Tuning Africa

Design and Implementation of Degree Programmes in Medicine

Olusegun Olusina Akinyinka, Alain Khassim Jacques N'Doye, John E. Reilly (Editors)

Phase II

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Tuning Africa Project Phase II

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Preface

The harmonisation of higher education in Africa is a multidimensional process that promotes the development of an integrated higher education space on the continent of Africa. The objective is to achieve collaboration across borders, sub-regionally and regionally, in curriculum development, educational standards and quality assurance, joint structural convergence, consistency of systems as well as compatibility, recognition and transferability of degrees to facilitate mobility. Harmonisation is necessary for achievement of the African Union vision of integration, peace and prosperity.

Tuning Africa was adopted as a possible instrument to advance the African Union's harmonisation agenda, in collaboration with the EU through the Joint Africa-EU Strategy. Implementing a second phase of Tuning was one of the commitments taken at the 2014 Africa-EU Summit in 2014 in Brussels, as a follow-up to the very successful pilot phase which took place between 2011 and 2013.

At the November 2017 Africa-EU Summit in Abidjan, Heads of State committed to deepening their collaboration and exchange in education, aiming at increasing the employability of young people bearing in mind that investing in youth and future generations in Africa is a prerequisite for building a sustainable future. In this context, further concrete initiatives in the field of higher education which aim to enhance relevance and the quality of education and training will be encouraged.

By contributing to the harmonisation of higher education in Africa, Tuning Africa is complementing Erasmus+, the Intra-Africa academic

mobility programme and the Nyerere scheme; thereby enhancing the mutual recognition of academic qualifications and facilitating exchanges and mobility of students and staff across the continent and with Europe. This is instrumental for acquiring key skills and competences that are important for employability, facilitating collaborative research addressing common challenges, and for ensuring relevant and quality education.. The dialogue on credits and a common credit system for Africa is another major deliverable for Africa. All these initiatives are in line with the Continental Education Strategy for Africa as well as Africa's Agenda 2063 which calls for an education and skills revolution.

Tuning Africa has provided a platform for dialogue on quality assurance and the improvement of teaching, learning and assessment in higher education. Bringing together academia and employers, and importantly in this second phase, the active involvement of students, has been crucial. The success of Tuning Africa has been the involvement of a critical mass of universities and stakeholders, the ownership and commitment of all involved, as well as a transparent and credible leadership.

The AUC and EC are grateful to all the African and European experts involved in the production of this book, which is an outcome of the Joint Africa-EU Partnership Harmonisation and Tuning Africa 2 initiative.

African Union Commission and European Commission

Chapter 1

Medicine in the Global and African Context: Curricula Innovation

1.1. Introduction

The Medicine Subject Area Group (SAG) originally comprised partners from ten countries drawn from the North, East, South, West and Central Africa. In Phase II of the Tuning Africa Project, the group grew to fifteen, further enriching and developing the Medicine Subject Area Group in its task of tuning and harmonisation of higher education in Africa. Together, the two groups prepared this report which is divided into two main sections.

The first part of this publication covers the work in Phase I, during which the SAG identified the specific needs or features of Medicine in Africa which included the core generic and subject-specific competences which are expected from an African medical graduate as well as the profile of a graduate of Medicine and what areas need to be urgently addressed in the formation of the next generation of medical doctors in Africa.

The second part of this publication examines how the Medicine SAG addressed the development of new curricula for whole programmes or parts of programmes collectively and in individual institutions; how the Group assessed students' workload and responded to the survey results; recognition of staff development needs and how institutions responded to these and finally made recommendations for the development of the SAG work.

1.2. Members of the Tuning Africa Medicine Subject Area Group and Contributors to the Report

Algeria

- **Chair: Mahmoud Benali Abdellah** is Professor and Vice-Rector for International Relations and Cooperation, University of Algiers I, and former President of the Scientific Council of the Faculty of Medicine of Algiers.

- **Moussa Arrada** is Professor and Dean of the Faculty of Medicine, University of Algiers.

- **Merzak Gharnaout,** Head of the Pneumophysiology Department of Rouiba Hospital, Vice-Rector for External Relations and Cooperation (replacing Prof. Benali who attended the first General Meeting.

University of Algiers I:. Founded in 1909, it now comprises seven Faculties, one of which is the Faculty of Medicine of Algiers I. Inaugurated in 1833, the School of Medical Sciences was the first Algerian higher education institution. Medical education was delivered by army doctors and was initially restricted to European students. Subsequently, courses were opened to Turkish students, Moors and Jews. In 1909, it obtained its independence from the Faculty of Montpellier (which until then delivered the diplomas), and the Faculty of Medicine and Pharmacy of Algiers was established. The language of instruction is French. The faculty has ca. 20,000 students; 1,200 graduate of Medicine, 300 in dental surgery and 500 in pharmacy. There are 2,000 full-time members of the academic staff. Professor Laveran (1845-1922), Nobel Prize in Medicine, was educated in Algeria, where he focused his research on malaria and its agents.

Democratic Republic of Congo

Mannix Imani MASIMANGO is a Doctor of Medicine with specialisation in Nephrology. He is a Faculty Administrator at the Université Catholique de Bukavu and a Ph. D student at the Université Catholique de Louvain/ Belgium.

The Université Catholique de Bukavu. The Université Catholique de Bukavu was founded in 1989 and has seven Faculties, one of which is the Faculty of Medicine. The University currently enrols 3,000 students with approximatively 500 studying medicine.

Republic of Congo

Jean Rosaire Ibara is Professor at the Faculty of Medicine, University Marien Ngouabi.

Marien University Ngouabi. Formely named, Université de Brazzaville, the Marien University Ngouabi was founded in 1971. In 1977 it was renamed Marien University Ngouabi (UMNG). In 1978 the Higher Institute of Health Sciences (INSSSA) was founded. Between 1985 and 1992, several university establishments underwent change and the INSSSA became the Faculty of Health Sciences (FSSA). In 2006, the French university campus in Brazzaville, in collaboration with the Francophone University Agency (AUF) was opened. It has 575 academic staff and about 10, 000 students.

Egypt

Prof. Ahmed Ragab Elsayed MD, PhD Brussels. Professor of Otorhinolaryngology and Head and Neck Surgery, Faculty of Medicine, Menoufia University with double qualifications: MD from the Faculty of Medicine, Menoufia University, Egypt and PhD from UZ-VUB Brussels, Belgium. Also he is the Executive Editor of Menoufia Medical Journal (MMJ), associate editor of "EJORL", and a member of the international Board of "Laryngoscope", "EAORL" and "IJPORL". Also he has a diploma in medical education.

Menoufia University. Menoufia University (MU) was founded in 1976. It started with four faculties with nearly 9500 students, 214 staff members and 372 assisting members. It has steadily and remarkably developed to be one of the largest universities in Egypt. By 2012 it had 22 faculties. After that a new university (Sadat University) was launched. It contains now 14 faculties covering various branches of science and humanities. The main campus is located in the city of Shebin El-koum, the capital of Menofia Governorate, which is 75 Km from Cairo. The 14 faculties include: Medicine, Nursing, Liver institute,

Science, Agriculture, Art, Commerce, Computers and information, Engineering, Electrical Engineering, Education, Economics, Specific Education and Home Economics. The total number of undergraduate students is 70,494 and the number of postgraduates is 25,273. The total number of teaching staff members is 3,235.

Ahmed El Gohary is Professor of Clinical Pathology and Vice-President for Graduate Studies and Research at Suez Canal University, and former President of Fayoum University and currently the President of Egyptian Japanese University of Science and Technology (E-JUST).

Badreldin Mohamad Mesbah Abdelhady is Professor and Vice Dean for Postgraduate Studies and Research.

The Suez Canal University. The Suez Canal University was inaugurated in 1976 as a community-oriented university with ca. 35,000 students and twenty-four Faculties on four campuses. The branches at Port-Said and Suez became independent public universities in 2009 and 2013 respectively. Its Faculty of Medicine was established in 1978 as the first community-oriented, problem-based, student-centred medical school in Egypt (www.fom.scuegypt.edu.eg). It is a Centre of Excellence for students from Egypt, Africa and the Eastern Mediterranean Region and a pioneering, innovative school with ca. 1,250 students in the first cycle, ca. 2,000 in the second and third cycles and ca. 640 academic staff.

In 1988, the Faculty was designated a WHO collaborating centre in medical education and health research for its innovative and pioneering work. It is one of ten founding schools of the "Network of Community-Oriented Educational Institutions for Health Sciences" – "Toward Unity for Health".

Ethiopia

Ephrem Tekle Lemango is Doctor of Medicine (MD) at the Faculty of Medicine, Mekelle University. He holds an MA in Health Management, Planning and Policy and is Head of Quality Assurance for the Medical and Health Sciences Education office in the College of Health Sciences.

Loko Abraham Bongassie is Professor at the Faculty of Medicine, Mekelle University. He is a Doctor of Medicine (MD) specialising in

Paediatrics and a member of the Department of Paediatrics and Child Health; he is Chair of the School of Medicine and committee chair for group working on the development of competence-based medical curriculum.

Dr. Temesgen Tsega Desta is an Assistant Professor of Paediatrics with subspecialisation in Paediatric cardiology.

Mekelle University. Mekelle University is a relatively young university in Ethiopia which has undergone massive expansion in the last few years. The university has eight institutes and colleges, one of which is the College of Health Sciences. Mekelle University currently enrols ca. 28,000 students in different undergraduate and graduate programmes. The College of Health Sciences consists of one school and seven departments. The School of Medicine is the only school in the college. The college enrols ca. 5,000 students in different departments, ca. 3,400 of them in the School of Medicine. There are four specialty programmes and six master's programmes in the school. There are fifteen departments in the School of Medicine. The school has ca. sixty specialists in the clinical departments and ca. fifty resident physicians. There are nine clinical departments.

Kenya

Charles Odero Omwandho is Professor and former Dean of the School of Medicine (2010-2014), University of Nairobi.

Marybeth Cherono Maritim is a Senior Lecturer and Internal Medicine Specialist in the Department of Clinical Medicine and Therapeutics, School of Medicine, University of Nairobi.

University of Nairobi (UON). University of Nairobi is the largest university in Kenya. The UON was founded in 1956 and became an independent university in 1970 when the University of East Africa was split into three universities. In 1983 the university underwent major restructuring, resulting in decentralization and the creation of six campus colleges, which included the College of Health Sciences. In 2011 the university had ca. 61,900 students (ca. 49,500 undergraduates and ca. 12,400 postgraduates). In its College of Health Sciences, the Faculty of Medicine was founded in 1967. Since then it has developed into a college comprising the Schools of: Medicine, Pharmacy, Dental

Sciences, Nursing Sciences, the Institute of Tropical and Infectious Diseases and the Centre for HIV/AIDS Prevention and Research. The Faculty of Medicine has 14 departments, 239 members of academic staff and ca. 2,250 undergraduate and postgraduate students.

Mali

Seydou Doumbia is Dean of the Faculty of Medicine and Odontostomatology of the University of Sciences, Techniques and Technology of Bamako (USTTB), Mali.

The University of Sciences, Techniques and Technology of Bamako. The Faculty of Medicine and Odontostomatology is one of the 3 faculties and Institutes of University of Sciences, Techniques and Technology of Bamako (USTTB). USTTB is a public university established in 2011 after the split of "University of Bamako" into 4 universities. It inherited the Faculty of Medicine and Pharmacy, which was created in 1968 under the name of the National School of Medicine, and Pharmacy (ENPM). The Faculty of Medicine (FMOS) comprises 4 Academic and Research Departments including the Department of Basic Science, the Department of Public Health, the Department of Medicine and the Department of Surgery. The undergraduate medical degree-training programme (MD, MBBS) is a 7 year programme ending with a medical practice thesis defense. Admission to the programme requires a Baccalaureate degree (High school diploma) in Sciences. The programme has about 5,000 students (2,000 in the first year) and graduates about 300 MDs a year. The post-graduate training programme in medical and surgical specialties (DES), and include more than 20 specialties in medicine, public health, dentistry and surgery.

Morocco

Abdelhaq Alaoui Yazidi is Professor and Dean of the Faculty of Medicine and Pharmacy and Head of Pneumology, Ibn Nafis Hospital, Marrakesh.

Redouane El Fezzazi, Professor and Vice-dean in charge of Pedagogy at University Cadi Ayyad of Marrakesh.

University Cadi Ayyad (UCA), Marrakesh, Morocco, was created in 1978. It has thirteen establishments in four university towns:

Marrakesh, Kalaa des Sraghna, Essaouira and Safi in two regions of Morocco: Marrakesh Tensift Elhaouz and Abda Doukkala. It has 62,155 students, including ca. 500 foreign students representing ca. 37 nationalities. There are 1,361 academic staff, 926 administrative staff and ca. 300 international partners. In January 2013, Webometrics ranked the university as first in Morocco, third in the Maghreb, 35th in Africa, and 2,631 from ca. 20,000 universities and research institutes in the world. Established in 1994 and operational in 1999, the Faculty of Medicine and Pharmacy of Marrakesh and 17,000 m^2 buildings. It awards (1) the Doctorate in Medicine (seven years of study) and diplomas in areas of medical specialisation (four-five years of study) and forty medical, surgical and biological specialities. Students (number in progress until 2020): 1,855 (1,149 of them young women); teachers: 148 (56 of them women); administrative personnel 80 (42 of them women). Diplomas in medicine awarded between 2007 and December 2012: 715 prize-winners (479 young women). Specialists graduating between November 2004 and July 2012: 258 (119 women).

Mozambique

Armindo Daniel Tiago is Professor and Deputy Vice-chancellor, Administration and Resources at the Universidade Eduardo Mondlane.

Universidade Eduardo Mondlane. Universidade Eduardo Mondlane was the first higher education institution established in Mozambique. It dates back to 1962. It underwent transformations and developments over time to encompass the existing range of 135 undergraduate programmes and 80 graduate and post graduate programmes. It has a total of 30,365 students enrolled out of which 2,146 in graduate and post graduate training. The Faculty of Medicine at the UEM, was established in 1963 and therefore the oldest Medical School in Mozambique. Along its existence it has graduated over 2,000 medical doctors and its teaching staff played a key role in the establishment of other medical school/faculties of health sciences in the country. The FM collaborates with schools of medicine in Africa, Europe, Australia and the US. FM at UEM has duly revised its curriculum (competency based) as a dutiful member of the Tuning Africa Initiative.

Nigeria

Ogbonnaya Lawrence Ulu is the Dean of the Faculty of Medicine and Professor of Community Medicine, Ebonyi State University Abakaliki.

Ebonyi State University, Abakaliki. Ebonyi State University, Abakaliki was founded in 1996, though the medical school was established in 1991 as Faculty of Health Sciences as part of an older institution. In 1996 with the splitting of the original geographic area, the rump University College was upgraded to a full-fledged multi-disciplinary University with other Faculties including Arts, Management and Social Sciences. In 2002, a new Faculty of Health Sciences and Technology was established and began to enrol students in the 2002-2003 academic year in the Departments of Nursing Sciences and Medical Laboratory Sciences.

Olusegun Olusina Akinyinka was Provost of the College of Medicine, University of Ibadan and Professor of Paediatrics and a Clinical Pharmacologist; currently he is the Coordinator of the Medicine Specialty Area Group.

University of Ibadan. University of Ibadan is the oldest in Nigeria. Founded in 1948 as a College of the University of London, it received its charter in 1962 as the University of Ibadan. It has since grown to 13 faculties with 13,000 undergraduate students and 8,000 postgraduate students. Its College of Medicine, established in 1948, is the oldest Faculty of Medicine in West Africa. Restructured into the College of Medicine in 1980, the college consists of four faculties: basic medical sciences, clinical sciences, public health, and dentistry offering undergraduate programmes in medicine, dentistry, physiotherapy, nursing, biochemistry, physiology, human nutrition, medical laboratory sciences and environmental health sciences. The college has undertaken a revision of curricula to address the healthcare needs of Nigeria. The new curricula are system-based and reflect global standards. The University College Hospital (UCH) established in 1952 has a symbiotic relationship with the college in training, research and clinical services.

Senegal

Abourahmine Dia is Professor of Anatomy and Dean of the Faculty of Medicine, Pharmacy and Odontostomatology. He is the President of Medicine, Pharmacy and Odontostomatology as well as the International Francophone Conference of Deans of Faculty of Medicine.

Alain Jacques Khassim N'Doye, is Professor of Urology and Head of the Department of Surgery at the Faculty of Medicine, University Cheikh Anta Diop.

University Cheikh Anta Diop, Dakar. University Cheikh Anta Diop (also known as University of Dakar) was established on 24 February 1957 and officially opened in December 1959. It is the main university in Dakar. In the Shanghai university ranking, it is ranked as the highest francophone university in Africa. The university consists of six faculties with ca. 60,000 multi-national students, from south of the Sahara, the Maghreb, the Comorians, the Middle East, Europe and Asia. Its Faculty of Medicine, Pharmacy and Dentistry is the oldest francophone faculty of medicine south of the Sahara. It was established in 1916 as the School of Medicine and Pharmacy. The Faculty has 350 teachers and ca. 7,000 students—two-thirds of whom are trained as generalists. The remaining third specialize for a PhD. There are forty nationalities. Women represent 37 per cent in the overall number, and their number is growing. A hundred and fifty students graduate each year. Teaching methods integrate face-to-face courses with distance learning, which is developing an increasing number of on-line courses. Video-conferencing is becoming increasingly important. The mission of the Faculty is: (1) to train competent generalists, (2) to provide scholars, teachers and researchers in health, (3) to respond to the health care needs of society, (4) to support the continuing professional development of health professionals and (5) to contribute to the scientific reputation of the country.

Cheickna Sylla is Professor and Vice Rector, Vice Director of the Faculty of Health Sciences, University of Thiès, Senegal.

University of Thiès. University of Thiès offers programmes in agronomy, technology, economic and social sciences, and health sciences. The Faculty of Health Sciences was established in 2008 as the second school of medicine in Senegal after the Faculty of Dakar.

The educational system was based since the beginning on the LMD system. There are in 2017, 750 students from twenty-two nationalities with students of Maghreb and south of the Sahara. The first cohort graduated in General Medicine in 2016. The specialisations began in 2017 in accordance with the curriculum of the West African Health Organization. All new teaching methods based on information and communication technologies are used in the university.

Somalia

Ahmed Mohamud Osman is a Professor of Biochemistry at the University of Health Sciences, Bosaso

Abdalla Shariff Osman is a Professor of Pharmacology at the University of Health Sciences, Bosaso.

The University of Health Sciences, Bosaso. The University of Health Sciences is a young university and began as a college in 2000. The College was elevated to a university status by the government of Puntland state of Somalia through its Ministry of Health and designated as the University of Health Sciences in 2012. The University consists of several institutes including the Faculty of Medicine.

South Africa

Jennifer Ramesar is Professor of Medicine and a Medical Virologist at the Faculty of Medicine, University of Cape Town.

University of Cape Town. University of Cape Town was founded in 1829 and established as a university in 1918. It has ca. 28,000 students in six faculties supported by the Centre for Higher Education Development which coordinates studies in the fields of commerce, engineering and the built environment, law, health sciences, humanities and science. In the various world-ranking lists, it is the highest ranked African university. Its Faculty of Health Sciences has the oldest medical school in Southern Africa, established in 1912. Its core business is research in medical and allied fields and teaching undergraduate and postgraduate students over a wide range of healthcare-related disciplines. The world's first successful heart transplant in 1967 and research leading to the development of the

CAT scanner confirmed the Faculty and Groote Schuur Hospital as an academic institution of international quality.

John E. Reilly is a Higher Education consultant with wide European and international experience. He is a UK EHEA (Bologna) expert. He has long experience with ECTS and was a member of the European Commission drafting group for the ECTS Guide published in May 2015 as a formal Bologna EHEA document. He has been active in Tuning since the first project in Europe and has considerable experience in quality assurance and governance and management in Higher Education.

He is the external expert for an Erasmus + project on Problem Based Learning coordinated by the University of Aalborg (Denmark). He is the external expert for a new project funded by the European Commission: **Enhancing Entrepreneurship, Innovation and Sustainability in Higher Education in Africa** coordinated by the University of Aalborg (Denmark).

1.3. Selection for the Medicine Group

Medicine was identified in the feasibility study as a priority subject across Africa. Applications were invited from universities and reviewed by a group of experts with advice from the Association of African Universities (AAU). The group took into account the following criteria in their selection: (1) at least one university should be chosen from each of the five regions; (2) the "hub" represented by North Africa should be well represented; (3) the two main language groups (French and English) should be roughly equally represented (there was no suitable application from a Lusophone country); (4) the medical faculties should represent a diversity of learning and teaching approaches; (5) relatively new as well as older established faculties should be represented; and (6) evidence of a genuine commitment both from the university and the medical faculty was essential.

In the first phase ten universities were selected for the Medicine Subject Area Group with each having strong and distinctive features, good national and regional reputation and, for some, a strong international profile as well. The individual members of the group are senior members of the profession and cover a diverse range of subject-specialties which has given breadth and understanding of all

aspects of medical education and practice. In the second phase the management group endorsed the original members and adopted a similar selection approach for the new members with particular regard to the representation of countries not in the first phase. As a result the group now has 15 members from 12 countries, John E. Reilly as the independent adviser from the United Kingdom and two Student Representatives.

1.4. The Study of Medicine

Medicine is one of the oldest subjects and perhaps a testimony to the ancient roots of medicine lies in the concept of the oath associated with Hippocrates. The UK Quality Assurance Agency Benchmark statement for Medicine published in 2002 gives the following broad definition of Medicine and the objectives of medical education:

> Medical education imparts the knowledge and skills required for the prevention, diagnosis and assessment of common and important diseases in a variety of settings, and patient management with respect to control, cure, rehabilitation and support, and palliative care. Students must understand how diseases affect both the individual and the overall population, and how the environment interacts with diseases and impairment to produce disability and handicap. Students must understand the principles of disease prevention and be able to undertake health promotion. The medical course also seeks to impart appropriate professional and personal attitudes and behaviour, including critical evaluation, curiosity and lifelong learning skills as well as the ethical and legal framework of medical practice.[1]

Medicine is now a highly regulated profession. In many countries regulation is a direct government responsibility through a Ministry responsible for Health, while in others, registration is the responsibility of a legally recognised professional body. There are also supra-

[1] http://www.qaa.ac.uk/en/Publications/Documents/Subject-benchmark-statement-Medicine.pdf

national regulations in the field of medicine such as the EEC Council Directive 93/16/EEC of 5 April 1993 to facilitate the free movement of doctors and the mutual recognition of their diplomas, certificates and other evidence of formal qualifications and the subsequent Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications.[2]

In all cases, the professional regulator specifies the competences which a graduate of Medicine must possess in order to be licensed to practice medicine. These competences cover knowledge, understanding and clinical skills and, because of the nature of the subject, as recognised by Hippocrates, the values and attitudes which should be manifest in a qualified physician.

The ways in which learning and teaching are structured in order to enable the medical graduate to achieve these competences vary considerably. Some countries have sought to standardise the curriculum in all their medical schools through benchmark minimum academic and professional standards dictated by regulatory bodies, but most countries allow universities and medical schools considerable latitude on how they choose to structure the curriculum and assess students, subject to effective internal and external quality assurance. This degree of autonomy has fostered the development of a variety of curriculum structures, learning and teaching methodologies.

A significant proportion of medical schools still operate the dichotomy between the pre-clinical two-to-three-year basic science courses (biomedical sciences) typically including anatomy, physiology, biochemistry and subsequent clinical study during which formal teaching is combined with practice-led teaching in clinical settings. More recently a more integrated learning and teaching approach to the basic biomedical sciences and clinical training has tended to become the norm with horizontal and vertical integration of biomedical and clinical sciences.

Typically medical education for the primary qualification lasts six to seven years with the final year normally being a full-time internship in one or more hospitals certified by regulatory bodies to provide

[2] http://ec.europa.eu/internal_ market/qualifications/policy_developments/legislation/index_en.htm

supervised internship training. In some other medical training programmes, the final formal qualification as a doctor requires the submission of a research project.

Following the award of the basic qualification, doctors who wish to specialise in a branch of medicine are required to undergo "specialist" training, which can last for a number of years. The minimum is normally three years, but most specialties require from four to ten or more years. The content and duration of specialist training is also regulated in much the same way as basic medical education.

1.5. Medicine in the African Context

Any consideration of the role of medicine in Africa has to be set in the wider context and understanding of health and health policy. In 1948, the World Health Organization (WHO) defined health in simple terms: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"[3].

This definition has remained unchanged, but numerous commentaries and developments on the theme have since been made by the WHO and other bodies such as UNESCO. UNESCO (2010) issued a document, "Teaching and Learning for a Sustainable Future," which states:

> "The issues of development, environment and health are closely entwined. This reflects the complex links between the social, economic, ecological and political factors that determine standards of living and other aspects of social well-being that influence human health. A healthy population and safe environments are important pre-conditions for a sustainable future."[4]

[3] Official Records of the World Health Organization, no. 2, p. 100. Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States [Official Records of the World Health Organization, no. 2, p. 100] which entered into force on 7 April 1948

[4] http://www.unesco.org/education/tlsf/

The European WHO added in September 1998:

> "As stated in the 1998 World Health Declaration the enjoyment of health is one of the fundamental rights of every human being. Health is a pre-condition for well-being and the quality of life. It is a benchmark for measuring progress towards the reduction of poverty, the promotion of social cohesion and the elimination of discrimination. Good health is fundamental to sustainable economic growth. Inter-sectoral investment for health not only unlocks new resources for health but also has wider benefits, contributing in the long term to overall economic and social development. Investment in outcome-oriented health care improves health and identifies resources that can be released to meet the growing demands on the health sector. [5]

The practice of medicine and the education and training of medical doctors play a key role in improved health of the population as espoused by **(WfME, 2011)**[6].

Medical practice and education throughout Africa share many common features; but at the same time, there are significant differences arising from the linguistic, historical and geographical contexts in the many states on the continent.

The World Health Organization has a regional office for Africa, and the regional committee at its meeting in November 2012 published a "Road Map for Scaling Up the Human Resources for Improved Health Service Delivery in the African Region 2012-2025". Not all African countries are represented in the regional office for Africa, but the remaining countries are covered by the Regional Office for the East Mediterranean.

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[5] http://www.euro.who.int/en/publications/abstracts/health21-the-health-for-all-policy-framework-for-the-who-european-region

[6] Global Standards for Quality Improvement of Medical Education Status of the WfME Programme. Copenhagen: WFME Office, University of Copenhagen. Available from: http://www.amse-ed.eu/files/2007_medine_global_standards.pdf (Accessed on 3 July, 2017)

The "Road Map" identifies issues and challenges faced in the 46 countries it covers in the African region, and states: "Of the 46 countries in the region, 36 have a critical shortage of HRH [Human Resources for Health] with only about 0.8 physicians, nurses and midwives per thousand population; while the minimum acceptable density threshold is 2.3 per thousand population." There are significant disparities between rural and urban areas: "86% of Medical specialists and 63% of general physicians serve mainly in urban areas."

"The region has currently 134 Medical Schools… and trains 6,000 Medical Doctors annually." In order to reach the target of 2.3 health workers per thousand population, the Road Map estimates that an additional 600 medical and nursing schools are required. In 2012 The Economist Intelligence Unit published a report: "The Future of Health Care in Africa".

The report stresses the need for Africa to "reassess its health care systems to ensure that they are viable over the next decade ... while grappling with the uniquely broad range of health care, political and economic challenges." Besides, the report points out the following:

> [T]he continent ... is confronting multiple epidemiological crises simultaneously. High levels of communicable and parasitic disease are being matched by growing rates of chronic conditions. Although the communicable diseases—malaria, tuberculosis and above all HIV/AIDs—are the best known, it is chronic conditions such as obesity and heart disease that are looming as the greater threat. These are expected to overtake communicable diseases as Africa's biggest health challenge by 2030.[7]

Both the Economist Intelligence Unit report and the WHO Road Map stress the need for reform while also emphasising the substantial achievements of the region in recent years in tackling grave health challenges and in striving to meet the eight Millennium Development goals:

- To eradicate extreme poverty and hunger.

7 https://perspectives.eiu.com/healthcare/future-healthcare-africa-0

- To achieve universal primary education.
- To promote gender equality and empower women.
- To reduce child mortality rates.
- To improve maternal health.
- To combat HIV/AIDS, malaria and other diseases.
- To ensure environmental sustainability.
- To develop a global partnership for development.

Health care systems and, in particular, medical education in Africa are undergoing reform and modernisation to address the specific needs of individual countries. It should be stressed that the scale of the challenges faced varies significantly among different African countries and regions, with an important distinction to be drawn between the challenges in Sub-Saharan Africa and those in North Africa.

1.6. The Sub-Saharan African Medical Schools Study

Recognising this distinction, the Bill and Melinda Gates Foundation has funded a Sub-Saharan African Medical Schools Study (SAMSS).

> "The goal of SAMSS is to increase the level of practical knowledge about medical education in Sub-Saharan Africa in order to inform educators, policy makers and international donors about the challenges and opportunities for increasing the capacity of African medical Schools and the retention of their graduates"[8]

The Sub-Saharan African Medical Schools Study: Data, Observation and Opportunity[9] undertook an in-depth study of ten medical

8 http://samss.org

9 https://www.k4health.org/toolkits/hrh/sub-saharan-african-medical-schools-study-samss-data-observation-and-opportunity

schools in different African regions and also made a wider survey of African medical schools. It points out that "Africa suffers 24% of the world's total burden of disease but has only 3% of the world's health workforce". It continues:

> "Sub-Saharan Africa has an estimated 145,000 physicians to serve a population of 820,000,000. As a whole, SSA has a physician to population ratio of 18:100,000 as compared to other countries such as India (60:100,000), Brazil (170:100,000) and the United States (270:100,000). Africa's poorest countries face even greater physician workforce shortages".

The SAMSS identifies fourteen key results which are relevant throughout Africa:

General Findings

- Many countries are prioritising the scale-up of medical education as part of overall health-sector strengthening.
- Physician "brain drain" is a special problem for medical education.
- Accreditation and quality measurement are important developments for standardizing medical education and physician capabilities challenges.

Challenges

- The status of the country's health system affects medical education and physician retention.
- Coordination among ministries of education and ministries of health improves medical schools' ability to increase health workforce capacity.
- Shortages of medical school faculty are endemic and problematic.

- Problems with infrastructure for medical education are ubiquitous and limiting.

- Variability in secondary school quality creates challenges in medical school admissions.

Innovations

- Educational planning that focuses on national health needs is improving the ability of medical graduates to meet those needs.

- International partnerships are an important asset for many medical schools.

- Impressive curricular innovations are occurring in many schools.

- Beyond the creation of new knowledge, research is an important instrument for medical school faculty development, retention and infrastructure strengthening.

- Private medical schools hold promise for adding to physician capacity development.

- Post-graduate medical education is an important element of a national health system development strategy.

Areas of Curriculum Innovation

The SAMSS report identifies the following areas of helpful innovation:

"Community-based Education (CBE) and service oriented learning ... including elements ... such as 'family attachment' in which students follow a patient as part of a family for two or three years, visits to rural homes and health centres where students engage in patient counselling, community and home needs assessment and consultations with schools, local school teachers and small group discussions of community and public health topics. ... These innovations address regional needs by teaching problem-solving skills for work in any setting and by taking learning to communities where health needs are greatest. Other advances include the teaching of family medicine and

public health and plans for the use of tele-health and distance learning when bandwidth problems can be solved." Problem-based learning is "often incorporated with CBE and rural or service-based learning".

The use of ICT in medical education is identified as potentially revolutionary in medical education in many countries, particularly the use of web-based course tools (Web CT). A key problem area identified by the SAMSS report is the retention of physicians, not only in terms of migration but also in what is described as "internal drain and rural distribution", partly as the result of the incidence of HIV/AIDs among healthcare workers and an unwillingness to work in remote rural areas.

It should be evident from this brief review that the challenges and need for the development, and continuing review of the curriculum and methods of learning and teaching in Faculties of Medicine throughout Africa are of paramount importance. Informing and overarching the initiatives for reform and development in medical education is the commitment of the African Union Commission to the Harmonisation Strategy for Higher Education, which is designed to promote more transparency of qualifications and their compatibility in order to improve continent-wide recognition and support intra-Africa mobility.

1.7. The Tuning Approach to Medical Education in Africa

The Tuning Approach seeks to support the Harmonisation Strategy for Higher Education in Africa. The Medicine Subject Group in its work has been informed by the Harmonisation Strategy for African Higher Education, the Tuning approach and the general and specific contexts of medical education in the different countries and regions of Africa as well as international developments in medical education.

1.8. Conclusion

The Medicine Subject Area Group (SAG) comprised partners from fifteen countries drawn from all regions of Africa with the task of tuning and harmonisation of higher education in Africa. The SAG recognised that regulatory agencies specify the competences which a graduate of Medicine must possess in order to be licensed to practice medicine in its territory for the improved health of the population. The status of the country's medical education system affects the health

system as the medical education focuses on national health needs and improving the ability of medical graduates to meet those needs. The SAG also recognised the African Union Commission commitments to the overarching initiatives for reform and development in medical education and planned to be driven by the Harmonisation Strategy for Higher Education, which is designed to promote more transparency of qualifications and their compatibility in order to improve continent-wide recognition and support intra-Africa mobility. With this initiative the SAG worked towards the design and implementation of medicine curriculum across Africa through the interactions and synthesis of design, reform and development of curriculum utilising specialist and novices to prepare the new curriculum through the development of contemporary subject-specific competences.

Chapter 2

The Consultation Process and its Outcomes: Meetings and Working Methods

This section focuses on the process in the first phase of the project but it should be stressed that experience form this phase permeated the work in the second phase. In the first phase, the Medicine Group met on four occasions: in Yaoundé, Cameroon, in January 2012; in Cape Town, South Africa, in May 2012; in Brussels, Belgium, in November 2012; and in Nairobi, Kenya, in January 2013.

Between these meetings, members of the group worked on aspects of the report with colleagues in their own and other universities in their country, and also with students, graduates and employers. Drafts of reports were circulated to all members of the group for comments and amendment and were subsequently discussed and agreed upon in the meetings. The meetings were characterised by the open and positive participation of all the members, a shared sense of a common purpose and an inspiring commitment to provide the best possible medical education experience for the benefit of students and the community in which they live and work.

During the first two meetings and in the final meeting the group benefitted from the plenary meetings and presentations from and discussion with the other four pilot subject groups. In Brussels, a meeting with colleagues from Latin America and international experts from the University of Edinburgh, Scotland, provided further insights and topics for discussion.

The membership of the group was fairly constant but, inevitably, because of the nature of the subject area and the fact that members are practicing medical specialists with senior teaching and management responsibilities, there was some variation in/substitution of members, which is reflected in the list of members.

2.1. Generic and Subject-specific Competences for Medicine

In the first meeting in Yaoundé, the group agreed on the first draft of the Generic Competences and the Subject-specific Competences for Graduates in Medicine in Africa. In preparing this draft, the group wishes to acknowledge that its participants drew heavily on the structure, headings and outcomes defined in the Tuning Project (Medicine)—Learning Outcomes/ Competences for Undergraduate Medical Education in Europe prepared by A.D. Cumming and M.T. Ross (2008) at The University of Edinburgh.[10]

The group also wishes to acknowledge the competences drawn up by the Tuning Latin America Medicine Subject Area Group and the UK General Medical Council publication Tomorrow's Doctors, both of which significantly informed their discussion.[11]

Although these three publications informed and helped the group, the members stress that, in their review of outcomes, they sought to focus on outcomes of particular relevance for medical graduates in Africa derived from their own experience and knowledge of the teaching and practice of medicine in Africa.

2.2. Generic Competences

In seeking to determine which Generic competences should be expected from a graduate of Medicine in Africa, the group adopted two approaches. Each member briefly outlined the organisation and objectives of medical education in his/her faculty and identified particular distinctive national and/or regional factors. There was a

[10] http://medine2.com/Public/docs/outputs/wp4/DV4.14.1_Summary%20Brochure%20-%20Tuning%201st%20Cycle%20Degrees%20in%20Medicine.pdf

[11] http://www.gmcuk.org/ education/undergraduate/tomorrows_doctors.asp

useful and provocative discussion on whether the study of medicine should be viewed simply in terms of international criteria or whether there are challenges and needs in Africa which should be reflected in the curriculum and which would therefore give an African identity to medical education in the continent.

The broad consensus expressed in the group is that, inevitably, there is and must be an active recognition and reflection of the international nature of the subject in the knowledge, understanding and ability of African medical graduates but that simultaneously there are imperative African requirements and values which should permeate the medical curriculum in African faculties of medicine.

Following the valuable *tour de table* and debate, the group concluded that common understandings had been developed which facilitated an open "brain-storming" session to identify Generic competences for an African graduate. This exercise provided a long list, which was then examined in detail. An area of debate arose about whether some of the competences might also be reflected in the Subject-specific competences but it was agreed that this was not a reason to exclude them from the generic list. A final list of fifteen competences resulted, all of which are relevant to the medical graduate but which also have wider applicability. The fifteen competences are:

1. Understanding of and ability to apply ethical principles.
2. Ability for conceptual thinking, analysis and synthesis.
3. Practical, cost-effective problem-solving and objective decision-making.
4. Flexibility and adaptability.
5. Capacity for continuous learning.
6. Leadership, management and teamwork skills.
7. Interpersonal and communication skills.
8. Capacity to use appropriate and innovative technologies.

9. Sensitivity to diversity.
10. Sensitivity to safety and the environment.
11. Effective communication in the official/national and relevant local languages.
12. Ability and initiative to apply knowledge in practice.
13. Ability to evaluate, review and enhance quality.
14. Sensitivity to social responsibility.
15. Recognition of personal limitations.

Representatives of the five subject groups (including Medicine) met to compare and discuss their lists of Generic competences and agreed on eighteen Generic competences. Fourteen of the Medicine group competences are accommodated in the overall list. The fifteenth; "Sensitivity to social responsibility" is effectively expressed in competences 2, 13 and 18 in the list of Generic competences. The Medicine group did not include three of the competences in the general list: (1) Ability for creative and innovative thinking, (2) Ability to work independently and (3) Self-confidence, entrepreneurial spirit and skills. However, the group agreed that they are highly appropriate for a graduate of Medicine.

2.3. Subject-specific Competences

The group identified fourteen core subject-specific competences and within each of these, a subset of the related key competences essential for a graduate of Medicine was defined. In its discussion, the group was conscious of the need to acknowledge and recognise international standards, while at the same time emphasising and identifying core African values and requirements. The competences are set out below. In interacting with patients, it is important to evaluate or assess the profile of the patient in order to arrive at further management planning as specified below.

Graduates of Medicine in Africa will have the Specific Competence to:

1. Carry out a consultation with a patient:

   - Take a patient's history.
   - Carry out a full physical clinical and symptomatic examination of adults (male and female) and children, including the ability to listen to and interpret heart beats, palpate the abdomen, undertake rectal and vaginal examinations and undertake ear, nose and throat examinations.
   - Make clinical judgements and decisions.
   - Assess communicable diseases.
   - Provide explanation and advice.
   - Provide reassurance and support.
   - Assess the patient's mental state.

2. Assess clinical presentations, order investigations, make differential diagnoses and negotiate a management plan:

   - Order appropriate investigations and interpret the results.
   - Make differential diagnoses.
   - Consider endemic and communicable diseases.
   - Negotiate an appropriate, practical and therapeutic management plan with patients and families.
   - Provide care of the terminally ill and their families.
   - Manage chronic illnesses.
   - Identify vulnerable children and adults.

3. Provide immediate care of medical emergencies, including first aid and resuscitation:

   - Recognise, assess and as appropriate refer acute medical emergencies.
   - Treat acute medical emergencies.
   - Provide basic first aid.
   - Provide basic and advanced life support according to current standard guidelines.
   - Provide trauma care according to current standard guidelines.
   - Perform appropriate emergency surgical and obstetric procedures.

4. Prescribe drugs clearly and accurately, explain potential benefits and risks:

   - Prescribe clearly and accurately.
   - Match appropriate drugs and other therapies to the clinical context.
   - Review the appropriateness of drug and other therapies.
   - Evaluate and explain potential benefits and risks.
   - In prescribing, take careful account of the socio-economic context of the patient.
   - Manage pain and distress.
   - Understand, consider and explain drug-drug/food interactions.

5. Carry out practical procedures:

   - Measure blood pressure.
   - Venepuncture and veins cannulation.
   - Administer IV therapy and use infusion devices.

- Subcutaneous and intramuscular injection.
- Perform a lumbar puncture, move and handle patients.
- Bladder catheterisation.
- Bougienage.
- Otoscopy.
- Fundoscopy.
- Foreign body removal.
- Carry out non- or minimally invasive ENT procedures.
- Reduction of fractures/dislocation.
- Application of plaster of Paris.
- Surgical suturing.
- Exchange and normal blood transfusion.
- Administer oxygen.
- Electrocardiography.
- Basic respiratory function tests.
- Urinalysis.
- Manage a normal delivery (birth).

6. Communicate effectively and sensitively in a medical context:
   - With patients and colleagues.
   - With empathy in sharing bad news with families.
   - With people who are physically and/or mentally challenged.
   - In seeking informed consent.

- In writing (including medical records) and in non-verbal communication.
- In dealing with aggression.
- By telephone.
- With those who require an interpreter.
- With authorities.

7. Apply ethical and legal principles in medical practice:
   - Maintain confidentiality.
   - Apply ethical principles and analysis to clinical care.
   - Obtain and record informed consent.
   - Certify death.
   - Request autopsy.
   - Apply national law to clinical care.
   - Where appropriate refer a patient for specialist care.
8. Assess the psychological and social aspects of a patient's illness:
   - Assess psychological and social factors in the presentation and impact of illness.
   - Detect stress in relation to illness.
   - Detect substance abuse, dependency.
9. Apply the principles, skills and knowledge of evidence-based medicine:
   - Apply evidence to practice.
   - Define and carry out an appropriate literature search.
   - Critically appraise published medical literature.

10. Use information and information technology effectively in a medical context:

    - Be committed to the effective use of up-to-date, relevant and effective technology.
    - Keep accurate, complete and detailed clinical records.
    - Be able to access information sources.
    - Be able to store and retrieve relevant data.

11. Engage with population in the promotion of health and health education:

    - Recognise the health needs of the community.
    - Engage in health education and promotion for the individual and the community.
    - Provide patient care which minimises the risk of harm.
    - Apply measures to prevent the spread of infection.
    - Recognise own health needs so as not to interfere with professional responsibilities.
    - Conform with professional regulation and certification to practise.
    - Receive and provide professional appraisal.
    - Make informed career choices.

12. Demonstrate professional attributes:

    - Interpersonal skills.
    - Probity.
    - Honesty.
    - Ethical commitment.
    - Commitment to maintain good practice and quality.

- Critical and self-critical abilities, reflective practice.
- Empathy.
- Creativity.
- Initiative.

13. Work effectively as a professional:
    - Ability to recognise limits and ask for help.
    - Flexibility and capacity to deal with uncertainty and adapt to new situations.
    - Ability to lead.
    - Ability to work autonomously.
    - Ability to solve problems.
    - Ability to make decisions.
    - Ability to work in a multi-disciplinary team and communicate with experts in other disciplines.
    - Capacity for management, organisation and planning (including time management).
    - Recognise the need to take action if a colleague's health, performance or conduct is putting patients at risk.
14. Demonstrate expert qualities:
    - Capacity for analysis and synthesis.
    - Capacity to learn (including lifelong self-directed learning).
    - Capacity for applying knowledge in practice.
    - Ability to teach others.
    - Research skills.

2.4. Conclusion

Several meetings with partner institutions and the Latin America group provided a platform for an inspiring commitment to provide the best possible medical education experience for the benefit of African medical students and the community. The SAG agreed on a draft of fifteen Generic Competences and fourteen Subject-specific Competences for Graduates in Medicine in Africa for better delivery of medical education in Africa for better healthcare delivery.

Chapter 3

The Consultation Process

Following the tried and tested practice of previous Tuning projects in other regions of the world, the Medicine Subject Group carried out an extensive consultation process by means of questionnaires widely circulated among participant universities, employers, students and graduates. The questionnaires included a list of Generic competences, compiled on the basis of the Generic competences proposed and agreed by the Medicine Subject Area Group in the project.

However, in publishing its report, the Medicine SAG the original list of generic and detailed Subject-specific competences were included so that the fourteen overarching subject-specific competences with their associated key competences and skills can be fully understood and appreciated and at the same time set in the context of the Generic competences for graduates in medicine in Africa which were agreed by the group.

3.1. Outcomes of the Consultation

Each member of the group was responsible for the circulation of the questionnaires to academic colleagues within the university and in other neighbouring universities. Students and graduates were mainly within the university participating in the project. Group members invited a range of employers which included heads of hospitals, heads of hospital clinical departments, heads of primary care centres and senior colleagues in Ministries of Health to complete the questionnaire.

The SAG at its meeting in Cape Town in May 2012, considered the detailed analysis of the results of the consultation process and considered that the size and range of the survey guarantee their validity (Tables 1 and 2).

Table 1
Generic Competences Questionnaire - Number of Responses

Subject area	Academics	Employers	Students	Graduates	Total
Medicine	164	88	203	150	605

Table 2
Subject-specific Competences Questionnaire - Number of Responses

Subject area	Academics	Employers	Students	Graduates	Total
Medicine	130	83	184	145	542

3.1.1. *Ratings*

The respondents were asked to rate each competence with regard to its importance and level of achievement. Thus there are two results for each competence. Ratings are on a scale of 1 to 4, where 1 indicates un-important or not achieved, and 4 indicates very important or very well achieved. The first graph shows results ordered from the most important to least important competence from the perspective of the various stakeholders (Figures 1-3). The arithmetic mean for achievement does not follow a strictly descending pattern, as the graph is ordered according to the mean for importance. It should be noted that the maximum value for the mean is 4 and the minimum is 1. The mean for achievement is normally lower than the mean for importance. This is no surprise as this is the case in all other previous Tuning studies (and most studies using this double scale of 'importance' and 'achievement' show similar results). The gap between both means is relevant in that it shows how far both means are. A wide gap between two competences is more relevant if the competence is rated as a highly important competence.

The results of the consultation are also presented as in the table where the competences have been ordered by the mean of the importance rating score (descending order) as was done in the graphs (Figures 4-7).

3.1.2. *Ranking*

In the questionnaire, respondents were also asked to choose the five most important competences in order of importance. In order to analyse the results, the competence chosen as most important was assigned 5 points, the second 4 points, the third 3 points, the fourth 2 points and the fifth 1 point. The competences not chosen were assigned zero points. Therefore, if all respondents chose one given competence as the first one, the mean of this assigned score would yield a top 5 for the mean of this competence. In the same manner, a given competence never chosen by any of the respondents among the top five would yield a mean of zero. The graph shows the competences in descending order using this score. After this graph, the same results are given in the corresponding table where competences are ordered in ascending order.

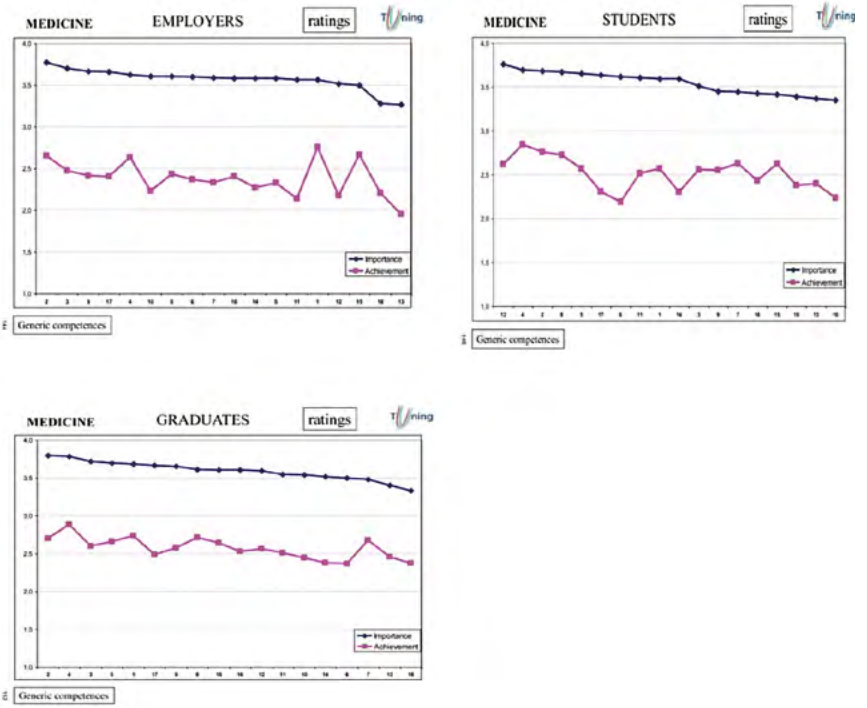
3.1.3. *Correlations*

Correlations among the means resulting from the responses by each stakeholder group have been calculated. Correlation coefficient measures the sign and intensity of the relationship between the means of the four groups considered for each result: importance, achievement and ranking. This most used coefficient has a minimum value of –1 (maximum possible negative relationship) and a maximum value of +1 (maximum possible positive relationship). A zero would indicate the absence of relationship between the results of any pair of given groups. As observed, all correlations are positive. A negative correlation would indicate that two given groups are behaving in an opposite manner. A correlation close to 1 for two groups shows that the means obtained for the set of competences are very similar. Using importance as an example, if there were a correlation of about 1 between Academics and Students it would mean that when a competence is judged by Academics as very important, Students have considered this competence as very important too (that does not imply that the means are equal in both groups, but that both means are relatively high in

each group). In the same manner if a given competence is judged by Academics among the least important ones, Students will consider this competence as a competence of least importance (once again that does not imply that the means will be equal in both groups, but that both means will be relatively low in each group).

3.2. Comparing Importance and Achievement Separately between Groups

Two final slides show graphics for importance and achievement ratings separately with four groups altogether in each graph (Figures 1-7). The competences are ordered just as they were listed in the original questionnaire.



Figures 1-3

Show the ratings of Generic competences with regard to importance and achievement in the views of Employers, Students and Graduates

Reviewing the results of the consultation on Generic competences, it was evident that, academics, employers, students and graduates all agreed in ranking four of the competences in their top five. They were:

- Ability for conceptual thinking, analysis and synthesis.
- Professionalism, ethical values and commitments to Ubuntu (respect for the well-being and dignity of fellow human beings).
- Ability to translate knowledge into practice.
- Objective decision-making and practical, cost-effective problem solving.

The fifth choice varied (not necessarily ranked fifth), as academics included the ability to learn and capacity for lifelong learning. Employers included leadership, management and teamwork skills, Students included capacity to use innovative and appropriate technologies and Graduates included flexibility, adaptability and the ability to anticipate and respond to new situations.

The response shows a marked difference in the scores assigned to "importance" and those assigned to "achievement," achievement scores being consistently and significantly lower for all groups and in relation to all competences.

3.3. Subject-specific Competences: Results of the Consultation

There was less consensus in the ratings and ranking of the Subject-specific competences. All four groups ranked three competences in their top five: #1 "Take a patient's history", #2 "Assess clinical presentations; order investigations; make differential diagnoses and negotiate a management plan"; and #3 "Carry out a full physical, clinical and symptomatic examination of adults (male and female) and children". It should be noted that, in relation to the competence judged most important ("Take a patient's history"), the Subject Area Group's view is that it would be appropriate to interpret the questionnaire's results as endorsing the overarching competence "Carry out a consultation with a patient". In relation to #3 (clinical

examination), the Group perceived this competence as an aspect of #1, "Carry out a consultation with a patient".

The Academics, Students and Employers (but not the Graduates) also included: "Use information, information technology and up-to-date relevant and effective technology effectively in a medical context". It was noted that, in ranking the Generic competences, the Graduates included this competence in their top five.

Academics and Students included in their response: "Recognise the health needs of the community and engage with the community in the promotion of health and health education." The medical group in the original document expressed this particular competence under the overarching competence (# 11) of "Engage with the population in the promotion of health and health education." Two groups (Employers and Graduates) included: "Apply the principal skills and knowledge of evidence-based medicine". The Graduates also included: "Provide immediate care of medical emergencies including first aid and resuscitation."

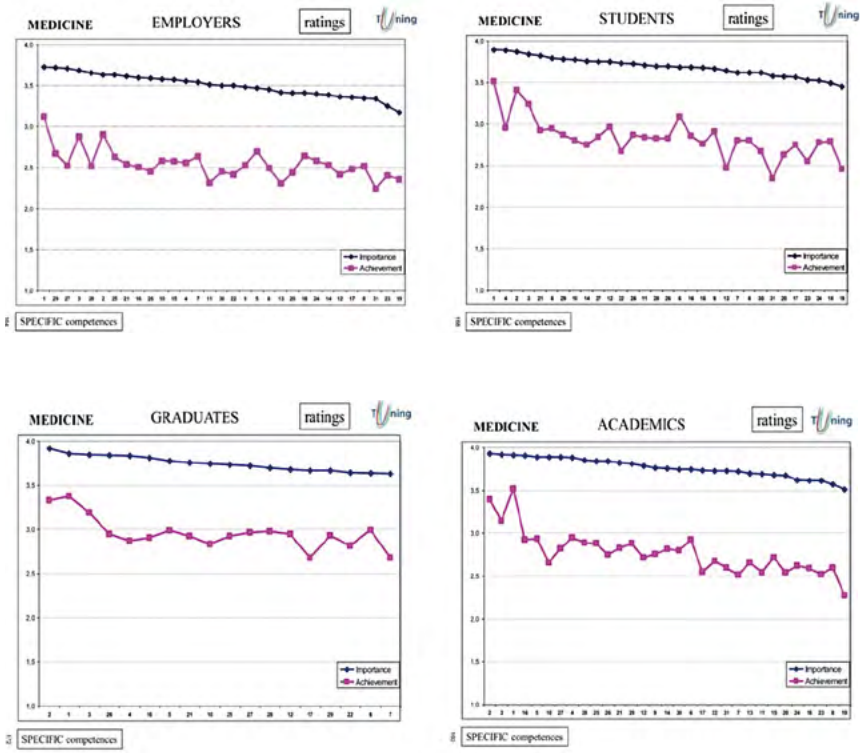
Having analysed the ranking of the five top competences, the Subject Area Group reviewed the consultation outcomes of the evaluation of the importance of each of the competences and noted that all competences were ranked as having high importance. No competence obtained an average score lower than 3.51 and the majority averaged 3.7. (For the Generic competences, the lowest score was an average of 3.35).

The ratings show that respondents perceived a serious gap between the competence's importance and its level of achievement, with Academics tending to be more generous in their assessment than Employers, Students and Graduates. Overall, the results from all four groups registered a much lower score for achievement in relation to perceived importance. This gap presents a serious learning, teaching, assessment and curriculum challenge which medical schools will need to take into account.

The Group felt that the process of consultation had been most valuable and had helped to highlight areas on which the group should focus in its further consideration of the competences that should be expected from a graduate of Medicine in Africa. However, it also recognised the inevitable limitations in a process which asks for a ranking of competences on a scale of 1-5. The Medicine Group for Tuning Africa wishes to stress that the ranking needs constantly to be set against

the contrasting high rating of the importance of each of the fourteen competences that they identified (Scale 1-4). The high score given for the importance of each of the competences is considered to be an effective validation of the competences.

The group also wishes to stress that Medicine is, at one and the same time, an academic and a strongly vocational subject. As a subject area it is multi-disciplinary and interdisciplinary. It requires knowledge and understanding not only of basic bio-medical sciences, social sciences and humanities (e.g., philosophy, ethics, and language) but also an ability to combine and integrate these, together with effective technical skills.



Figures 4-7
Show the ratings of the Subject-specific competences with regard to importance and achievement as seen by Employers, Students, Graduates and Academics

In this context, all four groups of stakeholders (Academics, Employers, Students and Graduates) need to be aware of the perspectives, needs and objectives of each of the other groups. Thus, when employers give a low rating to achievement in a particular competence, academics need to respond appropriately, since, together with recent graduates, employers are probably in the best position to assess the actual level of achievement as well as the importance of the competence for the effective practice of medicine. Similarly, Academics need to initiate a more open dialogue with each of the groups. For example, the consultation seems to suggest that employers do not rate creativity highly, but it could be argued that creativity is not only an important life or generic skill but, for a graduate of Medicine in Africa, it could be of critical importance.

It is also a matter of concern that while graduates attach considerable importance to the competence "Provide immediate care of medical emergencies, including first aid and resuscitation" (average score 3.83), they rate their achievement in this competence as only "satisfactory".

3.4. Defining the Profile of a Medical Graduate in Africa

Following the review of the consultation outcomes, the group developed and defined the profile of a medical graduate in Africa. A key point of consensus is that, while the detailed curriculum in medicine varies from institution to institution, and between regions and countries, the competences that are required of a graduate of Medicine at the end of the basic education and training are effectively universal. Consequently, although ranking is a useful indicator of priorities, in reality all graduates in medicine must be expected to have achieved an effective competence in each of the core areas of the subject. At the same time, medicine is a highly dynamic subject with its curriculum constantly requiring review, updating and revision to cope with contemporary social, economic and scientific needs and in response to changing political perspectives.

In reviewing the outcomes of the consultation and in drawing on experience, members of the group explored the possible future architecture for the profile of a medical graduate in Africa.

A brainstorming session identified "clusters" of skills and competences. Following intensive transnational and trans-language working group

interactions, a consensus was reached. Using the clusters, the group established the concept of "pillars" (Figure 8) which are essential to establish and support the "architecture" of a graduate in general medicine. It identified seven pillars that provide the basis for the meta-profile of a medical graduate in Africa. These are:

- Clinical expertise and knowledge.
- A focus on community and environmental health.
- Professionalism.
- Effective and sensitive communication.
- Teamwork-leadership-management.
- Engagement in a "learning journey" or continuing professional development.
- Adaptability to ICT and new technology.

The group highlighted specific African features of these seven pillars. Hence "a focus on a community and environmental health" is considered to be particularly relevant for African graduates who will find themselves working in challenging urban and rural contexts which will demand focus on the particular and specific needs of that community. Similarly, "effective and sensitive communication" has particular resonance in Africa. It recognises not only language and educational differences but also social, economic and cultural factors. Communication in many African countries can present challenges because of the number and variety of languages that are spoken. This means that the medical practitioner has to be particularly thoughtful about the way in which information is conveyed and understood.

"Adaptability to ICT and new technology" involves not simply the need to be competent in ICT and new technology but also to recognise the variety of practical challenges, in the use, access, availability of ICT and new technology that can arise in rural and urban contexts in Africa. While the concept of "pillars" provides a valuable starting point for establishing the profile of a graduate of Medicine in Africa, participants

in the Tuning Africa medical group felt that it did not reflect either the complexity or the integrated nature of the requirements that a medical graduate should be expected to possess, namely, a combination of academic knowledge and understanding with strong technical competences.

All the skills and competences are essential and interdependent. Consequently the group sought to represent this complex relationship in an integrated way with clinical expertise and knowledge at the core (Figure 8).

3.5. Conclusion

The group developed and defined the profile of a medical graduate in Africa with a consensus that recognised wide variability in the curriculum in medicine, the competences required of a graduate of Medicine is effectively universal. The ratings showed the results from all four groups of stakeholders registered a much lower score for achievement in relation to perceived importance of the Generic and Subject-specific competences.

Chapter 4

The Meta-profile of the Medical Practitioner in Africa

The meta-profile produced by the deliberations of the Tuning Africa Medical Group reflects the elements that a graduate of Medicine in Africa should possess. The graduate should always respond to the needs of the community, be open and sensitive in interpreting and communicating, be able to work as a member of a team, remain committed to a life-long learning journey and professional development and manifest all attributes of professionalism.

4.1. Validation and Review of the Meta-profile

Members of the group conducted a review and evaluation of the elements of the meta-profile in their own institutions. The methods chosen for the reviews varied but all involved consultation with senior colleagues, students, stakeholders and, in a number of cases, reports to relevant national bodies and a comparison with the existing curriculum in order to identify similarities and differences. In each case, this consultation produced a broad consensus on the profile and the competences. The next stage examined the extent to which the existing curriculum addressed the profile and the competences, and allowed the Group to identify gaps or areas in which achievement was not satisfactory.

At the third meeting, in Brussels in November 2012, and in January 2013 in Nairobi, the SAG presented and discussed the reports from the validation reviews.

4.2. Reports from Individual Countries

The University of Ibadan, College of Medicine introduced a Competence-based medical curriculum. In Ibadan, Nigeria graduating students at the end of their programme in 2012 were given exit questionnaires listing the meta-profile competences and the generic and subject-specific competences. They anonymously evaluated each competence according to both its importance and its achievement on a scale of 1 to 5 and the process was repeated the following year. The process will be repeated for the next cohort of graduates. The validation and the exit questionnaires have revealed areas that will be addressed by the Curriculum Planning Committee. A full report on the Tuning approach and its outcomes (the meta-profile, the generic and subject-specific competences) has been given to other medical schools in Nigeria and to colleagues in an international consortium in which the university is involved. A further meeting of the five medical faculties in Nigeria involved in the Medical Education Partnership Initiative provided an opportunity for discussing the outcomes of the pilot project.

In **Algeria**, at the University of Algiers I, a detailed evaluation of the meta-profile and the generic and subject competences has taken place. This evaluation involved academic colleagues, students and employers. It is considered that the profile provides a good reference document for Algeria. The detailed content of medical curriculum in Algeria has not been reformed although all universities are implementing the three-cycle system of awarding degrees. There is a major European Union project on Quality Assurance and Enhancement in Higher Education in Algeria, and the outcomes of the Tuning Project will contribute to this project.

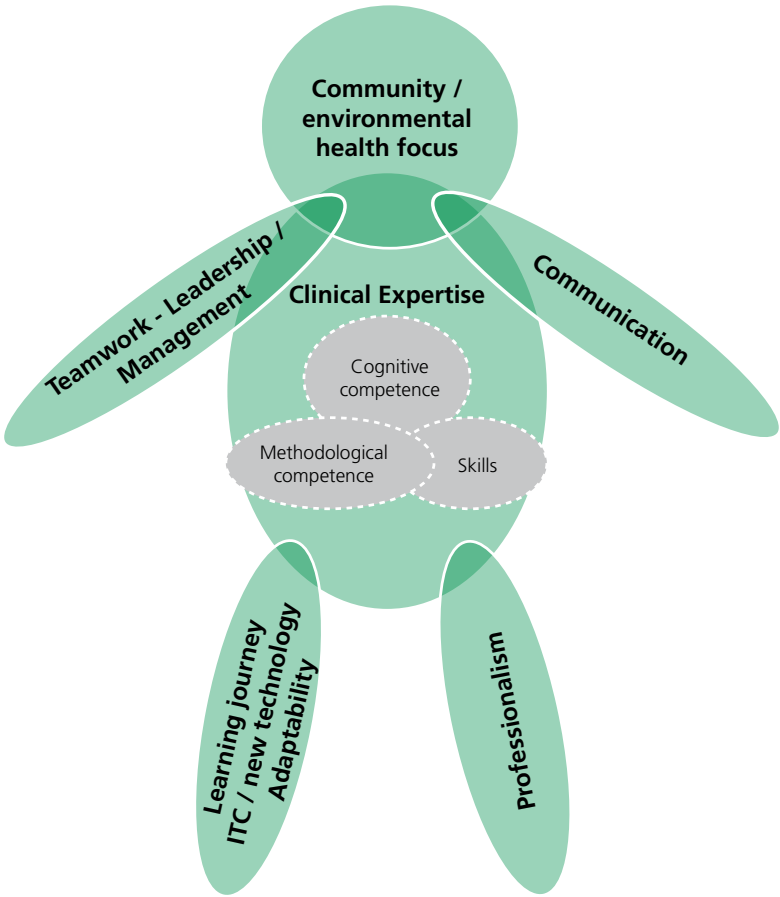


Figure 8
Showing the Meta-profile of an African Medical Graduate

The **Republic of Congo** has one Faculty of Medicine in Brazzaville. This is a small faculty with an entry cohort of around sixty students and a graduating class of about thirty-eight. There are approximately sixty academic staff members. In 2012 a new curriculum was introduced and because it was a new curriculum and in a small medical school, it was possible to introduce the Tuning Approach and a meeting has already been held with colleagues to this effect. It is attempting to develop a more holistic approach to the patient, working from a prescriptive to a competence-based approach, which is challenging

for the academic staff as well as for the students. Another area of concern expressed in one review relates to weakness in the ability to use information and information and communication technology effectively.

In **Egypt** a similar process has been followed. The review of the meta-profile, generic competences and subject-specific competences enabled the medical faculty to identify gaps in the curriculum and a working group has been established to address the areas of concern. The National Agency for Quality Assurance and Accreditation will be a key partner in the validation and dissemination of the Tuning Approach. It is also proposed that the outputs of the study should be presented to the Higher Education Council and subsequently to the other medical schools in the country.

In **Morocco** the old meta-profile is based essentially on clinical expertise. The project of medical curriculum reform, in the course of elaboration, has identified a new training profile for the general practitioner based on three fields of activity: (1) clinical approach, (2) communication with patients, (3) management of a centre of care and a doctor's practice and associated with these six skills "pillars":

- Management of primary health care and first aid.
- Specific capacity in the resolution of problems.
- A global approach coordinated, integrated and centred on the patient and strengthened by a permanent continuing medical education.
- Orientation towards the family and community context.
- Capacity for long-term follow-up (providing continuous and longitudinal care).
- Capacity in the coordination of the care.

The comparison between the Tuning meta-profile and the current approach being used in Morocco noted that the skills of communication, professionalism and teamwork are considered to be

insufficiently developed. The report will be presented to the National Commission for the Reform of Medical Studies which is expected to take appropriate measures to meet expectations in training future general practitioners and to address the areas of concern which have been identified.

In **Senegal** the situation is more complicated. There are four faculties of medicine in Senegal, one of which is the faculty involved in the Tuning Project. Three of the faculties have only recently been established; however, all four faculties are implementing a reform agenda that mirrors the Bologna Process and provides three degree cycles (Licence/Master/Doctorate). It is probable that validation of the Tuning outcomes and profiles will be integrated in the implementation of the reforms.

In **South Africa**, at the University of Cape Town, the curriculum is already competence-based and has undergone radical reform in recent years. The Faculty of Medicine is in a transitional period. The meta-profile and the generic and subject-specific competences have gone through a process of validation which identified areas of concern referred to elsewhere in the report. In particular colleagues recognised that "professionalism" represents a crucial characteristic of the medical graduate. The curriculum seeks to address this characteristic, but developing appropriate and effective methods and criteria of assessment have proved challenging. Reports have been made to the acting Dean of the faculty and it is anticipated that a report of the Tuning outcomes will be made at the regular meeting of the Deans of medical faculties in South Africa.

In **Tunisia** there are two projects to which the Tuning outcomes can contribute and which will, in turn, have impact on the implementation of the Tuning Approach. The World Bank is funding a major project for Quality Improvement in Higher Education in Tunisia. The implementation of the Tuning approach is highly relevant to this project and is validated through the project.

The Faculty of Medicine in Tunisia moved to a competence-based curriculum in 2011. It is a Centre of Excellence in Medical Education with Northwestern University, USA, as a partner. At an annual forum of all staff in the medical faculty, the Tuning project outcomes will be presented. The faculty has a strong focus on "social accountability" and how this value should be reflected in the medical curriculum.

The validation of the meta-profile and the generic and subject-specific competences for medicine will contribute to strengthening this approach. The faculty is to undergo international validation and assessment in 2013 and will report to the international team on how it is addressing the Tuning outcomes. The four medical faculties in Tunisia work closely together and the deans meet each month. The project will be further disseminated through the Maghreb Council of Medical Education.

4.3. Consideration of Basic Bio-medical Sciences

The explicit need for basic understanding of the normal structure and function of the body, which relates to the discussion of basic bio-medical sciences referred to elsewhere in this chapter, proved to be a subject of disagreement. One of the validation reports stated that those reviewing the meta-profile considered that the absence of an explicit reference to bio-medical sciences was a significant omission from the profile of a medical graduate. The disagreement centres on whether competence in this field should be explicit or assumed as an integral element of the meta-profile and in the subject-specific competences that have been identified.

This topic arose both in the subject group meetings and in the meeting with colleagues from Latin America and the United Kingdom. In essence there was no fundamental disagreement between the two schools of thought about the essential importance of bio-medical sciences in medical education. One view was that the bio-medical sciences were effectively integrated in the specific competences and that they therefore informed learning and teaching at all stages. The other school considered that there should be an explicit recognition of bio-medical sciences within the subject-specific competences. At the end of the discussion, it was resolved to leave the competences as previously agreed upon.

Although basic bio-medical sciences are perceived to be vital in developing the core competences of a medical graduate, there is great difficulty in doing so in some countries because of a inadequate of staff strength with cognate high-level qualifications to teach these subjects.

4.4. Areas of Consensus and Concern

As might be expected, the degree of consensus was high. Colleagues in different institutions are able to identify with all the features of the meta-profile as they represent characteristics which should be expected from a medical graduate in Africa. The validation reviews each endorsed the meta-profile and demonstrates its value. It has enabled the institutions to confirm that they are addressing core aspects of medical education and to identify gaps or areas of weakness in the curriculum or in the assessment of core competences. The interest in the meta-profile and the subject-specific competences emanating from the reviews suggests that, in each of the countries concerned, a more concerted effort should be made to pursue the Tuning Methodology.

On the other hand, while colleagues were able to identify ways in which the features of the meta-profile and the generic and subject-specific competences are addressed in their curriculum, the validation process highlighted areas of concern. Gaps were identified. A concern frequently expressed was that a competence recognised as essential was either not assessed or not adequately assessed. This finding confirms the more detailed replies to the consultation questionnaires, in which achievement of each competence is consistently rated lower than the importance attached to it.

Three shared areas of concern are: (1) Teamwork-leadership-management, (2) Effective and sensitive communication, and (3) Professionalism.

Management as a core competence was the first area of concern. The reviews highlighted management as a serious area of curriculum and assessment weakness, which needs to be addressed. There was unanimity about the importance of this core competence stemming from the emphasis on primary medical care and from the fact that many graduates in Africa are expected, on graduation, to manage a health centre in a rural environment. This area of concern was considered to be effectively represented in both the generic and subject-specific competences as revised following the discussion. This skill was #6 on the list of Generic competences ("Leadership, management and teamwork skills") and #13 on the list of subject-specific competence ("Work effectively as a professional; Capacity for management, organisation and planning, including time management").

The second area of concern, "Specific language competences in communication," can pose a serious challenge in most African countries because of the multiplicity of languages and the need to translate key medical terms into the mother tongue. It was suggested that the formulation of the competence "Communicate effectively and sensitively in a medical context" should refer explicitly to the ability to communicate in the mother-tongue of the patient.

While sympathetic to this view, colleagues recognised the practical challenges for countries where there are multiple official languages and/ or multiple languages spoken by large segments of the community. This situation makes it difficult either to acquire or to require fluency in the relevant language in communication with the patient. Nevertheless, the ability "to communicate effectively and sensitively in a medical context" is perceived as a core competence which needs to be addressed and assessed in the formation of a medical graduate.

The third area of concern, "Professionalism", is manifested in a range of attributes, which are expressed under three subject-specific competences: #12 Demonstrate professional attributes, #13 Work effectively as a professional and #14 Demonstrate expert qualities.

4.5. Assessment Methods Appropriate in Medicine

In a session, colleagues identified a range of assessment methodologies that have proven to be appropriate in assessing the generic and core competences: practical clinical assessment, written examinations, oral examinations, continuous assessment, teamwork projects, internships, placements, portfolio assessment, reflective learning journals, simulation, role playing, group role playing, journal clubs, observation, video analysis and debriefing, mini-conferences and seminars, IT projects (individual and group) and peer assessment (formative and summative).

This list is limited and requires more detailed discussion, linking with the core competences and the level of achievement to be expected at each stage of a student's education.

4.6. Implementing the Profile

The meta-profile of a medical graduate in Africa is a high-level instrument that needs to be translated into an institutional context. Hence, each Faculty of Medicine will need to formulate its own profile for its medical graduates based on the above definition of meta-profile. The implementation process will involve wide discussion and persuasion, engaging the Rectorate, the Faculty and the students. The development of the institutional profile will take into account the meta-profile and the generic and subject-specific competences developed in the pilot project by the Medicine Subject Area Group (SAG).

The development of the institutional profile for a medical graduate will entail:

- A gap analysis in relation to the meta-profile and the generic and subject-specific competences.
- A comprehensive needs analysis, which encompasses the institution, the students, the locality, the region and the country.
- Identification of the specific strengths and areas of specialisation in teaching and research, which will add a specific character to the degree.

This process should also reveal challenges and how these might be addressed. It should be noted that the challenges may include inadequate infrastructure or facilities, lack of staff with relevant high-level skills and the level and qualification of the students at admission.

A key feature of change management is that key personnel must "believe" in the change. This means that champions must be sought at each level – in the Rectorate, in the Faculty, among the students and other key stakeholders. An essential ingredient for the development and implementation of a new degree profile is the establishment of a multi-disciplinary team which should include students and graduates and involve consultation with stakeholders, including employers and regulatory bodies. The development and implementation of the profile requires clear and inspiring leadership and motivation among staff and

students, supported by external stakeholders. A key element in the management and delivery of change is continuing staff development.

Since this is a continent-wide need, the Tuning Africa Medical Group wishes to work together to develop an African joint master's degree in medical education. This degree will involve mixed-mode teaching, combining blocks of intensive face-to-face teaching when participants meet physically in one of the partner institutions, with distance learning.

Following the development of the institutional profile, curriculum teams need to plan and develop the detailed curriculum and the methods of learning, teaching and assessment, which are required to achieve the detailed learning outcomes.

4.7. Conclusion

Through consultation and validation by the Tuning Africa Medical Group, the meta-profile of a graduate of Medicine in Africa was defined. These attributes include but are not limited to being clinically proficient, always responsive to the needs of the community, sensitivity in communicating with the population and being a team player in a multidisciplinary health care team as well as remain committed to life-long learning and manifest all attributes of professionalism.

Chapter 5

Phase 2: A Model Curriculum

The next steps of the Tuning Project involved the development of a model curriculum and associated assessment based on the meta-profile and the generic as well as the subject-specific competences for Africa. The examples below indicate in outline form the work undertaken in a number of the Medical Schools in the project.

Each member of the Medicine SAG undertook to revise either aspects/ units/modules or whole programmes and in some cases planned and developed completely new programmes. In all cases, the development incorporated the Generic and Subject-specific competences and profile expectations defined in Phase One. The SAG members also adopted the Tuning Approach in developing and articulating degree profiles, programme competences and programme learning outcomes which helped to provide a shared framework within which curriculum teams could work and against which programme outlines could be evaluated. The following section describes the work and outcomes of members of the group.

Below are some of the final versions of revised or new programmes developed by SAG members.

5.1. University of Ibadan, Nigeria

Name of the New or Revised Programme

Medicine
Already revised and operational since 2011

Description of the degree profile of programme[12]

An integrated system-based, student-centred, community-oriented, competency-driven curriculum. Revised Medicine programme based on generic and specific competences that students: Must know, Should know and May know. The holder of the degree of Medicine of the University of Ibadan must be able to function effectively as a general practitioner (that is able to deal with common health conditions that are presented in general health care settings), empowered to appreciate and utilise opportunities for self-learning and professional development and sufficiently prepared and motivated for the possibility of specialist professional training and postgraduate academic qualification.

Definition of the length and level of the revised programme

Length of revised programme: Six years.

Programme leads to the award of the Bachelor of Medicine, Bachelor of Surgery (MB; BS) medical degree.

Identification of the future fields, sectors of employment/ occupation of graduates

Hospital settings at the primary, secondary and tertiary levels of health care as well as general and specialty practice.

Degree prepares graduates for future specialisation and/or academic medicine.

The link between the competences and the agreed meta-profiles

All the competences are included: in that all graduates in Medicine of Ibadan are able to function effectively as general practitioners, that is able to deal with common health conditions that are presented in health care settings, empowered to appreciate and utilise opportunities for self-learning and professional development and

[12] The full reference of the work: The 2010 MB: BS Curriculum of the College of Medicine, University of Ibadan: An integrated System Based, Person Centred Community Oriented, Competence Driven Curriculum: Edited Olapade-Olaopa ISBN: 978978 9094 89 9.

sufficiently prepared and motivated for the possibility of specialist and academic postgraduate training leading to the qualitative production of specialists for advanced health care delivery for the nation and globally recognised academics for future development of medical education.

Definition of the competences in the revised Medicine curriculum

Each specialty has broad objectives which fit into the competences elucidated by:

Tuning concepts

Specific objectives:

Each student should be able to obtain a patient's detailed history and to demonstrate knowledge of basic medical principles and know the clinical features of common medical diseases (Tuning Subject-specific competence 1) and perform systematic examination to elicit clinical signs in order to formulate appropriate differential diagnosis, order appropriate investigations to confirm diagnosis and institute management procedures (Tuning Subject-specific competences 2 and 4) as well as perform simple side room investigations and procedures necessary for management of diseases (Subject-specific competence 5). Each student must actively participate and well equipped to manage emergencies in subject sub-specificities (Tuning Subject-specific competence 3). Students must possess adequate knowledge and skills required for prevention of diseases and possess adequate knowledge and understanding of the impact of the socio-economic environment of Nigeria and the world as they relate health to the aetiology and management of diseases and health (Tuning Subject-specific competence 8). Graduates of the Ibadan medical programme must meet global standards in soundness of training and medical knowledge through attitude, knowledge and skills which accord with global standards and must graduate showing conformity with global standards of practice. All through the training programme and specifically in the Department of Community Medicine, great emphasis is placed on population health and prevention (Tuning Subject-specific competence 11) and the concepts of professional ethical behaviour and professionalism as well as research and team membership in the management of health through the demonstration of ethical behaviour and practice and the understanding of the principles of medical ethics (Tuning Subject-specific competences 12 and 13). The Ibadan Medicine

programme expects all graduates to acquire skills in verbal and non-verbal communication with patients, relations and colleagues in the health care team and must demonstrate communication skills that ensure effective and efficient practice and must know various means of communication including how to obtain an informed consent and breaking bad news and should know the issues of malpractice. (Tuning Subject-specific competences 6, 7).

Specification of the level of competences described in the revised Medicine programme profile

Ibadan describes desired competences on the basis of subject specificity of basic sciences integrated with clinical specificities and defined as:

- Learning objectives.
- Outcome indices.

The expected levels of acquisition[13] of these competences are defined through learning objectives and outcomes and are predicated on

- Must know to pass and involves 50 percent contact time.
- Should know to pass and involves 30 percent contact teaching time and
- May know to pass involving 10 percent contact teaching time.

Assessments

300-500 level examination (Formative and Summative) Integrated Objective Structured Practical Examination (OSPE), Multiple Choice Questions (MCQ), Short Answer Questions (SAQ) and Portfolio.

500-600 level examination (Formative and Summative) Integrated Long essay, MCQ, Picture test, Continuous Assessments, Integrated

[13] Outcomes of training of the Ibadan MB; BS curriculum is clearly highlighted.

Objective Structured Practical Examination (OSCE), SAQ and Portfolio.[14]

a) Development of teaching, learning and assessment strategies which will contribute to the implementation of the revised curriculum

These strategies were driven through the College of Medicine Education Unit which monitors compliance with Competence-based teaching through identification of desired competences of each discipline mandated by the philosophy and objectives of the course, learning objective directed teaching and prioritisation of desired competences through must know/should know and may know to pass. Teaching time has therefore been appropriated according to this prioritisation as follows; 50 percent, 30 percent and 10 percent respectively. Competence-based assessment has been refocused to test the acquisition of required competences know how and show how.

Competence-driven learning. Increased emphasis has been placed on the acquisition of practical skills by students and as much as 60 percent of the teacher-student contact time will be spent on practical/clinical teaching sessions and the remaining 40 percent on didactic teaching sessions.

Integrated system-based teaching. Integration occurs during the core basic medical sciences at 200/300 levels (horizontal integration) and clinical application of core basic medical sciences (300 Level 1st semester (vertical integration) as well as integrated clinical posting 1 at the 2nd semester of 300 level and at 400 level (vertical and horizontal integration). Core lectures at 400 level highlighting vertical and horizontal integration. Infectious diseases rotation at 400 level (horizontal and vertical integration).

Community Orientation. This ensures community oriented learning through repeated contact with community health needs and

[14] BREAKDOWN OF THE SCORES:

Continuous Assessment (30 percent), Portfolio (10 percent) and represents the formative assessment; SAQ (8.6 percent), OSCE (17.1 percent), MCQ (14.3 percent), (Viva voce 8.6 percent) and Picture test (11.4 percent) represent summative assessment.

peculiarities with resultant acquisition of relevant accountability to the community. Students will undertake visits to the community including health facilities starting at 200 level.

Self-directed learning/research and audit orientation. Ensured through problem-based teaching in tutorials, eLearning and term project papers which are designed to encourage students to seek information independently and to think in a critical and analytical manner. The term papers will ensure that students research and audit culture.

Introduction of feedback processes through formative assessments. This ensures continuous self-evaluation by both parties and exit questionnaires for graduates.

Allotment of credit units. All courses have been allotted credit units based on the University of Ibadan credit system. All courses are compulsory.

Multi-disciplinary Learning approach. Learning is to be based on the health care team comprising medical students, pharmacists, nursing students, nutritionists and social scientists.

b) **Internal Monitoring and quality assurance procedures.** Each department has a quality assurance unit which reports to the Faculty Quality Assurance Unit and to the College of Medicine Quality Assurance Unit as well the College of Medicine Education Unit to ensure quality of delivery. The various formative and summative assessments are also critiqued by the Faculties, College and Senate of the University of Ibadan.

5.2. Suez Canal University, Egypt

The following is a post-qualification postgraduate programme in Paediatric Medicine. This programme is designed in conformity with the Tuning Strategy on higher education in Medicine and the subject-specific competences and meta-profile are defined for the graduates of the programme.

New Version of the Proposal of a Programme

Title: Master in Paediatrics.

Duration: Two years – Full time equivalent. 120 credits.

Offered by: Faculty of Medicine, Suez Canal University, Egypt.

Cycle: Second cycle.

Subject area: Medicine, Paediatric medicine.

Degree Profile

Orientation

The programme is for medical doctors after completing the internship year. The emphasis is on the development and application of practical skills in the field of Paediatric medicine with the broad understanding of the social, legal, cultural, and economic contexts. On completion of the programme, the student is eligible to continue his study in the third cycle (doctorate degree).

Distinctive features

The programme will be student-centred, community-oriented, and problem-based.

Employability

There is a great need for trained Paediatricians in Egypt as well as in the African region and the Middle East in general. Graduates can work in public and private medical sectors nationally and internationally. Graduates also have a good chance to work in research centres concerned with Paediatric medicine.

Generic competences

- Ability for conceptual thinking and analysis.
- Capacity for continuous learning.

- Practical, cost-effective problem-solving and objective decision making Leadership, management and teamwork skills.
- Interpersonal and communication skills.
- Sensitivity to diversity.
- Sensitivity to safety.
- Flexibility and adaptability.

Subject-specific competences

The graduate of this Master course will have the specific competence to:

Carry out a skilled comprehensive consultation with the child or the guardian

- Take a history.
- Carry out a full clinical examination.
- Make clinical judgments and decisions.
- Provide explanations and advice.
- Provide reassurance and support.

Assess clinical presentation, order investigations, make differential diagnoses and provide a management plan

- Order appropriate investigations and interpret results.
- Consider endemic and communicable diseases.
- Negotiate an appropriate management plan with the patient and family.
- Manage chronic illnesses.
- Identify vulnerable children.

Provide immediate care of Paediatrics emergencies

- Recognise and assess acute medical emergencies.
- Provide basic and advanced life support.
- Treat acute medical emergencies.

Carry out, skilfully, practical procedures in Paediatric medicine
Communicate effectively and sensitively in a medical context
Apply ethical and legal principles in medical practice

- Maintain confidentiality.
- Apply ethical and legal principles in medical practice.

Apply the skills of evidence-based medicine

- Apply evidence to practice with cultural contexts in mind.
- Carry out an appropriate literature search.
- Critically appraise medical literature.

Use information and information technology effectively in a medical context

- Be committed to the effective use of up-to-date, relevant technology.
- Keep accurate and detailed medical record.
- Be able to access information sources.
- Be able to store and retrieve relevant data.

Engage in the promotion of health and health education

- Recognise the health needs of the society.
- Engage in health education and promotion for the individual and the community.
- Provide patient care that minimizes the risk of harm.

Demonstrate a professional attitude

- Commitment to maintain good practice and quality and ethical commitment.
- Ability to recognise limits and ask for help when needed, and work autonomously.

Intended Learning outcomes of the programme: By the end of the programme, the students should be able to:

- Recognise and discuss in depth the needs of the normal neonate and child.
- Explain and discuss comprehensively and in depth common Paediatric medical problems.
- Perform skilled general and focused clinical examination.
- Develop a diagnostic approach for Paediatric medical problems.
- Construct and implement appropriate management.
- Apply professional ethics in Paediatric practice.
- Construct and implement a research plan in the medical field.

Learning and teaching approaches

- Student-centred, Problem-based, Group work, Peer-led presentations, Case studies.
- Clinical rounds.

Assessment

Portfolios, Practical skills assessment, MCQs, Modified essay questions, Critical appraisal of literature, scientific presentations, Mini clinical encounter examination, Direct observation of practical skills, objective structured clinical examination (OSCE).

Internal Quality control and enhancement of the programme

The medical Education Department in our faculty is actively involved in the process of learning and providing tools and strategies for teaching, learning and assessment, which will be used in the implementation of the revised programme. In our faculty, there is a center for training and development that will conduct many workshops and training sessions to all the involved staff as well as the students. The Quality assurance unit in our faculty is actively monitoring the whole process of teaching, learning, and assessment of all the courses and always providing feedback for better performance.

Overall consistency of the programme

All elements of the agreed meta-profile for Medicine are included in the programme profile. The Generic and Subject-specific competences include all the elements of competences in terms of knowledge, understanding, intellectual skills, professional and practical skills, attitudes and values. The learning outcomes are related to the expected competences. The designed learning and assessment methods of the programme are expected to pave the way for student to achieve the learning outcomes of the programme and develop all the expected competences.

The Master degree will include the following courses

Credits	Courses	
4	Research methodology and statistics	First part Semester 30 credits
2	Ethics in medical practice and research	
3	Medical physiology	
3	Biochemistry	
3	Pharmacology	
3	Pathology	
3	Microbiology	
3	Community Medicine	
2	Medical genetics	
2	Clinical Pathology	
2	Elective	
4	Social and Preventive Paediatrics	Second part Semester 60 credits
3	Growth and Development	
3	Nutrition	
4	Perinatology/ Neonatology	
2	Genetics and Dysmorphology	
3	Nephrology	
4	Cardiology	
3	Respiratory system	
4	Haematology/Oncology	
5	Infectious & parasitic diseases	
3	Endocrinology	
4	Neurology / Psychiatry	
4	Gastroenterology and Hepatology	
3	Paediatrics Emergencies	
3	Paediatrics Intensive Care	
3	Behavioural Paediatrics	
5	Scientific activities in Paediatrics	
30	Thesis	Thesis
120	**Total**	

5.3. Université Cheikh Anta Diop de Dakar, Senegal

Name: **Sickle cell disease diagnosis and management (Master level (I) University degree**

Introduction

Sickle cell disease is a hereditary haemoglobinopathy due to a mutation in the gene for the beta of the globin chain. In Africa South of the Sahara, its prevalence varies between 10 and 40 percent and because of migration, it is global.

This condition is characterised by the occurrence of serious acute complications such as vaso-occlusive crisis, sequestration crisis, hemolytic crisis and severe infections that can jeopardize the functional prognosis. Chronic complications such as aseptic necrosis of the femoral head, priapism, stroke, leg ulcers are the cause of serious functional sequelae. It is of the aseptic necrosis of the femoral head, priapism, stroke, leg ulcers... All these complications require regular and multidisciplinary support as well to aim curative than preventive. Hence, this training will be a certain extra to the assumption of the real public health problem.

Objectives of the Training

- Improve the diagnosis and treatment sickle cell disease by doctors working in the rural areas.
- Facilitate multi-centre approach to sickle cell disease research.
- Promote prevention of the disease through genetic counseling.
- Disseminate information to:

    1. Paramedics and the general public in connection with the Target disease.
    2. Hospital and private practitioners.
    3. Students of the diploma of studies specialising in Haematology.

4. Students of Diploma of studies specialising in Urology, orthopaedic trauma, of Regional hospitals.
5. Medical practices.
6. National blood transfusion centres.
7. NGOs and international organizations.
8. Ministry of Health.
9. Paramedic education staff training schools.

Duration of Course

One academic year (2 semesters) course duration

- Lectures.
- Clinical cases.

Practicals

Clinical placements.
Practical laboratory work.

Assessment

Written examination.
Practical examination.
Memory.

Programme

EU1 fundamentals on sickle cell disease (15 credits).
Lectures.

Practical Work (5 Credits)

The student's personal work.

EU2 clinical and therapeutic Aspects of sickle cell disease (30 credits)

- Lectures.
- Courses (15 credits).
- The student's personal work.

EU3 memory (15 credits).

5.4. Joint Master Degree Programme in Crisis and Disaster Health Management

The SAG at the November 2014 meeting in Dar es Salaam, Tanzania, developed a Joint Master Degree Programme in Crisis and Disaster Health Management.

Duration: Two years.

Full Time Equivalent: 120 Credits, Dissertation 30 Credits, Basic Module 5 Credits.

The Joint Master Degree in Crisis and Disaster Health Management will be offered by a Partnership of 6 universities. These universities will be based in Algeria, Egypt, Nigeria, Senegal, Tunisia and the European Union.

Cycle: Second cycle.

Subject areas: Disaster and crisis management, public health, social sciences.

Specialist focus: Health management in crises/disasters.

Degree Profile: To be fully recognised in all participant countries and AAU and ArAU.

Orientation: The programme is for health professionals with at least 2 years post qualification experience. The emphasis is on the development and application of practical skills with a broad understanding of social, political, legal and psychological contexts in health management in disaster and crisis situations.

Distinctive features: The programme will be experience and problem-based with opportunities for placement and interaction with international organisations (e.g. ICRC) and simulations.

Programme Outcomes: Graduates will be qualified to manage/take responsibility for medical decisions and practice in large scale crisis / disaster situations. They will be able to:

- Contribute to wider crisis relief.
- Develop communication skills with those involved and the authorities.
- Demonstrate sensitivity to the political, social, cultural context.

Employability: Work in crisis/disaster situations in Africa.

Learning and Teaching Approaches

Problem-based, Experiential, Blended learning, Group work, Peer-led presentations, Case studies.

Assessment

Reflective reports, MCQs, Portfolios, Group and individual projects, Dissertation.

Generic Competences: The group agreed on the Generic Competences and Subject-Specific Competences for graduates of Joint Master Degree in Crisis and Disaster Management in Africa.

The SAG developed the following competences for the Joint Master Programme.

- Effective communication.
- Ability to manage a multidisciplinary team.
- Leadership.
- Sensitivity to the diversity.
- Ability and initiative to apply knowledge and practice.
- Recognition of personal limitations.

Subject-specific competences: The SAG further developed the following competences for the Joint Master Programme.

- Ability to manage triage in crisis situations.
- Capacity to identify public health needs in crisis/disaster contexts.
- Appreciating and responding to the nature of the crisis and awareness of health and safety procedures.
- Ability to interpret medical presentations in crisis contexts.
- Capacity to exercise judgment and work under exceptional pressure.
- Ability to adapt and manage emergency medical practice in large scale crisis/disaster situations.
- Ability to respond to large scale infectious diseases.
- Ability to contribute to longer term strategic policy.

The SAG further distributed the credits and the countries that will offer the courses as shown below.

Partners	Credits	Compulsory Modules
Nigeria/Algeria	10	Understanding Disasters/Crises; Principles of Disaster medicine
		Basic Life support
Tunisia	10	Health Management responses in crises/disasters
		Immediate, Short, and Medium term
Egypt	5	Working with others-Agencies-multidisciplinary team
Tunisia	5	Victimology
Egypt	5	Occupational Hazards
Senegal	10	Communication-languages
Nigeria	5	Sensitivity to diversity
Senegal	5	Professional attitudes
Nigeria	10	Identifying and responding to recurrent problems
	10	Placement-ICRC et al.
EU	5	Human Rights-Law-Ethics
Egypt	5	Epidemiology-Research Methods-Biostatistics
Tunisia	5	Principles of Human identification-death investigation
Algeria	5	Advanced Life Support
EU	5	Advanced psychology of disasters/crises

Understanding Disasters/Crises: Principles of Disaster Medicine - Basic Life support Learning Outcomes

- Capacity to recognise multi-faceted nature of disasters/crises.
- Ability to describe stages in response to disasters/crises.
- Ability to establish a multi-disciplinary team.
- Capacity to identify public health issues in disaster/crisis situations and describe appropriate responses..

Identifying and Responding to Recurrent Problems

Learning Outcomes

- Demonstrate the ability to respond to mother and child protection needs.
- Plan a strategy for orphan and vulnerable children.
- Ability to respond to the specificities of adolescent health needs.
- Demonstrate ability to identify, support and manage cases of sexual assault.
- Ability to recognise and respond to drug abuse and dependence.
- Ability to identify and respond to disability.
- Ability to deliver mass vaccination in an appropriate manner.

5.5. Universidade Eduardo Mondlane Bachelor in Medicine and Surgery

	Activity	Time
1	Definition of working methodologies and responsibilities among the revision committee Revising lessons and practice regarding competency-based curricula from other universities	March 2014
2	Definition of timeline and budget	March 2014
3	Identification of major intervenients in the process	March 2014
4	Defining work groups	March 2014
5	Obtaining Consensus with regards to graduate profile and type of curricula	May 2014
6	3 consensus workshops with major intervenients	May 2014
7	Reports	May 2014
8	Conduction of self-assessment and external evaluation	April/ August 2014
9	Feedback from external evaluation	November 2014
10	Conception of improvement plans	February/April 2015
11	Dissemination to relevant stakeholders	May 2015
12	General meeting	July 2015
13	Incorporation of recommendations and suggestions	July 15
14	Presentation of document to the faculty council	September 2015
15	Revision and recommendations incorporation	October 2015
16	Introduction of credits transfer system	November 2015
17	Conception of new assessment tools	February 2016
18	Current document version	March 2016
19	Presentation to relevant university bodies (three)	May 2016
20	Revision and improvements (three)	June 2016
21	Approval by the senate	August 2016
22	Training of academic staff	August 2016
23	Establishment of skills/simulation lab	August 2016
24	Curricula implementation	February 2017

5.6. University of Nairobi: Proposal of a Bachelor of Medicine and Bachelor of Surgery (MBChB)

Name of the Revised Programme

The University of Nairobi, School of Medicine, proposes to initiate the process of revision of the Bachelor of Medicine and Bachelor of Surgery (MBChB) programme after completion of the current cycle. The implementation of the current curriculum began in the year 2012. The first cohort from the current six-year curriculum is due to graduate in the year 2018.

Description of the Degree Profile of the Proposed Revised Programme

After successful completion of the revised programme, the holder of the degree will be able to:

- Provide evidenced-based and patient-focused clinical expertise to Kenyans that is responsive to the community health needs.
- Engage in a learning journey or continuing professional development.
- Demonstrate professional attributes of the medical profession.

Level and Length of the Proposed Revised Programme

The programme will be offered at the Bachelor's level and the programme duration will be six (6) years long. Successful completion of the programme will lead to the award of the MBChB degree.

Employment/Occupation of Graduates

The graduates of the revised programme will work as medical officers within the Republic of Kenya or may work outside Kenya. The graduates will work in the following fields or sectors of employment: Ministry of Health, National and referral Hospitals, County hospitals

and community-based hospitals, Private hospitals, Health management organisations (HMOs), Faith-based organisations, Non-Governmental Organisations (NGOs), United States Agencies such as CDC and USAID, Universities that train health science students, Research institutions such as the Kenya Medical Research Institute, Pharmaceutical companies, Self-employment.

The Meta-profile

The meta-profile of the graduate from the revised programme includes all of the following: Clinical expertise and knowledge, a focus on community and environmental health. Professionalism, Effective and sensitive communication, Teamwork, leadership and management, engagement in a learning journey or continuing professional development, adaptability to ICT and new technologies.

Definition and List of the Competences

The following subject-specific competences (in bold italics) for the proposed revised programme are further described in greater detail:

Carry out a consultation with a patient (child, adolescent, adult and pregnant woman)

- Take a patient's history.
- Carry out a full physical examination (general and systemic examination).
- Make clinical judgements and decisions.
- Assess for communicable and non-communicable diseases.
- Provide explanation and advice.
- Provide reassurance and support.
- Assess the patient's mental state.

Assess clinical presentations, order investigations, make differential diagnoses and negotiate a management plan (child, adolescent, adult and pregnant woman)

- Order appropriate investigations and interpret the results.
- Make differential diagnoses.
- Consider endemic, communicable and non-communicable diseases.
- Manage chronic illness.
- Identify vulnerable children and adults.
- Negotiate an appropriate practical therapeutic management plan with patients and families.
- Provide care of the terminally ill and their families.

Provide immediate care of medical emergencies, including first aid and resuscitation (child, adolescent, adult and pregnant woman)

- Provide basic first aid.
- Recognise, assess and as appropriate refer acute medical emergencies.
- Treat acute medical emergencies.
- Provide basic and advanced life support according to current standard guidelines.
- Provide trauma care according to current standard guidelines.
- Perform appropriate emergency surgical and obstetric procedures.

Prescribe drugs clearly and accurately, explain potential benefits and risks (child, adolescent, adult and pregnant woman)

- Prescribe clearly and accurately.
- Match appropriate drugs and other therapies to the clinical context and indications.
- Review the appropriateness of drug and other non-drug therapies.
- Evaluate and explain potential benefits and risks.
- Take careful consideration of the socio-economic context of the patient when prescribing.
- Manage pain and distress.

Carry out practical procedures (child, adolescent, adult, pregnant woman)

- Measure blood pressure.
- Venepuncture and vein cannulation.
- Administer subcutaneous and intramuscular injections.
- Administer IV therapy and use infusion devices.
- Perform a lumbar puncture.
- Perform bladder catheterization.
- Otoscopy.
- Foreign body removal.
- Reduction of fractures/ dislocation.
- Application of plaster of Paris.

- Surgical suturing.
- Perform a normal blood transfusion.
- Administer oxygen.
- Perform and interpret an electrocardiogram.
- Perform a urinalysis.
- Manage a normal delivery.

Communicate effectively and sensitively in a medical context

- With patients and colleagues.
- With empathy in sharing bad news with families.
- With people who are physically and/or mentally challenged.
- In seeking informed consent.
- In writing and non-verbal communication.
- With authorities.

Apply ethical and legal principles in medical practice

- Maintain confidentiality.
- Obtain and record informed consent.
- Certify death.
- Apply national law to clinical care.
- Appropriate referral for specialist care.

Assess the psychological and social aspects of a patient's illness (child, adolescent, adult and pregnant woman)

- Assess psychological and social factors in the presentation and impact of illness.

Apply principles, skills and knowledge of evidence-based medicine

- Apply evidence to practice.
- Carry out an appropriate literature review.
- Critically appraise published medical literature.

Use information and information technology effectively in a medical context

- Use up-to-date relevant and effective technology.
- Keep accurate, complete and detailed clinical records.
- Be able to access information sources.
- Be able to store and retrieve relevant data.

Engage with population in the promotion of health and health education

- Recognise the health needs of the community.
- Engage in health education and promotion for the individual and the community.
- Apply measure to prevent the spread of communicable diseases.

Demonstrate professional attributes

- Interpersonal skills.
- Honesty.
- Ethical commitment.
- Reflective practice, critical and self-critical.
- Initiative.
- Empathy.
- Creativity.

Work effectively as a professional

- Ability to work in a multidisciplinary team.
- Ability to recognise limits and ask for help.
- Ability to lead.
- Ability to work autonomously.
- Ability to solve problems.
- Ability to make decisions.

Demonstrate expert qualities

- Capacity for lifelong self-directed learning.
- Capacity for applying knowledge into practice.
- Research skills.

- Capacity for analysis, synthesis.
- Ability to teach others.

Level of Competence

The competences will be developed across the programme from the first year to the final year. The competence will increase progressively in complexity, from beginner/novice to competent practitioner and finally to expert practitioner. The specifics of the competences will be incorporated in the revised curriculum.

The expected learning outcomes

The expected learning outcomes will be divided into four main themes, which are:

- Scientific basis of medicine.
- Doctor and patient.
- Doctor, health and society.
- Personal and professional development.

The expected learning outcomes will be matched to the competences outlined above.

The methodology of the learning strategy

In order to achieve the competences outlined above, several student-centred learning strategies will be used. These include:

Case-based learning, Clinical skills workshops, Ward experiences, Reflective journals, Portfolios, Logbooks, Diaries, Practical demonstrations

Programme composition

The programme will be developed around the competences. The competences will be sequenced around the four themes from basic to complex. The teaching blocks will encompass the following:

- Foundations and normal systems.
- Foundations in clinical practice.
- Integrated para-clinical sciences.
- Clinical practice.

The specific courses and modules will be developed in full detail within the curriculum for the revised programme.

Overall consistency of the programme

The consistency of the programme with the competences, the expected learning outcomes and activities that will lead you to the learning outcomes will be verified in the curriculum of the revised programme.

5.7. A Joint Programme USTTB (Mali) - University of THIES (Senegal)

Master of Science in Molecular Medicine (Revised version).

a) *Name of the revised joint programme*

USTTB-UT M.Sc in Molecular Medicine programme.

b) *Social need of the programme*

Africa is facing the burden of the world's most devastating infectious diseases, including malaria, HIV/AIDS, tuberculosis, emerging infectious diseases such as Ebola and an unprecedented increase in non-communicable diseases (NCDs) including cancer, cardiovascular diseases and diabetes. The completion of the Human Genome Project and the advances in technology led to a significant cost reduction in genomic data acquisition and provide for great opportunity for novel insights into the aetiology, diagnosis, and therapy of those diseases. A better understanding of the extensive genetic and microbiota diversity in African populations presents a compelling opportunity for the delivery of more accurate diagnoses, new drugs, precision medicine, and a deeper understanding of susceptibility and resistance to infections and metabolic disease. Africans have only participated minimally in genomics research. If the dearth of genomics research involving Africans persists, the potential health and economic benefits emanating from genomic science may elude an entire continent (www.h3africa.org). One of the primary causes of the lack of large-scale genomics studies in Africa is a shortage of African scientists with genomic research expertise. To benefit for this new advanced in biomedical sciences, it is important to train the next generation of young African scientists using a multidisciplinary approach. This group training will be complemented by research topics and applications in the interfaced domain.

Role of the universities involved in the programme

Both USTTB and UT will obtain institutional approval of the Master training programme

Both USTTB and UT will provide faculty members for the training programmes. Additional faculties will be provided by UCT (after signature of an MOU). USTTB will be the contact Institution.

USTTB and UT will provide mentorship and research opportunities to the MSc students USTTB and UT will seek for collaboration to strengthen research and training capacity of the programme.

c) *Description of the degree profile:*

Generic competences

- Ability for conceptual thinking, analysis and synthesis.
- Apply ethical and legal principles to related genomic research.
- Capacity to use appropriate and innovative technologies.
- Ability and initiative to apply knowledge in practice.
- Capacity for continuing learning.
- Develop Leadership, management and teamwork skills.
- Ability to work independently.

Subject-specific Competences

- Demonstrate a strong understanding of the Molecular medicine.
- Capable to explain structural and functional aspects of Human genome and its functional regulation.
- Analise and interpret the impact of interaction genes, inheritance and environment on disease.
- Describe normal cellular processes and how the changes in them contribute to disease development change, in particular for common non-communicable diseases such as cancer, diabetes, and heart disease.
- Perform molecular diagnostics and advantages/limitations of its applications.

d) *Length and level of the programme*

The length of the programme is **four semesters** including 3 semesters of course work and one semester of Master thesis research. **The first semester** will focus on introductory molecular medicine (basic molecular biology, genetics, genomics and related techniques).

The second semester will cover the understanding of the molecular basis of diseases and applications of commonly used molecular, cellular and bioinformatics techniques.

The third semester will focus on the molecular mechanisms by which microbial pathogens invade and cause diseases (acute and chronic infectious diseases) and the relationship between molecular, epidemiological and clinical aspects of diseases.

The fourth and final semester will enhance laboratory skills and allow the student to develop the ability to interpret, evaluate and present their own scientific data (research project for the Master thesis).

e) *Future fields, sectors of employment/occupation of graduates*

This specialisation prepares the graduate for academic research in genomic, pharmaceutical, medical, and environmental laboratories, as well as for employment in business, research and development (pharmaceutical or biotechnology) or for jobs creating specialised software in the life sciences field.

f) *Link of the competences with the agreed meta-profile*

The field of molecular medicine is often referred to as "tomorrow's medicine". It aims to provide a molecular understanding of how normal cellular processes change, fail or are destroyed by disease. The purpose of the MSc programme is to develop knowledge and skills in cellular and molecular biology. These have applications in both research and practical clinical work, and will contribute to an increased understanding of processes, diagnostics and treatment of diseases.

g) *Definition of the competences and their level*

The objectives of the programme are:

- To provide rigorous training in a broad spectrum of applications in molecular medicine including point of care diagnostics, pharmacogenomics, medical biotechnology, targeted therapy, molecular diagnostics and genomic medicine.

- To develop a critical mass of individuals highly trained in Molecular Medicine including clinicians, medical technicians, scientists, medical faculty, and other healthcare professionals.

h) *List of Competences*

- Understand and interpret primary literature related to various aspects of cellular and molecular biology.
- Perform appropriate statistical analysis of data.
- Critically evaluate scientific literature relevant to the field of molecular medicine.
- Assess the impact of genes, inheritance and environment on disease, and understand how normal cellular processes change, fail or are destroyed by disease development, in particular for common diseases such as cancer, diabetes, and heart disease.
- Use common molecular, cellular and bioinformatics techniques to investigate biological problems.
- Describe the molecular mechanisms by which microbial pathogens invade and cause disease.
- Explain the molecular pathogenesis of examples of acute and chronic infectious diseases including tuberculosis, malaria, and HIV infections.
- Analyse the relationship between molecular, epidemiological and clinical aspects of cancer with a more detailed knowledge of breast cancers, colon and uterus.
- Perform techniques for molecular diagnosis of infection and the tools for molecular epidemiology of infection
- Develop and implement a research project and write this up in the format of a research manuscript.

i) *Level of Competences*

The competences will be developed starting from basic molecular medicine principles including basic molecular biology and genomics; the skills will be developed in molecular and bioinformatics techniques; as will be laboratory skills and those necessary for implementation of research projects on Molecular Medicine topics.

Description of the expected learning outcomes related to the competences

The graduate-should be able to:

- Demonstrate a strong background in Molecular Medicine (i.e. molecular/cell biology relevant to medical applications) and have practical skills relevant for the field.
- Describe the organisation of the human genome and its functional regulation (i.e. replication, gene expression, genome maintenance, and signal transduction principles).
- Describe the impact of genes, inheritance and environment on disease, and understand how normal cellular processes change, fail or are destroyed by disease development, in particular for common diseases such as cancer, diabetes, and heart disease.
- Explain principles of molecular diagnostics and advantages/ limitations of its applications.
- Recognise and explain current strategies and state-of-the-art approaches within functional genomics.
- Collect relevant background information about topics pertaining to Molecular Medicine.
- Present, evaluate and discuss scientific results in English (orally and in writing).
- Reflect on the existence of ethical aspects, sound experimental approaches and scientific thinking.

j) *Short description of the methodology of the learning strategy for achieving the competences*

The lessons will be conducted in person or via video conference and webinar by our outside cooperating institutions. Learning and Teaching approaches will include case studies, group work, laboratory practices and problem solving.

k) *Structure of the programme: list of units/courses/modules*

Semester	IU Code	IU Title	LH	DW/ TW	PSW	Credits
ONE	MMN100	Molecular Medicine	36	24	60	6
	MMN101	Molecular Genetics of Diseases	35	15	50	5
	MMN102	Molecular Epidemiology and Biostatistics	25	25	50	5
	MMN103	Scientific English	20	10	30	3
	MMN104	Genomics and Precision medicine	30	20	50	5
	MMN105	Molecular Pharmacology and Toxicology	36	24	60	6
TWO	MMN200	Sequencing Techniques and Analysis	36	24	60	6
	MMN201	Ethics and Legal issues in Molecular Medicine	30	30	60	6
	MMN202	Molecular and Immunological Basis of Disease	30	20	50	5
	MMN203	Bioinformatics for Genomics and Post-genomics	25	15	40	4
	MMN204	Microbial pathogenesis	20	20	40	4
	MMN205	Molecular oncology	20	30	50	5
THREE	MMN300	Development of Therapeutic Targets	30	20	50	5
	MMN301	Molecular diagnosis	18	6	60	6
	MMN302	Web-Based Data Mining & Analysis	40	10	50	5
	MMN303	Research Methodology	20	20	40	4
	MMN304	Professional Integration	20	10	30	3
	MMN305	Laboratory Internship	0	40	40	4
	MMN306	Scientific Communication	20	30	30	3
FOUR	MMN400	Research Project	0	150	300	30

l) *Short explanation of the consistency of the programme with the competences, the expected learning outcomes and activities that will lead the learning outcomes (overall consistency of the programme)*

The competences in the programme will be provided through theoretical courses, laboratory practices and research projects that will contribute to achieve the learning outcomes.

m) *Internal Quality Control / Enhancement*

We will follow guidelines of the office of Quality assurance of USTTB and UT and faculty enhancement workshops to ensure high quality of the programme.

5.8. University of Cape Town

Proposal for a Graduate Entry Programme at UCT.

a) *Name of the programme*

Graduate Entry Programme: GEP.

b) *Purpose*

The GEP system is a system that allows graduate students from other degree programmes to enter Medicine at a third year level provided they pass an entrance exam. To be able to get into GEP programme the students need to have completed and graduated from a degree first. This means once accepted into the GEP programme the students will complete the degree in Medicine in 7 years (3 years doing an undergraduate degree and 4 years in the GEP programme.)

c) *Justification*

The Minister of Health and the Minister of Higher Education and Training has requested that all universities with faculties of Health

Sciences that offer medical degrees increase the numbers of medical students with the view to increasing the numbers of trained medical doctors in South Africa. UCT has responded favourably to this and plans to increase the numbers of first years from the current level of 220 to 300 by the year 2018. The idea arose that UCT could achieve the increase in medical graduates to 300 by introducing a graduate entry programme (GEP) in parallel to the undergraduate MBChB programme, i.e. admit 260 students into years 1and 2 and 40 students into the GEP. The Deanery requested that the idea be pursued and the feasibility investigated and a proposal be put together for consideration by the Faculty. This proposal may be viewed in light of one of the ways to increase student numbers. The other advantage is that the GEP increases the diversity of the class by introducing mature students from various backgrounds who show a range of skills when it comes to adult learning.

d) *Admission and Criteria for Entry*

I. The minimum entry criteria is a BSc degree in appropriate Life Sciences, Natural Sciences, Biology and Biomedical Sciences.

II. Students will be selected for entry into the programme based on:

- Their performance in the BSc (and higher degrees) that they have completed;
- Their performance in the National Benchmark Test (NBT) - at intermediate and proficient ranges;
- Their performance in the GEP admissions test in various basic sciences/ Anatomy/ Physiology/Anatomical Pathology;
- The contents of their Curriculum Vitae;
- Their proficiency demonstrated in basic isiXhosa and Afrikaans; and
- The demographic composition of the MBChB class.

e) *Career opportunities*

Medical doctors working at government hospitals or in private practice; Medical education, involved in curriculum design, Medical management, working for medical aid companies or NGO's, Medical Journalism, Tele-medicine, Positions in pharmaceutical companies, Medical entrepreneur, managing large private practices, Academics/ Research.

f) *Programme Outline*

Students who are selected will be required to enter into a Year 3 of the MBChB programme that is specially adapted for the Graduate Entry Programme, a so-called modified Year 3. After completion of this year, the students will continue with Years 4-6 of the regular MBChB programme. In constructing the modified Year 3, the philosophy is not based upon a catch-up period of all work traditionally covered during Years 1-3 of the regular programme, as this is not feasible, but rather how to adequately prepare these graduates to enter the MBChB programme at the beginning of Year 4. The UCT MBChB programme aims to produce a competent generalist doctor with the attitudes, knowledge, skills and professional values to enter the healthcare field with confidence. This entails a balance between preventive, promotive, curative and rehabilitative health care, in a primary health care setting. It promotes communication skills, teamwork, professional values and competent clinical practice, in the context of the primary, secondary and tertiary health care settings in within the Primary Health Care Approach. The educational approach equips students with critical thinking and lifelong learning skills.

This approach is encapsulated in the principles of Primary Health Care Approach (PHC). The PHC philosophy incorporates:

- Integration of basic sciences with clinical practice and population health.
- A team approach to health care involving the various health disciplines.
- Interfaculty and inter-sectoral collaboration.

- Application of individual and population perspectives in teaching, research and health care delivery.

- A comprehensive approach at all levels of health care namely: quaternary, tertiary, secondary and primary; and

- An awareness of complementary and informal health systems in South Africa.

Due regard is afforded to the cultural, economic, political, social and scientific context within which our graduates will work. The University of Cape Town and the Faculty of Health Sciences have clearly defined their role in participating in the reconstruction of the country. There is a stated commitment to contribute to redressing past imbalances of race, gender and class and to developing a culture of human rights.

g) *Key Features of Curriculum*

- Lectures.

- Problem-Based Learning (PBL) – this is an element of the medical curriculum. It is an active way of learning that teaches students problem solving skills and teamwork while at the same time allowing them to acquire basic knowledge. This style of learning is appropriate for mature learners who already have a first degree and are therefore experienced at working in a higher education environment.

- Practical sessions – these take place in laboratories, IT laboratories, clinical skills laboratories and/or wards.

- Communication skills – provide practical training in interviewing techniques with special sessions devoted to communication between doctors and their patients.

- Project work will bring the students into contact with the local community.

- E-learning —this allows the students access to a large amount of teaching material via 'the university online environment— an

intranet-based facility. Students can revisit lectures and review other teaching materials at their convenience.

h) *Proposed Courses*

The numbers reflect a situation where there are 40 students in this group. It is important to have the group undergo some rotations along with students in Year 3, during the introduction to Clinical Practice block of the regular programme, as part of a process of integration with their peers when they all reach year 4. The GEP curriculum will consist of three modules/course units.

1. Integrated Health Systems

Course outline

The course will occupy 50% of the students' total study time. This course provides the student with a detailed understanding of the normal structure and function of the human body and how these are affected when the body suffers from disease. In a completely integrated way, students learn core material in the basic health sciences (gross anatomy, embryology, histology, cell biology, medical biochemistry, molecular biology and physiology), core material on infectious diseases (medical microbiology, virology and immunology), changes that occur from normal structure and function (anatomical pathology, chemical pathology and haematology), and the principles of pharmacology and early management. Emphasis is placed on psychosocial matters relating to each case, drawing in all relevant aspects of family medicine, primary health care, public health, and mental well-being. Concurrently, students learn clinical skills, interpretation of data, professional values and ethics, and certain procedural skills directly related to the cases studied. Whilst initially the emphasis is on normal structure and function, the student also learns what happens when the normal structure and function change during illness and disease, what the impact is on the well-being of the individual, family and society, and what the role is of the health care services in alleviating illness.

2. Becoming a Doctor (BaDr)

Course outline

The course will occupy 30% of the students' total study time. It consists of and integrates three main sections:

1. Family Medicine.
2. Clinical skills.
3. Language and communication.

The students learn and practise the skills required to work with patients, including the essential elements of interviewing skills, history-taking and physical examination, and concepts of professionalism and human rights. Students are guided through the clinical, individual and contextual components in the assessment of a patient. This patient assessment teaches students to recognise the patient as an individual with fears, anxieties and concerns within a specific context. Students learn how to use diagnostic equipment and apply other basic skills essential for diagnosis. This course builds on the concept of the reflective, empathic and knowledgeable practitioner and students are required and encouraged to continue their reflective journals, commenced in previous courses, recording their personal development as professionals. All students are exposed to a diversity of health care settings in primary, secondary and tertiary care in both the public and private sectors.

3. Introduction to Clinical Practice

Course outline

This course is designed to allow students to consolidate and broaden the clinical skills, knowledge and behaviours acquired in their Becoming a Doctor courses and to apply the principles learnt in the Integrated Health Systems courses to clinical practice. Students should also start acquiring professional life skills and behaviours while in the wards. The students rotate through five clinical attachments of three weeks

each. They cover the domains of adult health, women's health, mental health, perinatal health and a clinical skills module. Within these attachments, students interview, examine and assess patients in hospitals and health care institutions. The purpose of the attachments is to build upon the core knowledge and clinical skills learnt in previous semesters, through the medium of exposure to patients, and to give students added confidence in their interaction with patients. The course will occupy 20% of the students' total study time.

5.9. Menoufia University

Proposal of a Programme - Practice of clinical research

a) *Name of the new or revised programme*

Practice of clinical research.

b) *Description of the degree profile of the new programme or a revised programme in terms of generic and/or subject-specific competences*

The holder of the course will be able to participate or conduct research in his or her own area of interest.

c) *Definition of the length and level of the programme*

An optional curriculum with higher certificate of 3 months at levels of both undergraduate and postgraduate medical studies.

d) *Identification of the future fields, sectors of employment/ occupation of of the graduates*

- After completing the course the candidates can work in medical research including.
- Universities: his/her thesis and other research funded projects.

- Medical research centres.
- Practicing medical research besides his/her medical career.
- Medical industry (especially pharmaceutical companies).
- Research councils, especially the Medical Research Council (MRC) and institutes.
- National Health Service (NHS).
- Non-governmental and voluntary bodies.

e) *Check on the link of the competences with the agreed meta-profile*

All the competences in the meta-profile are included:

- A focus on community and environmental health.
- Professionalism.
- Effective and sensitive communication.
- Teamwork-leadership-Management.
- Engagement in a learning journey.
- Adaptability to ICT and new technology.

f) *Definition of the competences (Specify regarding the new or revised programme)*

Generic competences:

- Ability for conceptual thinking, analysis and synthesis.
- Professionalism, ethical values.

- Ability to translate knowledge into practice.
- Objective decision making.
- Teamwork-leadership-Management.

Subject-specific competences:

- Apply and evaluate different Study Design, Measurement, and Statistics.
- Demonstrate Ethical, Legal, Monitoring, and Regulatory Considerations in clinical research.
- Preparing and Implementing Clinical Studies.
- Demonstrate ability to use ICT and new technology in research.
- Integrate research according to the community and environmental needs.

g) *Competences for this particular programme*

Intellectual competences:

- Describe, formulate and communicate profession–related issues and options for taking action.
- Analise profession-oriented issues theoretically and consider them in practice.
- Structure own learning.
- Professional and Academic Competences.
- Apply and evaluate different Study Design, Measurement, and Statistics.
- Demonstrate Ethical, Legal, Monitoring, and Regulatory Considerations in clinical research.

Preparing and Implementing Clinical Studies:

- Demonstrate insight into central theories, methodologies and concepts within the clinical research.
- Document, analise and evaluate the various types of clinical research.
- Utilise medical research and development to develop evidence-based activities.

Practical competences:

- Demonstrate proficiency in the practical clinical research competences/skills required for the registration of a research project.
- Make and justify decisions based on his or her own clinical research experience.
- Show personal integrity and act within the framework of clinical research ethics.
- Demonstrate ability and willingness to function in a multidisciplinary setting.
- Participate and conduct development work / projects relevant to the clinical research profession.
- Demonstrate ability to use ICT and new technology in research.
- Integrate research according to the community and environmental needs.

h) *The expected level of achievement of the competences*

In the undergraduate curriculum: Act in a range of varied and specific contexts involving creative and non-routine activities; transfer and/or technical or creative skills to a range of contexts In postgraduate curriculum: use advanced skills to conduct research, or advanced technical or professional activity, accepting accountability for all related

decision making; transfer and apply diagnostic and creative skills in a range of contexts.

i) *Description of the expected learning outcomes related to the competences*

- Technical, scientific and numerical skills.
- Good written and oral communication skills.
- A methodical approach to work.
- Tenacity and patience.
- Ability to work well in teams and to network and forge links with collaborators.
- Problem-solving skills and analytical thinking.
- Attention to detail.

j) *Description of the methodology of learning strategy for achieving the competences*

How do you manage to make sure that the students reach the competences?

- Demonstrations of learning: projects, presentations, or products through which students "demonstrate" what they have learned, usually as a way of determining whether and to what degree they have achieved expected learning standards or learning objectives.
- Learning pathways: the specific courses he/she can attend to increase his/her research requirements, and learning experiences when joining other research projects to earn credit points.

Student research portfolios:

A Rubric evaluation tool will be used to promote the consistent application of learning expectations, learning objectives, or learning standards to measure their attainment against a consistent set of criteria.

Capstone projects: a multifaceted assignment that serves as a culminating academic and intellectual experience for students.

Assessment methods:

- Critical evaluation and reflection on current researches: on successful completion of the module, students will be able to critically evaluate research literature.
- On successful completion of the module, students will be able to present the findings of their experimental work through an oral presentation.
- Chart Stimulated Recall Oral Examination (CSR).
- Checklist Evaluation of Live or Recorded Performance.
- Global Rating of Live or Recorded Performance.
- Objective Structured Clinical Examination (OSCE).
- Procedure, Operative, or Case Logs.
- Record Review.
- Simulations and Models.
- Standardized Oral Examination.
- Written Examination (MCQ).

k) *Specification of the units of the programme (courses and modules)*

The programme consists of 4 modules:

- Module I: Study Design, Measurement, and Statistics, 15 units.
- Module II: Ethical, Legal, Monitoring, and Regulatory Considerations, 6 units.
- Module III: Preparing and Implementing Clinical Studies, 12 units.
- Module IV: Additional Study Designs and Miscellaneous Topics, 5 units.

l) *Check on the consistency of the programme with the competences, the expected learning outcomes and activities that will lead to the learning outcomes (overall consistency of the programme)*

All the learning outcomes are included in the programme and each unit is related to one or more learning outcomes. The consistency of the programme will be checked with the competences, the expected learning outcomes and activities that will lead you to the learning outcomes (overall consistency of the programme) as follows:

- Provide learning opportunities in all competency areas.
- Engage in efforts to improve learning opportunities and/or assessment of the competences.
- Assess all competence areas.
- Assess student performance in every unit.
- Include at least one other type of evaluator, in addition to physician faculty or resident supervisors.
- Have scoring/rating criteria for rotation performance.

- Train faculty to use criteria for ratings of residents' rotation performance.
- Use assessment data to provide oral or written feedback to students for all competences.

5.10. University of Health Sciences (UoHS): Faculty of Medicine

Introduction

Established: 2014.

Duration: 5 years + one internship year.

Degree: Bachelor of Medicine and Bachelor of Surgery (MBBS).

Learning Outcomes

Successful graduates of this programme are expected to develop the following programme learning outcomes:

1. Knowledge and understanding of:

   1.1. The normal structure and functions of the body's systems and how they interrelate and interact.

   1.2. The interaction between body and mind at all stages of life and factors that may lead to abnormalities.

   1.3. Common disease processes, their etiology, pathogenesis, manifestations and physical and psychological consequences for the patient, family and society.

   1.4. The basis of common laboratory tests and diagnostic procedures, their uses and limitations.

   1.5. Management of common diseases including pharmacological, physical, nutritional and psychological therapies.

1.6. The concepts and principles of dealing with suffering and disability rehabilitation and care of the dying.

1.7. Basic principles of epidemiology, public health, health promotion, preventive medicine and management of health care.

1.8. The principles and methods of conducting innovative scientific research.

2. Intellectual skills:

2.1. Apply evidence-based reasoning to scientific and medical problems.

2.2. Interpret, analise, and integrate the findings of history, physical examination and reach appropriate diagnosis or differential diagnosis.

2.3. Select appropriate cost effective diagnostic procedures and interpret their results.

2.4. Formulate and test hypothesis.

2.5. Apply knowledge and understanding of research methodology to carry out effective scientific researches.

3. Practical skills:

3.1. Carry out practical work as instructed in organised and safe manner.

3.2. Obtain comprehensive history and perform an accurate physical and mental state examination.

3.3. Perform appropriate clinical skills that are effective and practical to apply.

3.4. Perform clinical procedures routinely carried out during undergraduate medical training.

3.5. Use information technology as essential source for modern medical practice & continuing professional development.

4. Transferable skills:

    4.1. Work effectively as a member and as a team leader.

    4.2. Communicate effectively with other including, patients, relatives, colleagues and other health care professionals orally, in written and through use of information technology.

    4.3. Be a good and sensitive listener.

    4.4. Uphold the community's trust and expectations of the role of a doctor.

5. Attitudes and professional values:

    5.1. Maintain high standards throughout professional life by a commitment to life-long learning and teaching.

    5.2. Demonstrate a flexible, enthusiastic attitude that is responsive to change.

    5.3. Respect of every human being, community values and culture diversity.

    5.4. Demonstrate awareness and understanding of professional responsibilities including the delivery of the highest possible standard of clinical care.

    5.5. Exhibit awareness of the social, ethical, economic and environmental context of health and illness and psychological wellbeing and delivery of care.

    5.6. Provide appropriate support for colleague peers; working as a member and contributing to teaching and research.

    5.7. Recognise the importance of research in medical practice.

    5.8. Build an awareness of own limits of knowledge and skills and the need to refer the patients for attention of others when a clinical problem exceeds his/her capacity to deal with it safely and effectively.

Assessment Methods: Both formative and summative assessment methods are implemented.

Formative assessments include assignments, problem solving in both home and classes, case presentations and quizzes. Summative assessment includes mid-term examination, end of semester examination and final examination at the end of the longitudinal subjects. The examinations are written, oral, practical, and clinical.

Table of courses

Phase I: Pre-clinical Courses: the academic year is 32 weeks (16 weeks per semester)

No	Course Code	Course Title	Credit Units
First year-Semester one			
1	MED 111	Chemistry- General and Organic	3
2	MED 112	Biology	3
3	MED 113	Medical Physics	3
4	MED 114	Anatomy1	6
5	MED 115	Physiology1	3
6	MED 116	Biochemistry1	3
7	ENG 117	English I	2
8	ISLM 118	Islamic Culture I	2
9	PSY 119	Psychology	2
Total			**27**
First year-Semester Two			
1	MED 121	Anatomy 2	6
2	MED 122	Physiology 2	3
3	MED 123	Biochemistry 2	3
4	MED 124	Community Medicine 1	2
5	ENG 125	English II	2
6	ISLM 126	Islamic Culture II	2
7	COMP119	Computer Application	2
Total			**20**

No	Course Code	Course Title	Credit Units
Second year-Semester Three			
1	MED 211	Anatomy 3	6
2	MED 212	Physiology 3	3
3	MED 213	Biochemistry 3	3
4	MED 214	Community Medicine 2	3
Total			15
Second year-Semester Four			
1	MED 221	Anatomy 4	6
2	MED 222	Physiology 4	3
3	MED 223	Biochemistry 4	3
4	MED 224	Biostatistics	2
Total			14
Third year-Semester Five			
1	MED 311	Microbiology 1	6
2	MED 312	Pathology 1	6
3	MED 313	Pharmacology & Therapeutics 1	4
4	MED 314	Community Medicine 3	2
Total			18
Third year-Semester Six			
1	MED 321	Microbiology 2	6
2	MED 322	Pathology 2	6
3	MED 323	Pharmacology & Therapeutics 2	4
4	MED 324	Basic clinical skills	2
5	MED 325	Medical ethics & Professionalism	3
6	MED 325	Community Medicine 4	2
Total			23

Table of courses
Phase II: Clerkship and internship: 4th and 5th year
(from semester 7 to semester 10)
Each academic year is 32 weeks (16 weeks per semester)

Course Code	Course Title	Credit Units
MED 411	Obstetrics and Gynaecology	12
MED 412	Community Medicine 5	3
MED413	Research Methodology	2
MED 414	Radiology	3
MED 415	Forensic Medicine and Toxicology	3
Total		23
MED 421	General Surgery	14
MED 422	Orthopedics	2
MED 423	ENT	2
MED 424	Anesthesia	2
MED 425	Research Project	2
MED 426	Community Medicine 6	2
Total		24
MED 511	Internal Medicine	16
MED 512	Psychiatry	4
Total		20
MED 521	Paediatrics	14
MED 522	Ophthalmology	3
MED 523	Dermatology and Sexually transmitted infections	2
Total		19
Sixth year		
MED 611	Internship Training Year	

5.11. Conclusion

Each HEI in the partnership revised either aspects/units/modules or whole programmes and in some cases or developed completely new programmes revised or developed a model curriculum and associated assessment based on the meta-profile and the generic as well as the subject-specific competences for Africa. The SAG members also adopted the Tuning Approach in developing and articulating degree profiles, programme competences and programme learning outcomes which helped to provide a shared framework within which curriculum teams could work and against which programme outlines could be evaluated. The University of Ibadan in 2010 designed an integrated, system-based, student-centred, community-oriented, competency-driven curriculum with several competences and assessment in tandem with the Tuning Strategy and with links with the agreed meta-profile. Similarly, the University of Nairobi provided a curriculum in line with the agreed meta-profile, and subject-specific competences. The Masters programme of the Suez Canal University is well defined in the Tuning Strategy with the agreed meta-profile being documented clearly. The SAG developed a Joint Master Degree Programme in Crisis and Disaster Health Management with the Tuning Approach being central to the Programme which also showed that several countries can work harmoniously together to produce this joint degree through allocation of credit units. The University of Cape Town presented a proposal for a Graduate Entry Programme at UCT (University of Cape Town) which is different from other undergraduate entry programmes to address the need for more doctors for its health care delivery system.

Chapter 6

Reflection on Staff Development Needs and Possibilities of the Medicine Subject Area Group

This chapter explores the role of staff development for clinical teachers in assisting clinical educators to deliver more effective and relevant education and training. It also considers the needs of clinical educators and the different needs of medical educators and the possibilities available for them.

6.1. Staff Development Strategy

Tuning Africa II focussed on implementing the curriculum design work from Tuning Africa I which involved planning courses in subject streams, stewarding the proposals through institutional systems, and where possible, actual teaching of the course or programme. The overall project approach to staff development adopted for all the subject areas involved active learning activities to assist this process through the provision and co-development of a structured staff development programme. This hands-on approach was designed to ensure dissemination of project outcomes in which participants are enabled to use their experience and are provided with tools to develop active learning workshops for staff development. This approach supports the scholars in the project and beyond by developing members' capacity to lead staff development for their colleagues at their HEIs and in the country; a key element of the approach is the involvement of the colleagues as participants and co-designers/ developers.

The Outcomes of the staff development approach was to ensure that: Subject Area Group (SAG) members from the participating universities were offered an opportunity to develop their experience of and skills in conducting focussed familiarization workshops and presentations on student-centred learning.

National and international African bodies will have a larger visible pool of experts on which to draw for further developmental work related to the harmonisation processes which ensures sustainability.

All participants will benefit from engagement in and reflection on a wide variety of learning-centred activities that can be used in their work with direct benefit to students and university, thus aiding reform of the curriculum.

Some participants will have co-designed and co-facilitated workshops; and some coordinators of the online course teams will have co-tutored on-line courses. This will support them in the role of staff developers or mentors for other academics. It will also provide additional elements to sustain the work of the project partly through practical staff development, and partly through better understanding of the AU Harmonisation agenda, ensuring real sustainability.

Participation at all levels in single and multi-disciplinary groups will devolve ownership from the Tuning team to the Tuning participants and their institutions thus ensuring ownership and sustainability.

The Tuning Methodology will have been enriched by the inclusion of a unique innovative element, transferable to other projects and thus building innovation and transfer.

These outcomes will help to ensure that the Tuning Africa II project helps to build capacity, devolve ownership, provide a stronger base for sustainability, and develop an African framework for structured dissemination. Successful staff development evolves around sustaining project implementation which includes a number of key strategies for success, such as the shift of ownership, which Tuning believes are key drivers, and the following ones which are essential key success factors:

Achieving the commitment and support of middle management such as Deans and Heads of Department; Using a combination of bottom-up and top-down processes; Building the project around a series of both

traditional academic and scholarship of teaching' products; utilising prestigious overseas consultants to raise the profile of the project and provide input; Collaborating with the educational development units in the University and other national bodies where applicable; Producing tangible products such as handbooks, guides and journals.

The staff development activities were predicated on the following:

6.1.1. *On-line courses*

The Tuning Academy has developed a suite of on-line courses as part of its resource provision. The first course was successfully piloted in 2015 with academics in the Tuning MEDA project from three subject areas, one group of whom were located in Egypt.

Course 1: Course Design for Outcomes Based Learning in Higher Education

This course has been undertaken by institutional teams from Medicine SAGs along with other four SAGs of Phase 1. The course was tutored by University of Deusto staff and offered to the three additional SAGs of Phase II in October. 2016.

Course 2: Practical Assessment for Learning

This was offered to the original 5 SAGs from the end of January to October 2017, also tutored by Tuning staff, and to the 3 other SAGs after they had completed Course 1.

Course 3: Teaching for active Learning in Higher Education

This was offered in the final year of the project. It is envisaged that volunteer African colleagues will collaborate with Tuning staff in the design of this course.

6.1.2. *Workshops*

Several workshops were proposed, both face-to-face and online, be conducted at **General Meetings and between General Meetings.**

Stage 1: Third to Fourth General Meetings

The Phase 1 SAGs including Medicine who undertook the online course 1 were requested to organise a workshop after the Accra Meeting with the teams they have established during Online Course 1 as co-developers. The face-to-face workshop in Accra comprised a series of focussed learning activities, followed by deconstruction and analysis of the format to provide a template for workshop planning. This procedure made the method of the workshop clear to the participants, allowed for fine-tuning to suit the context, and allowed for creative application in their own topics. The face-to-face workshop allowed for a parallel on-line version provided by the Tuning Academy to demonstrate one way of making the material available to a wider audience. The intention was to allow the volunteers to either replicate the Accra workshop in their own institutions, or use it as a model and conduct a workshop on a selected range of topics. Participants are encouraged to make a parallel on-line version which can be shared among the SAG colleagues. This introduction of practice in developing on-line workshops potentially extends the reach of participants' staff development work outside their own institutions.

All participants were asked to conduct a simple needs analysis including a description of what staff development opportunities are available; the Medicine SAG to develop a workshop and develop a proposal for another workshop on a topic relevant to their context.

Stage 2: Fourth to Fifth General Meetings

The face-to-face workshop at the Fourth General Meeting was based on the needs analysis and topics suggested between the Third and Fourth General Meeting. It consisted of a short workshop on a popular theme from recommendations made by participants, and conducted by a team of colleagues from the SAGs, followed by a second workshop in which two parallel activities took take place: a) colleagues worked together in peer-groups, to critique and improve the proposals prepared since the Third General Meeting; and b) colleagues reviewed some of the on-line workshops with inputs from the Open and Distance Learning experts within the project group.

Between the Fourth and Fifth General Meetings, participants conducted their own workshops both face-to-face and on-line when desired and submitted the materials to be used potentially on the

website and by others. They also prepared a poster presentation on aspects of staff development, to be used at the final meeting. During this period volunteers who have achieved outstanding success on the on-line courses will be given the opportunity to co-design the third Tuning course with the course designers from the Tuning Academy. This is seen to be an important opportunity for the visible shift of the locus of control from project managers to project participants.

Stage 3: Fifth General Meeting

In this final General Meeting there was a summing-up workshop. First part: poster-conference; second part: discussion and ways forward. It is important to allow a period of time for reflection and discussion.

Exchange scheme - actual or virtual

In order to further promote cross-continental collaboration and make full use of existing expertise in the scholarship and practice of university teaching, an exchange scheme will be developed and, if possible, tested during Tuning Africa II at in-country level or inter-country where existing links obtain. It will be based on matching needs to expertise. Those offering expertise in an area of course design, teaching, learning, assessment or programme evaluation can advertise either online or face to face workshops through the Tuning website; those who feel they need further staff development in an area offered can make direct contact. Further discussions on how the scheme can work most effectively, and how to raise funds for it, took place in Accra with the participants, Tuning Africa Policy Advisory Group (TAPAG), and the Tuning Management Committee.

Developing Resources on the Tuning website

Groups are already working on the development of the website. Through workshops and courses and the direct focus of Tuning work, it is planned to include a wider range of resources on the website. It is planned that the workshops and the implementation work of Tuning Africa II will contribute strongly to this. This resource, and other Tuning staff development activities, will be available to academics in Africa as well as all other Tuning project 'alumni'. Any colleagues from projects who provide materials will have them acknowledged by name

unless they prefer not to – this would, of course, include naming the collaborators in the development of the on-line course.

The Report on Feedback from the first Africa TUNING II On-Line Course Summary

This report is based on the feedback from 52 of the participants. Results were overall very positive and contained some relevant feedback for the course designers and tutors. The course content and tutorial support gave satisfaction with very few negative comments on the content, although some respondents suggested extra content that would suit them. One major issue was the timing of the course as many felt that it was too extended for the circumstances of working staff. There were in fact a number of teams who did not complete the whole course. One solution to this is to provide the course in three parts each of which could be completed sequentially.

Results

The course had nine Intended Learning Outcomes (ILO)

1. Practise structured reflection on your teaching, your students' learning, as well as on your own professional development and yourself as a lifelong learner;

2. Develop a working knowledge and shared language about the theories underpinning competence-based learning, and their value for enhancing student learning;

3. Consider what competences your students are expected to develop during the degree programme as a who;

4. Select competences that directly relate to or can best be developed within your course;

5. Write learning outcomes that enable students to develop these competences;

6. Practise sequencing learning outcomes;

7. Compile an archive of teaching techniques, learning activities and assessment methods appropriate for your work;

8. Consider different ways of assessing student achievement of outcomes;

9. Design a proposal for further improving or a course from the point of view of the alignment of teaching, learning and assessment techniques or a proposal for a new competence-based student-centred course.

In analysing the report, the 52 participating institutions were asked to rate the usefulness of the ILOs on a scale of 1 to 4 with 1 representing low satisfaction and 4 very satisfactory.

ILO Rating	1	2	3	4
	N (%)	N (%)	N (%)	N (%)
1			7 (13.5%)	45 (86.5%)
2			11 (21.2%)	41 (78.8%)
3			8 (15.4%)	44 (84.6%)
4			10 (19.2%)	42 (80.8%)
5			10 (19.2%)	42 (80.8%)
6			12 (23.1%)	40 (76.9%)
7		1 (1.9%)	11 (21.2%)	40 (76.9%)
8			14 (26.9%)	38 (73.1%)
9	1 (1.9%)		20 (36.5%)	31 (57.7%)

ILOs 7, 8 and 9 were rated less satisfactorily compared with ILOs 1 to 6; an indication of the degree of usefulness that the participants ascribed to those ILOs. Although most participants submitted work that demonstrated ability to deconstruct competences into ILOs, the sequencing of these is not really something that can be 'mastered' in theory only – they have to be done in action, in course planning and implementation.

ILO 7 refers to collating a summary of potential teaching, learning and assessment techniques applicable to various ILOs. This exercise did not work as well as intended, largely because it was a collaborative exercise on the platform FORUM, an aspect of the course which did not function very well as few participants gave feedback, and even fewer offered comments. The ILO 8 rating was unsurprisingly lower than others since the assessment issue was dealt with briefly in this introductory course, mainly through reading and peer interaction.

ILO 9 refers to the capstone tasks: a tough summary exercise in which participants had to a) plan a workshop for colleagues in order to demonstrate understanding of the issues, and b) revise an existing course or design a new one within a programme they are working on. Although all the tasks within the course contribute to this final capstone exercise, many participants do not seem to have used the course strategically in order to make these two exercises more readily accessible.

Participants were asked: 'In what other aspects (if any) has (participation in) this course been useful for you?' Two broad categories emerged: (1) general insights into teaching, learning and assessment; and (2) teamwork and self-development for learning.

General insights ranged from comments on useful methods, to deeper comments on how the course had changed their thinking about teaching in HEIs. Several simply commented on general satisfaction that Tuning II had provided this extra resource. Examples of the deeper comments are:

> "Participation in this course has made me more conscious of my teaching, ensuring that I make it student centred, having established the importance of ILOs before i start teaching a module."
>
> "It helps in refocusing one's work, work that we always took for granted."

Eleven partners commented on the value of the teamwork for their personal development. The course was administered in teams; these needed management by coordinators and also cooperation from the team members. This was not a straightforward enterprise, given that all team members were working full time, and some were dispersed in different locations at times.

Some of the comments of the participants are highlighted below.

> "I gained a lot learning from other members in my team as well as from members of other teams. Learning is indeed collaborative."
>
> "I have developed skills of teamwork and collaborative learning (from tutors, my colleagues from my own group and other groups, my own, counted for my professional development."
>
> "It has made me a better leader."
>
> "It has improved my team work attitude."

These comments were reinforced in the answers to the general question: 'What two or three things on the course did you particularly enjoy?' Many again commented on the great value that working in teams had had for them. Some examples of comments are quoted below:

> "Working with colleagues on a weekly basis as students, gaining new knowledge in the field of learning and thinking of programmes in terms of graduate profiles (what competences should be developed?)"
>
> "Great interaction with my colleagues experimenting doing tasks alone, technical support, teamwork, competition between the teams."
>
> "The interactive sessions with team members."

In a later question about what could be done to improve the course, a few dissenting voices were noted, in which the team organisation was criticized. These comments perhaps reflect the closed door mentality of some of academics in HEI, where there is neither the perceived time nor the culture for discussion in teams. Nevertheless, the course directors are aware of the problems that teamwork can present and have the matter under review – not to eliminate it, but to make the processes more user friendly for all. Below are some of the comments of the participants:

> "The group classes are not as effective. If it is possible to design per individual participant, its effectiveness will improve."

"I think it will be better if the course is administered on individual basis not group."

"Make room for members of the group to make submissions and interact with faculty staff."

Time and timing were two issues commented on by 15 of the respondents. In general, the respondents made the point that the course provided too short a period for working staff. Of course this has to be weighed against the fact that on-line courses of longer duration may occasion higher dropout and cost of internet access.

"Increase the time limit. It was a good course but it needed to be done in more time because it is really part time studies in view of other full time work at the university."

"There is need to extend the duration of the programme."

"Targets could be stretched a little like what finally happened."

The range of time that participants spent on the course did not actually vary widely. 21 of the respondents spent between 1 and 3 hours per week, 16 spent 4 to 6 hours per week while 5 participants spent 7 to 10 hours per week and 4 spent more than 11 hours per week to complete the assignment. 46 participants responded and the majority of these devoted between 1 and 6 hours a week to the course, which is in line with the expected workload for the course.

Some participants also commented that Tuning needs to take into account the rhythms of university life – examination times, holidays, etc.

Several participants felt the need to have more interaction with other teams and suggested a Skype conference halfway through the course as one solution. At the same time others commented that the joint FORUM in the course was under-utilised. This is not actually contradictory, since what they are asking for is more inter-team interaction.

The Medicine Group and Staff Development

In the second phase of the Tuning Africa Project, staff development was a key theme as described above. This has grown out of the work to develop new curricula and introduce new approaches to learning and teaching designed to equip graduates in Medicine with the generic and subject competences established in Phase 1 within a clear definition of the meta-profile of an African graduate of Medicine.

The work on curriculum planning and development has revealed a critical challenge in the attitudes of colleagues who may be resistant to change or feel in need of support in responding to new demands and new approaches and even new roles. Moreover as student-centred learning increasingly develops, there is a need to find ways to help and guide students to accept and adjust to ownership and responsibility for their learning. In medical education, it is apparent that a key skill which all doctors need to acquire is an 'ability to teach' (competence 14). To achieve these paradigm changes, a structured programme of staff development is essential and the Medicine SAG addressed how this might be achieved and what targeted workshops might promote in their institutions.

This chapter explores the role of staff development in assisting clinical teachers to deliver more effective and relevant learning. It considers the needs of clinical educators and the resources available. According to McKimm and Swanwick, 2010[15] even though clinical teachers face many of the challenges that any teacher faces, medical teachers carry the double burden of delivering safe and high quality care to their patients while being responsible for teaching and training undergraduates and post graduates. The SAG recognised that all systems of staff development must be flexible and able to respond to the changing needs of teachers and practitioners.

Medical school faculty members are not taught to succeed as educators, researchers, scientific writers and administrators but rather they are trained in the roles of their clinical duties and delivery of healthcare. They do not learn academic skills related to curriculum development. Medical education has evolved to become a discipline in its own right.

[15] Clinical Teaching Made Easy: A Practical Guide to Teaching and Learning in a Clinical Setting.

There is now increasing demand for the professionalization of teaching practice at medical faculties as there is greater demand for these faculties to be socially responsible and accountable and to have quality systems which seek to assure that medical graduates have acquired the high level competences which they will need in the practice of medicine. Staff development requires the formation of a team of professional and competent medical teachers, educators, researchers for their new roles and responsibility in medical education. The medical teacher is now expected to play multiple roles such as facilitator, curriculum and course planner, resource developer, mentor, student assessor and programme evaluator. As more innovative curricula are developed adapting to these new demands require that medical staff acquire new skills and competences. Due to dissatisfaction over validity and reliability, traditional methods of assessment have also been challenged. This requires new ways/forms of assessment. The training of doctors depends on well trained and experienced medical educators who are committed to continue the process of updating and upskilling their knowledge, understanding and delivery of medical education. This process demands highly professional staff development. A key objective and outcome of high quality learning and teaching is qualitative and quantitative improvement in healthcare.

The challenges and obstacles that can influence the success of staff development programmes include: (1) Resistance to change; (2) Institutional support; (3) Balancing individual and institutional resources; (4) Inadequate managerial support; (5) Funding and (6) Time for educational issues.

In developing countries medical education faces serious constraints as lack of financial resources, lack of collaboration, lack of infrastructure, support staff and time,in addition to the preoccupation with patient care.

The United Kingdom General Medical Council published revised Educational Standards in January 2016 incorporating and replacing Tomorrows doctor (2009)[16]. In doing so, it has sought to give greater prominence to its requirements/expectations for medical education by separating these from the expectations/requirements for a medical graduate. While the document is designed for the U.K., its elements are equally relevant for Africa. Part 1 titled **"Promoting excellence:**

[16] https://www.educacionmedica.net/pdf/documentos/modelos/tomorrowdoc.pdf

standards for medical education and training"[17] is based on five themes: embedded in these are the ten standards to promote excellence in medical education and training.

Theme 4, "Supporting Educators", emphasises the importance of the roles: Educators must be selected against suitable criteria and receive an appropriate induction to their role, access to appropriately funded professional development and training for their role, and an appraisal against their educational responsibilities.

Staff development programmes that promote teaching and assessment skills must be developed by all medical schools and as such medical professionals with responsibilities for teaching medical students must develop the appropriate skills, attitudes and practices of a competent teacher.

The following broad themes should be included in a staff development programme for medical educators:

1. Induction, including requirements of the role and the medical school's support structure which should be compulsory on appointment to the position,
2. Principles of learning and teaching,
3. Articulating expected outcomes of learning, including the standards and acceptable level of variation,
4. Methods of curriculum design, planning and delivery,
5. Assessment methodology and feedback,
6. Principles of equality and diversity,
7. The use of ICT for learning and teaching.

The strategy for staff development needs to be determined in close consultation with key stakeholders and through an extensive needs

[17] https://www.gmc-uk.org/-/media/documents/Promoting_excellence_standards_for_medical_education_and_training_0715.pdf_61939165.pdf

assessment with staff in order to ensure that it is appropriate and reflects the changing needs of medical institutions, students and society as well as the needs of individual staff. This approach ensures that educational issues that have been identified are prioritised through the staff development programmes.

New models of learning and teaching are needed to shape the future healthcare providers. To achieve this goal, new curricula, novel pedagogies and innovative forms of learning, teaching and assessment need to be developed and integrated in the staff development programme. The goal of staff development is to assist faculty members in the acquisition and development of the skills relevant to their institutional and faculty role. In essence this development will help staff improve their instructional skills, design better curricula and improve the organisational climate for education to enhance the student-centred learning experience to produce high quality medical practitioners who have acquired the knowledge, understanding and competences to practice medicine.

The Tuning Africa II project has identified staff development as an essential prerequisite for the successful implementation of curriculum development or review. It is evident that to implement curriculum reform effectively, it is essential to engage the majority of the faculty and other relevant staff in on-going and regular staff development. Indeed, this is one of the pillars of a medical practitioner which was defined in Phase 1: ***Engagement in a "learning journey" or continuing professional development.*** An aspect of this development which is often ignored is helping staff to undertake and articulate a self-assessment of their needs without any sense that this is a sign of weakness or failure. This too is an important feature of Professionalism set out in the SAG's Subject-specific competences ***12; Demonstrate professional attributes***: one of which is 'Critical and self-critical abilities, reflective practice'. In addition, in 13 the SAG asserts that a doctor must '**Work effectively as a professional'** and demonstrate the '*Ability to recognise limits and ask for help'*. Finally under Domain 14, '**Demonstrate expert qualities**: which include '*Capacity to learn (including lifelong self-directed learning.* and *Ability to teach others)*.

The members of the Medicine SAG who have participated in both Tuning Africa I and II were drawn from senior levels in their University and brought considerable experience and expertise to the project. In turn they have built on this a substantial knowledge of the theoretical rationale for the outcomes-based reform. In many cases, members

of the group are in positions where they can influence the direction of institutional policy. It was agreed that members of the SAG would use their strengths to provide workshops for colleagues in their institutions. The target groups identified were academics in Faculties of Medicine with the objective that by the end of the project a competence and outcome-based approach could be embedded widely, and not confined to the "lucky ones" who participated in the project. This process can be accomplished in two stages; first, through the development of face-to-face workshops within the Medicine members' own institutions and later, online workshops for a wider audience. It was expected that all members of the Medicine SAG would be able to contribute to this further staff development work. Each member of the Medicine SAG was asked to complete a simple needs consultation to map current staff development opportunities at the member's university, to identify the strength of each institution in what is already offered, as well as to locate perceived needs. An extremely wide range of topics was identified as needing support. However, these could be categorised into a more limited list of key needs, covering both the understanding of the theoretical bases for the curriculum reform, and ways of implementing it through learning, teaching and assessment. Members of the Medicine SAG were requested to identify important topics for staff development programmes and each topic/ need proposed is shown in the table below.

The reported needs can be grouped into four clusters; (1) curriculum development, (2) teaching, learning and assessment strategies to allow implementation, (3) revision and improvement of curricula, and (4) conceptual framework. The majority of the needs identified in the Medicine group focussed on aspects of learning, teaching, and assessment strategies to allow implementation of a competence-based approach. The medicine group identified workshops aimed at developing learning and teaching skills, knowledge and assessment as well as curriculum development. The group wanted to address important teaching competences including the following: enhancing the students learning experience, teaching to a curriculum, new innovative approaches to learning, teaching and assessment; alignment of competences with assessment.

Topics/needs for workshops identified	University
Assessment of ILOs	
• Curriculum development: with relation to professional standards • Assessment: standards alignment: with professional standard from competences to assessment • Teaching, Learning and Assessments using new approaches • Assessments: formative and summative	Menoufia University
Curriculum development which is based on competences and ILOs	Suez Canal University
• Assessment (assessment strategies/methods) • Credits (and student workload) • Teaching and Learning strategies to reach ILOs	University of Science, Techniques and Technologies of Bamako
Assessment: of competences Development of competences: general (teaching)	Eduardo Mondlane University
• Teaching and learning in small groups • Teaching and Learning using of ICT technology • Assisted learning (MOOCs, Simulation teachings) Interactive • Teaching active learning • Tutoring and mentoring Peer learning	University of Ibadan
Assessment using new approaches Teaching and learning using simulation	Université Cheickh Anta Diop Dakar
Teaching and Learning through distance education Curriculum development revision	Université de Thiès
Implementation of a competence-based approach	University of Health Sciences
Assessment and Evaluation Assessment Design Tutoring Assessment: requirements of an external examiner	University of Cape Town

Some examples of staff development workshops proposed and conducted by some institutions

Training on principles of assessment and item development for medical teaching staff

Mekelle University, College of Health Science, Health professionals' education unit

Introduction

Assessment is not an end in itself but a vehicle for educational improvement. Its effective practice, then, begins with a vision of the kinds of learning we most value for students and strives to help them achieve. Educational values should drive not only what we choose to assess but also how we do so.

Assessment is a critical component of instruction; properly used, it can aid in accomplishing key curricular goals. The impact of decisions regarding how and when to evaluate the knowledge and performance of one's students cannot be overestimated. A primary purpose of testing is to communicate what is viewed as important. Assessment also helps to fill instructional gaps by encouraging students to read broadly on their own and to participate broadly as educational opportunities are available. This outcome of testing is especially important in the clerkships where the curriculum may vary from student to student, depending on factors such as the clinical setting and the random flow of patients. This outcome may also be important in some basic-science settings (e.g., problem based learning), where the educational experiences may vary from student to student.

Because tests have such a powerful influence on student learning, it is important to develop tests that will further the educational goals. Introduction of a hands-on clinical skills test drives students out of the library into the clinic, where they may seek help with their physical-exam skills; introduction of a test assessing only recall of isolated facts, on the other hand, drives them to course review books.

No one method is likely to assess all the skills of interest. It should also be noted that the method used for assessment does not directly affect

test quality, nor does it determine the component of competence measured by the test.

Rationale of the training

Most of the seniors in medical colleges have joined the university without having adequate knowledge with regard to effective teaching and standard assessment skills. They usually practice things that they assume are correct and what their instructors were doing when they were medical students.

This kind of training will enable them to fill the gap, bringing their capabilities up to the standard and will build a platform for the examination bank preparation that the HPEU is planning to have in the future at the college level.

Methodology

Duration of training: 3 days.

Venue: CHS, In-service training hall.

Date of Training: August 25-27/2017.

Participant list: Attached.

Total number of participants: 23.

Training description

This training was conducted mainly based on the feedback which was obtained from the external examiners who were invited from different medical colleges to examine the final year medical students. Almost all the four departments received a similar feedback that the written examination was not graded according to standard guidelines. Then after the demand for this training had come from these departments, the HPEU (Health Promotion Evaluation Unit) and the QA (Quality Assurance) office took the initiative in collaboration with CDC (Centers for Disease Control and Prevention) project and JHPIEGO (formerly Johns Hopkins Program for International Education in Gynecology and Obstetrics) regional office. Because of this, the training was mainly

designed for senior medical doctors working in these departments. Many of these seniors did not attend the sessions of similar trainings which were conducted in the college few months previously. The training has emphasised principles of assessment and item development. For the training, two experts from the AAU and FMOH examination board and one trainer from the college examination committee were involved.

Expected Learning outcomes

- Describe assessment principles.
- Explain the purposes and levels of assessment.
- Discuss competency-based assessment.
- Identify threats to validity and reliability.
- Apply principles of assessment in designing and developing valid and reliable exam.
- Mention key components of an exam blueprint.
- Explain the benefits of an exam blueprint.
- Construct and use a blueprint to develop valid exam items.
- Training delivery process (teaching and learning method).
- Interactive presentation and discussion.
- Demonstration Practical sessions.
- Training evaluation.
- Participants' reaction (participants' feedback –oral and written using evaluation form).
- Learning materials and resource.
- PPT presentations.
- Handouts.

Result

Twenty three participants registered for and completed the training and the training started at 9:00 am after an opening speech was given by the quality assurance head of the College of Health Sciences, Mekelle University. Later, the trainer facilitated brainstorming discussion with the participants and a power point presentation was given on principles of assessment; the training continued as per the schedule for a total of three days. At the end of the training participants forwarded their feedback and requested other similar training for the rest of their colleagues in the department.

Strengths

All training participants were very interested and they recommend the training for all School of Medicine staff members.

The weekend time is good for School of Medicine training.

Regarding the examination bank: together with the HPE unit, all department heads and the exam committee of each department decided to develop an examination bank.

Way forward

They asked to receive OSCE training in the near future.

Training should continue and include other academic staff members

Every new employed staff member should get such training on assessment and also effective teaching skill training.

Universidade Eduardo Mondlane
Report on professional teachers' training

Background

Assessment has been defined in many ways and by different authors. In fact, of all components of the learning process, assessment seems

to be not only the most difficult but also the most conflictual. Indeed, the external evaluation process conducted by the National Quality Assurance Council in Higher Education (2015) confirmed that assessment was one of the weakest elements at medical school. According to GOLIAS (1995; p. 90), assessment it can be understood as a dynamic, systematic and continuous process that follows the learning and teaching process. John Cowan defines assessment as the engine that drives students learning. With the introduction of a competence-based curricula at the Faculty of Medicine, there is therefore a need to operate adequate change to ensure that all curricular elements are correctly assessed. Essential part of this process comprises the training of the academic staff to perform accordingly with the new assessment process.

Thus, and following the Tuning Africa methodology, this workshop aimed to provide participants with competences to use different forms of assessment of the whole programme in the context of competence-based curricula.

Specific objectives

- Identify main assessment techniques and methods.
- Define distinct levels of achievement and
- Identify means of collecting evidence of achievement (measuring instruments).

Participants

20 of 22 planned participants attended the workshop that was facilitated by the members of the curriculum reform committee. All logistic aspects were funded by the Italian Cooperation project.

Objectives

The workshop followed the initial objective as presented in the proposal submitted to Tuning Africa management.

Methodology

A combination of various methodological aspects was used to achieve the planned objective and included:

- Testing new instruments using simulation with participants playing a role of teachers and students.
- Active participation in group work and plenary sessions.
- Brainstorming.

Findings and main results

Support materials and proposed assessment tools were previously sent to all participants, a fact that contributed to a greater level of interaction. Although no pre- or post-test was performed, it can be assumed that the workshop fully achieved the proposed objectives.

Among others, the following results can be listed as achieved:

- Identified major competence assessment methods and instruments.
- Included for first time at the Faculty of Medicine the concept of self-assessment and peer evaluation.
- Shared, corrected and validated the new assessment tools.

Conclusions

The workshop was a key element towards the implementation of a competence-based curriculum at Faculty of Medicine, UEM.

Next steps

With the support of the curriculum reform committee, finalise the elaboration of each discipline skills assessment tools (model provided); Implement new assessment system at Faculty of Medicine; monitor and evaluate the implementation process

University of Nairobi: Staff Development

Strengths

- Pedagogical skills workshop for newly employed academic staff organised by the College of Education and External Studies.
- Large number of full time faculty.
- Pool of faculty trained in innovative teaching methodology under the NIH-sponsored grant Medical Education Partnership Initiative (MEPI).

Needs/ Topics identified by the Medicine SAG

- Student-centred learning.
- Enhancing bedside clinical teaching for large number of students.
- Implementation of a competence-based approach.
- Curriculum development based on intended learning outcomes (ILOs).
- Alignment of ILOs, teaching –learning activities and assessment.

Some examples of staff development workshops proposed by some institutions

Workshop Proposal - University of Ibadan, Nigeria

Workshop title: Capacity Building Workshop on Improving Assessment in Medicine/Paediatrics

Participants: Twenty-five (25) participants involving all cadres of academic staff and senior resident doctors (who in a few months will be appointed academic staff).

Workshop total duration: 2 hours and 30 minutes.

Intended Learning Outcomes: Competence-Based Learning Approach to Assessing Students of Paediatrics by Lecturers.

Aim: To develop or improve assessment tools which are consistent and reproducible in order to achieve the intended learning outcomes in Paediatrics.

Outputs: By the end of the workshop participants will be able to:

- Design appropriate tools for assessing learners in Paediatrics.
- Identify gaps in assessment tools in Paediatrics.

Scope: Introductory workshop in improving assessment in Paediatrics

Activity title and description	Type of Activity	Feedback	Resources required
a. Invitation letters to be sent by facilitator to the Head, Department of Paediatrics and the participants	Pre-workshop		Laptops, Case studies-reading materials
b. Provision of reading materials by facilitator on:			
Assessment methods			
ILOs			
Feedback processes			
c. Diagnostic test to be administered to include reading materials in order to assess the participants prior knowledge of assessment methods, tools and other necessary information			
Facilitator will provide further background information on competences assessment	Facilitation of participant-centred learning	Questions and Answers to deal with feedbacks from pre-workshop reading and test.	Public address system (PAS), multimedia projector, conducive venue, e-reading materials
		Questions and Answer session	
	Questions and Answer session		
Short lecture by the facilitator on what is to be expected from the workshop, terminologies and the outputs of workshop			PAS, multimedia projector, conducive venue, e-reading materials

Activity title and description	Type of Activity	Feedback	Resources required
A short video will be shown with types of assessment strategies to encourage role plays			
Small group discussion	Small group discussion		PAS, multimedia projector, conducive venue, e-reading materials
(a) Role play,	Chance to try things out	Discussion, questions and answers	PAS, multimedia projector, conducive venue
(b) Peer review and assessment			
Designing a tool to evaluate the workshop	Reflection and evaluation	Discussions	PAS, multimedia projector, conducive venue
Planning for follow-on workshops			
Reviewing the pit falls and success of the workshop		Discussion, questions and answers	
Reflective learning from participants through a reflective journal /log book			
Closing remarks	Planning for the future		
(a) Circulation of workshop materials and feed back	After the workshop	Questionnaire responses,	
(b) Letters to thank the participants			

6.2. Conclusion

The staff development programme considered the needs of clinical educators and the different needs of medical educators and the possibilities available for them. The staff development identified by the SAG involved active and reflective learning activities through focussed development and familiarisation workshops and presentations on student-centred learning at various partner HEIs for dissemination to other colleagues at participating HEIs for sustainability. The staff development activities were predicated on on-line courses and workshops at both face-to-face and online at General Meetings and between General Meetings. The different partner HEIs in the medicine SAG identified different aspects of learning, teaching, and assessment strategies to allow implementation of a competence-based approach through workshops aimed at developing learning and teaching skills, knowledge and assessment as well as curriculum development.

Chapter 7

Student Workload

It is obvious that a student-centred curriculum planning and development needs to establish a clear understanding of the learning workload which it is estimated will be required to achieve the learning outcomes. In a formal credit system such as ECTS, this is a key ingredient helping to establish the volume of learning. Student workload is made up of a diversity of activities which will vary from programme to programme and course unit/module. It might be divided into what is often referred to as 'contact' hours, that is work which is timetabled including assessments and to that extent formal, and 'private' or individual study/work necessary to achieve the learning required. As with the 'formal' work, 'private' or individual work may take a variety of forms.

Whereas it is possible to quantify with some accuracy the 'formal' component of the workload precisely because it is formal and normally timetabled, it is more difficult to establish the amount of the 'private'/individual work because it will vary between individuals. Nevertheless, it is important to establish what the norm is, so that curriculum can be planned effectively in order to ensure that the intended learning outcomes can be achieved in the period allowed, with equity between different units/modules. For this reason, it is recommended that student workload should be monitored systematically and on a regular basis. Some countries legislate for the total number of hours that students are expected to work in an academic year and for example in the EU the range is between 1,500 to 1,800 hours a year, which is meant to include both the 'formal' and the 'private' study/work and it provides a parameter within which the curriculum may be planned.

Recognising the importance of understanding and quantifying student workload, Tuning Phase 2 undertook a large scale survey, focused on the *Estimation of African Student Workload, from the perspective of professors and students* in each of the subjects. Given the nature of the survey, where individuals were asked to estimate the number of hours devoted to different academic activities within different time periods (semester, week), some inconsistencies and errors were noted. At the same time, some questions were left unanswered, and in some cases individuals assigned values which could be considered inconsistent. The number of outliers was higher among students than among academics.

- The full results are published on the Tuning Africa website (http://tuningafrica.org/en/). It is interesting to note that in Medicine, the academics assessment of 'contact hours' as 398 hours per semester is significantly greater than the 337 contact hours estimated by students. In assessing the time spent on 'independent' work, academics consistently indicated more hours than the students, with the exception of 'Preparing for interim assessment, final exam' where the students estimate (243) was more than double of the academics (112); this field was also the one in which the medical students' estimate was higher than those of all the other subjects. In their estimate of the number of hours per semester of 'Contact' and 'Independent' work the total indicated by academics was again substantially higher than that of the students: that is 877 (academics) compared with 736 (students). However, there is a significant but apparent discrepancy in a related field which asked how many hours per week ('contact' 'independent' study) were required to complete the work of a named unit. The academics in this case indicated 74 and the students 108 hours per week. If we assume an academic year of 40 weeks, the academic estimate produces a total for the year of 2,946 hours and the students a total of 4,160 hours!!

At this point, some account should be taken of the two thoughtful Medical student reviews below. It must be noted that they were attempting to assess over time and over all their units and in retrospect but their comments indicate that they have reflected carefully and critically. In both cases, they found it extremely difficult to estimate how much time they spent and the range of activities and a certain randomness in participating in these, in part, explain the difficulty.

However, the total hours suggested by the student responders for each week are consistently in the region of 80 hours or more with a working year in excess of 40 weeks.

Academic staff were asked to answer the question whether in 'Planning the workload for your unit/course/module, you consider it necessary to include hours for independent work?' In Medicine 53% of the respondents answered 'Yes' but in answer to the second related question 'Do you take students' expectations and evaluation into consideration when planning the workload?' only 28% replied 'Yes'. In the case of students, only 40% replied 'Yes' to the question 'Are you aware of the number of hours planned for the students for independent work?'

The results of the survey are interesting as they illustrate the urgent need for more in-depth and analytical dialogue among academics and between academics and students. It is evident that for the most part, this has not taken place and that academics might be accused of being cavalier in their attitude to students' workload and not looking for an evidence base on which to make their assessments. Perhaps the most revealing piece of data is the estimate of hours per week – academics, 74, and students, 104. The caveat must be stated at the outset that the survey as all surveys may itself distort the data and evidently the majority of staff and students have not engaged in effective discussion of workload or learning and the survey itself may be said to be the beginning of a learning process.

Apart from asking whether it is reasonable to expect the 'average' student to work over 10 hours a day for seven days or 15 hours a day for five days, the difference between the students' experience and the academic estimate is over 40%. Are the students exaggerating, if so to what end? Are they simply inefficient workers/learners and if so what will be done to help them to 'learn to learn'? Are academics examining whether the intended learning outcomes are too demanding for the time estimate or whether their teaching is effective? These are provocative questions but, if the aim is to achieve high quality outcomes and truly effective medical doctors, these and other questions about student workload need to be addressed.

7.1. Study Cases: Two Case Studies of Medical Students' Perspective of Workload

7.1.1. *Case Study 1: Lizz Esther Wandia*

Esther Wandia is one of the students of Medicine selected to participate in the international Tuning meeting in Johannesburg in April 2017. Esther has just completed her fourth year of Medicine and is starting her fifth year. She agreed to write a review of the workload as she experienced it during her first four years as a medical student in Kenya.

As with the second case study (from Algeria), Esther found it difficult accounting for her total workload with any degree of precision. Esther has, however, reflected on the content of her degree and her sense of the lack of balance and integration between theory and practice.

As with Sonia (Algeria), work with peers features quite prominently as a feature of Esther's identification of 'private' work.

The use of apps and the internet for explanation and complementary teaching is seen to be an essential ingredient of the learning process and the question arises how do the teaching staff accommodate and respond to this? Is it promoted or is it an indication of serious gaps in the formal learning and teaching curriculum.

Esther has still to complete her studies and clinical practice/internship which will undoubtedly further alter her perspective. Nevertheless, her review to date, not only complements and to a considerable extent agrees with that of Sonia (below) but it helps to refine our understanding of the diversity of the students work undertaken in addition to the formal 'contact' hours and complements the data from the wider students survey.

Workload: a student perspective for Kenya

Lizz Esther Wandia, University of Nairobi, Kenya.

Medicine allows students to balance theory and clinical practice in the hospital but the current situation is that students are unable to achieve a balance since there is too much of one or the other or too much of

both and little retention of either. This leaves little time to translate knowledge into practice effectively.

Medical School in Kenya

Medical school in the University of Nairobi is divided into theory years and clinical years. The first and second years are mainly theory years as they concentrate on courses such as physiology, biochemistry and anatomy but practical sessions are also included. From the 3rd year to the 6th year, training is mainly clinical work but some theory is also included.

In the first two years, study involves 3-4 hours per day for theory, which is presented in one hour lectures in large classes. The remaining 5-6 hours per day are mainly practical sessions; 2 days for biochemistry and physiology and 3 days for anatomy. That results in 15-20 hours per week for theory, 10 hours per week for biochemistry and physiology practical sessions and 15 hours for anatomy practical sessions which translates to a total 40 to 50 hours of timetabled 'contact' learning in a week. Students are allowed to extend their time in the anatomy dissection laboratory for an extra 3 hours per day for group discussions and questions for the lecturers. This is an essential part of the anatomy practical sessions. Also, free Wi-Fi is available in the laboratories to help students search concepts and understand further.

There are no classes during the weekend and students use this time to study, go back to the laboratory and hold group discussions with peers. Students are also expected to submit a report on what they did during the practical sessions and the results. This is mainly for biochemistry and physiology. It is difficult to be precise in the estimate of the 'private' workload, but it can be heavy and amount to as many as a further 40+ hours per week.

In the 3rd year, there is an introduction to clinical work but unfortunately it is only given 2 hours per day and the rest is clinical theory in lectures. The clinical units introduced are Surgery, Medicine, Paediatrics and Obstetrics & Gynaecology. So in total, 10 hours per week in 3rd year are dedicated to clinical training and 30 hours per week for theory. This is a total of 40 hours per week for learning. Students are allowed to go to the wards during the weekends since there are no classes. Log-books are used to motivate the students to

observe and take part in surgical procedures and eventually submit a report on what they observed. The library is open to students till 10pm every day and students use that time to review the day's work and prepare for the following day. Students also make a point of going to the outpatients' department in the afternoon to learn how the doctors diagnose and prescribe medications. Again estimating the time spent in 'private' work is difficult because of variations from week to week but it could be a further 40 hours.

In the 4th year, 5 hours per day are dedicated to clinical training sessions which mainly entail different rotations in medicine, orthopaedics, psychiatry and surgery. Theory has 3 hours per day and it is mainly clinical theory on how to diagnose various conditions. In total, 15 hours per week are dedicated to theory and 25 hours per week to clinical sessions with a total of 40 'contact' hours. Filling our logbooks and going to the wards to clerk is encouraged during our 'free' time. Students go to the surgery department to learn and observe procedures such as fine needle aspiration. Students still use the library in the evening to continue studying. Case discussions are highly encouraged and students are invited to the major grand rounds that happen every week for each unit. Peer discussions where students present histories they have taken to their peers and are asked questions, help in evaluating one's skills. This is done after classes and during the weekends. We do not keep a count of all these hours but they too probably add up to at least 40 hours on top of the formal 'contact' time.

The 5th year is divided into rotations with 3 major rotations. Each rotation comprises 11 weeks. Of those 11 weeks, the first two weeks are mainly theory classes and the other 9 weeks are mainly clinical. The 3 rotations are obstetrics, paediatrics and community health. During the theory only week, 35 hours per week are dedicated to theory and during the clinical weeks, 35 hours are spent on the wards. Students are allowed to examine the patients, take histories and take part in prescribing drugs and do minor surgeries under the supervision of a qualified doctor. The students also hold medical camps where they give free medical services to the community and test their knowledge under supervision of a qualified doctor. Peer discussions really help where students discuss on how best to manage the patient. 'Private' work after the clinics is essential and can take many hours.

Informal Methods of Learning

Use of medical apps is very common among students such as medscape, prognosis, medcalx, clinical surgery and human anatomy atlas help a lot mainly during ward rounds or during examinations when you're not so sure about a clinical concept. YouTube has become essential where students watch videos on clinical examinations or how to interpret an electrocardiogram. This has been brought about by the availability of free wifi on school grounds which have been made accessible to students. Many students use the USMLE questions to test their knowledge as they are accessible and test on concepts which help in further understanding of theory. During our long 4-month annual holiday, students take it upon themselves to take part in electives in their home areas and volunteer in hospitals or medical projects like in Red Cross or hospice.

Medical school and society

A major part of the learning process is training students on how to work in the rural areas where some of the imaging technology or laboratories are not available. Students are trained on how to employ mainly clinical work and history to diagnose conditions. They are also trained on how to manage patients with the available drugs by encouraging them to take part in free medical camps in the rural areas under supervision.

Pros and Cons

- By beginning with theory, there is comprehensive introduction to medicine. The student is able to know anatomy from the beginning and apply it for the rest of the years.
- But once anatomy has been tested in the first year, it is not tested again.
- In the later years, the theory basics are not referred to explain certain phenomena.
- The students are expected to know how to examine, diagnose and also prescribe drugs in paediatrics or obstetrics in 11 weeks which is a short period for acquisition of such competences.

7.1.2. *Case Study 2: Sonia Hamizi*

Sonia Hamizi is one of the two students of Medicine selected to participate in the international Tuning meeting in Johannesburg in April 2017.

Sonia agreed to write a review of the workload as she had experienced it during her seven years as a medical student in Algeria. Sonia admitted that quantifying the amount of work involved at each stage and evaluating the effectiveness of different aspects was not something which she had had to do before and that she did not find it easy.

It is instructive to note the importance attached to peer learning from senior students, the use of the internet for explanation and complementary teaching, the critical role of 'practice' in the basic clinical sciences and in the hospital and above all the sheer scale and intensity of the work during the seven years of training.

Sonia does not reflect on whether clinical practice might have been introduced at an earlier stage or the nature of the pedagogy. Nevertheless, the insight of an individual student is a valuable component of our understanding of students' workload and complements the data from the wider student survey.

A medical student perspective from Algeria; Sonia Hamizi; Seventh year student/ intern

The study of medicine in our Faculty of Medicine "Faculty of Mouloud Mammeri of Tizi ouzou" lasts 7 years. During **the first 2 years, education** takes place solely at the Faculty of Medicine in the form of courses, tutorials and laboratory workshops. Teaching is based on the acquisition of basic scientific concepts (Basic sciences) in order to apply them during the clinical cycle. During this first period, classes usually begin at 8:00 am and end at 5:00 pm, with an hourly volume that differs from one module to another. The Table below is a typical summary of the medical students' workload in the University in the first year.

Students in 1st year medicine programme must invest a lot of time and efforts as the terminology is new; that is why during this year,

the **Internet** is heavily utilised. For my part, I cannot review a course without having my computer or tablet by my side, in order to look for the meaning of medical words and complementary themes. During this year, because everything is new, the consultation of the 'elder' students is very important and instructive. Discussion with the older students guides us in how to work and indicates support.

The informal group work during this first year is reduced, or not present; the bulk of module and course is so important that students use the little time they have to review their courses alone. The student reviews her lessons (in the form of hand-outs) in the evening; it takes about **5 hours** per day (5 days a week) and much more time during the weekend (it can go up to 8 hours per day during the two days of weekend). This year, the importance of course hours is noted, **the most important notions of the basic sciences must be learned in class. This also applies for the second year.**

The practical learning sessions in small groups of students is of great importance, especially in anatomy as it allows us to visualize the different themes and to retain the information provided during the course sessions. The student easily forgets what is said to her, but retains better what she sees and touches for future years.

Table 7.1
Medical students' weekly workload in the University in the first and second year

Course	Number of hours
University courses	20
Tutorials	15
Practical work (laboratory, workshops)	2
Clinical training	0
Private work	41
Total	**78**

During **the 3rd Year**, we have our first contact with patients at the hospital. From 9 am to 12 pm we are assigned to the different internal medicine departments in the University hospital ("Nedir Mohammed"),

where we receive clinical instructions for a total of **9 hours** a week (3 mornings a week). Students receive our training in a single university hospital. This differs from one region to another. In Tizi Ouzou, in Algiers; students receive their medical training in many university hospitals.

The remaining two mornings of the week are devoted to tutorials and practical work for 8 hours a week; at the Faculty of Medicine, for example in immunological laboratories (2 hours a week, bacteriological laboratories for 2 hours).

The **3rd Year** is a more intensive year. The student must work no less than 8 hours a day and during all school holidays, which are generally totally dedicated to preparing the assessments. The assessments are in the form of clinical cases or multiple choice questions. It is during this year that group work becomes more important. The students meet after classes at the library for around 4 hours per day **(a few days before examinations)**, to discuss clinical cases of semiology.

The total workload is at least 93 hours per week for 40 weeks a year.

The medical student spends a lot of time on the internet, in forums or in focus groups with other students or doctors. This is valuable for asking questions, clarification about courses. (This is spontaneous whenever the student feels the need which differs from one day to another)

Exchanges with our elders are very important in medicine. I always say that everything we learn from books is forgotten, but what an elder teaches us remains etched in memory forever.

Table 7.2
Medical students' weekly workload in the University in the third year

Programme	Number of hours
University courses	20
Tutorials	8
Clinical training	9
Private work	56
Total	**93**

The formal academic year lasts for 39 weeks: courses begin in September and end in June. In the **4th, 5th and 6th years**, students are assigned to specialty services for periods of 3, 6 or 9 weeks. For example, the learning and teaching for the module of gastroenterology lasts 9 weeks, during which students are affiliated to the service of gastroenterology of the university hospital. On the other hand, cardiology module lasts for 6 weeks.

During the morning (from 09.00 until 12.00) students are assigned to the services where, under the direction of an assistant, or a resident in the specialty, they receive training at the patient's bedside. In the afternoon, students receive theoretical instructions at the Faculty of Medicine in the specialty to which they are assigned. **Students have 3 hours of courses on average per day** for **5 days a week**. The total hours are approximately 90 hours for the six-week modules, for example cardiology and 135 hours for the nine-week modules, for example gastroenterology.

After the course each day, the student needs to read the materials to ensure that she is ready for the next stage. For this purpose, the student usually helps herself with an international course, the support of which is most often borrowed from the university library or consulted on the Internet. At the same time, the student must also revise courses of the 1st and 2nd year (for example anatomy) for a working time of **8 hours to 10 hours per day. This gives a total of 56 hours of private work and a total workload of 91 hours.**

The duration of university courses decreases, while the student must carry out more work alone.

For each module, students have two assessments, one practical and another theoretical. The student spends about the last ten days of the module preparing for examinations, for a period of **12 hours** per day.

Table 7.3
Medical students' workload in the University in the 4th, 5th, 6th year

Programme	Number of hours
University courses	20
Tutorials	0
Clinical training	15
Private work	56
Total	**91**

During **the final year** (year 7) called **"internship"** the student spends 12 months of work-based training in 4 university hospital services (12 weeks in each service): **paediatrics**, **gynaecology**, **obstetrics** and **an elective surgical specialty** for example neurosurgery, urology, traumatology). The student has the choice to do her internship in cardiology, or in medical resuscitation, or in internal medicine. **This choice is guided by the final grading of the student after the assessments of the 4th, 5th, and 6th years.**

In the department to which she is assigned, she participates fully in the medical care of patients **(from 9:00 am to 4:00 pm, 5 days per week**) and is required for **24-hour** duty at the emergency ward on average once every 6 to 8 days. During the emergency ward duty, with the help of one or two residents and assistants, she learns to manage an emergency, examine a patient and to administer appropriate therapy. For me, that is when the student learns the most, by participating in the activity of care and by asking questions, which thus puts the student into the skin of the doctor.

During her last year, the intern must write 4 training reports in the form of a small book. Each report contains 30 to 50 pages and must be reviewed and approved by the specialty 'trainer'. This can take between **2h to 4h per week**.

In addition, the intern is expected to continue to study in the relevant specialty throughout the year and this constitutes a further **10 hours** per week.

The intern has to re-read the courses which are related to the pathology that her patients present. For example, if her patient is hospitalised for digestive haemorrhage, it is very interesting to review the course on "Conduct to hold a digestive haemorrhage".

During the 7th year, the medical intern prepares her final examination for her specialisation. To do this, she must review all the modules dispensed during the last 7 years, for a total of 7 hours per day and 10 hours of work per day on weekends. The 'private' workload of a medical intern is **55 hours or more** per week, including the preparation for her exam, work in the library, at home, and preparation of the internship reports).

Table 7.4
Medical students' weekly workload in the University in the 7th year

	Number of hours
Clinical training **(with emergency 24 hour ward duty a week)**	59
Courses in hospital	4
Private work	55
Total	**118**

Private work: includes the work in the specialty in which she is assigned at the hospital, and work on the internship report.

7.2. African Credit Transfer Systems

An African Credit Transfer System has been proposed by a working group established under the aegis of the African Union Commission and European Commission within the Framework of Tuning Africa II based on the vision of the African Union, to build an integrated continent-wide harmonised education system, which allows intra-Africa mobility and skills portability by staff and students. This aim is achievable through the development of an African Credit Transfer System. The African Union Commission therefore developed a framework for harmonisation of higher education in Africa to facilitate the mutual recognition of academic qualifications.

The implementation of the Harmonisation Strategy involves, among other outcomes, designing common curriculum frameworks to enable comparability and equivalence of learning outcomes in African universities and drafting of a Proposal for a Credit System for Africa to further advance student mobility and contribute to the harmonisation process through the definition of what credit units are in Africa and the quantification of student workload for easy comparison and harmonisation of workload leading to credit units. A common credit transfer system that can be recognised and transferred at national, regional, and continental levels is paramount in advancing the harmonisation of the higher education systems in Africa.

The definition of credits in higher education systems may be based on different parameters, such as contact hours, student workload and

learning outcomes. The workload based system was initiated in the 1980s and at the end of the 1990s the European Credit Transfer and Accumulation System (ECTS) was introduced to facilitate the mobility of students and recognition of their credentials based on the student workload required to achieve the objectives of a programme of study. In Africa, the Tuning Methodology has been employed to contribute to the key features of the African Higher Education Harmonisation Strategy, following the launch of the Tuning Africa Project in 2010 as an AU-EU partnership project.

The Tuning Africa Policy Advisory Group (TAPAG) extensively discussed credit and workload in November 2016 in Accra, Ghana, and defined credit as a measure of workload required for a typical learner to achieve the objectives of a programme, specified in terms of the predetermined learning outcomes and competences that are expected to be acquired. A credit thus is a quantification of learning and the student workload required to achieve expected learning outcomes. Workload, according to TAPAG, is an estimated account of the learning activities such as lectures, seminars, projects, practical activities, and work placements, individual studies, assessment all measured in time, which a learner typically needs to achieve the defined learning outcomes but a credit is only awarded when the student has demonstrated that they have achieved the learning outcome.

The Tuning Strategy evaluated the different Credit systems used in various continents and recognised that the majority of the systems have undertaken research on the number of hours that are necessary to achieve learning. In Africa, there is no common and reliable means of measuring and transferring acquired knowledge. In some countries, the concept of credit has limited understanding and a variety of meanings and different applications. There is thus a compelling need to understand and recognise the different types of credits systems that are being used in different parts of Africa and hence this endeavour to establish one.

In North Africa, credit is measured in terms of the contact hours of the teacher with the learners. In some cases, both the staff contact hours and the time taken for the students to carry out independent studies are taken into consideration, while in Southern Africa, most of the countries use notional hours including contact time, structured learning, workplace learning, assessment and self-study. (One credit

amounts to 10 notional hours.) However, in Mauritius, a credit is based on staff contact hours where one credit unit is equivalent to a one hour lecture or three hours of practical or one hour of tutorial that spans over 15 weeks; this is similar to the situation in Nigeria.

In many countries in East Africa, contact hours and independent work of students are employed in determining credit. However, in Ethiopia and Djibouti, contact hours are employed for measuring credit. In West Africa, credit is measured using the staff contact hours only.

Tuning Africa carried out a study to show how many hours that students and academics thought would be required to complete all the requirements of a unit/course/module in a semester, in the various participating fields or disciplines, taking into account both contact hours and independent work. Civil Engineering came up with the highest result, followed by Medicine and Teacher Education, in the opinion of the Academics. Civil Engineering stood again the highest, followed by Teacher Education and Applied Geology, according to the views of the Students.

7.2.1. *The Medicine Group's response to an African Credit System*

The Medicine Group from the outset (Phase 1) recognised the fundamental need to develop a shared African Credit System both to facilitate internal curriculum development especially in multi- and inter-disciplinary programmes and even more so for joint inter-institutional transnational degrees and to provide a firm basis for student mobility and the transfer of records of mutually understood and recognised learning between institutions. The group considered that the genuine continental recognition of qualifications through an effective credit system could contribute to retaining graduates in Africa even if they can be mobile between African countries. Consequently, the group welcomed the development of an African system of credits and would like to see its rapid adoption for use in all three cycles (Bachelor, Master, Doctorate).

In discussion, colleagues noted that, although there is warm support for the proposed African Credit and Accumulation system, its introduction will require a good process of information and education at all levels – national, institutional and in the faculties. Colleagues from Nigeria noted that time management of the curriculum is a

perennial challenge and that a well implemented credit system would be a real asset. Francophone African countries have adopted a credit system but the lecture 'hour' is normally 45 minutes and this has had to be taken into account when estimating workload. Francophone countries have also adopted a standard approach to the calculation of workload with a model which assumes that two-fifths of the load is formal 'contact' time and three-fifths is 'independent/private' study time. While this does provide a standard it may be considered to be too arbitrary and undermine the concept of establishing student workload in relation to the requirements and level of specific units/ modules which may mean that the ratio varies considerably in practice depending on the nature of the course.

Colleagues recognised that establishing and assuring the effective implementation of a credit system for the whole continent of Africa would represent a considerable advance. However, in Medicine, as in many other subjects, the ability to forge partnerships beyond Africa involving student mobility with transparent academic recognition and joint degrees at all levels means that the African credits need to be compatible with and recognised internationally and the African Union Commission is urged to bear this need in mind.

7.3. Conclusion

Estimates of medical students' perspectives on the total workload to achieve learning outcomes vary considerably. Two students from two different HEIs presented their views on workloads from their institutions. While it is possible to quantify with some degree of accuracy the 'formal' component of the workload, it is more difficult to establish the amount of the 'private'/individual work because it will vary between individuals. In the EU, the range is between 1500 to 1800 hours a year for both formal and private study. In Africa, the academic estimated a total of 2,946 hours and the students a total of 4,160 hours per year!!

An African Credit Transfer System has been proposed and the Medicine SAG supports its adoption in order to build an integrated continent-wide harmonised education system, which will allow intra-Africa mobility and skills portability by staff and students.

Chapter 8

Conclusions of the Medicine Group

The synergies and advantages of a trans-national group of academics working together have been demonstrated by this project.

The validation conducted by the group at national and institutional level confirms that the profile and the competences represent a desired objective for graduates from African medical schools and should be more widely disseminated and implemented nationally and regionally. The group in this report confirm that the definition of the meta-profile, the generic and subject-specific competences, represent a sound basis for evaluating the extent to which the current curricula in African medical schools equip medical graduates with the necessary competences and characteristics to practice medicine.

Potential weaknesses or threats lie in an innate conservatism, often among more senior colleagues; a lack of motivation for change which requires re-skilling and reassignment of resources; a lack of resources in terms of personnel funding and equipment; policy instability and change; the rapid growth in the number of students and a poor staff-student ratio; poor overall management; a lack of staff development and training, a lack of high-level ICT facilities; and low mobility.

The African Commission Harmonisation Strategy, the Tuning Project, the WHO Road Map and other projects and budgets for cooperation all give a significant impetus for radical change and transformation. This should be coupled with the sense of optimism engendered by our pan-African group and its commitment to change, which is reflected particularly among young staff. Change will require the development of good leaders, an active response to social demand and community

expectation, regional and international reform, commitment of senior management to quality enhancement external evaluation and accreditation, the incentives of internationalisation and the recognition of shifting paradigms.

The second phase of the Tuning Africa project had four objectives:

- The development of a consistent approach to the design of student-centred and competence-based degrees which adopt the Tuning Methodology in the presentation of degree profiles.
- The implementation of new programmes within institutions and the development of new joint inter-institutional programmes.
- Staff development to support the new expectations of our programmes.
- An examination of student workload and credits.

The Medicine SAG engaged with each of these objectives. Its first task was to welcome and integrate the new members. This was successful and fruitful as members have continued to learn from one another, to establish new learning communities and to work together on new joint programmes which are described above. The SAG members were also pleased that in this phase students were selected to join in our work and attend the plenary meetings as well as participate in consultations between meetings. The SAG is particularly pleased that the two students who attended the meeting in Johannesburg have made valuable and thoughtful contributions to this report.

In the first part of the report, the SAG identified the grave challenges which the practice of medicine faces in Africa. Discussions with colleagues in the Medicine SAG confirm that the scale and urgency of these challenges are shared in each of the countries represented in the group. These acute challenges reinforce the urgent need to review and develop degree programmes in Medicine in Africa, in order for them to be relevant to the needs of the communities and to prepare medical graduates for their encounter and management of the environment in which they will practice medicine. The SAG has recognised the need to equip graduates to provide leadership, not only in the medical

community but in the wider community in which they live and work. In this context, we have found that the emphasis on competences and the profile of a medical graduate has helped to focus the programmes being developed. Each member of the group in developing the new programmes outlined in this report has endeavoured to reflect the core elements required in a graduate of Medicine and the specific competences which were agreed in Phase I of the Tuning Africa project.

The student-centred focus of Tuning has been welcomed by all the members of the Medicine group. All recognised that not only does this mean a new approach to curriculum planning, the clear articulation of learning outcomes and the associated assessment but it requires members to develop new skills and approaches to learning and teaching.

For the SAG, it was thus natural to engage in a consideration of what forms of staff development are required to promote and implement the Tuning Methodology in the Universities where members work. Discussion of this topic indicated that resistance or even, on occasions, hostility to change among many of our colleagues is a shared experience. Nevertheless, each member has undertaken to offer staff development workshops which address how aspects of Tuning can most effectively be introduced in the curriculum and in methods of teaching and learning. In the plenary Tuning meetings, members found the cross subject workshops valuable and stimulating and sought to incorporate ideas from different subjects into medicine staff development seminars and workshops. Indeed, it is the plan for the future that members can establish more interdisciplinary collaboration in staff development so that members become full partners of a wider learning community.

Reflections on student-centred teaching and learning and the building blocks necessary for a coherent curriculum reinforced the view that we expressed at the end of Phase 1 that a shared credit system is an urgent need and members welcome the fact that the project is addressing this in another forum. Within the group, members had already discussed student workload and it was evident that the attention paid to this in curriculum planning and delivery is not adequate. Indeed, on the basic question of how many hours a week in total members should expect a student to work (contact and individual/ private), there was a significant variation in expectations. It was clear

that in most cases there was not an evidence-based approach to assessing student workload.

Members were therefore pleased to participate in the Tuning Project survey on student workload. As the commentary on the outcomes of the survey indicates, there are some surprising and contradictory results but as an exercise, it points up the need for a more coherent evaluation and monitoring of student workload. The two student case studies confirm the long hours which students in Medicine devote to their study. While this may be an aspect of their preparation for the arduous demands of life as a medical practitioner, it may also be an indication that students may need to be helped to learn more efficiently and effectively (learning to learn), that the adequacy and effectiveness of teaching may need to be reviewed and that possibly the intended learning outcomes do not take into account the potential workload entailed in their achievement. Achieving a more informed approach to student workload will not be easy, as it will also require a new mind-set among colleagues and more collaborative work engagement with learners, who will need to adopt a more self-aware and analytical attitude to their learning and their interactions and relations with their educators, non-clinical and clinical, and above all their time management skills.

The Medicine group was pleased with the engagement of members of the group and the positive response to the realisation of the objectives of Phase 2, but we recognise that to achieve wider reforms in medical education and the full implementation of the Tuning Methodology, not only within our various institutions but in the wider medical education community, there remains much to be done.

Plans for the next Phase must include the need that the SAG can continue to work closely with students, can keep under review the generic and Subject-specific competences to ensure that they are up to date and relevant to the changing needs of Medicine, begin to address systematically the requirements for post-graduate and specialist medical education and engage the active participation of agencies such as the WHO and the World Bank to sponsor and to disseminate the outcomes of the project at national and regional workshops.

The SAG plans to develop an interdisciplinary Masters in Medical Education using a mixed-mode delivery that combines blocks of face-to-face teaching with distance learning as well as develop joint

or double Masters' and Doctoral degrees in specialist areas such as biomedical sciences, medicine in industry, biomedical ethics, toxicology, clinical biology and global health.

Good health:the key to economic and social development

In its final session the group had a wide-ranging discussion on issues facing medical education in Africa. Currently, there are 0.8 doctors per 100,000 people in Africa. This already represents a grave shortage. "By 2050, annual population increases in Africa will exceed 42 million people per year and total population will double to 2.4 billion, according to the UN"[18]. And yet there are only 130 Schools of Medicine to cope with the rise in population and the continent's health care needs. It is estimated that there should be at least 600 Schools throughout the continent to train the quantum increase in doctors that will be urgently required.

The situation is exacerbated by the fact that so many trained doctors choose to work in urban areas; which means that rural areas fare extremely poor in the provision of health care. Within the group, there are excellent examples of responses to the challenges. In Ethiopia, the medical curriculum has been radically revised and reduced to five years. Graduates in bio-medical sciences and other health-related degrees have been recruited onto an accelerated degree and this has had a marked success in increasing the number of graduates in Medicine. At the same time, the Government has incentivised new graduates to work in rural areas. The University of the Western Cape has also introduced an accelerated programme on much the same basis as Ethiopia with a Family Health Care Centre to prepare students to support rural communities. A further challenge faced in a number of countries is the migration of qualified medical practitioners to the USA and Europe. This seems to be particularly acute in Nigeria, which also faces the challenge of mal-distribution within the country.

By focusing on the definition of the competences which a graduate doctor in Africa requires, Tuning has helped to reveal deficiencies in the current curriculum and approaches to learning and teaching

[18] Guardian online - Joseph J Bish 11 January 2016 (https://www.theguardian.com/global-development-professionals-network/2016/jan/11/population-growth-in-africa-grasping-the-scale-of-the-challenge)

in many regions. This in turn has helped to highlight the resource crisis in medical education faced in most African countries. If a reformed, responsive and relevant competence-based curriculum, with student-centred learning and teaching is to be implemented, the resource crisis has to be addressed. The resources needed are extensive and include upgraded facilities, up-to-date equipment, reliable access to the internet, more academic staff in the clinical sciences as well as medicine, funding for quality clinical education, including training of clinical educators, and funding for more students. In the contemporary world, universities must realise that they should be agents for transformation and change and the Medicine group calls on universities to assert this responsibility. However, they cannot meet these demands without external help; therefore the challenge is political as well as educational. For this reason, the Medicine SAG appeals to the African Commission to take the lead in urging member governments to give greater priority to the overwhelming health care challenge that the African continent is facing and appreciate that the role and training of doctors is evolving to address the challenges.

Key messages

The **key message** that the group wishes to convey is the imperative need to engage more thoroughly with students as partners in all aspects of medical education, for a successful implementation of student-centred learning and teaching. The SAG feels the need to continue to work with medical Faculties in other African countries on developing and reviewing the medical curriculum so that it meets contemporary and future needs and ensures that graduates acquire the competences needed for the effective practice of medicine in Africa. Several examples of change which are needed to be considered and accommodated include the validation of the use of the internet, medical apps and other ICT sources as well as use of robotics and on-line remote diagnosis. Other key messages are:

- The assessment of the impact of war, natural disasters, famine on the medical education and health care delivery through the identification of the competences required.
- In the reformed African curriculum, more prominence should be given to.

- Research-based learning, preparation for life-long learning as well as evidenced-based research on medical education.

- Recognition of the need for more emphasis on mental health and other non-communicable diseases

- The importance of an aging population in Africa (projected to grow from 64.4 million (2015) to 220.3 million (2050)[19], in planning a reformed curriculum.

  —The need to adopt a more informed evaluation of student workload which not only measures the load but helps learners to be more efficient and effective learners.

  —The need for a programme of high quality staff development and continuing professional development in education for medical academics in each medical Faculty and a parallel programme for clinical educators.

Recommendations

The Tuning Africa Medicine Subject Area Group makes the following recommendations:

1. That the Tuning meta-profile, generic and subject-specific competences should be widely compared with current curriculum and practice at institutional levels with additional fresh medical schools to identify ways in which a reformed curriculum could be developed to provide a wide range of innovative and appropriate forms of assessment to demonstrate the achievements of the competences improved, appropriately assessed and quality-assured.

2. That a national change strategy should be initiated through organisations such as the Higher Education Councils or equivalent bodies, and other key stakeholders who will champion and disseminate the Tuning Approach.

[19] Chapman - Academic Medicine May 2017 - Volume 92 - Issue 5 - p. 571-572]

3. That at a Pan-African level, contact should be established with key organisations such as the African Medical Schools Association, the WHO Regional Office for Africa, WHO Regional Office for the East Mediterranean (EMRO) and the World Federation for Medical Education.

4. That in order to develop a more transparent and compatible curriculum for recognition, an agreed-upon, shared African credit system based on workload and learning outcomes is essential.

5. That acknowledging that the Tuning Medicine Subject Area Group has developed a high level of expertise and established an effective network and that, as a result, the Group should continue to be supported for further developments proposed in this report.

6. That the group has identified serious challenges to medical education, and urges the African Union Commission to take the initiative in urging member governments to give greater priority to the overwhelming health care challenge that the African continent is facing and appreciate that the role and training of doctors is evolving to address the challenges.

7. That the rapid introduction of the African credit and accumulation system based on learning outcomes and the associated workload and assessment learning outcomes is essential for the development of a more transparent and compatible curriculum for recognition, mobility and joint programmes.

8. That an African Tuning Medical Academy should be established with funding to enable it to focus on the needs of medical education in Africa and establish a training centre for medical educators in Africa.

9. That a pan-African programme of medical staff development should be established using on-line material complemented with short intensive regional and continental workshops.

10. That special training materials should be developed for clinical medical education coupled with updated and innovative assessment methods and sharing of best practice in the allocation of credits for clinical placements.

11. That the Medicine subject group should be tasked with identifying and developing appropriate interdisciplinary degrees to address contemporary health challenges such as those arising from the endemic nature of wars and the large scale refugee population in many African countries.

All the validation reports endorsed the importance of the overarching quality of "Professionalism" and the subject-specific competences that seek to define the associated skills. However, the SAG recognised that the way in which this characteristic is addressed in the curriculum and assessed requires more reflection and work.

The group developed the draft template to help in the development of the curriculum and to address, in the first instance, those competences in which the validation exercise revealed gaps or weakness. An example of how the template might be used is given for the first of these competences.

Further validation and dissemination

The Tuning Group-Medicine considered that the further validation and dissemination of the pilot project outcomes should involve:

- Implementation of the Nigerian exit questionnaire in all ten institutions in the Medicine Subject Area Group. The same questionnaire will be used in all ten participating Faculties of Medicine. Each faculty will collate the results and share them with the group.
- Further international meetings on the Tuning approach with the objective of seeking to develop a global meta-profile.
- Student engagement in the dissemination process will be a key factor for success.
- Presentation and discussion of the Tuning outcomes at meetings of deans of medical faculties.
- Meetings and presentations at Ministries of Health and other regulatory bodies.

- Countries engaged in the early stage of curriculum reform should integrate the Tuning Approach in their curriculum planning and development.

- Presentations at meetings of a wide range of bodies including inter alia: The African Students Union, the Maghreb Council on Medical Education; Student Councils (medical); African Health Sciences Congress; African Academic Conferences; Arab Medical Associations and East African Inter-Universities Council, WHO Africa Office, WHO East Mediterranean Office, CAMES, SADC Regional Economic Councils.

The Medicine SAG wish to express its warmest gratitude and appreciation to the Tuning Project, the European Commission and the Africa Commission.

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