

Malnutrition in Hospitalized Asian Seniors

SUMMARY

Many studies across the world have cited the prevalence of malnutrition and risk of malnutrition ranging from 15% to 54% in hospitalized patients.¹⁻⁷ The prevalence is particularly high among older adults and those with specified morbid conditions known to affect nutritional intake and nutritional status. Asia makes up 60% of the world's current human population. This article aims to raise clinicians' awareness of the prevalence of undernutrition among hospitalized seniors living in Asian countries. This problem will gradually contribute to significant healthcare and economic burdens in the future. It is imperative for these countries to think ahead and be prepared for the major issues that a society will have to face.⁸ A wide variety of nutrition screening and assessment tools are available to help detect patients at nutritional risk earlier. Many oral nutritional supplements are available to provide convenience, and product compliance. However, hospital malnutrition in Asia is as prevalent as it was 35 years ago.⁹ There is a need to identify a population-specific and simple nutrition screening that is validated for use in hospitalized elderly people in Asia, and mandatorily incorporate the nutrition intervention (especially oral nutrition supplements) to the clinical practice upon detection of under-nourished, hospitalized elderly people.

Undernutrition is included in malnutrition, but for purposes of this article and for consistency, undernutrition is collectively referred to as malnutrition.

SCIENTIST BIOGRAPHY



Camilla Chern joined Abbott Nutrition R&D in 2008 as the Medical Manager and is currently a brand management scientist within the Scientific and Medical Affairs department. She oversees Ensure (without HMB) in LA, EU and EMEA. Her responsibility is to act as a brand advocate through leading projects/activities and collaboration with internal colleagues by providing scientific leadership and direction on disease state/nutrition areas to ensure proper and adequate support to product indications and claims. Camilla interfaces with internal and external customer groups through education, training, presentations, and messaging.

Camilla Chern has over two decades of business experiences in Abbott Taiwan and Pacific Asia market. She is effective in communication with physicians and clinical dietitians. She fully utilized her expertise to launch adult TNT (Total Nutrition Therapy) program in 1999, and upgrade Taiwan clinical practice successfully. She earned her BS in nutrition and food science from Fu Jen Catholic University in Taiwan. She completed her dietetics internship at Tri Service General Hospital and Mackay Memorial Hospital in Taipei.

THE CURRENT ISSUE

World population statistics 2013 show that Asia is the world's largest and most populous continent with a population of 4.3 billion people.¹⁰ Asia makes up 60% of the world's current human population. The continued growth of Asian populations will ultimately place increasing pressure on the region's natural and economic resources. Aging is one of the key factors associated with the prevalence of hospital malnutrition. Chen reported in the Urban Aging Forum that Korea introduced its public Long-Term Care Insurance at the elderly population rate of just 10%, and found this level of the elderly population had

already consumed up to 30% of its public healthcare budget.⁸ Understanding the causes of malnutrition (especially undernutrition) is essential to develop appropriate strategies for nutritional interventions.

UNDERNUTRITION IN HOSPITAL SETTINGS

Malnutrition is a widespread condition that impacts millions of people across the world each year. In the Consensus Statement of Academy of Nutrition and Dietetics (AND) and American Society for parenteral and Enteral Nutrition (ASPEN), malnutrition is mostly defined as any nutrition imbalance.¹¹ For the purpose of this discussion, the term adult malnutrition will be synonymous with adult undernutrition.

McWhirter et al classified undernutrition level by body mass index (BMI) and triceps skinfold thickness or mid-arm muscle circumference in Table 1.¹²

Table 1. Undernutrition Classification¹²

Malnutrition	Mild	Moderate	Severe
BMI (kg/m²)	<20	<18	<16
Percentile of triceps skinfold thickness or mid-arm muscle circumference	15th	<5th	<5th

Note: Unintentional weight loss before illness of more than 10% in the six months before admission was considered as additional evidence of undernutrition.

PREVALENCE OF UNDERNUTRITION IN SOME ASIAN HOSPITALS

Undernutrition is common among hospitalized patients even in a well-developed country like the United States, and its coded prevalence is increasing.¹³ The prevalence varies depending on a number of factors, including patients' diagnoses, age, nutrition parameters, and the screening and assessment tools used. Table 2 outlines the prevalence in hospitalized elderly people in Asia according to country and setting in some examples of studies reported from 2005.¹⁴

Table 2. Prevalence of undernutrition in Asian counties

Country	Author	Study population	Sample size	Healthy setting	Undernutrition Prevalence %	Findings
China	Lei et al ¹⁵	>60 yrs of age	184	Hospital	72.8	MNA: 53.2% at risk, 19.6% malnourished
	Shum et al ¹⁶	≥60 yrs of age	120	Convalescent & Rehabilitation hospital-Geriatric wards	16.7	BMI <18.5, and albumin level of < 35g/l as Undernutrition
	Woo et al ¹⁷	≥65 yrs of age	867	Hospitals & nursing homes	36	Chinese Nutrition Screening (CNS): 25.8% at risk, 10.1% undernourished
Vietnam	Pham et al ¹⁸	Surgical patients, not specified age	438	Hospital admission	<ul style="list-style-type: none"> • 55.7% • 77.7% 	SGA <ul style="list-style-type: none"> • Total patient group: (28.8% moderate + 26.9% severe) • Major Surgery group: (35.4% moderate + 42.3% severe)
India	Karmakar et al ¹⁹	>60 yrs of age	76	Hospital	<ul style="list-style-type: none"> • 27.6 • 42.1 	<ul style="list-style-type: none"> • BMI (Body Mass Index) undernourished < 18.5 kg/m² • IBW (Ideal body Weight) Undernourished < 85%

Based on the studies conducted in Asia, among hospitalized elderly people from 2005-2012, the prevalence of undernutrition is between 28-52%, which was similar to the range (29-61%) as reported by a study done in the United Kingdom,²⁰ and Stratton's research found that malnutrition was common in 58% of hospitalized patients.²¹ The prevalence shows a level of consistency regardless of the geographic and health care setting. Undernutrition should not be an inevitable side effect of aging. Multiple nutritional screening tools have been developed to detect patients who are nutritionally at risk in order to implement early intervention. For the effective management of under-nourished hospitalized patients, early identification as well as early nutritional intervention is essential from the beginning.

TOOLS FOR NUTRITION SCREENING AND ASSESSMENT

Screening tools such as the Malnutrition Screening Tool (MST), the DETERMINE Check List, the Malnutrition Universal Screening Tool (MUST), and the Nutrition Risk Index (NRI) can quickly flag high-risk patients for further assessment. MUST has proven validity in the elderly hospitalized population, including those patients who cannot be weighed.²⁰ Thorough assessments can be completed efficiently by using tools such as the Subjective Global Assessment (SGA), and the results can help to design appropriate nutrition intervention plans. Assessment tools such as the SGA provide a more complete picture of nutritional status beyond biochemical or anthropometric markers alone, both of which can be affected by factors other than nutrition.

There are at least 21 different nutrition screening and assessment tools for use with older adults; however, most have varying degrees of validity and reliability.²² The Mini Nutritional Assessment (MNA)



and MNA–Short Form (MNA-SF) have been used in older adults.²³⁻²⁵ However, the cutoff point of the MNA should be modulated for Chinese population.¹⁵

When screening elderly acute medical patients in general wards, a BMI < 23 kg/m² may be effective to identify patients with malnutrition or at risk of malnutrition, but it sheds no light on the cause(s), such loss of appetite, inability to feed oneself, medical condition, or medications.²⁶ The DETERMINE checklist, developed by the Nutrition Screening Initiative to assess nutrition risk in older adults,²⁷⁻²⁸ has established validity,²² but has a high positive screen rate, meaning that the tool may over-identify individuals at risk.²⁹

ORAL NUTRITIONAL SUPPLEMENT (ONS) IN OLDER PATIENTS HELPS TO IMPROVE CLINICAL OUTCOMES AND IS COST EFFECTIVE

ONS or “sip-feeds” are usually provided first to those with functional GI tracts to help improve nutritional intake and reduce complications. . Stratton and Elia conducted a systematic review and meta-analysis of five randomized controlled trials of 1,224 older adult patients that showed that the inclusion of 250-500 kcal of ONS daily for 2-26 weeks was associated with a 25% risk reduction in the risk of pressure ulcer development in elderly patients at nutritional risk, compared to standard of care.³⁰

Stratton and Elia reviewed more than 80 studies were reviewed on the use of ONS among patients with varied medical conditions.³¹ The results showed that supplementation typically had a positive effect on functioning, i.e. improved muscle strength, walking distance and well-being in patients with chronic obstructive pulmonary disease. Additional results were the reduction of falls and increased ability to perform activities of daily living in older adults.³¹ Beattie et al followed 101 hospitalized patients for 10 weeks that had received oral nutritional supplementation after surgery, instead of the standard post-operative care, and found that the treatment group had significantly improved nutritional status and quality of life measures.³²

Emerging evidence shows that ONS are associated with fewer complications and lower health care costs.¹⁹ Many studies have found a direct relation between the degree of malnutrition (undernutrition) and increased length of stay, treatment costs, return to usual life,³³⁻³⁴ and decreased readmission hospital rates.³⁵ Milne et al reviewed 62 randomized and quasi-randomized controlled trials of oral protein and energy supplementation in older people, excluding those recovering from cancer treatment or in critical care.³⁶ They concluded that with the 10,187 randomized participants, supplementation produces a small but consistent weight gain in older people, and mortality may be reduced in older people who are undernourished. ONS are associated with decreased healthcare resources used.³⁷ In a recent retrospective study, Philipson et al. ONS provided during hospitalization was associated with:³⁷

- 21.6% reduction in hospitalization costs
- 21% decrease in length of hospital stay
- 6.7% decline in probability of 30-day readmission

CONCLUSION

- **A vast amount of research reveals the high prevalence and poor outcomes of hospital undernutrition.** Research also indicates that these poor clinical outcomes and increased costs can be minimized or avoided by appropriate nutrition interventions. Health care professionals are aware of the substantial increase of health care costs and resource utilization and explored strategies to reduce the economic cost of malnutrition.
- **The key to effective treatment is to identify the risk as early as possible.** Screen patients for malnutrition upon hospital admission, and assess those identified to be at risk, intervene with appropriate nutrition in those who can benefit, and monitor their progress in order to make necessary appropriate changes to the nutritional intervention – all of these are necessary steps to prevent undernutrition from taking place.³⁸ The summary of Urban Aging Forum reported that, Asia will lead the world in demographic aging, and East Asian countries such as Japan, Korea, and Taiwan are on the forefront of the trend. It is imperative for these Asian countries to think ahead and be prepared for the major health care issues that an aged society will have to face.⁸
- Since there currently is no systematic approach in place to collect malnutrition screening data across the countries in Asia, there is a need to identify the screening tool with regional consensus validity. Early identification of elderly hospitalized patients at risk of undernutrition, and provision of ONS to improve nutritional status may be a tangible solution in the current medical system in Asia for cost effectiveness and improve patient outcomes.

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