

Improving Pre-Service Nutrition Education and Training of Frontline Health Care Providers

Introduction

The purpose of this technical brief is to describe the process and methods the Food and Nutrition Technical Assistance III Project (FANTA) used to improve pre-service nutrition education and training of frontline health care providers, including nurses and midwives, in two countries. Frontline health care providers have direct contact with patients and communities and are often the first and only link to essential health services for most people in developing countries. Investing in nutrition education and training of frontline health care providers can lead to improved service delivery and tremendous health and economic returns. This technical brief is intended to guide government ministries, pre-service teaching institutions, and stakeholders on how to improve nutrition service delivery and outcomes by strengthening the knowledge and skills of health care providers through pre-service training.

In this brief, “pre-service nutrition education and training” refers to the structured process and activities aimed at developing or reinforcing nutrition knowledge and skills before a health care professional begins providing health services.

Why Are Pre-Service Nutrition Education and Training Important?

Many countries face a high burden of malnutrition, manifesting as undernutrition, overweight/obesity, and micronutrient deficiencies. Malnutrition is complex and multi-faceted and requires a range of interventions to address it. While progress has been made in reducing malnutrition in the past decade, in many countries, progress has not been sufficient to meet the World Health Assembly Targets and the Sustainable Development Goals.¹ In low- and middle-income countries, efforts to alleviate malnutrition have been hampered by the



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poor geographic coverage of critical nutrition interventions and a workforce that lacks adequate skills to deliver nutrition services.^{2,3} Several recent studies have linked poor nutrition service delivery to inadequate pre-service training of health professionals, noting that the training and curricula are often outdated, impractical, and misaligned with national nutrition policy priorities.^{3,4} The studies also show that the trainers have limited capacity to deliver effective pre-service nutrition education and training due to their inadequate teaching methods and limited competencies in nutrition.^{5,6}

Effective delivery of quality nutrition services depends on having qualified, competent health care providers who can meet the needs of the populations they serve. To ensure they have the necessary nutrition competencies, frontline health care providers require comprehensive, competency-based nutrition education and training that enable them to address clinical and public health nutrition problems to prevent and treat malnutrition.^{2,7} Contemporary public

health nutrition competency standards also must be integrated into the training curricula of frontline health care providers and nutritionists at the degree, diploma, and certificate levels. In addition, efforts need to be intensified to increase the number and geographic distribution of individuals with the capacity to deliver nutrition services at the community and health facility levels.²

Process and Methods for Improving Pre-Service Nutrition Education and Training

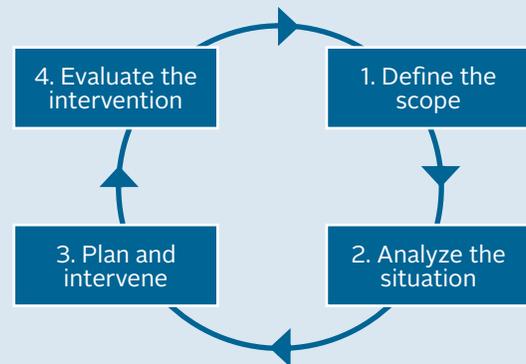
The approach described here is competency-based and assumes that improving the trainer's ability to teach a defined set of nutrition skills will improve health care professionals' nutrition knowledge and capabilities. This approach could be applied to improving pre-service nutrition education and training of frontline workers and professionals in other sectors as well. The process is categorized into four continuous steps (Figure 1). A timeline for the process appears on page 4.

Step 1. Define the Scope

Defining the scope involves describing the extent to which activities to improve pre-service nutrition education and training will be implemented, who will be involved, and the expected outputs. The scope of activities is primarily determined by the national nutrition policy priorities and expectations for what the frontline health care providers are required to do to deliver nutrition services. In defining the scope, the following should be considered:

1. **National nutrition policy priorities and guidelines** serve as the basis for strengthening pre-service training curricula. Before beginning the process of strengthening pre-service nutrition education and training, national nutrition policies and guidelines must be up to date and aligned with the latest evidence-based country experiences and international standards.
2. **Consultation and consensus** with key stakeholders are crucial for identifying, deliberating, and agreeing on the rationale and framework for improving pre-service nutrition education and training. A task force or committee including the actors involved in policy development, service delivery, staffing, and pre-service training and regulation should be formed to oversee and provide technical guidance to the process. The stakeholders

Figure 1. Cycle for Improving Pre-Service Nutrition and Education Training



include the government ministries responsible for overseeing national nutrition policy and guidelines, the human resource department responsible for staffing, the government ministry or institution responsible for pre-service curricula development and regulation, and the relevant teaching institutions. Efforts should be made to include participants from other government sector ministries such as local government, agriculture and food systems, technology, gender, and rural development to maximize opportunities for integrating multisectoral approaches to health and nutrition service delivery.

3. Outline **nutrition competencies** that align with national policies, guidelines, and international standards. This helps to define what each frontline health care provider (e.g., nurse, midwife, or community health worker) must know and do to provide quality nutrition services at each service delivery point. In addition, the job description of each health care position must be updated to reflect the tasks and functions health staff must perform when they begin providing services.

Step 2. Analyze the Situation

A situation analysis identifies gaps in the existing training curricula for and teaching of health care providers where a focus on nutrition competencies can be strengthened. It is used to identify what

Examples of Nutrition Competencies

- Measuring a child's growth and taking corrective action accordingly
- Assessing a patient's dietary intake
- Providing nutrition counseling to a patient
- Administering micronutrient supplementation to a child under 5 years of age
- Diagnosing and treating a child with acute malnutrition

content and methods are currently taught in pre-service, assess the lecturers' understanding of nutrition and their level of competence, and review resources available and used for teaching. During the situation analysis:

1. Identify and **map the pre-service training institutions** where frontline health care providers are taught. This includes obtaining the training curricula used to teach the health care providers at degree, diploma, and certificate programs and listing the lecturers and tutors responsible for teaching nutrition. Then prioritize the training program curricula and institutions that require improvements.
2. The **lecturers' and tutors' nutrition competence** is assessed using Objective Structured Clinical Examinations (OSCEs), which are designed to test an individual's nutrition knowledge and competence through observations and interviews covering areas such as patient nutrition assessment, interpretation of results, breastfeeding counseling and support, care of a malnourished patient, and other relevant clinical and nutrition procedures. The baseline OSCEs are conducted with lecturers and tutors teaching nutrition in training programs such as community health nursing, pediatric nursing, mental health nursing, and midwifery to determine whether they possess the relevant nutrition skills and to gauge their competency levels.
3. **Teaching resources**, including lecture notes, reference materials, libraries, and demonstration laboratories, are assessed to ascertain whether up-to-date materials and resources are used to teach nutrition course elements.

4. A complete **review of the health care provider training curricula** for the degree, diploma, or certificate program is conducted. The course objectives, learning outcome, and content of each curriculum are reviewed to determine which courses or modules include nutrition topics and to identify areas of overlap and opportunities for linkages between the modules. The review should also be used as an opportunity to compare the training curricula with the defined nutrition competencies for each program and to identify gaps and outdated information.

Step 3. Plan and Intervene

Following the situation analysis, a comprehensive plan of action is developed in consultation with stakeholders. The plan of action includes specific interventions to address the identified gaps and prioritizes the most critical issues. Interventions may include but are not limited to the following activities:

1. **Update the health care provider training curricula** and/or document recommendations for future updates. If it is clear that the curricula should be revised to include or align with new nutrition policies, the situation analysis should be used to make a case for a comprehensive curricula update. In some country contexts, pre-service training curricula may take several years to be developed and updated. However, when new health care practices and policies are introduced or health care providers do not have the required or most up-to-date competencies for service delivery, the curricula should be modified.
2. Develop **standardized teaching aids and resources**, which entails obtaining all updated national nutrition resources including guidelines, policies, training courses, and job aids. International references and standards used to update the national policies and guidelines should also be obtained. Next, design detailed session plans to provide lecturers with adequate material for integrating the updated information into the training curricula courses. Each session plan should contain the following elements: links to other curricula courses, the session's duration, content description, competency area, learning outcomes, session outline, materials required, preparation suggestions,

further reading, resource materials, and activity plans. Assemble the session plans, tutor notes, reference materials, and other teaching aids and resources into an electronic toolkit to disseminate to all lecturers and tutors.

3. **Train the lecturers and tutors**, prioritizing the competencies that the situation analysis identified as the weakest. To complement and reinforce the classroom trainings, post-training mentoring and support should be conducted. Lecturers and tutors should also be linked with nutrition subject area experts, where possible, to help them use the teaching aids and obtain feedback on those teaching aids.
4. **Equip** the institutions with nutrition-related equipment and materials, such as anthropometric equipment, nutrition counseling tools and job aids, and hard copies of corresponding national guidelines policies and treatment protocols. These are needed to conduct demonstrations and clinical practice sessions.

Step 4. Evaluate the Intervention

An evaluation should be conducted 1 to 2 years post-intervention to ascertain whether there have been any improvements and to consolidate feedback to refine the scope and interventions as necessary. The same framework and tools used for the situation analysis are used to conduct the evaluation, including:

- Assessment of the lecturers' level of nutrition competency using the OSCEs
- Review of the teaching resources and reference materials, including libraries and demonstration laboratories, to see whether the latest evidence, guidelines, and policy documents are available
- Review of the updated pre-service training curricula to confirm whether the new nutrition competencies are integrated
- Assessment of the knowledge and skills of graduates from the updated degree, diploma, or certificate programs to determine whether the lecturers have taught the defined set of competencies effectively

Timeline for Improving Pre-Service Nutrition Education and Training

Define the scope (Month 1–2)

- Updating of national nutrition policy priorities and guidelines (done prior to the start)
- Consultation and consensus among stakeholders (Month 1)
- Outlining of nutrition competencies (Month 2)

Analyze the situation (Month 3–6)

- Mapping of pre-service training institutions (Month 3)
- Assessment of lecturers/tutors and teaching resources (Month 4–5)
- Curricula review (Month 6)

Plan and intervene (Month 7–26)

- Training curricula update or documentation of recommended updates (Month 7)
- Development of standardized teaching aids and resources (Month 8–10)
- Training of lecturers and tutors (Month 11–12)
- Equipping of institutions with nutrition resources (Month 13)
- Post-training mentoring and support for lecturers/tutors [(Month 14–26 (one academic year and ongoing as needed))]

Evaluate the intervention (Month 27–30)

- Post-intervention evaluation of lecturers (Month 27–28)
- Curricula review (Month 29–30)

Country Experience in Improving Pre-Service Nutrition Education

Ghana

Like many other countries in sub-Saharan Africa, Ghana lacks adequate nutritionists and dietitians to deliver nutrition services to patients and their communities.^{2,4,7} Therefore, nurses and midwives play a vital role as frontline nutrition service providers at health facilities and in communities. It is critical that nurses and midwives have the necessary knowledge and skills to deliver quality nutrition services. New nutrition interventions are typically introduced to health care providers through continuous professional development and in-service training; however, a major challenge is that frontline health care providers often view new skills acquired through in-service training as add-ons to their standard tasks and do not consistently take responsibility for providing such services.

To address these challenges, in 2012–2013, the Ministry of Health (MOH), Ghana Health Service, Nurses and Midwives Council of Ghana, and training institutions partnered with the U.S. Agency for International Development (USAID), FANTA, Maternal and Child Health Integrated Program, World Health Organization (WHO), and UNICEF to implement a competency-based approach to strengthen nutrition in the pre-service training of nurses and midwives. First, the stakeholders defined the expected nutrition competencies for each cadre of frontline health care provider. This included prioritizing a core set of competencies based on the policy priority interventions. Based on those competencies, performance standards were outlined to delineate the minimum set of tasks a tutor must perform to effectively instruct a student. The competencies and performance standards were crucial for harmonizing teaching with policy priorities and service delivery. They also formed the basis of tools used to assess the tutors, review of the training curricula, implementation of the training, and evaluation of post-training capacity.

Second, tutors at randomly selected nursing and midwifery schools across the country were evaluated through observations and interviews to determine whether they had the skills to adequately teach the required set of nutrition competencies.

This assessment found that tutors' skills were lacking, especially in newer nutrition approaches and interventions—such as management of severe acute malnutrition and new breastfeeding recommendations for HIV-infected mothers—and some concepts related to maternal nutrition and infant and young child feeding. It was observed that the tutors also lacked standardized reference materials to teach nutrition and that demonstration laboratories were not adequately equipped with anthropometric equipment, counseling tools, nutrition guidelines, and treatment protocols. Furthermore, tutors reported class sizes of up to 400 students, making it difficult for students to learn.

Third, the pre-service nursing and midwifery curricula for the diploma and certificate training programs were mapped to see whether they included all the defined nutrition competencies that should be taught to nurses and midwives before they enter the workforce. The mapping found that the curricula contained more theory with little practice and did not have updated nutrition content. The mapping also showed that tutors had not received any technical updates on current nutrition policies, strategies, and approaches.

To address the gaps identified in the assessment of teaching and curricula mapping, all tutors teaching nutrition in the nursing and midwifery schools were trained on a broad range of nutrition topics that touched on both theory and practice. The tutors and schools were also linked with national facility- and community-based nutrition learning sites to facilitate partnerships in service delivery and opportunities for continued clinical practice, including internships. Standardized teaching aids including lesson plans and reference materials were developed from existing national and international resources to assist tutors with the required nutrition competencies. Resources such as policies, treatment protocols, body mass index (BMI) measuring tools, and mid-upper arm circumference tapes were also provided to the nursing and midwifery school libraries and demonstration laboratories.

Last, the 2007 curricula for the diploma and certificate nursing and midwifery training programs were modified in 2016 to include the most recent nutrition policy issues and approaches in Ghana. The curricula also included nutrition clinical practice sessions that enable students to master skills before graduation. Overall, the intervention resulted in more competent nursing and midwifery pre-service trainers with recent evidence-based teaching materials and references that were aligned to national policy priorities, service delivery, and in-service training.

Malawi

In Malawi, the National Multi-Sector Nutrition Policy 2017–2022 and National Multi-Sector Strategic Plan 2017–2022 emphasize the need to update the pre-service curricula of all sector frontline workers to strengthen human capacity for effective programming and delivery of nutrition services. In 2017, the Malawi MOH, Nurses and Midwives Council of Malawi, University of Malawi, training institutions, FANTA, Tufts University—Feed the Future Nutrition Innovations Lab, and University of Southampton collaborated to improve pre-service nutrition education and training of nurses and midwives. First, the MOH, in collaboration with nutrition partners including the academic institutions and organizations that regulate health pre-service education, updated national guidelines on nutrition care, support, and treatment; management of acute malnutrition; the Baby-Friendly Hospital Initiative; and micronutrient supplementation to align them with new international standards and WHO recommendations. In addition, nutrition competencies and the roles and responsibilities of each cadre of health care provider were defined and aligned to the new guidelines.

Next, the training curricula were mapped to determine whether national policy priorities and the updated nutrition competencies were taught in seven nursing and midwifery training programs: integrated nursing and midwifery, child health, adult

health, mental health, community health, midwifery, and advanced nursing. The review found that the curricula were not aligned to the latest national and international standards and that the basic human nutrition course was not synchronized with other courses or modules where nutrition topics were integrated. In addition, the review found that while the tutors and lecturers had nutrition guidelines and policy documents, many of them were 3 to 5 years out of date.

The training curricula for the seven programs were then updated to reflect Malawi's national multisectoral nutrition policy, national guidelines and protocols, and competencies. Teaching aids such as lesson plans, reference and resource materials, videos, and open-access nutrition e-learning courses were developed and then reviewed by key nutrition lecturers and tutors in the nursing and midwifery training institutions to ensure they were relevant and sufficient. The updated curricula and teaching aids were packaged as an electronic toolkit and disseminated to the lecturers. The teaching institutions were also provided nutrition equipment such as BMI wheels and the updated national guidelines and policy documents.

The interventions to strengthen pre-service nutrition education and training in Malawi are ongoing, and lecturers using the updated curricula continue to receive support and training from the Department of Nutrition, HIV, and AIDS; the MOH; pre-service regulatory institutions; and nutrition partners, which ensures linkage between service delivery and pre-service education and training. In 2018–19, the curricula, teaching aids, and key nutrition competencies will be assessed, which will serve as an evaluation of the pre-service nutrition education and training interventions.

Lessons Learned

- Effective pre-service nutrition education and training that equip frontline health care providers to deal with diverse nutrition-related health issues require effective **collaborations and partnerships** among a range of institutions and stakeholders. Current nutrition challenges require multisectoral approaches; therefore, formal broad partnerships should be leveraged to link those working to improve the nutrition competencies of the health workforce with other disciplines such as agriculture and food systems, technology, gender, and local government.
- A national set of **nutrition competencies** for each cadre of frontline health care provider should be developed in partnership with key stakeholders including the MOH, the teaching institutions, and the pre-service regulatory institutions. Having a core set of competencies facilitates improvements in pre-service nutrition education and training by ensuring that all stakeholders have a common understanding on what students must master before entering the workforce.
- Improving pre-service nutrition education and training should be a **continuous process** that is done alongside structured professional development and in-service training. This ensures that frontline health care providers have the latest nutrition evidence and guidance, which enables delivery of quality nutrition services.
- **Monitoring and evaluation** of interventions to improve nutrition education and training curricula are essential to making sure efforts are effective. Monitoring and evaluation should include not only knowledge and competencies gained by students, but also examine the capacity of lecturers and tutors to properly teach nutrition and determine whether classrooms and teaching laboratories have the correct, most up-to-date policy documents, tools, and equipment.

- **Technology-driven and online learning resources** should be promoted to increase opportunities for more students to learn about nutrition and to reduce teacher-student ratios and the time needed to cover all the course content. In Ghana and Malawi, while lecturers and students had regular access to the Internet, computers, and e-learning resources, not all courses or modules were online. Future efforts should ensure that nutrition content is accessible through e-learning platforms.
- **Inter-country sharing of experiences** can help countries newer to the process learn and identify best practices that can be adapted to their own context. For example, lessons learned and tools used in Ghana facilitated the process of engaging with stakeholders, developing nutrition competencies, and standardizing teaching aids and resources in Malawi.

Conclusion

There is growing recognition that improved pre-service nutrition education and training are one underpinning approach to address the global burden of malnutrition. Competency-based training models, such as the one described in this brief, play a critical role in ensuring that frontline health care providers have the knowledge and skills to address context-specific public health and clinical nutrition problems to prevent and treat malnutrition in their patients and the population at large.

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