

Review Article

Expert Consensus on Preventative and Therapeutic Approaches to Pediatric Growth for Children With or At-Risk of Malnutrition in the Asia Pacific

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INTRODUCTION

Malnutrition encompasses both undernutrition and overnutrition, presenting diverse challenges in healthcare systems worldwide.¹ Despite advances in nutritional science and public health initiatives, malnutrition persists as a multifaceted issue affecting vulnerable populations disproportionately. This article explores the current state of malnutrition, identifying critical gaps that hinder effective management and prevention efforts.²

In the Asia Pacific region, 350.6 million children suffer from undernourishment, constituting half (51%) of the global total of 687.8 million children affected. The consequences of undernutrition are complex, leading to stunting and wasting, presenting significant challenges to the region.³

Additionally, undernourished children face a higher risk of developing diet-related non-communicable diseases later in life, such as cardiovascular diseases, diabetes, chronic respiratory diseases, and cancer. Poor child growth impacts not only individual health but also a country's human and economic development.³

Despite progress in addressing malnutrition, the strides made are insufficient to meet the ambitious global nutrition targets for 2025. A robust and cohesive nutrition action plan, underpinned by a comprehensive framework for accountability, is imperative to make a meaningful impact, especially in the Asia Pacific region. Preventing stunting and addressing micronutrient deficiencies should be prioritized through increasing awareness, advocacy, policy initiatives, program development and implementation, clinical interventions, and research agendas.^{2,4}

The Asian Working Group on Pediatric Nutrition (AWGPN) was formed to gather key opinion leaders in pediatric nutrition in Pacific Asia. This group developed 18 consensus statements to guide healthcare professionals, hospital

administrators, community leaders, and policymakers in addressing childhood nutrition issues. These statements bridge the gap between published guidelines and current routine practice in pediatric nutrition, providing valuable insights and recommendations to enhance nutritional screening and intervention efforts in the region.

METHODS

Key opinion leaders with substantial experience and expertise in clinical pediatric nutrition and the implementation of related programs and policies were convened for a series of three advisory board meetings. Conducted virtually across Asia, these meetings aimed to develop comprehensive recommendations addressing various levels of intervention, including clinical, hospital, community, and national policy levels.

Utilizing an modified Delphi technique, the process began with electronically distributed pre-work survey questionnaires prior to each of the first two meetings. The survey results were discussed in the meetings, followed by a virtual voting process during the final meeting to achieve a convergence of opinions. The initial survey and discussions led to the identification of four distinct domains. These areas were further explored in terms of the current state of knowledge, key gaps, and recommendations to address these gaps during the second meeting.

Based on the discussions from the first two meetings, consensus statements were drafted and presented for a virtual vote in the third meeting. Panel members cast their votes as 'Agree' or 'Disagree,' with the results recorded manually and additional comments captured virtually.

RESULTS

Table 1. Glossary of Key Terms and Definitions

Normal Growth	Children who are growing and developing normally will be on or between –1 and 1 z scores of a given indicator ⁵
Malnutrition	An acute, subacute or chronic state of nutrition, encompassing overnutrition or undernutrition with or without inflammatory activity and have led to a change in body composition and diminished function. ¹
At-risk children	Children should be considered at nutrition risk if they have any of the following ¹ : • A child's growth line crosses a z-score line. (z-score lines that fall between -1 and -2; or between 1 and 2)⁵ • A sharp incline or decline in the child's growth line. • The child's growth line remains flat (stagnant); i.e. there is no gain in weight or length/height. • Increased metabolic requirements. • Impaired ability to ingest or tolerate oral feedings. • Documented inadequate provision of or tolerance of nutrients.

	• A fall in weight for age z-score of ≥ 1.0 (faltering growth).⁶
Stunting	Height-for-age z-score value less than negative 2 standard deviations from the median height of the reference population, resulting from chronic or recurrent undernutrition. ^{5,7}
Wasting	Weight-for-length/height z-score value less than negative 2 standard deviations from the median weight of the reference population. ⁵
Obesity	Weight-for-length/height z-score or BMI-for-age value above 3 standard deviations from the median values of the reference population. ⁸
Hidden Hunger	Micronutrient (vitamin & mineral) deficiencies ⁴
Oral nutrition supplements	Sterile liquids, semi-solids, or powders that often contain macronutrients (protein and/or energy) and micronutrients (vitamins and minerals) at varying levels of concentrations ⁹ designed to provide additional nutrients, including protein and energy (more than 0.9 kcal / ml) for people who are not meeting their nutrition needs through food alone. ¹⁰

We recommend the following consensus statements to address nutrition management gaps among nutritionally at-risk children in the Asia Pacific:

Table 2. Executive summary of recommendations

Domain	Consensus Statements
Importance of Addressing Malnutrition	Statement 1: Malnutrition must be addressed because it can impact cognitive development, overall health, and future productivity.
	Statement 2: It is imperative to include nutrition education in school curriculum beginning at early formative education as part of holistic approach to healthcare for children.
	Statement 3: Healthcare professionals must be empowered with nutrition education appropriate to their practice level, encompassing assessment of growth and nutrition, the significance of growth monitoring, and intervention strategies such as nutritional counseling for parents and caregivers, as an integral component of their training.
Nutrition Screening and Assessment	Statement 4: At the minimum, both length/height and weight must be measured and interpreted using anthropometric indices (weight-for-age, length/height-for-age) for early detection of stunting. Mid-upper arm

	circumference (MUAC) may be additionally considered based on clinical indications.
	Statement 5: Serial weight and height measurements should be plotted on a standard growth chart (weight-for-age, height-for-age) as part of every child's medical record. This should be performed at every clinic visit or hospital admission, with the following minimum recommended frequency, a. Infants (0 to 6 months) – every 4 weeks b. Children without concerns (6 months to 2 years) – every 12 weeks c. Infants (<6 months) with moderate to severe malnutrition – every 2 weeks d. Toddlers (12 to 24 months) and older children in areas without high stunting prevalence – every 8 weeks e. Length/height and weight (up to 2 years of age) in countries with high prevalence* of stunting – every 4 weeks *Based on WHO cut-off rates
	Statement 6: In addition to clinical assessment and anthropometric measurements, healthcare professionals should look for the etiology of malnutrition (such as inadequate food intake, malabsorption or conditions with increased metabolic expenditure). Inadequate food intake may be validated by dietary assessment tool, such as a 24-hour recall or dietary diversity score (DDS), depending on their clinical judgment and the nutritional screening requirements.
	Statement 7: During the 6-month visit, healthcare professionals should provide mothers with guidance on complementary feeding, as well as conduct a comprehensive evaluation of their overall dietary habit.
Nutrition Interventions	Statement 8: It is imperative that standardized nutritional guidelines be adopted at the national level to standardize the provision of nutrition care.
	Statement 9: Nutrition intervention must be individualized taking into consideration child's nutritional status and other factors that will affect acceptability and compliance.
	Statement 10: In undernourished children, catch-up growth can be achieved through nutritional interventions that provide high-quality protein and nutrient-dense foods, with caloric density adjusted according to the child's individual nutritional requirements.

	Statement 11: Oral nutrition supplements (ONS) may be considered for children where diet alone is insufficient to meet nutritional requirements. If ONS is used, it should be complete and balanced with appropriate protein: energy ratios and caloric density and fortified with micronutrients to promote catch-up growth and to prevent stunting.
	Statement 12: Children undergoing nutritional intervention should be monitored for progress and need for nutritional adjustment every 2-4 weeks until desired height and weight is achieved. Monitoring for response should be in accordance with age/ severity of the malnutrition. Infants (<6 months) with moderate to severe malnutrition - every 2 weeks a. Children >6 months – monthly or as clinically indicated
	Statement 13: It is imperative to improve implementation of the nutrition care process in hospitals and community centers. A multi-disciplinary team involving physicians, nurses, dietitians/nutritionists, and other HCPs is essential to achieve better clinical outcomes.
Nutrition Community Programs and National Policies	Statement 14: The adoption of technological solutions such as app-based programs may be considered for nutritional screening, assessment, intervention, monitoring and research.
	Statement 15: Evidence from clinical studies and health economic outcomes research, tailored to local needs, should be considered when developing clinical guidelines and nutrition policies.
	Statement 16: Pediatricians/ general physicians / nutritionist-dietitians should have a more proactive role in the development and implementation of pediatric nutrition guidelines, programs, and policies.
	Statement 17: National policies should prioritize nutrition as a basic component of health and allocate resources for the implementation of nutritional programs to improve food security, making nutritious food accessible and nutritional interventions affordable.
	Statement 18: The dissemination of nutrition guidelines and policies should occur both within hospitals and communities, targeting healthcare professionals as well as the general public. The information should be tailored to the recipients' level of comprehension, aiming to enhance awareness and knowledge about nutrition care.

DISCUSSION

Importance of Addressing Malnutrition

Statement 1: Malnutrition must be addressed because it can impact cognitive development, overall health, and future productivity.

The need for optimal nutrition and feeding practices begins as early as the preconception stage and continues through the critical life stages of pregnancy, the postpartum period, and early childhood. Even during the first five years of life, proper nutrition is essential for overall development, influencing susceptibility to diseases and promoting cognitive and physical growth.³

Globally, stunting is the most common form of malnutrition and indicates chronic malnutrition, particularly from environmental or socioeconomic circumstances.^{5,12}

It has been shown to cause long-term effects such as poor educational performance, low wages, lost productivity, and increased risk of nutrition-related chronic diseases in adulthood when accompanied by weight gain later on.¹²

Prompt identification and intervention in cases of childhood malnutrition are linked to significantly better outcomes for the child's overall physical and mental health. Early diagnosis and treatment have been shown to substantially decrease mortality rates and enhance recovery rates from severe acute malnutrition.^{12,13}

Statement 2: It is imperative to include nutrition education in school curriculum beginning at early formative education as part of holistic approach to healthcare for children.

Integrating nutrition education into the school curriculum is critical for promoting healthy dietary habits among children. Research suggests that schools have positive influence on children's nutritional outcomes. The inclusion of nutrition education in elementary schools, delivered by qualified teachers, is pivotal in enhancing children's knowledge and improving their dietary practices and subsequently, their cognitive performance. Evidence from various studies supports this notion, demonstrating that proper nutrition positively influences cognitive function and academic performance in children.^{14,15}

However, the small to medium effect sizes observed indicate that policymakers and educators must make prudent, evidence-based decisions regarding the teaching strategies employed in nutrition education programs. By adopting effective, research-supported teaching strategies, schools can ensure that their nutrition education programs have a meaningful and enduring impact on the dietary habits and overall health of elementary-aged students.^{13,15}

Statement 3: Healthcare professionals must be empowered with nutrition education appropriate to their practice level, encompassing assessment of nutrition and growth, the significance of growth monitoring, and intervention strategies such as nutritional counseling for parents and caregivers, as an integral component of their training.

Healthcare professionals, such as physicians, dietitians, nutritionists, nurses, pharmacists, and dentists, play a crucial role in patient care. Their expertise in diagnosis, management, and patient counseling is vital for initiating and maintaining continuous follow-up and promoting patient adherence to preventive and therapeutic strategies. Empowering these professionals to educate patients about nutrition can significantly enhance patient outcomes and support long-term health and wellness.¹⁶

Providing tailored nutrition education to healthcare professionals based on their practice levels enhance knowledge and understanding of childhood malnutrition. A systematic review revealed that targeted nutrition education for healthcare providers led to better identification of malnutrition, appropriate dietary interventions, and improved patient outcomes.¹⁷

Similarly, another systematic review highlighted how nutrition training for health workers can effectively improve feeding practices for children under two years of age, encompassing feeding frequency, energy intake, and dietary diversity. It is crucial to design training materials according to the local context, considering factors such as food availability, affordability, and acceptability, especially in regions with limited food access. Trained health workers can serve as reliable information resources for local families, presenting a sustainable strategy to improve the nutrition status of young children.¹⁸

Nutrition Screening and Assessment

Statement 4: At the minimum, both length/height and weight must be measured and interpreted using anthropometric indices (weight-for-age, length/height-for-age) for early detection of stunting. Mid-upper arm circumference (MUAC) may be additionally considered based on clinical indications.

Growth serves as the primary indicator of nutritional status in children. Anthropometric measures, such as weight-for-age and length/height-for-age, are traditionally assessed using percentiles relative to the population. However, while percentiles track growth trends over time, they do not quantify the extent of deviation from the norm. Therefore, z-scores (standard deviations) are recommended. Growth measurements crossing z-score thresholds may signal potential risk.⁵

For effective screening of pediatric growth and nutritional status, it is essential to utilize validated assessment tools such as the World Health Organization (WHO) z-scores. These standardized cutoffs provide reliable benchmarks for identifying children who may be experiencing malnutrition conditions like stunting, wasting, or obesity.^{5,8}

Mid-upper arm circumference (MUAC) may be considered during anthropometric assessments, particularly for patients with abnormal fluid status, such as those experiencing lower extremity edema, ascites, or undergoing steroid therapy. Research indicates that MUAC is a more sensitive prognostic indicator of mortality in malnourished pediatric patients compared to traditional weight-for-height measures.⁵

Statement 5: Serial weight and height measurements should be plotted on a standard growth chart (weight-for-age, height-for-age), preferably the WHO growth charts, as part of every child's medical record. This should be performed at every clinic visit or hospital admission, with the following minimum recommended frequency:

- a. Infants (0 to 6 months) – every 4 weeks
- b. Children without concerns (6 months to 2 years) – every 12 weeks
- c. Infants (<6 months) with moderate to severe malnutrition – every 2 weeks
- d. Toddlers (12 to 24 months) and older children in areas without high stunting prevalence – every 8 weeks
- e. Length/height and weight (up to 2 years of age) in countries with high prevalence* of stunting – every 4 weeks

*Based on WHO cut-off rates, countries with prevalence of 20 to less than 30% of stunting are labeled as high prevalence.¹⁹

Table 3. Minimum recommended frequency for weight and height measurements

Age	Low or no nutritional risk	Moderate to severe malnutrition
Early infancy (0-6 months)	4 weeks	2 weeks
Late infancy (6-12 months)	4 weeks	1-2 weeks
Toddlers (1-3 years)	8 weeks (in countries with low prevalence of stunting)	2-4 weeks (depending on clinical condition)
Countries with high stunting prevalence (0-2 years)	Monitoring of all children every 4 weeks	

Growth should be consistently monitored at regular intervals throughout childhood and adolescence. Additionally, it is essential to measure growth every time a child presents in any healthcare setting, whether for preventive, acute, or chronic care. This practice ensures early detection of growth abnormalities and timely intervention, promoting optimal health outcomes.⁵ The recommended frequency of measurements are found in Table 3.

Statement 6: In addition to clinical assessment and anthropometric measurements, doctors may utilize a validated dietary assessment tool, such as a 24-hour recall or dietary diversity score (DDS), depending on their clinical judgment and the nutritional screening requirements.

Food and nutrient intake are the primary determinants of nutritional status, making accurate assessment critical. Comprehensive nutritional assessments are essential for developing individualized care plans. A 24-hour dietary recall is recommended due to its cost-effectiveness, ease of implementation, and low respondent burden. Although ideally conducted by a dietitian or nutritionist, resource limitations in some Southeast Asian countries may necessitate that other healthcare providers, such as physicians or nurses trained in the procedure, perform the

assessment.^{5,20} Most dietary assessment tools also rely on recollection and memory retention and poses a challenge for pediatric patients, so information is gathered from a parent or primary caretaker.²¹

The study by Gina K. et al. found that DDS was a significant predictor of adequate micronutrient intake in non-breastfeeding Filipino children. DDS was determined by counting the number of distinct food groups the child consumed within a 24-hour period.²²

Statement 7: During the 6-month visit, healthcare professionals should provide mothers with guidance on complementary feeding, including appropriate food diversity (at least five food groups per day), as well as conduct a comprehensive evaluation of their overall dietary habit.

Around six months of age, an infant's energy requirements surpass what is provided by breastmilk alone, necessitating the introduction of complementary foods to meet these needs. This process is known as complementary feeding.^{23,24}

During early childhood, the incidence of stunting is particularly high due to increased nutrient demands and limitations in complementary feeding.²⁵ The World Health Organization emphasizes that complementary feeding should be timely, adequate, appropriate, and provided in sufficient quantity to support optimal growth and development.²⁶

A balanced diet should include daily consumption from at least five of the eight food groups—1) vitamin A-rich fruits and vegetables, 2) legumes and nuts, 3) grains, roots, and tubers, 4) meat and fish, 5) other fruits and vegetables, 6) egg, 7) dairy products (milk, yogurt, cheese), and 8) breastmilk—as advised by the WHO. Additionally, the frequency of meals should be appropriate for age: two to three times per day for children aged 6 to 8 months, increasing to three to four times per day for those aged 9 to 23 months, with the option of providing nutritious snacks once or twice daily as needed.^{26,27}



Figure 1. The eight food groups recommended by the WHO for daily consumption to achieve a balanced diet.^{26,27}

Nutrition Interventions

Statement 8: It is imperative that standardized nutritional guidelines be adopted at the national level to standardize the provision of nutrition care.

The adoption of standardized nutritional guidelines at the national level is crucial for ensuring uniformity in the provision of nutrition care. Standardized guidelines help align clinical practices with evidence-based recommendations, reduce variability in care, and improve patient outcomes. Studies have shown that countries implementing national nutritional guidelines, such as the World Health Organization (WHO) standards, have seen significant improvements in the management of malnutrition and other nutrition-related conditions.^{28,29} For instance, the implementation of standardized growth charts and nutritional protocols has been associated with better growth monitoring and early detection of malnutrition, leading to timely and effective interventions.⁷ National plans of actions for nutrition in the Southeast Asia largely align with inputs of food and nutrition experts, as well as organizations like the WHO, but face significant challenges in implementation.³⁰

Statement 9: Nutrition intervention must be individualized taking into consideration child's nutritional status and other factors that will affect acceptability and compliance.

Nutrition interventions must be individualized to address the unique nutritional needs and conditions of each child. Factors such as age, existing nutritional status, cultural preferences, and potential food allergies must be considered to ensure acceptability and compliance. Nutrition-specific interventions involve targeting adolescents and women before and during pregnancy, promoting optimal breastfeeding, providing complementary feeding with stimulation, dietary supplementation, treating severe acute malnutrition, and disease prevention and management. Additionally, nutrition-sensitive interventions address the underlying factors affecting fetal and child nutrition and development, including food security, maternal and household resources, access to health services, and a safe environment. This individualized approach ensures that each child receives appropriate and effective nutritional support, enhancing overall health outcomes and fostering sustainable growth and development.^{31,32}

The study suggests that the goal for catch-up growth should be to restore the child's growth trajectory, with interventions continuing until the target weight and/or height based on the WHO standard are met to ensure the child reaches their optimal growth potential.⁶

Statement 10: Composition of nutritional intervention include high-quality protein and nutrient dense foods taking into considerations caloric density adjusted based on nutritional requirements of the child.

Nutritional interventions should include high-quality proteins and nutrient-dense foods to meet the diverse nutritional needs of children. High-quality proteins are crucial for growth, tissue repair, and immune function. Nutrient-dense foods provide essential vitamins and minerals necessary for overall health and development. Adjusting the caloric density of foods based on the child's nutritional requirements and tolerance ensures that they receive adequate energy without excessive intake. Evidence suggests that diets rich in high-quality proteins and

nutrient-dense foods contribute to better growth outcomes, improved cognitive function, and reduced risk of malnutrition-related complications.^{33,34}

Statement 11: Oral nutrition supplements (ONS) may be considered for children where diet alone is insufficient to meet nutritional requirements. If ONS is used, it should be complete and balanced with appropriate protein: energy ratios and caloric density and fortified with micronutrients to promote catch-up growth and to prevent stunting.

Oral nutrition supplements (ONS) are beneficial for children whose dietary intake is insufficient to meet their nutritional needs. ONS should be formulated to be complete and balanced, providing the necessary macronutrients and micronutrients in appropriate ratios to support growth and development. Studies have demonstrated that ONS can effectively promote catch-up growth in malnourished children and prevent stunting. Supplements fortified with essential micronutrients, such as vitamins and minerals, play a critical role in addressing deficiencies and supporting overall health. The appropriate use of ONS, tailored to the child's specific needs, is a valuable tool in managing malnutrition and promoting optimal growth.³⁵⁻³⁷

Clinicians should be alert to hospitalized children at risk for disease-related growth faltering. The European Society for Paediatric Gastroenterology Hepatology and Nutrition (ESPGHAN) recommends a three-step approach: normalize intake, enrich with protein, lipid, and carbohydrate modules, and use protein-energy enriched formulas. Optimal human milk should be central to early interventions, with a focus on providing age-appropriate, nutrient-dense foods per WHO guidelines. If oral intake is insufficient, enteral feeding should be considered, monitored by a multidisciplinary team to minimize complications. Micronutrient deficiencies should also be corrected with therapeutic dosages and appropriate monitoring.⁶

Statement 12: Children undergoing nutritional intervention should be monitored for progress and need for nutritional adjustment every 2-4 weeks until desired height and weight is achieved. Monitoring for response should be in accordance with age/ severity of the malnutrition.

- a. *Infants (<6 months) with moderate to severe malnutrition - every 2 weeks*
- b. *Children >6 months – monthly or as clinically indicated*

Regular monitoring of children undergoing nutritional interventions is essential to assess progress and make necessary adjustments to their care plans. Monitoring every 2-4 weeks ensures that any changes in nutritional status are promptly identified and addressed. For infants under six months with moderate to severe malnutrition, bi-weekly monitoring is recommended due to their rapid growth and high risk of complications. Older children should be monitored monthly or as clinically indicated based on their condition. Studies have shown that frequent monitoring and timely adjustments to nutritional interventions significantly improve growth outcomes and reduce the risk of long-term malnutrition-related health issues.³⁸

Statement 13: It is imperative to improve implementation of the nutrition care process in hospitals and community centers. A multi-disciplinary team involving physicians, nurses, dietitians/nutritionists, and other HCPs is essential to achieve better clinical outcomes.

The effective implementation of the nutrition care process in hospitals and community centers requires a multi-disciplinary approach. Involving a team of healthcare professionals, including physicians, nurses, dietitians/nutritionists, and other healthcare providers, ensures comprehensive care and better clinical outcomes. A significant gap in the management of malnutrition lies in the absence of a coordinated multidisciplinary approach. Physicians frequently allocate limited time to nutrition support activities. Despite their close interactions with patients and caregivers, and their capacity to monitor nutritional intake, nurses are not consistently integrated into the nutrition care process as well. This exclusion results in missed opportunities for effective nutritional intervention. Multi-disciplinary teams can collaboratively develop and implement individualized nutrition plans, monitor progress, and make necessary adjustments. Evidence suggests that such team-based approaches lead to improved patient outcomes, enhanced adherence to nutritional recommendations, and overall better management of malnutrition and other nutrition-related conditions.³⁹

Nutrition Community Programs and National Policies

Statement 14: The adoption of technological solutions such as app-based programs may be considered for nutritional screening, assessment, intervention, monitoring and research.

The integration of technological solutions, such as app-based programs, into nutritional care offers numerous benefits, including improved accessibility, efficiency, and precision in managing nutrition. During the pandemic, limited access to government aid programs exacerbated malnutrition and stunting, highlighting the need for innovative solutions.⁴⁰ Mobile applications designed for dietary tracking and nutritional assessment have been associated with enhanced patient engagement and adherence to nutritional recommendations. Furthermore, UNICEF envisions the comprehensive use of digital tools to enhance child and adolescent health, prioritizing real-time data for service delivery, evidence-based policies, provider capacity, and community engagement.³ It is crucial that these innovative tools are integrated with standardized WHO growth standards to ensure accurate assessment and appropriate intervention.⁵ Mobile apps like the Bitesnap help in provision of proper diet and food timing⁴¹, while the Method for Extremely Rapid Observation of Nutritional Status (MERON) app detected the presence of malnutrition in children by simple facial images alone, with the use of artificial intelligence.⁴² These technologies empower health workers to report crucial data swiftly, enabling timely interventions. Data analytics guide targeted policy decisions for improved healthcare. E-learning platforms support healthcare professionals in advancing their skills and knowledge. Additionally, mobile apps engage communities in reporting health issues, fostering involvement and accountability in healthcare provision. The scalability and convenience of these technological solutions make them valuable tools in both clinical and community settings.³

Statement 15: Evidence from clinical studies and health economic outcomes research, tailored to local needs, should be considered when developing clinical guidelines and nutrition policies.

The development of clinical guidelines and nutrition policies should be grounded in robust evidence from clinical studies and health economic outcomes research. Tailoring these guidelines to local needs ensures relevance and effectiveness in addressing the specific nutritional challenges of the population. Many children suffered from deficiencies due to inadequate consumption of functional foods since the pandemic. Evidence-based practices have been shown to improve patient outcomes, optimize resource utilization, and enhance the cost-effectiveness of healthcare interventions. For example, studies have demonstrated that incorporating local dietary habits and sociocultural aspects into guideline development results in more practical and culturally appropriate recommendations that address nutritional deficiencies more effectively.^{43,44}

Additionally, most pediatric intervention studies are observational, and to advance research, leveraging mobile apps is a promising option. These technologies provide valuable data that, when analyzed and integrated with WHO standards, can significantly enhance our understanding and application of pediatric care interventions.

Statement 16: Physicians/pediatricians/nutritionist-dietitians should have a more proactive role in the development and implementation of pediatric nutrition guidelines, programs, and policies.

Physicians, pediatricians, and nutritionist-dietitians play a critical role in shaping and implementing pediatric nutrition guidelines, programs, and policies. Their clinical expertise and direct interaction with patients provide valuable insights into the practical aspects of nutrition care. Panelists emphasized the importance of involving healthcare professionals in policy development to ensure that guidelines are evidence-based, feasible, and aligned with clinical practice. Active participation of these professionals in policy-making processes can lead to more comprehensive and effective nutritional interventions, ultimately improving the nutritional status and health outcomes of children. Moreover, their involvement promotes greater acceptance and adherence to guidelines within the healthcare community. The panelists also stressed the need for pediatricians to engage with policymakers, government bodies, and the Ministry of Health to influence policies related to community nutrition and the overall well-being of children.⁴⁵

Statement 17: National policies should prioritize nutrition as a basic component of health and allocate resources for the implementation of nutritional programs to improve food security, making nutritious food accessible and nutritional interventions affordable.

Nutrition should be recognized as a fundamental component of health within national policies, with dedicated resources allocated for the implementation of nutritional programs. Ensuring food security and access to nutritious food are essential for preventing malnutrition and promoting overall health. During the pandemic, the decline in government aid programs contributed to increased malnutrition and stunting rates, underscoring the need for stronger policies. Evidence indicates that countries prioritizing nutrition in their health agendas have experienced significant reductions in malnutrition rates and improvements in population health. For instance, policies that

subsidize healthy foods, provide nutrition education, and support food assistance programs have been effective in enhancing food security and dietary quality. By prioritizing nutrition and allocating adequate resources, governments can create a sustainable framework for improving public health and reducing healthcare costs associated with malnutrition. Coordination with regional initiatives, such as partnering with the Association of Southeast Asian Nations (ASEAN), can further enhance nutrition governance and capacities.⁴⁶

Statement 18: The dissemination of nutrition guidelines and policies should occur both within hospitals and communities, targeting healthcare professionals as well as the general public. The information should be tailored to the recipients' level of comprehension, aiming to enhance awareness and knowledge about nutrition care.

Effective dissemination of nutrition guidelines and policies is crucial for their successful implementation and impact. Both healthcare professionals and the general public should be targeted to ensure widespread awareness and understanding of nutrition care. Tailoring information to the recipients' level of comprehension enhances its accessibility and relevance. Research has shown that educational interventions that consider the literacy and cultural context of the audience are more effective in changing behaviors and improving nutritional outcomes. Providing clear, concise, and culturally appropriate information in both clinical settings and community outreach programs can bridge knowledge gaps and empower individuals to make informed dietary choices. This comprehensive approach ensures that nutrition policies translate into meaningful health improvements. Efforts to expand nutrition programs have demonstrated success in benefiting women, children, and their communities, emphasizing the importance of political commitment, evidence-based national policies, collaboration with trained community workers, effective communication and advocacy, and integrated service delivery across multiple sectors.^{46,47}

Limitations of the Study

The consensus statements, while comprehensive, are based on the current available evidence and expert opinion, which may evolve over time. Additionally, the statements are intended to complement, not replace, existing guidelines from national and international nutrition societies, which may result in varying interpretations and implementations across different settings.

Recommendations for Future Studies

Future studies should focus on longitudinal research to assess the long-term impact of implementing these consensus statements on child nutrition and health outcomes. There is also a need for studies that evaluate the effectiveness of integrated nutritional interventions in diverse socio-economic and cultural contexts within the Asia Pacific region. Additionally, research should explore the efficacy of technology-based monitoring tools to enhance growth and nutrition surveillance. In particular, the utilization of mobile apps for collecting real-world data, such as the height and weight of children input by users, should be investigated. Analyzing these data can provide valuable insights into growth patterns and the effectiveness of interventions, contributing to real-world

evidence-based studies. Innovative approaches to overcoming barriers to accessing nutritious foods and effective nutrition services should be examined, especially in the wake of global disruptions like the COVID-19 pandemic. Further collaboration among international and regional organizations is essential to refine and standardize guidelines, ensuring they are evidence-based and adaptable to the dynamic nutritional landscape.

CONCLUSION

The consensus statements underscore the critical importance of addressing pediatric malnutrition through a multifaceted approach that encompasses nutrition interventions, monitoring, policies, and programs.

The COVID-19 pandemic has exacerbated the existing malnutrition crisis, particularly among vulnerable populations. The AWGPN highlights the urgent need to strengthen nutrition services and ensure access to nutritious and affordable foods, especially in the face of such disruptions. The pandemic has illuminated the gaps in current nutritional programs and the necessity for resilient and adaptable systems that can withstand such challenges.

Furthermore, the consensus statements call for robust policies and programs that prioritize nutrition and address the social determinants of health. Advocacy, policy initiatives, program development, clinical interventions, and research agendas should be aligned to create a cohesive and impactful nutrition action plan.

The consensus statements provide a valuable framework for healthcare professionals, policymakers, and community leaders to address pediatric malnutrition. By implementing these recommendations, the Asia Pacific region can make significant strides in improving the nutritional status and overall health outcomes for millions of children.

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