
  - Spread the Word and Raise Awareness of the MQii at Your Organization ................. 13
- Plan Your Initiative .......................................................................................................... 14
  - Assess Your Readiness to Implement MQii .................................................................... 16
  - Build Internal Support ................................................................................................... 16
  - Build Your Initiative Teams ........................................................................................... 17
- Select Your Quality Improvement Focus .......................................................................... 23
  - Understand Your Existing Malnutrition Care Workflow ............................................... 25
  - Review the Recommended Clinical Workflow ............................................................... 25
  - Identify and Select Your Clinical Improvement(s) to Implement .................................... 26
  - Best Practices Beyond the Malnutrition Clinical Care Stages ........................................ 45
  - Additional Resources ...................................................................................................... 46
- Plan for Data Collection ................................................................................................... 47
  - Identify Quality Indicators or Metrics to Track Improvement ......................................... 49
  - Determine a Data Capture Mechanism .......................................................................... 49
  - Review the Suggested MQii eMeasures and Quality Indicators ....................................... 50
- Begin Implementation ....................................................................................................... 53
  - Step 1: Train the Care team ......................................................................................... 55
  - Step 2: Implement the Selected Clinical Improvement(s) ................................................ 57
  - Step 3: Collect Data ....................................................................................................... 59
  - Step 4: Interpret and Analyze the Data .......................................................................... 61
  - Step 5: Spread the Change ......................................................................................... 62
- Keep it Going ..................................................................................................................... 63
  - Continue to Track Progress Over Time ......................................................................... 65
  - Disseminate Findings .................................................................................................... 65
- MQii Tools and Resources ................................................................................................. 66
  - Tools ............................................................................................................................... 68
  - Additional Resources .................................................................................................... 74
About the MQii
Introduction and Overview of the Malnutrition Quality Improvement Initiative (MQii)
# Table of Contents

Foreword.................................................................................................................................................. i

<table>
<thead>
<tr>
<th>About the MQii</th>
<th>01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to the Malnutrition Quality Improvement Initiative</td>
<td>03</td>
</tr>
</tbody>
</table>

| The MQii Toolkit                                                                                 | 06 |
| Why Implement the MQii in Your Facility                                                        | 09 |
| Plan Your Initiative                                                                            | 14 |
| Select Your Quality Improvement Focus                                                          | 23 |
| Plan for Data Collection                                                                        | 47 |
| Begin Implementation                                                                            | 53 |
| Keep it Going                                                                                  | 63 |
| MQii Tools and Resources                                                                        | 66 |
| Glossary of Terms                                                                               | 77 |
| Appendices                                                                                      | 83 |
| References                                                                                      | 96 |
Introduction to 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 Health, and other stakeholders providing guidance through key technical expert and advisory roles. The engagement was undertaken to advance evidence-based, high-quality, patient-driven care for hospitalized older adults (age 65 and older) who are malnourished or at-risk for malnutrition. Support for the MQii was provided by Abbott.

Testing the Impact of the MQii Toolkit

To achieve the first of these objectives, the MQii developed and tested the new MQii Toolkit to advance the use of best practices for malnutrition care in a timely and effective manner. The Toolkit is evidence-based and is intended for use by all members of the care team (e.g., nurses, dietitians, physicians, and 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 malnutrition-focused quality improvement (QI), hospitals 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; and
- 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.

The MQii Toolkit was tested over a three-month implementation period in 2016 through a multi-site Demonstration and Learning Collaborative. The Demonstration took place at a single hospital that received hands-on training and support for the project, and collected extensive data to assess the impact of using the Toolkit. By contrast, a five-hospital Learning Collaborative implemented use of the Toolkit and tracked results with limited support, in order to understand how the Toolkit is adopted and used under real-world circumstances.
The Toolkit’s use demonstrated that the introduction of recommended malnutrition quality improvement actions helps hospitals achieve performance goals in nutrition care. Additionally, by helping hospitals achieve malnutrition standards of care, the resources provided through this initiative support adoption of malnutrition electronic clinical quality measures (eCQMs) - also referred to as “eMeasures by public and private accountability programs in the future to ensure the highest quality of malnutrition care across US hospitals.

The MQii Toolkit is provided here for your use to help you implement this initiative in your own hospital(s). Please explore the resources and information provided through the Toolkit in the following sections and see how this initiative can help advance malnutrition care where you work.

As noted above, you can use the MQii Toolkit to identify gaps in current malnutrition care practices and implement a QI project to achieve malnutrition standards of care. You may also choose to assess the impact of your quality improvement project – through a set of quality indicators (in the Toolkit) or a set of malnutrition electronic clinical quality measures (eCQMs).

Note: The Glossary of Terms on p. 77 may be useful as you read through this document.

Advancing the Adoption of Malnutrition electronic clinical quality measures (eCQMs) “that matter”

To satisfy the second and third objectives of the project, the Academy of Nutrition and Dietetics and Avalere developed and tested a set of four malnutrition eCQMs throughout 2015-2016. The four eCQMs, or eMeasures, are:

- **NQF #3087**: Completion of a Malnutrition Screening within 24 hours of Admission
- **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

These measures are currently under review by the Centers for Medicare & Medicaid Services (CMS) for proposed adoption into the Hospital Inpatient Quality Reporting Program, as well as the National Quality Forum (NQF) for consideration of endorsement.

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 two multi-stakeholder round tables, hosted by Avalere and the Academy of Nutrition and Dietetics, which were held to discuss most relevant areas for quality improvement of malnutrition care.

(links provided on next page)
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 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.
The MQii Toolkit
Introduction to the MQii Toolkit
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreward</td>
<td>i</td>
</tr>
<tr>
<td>About the MQii</td>
<td>01</td>
</tr>
<tr>
<td>The MQii Toolkit</td>
<td>06</td>
</tr>
<tr>
<td>Introduction to the MQii Toolkit</td>
<td>08</td>
</tr>
<tr>
<td>Why Implement the MQii in Your Facility</td>
<td>09</td>
</tr>
<tr>
<td>Plan Your Initiative</td>
<td>14</td>
</tr>
<tr>
<td>Select Your Quality Improvement Focus</td>
<td>23</td>
</tr>
<tr>
<td>Plan for Data Collection</td>
<td>47</td>
</tr>
<tr>
<td>Begin Implementation</td>
<td>53</td>
</tr>
<tr>
<td>Keep it Going</td>
<td>63</td>
</tr>
<tr>
<td>MQii Tools and Resources</td>
<td>66</td>
</tr>
<tr>
<td>Glossary of Terms</td>
<td>77</td>
</tr>
<tr>
<td>Appendices</td>
<td>83</td>
</tr>
<tr>
<td>References</td>
<td>96</td>
</tr>
</tbody>
</table>
Introduction to the MQii Toolkit

This MQii 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, admitted to the hospital who are malnourished or may be at risk of malnutrition. This Toolkit is designed to support changes among the Care team's clinical knowledge and 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 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 project champion, project manager, principal investigator and Care team (malnutrition support clinician) leads. (Detailed descriptions of the various Project Team roles for this initiative can be found in Table 1 of the Plan Your Initiative section of this MQii 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 through the mqii.today.

Key items to keep in mind as you review and implement the MQii 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 or executives to make sure you have the support you need to effectively implement the changes you decide to target to improve malnutrition care in your hospital.

- **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 other 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 on the mqii.today. Many literature and online resources are also referenced throughout this document and a helpful list is provided in the Additional Resources section. Use whatever helps most to train and educate your team for achieving optimal care and outcomes.
Why Implement the MQii in Your Facility
Establishing the Case for Implementing the Malnutrition Quality Improvement Initiative
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreward</td>
<td>i</td>
</tr>
<tr>
<td>About the MQii</td>
<td>01</td>
</tr>
<tr>
<td>The MQii Toolkit</td>
<td>06</td>
</tr>
<tr>
<td>Why Implement the MQii in Your Facility</td>
<td>09</td>
</tr>
<tr>
<td>The Case for the MQii</td>
<td>11</td>
</tr>
<tr>
<td>Spread the Word and Raise Awareness of the MQii at Your Organization</td>
<td>13</td>
</tr>
<tr>
<td>Plan Your Initiative</td>
<td>14</td>
</tr>
<tr>
<td>Select Your Quality Improvement Focus</td>
<td>23</td>
</tr>
<tr>
<td>Plan for Data Collection</td>
<td>47</td>
</tr>
<tr>
<td>Begin Implementation</td>
<td>53</td>
</tr>
<tr>
<td>Keep it Going</td>
<td>63</td>
</tr>
<tr>
<td>MQii Tools and Resources</td>
<td>66</td>
</tr>
<tr>
<td>Glossary of Terms</td>
<td>77</td>
</tr>
<tr>
<td>Appendices</td>
<td>83</td>
</tr>
<tr>
<td>References</td>
<td>96</td>
</tr>
</tbody>
</table>
The Case for the MQii

Malnutrition is 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 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.

Evidence suggests that 20 to 50 percent of patients are at risk for malnutrition or are already malnourished at the time of hospital admission. Unfortunately, only 7 percent of patients are typically diagnosed with malnutrition during their hospital stay, leading to millions of cases left undiagnosed and thus untreated. 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. As many as 65 percent of older adults admitted to the hospital may be malnourished. 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, which is associated with an up to 300% increase in costs.

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.
Additionally, several care gaps were identified, including a lack of multidisciplinary 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.\(^5\)

**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 1 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 1, it is anticipated that a facility can reduce clinical practice variability and demonstrate the 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 1).

![Figure 1: Driver Diagram Illustrating the MQii Theory of Change](image)
Spread the Word and Raise Awareness of the MQii at Your Organization

Before getting started, it is important to ensure that hospital leaders – executive staff, administrative staff, and clinician leaders – understand the impact and importance of malnutrition on your hospital’s patient population.

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:

- **Primer: The Importance of Addressing Malnutrition Care**
- **Alleviating Hospital-Based Malnutrition: A baseline progress report** (Alliance to Advance Patient Nutrition)
- **Malnutrition: A Serious Concern for Hospitalized Patients** (Today’s Dietitian article)

To help secure understanding and support from relevant hospital staff leadership to implement the MQii at your facility, you can share this MQii Overview Presentation. It presents malnutrition facts, as well as goals of the initiative, and expectations of the care team leaders who would be responsible for implementing the related quality improvement activities.

If a more targeted approach to introducing this initiative to key individuals would be beneficial, feel free to access these MQii introductory outreach letter templates. These resources can be tailored and personalized for the individuals you wish to engage. There is a separate letter template for hospital executives, clinical staff, and patient and family caregivers facilitating awareness of the effort and the role each can play to support it.

### Key Steps for Implementing a Quality Improvement Project

1. Assess your readiness to implement a malnutrition quality improvement project
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
Plan Your Initiative

Building Teams and Internal Support
Table of Contents

Foreword......................................................................................................................................................... i
About the MQii.................................................................................................................................................. 01
The MQii Toolkit................................................................................................................................................ 06
Why Implement the MQii in Your Facility...................................................................................................... 09

Plan Your Initiative .......................................................................................................................................... 14
Assess Your Readiness to Implement MQii..................................................................................................... 16
Build Internal Support..................................................................................................................................... 16
Build Your Initiative Teams........................................................................................................................... 17

Select Your Quality Improvement Focus...................................................................................................... 23
Plan for Data Collection................................................................................................................................... 47
Begin Implementation........................................................................................................................................ 53
Keep it Going.................................................................................................................................................... 63
MQii Tools and Resources................................................................................................................................. 66
Glossary of Terms............................................................................................................................................ 77
Appendices......................................................................................................................................................... 83
References......................................................................................................................................................... 96
Assess Your Readiness to Implement 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)\(^9\)
- 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)\(^10\)
- Institute for Healthcare Improvement Flowchart Resources\(^11\)
- Introduction to Lean and Six Sigma Approaches to Quality Improvement\(^12\)
- CMS Toolkit for Making Written Material Clear and Effective (Health literacy resource to ensure readable and usable materials)\(^13\)

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.
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:

- **Alleviating Hospital-Based Malnutrition: A baseline progress report** (Alliance to Advance Patient Nutrition)33
- **Malnutrition: A Serious Concern for Hospitalized Patients**14 (*Today's Dietitian* article)
- **Critical Nutrients for Surgical and Trauma Wounds**9 (by Krishnan K. in *Support Line*, December 2015;37(6): 3-8.)

To help garner buy-in for implementing the MQii at your facility, you can also share this **MQii Overview Presentation** of the initiative to relevant hospital staff leadership. It highlights key facts of malnutrition highlighted here, as well as the initiative goals, and expectations of the care team leaders who would be responsible for implementing the related quality improvement activities.

If you plan to lead this effort in your hospital as the principal investigator or project manager, please **work with your project champion to identify the right individuals at the executive and administrative levels to ensure awareness of this initiative and the proper support to bring it to life**. This MQii Toolkit provides key talking points and sample letter templates that you can use to reach out to key leadership, administrative staff, and even patients and family caregivers informing them of this initiative and the role they can play to support it. Once your hospital leadership has been made aware, discuss the implications with them and request the appropriate support or resources.

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

- Identify a Project Champion (or champions)
- 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 need to support implementation

The following section outlines steps for building your various initiative teams.

**Build Your Initiative Teams**

With a Project Champion (or sponsor) and executive commitment in place for the initiative, the next step is to establish a well-defined, multidisciplinary MQii Project Team and Care team.

The **MQii Project Team** is responsible for communicating the goals and objectives of the MQii to the Care team and overseeing general management for achieving those goals. A multidisciplinary 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 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.

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., the physician, nurse, or dietitian champions.

Nonetheless, the MQii Care teams should consist of multidisciplinary clinicians and include the patient and family caregivers. The 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 workflow. Therefore, it is strongly recommended that the MQii Care team, at a minimum, include an attending physician, a nurse, a dietitian, and a patient/family caregiver. Table 2 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.

Figure 2 shows how the MQii Project Team and the Care team may interact with one another. As you reach out to staff to fill the roles of Project Champions and Care team Leaders (see Table 1 and Table 2 for descriptions of the different roles and responsibilities for each team), you may want to refer to the [Implementation Training Presentation](#). Those slides review the roles and responsibilities of these individuals on your different teams and sharing the outlined expectations with the identified team members will clarify their role on the teams and involvement in this initiative.

Additional descriptions of the Project and Care team roles are outlined in Table 1 and Table 2, highlighting how each role can support effective implementation of the MQii. These tables also provide suggestions for individuals to fill each role.
Once the MQii Project Team and Care teams have been established, the Project Manager should convene the team kick-off meeting. This meeting will be used to:

1. Introduce the teams 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 time lines 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 on the [mqii.today](http://mqii.today).
## Table 1: MQii Project Team Roles and Responsibilities

<table>
<thead>
<tr>
<th>Project Team Role</th>
<th>Recommended Individual</th>
<th>Responsibilities</th>
</tr>
</thead>
</table>
| **Clinician Project**      | **“Champion”**         | • Generate support and buy-in for the project by all relevant parties (senior level support and relevant staff)  
  • Maintain enthusiasm about the project  
  • Communicate progress made to Care teams and Executive Sponsor  
  • Serve as informal senior leader(s) for the project within the hospital site |
|                            | Physician, nurse, or dietitian leader | There may also be co-champions (e.g., dietitian and physician or dietitian and nurse) |
| **Executive Sponsor**      | Senior executive hospital leader (e.g., Chief Medical Officer, Chief Quality Officer) | • Generate leadership buy-in  
  • Support the initiative  
  • Help communicate developments and progress updates to hospital leadership  
  • Address identified barriers as needed  
  • Provide designated time to work on the project  
  • Ensure all necessary clinical, information technology, and project management resources are available |
| **Principal Investigator** | (PI) Clinician leader (ideally with research experience) Can be same individual as the clinician “Champion” | • Provide scientific and methodological leadership as needed  
  • Navigate the hospital’s research-related requirements (e.g., obtaining relevant Institutional Review Board [IRB] waivers) |
| **Project Manager**        | Team leader (i.e., clinical leader or quality improvement director and different from the clinician “Champion”) | • Help influence practice in alignment with the MQii Toolkit  
  • Educate and respond to staff member questions  
  • Organize and lead Project Team meetings  
  • Monitor and track the initiative’s progress  
  • Support Clinician Champion(s) in ensuring coordination across Care teams and communicating with administrative individuals, as needed |
| **Care team Leaders**      | Clinician unit leaders (including a physician, nurse, and dietitian) | • Ensure coordination across professional disciplines of the Care team (e.g., physicians, nurses, dietitians, patients/family caregivers) and facility administrators  
  • Communicate with and support the Project Manager from a function-specific perspective  
  • Attend regular Project Team meetings |
| **Reporting Analyst**      | Data analytics representative | • Assist with collecting, de-identifying, aggregating data throughout duration of initiative implementation |
| **Informatics Representative** | Informatics team member | • Design EHR modules or order sets necessary, prior to initiative launch, to implement MQii Toolkit as needed |
| **Training Manager**       | Staff member from Education, Human Resources or similar functional area, or assigned Project Team member | • Facilitate training using organization’s existing infrastructure and assist with other engagement or support for individuals implementing the initiative |
| **Patient Representative** | Individual from the hospital’s Patient and Family Advisory Council (if available) | • Provide the patient/caregiver perspective on the initiative and its implementation |

Note: Your facility can tailor team roles and members, as needed. You may decide that not all team roles are necessary or that an individual can serve multiple roles.
### Table 2: MQii Care team Roles and Responsibilities

<table>
<thead>
<tr>
<th>Care team Role</th>
<th>Roles &amp; Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physician</strong></td>
<td></td>
</tr>
</tbody>
</table>
- 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** |  
- 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 multidisciplinary 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 multidisciplinary Care team with direction around therapy options to support implementation of nutrition intervention  
- Help multidisciplinary 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 multidisciplinary 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** (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 |
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
- 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 to below (from the Alliance to Advance Patient Nutrition) highlight this specific information:

- [Role of the Dietitian](#)
- [Role of the Physician](#)
- [Role of the Nurse](#)
- [Role of the Hospital Administrator](#)
Select Your Quality Improvement Focus

Identifying Your Hospital’s Opportunities for Greatest Improvement
# Table of Contents

Foreward .................................................................................................................. i
About the MQii ......................................................................................................... 01
The MQii Toolkit ...................................................................................................... 06
Why Implement the MQii in Your Facility ............................................................... 09
Plan Your Initiative ................................................................................................. 14

<table>
<thead>
<tr>
<th>Select Your Quality Improvement Focus</th>
<th>23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand Your Existing Malnutrition Care Workflow</td>
<td>25</td>
</tr>
<tr>
<td>Review the Recommended Clinical Workflow</td>
<td>26</td>
</tr>
<tr>
<td>Identify and Select Your Clinical Improvement(s) to Implement</td>
<td>26</td>
</tr>
<tr>
<td>Best Practices Beyond the Malnutrition Clinical Care Stages</td>
<td>45</td>
</tr>
<tr>
<td>Additional Resources</td>
<td>46</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plan for Data Collection</th>
<th>47</th>
</tr>
</thead>
<tbody>
<tr>
<td>Begin Implementation</td>
<td>53</td>
</tr>
<tr>
<td>Keep it Going</td>
<td>63</td>
</tr>
<tr>
<td>MQii Tools and Resources</td>
<td>66</td>
</tr>
<tr>
<td>Glossary of Terms</td>
<td>77</td>
</tr>
<tr>
<td>Appendices</td>
<td>83</td>
</tr>
<tr>
<td>References</td>
<td>96</td>
</tr>
</tbody>
</table>
Understand Your Existing Malnutrition Care Workflow

To prepare for implementing the MQii, the multidisciplinary Project and Care team members must work together to understand existing clinical and documentation workflows specific to malnutrition care in your facility. It is also important to understand how care teams in different units may work together within the hospital to support the MQii’s goals.

Understanding the workflow prior to implementation will enable the teams to identify differences between the existing clinical workflow and the recommended clinical workflow (see Figure 3). 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 as the focus for implementation. 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 raise awareness of strategies that enhance 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 how a process is carried out. Organizations may consider a high-level flowchart when documenting the overall workflow process, but then prepare a more detailed flowchart when outlining the intricacies of each stage of the workflow. A flowchart template is available on the MQii today for you to begin filling out.

Section Take Aways

Following your completion of this section you will be ready 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
Regardless of the level of detail of the flowchart, at a minimum it 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

To facilitate selecting your quality project and help highlight areas for improvement, complete this Malnutrition Care Assessment and Decision Tool. Upon completion, it will offer potential solutions to help your facility leaders recognize where change needs to occur and where efforts need to be increased to support initiative drivers.

**Review the Recommended Clinical Workflow**

To further inform your selection of a project activity for quality improvement, have the Project Team (including relevant Care team members) review the recommended clinical workflow provided in Figure 3 and the associated summaries of evidence-based best practices and sample PDSA exercises for each stage of the clinical workflow (see pages 28-46):

- 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

**Identify and Select Your Clinical Improvement(s) to Implement**

Once the recommended 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 3) 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 on p. 28-46 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 on areas that are most impactful for your organization. Implement manageable cycles of improvement for a given workflow stage based on your organization’s areas for greatest improvement to achieve optimal care. Once a first component has been addressed, your teams can work on tackling the other components in an organized fashion.

Please note: For the purposes of the MQii, the recommended clinical workflow is intended for use in the treatment of patients age 65+ years admitted to the hospital. Patients excluded from this workflow are those admitted for less than 24 hours, hospice patients, and those enrolled in clinical trials. The recommended clinical workflow and related best practices presented on pages 28-46 of this MQii Toolkit are based on existing consensus-based, clinical guidance documents from professional societies and research results at leading hospitals.

In the next section – Plan for Data Collection – you will find examples of suggested quality indicators to assess the impact of your selected improvement activity. You can use the data you collect to calculate quality indicators and 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.
Definition:

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

- **Malnutrition Care Plan Development**
  - development of a document outlining comprehensive planned actions with the intention of impacting nutrition-related factors affecting patient health status
  - Immediately Following Diagnosis

- **Intervention Implementation**
  - implementation of specific actions outlined in the malnutrition treatment care plan
  - Within a Maximum of 24 Hrs. Following Diagnosis

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

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

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

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

- Intervene immediately for at-risk patients with food and/or oral nutritional supplement per malnutrition-risk protocol to accelerate treatment unless contraindicated
- Conduct nutrition assessment as soon as possible
- Following assessment, any active malnutrition-risk diet order should be reevaluated

**Discharge Planning**

- documentation of malnutrition diagnosis, status, and orders in discharge plan
  - 24 Hrs. Prior to Hospital Discharge for Patients Previously Assessed to be At Risk or Malnourished
Malnutrition Screening

A. Responsible team member
   • Nurse or qualified Care team member

B. Definition
   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

C. Data sources/tools
   1. Validated screening tools such as the Malnutrition Screening Tool (see Table 3 for a list of validated tools), 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
   2. Assessment of decreased appetite
   3. Height
   4. Weight

E. Malnutrition screening and follow-up steps
   • Screen patient with screening tool
   • Score patient to determine risk
   • 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
   • 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

F. 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

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
2. Use a validated tool in the screening for malnutrition in a standardized way consistent with the recommendations from tool developers (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
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
Table 3: List of Validated Malnutrition Screening Tools

<table>
<thead>
<tr>
<th>Birmingham Nutrition Risk (BNR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malnutrition Screening Tool (MST)</td>
</tr>
<tr>
<td>Malnutrition Universal Screening Tool (MUST)</td>
</tr>
<tr>
<td>Mini Nutrition Assessment (MNA)</td>
</tr>
<tr>
<td>Nutrition Risk Classification (NRC)</td>
</tr>
<tr>
<td>Nutritional Risk Index (NRI)</td>
</tr>
<tr>
<td>Nutritional Risk Screening (NRS) 2002</td>
</tr>
<tr>
<td>Short Nutrition Assessment Questionnaire (SNAQ)</td>
</tr>
</tbody>
</table>
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
  o 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
  o 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 and severity of malnutrition

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

D. Data to collect and record
   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
   • Review data that may impact nutrition or overall health status
   • Consult with other members of the Care team
   • 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

F. Decision points for continuation of care
   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
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
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
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

<table>
<thead>
<tr>
<th>Standardized Assessment Tool Name</th>
<th>Patient Population</th>
<th>Nutrition Assessment Parameters</th>
<th>Criteria for Risk of Malnutrition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subjective Global Assessment (SGA)</strong></td>
<td>Surgery, Geriatric, Oncology, Renal</td>
<td>Includes medical history (weight, intake, GI symptoms, functional capacity) and physical examination.</td>
<td>Categorizes patients as:</td>
</tr>
<tr>
<td>Validated</td>
<td></td>
<td></td>
<td>• SGA A (well nourished)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• SGA B (mild-moderate malnutrition)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• SGA C (severe malnutrition)</td>
</tr>
<tr>
<td><strong>Patient Generated Subjective Global Assessment (PG-SGA)</strong></td>
<td>Oncology, Renal, Stroke</td>
<td>Includes medical history (weight, intake, GI symptoms, functional capacity) and physical examination.</td>
<td>Categorizes patients as:</td>
</tr>
<tr>
<td>Validated</td>
<td></td>
<td></td>
<td>• SGA A (well nourished)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• SGA B (mild-moderate malnutrition)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• SGA C (severe malnutrition)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Also provides a numerical score for triaging. Global categories assessed as per SGA.</td>
<td></td>
</tr>
<tr>
<td><strong>Nutrition Focused Physical Exam (NFPE)</strong></td>
<td>Adult, Elderly, Pediatric</td>
<td>• Assesses muscle wasting and fat loss</td>
<td>Used for comprehensive assessment especially for micronutrients as the SGA does not assess micronutrients. Incorporate the assessment of fat and muscle loss.</td>
</tr>
<tr>
<td>Not Validated</td>
<td></td>
<td>• Evaluates the presence of edema or fluid accumulation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Identifies clinical signs of micronutrient deficiencies and toxicities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Measures functional status using handgrip strength dynamometer</td>
<td></td>
</tr>
</tbody>
</table>
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
  • 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 admission24

C. Data sources/tools
   1. Results from the most recently completed nutrition assessment24
   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 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 statement24
      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 diagnosis24 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 patient24
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**

<table>
<thead>
<tr>
<th>SNOMEDCT</th>
<th>Code</th>
<th>Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>238107002</td>
<td>238107002</td>
<td>Deficiency of macronutrients (disorder)</td>
</tr>
<tr>
<td>272588001</td>
<td>272588001</td>
<td>Malnutrition (calorie)</td>
</tr>
<tr>
<td>190602008</td>
<td>190602008</td>
<td>Moderate protein-calorie malnutrition (weight for age 60-74% of standard)</td>
</tr>
<tr>
<td>190603003</td>
<td>190603003</td>
<td>Mild protein-calorie malnutrition (weight for age 75-89% of standard)</td>
</tr>
<tr>
<td>360549009</td>
<td>360549009</td>
<td>Severe protein-calorie malnutrition (Gomez: less than 60% of standard weight)</td>
</tr>
<tr>
<td>190605005</td>
<td>190605005</td>
<td>Mild protein energy malnutrition (disorder)</td>
</tr>
<tr>
<td>190606006</td>
<td>190606006</td>
<td>Moderate protein energy malnutrition</td>
</tr>
<tr>
<td>65404009</td>
<td>65404009</td>
<td>Undernutrition - Malnutrition</td>
</tr>
<tr>
<td>70241007</td>
<td>70241007</td>
<td>Nutritional Deficiency - Malnutrition</td>
</tr>
<tr>
<td>238107002</td>
<td>238107002</td>
<td>Deficiency of macronutrients (disorder)</td>
</tr>
<tr>
<td>665128014</td>
<td>665128014</td>
<td>Malnutrition (calorie) (disorder)</td>
</tr>
<tr>
<td>407752010</td>
<td>407752010</td>
<td>Malnutrition (Calorie)</td>
</tr>
<tr>
<td>2920802017</td>
<td>2920802017</td>
<td>Malnutrition, calorie</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOINC</th>
<th>Code</th>
<th>Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>54816-4</td>
<td>54816-4</td>
<td>Protein or calorie malnutrition or at risk for malnutrition in last 7 days</td>
</tr>
<tr>
<td>75305-3</td>
<td>75305-3</td>
<td>Nutrition status</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ICD-9</th>
<th>Code</th>
<th>Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>260</td>
<td>260</td>
<td>Kwashiorkor</td>
</tr>
<tr>
<td>261</td>
<td>261</td>
<td>Nutritional marasmus</td>
</tr>
<tr>
<td><strong>262</strong></td>
<td><strong>262</strong></td>
<td>Other severe protein-calorie malnutrition</td>
</tr>
<tr>
<td>263</td>
<td>263</td>
<td>Malnutrition of moderate degree</td>
</tr>
<tr>
<td><strong>263.8</strong></td>
<td><strong>263.8</strong></td>
<td>Other protein-calorie malnutrition</td>
</tr>
<tr>
<td><strong>263.9</strong></td>
<td><strong>263.9</strong></td>
<td>Unspecified protein-calorie malnutrition</td>
</tr>
<tr>
<td>799.4</td>
<td>799.4</td>
<td>Cachexia</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ICD-10</th>
<th>Code</th>
<th>Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>E40</td>
<td>E40</td>
<td>Kwashiorkor</td>
</tr>
<tr>
<td>E41</td>
<td>E41</td>
<td>Nutritional marasmus</td>
</tr>
<tr>
<td>E42</td>
<td>E42</td>
<td>Marasmic kwashiorkor</td>
</tr>
<tr>
<td><strong>E43</strong></td>
<td><strong>E43</strong></td>
<td>Unspecified severe protein-calorie malnutrition</td>
</tr>
<tr>
<td>E44.0</td>
<td>E44.0</td>
<td>Moderate protein-calorie malnutrition</td>
</tr>
<tr>
<td>E44.1</td>
<td>E44.1</td>
<td>Mild protein-calorie malnutrition</td>
</tr>
<tr>
<td><strong>E46</strong></td>
<td><strong>E46</strong></td>
<td>Unspecified protein-calorie malnutrition</td>
</tr>
<tr>
<td>E64</td>
<td>E64</td>
<td>Sequelae of protein-calorie malnutrition</td>
</tr>
</tbody>
</table>

**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 are 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 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 patient 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

C. Data sources/tools
1. Relevant clinical practice guidelines
2. Current literature evidence base
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 recommended components in 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
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
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

<table>
<thead>
<tr>
<th>Date and time stamp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prioritization based on symptom severity(^{24})</td>
</tr>
<tr>
<td>Clearly established goals developed in consultation with the patient and/or family caregiver(^{24})</td>
</tr>
<tr>
<td>Goals and prescription that consider a patient’s individualized recommended dietary intake(^{24})</td>
</tr>
</tbody>
</table>

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\(^{24}\)
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 multidisciplinary Care team. The role of the patient should also be clearly defined.
  • Following documentation of the malnutrition care plan, members of the multidisciplinary 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

C. Data sources/tools
   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

E. Monitoring and evaluation Steps
   - Establish whether the malnutrition care plan is producing any positive or negative outcomes 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
   - 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

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.

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.

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 multidisciplinary 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

**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**

- Providers should engage with patients around the decision to implement NPO orders as part of care shared decision-making processes.
- 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.
- Patients with an NPO order should be screened for malnutrition within 24 hours of beginning the NPO diet order.
- Surgical patients who are NPO should have a completed malnutrition screening or nutrition assessment 24 hours prior to surgery.
- The clinical workflow timeline for assessment and the malnutrition care plan implementation goes into effect following completed surgical/NPO patient screening.

**Enhancing Care Efficiency Throughout the Episode of Care**

- 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.\(^{37}\)

- Prior to discharge, 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:

- A.S.P.E.N 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)\(^{23}\)

- Nutrition Care Process: Using the International Dietetics and Nutrition Terminology to Document the Nutrition Care Process\(^{38}\)

**Additional resources for patient engagement for effective malnutrition care include:**

- Health Policy Brief: Patient Engagement (Frameworks and considerations for patient engagement)\(^{39}\)

- Fostering Successful Patient and Family Engagement: Nursing’s Critical Role\(^{40}\)

- Nutrition Take-Home Information and Guide for Patients\(^{46}\)

- Patient-Centered Care Guiding Principles\(^{40}\)

- Shared Decision Making: Interventions to Help Patients Play an Effective Role\(^{41}\)

- Malnutrition in Older Adults Video – Alliance for Aging Research\(^{42}\)

- National Council on Aging: Older Adult Malnutrition and Chronic Disease Toolkit\(^{43}\)
Plan for Data Collection
Assess Your Data Collection Options
Table of Contents

Foreward.......................................................................................................................... i
About the MQii..................................................................................................................... 01
The MQii Toolkit................................................................................................................ 06
Why Implement the MQii in Your Facility........................................................................ 09
Plan Your Initiative ............................................................................................................ 14
Select Your Quality Improvement Focus ....................................................................... 23

Plan for Data Collection.................................................................................................. 47
  Identify Quality Indicators or Metrics to Track Improvement........................................ 49
  Determine a Data Capture Mechanism........................................................................... 49
  Review the Suggested MQii eCQMs and Quality Indicators........................................... 50

Begin Implementation..................................................................................................... 53
Keep it Going..................................................................................................................... 63
MQii Tools and Resources............................................................................................... 66
Glossary of Terms............................................................................................................. 77
Appendices....................................................................................................................... 83
References.......................................................................................................................... 96
Identify Quality Indicators or Other Metrics to Track Improvement

In order to assess the effectiveness of the MQii implementation in your hospital, **the Project Team Leader and a Reporting Analyst should identify key quality measures, indicators, or metrics to be assessed throughout the course of the MQii implementation.** Quality Measures or indicators should be identified prior to implementation of the selected improvement activity, along with the mechanism for their data capture (see next section), and communicated to the Care team.

Sites should identify quality measures and/or indicators in the context of their organization's goals for improvement and be aligned with the selected improvement activities to change the existing clinical workflow. Teams may collect data on as many measures or indicators as are relevant to their improvement and implementation goals.

Determine a Data Capture Mechanism

Once you have identified indicators to measure your performance on the selected clinical improvement(s), you will need to determine the method for collecting that performance data. A standardized and consistent method of data collection should be used throughout the MQii implementation period. Data collected during this period 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 in alignment with the selected quality measures or indicators 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. But this varies by EHR system, so **explore what data your system has available to collect on the selected malnutrition quality measures or indicators and your ability to run custom reports.** If available and embedded in your system, a malnutrition documentation template can greatly facilitate data collection on key data elements.

Section Take Aways

Following your completion of this section you will be ready 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 quality indicators
Review the Suggested MQii eCQMs and Quality Indicators

Depending on the improvement activities you have selected to implement in your hospital, the electronic clinical quality measures (eCQMs) and quality indicators in Table 7 may be ones that you can track for this initiative. Collecting data on these suggested eCQMs or indicators will provide evidence on significant points of interest that may be used to further advance quality improvement efforts, such as the percentage of patients admitted to hospital who are at risk for malnutrition.

Please note: These suggested eCQMs and indicators are intended for use with patients age 65+ years. A full set of specifications for the eCQMs can be found in the eCQMs Specifications List, while indicator specifications can be found in the MQii Data Management Guide, along with tools for performance feedback on these indicators.

Table 7: Suggested MQii eCQMs and Quality Indicators

<table>
<thead>
<tr>
<th>Recommended Clinical Workflow Stage</th>
<th>Suggested eCQMs</th>
<th>Suggested MQii Quality Indicators</th>
</tr>
</thead>
</table>
| Malnutrition Screening              | 1. 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 implemented within 24 hours of the completed screening  
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 |
| Nutrition Assessment                | 1. Completion of a Malnutrition Screening within 24 hours of Admission | 7. 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  
8. 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  
9. 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 |
<table>
<thead>
<tr>
<th>Recommended Clinical Workflow Stage</th>
<th>Suggested eCQMs</th>
<th>Suggested MQii Quality Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malnutrition Diagnosis</td>
<td>3. Appropriate Documentation of a Malnutrition Diagnosis</td>
<td>10. 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</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11. Percentage of patients age 65+ years who have a documented provider medical diagnosis of malnutrition</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12. 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 and a provider medical diagnosis of malnutrition</td>
</tr>
<tr>
<td>Malnutrition Care Plan Development</td>
<td>4. Nutrition Care Plan for Patients Identified as Malnourished after a Completed Nutrition Assessment</td>
<td>13. Percentage of patients age 65+ years with a completed nutrition assessment and a documented malnutrition diagnosis who have a documented malnutrition care plan</td>
</tr>
<tr>
<td>Intervention Implementation</td>
<td></td>
<td>14. Percentage of patients age 65+ years with a documented malnutrition diagnosis who had a nutrition intervention implemented</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15. Length of time between documented malnutrition diagnosis and implementation of a nutrition intervention for patients age 65+ years diagnosed as malnourished</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16. Length of time between admission and implementation of a nutrition intervention for patients age 65+ years diagnosed as malnourished</td>
</tr>
<tr>
<td>Discharge Planning</td>
<td></td>
<td>17. 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</td>
</tr>
</tbody>
</table>

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 impacted by MQii implementation. Although these concepts may not be directly related to MQii outcomes, improvements in malnutrition care may impact them.

(additional quality indicators listed on next page)
Suggested Patient-Centered Quality Indicators

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

Suggested Outcome Quality Indicators

a. Average length of stay for patients receiving malnutrition care since MQii implementation
b. Readmission rate of patients receiving malnutrition care since MQii implementation
b. Percentage of patients receiving malnutrition care who developed hospital-acquired infections following MQii implementation
Begin Implementation

Train Your Team and Take Action
Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreward</td>
<td>i</td>
</tr>
<tr>
<td>About the MQii</td>
<td>01</td>
</tr>
<tr>
<td>The MQii Toolkit</td>
<td>06</td>
</tr>
<tr>
<td>Why Implement the MQii in Your Facility</td>
<td>09</td>
</tr>
<tr>
<td>Plan Your Initiative</td>
<td>14</td>
</tr>
<tr>
<td>Select Your Quality Improvement Focus</td>
<td>23</td>
</tr>
<tr>
<td>Plan for Data Collection</td>
<td>47</td>
</tr>
<tr>
<td>Begin Implementation</td>
<td>53</td>
</tr>
<tr>
<td>Step 1: Train the Care team</td>
<td>55</td>
</tr>
<tr>
<td>Step 2: Implement the Selected Clinical Improvement(s)</td>
<td>57</td>
</tr>
<tr>
<td>Step 3: Collect Data</td>
<td>59</td>
</tr>
<tr>
<td>Step 4: Interpret and Analyze the Data</td>
<td>61</td>
</tr>
<tr>
<td>Step 5: Spread the Change</td>
<td>62</td>
</tr>
<tr>
<td>Keep it Going</td>
<td>63</td>
</tr>
<tr>
<td>MQii Tools and Resources</td>
<td>66</td>
</tr>
<tr>
<td>Glossary of Terms</td>
<td>77</td>
</tr>
<tr>
<td>Appendices</td>
<td>83</td>
</tr>
<tr>
<td>References</td>
<td>96</td>
</tr>
</tbody>
</table>
Section Take Aways

Following your completion of this section you will be ready to:

- Train all team members
- Implement the selected clinical improvement
- Begin to collect and analyze data

Step 1: Train the Care team

In order to launch implementation of the MQii, it will be necessary to ensure that all Care Teams are aware of the activities selected for quality improvement as part of the MQii. This includes their education of the processes needed to implement changes or modifications to the current clinical workflow and awareness of care standards associated with high-quality malnutrition care, namely those outlined in the recommended clinical workflow.

To provide context for implementing the MQii improvement activities, all members of the Care Team should receive education on malnutrition burden (please see The Case for the MQii section for examples of information to share). To the extent that such burden information can be made specific to your hospital’s performance on malnutrition care (e.g., statistics highlighting the impact of under- or untreated malnourished patients on hospital length of stay or readmission rates) 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 the details and best practices associated with an optimal clinical workflow.

With this background and education provided, 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. 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.
Training sessions need to occur prior to implementation of the selected improvement activities. 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 can be found at mqii.today:

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 the following resources from the Alliance to Advance Patient Nutrition:

- **Role of the Dietitian**
- **Role of the Physician**
- **Role of the Nurse**
- **Role of the Hospital Administrator**

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 their application is most suitable. Each of these are also available at mqii.today.

**Table 8: Care team Tools to Support Clinical Improvement Implementation**

<table>
<thead>
<tr>
<th>Implementation Tool</th>
<th>Clinical Workflow Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognizing Malnutrition: A visual guide for diagnosis and assessment</td>
<td>• Malnutrition Screening</td>
</tr>
<tr>
<td></td>
<td>• Diagnosis &amp; Assessment</td>
</tr>
<tr>
<td>Sample Validated Screening Tool: The Malnutrition Screening Tool</td>
<td>• Malnutrition Screening</td>
</tr>
<tr>
<td>Malnutrition Assessment Template: The Subjective Global Assessment Tool</td>
<td>• Diagnosis &amp; Assessment</td>
</tr>
<tr>
<td>Sample Patient Discharge Template for Continued Malnutrition Care</td>
<td>• Discharge Planning</td>
</tr>
</tbody>
</table>
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)\(^{47}\)
- **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.)\(^{48}\)
- **Nutrition Care Process (NCP) Tutorial Videos** (Series of videos on NCP overview, assessment, diagnosis, intervention, and monitoring & evaluation)\(^{49}\)

**Step 2: Implement the Selected Clinical Improvement(s)**

Once the Care team has been educated on the importance of malnutrition and how it can affect patient outcomes, and trained on how to implement the clinical improvement activities, you can then begin implementing the targeted changes to your clinical workflow. The following implementation steps are complemented by additional resources made available through this MQii Toolkit.

**Define Your Plan of Action**

*To formally kick-off the implementation phase, hold an “action planning” meeting with the Care team and 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.

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.\(^{50}\) This involves first implementing only one change (or perhaps two very closely related 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 that align more closely with the recommended standards of care (e.g., ensuring that once patients age 65+ years receive a malnutrition screening, that they also receive 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 particular clinical improvement at a time allows the Project Team to communicate any implementation facilitators across Care teams. And 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.
Aim to answer the following questions with for each implemented clinical improvement:

- **What are we trying to accomplish?**

  - The Care team should set achievable, measurable and time-bound aims for each phase of work flow implementation. To do so, the Care team should collect baseline data on quality 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?**

  - The specific indicators identified by the Project Team are what will help the teams know when an improvement has occurred. By collecting data on these indicators, analyzing them frequently (e.g., biweekly or 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 Indicator: Percentage of patients identified as at risk for malnutrition using a malnutrition screening who also had a completed nutrition assessment

- **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 work flow. 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 Project section and the Additional Resources section may provide useful tools as the team determines how best to continue effecting change and achieve targets. This can be accomplished using the recommended clinical workflow in combination with the best practices provided as well as your observations during mapping of your current clinical workflow.

    Example Additional Activity: Ensure that malnutrition assessment questions from a standard tool are included in the electronic intake form used by the intake nurse

**Test Change**

Once targets, indicators, and additional or refined changes are defined, you can test the changes for each phase of the clinical workflow. The PDSA cycle is a simple method for completing these tests. You can find sample PDSA cycle worksheets at mqii.today (and in the Select Your Quality Improvement Project section of this document) 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 introduce at your hospital to improve malnutrition care.

---

iv. For additional examples of indicators, please see Table 7 in the Plan for Data Collection section of this MQii Toolkit (p. 50-51).
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., nutrition documentation template) that will be used to facilitate data collection during each cycle to analyze the quality measures and/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 a next phase of implementation.

### Test Implementation of the Selected Improvement Activities

Assuming a fixed implementation timeline of 3 to 6 months, the goal should be to complete tests for at least one clinical improvement by the end of the first month. During the following months, the Care team may either focus on continuing to refine performance on the clinical improvement until performance goals for a given indicator(s) is met, or move on to testing another clinical improvement activity that addresses another aspect of the recommended clinical workflow.

Refining a selected clinical improvement activity may involve identifying barriers to optimal practices and feasible solutions. 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 3: Collect Data

Proper documentation in the patient’s medical record will support effective care transitions, as many patients are seen by multiple providers and often across multiple care settings. In addition, proper documentation is essential to support the collection and analysis of the selected quality indicators to demonstrate improvement in care processes.

All data collected should be recorded in the patient’s medical record (electronic medical records or paper medical records, as applicable) and use a standardized template or process where possible and appropriate. Regular review of collected data is encouraged, for which accurate and consistent data recording and collection is critical.

While it is encouraged that data for the identified quality indicators be collected and analyzed for each PDSA cycle, it is also important to track and display any improvement over time across all quality indicators. More frequent collection will enable the Care team to determine where there are gaps in care or where additional improvement is needed along the clinical workflow. The MQii suggested quality
indicators inform the type and level of data you will need. (Please see the MQii Data Management Guide for technical specifications for each suggested quality indicator.) Ideally, these data would be collected using your nutrition documentation template in the EHR. As such, much of the data may come through routine clinical documentation as part of the workflow implementation. In the event that some data are not available in the EHR, the Care team may need to collect data using spreadsheets or paper data collection forms.

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

Data collection permits the individual care team members to gain an objective perspective on the processes and outcomes of care. The quality indicators are the key to generating that perspective. For example, in the case of MQii Suggested Quality Indicator 1, for screening patients with a validated tool, it permits the care team to specifically identify the patients who move through the units being evaluated. The variables to calculate this indicator can be extracted directly from an EHR, abstracted from a medical record and recorded on paper, or captured using some other data collection tool. The variables collected in this indicator are very likely to have a very high reliability rating and are probably routinely collected and reported in patient demographic records. An example of the variables needed to calculate MQii Quality Indicator 1 and the accompanying calculations steps are provided in the callout box below.

To see needed variables and calculation instructions for all other MQii quality indicators, please refer to the Quality Indicators Guide in the MQii Data Management Guide. The Quality Indicators Guide includes 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 (and later analysis) for each indicator. The MQii Data Management Guide also includes the MQii Data Dictionary that provides a detailed description of the complete set of variables that are to be abstracted from each patient medical record and collected for this initiative. All of these resources are available at mqii.today.
Step 4: Interpret and Analyze the Data

Results from data collected on the quality indicators you choose to measure 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 as well as to pinpoint specific events and tie change, or lack of change, in the measurement over time as it relates to the clinical improvement activity.

In Figure 4 below, a sample run chart displays data that suggest the quality improvement has been very successful in increasing malnutrition screening rates 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. Signal detection in a run chart can be determined with the application of one of several sets of rules. 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. 51

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 5), 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 Care team collaborate on interpretation, you will ensure that perspectives of the different Care team members are included in the problem solving process.

The Care team can use these results to identify specific aspects of the process of care 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 are 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 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.52
Keep it Going

Tracking Improvement Beyond the Initial Implementation Stage
Table of Contents

Foreward.......................................................................................................................... i
About the MQii.................................................................................................................. 01
The MQii Toolkit............................................................................................................. 06
Why Implement the MQii in Your Facility................................................................. 09
Plan Your Initiative ..................................................................................................... 14
Select Your Quality Improvement Focus.............................................................. 23
Plan for Data Collection .............................................................................................. 47
Begin Implementation ................................................................................................. 53

Keep it Going.................................................................................................................. 63
  Continue to Track Progress Over Time................................................................. 65
  Disseminate Findings................................................................................................. 65

MQii Tools and Resources ......................................................................................... 66
Glossary of Terms ........................................................................................................ 77
Appendices .................................................................................................................. 83
References ................................................................................................................... 96
Section Take Aways

Following your completion of this section you will be ready 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. Using similar principles to those employed in PDSA cycles, 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. Tracking progress over time not only helps facilitate implementation, but at the conclusion of the project gives teams an overall picture of 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 indicators as frequently as you did during your initial implementation of the initiative, regular assessment of the quality 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. The Project Team may decide how frequently progress data will be reviewed. But at a minimum, performance should be evaluated on a monthly or quarterly basis.

Templates to aid statistical analyses and other ongoing implementation tracking and reporting activities over time are available 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).

You may even seek nomination to healthcare excellence awards such as the John M. Eisenberg Patient Safety and Quality Awards. 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-driven care for patients with malnutrition.
MQii Tools and Resources

Tools Specifically Developed to Support MQii Implementation
Table of Contents

Foreword ............................................................................................................................. i
About the MQii ................................................................................................................... 01
The MQii Toolkit ................................................................................................................ 06
Why Implement the MQii in Your Facility ........................................................................ 09
Plan Your Initiative .......................................................................................................... 14
Select Your Quality Improvement Focus ......................................................................... 23
Plan for Data Collection .................................................................................................... 47
Begin Implementation ........................................................................................................ 53
Keep it Going ....................................................................................................................... 63

MQii Tools and Resources ................................................................................................. 66
  Tools ................................................................................................................................. 68
  Additional Resources ....................................................................................................... 74

Glossary of Terms ............................................................................................................. 77
Appendices ......................................................................................................................... 83
References .......................................................................................................................... 96
Table: 9 MQii Tools

The resources listed below are MQii’s tools to complement the Toolkit document and support your implementation of malnutrition quality improvement. You and your Project Team may find it helpful to access and use some or all of these tools to support your implementation of the initiative at your hospital. The tools are organized by their relevant Toolkit section; you can also find links to them embedded in the respective sections of the Toolkit document in the pages above.

<table>
<thead>
<tr>
<th>MQii Toolkit Section</th>
<th>MQii Tool or Resource</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why Implement the MQii in Your Facility?</td>
<td>Primer: The Importance of Addressing Malnutrition Care</td>
<td>This 2-page document highlights key facts and statistics to know and share about the impact and burden of malnutrition and how addressing it can improve patient outcomes and hospital performance. It helps provide a case for why to implement the MQii.</td>
</tr>
<tr>
<td></td>
<td>MQii Principles and Models of Quality Improvement</td>
<td>This 4-page document provides background on the basic concepts of quality improvement and how it can be used to change entrenched care practices and enhance practice performance. A variety of established models and approaches for testing quality improvement changes are reviewed.</td>
</tr>
<tr>
<td></td>
<td>MQii Overview Presentation</td>
<td>This PowerPoint Presentation highlights the importance of addressing malnutrition in your hospital, the business case for doing so, and the role key leaders can play in implementing the initiative. Share it with your hospital executives, clinical leaders, or other project or care team members to introduce the MQii to your hospital and understand the MQii goals and expectations of getting involved.</td>
</tr>
<tr>
<td></td>
<td>Sample MQii Outreach Letters</td>
<td>These draft letters aim to introduce the MQii to different staff members in your hospital: executives, clinical staff, and patients/family caregivers. They may be helpful as a more targeted approach for introducing this initiative to key individuals since they can be tailored and personalized for the individuals you wish you engage. Each letter template raises awareness of the MQii and the role each can person play to support it.</td>
</tr>
<tr>
<td></td>
<td>MQii Guiding Principles</td>
<td>This handout presents the principles upon which the MQii was created and that guided the development of the MQii Toolkit. Feel free to share it with leadership or staff that desire more information on the creation of the MQii.</td>
</tr>
<tr>
<td>MQii Toolkit Section</td>
<td>MQii Tool or Resource</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Plan Your Initiative</strong></td>
<td>MQii Readiness Questionnaire</td>
<td>This questionnaire helps to identify how prepared you, your care teams, or your organization are to implement a quality improvement project focused on malnutrition. It asks questions about your hospital's culture, awareness of malnutrition, and ability to implement quality improvement activities. Based on the responses you provide, direction for which pieces of the Toolkit to use or where in the process to begin are suggested.</td>
</tr>
<tr>
<td><strong>Sample MQii Outreach Letters</strong></td>
<td></td>
<td>These draft letters aim to introduce the MQii to different staff members in your hospital: executives, clinical staff, and patients/family caregivers. They may be helpful as a more targeted approach for introducing this initiative to key individuals since they can be tailored and personalized for the individuals you wish you engage. Each letter template raises awareness of the MQii and the role each can person play to support it.</td>
</tr>
<tr>
<td><strong>MQii Overview Presentation</strong></td>
<td></td>
<td>This PowerPoint Presentation highlights the importance of addressing malnutrition in your hospital, the business case for doing so, and the role key leaders can play in implementing the initiative. Share it with your hospital executives, clinical leaders, or other project or care team members to introduce the MQii to your hospital and understand the MQii goals and expectations of getting involved.</td>
</tr>
<tr>
<td><strong>MQii Project Teams and Workflow Mapping Presentation</strong></td>
<td></td>
<td>This PowerPoint presentation reviews the different MQii team roles and responsibilities. It also reviews instructions for mapping and comparing your Care team's current malnutrition care practices to the MQii recommended care workflow. Use this presentation with your MQii Project Team (including key Care team leaders) to identify the best clinical improvement(s) to introduce for your malnutrition care. This will walk you through the exercise of how to identify areas for improvement. Used in conjunction with the best practices highlighted on pages 26-44 of the Toolkit document, your team should be able to identify changes or improvements to introduce among your care teams.</td>
</tr>
<tr>
<td>MQii Toolkit Section</td>
<td>MQii Tool or Resource</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>MQii Implementation Training Presentation</td>
<td>This PowerPoint Presentation reviews the key aspects of the MQii recommended care workflow that MQii Care team members should be familiar with. Depending on the clinical improvement your team decided to focus on and implement, this presentation goes over best practices for achieving optimal nutrition care for each step of the recommended clinical workflow. Present this to your MQii Project and Care teams to ensure everyone is aligned on the selected improvement and how to introduce it into your current workflow. (Use of slides can be tailored to target training an education on any specific steps for which you choose to focus improvements.)</td>
<td></td>
</tr>
<tr>
<td>MQii Implementation FAQs</td>
<td>This list and responses to frequently asked questions (FAQ) about MQii implementation may help you and your team as you begin planning this initiative.</td>
<td></td>
</tr>
<tr>
<td>Select Your Quality Improvement Project</td>
<td>MQii Malnutrition Care Assessment and Decision Tool</td>
<td>This helpful questionnaire can be critical for helping your team identify which aspects of malnutrition care make the most sense to target for quality improvement. It asks questions regarding your current processes for malnutrition care and, based on your responses, provide suggestions for where to focus your efforts. Complete this either as a first step to your clinical workflow mapping process or if you run into difficulty identifying what to target on your own.</td>
</tr>
<tr>
<td></td>
<td>MQii Recommended Malnutrition Clinical Workflow</td>
<td>This figure represents at a glance the key steps of the MQii recommended clinical workflow for malnutrition care. Use this 1-pager with your project teams or post it in circulation areas to remind care team members of the key steps for optimal malnutrition care.</td>
</tr>
<tr>
<td></td>
<td>MQii Sample Flowchart for Recommended Malnutrition Care and Flowchart Template</td>
<td>This workflow diagram provides an example of how best practices for malnutrition care look like when carried out by hospital staff. The Sample Workflow Map reflects the MQii recommended clinical workflow, but an additional “blank” template is provided for your Care team to map out your current practice workflow. By filling in the template, your team will have a deeper understanding of current practices and potential areas for improvement.</td>
</tr>
<tr>
<td>MQii Toolkit Section</td>
<td>MQii Tool or Resource</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Plan for Data Collection</strong></td>
<td><strong>MQii eMeasures and Quality Indicators Overview Presentation</strong></td>
<td>This PowerPoint slide deck includes specifications for the four electronic clinical quality measures (eCQMs) developed for the MQii, including numerator, denominator, and exclusion information. Brief descriptions of the MQii suggested quality indicators are also included.</td>
</tr>
<tr>
<td><strong>MQii Data Management Guide</strong></td>
<td><strong>MQii Data Management Guide</strong></td>
<td>This extensive Excel file contains information on the MQii suggested quality indicators and instructions for collecting data for them. In addition to descriptions and specifications for each quality indicator, this guide also includes a data compilation form, feedback reports, and general guidance for how to calculate results to share with your Project and Care team members.</td>
</tr>
<tr>
<td><strong>MQii Implementation FAQs</strong></td>
<td><strong>MQii Implementation FAQs</strong></td>
<td>This list and responses to frequently asked questions (FAQ) about MQii implementation may help you and your team as you begin planning this initiative.</td>
</tr>
<tr>
<td><strong>Begin Implementation</strong></td>
<td><strong>MQii Malnutrition Knowledge and Awareness Test</strong></td>
<td>This multiple choice questionnaire can be used prior to implementation a clinical improvement to assess your Care team’s knowledge of malnutrition and key aspects of optimal care. If administered both before and after implementation of this initiative, it can serve as an indicator for whether or how much your staff learned as a result of participating in the MQii. It can also serve to provide results to share with your leadership staff upon completion of a first phase of implementation.</td>
</tr>
<tr>
<td><strong>MQii Toolkit Overview Presentation</strong></td>
<td><strong>MQii Toolkit Overview Presentation</strong></td>
<td>This PowerPoint Presentation reviews objectives of the MQii Toolkit and the roles of different team members to help carry out this initiative. Share it with your Project and Care team members as you kick-off this initiative to introduce them to the MQii and how they will be expected to participate.</td>
</tr>
<tr>
<td>MQii Toolkit Section</td>
<td>MQii Tool or Resource</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Begin Implementation (continued)</td>
<td>MQii Implementation Training Presentation</td>
<td>This PowerPoint Presentation reviews the key aspects of the MQii recommended care workflow that MQii Care team members should be familiar with. Depending on the clinical improvement your team decided to focus on and implement, this presentation goes over best practices for achieving optimal nutrition care for each step of the recommended clinical workflow. Present this to your MQii Project and Care teams to ensure everyone is aligned on the selected improvement and how to introduce it into your current workflow. (Use of slides can be tailored to target training an education on any specific steps for which you choose to focus improvements.)</td>
</tr>
<tr>
<td></td>
<td>MQii Malnutrition Recognition Guide</td>
<td>This visual guide provides clinical guidelines and images to help your care team members recognize the characteristics of malnutrition among your patients. It includes key characteristics to look for when assessing patients and help inform a malnutrition diagnosis.</td>
</tr>
<tr>
<td></td>
<td>MQii Sample Plan-Do-Study-Act (PDSA) Templates</td>
<td>There is a PDSA template for nearly each step of the recommended malnutrition care process. Each template highlights a potential clinical improvement to implement for a given step in the malnutrition care process. Included in each template is an improvement objective, a plan for carrying out the improvement, and how to document and measure the improvement with your care team. These are examples of the type of information you and your team should outline for whichever clinical improvement you identify or choose to focus on.</td>
</tr>
<tr>
<td></td>
<td>MQii Sample Meeting Agenda</td>
<td>This meeting agenda is simply a template for topics to address at your regular MQii Project Team meetings. It ensures that you discuss challenges and realities of implementation, suggestions for modification, and monitoring of improvement. Regular discussion of these items and their communication to the relevant Care team members will be important for advancing your improvement efforts and helping it be as successful as possible.</td>
</tr>
<tr>
<td></td>
<td>MQii Implementation FAQs</td>
<td>This list and responses to frequently asked questions (FAQ) about MQii implementation may help you and your team as you begin planning this initiative.</td>
</tr>
<tr>
<td>MQii Toolkit Section</td>
<td>MQii Tool or Resource</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Keep it Going</td>
<td><strong>Additional Resources</strong></td>
<td>To help support any aspect of implementation that the tools above did not specifically address, or to find additional information and background resources specific either to malnutrition care or quality improvement more generally, please see this list of additional resources. Sources include information from the Alliance to Advance Patient Nutrition, the Academy of Nutrition and Dietetics, ASPEN, the Centers for Medicare &amp; Medicaid Services (CMS), and many others. In addition to these resources, refer to your results of the Malnutrition Care Assessment and Decision Tool for other areas in your hospital's malnutrition workflow to focus quality improvement efforts.</td>
</tr>
<tr>
<td>Slides Deck Presentations</td>
<td><strong>MQii Overview Presentation</strong></td>
<td>This PowerPoint Presentation highlights the importance of addressing malnutrition in your hospital, the business case for doing so, and the role key leaders can play in implementing the initiative. Share it with your hospital executives, clinical leaders, or other project or care team members to introduce the MQii to your hospital and understand the MQii goals and expectations of getting involved.</td>
</tr>
<tr>
<td>Slides Deck Presentations</td>
<td><strong>MQii Toolkit Overview Presentation</strong></td>
<td>This PowerPoint Presentation reviews objectives of the MQii Toolkit and the roles of different team members to help carry out this initiative. Share it with your Project and Care team members as you kick-off this initiative to introduce them to the MQii and how they will be expected to participate.</td>
</tr>
<tr>
<td>Slides Deck Presentations</td>
<td><strong>MQii Project Teams and Workflow Mapping Presentation</strong></td>
<td>This PowerPoint presentation reviews the different MQii team roles and responsibilities. It also reviews instructions for mapping and comparing your Care team's current malnutrition care practices to the MQii recommended care workflow. Use this presentation with your MQii Project Team (including key Care team leaders) to identify the best clinical improvement(s) to introduce for your malnutrition care. This will walk you through the exercise of how to identify areas for improvement. Used in conjunction with the best practices highlighted on pages 26-44 of the Toolkit document, your team should be able to identify changes or improvements to introduce among your care teams.</td>
</tr>
</tbody>
</table>
## MQii Toolkit Section

<table>
<thead>
<tr>
<th>MQii Tool or Resource</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Slides Deck Presentations (continued)</strong></td>
<td>This PowerPoint Presentation reviews the key aspects of the MQii recommended care workflow that MQii Care team members should be familiar with. Depending on the clinical improvement your team decided to focus on and implement, this presentation goes over best practices for achieving optimal nutrition care for each step of the recommended clinical workflow. Present this to your MQii Project and Care teams to ensure everyone is aligned on the selected improvement and how to introduce it into your current workflow. (Use of slides can be tailored to target training an education on any specific steps for which you choose to focus improvements.)</td>
</tr>
<tr>
<td>MQii eMeasures and Quality Indicators Overview Presentation</td>
<td>This PowerPoint slide deck includes specifications for the four electronic clinical quality measures (eCQMs) developed for the MQii, including numerator, denominator, and exclusion information. Brief descriptions of the MQii suggested quality indicators are also included.</td>
</tr>
</tbody>
</table>

## Additional Resources

Below please find publicly available resources to help support the implementation of malnutrition care best practices throughout this initiative. These resources have also been made available throughout the different sections of the MQii Toolkit, but are compiled here for ease of reference.

### Malnutrition Awareness and the Impact of Malnutrition Care Improvement

- [Malnutrition Fact Sheet](#)
- [Alleviating Hospital-Based Malnutrition: A baseline progress report](#) (Alliance to Advance Patient Nutrition)
- [Malnutrition: A Serious Concern for Hospitalized Patients](#) (Today's Dietitian article)
Care Team Malnutrition Care Resources

- **Alliance Nutrition Care Model and Toolkit** (Nutrition Care Model, Toolkit Resources, and Nursing Educational Models Videos)
- **American Society for Parenteral and Enteral Nutrition's (ASPEN's) Malnutrition Solution Center** (including resources for clinicians and consumers, such as Nutrition Care Pathways and a Step-by-Step Guide to Addressing Malnutrition Outcomes)
- **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)
- **Malnutrition Screening Tool** (Sample validated tool for malnutrition screening)
- **Nutrition Care Process (NCP) Tutorial Videos** (Series of videos on NCP overview, assessment, diagnosis, intervention, and monitoring & evaluation)
- **Patient Discharge Assessment** (Shared discussion and decision-making tool for patient-provider discharge planning)
- **Subjective Global Assessment Tool** (Sample tool for nutrition assessment)

Care Team Roles and Responsibilities for Optimal Malnutrition Care

- **Role of the Dietitian**
- **Role of the Physician**
- **Role of the Nurse**
- **Role of the Hospital Administrator**

Resources for Patient Engagement in Nutrition

- **Health Policy Brief: Patient Engagement** (Frameworks and considerations for patient engagement)
- **Fostering Successful Patient and Family Engagement: Nursing's Critical Role**
- **Nutrition Take-Home Information and Guide for Patients**
- **Patient-Centered Care Guiding Principles**
- **Shared Decision Making: Interventions to Help Patients Play an Effective Role**
- **Malnutrition in Older Adults Video – Alliance for Aging Research**
- **National Council on Aging: Older Adult Malnutrition and Chronic Disease Toolkit**
Quality Improvement Implementation Resources

- **American Society for Quality (ASQ) Quality Tools A to Z** (Resources and templates for data collection, statistics, and reporting for quality improvement)

- **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)

- **Institute for Healthcare Improvement Flowchart Resources**

- **Introduction to Lean and Six Sigma Approaches to Quality Improvement**

- **CMS Toolkit for Making Written Material Clear and Effective** (Health literacy resource to ensure readable and usable materials)

Nutrition Care Clinical Guidance Documents

- **A.S.P.E.N Clinical Guidelines: Nutrition Screening, Assessment, and Intervention in Adults**

- **Nutrition Care Process and Model: Part I** (Structure and Framework for Nutrition Professionals to Use When Delivering Nutrition Care)

- **Nutrition Care Process: Using the International Dietetics and Nutrition Terminology to Document the Nutrition Care Process**
Glossary of Terms
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td>i</td>
</tr>
<tr>
<td>About the MQii</td>
<td>01</td>
</tr>
<tr>
<td>The MQii Toolkit</td>
<td>06</td>
</tr>
<tr>
<td>Why Implement the MQii in Your Facility</td>
<td>09</td>
</tr>
<tr>
<td>Plan Your Initiative</td>
<td>14</td>
</tr>
<tr>
<td>Select Your Quality Improvement Focus</td>
<td>23</td>
</tr>
<tr>
<td>Plan for Data Collection</td>
<td>47</td>
</tr>
<tr>
<td>Begin Implementation</td>
<td>53</td>
</tr>
<tr>
<td>Keep it Going</td>
<td>63</td>
</tr>
<tr>
<td>MQii Tools and Resources</td>
<td>66</td>
</tr>
<tr>
<td>Glossary of Terms</td>
<td>77</td>
</tr>
<tr>
<td>Appendices</td>
<td>83</td>
</tr>
<tr>
<td>References</td>
<td>96</td>
</tr>
</tbody>
</table>
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 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 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)
- 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** 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** 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** The development of a document outlining comprehensive planned actions with the intention of impacting malnutrition-related factors affecting patient health status.

**Malnutrition Diagnosis** 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** 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** 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** The systematic approach to collect and interpret relevant data from patients, family caregiver, and patient family members to determine a patient's malnutrition severity and establish a malnutrition diagnosis.

**Patient-Centered** Health care 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-Driven** When the patient is a responsible driver of their own healthcare services and is encouraged by the provider to act as a full partner in decision-making.

**Patient Engagement** 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** A multidisciplinary team responsible for ensuring cohesive action and ongoing collaboration in support of the goals and objectives of the MQii.

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

**Quality Improvement** 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** “[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** 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 health care and/or that relate to one or more quality goals for health care.

**Rapid Cycles of Change (or Rapid Improvement Cycles)** “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** 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.
Appendices
Table of Contents

Foreward................................................................. i
About the MQii......................................................... 01
The MQii Toolkit....................................................... 06
Why Implement the MQii in Your Facility......................... 09
Plan Your Initiative ................................................... 14
Select Your Quality Improvement Focus.......................... 23
Plan for Data Collection ............................................. 47
Begin Implementation ............................................... 53
Keep it Going ........................................................... 63
MQii Tools and Resources .......................................... 66
Glossary of Terms .................................................... 77

Appendices...................................................................... 83
  Appendix 1: Primer: The Importance of Addressing Malnutrition Care......... 85
  Appendix 2: MQii Principles and Models of Quality improvement.............. 88
  Appendix 3: MQii Sample Flowchart for Recommended Malnutrition Care and
    Flowchart Template ................................................ 93
  Appendix 4: MQii Recommended Malnutrition Clinical Workflow.............. 94
  Appendix 5: MQii Guiding Principles .................................... 95

References..................................................................... 96
Appendix 2: MQii Principles and Models of Quality Improvement

Healthcare quality and quality improvement are terms that describe discrete, yet interrelated concepts. The Institute of Medicine (IOM) defines healthcare quality as “a direct correlation between the level of improved health services and the desired health outcomes of individuals and populations.”96 Whereas the definition of quality improvement places a focus on measuring change, consisting of “systematic and continuous actions that lead to measureable improvement in healthcare services and the health status of a targeted patient group.”12 Quality improvement often seeks to raise the standards of care in alignment with IOM aims for improvement in outcomes for individuals and populations.12

To build a healthcare system that provides efficient, effective, and consistent care, it is important that healthcare organizations apply the principles of quality improvement in all aspects of clinical care. Following the passage of the Affordable Care Act in 2010, stakeholders in the industry are striving to improve the value of care delivery and prevent costly negative patient outcomes through quality improvement initiatives that promote care efficiency, patient-centered care, provider coordination, and clinical best practices.12
The Health Resources and Services Administration (HRSA) notes that the quality improvement model includes four key principles to support successful initiatives.\(^{12}\)

**Figure 1: Key Principles to Support Successful Quality Improvement Initiatives**

A well-defined quality improvement program consists of “systematic activities that are organized and implemented by an organization to monitor, assess, and improve its healthcare.”\(^{12}\) The goal of quality improvement programs is to seek continuous improvement in the care delivered to the patients the organization serves.\(^{12}\)

Intrinsic to the successful implementation of a quality improvement initiative is the focus on the patient. Increasingly, evidence demonstrates the positive impact patient engagement has on improving patient outcomes and reducing the cost of care. The National Quality Forum (NQF) defines patient- and family-centered care as “an approach to the planning and delivery of care across settings and time that is centered on collaborative partnerships among individuals, their defined family, and providers of care. It supports health and well-being by being consistent with, respectful of, and responsive to an individual’s priorities, goals, needs, and values.”\(^{57}\)
The concept of patient-centered care is one that is evolving as the role of the patient becomes increasingly defined. In today’s healthcare environment, stakeholders are looking beyond assessing the quality of the patient experience and promoting activities that involve patients in their care as informed consumers. Patient-centered care may include patient engagement, activation for self-care, and shared decision making around the determination of the appropriate course of treatment and disease management.

In support of developing patient-centered quality and clinical safety improvements, the Nursing Alliance for Quality Care released a list of nine core principles designed to support nurses and healthcare providers in 2013 (see Figure 3). Hospitals and health systems that have been successful in promoting patient-centered care adopt principles that are very similar to those released by the Nursing Alliance for Quality Care or develop their own. Following these principles may help incorporate aspects of patient-centered care into your practices as you implement this quality improvement initiative.
There must be an active partnership among patients, their families, and their healthcare providers

The patient is the source of health information and has right to make own care decisions

Care is based on shared responsibilities and relationships among patient, family, and clinicians

Care must respect boundaries of privacy, competent decision making, and ethical behavior

Families and friends of the patient are considered an essential part of the Care Team

Patient rights include mutuality: information sharing, consensus forming, and shared decision making

Clinicians should advocate for patients unable to fully participate in own care

Acknowledge and appreciate cultural, racial, and ethnically diverse backgrounds

Healthcare literacy and linguistically-appropriate interactions are essential

Additionally, online tools and health literacy resources can provide education to improve patient understanding of treatment options, thereby increasing a patient’s ability to engage in the shared decision-making process. The Institute for Healthcare Improvement (IHI) has developed a white paper reviewing best practices for providing positive patient and family experiences during hospital stays. This white paper identifies primary and secondary drivers for hospitals that are associated with exceptional patient and family experiences of inpatient care and provides case studies from high-performing hospitals to demonstrate application of theory. Primary drivers include:

- Leadership: Governance and executive leadership demonstrate that hospital culture is focused on patient-and family-centered care
- Provider Engagement: Staff and providers are fully engaged
- Respectful Partnership: All care interactions are based on a respectful partnership that anticipates patient and family needs
- Reliable Care: Hospital provides high-quality, reliable care 24/7
- Evidence-Based Care: Care team consistently applies collaborative, evidence-based care
Examples of online tools to support patient education and engagement include the Agency for Healthcare Research and Quality (AHRQ) strategies for implementing a patient-centered medical home delivery model. Additionally, decision-support resources for malnutrition care are also available for clinicians, such as recommendations from the Choosing Wisely® Campaign for specific patient conditions (e.g., dementia). Links to these resources are provided in the Additional Resources section of this MQii Toolkit found on p. 74-76.

Quality Improvement Models

There are several quality improvement models and frameworks an organization can consider to promote success. One of the most widely used models is the Plan-Do-Study-Act (PDSA) Cycle, a systematic series of steps for gaining valuable learning and knowledge for the continual improvement of a product, service, or process. It has been visually depicted using a four-step approach as indicated in Figure 4.

**Plan:** Identify an opportunity to improve and plan a change or test of how something works within one component of the clinical workflow, including establishing metrics/indicators to assess progress toward the goal

**Do:** Carry out the plan for improvement for the specific component of the clinical workflow. The test period may be as short as one day and be implemented on a small number of patients

**Study:** Examine the results

**Act:** Based on the results of the testing period, incorporate changes and establish quality improvement plans

![Figure 4: PDSA Cycles](image)

Through small, rapid cycles of change and improvement, the team gains the ability to evaluate the impact of improvement tactics at regular intervals. It is important to note that a team may undergo multiple cycles through the PDSA cycle for one quality improvement concept. Cycling through the same topic more than once allows the team to test whether the change had an impact and refine the process as needed.

Other quality improvement models that your organization may currently be using or may wish to consider when implementing the MQii include the LEAN Approach and Six Sigma. Both of these models place PDSA within a specific context to provide direction to the quality improvement process and make effective use of resources. Organizations implementing the LEAN process look at healthcare quality improvement in the context of the patient, and whether particular care processes provide value. If processes do not provide value to the patient, they are targeted for improvement. Additionally, all members of the team are expected to help identify poor quality and operational and resource waste.

Organizations initiating quality improvement using the Six Sigma model modify PDSA using the acronym DMAIC: Define, Measure, Analyze, Improve, and Control. The final step, Control, emphasizes the focus of Six Sigma on maintaining high levels of quality care and low levels of clinical practice variability and defects, and encourages users to implement a plan to continuously measure and assess the success of the quality improvement process. In the context of Six Sigma, the process of quality improvement revolves around identifying sources of variation, including defects, in clinical practice processes and strives to reduce this variation.
These materials developed by the Malnutrition Quality Improvement Initiative® (MQii®) 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.

© 2016. All rights reserved.

Appendix 3: MQii Sample Flowchart for Recommended Malnutrition Care

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

Care team activity

Joint activity between patient/family member or caregiver and care team

Decision point

Team member: Nurse
Timing: Immediately after admission
Use validated tool?

Y/N

Team member: Dietitian
Timing: Immediately after diagnosis
Dietitian order-writing privileges?

Y/N

Team member: Dietitian
Timing: Immediately after diagnosis
Preferences recorded?

Y/N

Team member: All care team members
Timing: Duration of patient stay
Team member: Dietitian and other care team members
Timing: 24 hrs prior to discharge
Team member: Dietitian, case manager, or nurse
Timing: Upon discharge
Team member: Dietitian, physician, or other qualified care team member
Timing: Immediately after assessment
Recorded in EHR?

Y/N

Follow-up assessment

Conduct nutrition assessment if patient is deemed at risk.

Follow-up nutrition assessment

Continue to monitor and rescreen patients as indicated or every seven days to ensure no change in nutritional status.

Complete nutrition assessment if patient is deemed at risk.

Conduct nutrition assessment

Continue to monitor and rescreen patients as indicated or every seven days to ensure no change in nutritional status.

Complete nutrition assessment if patient is deemed at risk.

Conduct nutrition assessment

Continue to monitor and rescreen patients as indicated or every seven days to ensure no change in nutritional status.

Complete nutrition assessment if patient is deemed at risk.
Appendix 4: MQii Recommended Malnutrition Clinical Workflow

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

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

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

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

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

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

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

Initiate Dietitian Consult and Malnutrition-Risk Diet Order for At-Risk Patients
• Intervene immediately for at-risk patients with food and/or oral nutritional supplement per malnutrition-risk protocol to accelerate treatment unless contraindicated
• Conduct nutrition assessment as soon as possible
• Following assessment, any active malnutrition-risk diet order should be reevaluated

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.

© 2016. All rights reserved.
Appendix 5: 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.

1. Founded on evidence demonstrating that nutrition intervention can improve patient clinical outcomes and lower cost of care for malnourished and at-risk hospitalized adults, including decreasing morbidity and mortality, hospital-acquired conditions and complications, enhancing care transitions, and reducing patient length of stay and unplanned readmissions.

2. Aims to address the gap in optimal malnutrition care delivery for hospitalized older adults (ages 65+) based upon evidence across the entire spectrum of malnutrition care delivery, including screening, assessment, diagnosis, nutrition intervention, and discharge planning.

3. Seeks to advance early screening, assessment, diagnosis and prompt nutrition intervention for malnourished and at risk hospitalized older adults.

4. Seeks to promote a patient-driven nutrition intervention that incorporates patients’ clinical presentations, preferences and risk factors.

5. Defines nutritional interventions as standard or specialized diets, oral nutrition supplements, tube feeding, parenteral nutrition, and patient education or counseling.

6. Aims to promote safety and improve patient outcomes with malnutrition care coordination across all members of the care team, including patients, families, dietitians, physicians, nurses, and other healthcare professionals.
References


28. Based on Avalere Best Practice research and expert input from the Malnutrition Quality Improvement Initiative Advisory Council


53. AHRQ Health Care Innovations Exchange. Available at: https://innovations.ahrq.gov/.


93. Tappenden et al. Critical Role of Nutrition in Improving Quality of Care: An Interdisciplinary Call to Action to Address Adult Hospital Malnutrition, J Acad Nutr Diet. 2013; 113:1219-1237.


