Review Article

Taking action against malnutrition in Asian healthcare settings: an initiative of a Northeast Asia Study Group

Takashi Higashiguchi MD, PhD[1], Hidenori Arai MD, PhD[2], Ling Hui Claytor MD, PhD[3], Masafumi Kuzuya MD, PhD[4], Joji Kotani MD[5], Shyh-Dye Lee MD, MPH[6], Jean-Pierre Michel MD[7], Tetsushi Nogami MD[8], Nanhai Peng BSc[9]

[1]*Fujita Health University School of Medicine, Department of Surgery & Palliative Medicine, Toyoake, Japan*
[2]*National Center for Geriatrics and Gerontology, Center for Gerontology and Social Science, Obu, Japan*
[3]*Abbott Nutrition, Research and Development, Singapore*
[4]*Nagoya University Graduate School of Medicine, Department of Community Healthcare & Geriatrics, Nagoya, Japan*
[5]*Hyogo College of Medicine, Department of Emergency, Disaster and Critical Care Medicine, Nishinomiya, Japan*
[6]*National Taipei University of Nursing and Health Sciences, Graduate Institute of Long-Term Care; National Taiwan University Hospital (Bei-Hu), Department of Community and Family Medicine, Taipei, Taiwan*
[7]*Geneva Medical University, Honorary in Department of Medicine, Geneva, Switzerland*
[8]*Kumamoto Daiichi Hospital, Diabetes and Endocrinology, Kumamoto, Japan*
[9]*Jinling Hospital, Research Institute of General Surgery, Jinling, China*

Malnutrition is common in Asia, especially among people who are critically ill and/or older. Study results from China, Japan, and Taiwan show that malnutrition or risk of malnutrition is found in up to 30% of community-dwelling people and as much as 50% of patients admitted to hospitals—with prevalence even higher among those older than 70 years. In Asia, malnutrition takes substantial tolls on health, physical function, and wellbeing of people affected, and it adds huge financial burdens to healthcare systems. Attention to nutrition, including protein intake, can help prevent or delay disease- and age-related disabilities and can speed recovery from illness or surgery. Despite compelling evidence and professional guidelines on appropriate nutrition care in hospital and community settings, patients' malnutrition is often overlooked and under-treated in Asian healthcare, as it is worldwide. Since the problem of malnutrition continues to grow as many Asian populations become increasingly "gray", it is important to take action now. A medical education (feedM.E.) Global Study Group developed a strategy to facilitate best-practice hospital nutrition care: screen—intervene—supervene. As members of a newly formed feedM.E. Northeast Asia Study Group, we endorse this care strategy, guiding clinicians to screen each patient's nutritional status upon hospital admission or at initiation of care, intervene promptly when nutrition care is needed, and supervene or follow-up routinely with adjustment and reinforcement of nutrition care plans, including post-discharge. To encourage best-practice nutrition in Asian patient care settings, our paper includes a simple, stepwise Nutrition Care Pathway (NCP) in multiple languages.

Key Words: disease-related malnutrition, hospital, community, nutrition, oral nutritional supplements

INTRODUCTION

In Asia, patient malnutrition is disturbingly common in hospital and other healthcare settings, especially among those who are critically ill[1] and in older people with acute and chronic diseases or disabilities.[2,3] In fact, the prevalence of undernutrition or risk of undernutrition is estimated to be as high as 30% in older community-dwelling populations,[4-9] and prevalence encompasses up to 50% of patients admitted to hospitals in Asia.[10-13] Worse still, a patient's nutritional status often declines during hospitalization.[14,15] In a study conducted at three Chinese teaching hospitals, more surgical patients were malnourished at discharge than on admission (11.5% vs 9.2%; $p<0.05$).[11]

Despite compelling evidence and professional guidelines on appropriate nutrition care in hospital settings, patient nutrition is too often overlooked and under-treated in Asian healthcare,[10,16] as it is worldwide.[17-21] As a result, not all patients who are at risk for malnutrition will re-

Corresponding Author: Dr Takashi Higashiguchi, Fujita Health University Hospital, 1-98 Dengakugakubo, Kutsukake-cho, Toyoake, Aichi 470-1192, Japan.
Tel: +81-562-93-9014; Fax: +81 562 93 0051
Email: t-gucci30219@herb.ocn.ne.jp
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ceive intervention. Other patients, however, are undertreated because they are difficult to treat due to health complications; the ideal nutrition therapy is not always clear or achievable for patients with severe, chronic illnesses, the critically ill, or the very old who have multiple morbidities. In addition, inappropriate over-use of parenteral nutrition (versus enteral nutrition) in Asian hospital settings may lead to unwarranted complications,[10,22,23] as well as excessive costs.[22]

To address such gaps in nutrition care, clinicians worldwide have issued a "call to action" for increased recognition of nutrition's role in improving patient outcomes.[24-27] 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.[28] The global feedM.E initiative introduced the mantra "screen, intervene, and supervene" to cue the steps of a straightforward Nutrition Care Pathway.[28] Our nutrition care pathway represents standard of care in a systematic and straightforward way in order to facilitate use in everyday practice, from hospital admission through discharge. Evidence shows that nutrition screening is not always done routinely,[21] malnourished patients are frequently undertreated,[13,17,21] and post-discharge nutrition planning is uncommon in many parts of the world, despite evidence that it can improve post-hospital nutritional and functional status of patients.[29-31]

While problems of disease-related malnutrition are universal and global, ways to address malnutrition can vary widely from one place to another. As a result, regional initiatives of feedM.E. have recently been established in Latin America and in the Middle East.[32,33] To confirm and extend the feedM.E. Global initiative for Asia, we formed a feedM.E. Northeast Asia Study Group, which includes nutrition professionals from China, Japan, and Taiwan.

MALNUTRITION: DEFINITION AND IDENTIFICATION

To provide best-practice nutrition care in today's healthcare settings, it is valuable to understand the concept of disease-related malnutrition. Specifically, patients with disease-related malnutrition experience nutrition shortfall because of decreased appetite and increased metabolic needs.[34] Chronic disease-related malnutrition is defined as undernutrition associated with a chronic condition that imposes sustained inflammation of a mild-to-moderate degree, e.g., kidney disease, cancer, or heart failure;[34,35] such malnutrition can occur even among patients who are overweight or obese.[36] Acute disease-related malnutrition is undernutrition associated with a condition that elicits marked inflammatory responses, e.g., severe infection.[35,37] Disease-related malnutrition is often accompanied by sarcopenia (loss of muscle mass, and low strength or performance), which is attributed to a combination of low dietary intake (low total calories, and especially low protein and vitamin D), disease-associated inflammation, and de-conditioning due to inactivity during hospitalization.[38-40]

Because illness or injury increases risk for malnutrition, tools have been developed to screen for nutritional risk and assess the nutritional status of patients admitted to hospitals and other healthcare settings. Table 1 lists tools that have been used for nutrition assessment of Asian patients.

DISEASE-RELATED MALNUTRITION IN ASIAN HOSPITAL AND COMMUNITY SETTINGS

Disease-related malnutrition has a high prevalence in hospitals of both emerging and industrialized nations around the world. In many countries, this prevalence remains as high now as it was a decade ago.[47,50-52] In Asia, few surveys of patients' nutritional status in hospitals were even undertaken a decade ago, but more studies have since been completed (Table 2). In one early survey (2005-2006) of hospitalized patients in 13 Chinese cities, 35.5% were at risk of malnutrition, and 12.0% were actually undernourished (Nutrition Risk Screen 2002 criteria [NRS-2002]).[53] Another 2005 Chinese study found more than one-third of hospitalized elderly patient were malnourished or at risk (Chinese Nutritional Screening tool).[54] A 2006 study of older people with disabilities living in the Japanese community found more than 50% at risk of malnutrition.[55]

Table 1. Nutrition screening and assessment tools that are used in Asia

Tool		Description
MST[41]	Malnutrition Risk Tool	Simple, validated tool developed for screening patients in inpatient care centers
MNA[42,43]	Mini-Nutrition Assessment	Used for screening and assessment of older people in multiple healthcare settings; available as long- and short-form (SF) versions; cut-off points adapted for China[44] and Japan[45]
MRST-H[46]	Malnutrition Risk Screening Tool–Hospital	Developed in Malaysia and validated for use in elderly hospitalized patients
NRS-2002[47]	2002 Nutrition Risk Screening Tool	Widely used for screening and assessment in hospital settings around the world
GNRI[48]	Geriatric Nutritional Risk Index	Determines risk of nutrition-related morbidity and mortality in elderly hospitalized patients based on measures of serum albumin and actual weight (compared to ideal weight)
SGA[49]	Subjective Global Assessment	The gold standard nutrition assessment method using medical history and physical exam; often preferred for Asian populations because it does not rely on (BMI) mass index cutoffs usually established for non-Asian body statures

Table 2. Prevalence of disease-related malnutrition in Asian healthcare settings and in the community†

Study	Description	Results
China		
Liang 2009[11]	Assessment of adults (aged 18-80; n=1,500) entering Beijing hospitals. Nutritional risk was determined using NRS 2002.	Risk of malnutrition increased from 27.3% to 31.9% and undernutrition increased from 9.2% to 11.7% during hospital stays.
Ji 2012[57]	Assessment of the elderly (aged >90; n=630) in Chinese retirement communities. Nutritional status was determined using the MNA-SF.	Malnutrition prevalence was 5.7%, with 70% at risk of malnutrition.
Zhang 2013[13]	Assessment of adult inpatients in Jinling hospital as part of nutritionDay 2010 survey. Malnutrition was objectively defined as Body mass index (BMI) <20 or unintentional weight loss >5% in the past 3 months	Malnutrition prevalence was 42.5%.
Fang 2013[10]	Assessment of adults (average age 56; n=2,550) in Chinese hospitals. Nutritional risk was determined using NRS 2002.	Undernutrition prevalence was 17.8%, with 41.5% at risk of undernutrition. Just 48% of those at-risk received support.
Yu 2013[16]	Assessment of ill adults (aged 18-69) and ill elderly (aged ≥70; n=687), suffering from cancer and hospitalized. Nutritional risk was determined using NRS 2002.	Prevalence of nutritional risk was significantly higher among the elderly than younger adults. Prevalence of nutritional risk increased significantly in all patients 2 weeks after admission. Just 46.7% of at-risk individuals received support.
Japan		
Izawa 2006[55]	Assessment of the community-dwelling elderly using daycare centers (average age 82; n=281). Nutritional status was determined using the MNA.	39.9% of subjects were nutritionally normal, while 51.2% were at-risk and 8.9% were malnourished.
Kaneko 2015[96]	Assessment of ill elderly (aged ≥75; n=438), suffering from heart failure and admitted to hospital in Japan. Nutritional risk was determined using the GNRI.	22% of elderly patients admitted for heart failure were at-risk nutritionally.
Taiwan		
Tsai 2008[56]	Assessment of the elderly (aged ≥65; n=2,890) in the community. Nutritional status was determined using the MNA.	13.1% of subjects were found to be at-risk nutritionally. 1.7% of elderly males and 2.4% of elderly females were malnourished.

NRS 2002: Nutrition Risk Screening Tool 2002; MNA-SF: Mini-Nutrition Assessment-Short Form; BMI: body mass index; MNA: Mini-Nutrition Assessment; GNRI: Geriatric Nutritional Risk Index.
†Studies were identified by a PubMed literature search using keywords malnutrition, prevalence, hospital, community, China, Japan, and Taiwan in various combinations.

More recently, 42.5% of adults in a Chinese hospital were found to be malnourished (body mass index [BMI] <20 or unintentional weight loss >5% of body weight in past 3 months), while 90% of hospitalised gastrointestinal cancer patients were found to be malnourished (Subjective Global Assessment [SGA] criteria).[1,13] Yet another survey of cancer patients in China reported that 58.0% of older people (>70 years) were at nutritional risk compared with 38.7% of adults who were younger (NRS-2002).[16] In Japan, 20% to 50% patients were undernourished or at risk; the prevalence was highest among older people with underlying diseases or disabilities (using the Geriatric Nutritional Risk Index [GNRI] and Mini-Nutritional Assessment [MNA] tools, respectively).[9,55] In older people, a high proportion of those living in the Taiwanese community were found to be at nutritional risk (MNA).[56]

Taken together, these findings show that the prevalence of malnutrition or its risk can vary greatly according to the defining criteria used, the population studied (old versus young), the severity of the underlying illness, and the study site (hospital, retirement home, or community). Nevertheless, the prevalence of disease-related malnutrition remains high today, and there is much room for improvement of nutrition care in Asia, especially for older people.

HEALTH TOLLS AND FINANCIAL COSTS OF MALNUTRITION

Not only is disease-related malnutrition a widespread and ubiquitous problem among people who are hospitalized, it is also a problem that takes high health tolls on those who are affected. Results of numerous clinical studies show that malnourished patients are at a distinctly higher risk for in-hospital complications such as pressure ulcers, infections, and falls compared with patients who are not malnourished.[28] Further, poor nutritional status during and after hospitalization can slow or prevent full functional recovery, and can lower the likelihood of survival.[58-63] Studies conducted in Asian countries reflect such international trends. Asian study results reveal that the presence of malnutrition increases risk for developing pressure ulcers[64] and hospital-acquired infections,[65,66] raises risk of falling,[67] and increases the likelihood of death (Table 3).[68,69]

Likewise, the financial burdens of malnutrition are high in Asia, as well as worldwide.[59,72-76] A large burden-of-disease study of China used data from the World Health Organization, the China Health and Nutrition Survey, and the medical literature; undernutrition was identified in children, adults, and the elderly on the basis of low BMI, anemia, and low serum albumin levels.[68] Costs were reported as financial burden to the healthcare system

Table 3. Health tolls of malnutrition in healthcare settings: morbidity and mortality†

Study	Description	Results
China		
Linthicum 2014[68]	Analysis of data from WHO and the China Health and Nutrition Survey. Children, adults and the elderly of all ages were assessed for nutritional status based upon BMI, anemia and serum albumin levels.	For patients suffering any one of 15 selected diseases, disease-associated malnutrition was found to be responsible for 400,625 deaths annually.
Japan		
Iizaka 2010[64]	Assessment of the elderly (aged ≥65; n=746). Nutritional status was determined by measurements of BMI, serum albumin, hemoglobin, weight loss, edema, and/or energy intake.	Malnutrition significantly increased risk of developing a home-acquired pressure ulcer and was correlated with the severity of the ulcer.
Miyata 2013[69]	Assessment of ill adults (mean age 65; n=57). The nutritional status of patients being treated for tuberculosis was determined using MUST.	Malnutrition was significantly correlated with mortality in patients suffering TB: median survival was 481 days for patients with normal nutritional status and 304 days for those considered malnourished.
Shinkawa 2013[66]	Assessment of the ill elderly (mean age 66; n=64). Nutritional status was determined using the NRI and NRS 2002.	Malnutrition was significantly correlated with development of surgical site infection after pancreatico-duodenectomy.
Taiwan		
Lee 2012[70]	Assessment of the elderly (aged ≥65; n=2,948). Nutritional status was determined using the MNA-LF and -SF, with authors recommending use of the LF (full-MNA).	Malnutrition was significantly correlated with likelihood of being dependent (54.5% of malnourished, 18.3% of nutritionally at-risk and 2.1% of nutritionally normal individuals were dependent.)
Huang 2014[71]	Assessment of ill, hospitalized adults (aged 18-65; n=86). Patients undergoing appendectomy were assessed for nutritional status using the PG-SGA.	67% of malnourished patients and just 27% of well-nourished patients experienced post-surgical complications. Nutritional status is significantly correlated to length of hospital stay following an appendectomy.
Tsai 2014[67]	Assessment of the elderly (aged ≥53) (n=3,118). Nutritional status was determined using the MNA-SF.	Older adults at risk of malnutrition had a 40% increased risk of falling (within 3 years) compared to those with normal nutritional status.

WHO: World Health Organization; BMI: Body Mass Index; MUST: Malnutrition Universal Screening Tool; TB: tuberculosis; NRI: Nutritional Risk Index; NRS 2002: Nutrition Risk Screening Tool 2002; MNA-LF or –SF: Mini-Nutrition Assessment-Long Form (full) or -Short Form; PG-SGA: Patient Generated-Subjective Global Assessment.
†Studies were identified by a PubMed literature search using keywords nutrition, assessment, hospital, morbidity, mortality, China, Japan, and Taiwan in various combinations.

and loss of both quality and length of life. Increased morbidity and mortality due to disease-related malnutrition cost the Chinese society more than $66 billion annually and a total of 6.1 million disability-adjusted life years (DALYs).[68] In addition, results of several Asian studies showed that the presence of malnutrition limited or slowed functional recovery, which is in turn expected to increase healthcare costs.[70,77,78]

As few nutrition-related health economics and outcomes research studies have yet been conducted in Asia, future research is needed to measure the costs of malnutrition in terms of added healthcare expenses due to excess in-hospital complications (pressure ulcers, infections, falls), increased length of stay, and higher rates of hospital readmissions.

NUTRITION INTERVENTIONS CAN IMPROVE PATIENT HEALTH OUTCOMES

Nutrition interventions—food fortification or oral nutritional supplements (ONS), tube-fed enteral nutrition, and parenteral nutrition—are recognized to have significant clinical and economic benefits across patient groups and in different settings. Around the world, nutrition interventions were associated with fewer in-hospital complications,[79] reduced pressure ulcer incidence,[80] achievement of higher functional status in recovery,[79] improved well-being,[81,82] and reduced risk of mortality.[83]

Similarly, results of studies in China,[23,84,85] Japan,[86] and Taiwan[30,77] have shown improved outcomes in patients who received nutritional interventions compared with those who did not (Table 4). Specifically, nutrition support as part of the overall care plan resulted in fewer in-hospital complications,[23,84] fewer pressure ulcers,[86] less need for antibiotics during hospitalization,[86] and improved functional recovery, including the ability to walk after hip fracture.[30,77]

BARRIERS TO CHANGE OF NUTRITION PRACTICE

As discussed, patients with poor nutritional status are susceptible to disease progression and complications, and their recovery from illness or injury is often prolonged. While there is considerable evidence of the benefits of nutrition care in hospitals and other healthcare settings, malnutrition often goes unrecognized and is undertreated—in Asian healthcare[10,16] and worldwide.[17,18,20,21] Compared with other types of care, nutrition care is relatively inexpensive. So what are the barriers to use of

Table 4. Impact of nutritional interventions on patient health outcomes

Study	Description	Results
China		
Jie 2010[23]	Assessment of ill, hospitalized adults (aged 18-80) (n=1,831) with nutritional risk in both China and USA (Baltimore, MD). Nutritional status was determined using the NRS 2002.	Of patients with nutritional risk, significantly fewer of those who received enteral or parenteral nutritional support suffered complications than of those who did not (20.3% vs 28.1%).
Jie 2012[84]	Assessment of hospitalized surgical adults (aged 18-80) (n=512) with nutritional risk. Nutritional status was determined using the NRS 2002.	Of malnourished patients scheduled to undergo abdominal surgery, those who received enteral or parenteral nutritional support before surgery suffered significantly fewer postoperative complications than those who did not (25.6% vs 50.6%) and had shorter (by approx. 2.5 days) durations of hospitalization.
Pan 2013[85]	Assessment of ill, hospitalized adults (age >18, average age 55) (n=2,248). Nutritional risk was determined using the NRS 2002 and nutritional status was determined by measuring BMI and serum albumin.	Of malnourished patients admitted to hospitals, those who received enteral or parenteral nutritional support were less likely to suffer adverse events than those who did not (25.6% down from 29.1% in patients with non-GI-related conditions and 9.8% down from 12.6% in patients with GI-related conditions).
Japan		
Amano 2015[86]	Assessment of terminally ill patients (n=63) who either did or did not receive nutritional support during their final days of life. Nutritional status was not explicitly measured.	Patients who received general nutritional support developed significantly fewer complications at end-of-life, including pressure ulcers, (14% down from 46%), edema (36% down from 54%) and need for antibiotics (14% down from 27%).
Taiwan		
Li 2013[77]	Assessment of the hospitalized elderly (aged ≥60) (n=162). Patients suffering hip fracture were assessed for nutritional status using the MNA and randomized into experimental (nutritional support intervention-receiving) and control groups.	The majority (about two-thirds) of older patients who suffered a hip fracture were malnourished. Malnourished patients receiving adequate protein and energy intake had greater improvements in daily living and recovery of walking ability than those who did not receive intervention.
Liu 2014[30]	Assessment of elderly patients suffering hip fracture (aged ≥60) (n=227). Nutritional status was determined using the MNA.	Malnourished patients suffering hip fracture whose comprehensive care model included a nutritional component were 1.67 times more likely to recover nutritional status and, subsequently, experience improved recovery of function than those whose care model lacked nutritional support.

MD: Maryland; NRS 2002: Nutrition Risk Screening Tool 2002; BMI: body mass index; GI: gastrointestinal; MNA: Mini-Nutrition Assessment.

nutrition support? Limited hospital resources have been reported as key barriers to best-practice nutrition care. Reports indicate that "too little time" and "not enough money" are reasons commonly cited as constraints to staff training on how to recognize and treat malnutrition.[87,88]

NUTRITION CARE PATHWAY

The Global feedM.E Study Group first introduced the mantra "screen, intervene, and supervene" to cue the steps of a straightforward Nutrition Care Pathway (NCP; Figure 1).[28] This NCP guides clinicians to screen patients' nutritional status on hospital admission or at initiation of care, to intervene promptly with individualized nutrition care when needed, and to supervene or follow-up routinely with adjustment and reinforcement of nutrition care plans.[28] The Pathway combines two key concepts: using a screening tool to identify nutritional risk, then applying clinical judgment to evaluate the likelihood of malnutrition risk based on the degree of inflammation associated with the patient's illness or injury. To facilitate nutrition care in China, the Nutrition Care Pathway has also been translated into Mandarin (Simplified; Figure 2), and the mantra as screen 筛查, intervene 干预, supervene 延续. For use in Taiwan, we provide a translation to Mandarin (Traditional, Figure 3) with screen 篩檢, intervene 介入, and supervene 处理. Likewise, a version of the NCP is available in Japanese (Figure 4) with screen ｽｸﾘｰﾆﾝｸﾞ, intervene 介入, supervene 適宜修正.

SCREEN

Screening patients for malnutrition on admission to the hospital must be standard care. As members of the feed M.E. Northeast Asia Study Group, we advise that routine nutrition screening is likewise appropriate in all healthcare settings (medical, surgical, rehabilitation, and long-term care), as well as in community settings. To determine nutritional risk, the NCP guides screening with (1) the two Malnutrition Screening Tool (MST) questions[41,89] and with (2) a quick clinical decision about whether the patient's age, illness, or injury carries risk for malnutrition.[34]

In Asia and elsewhere in the world, admitting nurses are often the first contacts for patients, so we suggest that nurses conduct the initial screen for nutritional risk. If risk is found, we advise immediate intervention with

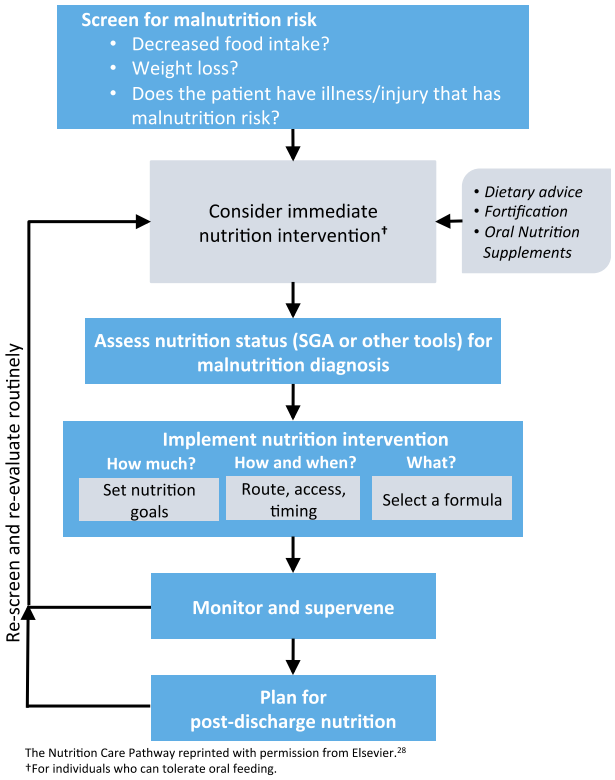


Figure 1. Nutrition Care Pathway.

nutrition advice, an increase in the quantity or protein density of food, and/or use of protein-containing oral nutritional supplements. With recognition of nutritional risk, particularly when the patient is unable to take food orally, refer the patient to a trained clinician (dietitian, nutrition specialist) for further assessment and specific treatment.

INTERVENE

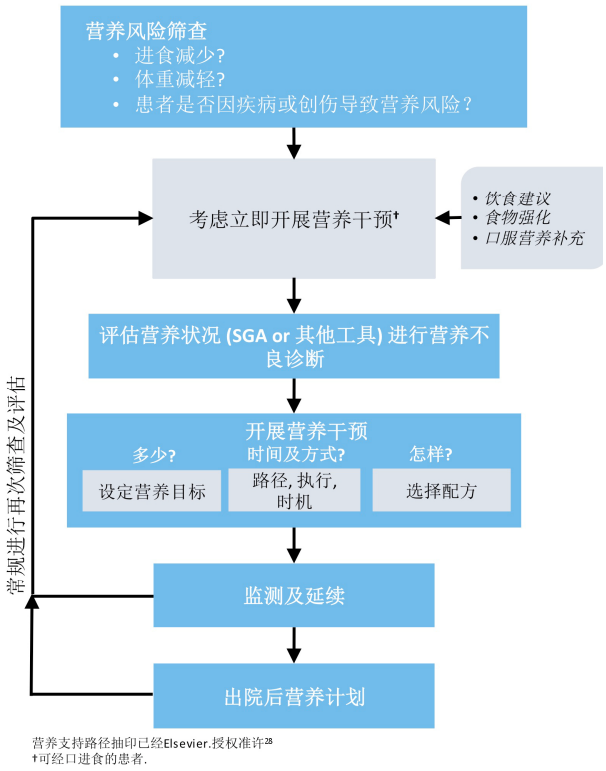
The intervention part of the Nutrition Care Pathway includes full assessment of nutritional status by a nutrition-trained professional, with diagnosis of malnutrition and implementation of treatment, as needed. For nutrition assessment, the SGA is widely used for most adults,[49] while the MNA is commonly used for older people;[42] other tools are available, as discussed previously (Table 1). To facilitate malnutrition diagnosis and help standardize malnutrition care, experts from the American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) and the Academy of Nutrition and Dietetics (AND) defined specific criteria for malnutrition diagnosis.[90] The newest diagnosis guidelines from Europe suggest basing a malnutrition diagnosis on either a low BMI (<18.5 kg/m^2), or on the combined finding of weight loss together with either reduced BMI (age-specific) or a low fat-free mass index (using sex-specific cut-offs).[91] Guidelines recommend prompt intervention with nutrition support within 24 to 48 hours of admission.[92-95] Implementation of treatment involves decisions about how much to feed, how and when to feed, and what to feed, as reviewed in detail for the feedM.E. Global initiative.[28]

SUPERVENE

The next step of the Nutrition Care Pathway is to supervene, i.e., plan for and follow-up with continuing attention to meeting nutrition needs. An effective nutrition plan considers multiple aspects of care.[95] 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, and modified as needed to meet personal and cultural preferences.[19] Individuals who receive nutrition therapy must be monitored regularly to ensure feeding tolerance and adequate supplies of energy with sufficient protein, vitamins, and minerals.[96,97] Following discharge from the hospital into long-term care centers or into the community, we recommend continued efforts to prevent and treat malnutrition. 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. For those patients who achieved good nutritional status, regular rescreening is recommended, especially when the patients' clinical status changes.[98,99]

NUTRITION CARE: RATIONALE FOR TAKING ACTION NOW

This paper has shown that untreated disease-related malnutrition takes a high toll on personal health and recovery, and also adds considerably to financial costs for healthcare providers and governments. The problems associated with disease-related malnutrition will especially impact older people, a population particularly vulnerable to health conditions that increase the risk of malnutrition. Thus, the problem of disease-related malnutrition is expected to grow as the world population ages in the 21st century. Estimates suggest that the proportion of older



Figuer 2. Nutrition Care Pathway (Simpified Chinese) 营养支持路径.

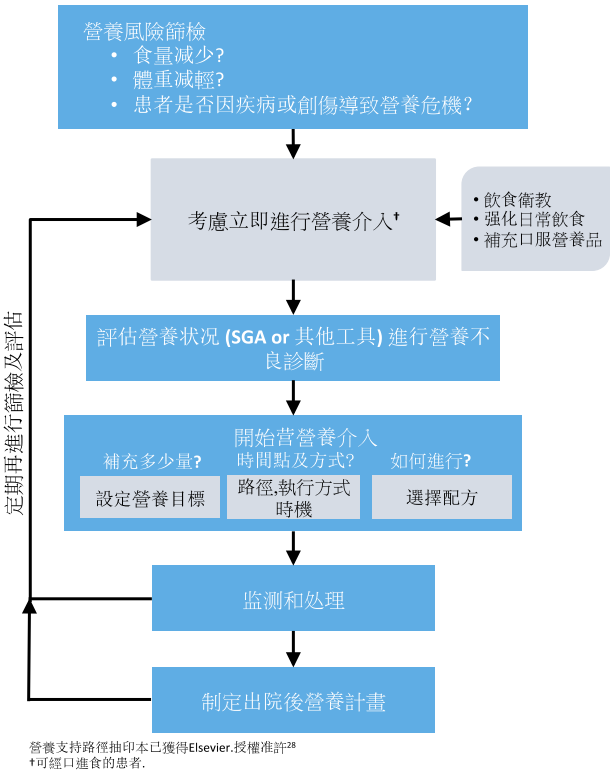


Figure 3. Nutrition Care Pathway (Traditional Chinese)營養支持路徑.

people (≥60 years) will nearly double in the next few decades—from 11.7% in 2013 to more than 20% by 2050.[100] According to the United Nations World Report on Ageing, three of the four countries with the most people aged 80 years and older are Asian (China, India, Japan).[100]

SUMMARY AND CONCLUSIONS

Malnutrition is a common and costly problem in healthcare settings throughout Northeast Asia. Nutrition intervention can improve both health and financial outcomes for patients who are malnourished or at risk for malnutrition. Despite considerable evidence of benefits for nutrition interventions and guidelines for nutrition care as an important part of overall healthcare, malnutrition is still overlooked and under-treated in many cases. Use of a Nutrition Care Pathway is a simple and efficient strategy to encourage best-practice nutrition care. With increased "graying" of Asian populations, the problem of malnutrition is expected to grow in coming years. It is therefore essential for Asian countries to take action against malnutrition in hospital settings and in the community.

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AUTHOR DISCLOSURES

These six authors have no competing interests to declare: T Higashiguchi, H Arai, J Kotani, S-D Lee, T Nogami, N Peng. LH Claytor is a full-time employee of Abbott Nutrition; the current paper is based on the clinical evidence and is not influenced by this financial relationship; M Kuzuya declares no potential conflicts of interest directly relevant to the content of this article; and J-P Michel has received honoraria from Abbott Nutrition for giving educational lectures.

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