

# Capacity-building in the management of moderate acute malnutrition

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## Abstract

Evidence from low- and middle-income countries indicates that although there is a willingness to prevent and treat malnutrition at scale, there is very limited capacity to achieve this. Three broad areas of concern are human resources and the quality of services; management systems and supplies; and demand side factors. This paper focuses on building human resources in the context of preventing and managing malnutrition. Training should provide several options and approaches suitable for different settings and focus on core competencies. Preservice training should be the main focus of training, while in-service training should be used for continuing medical education and refresher training. Communities of Practice, in which national and international health professionals come together to deepen their knowledge and pool their skills to pursue a common ambition, are seen as one way forward to building the necessary human resources for scaling up training.

**Key words:** Capacity-building, human resources, moderate acute malnutrition, scaling-up nutrition interventions, training

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## Introduction

For many years, the importance of malnutrition as a cause of child death and as an impediment to human and economic development was largely ignored, but the need for urgent action is now being accepted, and prevention and treatment of malnutrition are increasingly seen as an integral part of national and international health and development agendas [1]. Interventions have been identified and global objectives and nutrition targets have been set [2, 3]. But do countries have the capacity (i.e., the ability) to implement these plans? Evidence from country assessments in low- and middle-income countries indicates that whereas there is a willingness to act there is very limited capacity [4].

Chopra and colleagues identify three broad indicators of “ability to act” [5]. First are human resources and the quality of services: these include having the appropriate number of skilled, motivated staff at each level of service delivery, their competency, follow-up support, and integration of nutrition protocols into other programs. Second are management systems and supplies: these include appropriately trained nutrition coordinators and supervisors in each district, clear lines of responsibility, reliable information systems, data used for decision-making, and a rational system for ordering supplies at the facility and community levels. Third are demand-side factors, such as client knowledge of available services, utilization, satisfaction with services received, mobilization of community-based groups around nutrition activities, and systematic outreach activities to community organizations.

The focus of this paper is on building human resources in the context of preventing and managing malnutrition. As stated above, human resources are just one of the fundamental building blocks for building strategic and operational capacity to scale up nutrition interventions.

## The development of capacity at scale

Capacity development or capacity-building has been variously described in different circumstances, but essentially all capture the sense of building toward having the resources and ability to address problems or challenges associated with underdevelopment. This requires an understanding of the nature of the obstacles that inhibit the achievement of developmental goals and enhancing the ability to achieve measurable and sustainable results. For nutrition, it requires that the available skills, competencies, and abilities are strengthened so that they are adequate to overcome the nutrition-related causes of exclusion and suffering at all levels: individual, community or society, and institutional. The global problems around nutrition and health are of considerable magnitude and require the availability and deployment of substantial human resources commensurate with the magnitude of the tasks involved if they are to be capable of addressing the fundamental and seemingly intractable problems associated with underdevelopment.

At an individual level, this means ensuring that all children have the opportunity to grow physically and mentally so that they are able to play a full and constructive part in society consonant with their abilities. At the community and national levels, it means that every group in society is able to organize its skills and harmonize its efforts to achieve common desired ambitions. Whether for the child or for the group, the efforts required comprise strengthening a system within which the ability to carry out a range of tasks and/or activities is better integrated to achieve the desired end. Some of these tasks are technical and range from simple to complicated. Some of the tasks are around social organization, and these also range from the simple to the more complicated. For many nutrition-related problems, it is necessary to achieve a combination of technical tasks within the appropriate social organization: an interplay that makes the achievement of success inherently complex, in the sense developed by Patton in *Developmental Evaluation* [6]. This is especially true when success is marked by the ability to achieve nutritional well-being sustainably at scale. Successfully addressing a concern of this complexity and its assured achievement at scale will not happen by accident, but requires careful planning and consistent support over extended periods of time.

In 2005, the International Atomic Energy Agency (IAEA) and Mohamed ElBaradei, its director general, were awarded the Nobel Peace Prize [7]. The Agency has long had an established program around the peaceful uses of the atom, with a particular interest in cancer and nutrition. Part of the award was used toward a Cancer and Nutrition Fund, and the Board of Governors agreed that “The Fund will be used to maximize the Agency’s ability to build capacity and

transfer the needed know-how to developing countries” [8]. In raising the awareness of the IAEA’s activities in human nutrition, a series of Schools in Nutrition was conducted in Africa, Asia, the Pacific, and Latin America. Participants in the schools included policy makers and professionals with a relevant background in nutrition. A particular interest and purpose of the schools was to extend the usefulness of stable isotopic techniques in the development and monitoring of nutrition programs to combat malnutrition, especially in infants and children [9].

These Schools in Nutrition represented a natural extension of the classic work in translational medicine carried out during the early 1960s and since. John Waterlow led and developed a program of investigations in Jamaica, in which studies utilizing isotopic methods and technologies that were state of the art at the time were conducted in children [10]. These approaches were applied to help unravel the complex etiopathology of severe acute malnutrition (SAM), thereby setting the stage for its successful treatment and prevention. The use of naturally occurring isotopes of potassium to measure whole-body potassium by John Garrow and colleagues made it possible to demonstrate the extent and importance of severe mineral deficiencies. The critical importance of correcting these deficiencies was seminal in reducing early mortality from SAM, by demonstrating the efficacy and effectiveness of repleting deficiencies of minerals such as potassium. The extensive studies by Waterlow and colleagues to demonstrate structural changes in body composition and how they could be corrected with appropriate diet and care were fundamental to developing anthropometric approaches that continue to be used for screening and monitoring. The use of dynamic measures to capture functionality, such as protein, lipid, and glucose turnover, uncovered the adaptive processes required to enable survival [11]. The translation of this fundamental research to the clinical management of severely malnourished children who were barely surviving in this reductively adapted state greatly reduced case fatality and enabled survival and recovery. This understanding continues to inform the fundamental basis of all approaches to the treatment of malnutrition in children and adults at all ages. Similar approaches have been developed and used for trace elements such as iron, zinc, calcium, and copper and vitamins such as retinol. This evidence and its translation in practice make it clear that the use and application of stable isotope methods are fundamental tools for nutrition research and its translation.

Out of these experiences, guidelines for the treatment of complicated SAM were developed, which in turn enabled the formulation of the “magic bullets” that have come to be known as ready-to-use therapeutic foods (RUTFs) and supplemental foods [10]. These have in turn informed and refined programs in health

promotion, agricultural production, and food processing that inform considerations of the nature of food and nutritional security. Thus, programmatic activities that have impact at scale for prevention, treatment, or cure are built on this knowledge and understanding. The evidence derived from good-quality research is an absolute underpinning for improved service delivery and the training of health professionals who are fit for purpose and able to perform consistently to the highest standard [12]. Understanding the enquiring and problem-solving approach characteristic of research also enables and encourages reflective practice, which is a fundamental feature and the hallmark of good professional responsibility, establishing the basis for a further round of relevant research activity.

Since the 1960s, the international agencies have identified the knowledge required for competent nutritional practice, both for the core professions (e.g., nutrition, dietetics, and food science) and for those who use nutrition as an integral aspect of their wider professional practice (e.g., agriculture, health, education, and social services) [13, 14]. In Manila in 1996, the United Nations University and the International Union of Nutritional Sciences held a workshop on institution-building for research and advanced training in food and nutrition in developing countries [15]. Two important products of this were the development of leadership programs in nutrition across the regions and the recognition of the importance of developing *systemic* capacity. As defined by Potter and Brough [16], systemic capacity involves a four-tier hierarchy of capacity-building needs: tools, skills, staff and infrastructure, and systems structures and roles. The development of the former is more technical and easier to put in place, while the development of the latter is harder to achieve, needing to be embedded in socio-cultural considerations [6, 16].

The number and range of commentaries on the nature of the training in nutrition that can and should be offered have increased considerably over the last decade. The varied approaches that have been explored have not necessarily been matched by improvements in the delivery of services. Few have been evaluated, and the impact in practice appears modest [17, 18]. High-level professional commitment in accepting responsibility for recognizing the magnitude and importance of the problem, and the need to take a leadership role in addressing it effectively, have been slow to emerge. A strong pledge to providing leadership was given by pediatricians at the Congress of the International Pediatric Association as the Johannesburg Resolution in 2011 [19]. African nutritionists committed themselves similarly in the Nairobi Declaration in 2011 [20]. These commitments still have to be translated fully into practical change at scale. Over the same period of time, the Scaling Up Nutrition (SUN) Movement has come to characterize the imperative nationally to

take best advantage of available capacity to organize resources to achieve significant change and progress. In anticipation of the International Congress of Nutrition in Granada in 2013, the IAEA, in collaboration with the International Malnutrition Task Force (IMTF), convened two regional workshops for Africa (Accra, December 2012) and for Asia (Bangkok, May 2013) [21, 22]. At the International Congress of Nutrition (Granada, September 2013), a workshop and seminar on Scaling Up Nutrition were organized by the IMTF to provide a focus for future planning, and a synthesis of these experiences has been published as a supplement to the *Food and Nutrition Bulletin* [23].

Notwithstanding our understanding of what can and should be done, a number of the high-prevalence countries have not been successful in developing an integrated approach to the care of malnourished children. Development of a harmonized platform in support of the best standard of integrated management of acute malnutrition is absolutely dependent upon the availability of secure human and technical capacity in the health sector itself, but also across all other relevant sectors in food, agriculture, and social support. A major limiting factor is the lack of trained capacity locally, operating within health, agriculture, and food systems that have not been structured to enable the prevention and management of malnutrition in a sustainable and self-reliant manner. Capacity-building should therefore be recognized as an essential component in assisting countries to address this problem effectively. In the process of capacity-building, special emphasis should be placed on training and education as a prerequisite, as only well-trained staff can provide the necessary knowledge and expertise. But there is also the need to ensure the development of the service within which that training can be deployed to best effect (systemic capacity-building) [6, 16]. The clear objective is that this should be achieved at the national level, but perforce, given the limited extent of the available resources, it will need to draw upon international capabilities. Whether considered nationally or internationally, the current capability is piecemeal, scattered, and not organized in a way that is fit for purpose.

Clearly recognizing the importance of linking future capacity-building efforts to the activities of the SUN Movement, the IMTF, in collaboration with the IAEA, has indicated the desirability of the development of Communities of Practice [24]. This is required at both the international and the national levels to enable access to and most efficient use of committed human and technical resources by SUN Civil Society Networks. In the first instance, the following Communities of Practice will be encouraged and facilitated, as there are established groups working in these areas, associated with IMTF activities:

- » Clinical facility-based care of complicated SAM in the context of wider pediatric care;

- » Community-based care of uncomplicated SAM and effective interventions for moderate acute malnutrition (MAM) and stunting;
- » Food technology in the context of the development of therapeutic and supplemental foods and moving toward food and nutritional security;
- » Food production in the context of food and nutritional security, livelihood protection, and social cohesion;
- » Education and training in the context of preservice training, professional education and training, and continuing professional development: for core professionals and those wider professions who access food and nutrition knowledge and skills as a routine in their practice;
- » Science-based applications: in the first instance through the use and standardization of the measurement of body composition and its application as an exposure and outcome for multiple interventions.

Communities of Practice will be facilitated in each of these areas at both the international and the national levels, and their collaboration will be encouraged for the purpose of responding to countries' needs as effectively as possible.

## Preservice and in-service capacity-building: Lessons learned from the Integrated Management of Childhood Illness (IMCI)

*(Summary of the paper presented by Wilson Were, WHO on May 28th 2014 at the IAEA Symposium on managing moderate acute malnutrition. Vienna)*

The IMCI strategy was developed by the World Health Organization (WHO) and UNICEF in the mid-1990s to reduce mortality among children under 5 years of age [25]. Aimed at countries with mortality rates of greater than 40 per 1,000 live births, it has been adopted by more than 100 countries. The strategy aims not only to improve case management skills of health workers at primary-level health facilities, but also to strengthen health systems and improve home and community practices to prevent common childhood illnesses and improve growth and development [26]. The strategy, which encompasses assessment of sick children, rapid referral of those severely ill, rational use of medicines, and effective communication with parents, has demonstrated success in enhancing health worker performance, improving the quality of clinical care for sick children, improving nutritional status among children, and reducing child mortality where fully implemented [27, 28].

### Lessons learned from IMCI training

IMCI capacity-building in both preservice and in-service training has often been aimed at increasing the

number of trained health workers to expand coverage. The 11-day training imparts knowledge and clinical skills by a variety of teaching methods.

### *In-service training*

Major obstacles to in-service training include the cost of a model reliant on centralized, tutor-based training, a shortage of experienced trainers, an inadequate supply of training materials, poor follow-up and supportive supervision, frequent attrition of trained staff, and poor outreach to private practitioners. Other practical difficulties include releasing essential staff for off-site training, costs of per diem travel and accommodations, and reluctance to apply locally learned skills from centralized courses.

To mitigate the challenges, countries responded with a number of strategies to increase coverage. Many countries shortened the IMCI course to 5 to 7 days, although the content was largely retained and in some cases even increased. A meta-analysis that examined shortened IMCI courses demonstrated that the standard course was superior in terms of health worker performance.

### *Preservice training*

This was considered as a feasible solution to increase health system coverage by IMCI-trained health workers in a cost-effective and sustainable manner and influence practices of health professionals in both the public and the private sectors. From its inception, many countries responded by introducing preservice IMCI training for nurses, midwives, health officers, and medical doctors. The main challenges for preservice IMCI have been negotiating adequate time and placement into the curriculum, ensuring adequate facilities and organization for clinical sessions, sustaining the supply of teaching materials, and coordinating between different academic programs. Success requires strong commitment from ministries of health and involvement of key medical and paramedical faculty members.

### Addressing IMCI training challenges

A global technical consultation on IMCI training scale-up recommended several strategies, including the implementation of innovative training approaches to provide alternative training options [29]. A key recommendation was a "blended approach" of the competency-based IMCI training package with strengthened individual study, group learning, local clinical mentoring, limited facilitation by a regional trainer, and ongoing evaluation and monitoring. This would require suitable learning materials and approaches that would enable large numbers of health workers to take the responsibility for acquiring most of the knowledge and skills needed. These approaches, however, had to

maintain important principles of IMCI, such as the integrated approach to caring for the sick child, the chart booklet, recognition of danger signs, color-coding of risk categories, the assess-classify-treat format, and communication with caregivers.

As a result, several training options have been developed for both in-service and preservice IMCI training. These include shortened IMCI in-service courses varying from 5 to 7 days, the use of interactive e-learning programs such as the IMCI computerized adaptation and training tool (ICATT), and the IMCI distance learning courses (dIMCI) to enable health workers to have nonresidential training [30, 31].

### Conclusions from IMCI

The lessons learned from IMCI are that preservice training reaches the majority and should be the main focus of training, while in-service training should be used for continuing medical education and refresher training. Training should provide several options and approaches suitable for different settings and focus on core competencies.

### Panel discussion: Capacity development in MAM

Two questions were put to the panelists: “What should be the main focus of the activities in capacity development?” and “Do you see any major obstacles that need to be addressed?” The four panelists, representing country and nongovernmental organization perspectives, were Tahmeed Ahmed (International Centre for Diarrhoeal Disease Research, Bangladesh), Helen Semu (Tanzania Ministry of Health), Anne-Dominique Israel (Action Contre la Faim), and Paul Rees-Thomas (Measuring the Quality of Scaling-up Nutrition).

The discussion centered around the following needs:

- » Resources to improve health systems at the community level, including a functional referral system for SAM and MAM, and strengthening infrastructure to ensure a productive and sustainable working environment and a reliable pipeline for essential supplies and foods. Pooling of resources was seen as

a means of fostering collaboration and integration across sectors;

- » Improved access to locally produced ready-to-use supplementary and therapeutic foods;
- » Training for community health workers;
- » Development and donor colleagues speaking with one voice so as to advocate effectively at the governmental level;
- » Strengthened leadership and coordination to support decentralization and integration of prevention, treatment, and referral of MAM into community services without overburdening health workers;
- » Operational research to develop the evidence for advocacy to increase engagement of policy makers;
- » Better tools for assessment, monitoring, and evaluation.

It was noted that Action Contre la Faim has been creating awareness and demand and building capacity for health professionals in nutrition, including successful in-service curriculum design (Liberia), joint development of a curriculum for nutrition professionals (Afghanistan), and teaching innovations. Challenges were weaknesses in country systems for capacity development, lack of human resources in the health system, in-service and preservice training that cannot keep pace with high staff turnover, misaligned approaches creating duplication and confusion in training, and the need for strong professional identity development to attract people to become nutrition leaders and advocates.

Also considered was the need to embed capacity-building for MAM into national settings and integrate in SUN country frameworks, going beyond in-service training. Multilevel and multisector capacity-building is needed for effective advocacy, leadership, governance, costing (over time including scaling up), mediation, and developing integrated plans and relevant outcome indicators. “Hot spots” with successful leadership, champions, media, and political platforms should be identified to take the nutrition message forward and make effective use of Communities of Practice networks. New technologies for training will be needed, such as LATTICE (Learning and Teaching Through Innovation, Collaboration, and Engagement).

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