

Commentary

Expanding Integrated Competency-Focused Health Worker Curricula for Maternal Infant and Young Child Nutrition

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Abstract: Maternal, infant, and young child nutrition (MIYCN) is important for health, survival, productivity, and development. Knowledgeable, skilled health workers are vital to provide quality care, improve health outcomes, and meet global nutrition targets. When nutrition is not adequately addressed in pre-service curricula, health workers may not be equipped with the knowledge, skills and confidence required to deliver nutrition services and accurate information free of commercial influence. Curriculum review, revision, and competency structuring provides an opportunity to benchmark course topics and content to global standards, to increase focus on learner outcomes, and to facilitate mutual recognition of qualifications across countries and regions. This paper discusses a multistage process to map an existing curriculum, analyse expected competencies, and recognize broader factors when developing a competency-focused curriculum in pre-service education that includes MIYCN. Examples of tools are provided which can be used for review and discussion of curricula and competency at local and national level and to integrate skills such as communication and counselling.

Keywords: maternal; infant and young child nutrition; health worker education; competence; curriculum; integrated learning; pre-service education



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1. Introduction

Maternal, infant, and young child nutrition (MIYCN) is important for the short and long-term health and well-being of women and children, families, and communities as well as for economic development [1]. A woman has a right to good nutrition as a person herself and in her role as a mother; her nutritional status from pre-pregnancy onwards is a major determinant of a child's lifelong nutritional status [2]. Diet-related non-communicable diseases including undernutrition, obesity, and micronutrient deficiencies affect maternal health, child survival, and well-being, can reduce human capital and productivity, and put a strain on health services [3,4]. The Sustainable Development Goals recognise the importance of nutrition as a foundation for development [5]. World Health Assembly Resolution 65.6 calls for member states to put into practice a comprehensive plan on maternal, infant, and young child nutrition to support health and reduce nutrition-related diseases, recognising the broad range of necessary interventions including regulatory measures, partnerships, social protections, community supports, and workforce capacity building [6]. Health workers who are knowledgeable and skilled in the provision of MIYCN services are vital to provide quality care, improve health outcomes, and achieve global nutrition targets [7–11].

Unfortunately, studies have found inadequate pre-service training related to nutrition in general as well as specific to MIYCN, though these published studies are often undertaken as a precursor to changes [10,12–20]. When nutrition is not adequately addressed

in the curricula, health workers may not be equipped with the knowledge, skills, and confidence required to deliver nutrition services in their work.

Manufacturers of commercial milk formula and foods for infants and young children recognise this gap in MIYCN education and fill it by providing training programmes and funding for pre- and in-service training, thereby creating a channel to market products and influence the attitudes, norms, and practices of health workers [21–24].

The aim or goal of any pre-service training program is to build competence. The definition or concept of competence and the terms used vary [25]. It may be viewed as acquiring and demonstrating the use of a set of skills in a specific situation, or the learner's ability to bring together different components, adapt to situations, and continue to learn. For example, to effectively counsel a family with an underweight young child, the student may need to bring together knowledge of physiology, understanding and skills of growth measurement, awareness of local food sources, availability, and economic supports, communication, and counselling skills, the ability to find and critically review information sources, and the skills to assess the need for and to conduct appropriate referral as needed. Simply going through a list of teaching topics or aiming for a certain number of classroom hours do not ensure that a student has the competency to integrate these components into practice. For the purpose of this paper, a “competency-based training programme” involves coordination of planning content, implementation through teaching and learning, assessment (both self-assessment and external/teacher-assessment), and evaluation based on the expected performance or standards for practice.

Both the content and structure of a training curriculum should be designed with competence-building in mind. The term curriculum may be interpreted in different ways. It may refer to the syllabus, or outline the topics to be taught—which may not be the same as what is actually learned. It may refer to the formal written curriculum or also encompass the hidden curriculum of norms, attitudes, and values. It may be based on an educational theory or framework [26]. In this paper the term “curriculum” is used to describe a learner-focused systematic planned blueprint for a module or course which includes the purpose of the course and how it links with other learning, goals, and objectives, educational activities, and opportunities. The curriculum includes didactic, practical experiences and self-directed learning, as well as determination of core resource materials, assessment aims and methods, and evaluation.

To enhance our understanding about integrated competency-focused health worker curricula, this paper describes a multistage process to map an existing curriculum, analyse expected competencies, and recognise broader factors that must be considered when developing a competency-focused curriculum for MIYCN in an undergraduate or pre-service education programme for health workers in which MIYCN is one of many areas of their work. We describe specific projects related to midwifery pre-service curricula as examples because (1) there are international professional competencies for midwifery, and (2) midwifery is a role clearly related to MIYCN. Knowing the current state of the curriculum and determining the desired outcome are key stages in any plan for improvement.

2. What Learning Is Needed and by Whom?

A wide range of health workers have contact with pregnant women, infants, young children, and their mothers and families in hospital and community health settings and are expected to carry out a variety of activities related to nutrition. For some health workers their role is to facilitate a mother to breastfeed by providing basic information and referring her to more knowledgeable people if needed, or to ensure barriers are not put in her way. Other health workers may be responsible for assisting a mother to learn skills of breastfeeding management, or to discuss healthy eating with groups of pregnant women, whereas others may have a role in assisting with MIYCN in special situations and addressing complex problems. An activity related to MIYCN may be part of the role of a general nurse in one country, a paediatrician in another country, a nutritionist in another setting, or of a community health worker in another setting. Different countries may use the

same title for a health worker, such as nurse, though the training courses and the expected competencies may be different in each country. Rather than assigning a role in MIYCN based on a specific profession, a competency and interprofessional working approach facilitates patient-centred care, can reduce traditional boundaries between types of health workers and facilitate workforce capacity [27].

One framework for profiling competence uses three broad levels of roles to explore health workers' needs for education and training related to nutrition: awareness, generalist, and specialist [28]. Table 1 provides examples.

Table 1. Examples of health worker role levels.

Awareness Level	Generalist Level	Specialist Level
Offer a mother who is breastfeeding a seat and drinking water as she waits at a clinic.	Respond to a pregnant woman's questions on how she could breastfeed after returning to work.	Develop a plan for establishing a milk supply with a pregnant woman expecting an infant requiring immediate major surgery.
Select post-op pain relief appropriate for a mother who is breastfeeding.	Assist a mother to find a comfortable position for breastfeeding following surgery.	Assess a young child for undernutrition, determine a suitable supplementation plan, explain its use, and monitor the child's progress.
Monitor that materials marketing less healthy foods are not appearing in the health facility.	Explain how to obtain and take the recommended micronutrient supplements.	Participate in a team developing national guidelines related to MIYCN.
Know the sources for referral for nutrition information or difficulties.	Discuss healthy eating choices with a pregnant woman who is overweight.	Assist a family with a young child with neurological challenges to develop feeding skills.
Provide facilities to facilitate clean and safe complementary feeding when attending a clinic appointment.	Review key aspects of complementary feeding with caregivers of an infant approaching 6 months old.	Develop an appropriate plan for a lactating woman referred for undernutrition, explain it and discuss with the woman, and monitor her progress.

Because not all the students in a pre-service course will go on to work with pregnant women, infants, young children, and new mothers after graduation, general health students may need an awareness and some generalised knowledge, though are unlikely to have opportunities to acquire specialist-level knowledge and skills by graduation. One nutrition course (of varied length and content) cannot suit the needs of all types of health workers across different settings. It is critical to determine the expected role of that health worker in a country in order to understand what knowledge and skills the student needs to achieve entry-to-practice level competence. There may be distinct curriculum needs in settings where there is an insufficient cadre of dietitians/nutritionists. Additional knowledge and skills for a particular setting can be provided through a coordinated in-service programme, or through postgraduate specialist education.

All health workers have a responsibility and a role both professionally and as knowledgeable people within their communities. This requires education and training. Some professions have agreed national, regional, or global standards or competencies which relate, or could relate, to MIYCN. However, these competencies may be broad, focused on accreditation of institutions and mutual recognition of qualifications, or more relevant to the situation in higher income countries [29–33].

Though broad standards might exist for a profession, translating these into the specifics of a curriculum is generally the responsibility of the individual educational institution, or a central education authority, taking into account the national nutrition situation and priori-

ties, workforce needs, and links to other sectors that affect nutrition. Adapting general competency profiles or standards to local context strengthens ownership among stakeholders.

3. What Exists—Mapping a Curriculum

An examination of a curriculum needs to establish where nutrition topics or content are found in the curriculum [34]. Is it a distinct topic, or is it included in biochemistry or physiology, nutritional assessment, and techniques of anthropometric measurements, in gastroenterology, or in public health actions such as healthy eating messages and breastfeeding promotion, or in another topic? Are the national MIYCN nutrition priorities clearly integrated into the nutrition curriculum and the content kept updated with global standards, norms, and best practice recommendations? Is nutrition part of population health and well-being and an example of life course continuum of care, or is it only taught in relation to treatment of individual ill-health? Is breastfeeding included in nutrition, preventative health, childbirth, psychology, maternal or child health? Is MIYCN treated as a discreet topic or integrated in a holistic manner with other aspects related to the care of mothers and children? Some education courses may include a general module on social determinants of health, the contribution of national economic and social policies, and the importance of food systems (production, processing, distribution, preparation, and consumption of food) to nutrition. Communication, counselling, and behaviour change may be included in a person-centred model or as an action to be done to a service user who is expected to comply. Skills may be taught as deconstructed tasks performed in a specific situation, e.g., give this information during antenatal contacts, weigh baby, and plot on growth chart at these visits, etc.

MIYCN is a broad topic, and all aspects cannot be reduced to fit into a single short course within pre-service education. An effective curriculum equips students with nutrition knowledge as well as generic or transferable skills such as communication and counselling, professionalism, ethical care, and critical reading of research, and the competency to transfer that learning into diverse situations. Ideally, a curriculum would integrate MIYCN situations as examples when learning these generic skills. Unfortunately, these generic skills are sometimes taught in isolation and are not highlighted as transferable skills.

Examining an existing curriculum can identify included topics and pinpoint gaps. Alive & Thrive, an initiative to save lives, prevent illness, and ensure healthy growth and development through optimal maternal nutrition, breastfeeding, and complementary feeding practices, supported a curriculum mapping exercise in four countries of South-East Asia (Indonesia, Laos, Myanmar, and Philippines) led by the Nutrition Center of the Philippines (NCP) from August to November 2018 [35]. The mapping involved a review of the outline lists of topics for the training of doctors, nurses, and midwives to better understand the existing content and gaps in their pre-service education through comparison with a curriculum checklist based on several WHO and UNICEF guidelines. These guidelines include the WHO Model Chapter for Textbooks for Medical Students and Allied Health Professionals and others (Supplementary Materials File S1) with the checklist topics divided into four sections: Knowledge of Nutrition-Specific Interventions and Practical Skills, Role Plays, Demonstrations, and Exercises. The midwifery academic program was also compared to the International Confederation of Midwifery (ICM) curriculum outline. This mapping process highlighted the good practice of establishing partnerships between educational institutions and government health departments responsible for training in order to ensure consistency between pre-service training and country-specific MIYCN programmes. The process also identified a gap in counselling concepts and skills in the pre-service curriculum in all countries and noted the variety of content and time allocated to all topics. Overall, the mapping indicated opportunities to improve the integration of MIYCN topics into the health professional course curriculum.

4. Analysing Expected Learning Outcomes

In Papua New Guinea, a participatory process involved developing a review tool and holding discussions with midwifery educators. The process was used to: (1) analyse expected MIYCN competency upon student graduation (phrased as what the graduate was expected to know/be able to do), and (2) assess the curriculum's content towards reaching those competencies. This process was initiated following a separate project to upgrade midwifery education which had not included MIYCN components in the curriculum upgrade. Elements of this tool were based on MIYCN-related competencies from WHO and UNICEF guidance and programmes, professional organisations, key national policies, and protocols for MIYCN and care. These elements were informed by research, including *Alive & Thrive* and NCP's curriculum review project in four countries of Southeast Asia. The tool also asked about the ease of inclusion if a topic was not already included (Supplementary Materials File S2).

The review process revealed a range of content and activities used by individual education establishments that contributed to curricula, highlighted gaps in the curricula and educators' needs, and established opportunities where MIYCN could be integrated into existing midwifery and child nursing curricula. Next, an updated resource pack was developed to assist educators using a learner focus that included session plans, job aids, links to additional online resources, assessment activities, and MIYCN insertions into the midwifery competency logbook. The resource pack was provided electronically to all the education sites for further dissemination to classroom educators and practice facilitators, as well as provided to focal persons for health worker training within the Ministry of Health.

5. More Than Curriculum Alone

The existence of a written competency-based curriculum alone is not enough. Health workers face increasing and diverse challenges in their work, necessitating a closer connection between health worker education and local context, population health, needs of the health system and workforce, and government policies for education, food security and health [36,37].

When nutrition education is not adequately valued, it can result in a lack of sustainable capacity in nutrition educators and inadequate resource allocation to support curriculum review and innovations [8,10].

Enabling opportunities for practice placements is vital to a health worker's training. Placement experiences need to be recognised as an integral part of the curriculum, and placement tutors must be valued as educators, allocated time to carry out this role, and closely linked with educational institutions. A wide cadre of placement tutors allows students to gain experience in varied practice environments including the community, the home, in disadvantaged populations, and in hospitals [36].

Pre-service training can be enhanced by the commitment of educational institutions, government and professional associations to make nutrition education mandatory and examined, included for the accreditation of health worker courses, and as part of relevant regulatory frameworks to act as an incentive for integration into the curriculum [14,38].

To achieve and sustain a coordinated workforce that supports nutrition with consistent, up-to-date information and opportunities for practical and practice experiences, pre-service education needs to be integrated with multidisciplinary in-service training and ongoing professional development. Pre-service tends to be led by human resources for health departments (or similar) and implemented by the colleges or training centres with little donor funding. In-service training may be led by segmented technical programs (child health, reproductive health, nutrition, obesity, etc.), receive a great deal of donor funding, and be updated more frequently, though often there is no long-term management or oversight role for health workers or plan for subsequent use of the training. If pre-service training is effective, then costly in-service training may be limited to polishing these pre-service skills, providing updates or specialist competencies, and ensuring students and qualified staff have unified knowledge and skills relevant to the specific practice setting.

The development of mutual recognition agreements that intend to facilitate the cross-border mobility of health professionals within geographic regions adds another layer of importance to effective pre-service training.

Education providers are extremely diverse around the globe. They may be independent, for-profit, publicly owned under the ministry of health or ministry of education, or closely linked with health facilities providing practical training. They may be separate, centralised, or under the control of local governments. Stakeholders in pre-service education include educators, employers of health workers, funders and development actors, government agencies providing nutrition programmes, health professional bodies, as well as the students and new graduates, and the oft-forgotten people who use the health services; the inclusion of a broad range of stakeholders in curriculum and competency dialogue is vital [39].

The competency expectations and a structured curriculum at individual course level is only one aspect of providing quality MICYN care. There is also an associated need for:

- Policy advocacy that highlights the importance of MIYCN including allocating on-going budgets for pre-service training and support for educators;
- Establishment of varied experience placements with trained and supported educators;
- Coordinated pre-service and in-service training to ensure students and qualified staff have unified and contextualised knowledge and skills and budgeted without relying on free sessions provided by commercial interests as a means of marketing their products;
- Communication with students, professional organisations, education providers, funders, employers, and the community regarding expectations, standards, and role descriptions, to avoid imposing a new curriculum without effective consultation and evaluation;
- Evidence-generation on training outcomes, including discussion with those graduated within the past 2–3 years, regarding their self-assessment of competency and any learning need not met within pre-service training.

6. Conclusions

Curriculum review, revision, and competency structuring provides an opportunity to benchmark course topics on global or international standards, to focus on learner competency, and to facilitate mutual recognition of qualifications across countries. A multi-stage process of mapping, analysis, and discussion, as outlined here, contributes to updating of curricula, consistent provision of quality care to service users, assists development of health worker confidence and professionalism, and supports effective use of training budgets.

All health workers have a responsibility in relation to MIYCN, though specific roles and education needs may vary in their breadth and depth (e.g., awareness, generalist, specialist). Listing topics for teaching, or the hours spent in a classroom, does not ensure students' competence. A broad holistic curriculum needs to encompass didactic activities, practical experiences, self-directed learning, and resources, as well as assessment and evaluation methods, all designed as integrated learning and preparation for practice.

In this commentary, we describe a multistage process of developing and using tools to examine existing curricula, to discuss competency expectations and educators' needs for content, practical skills, and assessment related to MIYCN. The combination of knowledge of the existing situation, evidence-based standards of competency, discussion of changes needed, tools for learning, teaching and assessment, and outcome monitoring are key components that need to be scaled up to facilitate effective delivery of MICYN services. We hope that our experience of implementing this multistage process to map the existing curriculum and analyse expected competencies, and our shared thoughts, will contribute to providing consistent evidenced-based MIYCN care as routine practice to facilitate the health and well-being of infants, young children, and their mothers. Tools are provided in the Supplementary Materials which can be used for review and discussion of curricula and

competency at local and national levels and to link transferable skills such as counselling with specifics of MICYN.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/educsci12080518/s1>, File S1. Checklist for curriculum mapping pre-service education on essential nutrition actions for maternal, infant, and young child nutrition (MIYCN) for health professionals undertaken in four countries of South-East Asia (Indonesia, Laos, Myanmar, and Philippines). File S2. Tool for analysing expected learning outcomes and curriculum for infant and young child feeding (IYCF).

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