

# The new innovative medical education system in Ethiopia: Background and development

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## Abstract

**Background:** A New Innovative Medical Education Initiative (NIMEI) had been launched in Ethiopia in February 2012 and the training of medical doctors using a new approach and curriculum initiated. Currently training is being conducted in *ten* universities and *three* hospitals across the country, all of whom have teaching hospitals, health centers and community attachment sites. The NIMEI curriculum is different from the existing curriculum in terms of uptake of students, years of education and is competency based and integrated

**Objective:** The objective of this review is to give the background and objectives for introducing the NIMEI in Ethiopia. It also outlines the detailed process for developing the curriculum as well as for organizing the required system for initiating the training within the new initiative.

**Methods:** Review and description of the background and process of developing a new innovative medical curriculum in Ethiopia through comparisons of experiences of similar undertaking from the literature.

**Results:** The objectives, rationale as well as the approach and methodology used to develop the curriculum are outlined. The processes involved in the implementation and the initial appraisal of the developed curriculum was also discussed.

**Conclusion:** In conclusion, this review highlights the possible impact of the NIMEI on the human resources for health development as well as for the overall health system of the country. *Ethiop. J. Health Dev.* 2013;27 Special Issue 1:36-40]

## Introduction

Figures from the Federal Ministry of Health of Ethiopia (FMOH) reveal that the physician to population ratio is 0.03 per 1, 000, which is significantly lower than the WHO recommended standard of 1:10,000 for developing countries. In addition to the prevailing low rate of physicians per population, the problem is further compounded by inequitable geographic distribution of these physicians. The Government of Ethiopia recognizes that the low density of physicians poses a serious challenge for the delivery of essential health care services especially in the rural areas where more than 80% of population lives. In 2008/9, the country had a total of 2151 physicians, of which 934 (43%) were working in Addis Ababa where only 5% of the population lives. Of the remaining 57%, most were concentrated in the main cities of the respective regions (1, 2).

The shortage of physicians in Ethiopia could be attributed to a combination of factors including limited number of medical schools, brain-drain, poor motivation and retention and internal displacement of physicians. In recognition of these challenges, the Health Sector Development Program (HSDP) (3), emphasizes the need for universal primary health care coverage and Human Resource for Health (HRH) is a corner stone for the health system to function well at all levels of service delivery.

The New Medical Education Initiative (NIMEI) was initiated by the Federal Ministry of Health (FMOH) and the Federal Ministry of Education (FMOE) in 2008 in order to redress the low rate of physician to population ratio. This initiative envisages designing an alternative and efficient medical education program that could produce competent medical doctors in sufficient numbers by improving the quality of medical education and

enrolling graduates from health and natural sciences. The training on the new curriculum has already started in *three* hospitals and *ten* universities as of February 2012. It is worth noting that the expansion of conventional medical education program in different universities is being undertaken simultaneously.

This paper attempts to provide a brief overview of the rationale and the process of development of the new curriculum for medical education in Ethiopia. It also highlights the structure and design of the curriculum, in addressing the health problems of Ethiopia while maintaining international standards.

## Objective and Rationale

The objective of the NIMEI is to educate medical doctors in adequate quantities and with professional competence and eventually provide quality health care services. The curriculum aims at enrolling candidates with BSc. in Health and Natural Sciences and by using a new educational approach to equip graduates with comprehensive knowledge and skills that would enable them function as care providers, decision makers, team leaders, researchers, social mobilizers and teachers.

The rationale for the NIMEI was, amongst others, the urgency to address the shortage of doctors and fill the gap in demand and supply, ensure their equitable distribution and meet the need for improved services called due to changes in population size and disease trends.

## Approach and Methodology

The curriculum development process had been initiated and led jointly by the Federal Ministry of Health (FMOH) and Federal Ministry of Education (FMOE) of

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Ethiopia under the auspices of the National Medical and Health Sciences Curriculum Council. The Universities of Addis Ababa, Gondar, Jimma, and Mekele and partners such as the CDC Ethiopia, Tulane University, the World Health Organization (WHO), Johns Hopkins University and the Tropical Health and Education Trust (THET) supported the different activities of the curriculum development process. A Task Force drawn from institutions listed above was entrusted with the development of this curriculum with the involvement of national and international experts as advisors and reviewers.

All efforts were made to ensure that the planning and the development of the curriculum was as evidence based as possible through: the assessment of current and future national health care needs, establishing objectives to meet those needs, designing the curriculum to meet those objectives, implementing the curriculum, measuring performance against the set objectives, and finally reviewing and revising the curriculum based on findings for implementation.

The curriculum development and implementation phase could be understood in four different phases as described below:

### **1.1 Phase One: Literature Review and Surveys**

The initial phase included the comprehensive desk review, stakeholders' opinion survey, competency assessment survey of general practitioners (GPs), and benchmarking activities in universities outside Ethiopia.

#### **A) Literature review**

A review of the literature had helped to get an overview of the global trends in medical education and to determine what would be appropriate to the Ethiopian context. According to the review, the traditional curriculum, the classical model as described by Abraham Flexner in 1910 (4), is discipline-based, study basic sciences before clinical years of education, teacher-centered, hospital oriented, and delivered in classrooms and hospitals. On the other hand, there are different innovative strategies that are being adopted that include, among others: self-directed and learner-centered learning, problem-based learning, task-based learning and integrated and early clinical contact.

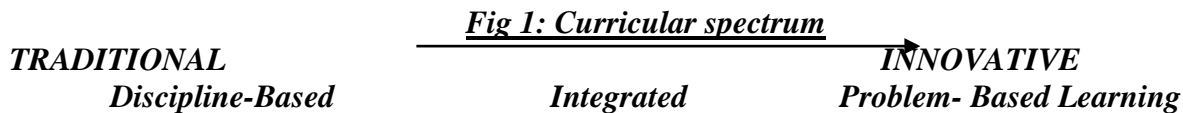
In recent years, political systems, epidemiological and demographic patterns, micro-economic strategies, technology, and health care systems across countries have

undergone profound changes. To cope with these changes, educational institutions around the world have been increasingly working on their curricula to make them more meaningful and meet the needs of the communities they serve. To this end, a number of innovative medical education programs, based on social accountability principles, have been introduced to address the shortage of doctors for rural and underserved communities. The need for reorientation of medical education has been repeatedly highlighted by several authorities and within various documents such as the World Federation for Medical Education's "Edinburgh Declaration" (5). Medical doctors are expected to be: care providers, decision makers, team leaders and social mobilizers (6). In addition the obligation of medical schools to direct their training, research and service activities towards addressing the priority health concerns of the community they serve has been highlighted within the concept of social accountability of medical schools (7). Therefore, even though many medical schools are still offering courses based on the traditional system, the emergence new paradigms as mentioned above, medical education strategies are in evolution and spectrums of techniques are being implemented by countries aimed at orienting their medical education in order to meet the emerging needs of their communities. The shift in the spectrum of curricula that are currently being adopted are schematically represented in figure 1.

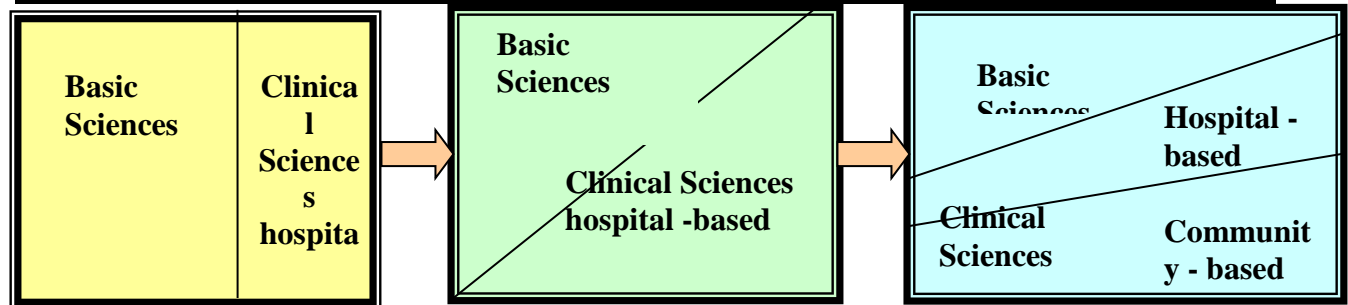
It is within this context of encouraging "educational environment for change" that has emerged in the arena of medical education that Ethiopia has embarked on an exercise in reorienting its medical education.

#### **B) Benchmarking activities**

Identifying and learning from best practices and innovations adapted by international universities was a major activity in the curriculum development process. In 2009, task force members visited 12 medical schools in Canada, the Netherlands, Egypt, Sudan and South Africa to study their curricula and implementation experiences. Their key successes and challenges in the areas of educational programs, curriculum development, innovative teaching methodologies, faculty development and involvement, community involvement, social accountability, facilities and implementation costs were studied and benchmarked. Several universities in the United States of America were also benchmarked especially to look into how the four years program after a bachelor's degree is being conducted and how innovations were introduced. Experiences of many other universities in Australia, Philippines, Norway, England, Cuba, Venezuela, Brazil, UAE, India, Germany, Singapore, Nigeria, Tanzania and Mozambique were also reviewed from the literature.



**Fig 2: Shift in the Basic and Clinical Sciences Distribution in Medical Education.**



*Source : Elizabeth K. Kachur and Karl Karajic: Structures and trends in health professionals Education in Europe (8)*

### C) Stakeholders' opinion survey

The objective of this survey was to understand the views of stakeholders that included university presidents, deans, medical directors, practicing physicians, and chairpersons of selected health professional associations. The survey was conducted in 2009 and covered a total of 84 participants. Primary data were collected through questionnaires and interviews. Some of the issues that the survey addressed were: how the doctor to population ratio could be improved, opinion on the human resources for health (HRH) need for Ethiopia, medical education methodologies and the respondent's roles as partners.

### D) Competency assessment survey of general practitioners (GPs):

A national survey was conducted in all regions of Ethiopia in 2009 in which 700 medical doctors and 72 hospitals participated (9). Through a self-administered questionnaire, survey participants reported about their knowledge, skills and values they acquired from their medical education, what they felt was missing, which areas needed strengthening and what new areas should be introduced to better equip GPs. One major finding from the survey was the existence of gaps in the competency of GPs.

Focus group discussions with health professionals, primarily medical doctors working in the 72 hospitals were also conducted using the same questionnaire. The results indicated that a large majority of GPs believe medical education needs more practical skill training and that the clinical and internship years were the most valuable to their practice of medicine. A large majority felt they were not adequately equipped with life-saving clinical skills nor have the ability to perform emergency surgical procedures. They highlighted the need for the basic sciences to be better focused and clinically oriented. The need to focus on health problems of the communities they are supposed to serve was also identified. The importance of building competencies in the areas of

leadership, communication, ethics, and IT skills was also pointed out. Participants also shared their ideas on what they think needs to be introduced to handle the challenges of health care at the grass roots level in Ethiopia. The results of the focus group discussions also validated the observations made by the GPs.

### 1.2. Phase Two: Curriculum Development

The second phase involved determining the steps through which the curriculum development process should pass through. Accordingly, the six step approach of developing competency-based curriculum (10), described below was adopted.

#### Step 1: Problem identification and general needs assessment

Based on the surveys and assessments made, the taskforce consolidated the problems identified, and reviewed the strengths and the gaps in the medical education as well as the general needs assessment of health care as the bases for the curriculum development.

#### Step 2: Identifying competencies

The identification of the competencies deemed essential for the Ethiopian medical doctor took into consideration the gaps observed in the "Competency assessment survey of GPs in Ethiopia" and the general needs assessment of health care in Ethiopia. Seven domains of core competencies that are expected from graduates were identified: a) professional values, attitudes, behavior and ethics; b) scientific foundation of medicine; c) communication skills; d) clinical skills; e) population health and health systems; f) management of information; and, g) critical thinking and research and practice-based improvement. The major documents and bodies referenced for the purpose of defining competencies were the "Global Minimum Essential Requirements" as documented by the Institute for International Medical Education (IIME) (11), the core competencies identified for medical education by the Accreditation Council for

Graduate Medical Education (12), and the “Learning Objectives for Medical Student Education-Guidelines for Medical Schools: Report I of the Medical School Objectives Project” (13).

### **Step 3: Setting the goals and objectives of the curriculum**

The goals and objectives of the curriculum were set as described in detail in the curriculum document.

### **Step 4: Identifying educational strategies**

Educational strategies, courses, teaching and assessment methodologies were identified, and course sequencing and duration thoroughly worked out. The curriculum developed by the NIMEI is competency based - whereby measurable learning outcomes are defined and teaching-learning methods and assessment tasks aligned with those learning outcomes are put in place. Integrating the biomedical and clinical, professional competency and social and population health courses at all levels of the curriculum follows spiral principles in the delivery of education progressively increasing in complexity. It is also modular where the courses are organized in modules integrating the biomedical, clinical, professional competency development in the system based modules; discipline based integration in the clerkship years; and the social and population health sciences in themes. In terms of learning and teaching, the curriculum applies several combinations of methodologies, including Problem Based Learning (PBL), instructional and student centered learning approach that will prepare them for lifelong, self-directed learning. The curriculum features the use of electronic and web based resources. Assessment systems are continuous, contributing to the learning processes and have formative and summative approaches.

### **Step 5: Developing educational resource standards**

Capacity building plans for the selected implementation sites for the new medical schools was informed by capacity assessment surveys. These included physical facility, lecture halls, tutorial, rooms, laboratories (including skills laboratory), resource centers and libraries. Standards were also set for teaching learning materials and books, staff-student ration, information technology equipment and facilities as well as clinical training sites. The teaching hospital for each medical school, health centers within 50 km radius and community attachment sites were also identified.

### **Step 6: Developing quality enhancement, monitoring and evaluation system**

The NIMEI curriculum has addressed the required standards and expectations set by the Ethiopian Higher Education Proclamation (14), the ETQAA (Education and Training Quality Assurance Agency) Guidelines (15) and the World Federation of Medical Education Standards (16).

#### **1.3. Phase Three: Consultative Processes**

The third phase focused on building consensus and buy-in through consultative processes at national level by way of presenting the curriculum to key stakeholders. This was done by presenting the draft curriculum to national area and subject matter experts’ review in a workshop that lasted for three days which was followed by the deliberations of the National Medical and Health Sciences Curriculum Council. At the experts’ meeting where 56 participants were in attendance, a total of 38 biomedical, clinical, professional competency development, social and population health modules were reviewed.

Some concerns and amendments suggested by the group of experts included the need for adequate planning and management in implementation, duration of the curriculum, potentials for resource limitations including faculty and facilities and the need to put an appropriate incentive mechanism in place to retain graduates. Other suggestions included capacity development of faculty and the need for restructuring and integration of the existing departments to reflect changes in the content and delivery of the curriculum.

The deliberation of the National Medical and Health Sciences Council was conducted for two days and was attended by 108 participants. By the end of the workshop, consensus was reached by participants that the curriculum can be implemented at this stage and that all concerned universities could go ahead with preparations and work jointly to implement the NIEMI.

#### **1.4. Phase Four: Implementation**

The fourth phase focused on implementation of the curriculum and was preceded by the development of a detailed implementation plan by the Task Force and by the respective universities. In preparation for implementation, the following major activities were undertaken;

- a. Final capacity assessment of universities selected for implementation;
- b. Faculty recruitment and development;
- c. Faculty career development for medical educators in this program;
- d. Introduction of the curriculum to all stakeholders;
- e. Development of student recruitment admission and selection including a national NIMEI entrance exam; and
- f. National Launching of the NIMEI: conducted at Ambo University in February 4, 2012.

After the necessary preparatory works and by the time this article was submitted, 13 new medical schools had enrolled 875 new medical students and initiated the implementation of the NIEMI.

#### **Opportunities and Challenges**

The Commitment of the government to launch and run the program, the strong collaboration between the FMOE and FMOH in the development as well as implementation of the program, willingness and commitment by universities and regional health bureaus to strengthen and expand the health service system including hospital services, the experience gained through implementation of other national health sciences programs, the readiness shown by partner organizations to support the program, the positive attitude seen among Ethiopian experts and implementing institutes in the innovative educational methods have been seen as opportunities for the implementation of the program. Previous experiences indicate that any scaling up of such undertaking has its own ups and downs that positively or negatively affect the realization of the intended program. As long as careful planning and workable implementation strategies are in place and with the participation of all stakeholders, the program will succeed as intended.

Some of the challenges anticipated in the course of implementation that were presented to policy makers for support include; a) the demand for more instructors, facilities and other educational inputs; b) potential mismatch between the desire for rapid implementation of the program by enrolling large number of medical students and the huge demands that this could pose on available resources; c) limited availability of new technology; d) issues of motivation of instructors and students; and e) limited experience in implementing programs of this nature and scope in the country.

### **Conclusions and the Way Forward**

With all its attributes it is anticipated that the NIMEI will make significant contributions towards the realization of the national human resources development strategy. In addition, it will enhance the quality of medical education in the country. Furthermore, this innovative curriculum will visibly contribute to the competency based curriculum development for the training of other health professionals in Ethiopia.

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### **References**

1. FMOH. Health and Health related indicators (2007/8). Planning and Programming Department, Addis Ababa, 2008.
2. FMOH. Health and Health related indicators (2006/7). Planning and Programming Department, Addis Ababa, 2007.
3. FMOH. Health sector strategic plan (HSDP III) 2005/6-2009/10. Planning and Programming Department, Addis Ababa, 2005.
4. Flexner A. Medical Education in the United States and Canada. Washington, DC: Science and Health Publications, Inc.; 1910.
5. World Federation for Medical Education. The Edinburgh Declaration. *Med Educ* 1988; 22:481-2.
6. Mitchell P, Wynia M, Golden R, MCNellis B, Okun S, Webb CE, et al. Core principles and values of team-based health care. Discussion paper. Institute of Medicine, Washington DC, 2012.
7. Boelen C, Boyer MH. A view of the world's medical schools: defining new roles. *Bulletin of the WHO* 2001; 80(70):592-593.
8. Kachur EK, Krajić K. Structures and trends in health profession education in Europe. In Dubois CA, McKee M, Nolte E (ed.): Human resources for health in Europe. European observatories on health systems and policies series. UK: Open University Press; Berkshire, UK, 2006.
9. FMOH, Ethiopia. Competency assessment study of GPs in Ethiopia: A preliminary report. Addis Ababa; FMOH, 2009.
10. Kern DE, Thomas PA, Hughes MT (editors). Curriculum development for medical education: A six-steps approach. Johns Hopkins University Press; Baltimore and London, 1998.
11. Core Committee for International Medical Education, Institute for International Medical Education. Global minimum essential requirements in medical education. *Medical Teacher* 2002; 24(2):130-135.
12. Accreditation Council for Graduate Medical Education (ACGME). Competencies identified for medical education in USA. Chicago, USA: ACGME; 1999.
13. The Medical School Objectives Writing Group. Learning objectives for medical student education-Guidelines for medical schools: Report I of the medical school objectives project. *Academic Medicine* 1999; 74: 13-18.
14. Federal Democratic Republic of Ethiopia. Higher education proclamation (proclamation no. 650/2009). *Negarit Gazetta* 2009;15(64):4976-5044.
15. Federal Ministry of Education (FMOE), Ethiopia. General education quality improvement program implementation manual vol. 1-3. Addis Ababa; FMOE, 2009.
16. World Federation for Medical Education (WFME). Basic medical education: WFME global standards for quality improvement. Denmark: WFME; 2003.