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Review article

Educating and Training the Future Adolescent Health Workforce

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 A B S T R A C T

Unprecedented attention is now focused on adolescents with growing appreciation of their disease burden and of the opportunities of investing in adolescent health. New investments are required to build the technical capacity for policy, programming, research, and clinical care across the world, especially in resource-poor settings where most adolescents live. Strategies to educate and train the future workforce are needed. Competency-based education and training is the standard of education in preservice (undergraduate and postgraduate) health education and medical specialty training. Yet competency is difficult to quantify and standardize, as are the processes that underpin competency-based education and training. The primary objective of this review was to identify how quality education in adolescent health and medicine is determined. This information was used to inform the development of a conceptual framework for institutions teaching adolescent health, which can be used to assess the quality of teaching and learning and to monitor the implementation of these adolescent health competencies. Specific teaching modalities and assessment tools that have been used to teach adolescent health are described to exemplify how an educational program can be delivered and assessed. This framework is a step toward the development of a more adolescent-competent health workforce.

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**IMPLICATIONS AND
CONTRIBUTION**

Curricula and standards are increasingly being developed for adolescent health, as are innovative approaches to pedagogy. These are infrequently reported, especially in resource-poor countries where most adolescents live. This paper describes a competency-based conceptual framework to assist institutions teach adolescent health, which is required by the future health workforce.

Conflicts of Interest: Dr. Valentina Baltag is a staff member of the World Health Organization (WHO). Dr. Kokotailo was a consultant for the WHO in 2016, during which time she prepared an internal report on quality and evidence-based general medical education. Professor Sawyer chaired the WHO Technical Steering Committee on Maternal Newborn Child and Adolescent Health at the time this work was undertaken. The authors alone are responsible for the views expressed in this paper, which do not necessarily represent the decisions or policies of the World Health Organization. We feel that there are no potential conflicts of interest for the authors.

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At no other time has such attention been paid to the health of adolescents. Although 10- to 24-year-olds constitute more than a quarter of the world's population, newfound appreciation of the extent of human development across adolescence and of the value of investing in adolescents is helping to drive this change [1-4]. Within the context of the Sustainable Development Goals, the Global Strategy for Women's, Children's and Adolescents' Health, and the Global Accelerated Action for the Health of Adolescents, substantial investments will be required to build the necessary technical capacity for adolescent health policy and programming, research, and clinical care across the world [2,5,6]. Within many resource-poor countries, the need to extend the

focus of traditional health education from very young children to adolescents means that particular attention will be required to educate the future workforce.

As with all strands of health education, integration across the levels of health-care training is required for doctors, nurses, and other providers to gain the requisite attitudes, knowledge, and skills to work effectively with adolescents. Educators will face additional challenges in countries where the infrastructure for health professional education is poor, where there is little appreciation of the unique aspects of adolescence, and where health systems and preventive actions are not well oriented to adolescents' needs [7,8]. Competency-based education and training is the current standard of preservice (undergraduate and postgraduate) health education [9–11] and medical specialty training. Competency is defined as “sufficient knowledge and psychomotor, communication and decision-making skills and the attitudes to enable the performance of actions and specific tasks to a defined level of proficiency” [12]. In addition, quality assurance, defined as “the systematic review of educational programs to ensure that acceptable standards of education, scholarship and infrastructure are being maintained” [13], has become a major focus of higher education assessment [14].

In the context of improving the quality of adolescent health education, we first set out to identify what approaches and tools are currently used to measure progress in educating and training the health workforce. Preliminary work included the identification of approaches and measures of general health education, with a focus on medical education [15]. We then set out to review these same approaches and measures for adolescent health education and training. Our focus was to examine measures to assess the quality of adolescent health education at the level of an institution, including standards for nursing, midwifery, and other health professions. Specific teaching modalities and assessment tools in adolescent health were also sought. As part of this effort, we developed a conceptual framework to assess the quality of adolescent health education, with the expectation that this would contribute to efforts to evaluate the progress of the implementation of core competencies in adolescent health and medicine in undergraduate and postgraduate education.

In this review, the term “adolescent health” is used as shorthand for adolescent health and medicine, referring to the requirements for understanding healthy adolescent development, the breadth of contributions to adolescent health (the intersection of biological development with social and structural determinants), the common health issues experienced, and the range of preventive interventions that address these issues. Our focus is the education of multidisciplinary health professionals, mainly in the context of clinical education, but also for population health training. We have restricted the term “adolescent medicine” to refer to specialist practice. The focus is 10- to 24-year-old adolescents and young adults, referred to as adolescents.

Methodology

In reviewing the broader health professions literature to identify approaches and tools to measure progress in educating and training the health workforce, we used a logic framework through the delineation of inputs, process, outputs, and outcomes [16]. Using this framework, *inputs* are defined as the financial, human, and material resources invested in the development of health professionals, including the educational materials and curricula developed for learners, and the training and development of

faculty and other teachers. The *process* of education includes implementing educational activities, enhancing educators' teaching competencies, and the institutional level of support for teaching. *Outputs* are defined as the demonstration by learners that they have mastered core competencies and meet educational standards. Outputs also include assessment of the performance of educators in meeting educational standards. Outputs should inform planning for appropriate educational interventions at the national level. Outcomes, defined in this review as the application by graduates of core competencies in clinical practice, and impacts, defined as better health of the community, are seen as a joint responsibility of national educational and health systems, and are not specifically included in this review.

Initially, a comprehensive literature search of general health education was performed using relevant bibliographic databases, websites, and gray literature resources. Only papers in the English language published after 2010 were retrieved (2010–2016). In addition, specific organizations and collaborations were targeted for relevant information, including CanMeds, European Commission, European Higher Education Area, General Medical Council (UK), Higher Education Australia, Jhpiego, Quality Association Agency, United Nations Educational, Scientific and Cultural Organization, Accreditation Council on Graduate Medical Education (US), Liaison Committee on Medical Education (US), and the World Health Organization (WHO), as well as reports and reviews created by the Best Evidence Medical Education, the Campbell Collaboration, and the Cochrane Collaboration.

To identify the appropriate evidence for adolescent health and medicine education, a second comprehensive literature search was performed using the bibliographic databases MEDLINE, CINAHL, and ERIC. Each database was searched for adolescent health topics using variants of the following keywords: (1) adolescent populations (e.g., adolescents, teens, young adults); (2) conditions and treatments (e.g., substance abuse, mental health, reproductive issues, nutrition, domestic violence, puberty, adolescent health service); (3) type of education (preservice, medical education, training, curriculum); and (4) type of health-care professionals (physicians, doctors, residents, fellows, nurses, midwives, health-care providers, health-care personnel, or health educators). Relevant papers published in English from 2006 to 2016 were retrieved; bibliographies were mined for earlier papers. Beyond the academic literature, specific organizations were targeted, including the World Federation for Medical Education, through mining bibliographies, internet searches, and personal contacts.

Standards, competencies, and frameworks

In reviewing the literature focused on determining the key measures, methods, and tools to assess the quality of medical education at the preservice (undergraduate and postgraduate) levels, it is apparent that the main mechanisms to assure quality are through implicit or explicit accreditation schemes of medical or other professional schools and postgraduate programs, supplemented by continuing professional development programs. Accreditation schemes and competency-based assessments have been recommended by many areas of health education. For example, the American Association of Colleges of Nursing has developed a comprehensive document, “The Essentials of Baccalaureate Education” [17], which outlines the essentials of a generic preservice curriculum and defines specific tools to augment clinical education, such as simulation. An accompanying

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