

A call-to-action from the feedM.E. Middle East study group

Use of a screen-intervene-supervene strategy to address malnutrition in healthcare

Osama Al-Zeer, MS, Tahsin G. Ozcagli, MD, PhD, Mehmet Uyar, MD.

ABSTRACT

عالمياً ما يصل إلى 50% من المرضى المنومين في المستشفيات يعانون من سوء التغذية أو معرضين لخطر سوء التغذية. وتوصي التوجيهات بالفحص التغذوي لجميع المرضى عند دخول المستشفى. وتوضح نتائج الدراسات من المرضى المنومين في المستشفيات أن الفحص التقييمي، مع متابعة التقييم الغذائي والرعاية عندما يتطلب الأمر يمكن أن تحسن النتائج السريرية للمرضى وتقلل تكاليف الرعاية الصحية. وبالرغم من وجود الأدلة الدامغة فإنه لا يزال الانتباه إلى الرعاية التغذوية دون المستوى الأمثل في المرافق الصحية في جميع أنحاء العالم. وقد وضعت المجموعة العالمية feedM.E. خطوة بخطوة طريقة بسيطة للعناية التغذوية لتسهيل أفضل ممارسات الرعاية التغذوية. إن هذه الطريقة توجه الأطباء لفحص الحالة التغذوية للمرضى عند دخول المستشفى أو الشروع في تقديم الرعاية، وعند التدخل على وجه السرعة مع الرعاية التغذوية عند الحاجة أو المتابعة بشكل روتيني مع تعديل وتعزيز خطط الرعاية التغذوية. وتسعى مجموعة الشرق الأوسط feedM.E. لتمديد هذا البرنامج لمنطقتنا. ونصح الأطباء على اعتماد وتكييف طريقة العناية التغذوية (Nutrition Care Pathway) وذلك لتقديم رعاية تغذوية ذات جودة إلى الممارسة اليومية.

Up to 50% of hospitalized patients worldwide are malnourished or at risk of malnutrition. Guidelines recommend nutritional screening of all patients on hospital admission. Results from studies of hospitalized patients show that screening, with follow-up nutritional assessment and care when indicated, can improve patients' clinical outcomes and reduce healthcare costs. Despite compelling evidence, attention to nutritional care remains suboptimal in clinical settings worldwide. The feedM.E. Global Study Group developed a simple, stepwise Nutrition Care Pathway to facilitate best-practice nutrition care. This pathway guides clinicians to screen patients' nutritional status on hospital admission or at initiation of care; intervene promptly with nutrition care when needed; and supervise or follow-up routinely with adjustment and reinforcement of nutrition care plans.

The feedM.E. Middle East Study Group seeks to extend this program to our region. We advise clinicians to adopt and adapt the Nutrition Care Pathway, bringing quality nutrition care to everyday practice.

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From the Department of Clinical Nutrition (Al-Zeer), King Khalid University Hospital, King Saud University, Riyadh, Kingdom of Saudi Arabia, and Abbott Nutrition Research and Development (Ozcagli), Istanbul, the Department of Anesthesiology and Intensive Care (Uyar), Ege University Hospital, Izmir, Turkey.

Address correspondence and reprint request to: Dr. Mehmet Uyar, Department of Anesthesiology and Intensive Care, Ege University Hospital, Bornova 35100, Izmir, Turkey. E-mail: mehmet.uyar@ege.edu.tr

Up to 50% of hospitalized patients are reported to be at risk of malnutrition or actually malnourished.^{1,2} Clinical studies in healthcare settings worldwide have shown that disease-related malnutrition is exceedingly common,³⁻⁷ especially in older patients.^{8,9} The prevalence of disease-related malnutrition-nutritional inadequacy with an inflammatory component¹⁰ is similarly high in hospitals of both emerging and industrialized nations. This prevalence remains as high now as it was a decade ago in almost every country.¹¹⁻¹⁴ Patients with poor nutritional status are susceptible to disease progression and complications, and their recovery from illness or injury is often prolonged.^{1,15,16} A key barrier to best-practice nutrition care is limited hospital resources; clinicians report that too little time and not enough money constrain staff training on how to recognize and treat malnutrition.^{17,18}

While educational training and nutrition interventions have financial costs, so do the consequences of malnutrition. Disease-related malnutrition increases

costs of care due to higher rates of complications (infections, pressure ulcers, falls) longer hospital stays, and more frequent readmissions.¹⁹⁻²⁸ By contrast, clinical study results show that attention to nutrition care during hospitalization can improve patients' health outcomes and cut healthcare costs.²⁹⁻³⁹ Nutrition planning and follow-up nutrition care can also provide both health and financial paybacks, whether the patient is living in the community, preparing for surgery, or ready to be discharged from the hospital.⁴⁰⁻⁴³ Yet disease-related malnutrition continues to be overlooked and under-treated.

Despite compelling evidence of benefits from nutrition care^{29,30,32,34-38} and clearly-stated nutrition care guidelines,⁴³⁻⁴⁶ nutrition interventions for people with disease-related malnutrition still fall far short of best-practice.^{3,4,47} To address this shortfall, clinicians worldwide have issued a "call-to-action" for increased recognition of nutrition's role in improving patient outcomes.^{42,48-50} To take action, clinical nutrition experts from Asia, Europe, the Middle East, and North and South America formed the feedM.E. (Medical Education) Global Study Group and put together a working program to increase awareness and improve nutrition care around the world.¹ The global feedM.E. initiative introduced the mantra "screen, intervene, and supervise" to cue the steps of a straightforward Nutrition Care Pathway.¹ To support the feedM.E. global educational initiative, we formed a feedM.E. Middle East Study Group, which includes nutrition leaders from Egypt, Saudi Arabia, Turkey, and the United Arab Emirates (Table 1). The first meeting of the feedM.E. Middle East Study Group was held in Istanbul in June of 2014. We discussed how to support the principles and recommendations of the feedM.E. global initiative while taking into account some differing medical practices, socioeconomic conditions, and lifestyles in countries of the Middle East.

In our current article, we the members of the feedM.E. Middle East Study Group emphasize the screen-intervene-supervene strategy for nutrition

care, which is further defined for incorporation into practice as a Nutrition Care Pathway. For Middle East healthcare, we advise that this pathway can be adapted to meet cultural differences in different Middle East countries, and can be followed for patients in the community, in the hospital, and after discharge to home or to long-term care centers.

Malnutrition in the Middle East. Countries of the Middle East region are highly diverse in ecology (green valleys and dry yellow deserts), political structures (republics, monarchies), government stability or instability (conflicts, civil wars, unrest), and economic status (world's richest and poorest countries). This diversity creates marked differences in the health and nutritional status of people in regional populations.⁵¹ In some cases, rapid urbanization and social development have occurred in the absence of economic growth.⁵¹ For adults in the Middle East and worldwide, malnutrition is often related to sickness, which includes people with limited physical or mental function. Disease-related malnutrition occurs in people of all ages and circumstances but is notably common

Table 1 - The feedM.E. Middle East Study Group.

| Study group members | Affiliation |
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| Osama Al-Zeer, MS | Director of Clinical Nutrition, King Khalid University Hospital, King Saud University, Kingdom of Saudi Arabia |
| Ejlal Al-Jalali, PhD | Director of Nutrition Department, Security Forces Hospital Program, Kingdom of Saudi Arabia |
| Wafaa H. Ayesh, MS | Director, Clinical Nutrition Department, Clinical Support Services Sector, Dubai Health Authority, United Arab Emirates |
| Refaat A. Hegazi, MD, PhD, MPH | Medical Director, Abbott Nutrition Research and Development, Columbus Ohio, USA |
| Sadık Kılıçturgay, MD | Professor of Surgery, Department of Surgery, Uludağ University Hospital, Bursa, Turkey |
| Enas Mogawer MD, PhD | Head, Clinical Nutrition Department, As-Salam International Hospital, Cairo, Egypt |
| Tahsin G. Ozcagli, MD, PhD | Medical Director, Abbott Nutrition Research and Development, Istanbul, Turkey |
| Mehmet Uyar, MD | Professor of Anesthesiology and Intensive Care, Ege University Hospital, Izmir, Turkey |

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in older people.⁹ Disease-related malnutrition is evident at hospital admission, during hospitalization, and in the periods before admission and after discharge. With all these influences, the prevalence of disease-related malnutrition varies widely across the Middle East; from 6% to 58% of hospitalized patients are malnourished or at risk of malnutrition (Table 2). The wide range can be attributed to differing socioeconomic and health conditions in different countries, to different populations being assessed (elderly, patients with kidney disease, critically ill patients), and to differences in criteria used to define malnutrition. Table 2 provides examples of disease-related malnutrition reported over the past 2 decades. Updated surveys are needed in all Middle East countries using consistent criteria and validated tools for identifying malnutrition and its risk.⁵²

Malnutrition predicts poor health outcomes. Poor nutrition is a predictor of poor outcomes, as shown by results of a large multicenter collaboration including hospitals in 3 countries of the Middle East (Lebanon, Egypt, and Libya) and 9 countries in Europe.⁵³ This prospective study enrolled 5,051 patients; of these, 33% of patients were found to be 'at risk' of malnutrition (NRS 2002 score). The proportion of 'at risk' patients generally reflected the severity of the underlying illness or injury in the population studied. For patients in

the Middle East, risk for malnutrition by hospital department was: internal medicine (11%), oncology (37%), surgery (55%), and intensive care (97%).⁵³ Patients 'at risk' had significantly more complications, longer lengths of hospital stay, and higher rates of mortality.⁵³ Further, of those who were discharged, fewer 'at risk' patients were discharged to home, and more were sent to nursing homes or to other hospital care sites, as compared with patients who were adequately nourished.⁵³

Malnutrition is under-treated. Even when nutrition problems are identified, studies have found that such problems are not adequately treated. In one Middle Eastern study, 34 Turkish hospitals from 19 cities contributed data from 29,139 patients.⁵⁴ On admission, 15% of patients were found to be at nutritional risk; risk was highest in intensive care unit patients (52%). Of those identified to be 'at nutritional risk' in this study, only around half received nutrition intervention.⁵⁴ Studies carried out in Australian and European hospitals reported similar shortfalls in treating malnutrition or reaching nutritional targets.^{3,47}

Nutrition care improves outcomes and lowers costs. Nutrition interventions, including food fortification or oral nutrition supplements (ONS), tube-fed enteral nutrition, and parenteral nutrition, are recognized to have significant clinical and economic benefits across

Table 2 - Reports of hospital- and community-based malnutrition prevalence in Middle East countries.

| Country | Study | Setting | Prevalence | Population | Assessment |
|-------------------------|-------------------------------------|------------------------------------|-------------------------------------|--|-----------------|
| Iran | Hosseini et al 2006 ⁷¹ | Hospital | 5.7% | Adults >18 years | Anthropometrics |
| | Nematy et al 2013 ⁷² | Hospital | | Adults, mean age 53.6 years | NRS 2002 |
| | Amirkalali et al 2010 ⁷³ | Community | 47% | Elderly ≥60 years | MNA |
| Lebanon | Boulos et al 2014 ⁷⁴ | Community | 8% malnourished; 29% at risk | Elderly ≥65 years | MNA |
| Pakistan | Elmadbouly et al 2012 ⁷⁵ | Hospital | 23% malnourished; 58% at risk | Elderly ≥60 years | MNA |
| Kingdom of Saudi Arabia | Bani et al 1998 ⁷⁶ | Hospital | 28-34% | Adults >18 years | Anthropometrics |
| | Al-Saran et al 2009 ⁷⁷ | Hospital | 32% | Hemodialysis patients, mean age 50 years | SGA |
| | Alhamdan 2011 ⁷⁸ | Hospital | 36% | Elderly ≥60 years | MNA |
| | Alhamdan 2004 ⁷⁹ | Community | 38% 24% | Adult males <60 years Elderly males ≥60 years | Anthropometrics |
| Turkey | Nursal et al 2005 ⁸⁰ | Hospital | 11-16% | Adults aged >18 years | SGA, CC |
| | Klek et al 2015 ⁸¹ | Hospital | 39% at risk | Adults | NRS 2002 or SGA |
| | Korfali et al 2009 ⁵⁴ | Hospital | 15% at risk, 52% of ICU patients | Adults | NRS 2002 |
| | Ulger 2010 ⁸² | Community Geriatric outpatients | 28% | Elderly aged ≥60 years | MNA |

ICU - intensive care unit, MNA - Mini Nutritional Assessment,⁸¹ SGA - Subjective Global Assessment,⁸² NRS-2002 - Nutritional Risk Screening-2002,¹³ CC - combination criteria

patient groups and in different settings. Specifically, nutrition interventions were associated with fewer in-hospital complications,³⁰ reduced pressure ulcer incidence,³⁷ achievement of higher functional status in recovery,³⁰ improved quality of life,^{34,55} and reduced risk of mortality,⁵⁶ as shown by results of randomized and controlled trials and by meta-analyses. Nutrition interventions to prevent or treat disease-related malnutrition also show resource savings; reports have shown reduced length of hospital stay,⁵⁷ fewer readmissions,^{38,55} and lowered hospital-related costs.^{35,36} Few studies have considered cost of hospital-based malnutrition in Middle East countries. However, a recent survey of neurologists from 8 tertiary centers in Turkey examined current practice related to treatment of patients recovering from strokes.^{58,59} The researchers determined that the overall one-year costs of care were higher for malnourished patients compared to those who were adequately-nourished (\$5201 versus \$3618; $p=0.09$). Of the total costs, oral nutrition supplements (ONS) costs were \$868 in patients with malnutrition and \$501 in patients without malnutrition, whereas all others costs were \$4334 and \$3117. Investment in ONS as treatment for malnutrition was thus supported as a way to decrease the cost of illness.

Malnutrition definition. For caregivers to provide best-practice nutrition care, it is important to be aware of the current definition of malnutrition. Malnutrition is now recognized as 3 clinical syndromes, which are characterized by underlying illness or injury and varying degrees of inflammation.¹⁰ These malnutrition syndromes are: 1) starvation-related malnutrition, namely, a form of malnutrition without inflammation; 2) chronic disease-related malnutrition, namely, nutritional inadequacy associated with chronic conditions that impose sustained inflammation of a mild-to-moderate degree; and 3) acute disease- or injury-related malnutrition, namely, undernutrition related to conditions that elicit marked inflammatory responses. Inflammation is a component of underlying disease in several chronic disease states, such as kidney disease and heart failure and thus increases the risk of malnutrition,⁶⁰ even among patients who are overweight or obese.⁶¹ Most severe acute health crises such as severe infection, surgery, burn injury, or sepsis are associated with marked inflammation, which contributes to and intensifies risk for severe malnutrition.⁶⁰ Adult undernutrition was further described as a condition characterized by 2 or more of 6 criteria: unintentional weight loss, inadequate energy intake, loss of muscle mass, loss of subcutaneous fat, fluid accumulation, and functional decline (for example, decreased hand-grip strength).⁶²

The feedM.E. Nutrition Care Pathway. The feedM.E. Global Study Group recently introduced screen-intervene-supervene as a guide for delivering prompt and complete nutrition care (Appendix 1A).¹ We members of the feedM.E. Middle East Study Group support this overall strategy, and we advise the use of the Nutrition Care Pathway to bring this strategy to everyday practice. To facilitate broad use of the Nutrition Care Pathway throughout the Middle East, we provide versions in Turkish and Arabic (Appendix 1 B and C). For complete uptake, specific aspects of nutrition care may need adjustments to meet country-to-country cultural differences to accommodate disparate lifestyles, food availability, and genetic factors, as was the case with a diabetes nutrition program.^{63,64}

Nutrition Care Pathway: screen for malnutrition risk. Screening patients for malnutrition on admission to the hospital is now a standard of care. In the Middle East, we advise that routine nutrition screening is likewise appropriate in rehabilitation facilities, long-term care centers, and community healthcare settings. To determine nutritional risk, we advise screening with (1) the 2 Malnutrition Screening Tool (MST) questions^{65,66} and (2) a quick clinical decision on whether the patient's illness or injury carries risk for malnutrition.¹⁰

In the Middle East, as is the case elsewhere, admitting nurses are often the first contacts for patients, and we suggest that nurses conduct the initial screen for nutritional risk. If risk is found, we advise immediate intervention with nutrition advice, an increase in the quantity or protein density of food, and/or use of protein-containing oral nutrition supplements. With risk recognition, particularly when the patient is unable to take food orally, refer to a trained clinician (dietitian, nutrition specialist) for further assessment and specific treatment.

Nutrition Care Pathway: intervene with targeted nutrition. The intervention portion of the Nutrition Care Pathway includes assessment of nutritional status, diagnosis of malnutrition, and implementation of treatment. For nutrition assessment, the SGA is widely used for most adults,⁶⁷ and the MNA is used for older persons;⁶⁸ other tools are available.⁵² To facilitate malnutrition diagnosis and help standardize malnutrition care, experts from A.S.P.E.N. and the Academy of Nutrition and Dietetics (AND) defined specific criteria for malnutrition diagnosis.⁶² Guidelines support prompt intervention, namely, targeted nutrition therapy within 24 to 48 hours of admission.⁴³⁻⁴⁶ Implementation of treatment involves decisions on how much to feed, how

and when to feed, and what to feed, as discussed in detail for the feedM.E. global initiative.¹

Nutrition Care Pathway: supervene. The next step of the Nutrition Care Pathway is to supervene, or follow-up with continuing attention to meeting nutrition needs. Individuals receiving nutrition therapy should also be monitored regularly to ensure feeding tolerance and adequate supplies of energy with sufficient protein, vitamins, and minerals.⁶⁹ For those patients who are initially well-nourished, rescreening should occur at regularly determined intervals, especially when clinical status changes.⁷⁰ An effective nutrition plan considers multiple aspects of care.⁴³ It requires that the patient have cognitive competence, social and functional abilities, and economic access to food; alternatively, some patients need a caregiver and other social support programs to meet their needs. The nutrition plan should be prepared for and discussed with the patient, modified as needed to meet personal and cultural preferences, and include ongoing measures/assessment of the patient's nutritional status.

To ensure best-practice nutrition care in the Middle East, we recommend continued efforts to prevent and treat malnutrition among patients who have been discharged from the hospital into long-term care centers or into the community. Such efforts include nutrition education for the patient or their caregivers and individualized dietary advice on the use of food enrichment and/or oral nutrition supplements. We also emphasize the importance of routine rescreening for malnutrition risk. We call on regional and local health authorities to endorse nutritional risk assessment as an integral part of routine medical care.

In conclusion, attention to nutrition is fundamental to good clinical practice. As members of the feedM.E. Middle East Group on nutrition in healthcare, we call healthcare providers in our region to action. To do so, we recommend use of the Nutrition Care Pathway that includes 3 key steps: screen always, intervene promptly when needed, and supervene or follow-up routinely. Because of wide socioeconomic differences among Middle Eastern countries, we recognize that feedM.E. global strategies may need to be adapted to meet country-specific needs, and we propose testing pilot models for feedM.E. training in each country.

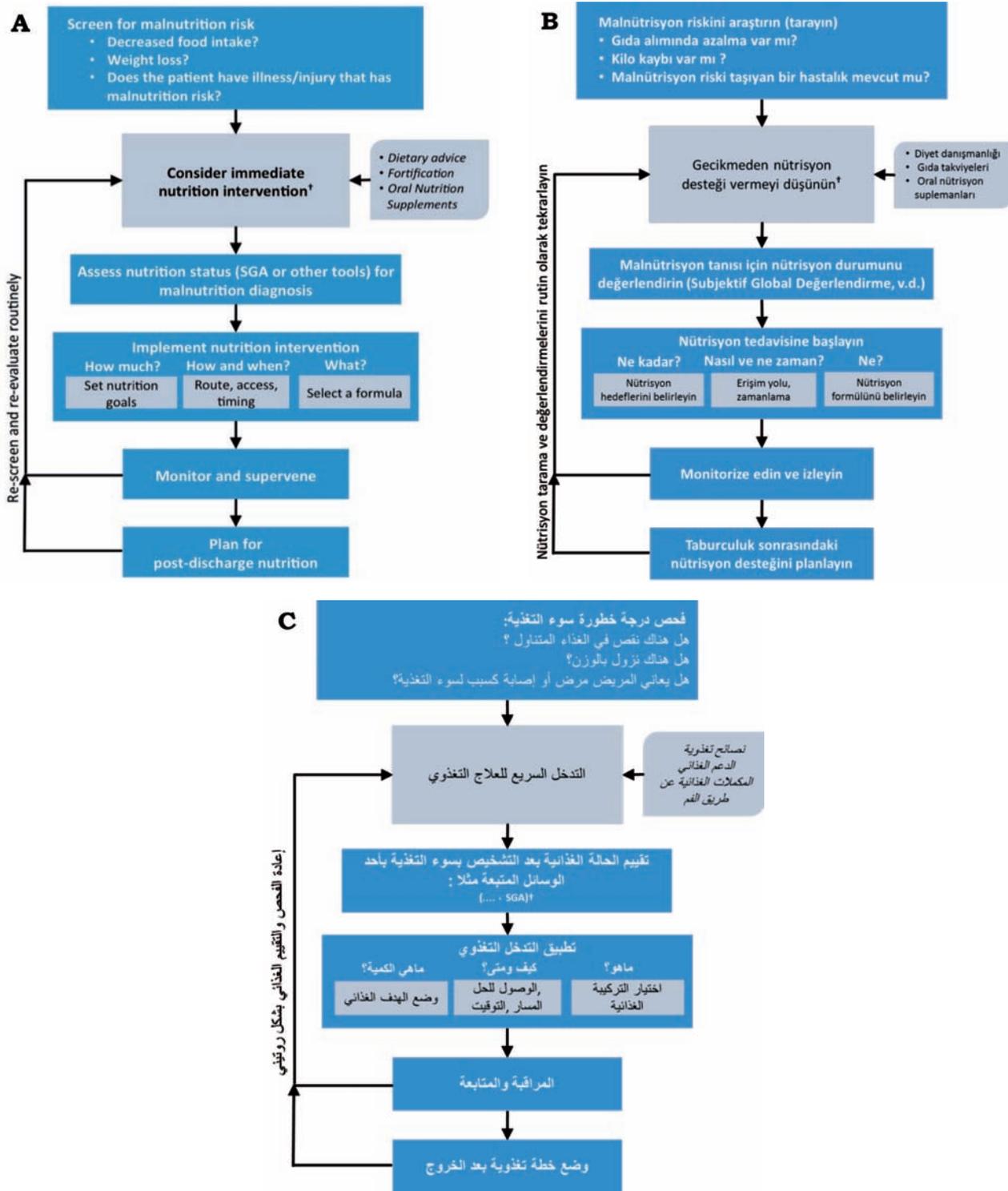
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Appendix 1 - The feedM.E. Nutrition Care Pathway in A) English, B) Turkish, and C) Arabic. [†]For patients who can tolerate oral feeding. Reproduced from: Correia M, Hegazi R, Higashiguchi T, Michel J, Reddy B, Tappenden K, et al. Evidence-based recommendations for addressing malnutrition in healthcare: an updated strategy from the feedM.E. Global Study Group. *J Am Med Dir Assoc* 2014; 15: 544-550. With permission from Elsevier.