

Preparing health professions education leaders worldwide: A description of masters-level programs

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Abstract

Purpose: Until 1996, there were only 7 masters-level programs in health professions education (HPE); currently, there are 76 such programs. The purpose of this article is to provide information and perspectives about the available masters programs in HPE worldwide, with a focus on their mission, objectives, content, instructional strategies, format, duration, and cost, as well as the similarities and differences among them.

Method: A literature and web search was conducted to develop a complete list of programs that offer a masters degree in HPE or closely related areas.

Results: Forty three percent [43% (33)] of these programs are in Europe, 20% (15) in North America, 17% (13) in Asia, 7% (5) in Latin America, 5% (4) in the Middle East, 5% (4) in Australia, and 3% (2) in Africa. The mission of these masters programs is to prepare leaders in HPE or sometimes narrowly focusing on clinical or dental education. The content is addressed in core courses and electives, generally grouped under the following headings: curriculum development, instructional methods/teaching and learning, assessment strategies, program evaluation, research design, and sometimes leadership and management. Medical schools sponsor approximately two-thirds of these programs, and the average duration for completion is 2 years. The vast majority of these programs are offered in English.

Conclusion: The commonalities among these programs include focus, content, and educational requirements. The variations are mostly in organization and structure. There is a need to establish criteria and mechanisms for evaluation of these programs. The geographic maldistribution of these programs is a major concern.

Introduction

In the recent years, there has been both an increased demand, and a proliferation, of masters-level programs for health professions education (HPE)/medical education, which appears to be related to both academic career tracks and accreditation practices for medical education worldwide. In this article, we discuss the context for this increased demand, describe the masters-level programs currently available or being developed based on a systematic review of their web-based or published materials including internal documents, and discuss the commonalities and differences among them. This analysis should be helpful to those interested in preparation for HPE leadership roles, as well as institutions that aspire to develop such programs.

Context

Until 1996, there were only 7 masters-level programs in HPE; currently, there are 76 such programs, and some are in the process of development. Three of the original 7 programs are in institutions in North America (University of Illinois at Chicago, University of Southern California, and University of Calgary), three are in Europe (Cardiff University, University of

Practice points

- The Masters in Health Professions Education (MHPE) degree is becoming a credential for education leadership
- There are 76 MHPE programs worldwide
- There is a geographic maldistribution of such programs
- There is a need to establish accreditation processes for these programs

Dundee, and University of Maastricht), and one is in Australia (University of New South Wales).

There appear to be several major reasons for the increased demand for such programs. First, increasingly HPE faculty members are making education a focus of their professional roles, with institutional support in the form of career tracks, such as Clinician-Educator Scholars tracks. Many institutions worldwide require a Masters degree, in addition to the doctor of medicine (MD) or MBBS, for physicians to be in faculty positions. For physicians who have education as a focus of their professional roles, the Masters in Medical Education is rapidly becoming an essential credential.

Second, accreditation bodies in countries around the world have increasingly stringent requirements for demonstration of

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faculty expertise and excellence in curriculum design, instruction, assessment, and program evaluation. For example, in the United States, the Accreditation Council on Graduate Medical Education a decade ago mandated that all graduate medical education (GME) programs should provide and document instruction and assessment in six competency domains: Knowledge, Patient Care, Interpersonal and Communication Skills, Professionalism, Practice-based Learning, and Systems-based Practice. Also in the United States, the Liaison Council on Medical Education is increasingly stringent in application of review criteria for accreditation of undergraduate medical education programs, focused on excellence in educational leadership and management, curriculum design, instruction and assessment. In Canada, the Royal College of Physicians and Surgeons, as part of their CanMeds 2000 project, identified “skills/roles for the new millennium” to provide a framework for teaching and assessment in undergraduate and GME. These skill/roles areas are: Medical Expert, Communicator, Collaborator, Manager, Health Advocate, Scholar, and Professional. Furthermore, in the 2009 edition of “Tomorrow’s Doctors”, the UK General Medical Council recommended that medical schools must make sure that everyone involved in educating medical students has the necessary knowledge and skills for their role. The medical school must insure that appropriate training is provided to these people to carry out their role and that staff-development programs promote teaching and assessment skills (General Medical Council of UK 2009). Therefore, HPE faculty members, and HPE leaders in health centers, associations and agencies, perceive the need for literature-based knowledge and competence in the theory and practice of education, for the competencies to be effective teachers, and for the skills to be effective resource persons in their institutions.

A variety of types of programs are available for preparation of HPE leaders, such as faculty development programs and brief workshops (Wilkerson & Irby 1998; Yudkowsky & Tekian 1998), year-long fellowship programs (Gruppen et al. 2003; Steinert et al. 2003), and academies (Cooke et al. 2003; Thibault et al. 2003). Both long-term fellowship programs and academies provide support for a select number of individuals in some institutions; empowering them with intensive training; and encouraging them to serve prominent roles as educators in their departments and as resource individuals to meet the needs of their medical and education communities.

Masters-level degree programs are rapidly becoming the credential of choice for HPE leaders. Degree programs may provide the depth and the breadth of conceptual knowledge, as well as the opportunities for integration and application of knowledge and skills, needed to serve effectively as HPE leaders. Degree programs have the additional benefit of certifying that an individual has completed a number of courses, has satisfactorily completed all the requirements for a degree, and is qualified to hold an appropriate education leadership position or responsibility. Also, typically, a project or a thesis is required for graduation from these programs, and often holders of master’s degrees in medical education have succeeded in publishing in refereed journals, thus supporting their promotion and tenure possibilities.

An update of the master’s degree programs in medical education was published by Cohen et al. (2005), focusing on the English-speaking world including the Netherlands. Pugsley et al. (2008), in their article about the master’s level programs in medical education offered in the United Kingdom, clearly indicated that there is a huge variance in research methods training and no attempt to adhere to quality standards among these programs.

The purpose of this article is to provide information and perspectives about the available masters programs in health professions/medical education worldwide, with a focus on their mission, objectives, content, instructional strategies, format, duration, and cost, as well as the similarities and differences among them.

Method

A literature and web search was conducted to develop a complete list of programs that offer a masters degree in HPE or closely related areas such as medical, clinical, surgical, dental, or health and medical education. Most of the information was extracted from the institutions’ websites, and from brochures and catalogues. Also, some information was collected through personal contacts, and sometimes site visits to these institutions. Additionally, extensive e-mail communications occurred with the directors/heads of these programs when information on their website was unavailable or in another language. A large number of them responded to our e-mails; however, there were some where we totally relied on the information available at their website. If an available program or institution is not included in this list, it means that no information was found through either the web search or a review of the published literature. Also, if a program is newly established or is in the process of being established, it might not be included in the list. Our inclusion criteria consisted of the program offering advanced training in HPE, and a terminal degree – a master’s degree in health professions, medical, clinical, or health and dental medical education. Masters programs that had at least two courses in medical education were included. Programs, such as masters in education, which did not have a focus on HPE, were excluded.

The information extracted for each program, from each institution, was summarized according to the following categories: name of institution and sponsoring department, title of program, contact person, website, purposes, objectives, and mission statement of program, target audience, total number of candidates in the program, admission requirements, emphasis (scholarship, practitioner, leadership), specialization/concentration (clinical education, technology, etc.), content (topics/competencies), instructional strategies (lectures, small group), program requirements: credits, courses, modules, units, electives, capstone (thesis, project), examination (oral, written), other (e.g., attendance at annual conference), format (distance/online education, face-to-face, both formats), endpoint recognition (certificate, diploma, masters of HPE), faculty (number, fields of specialization), cost (tuition, other expenses), average duration, and miscellaneous information. In Table 1, only the name of the institutions, the program titles, and websites are listed for these masters programs, because

Table 1. List of worldwide masters programs for health professionals.

Institutions	Title of programs	Websites
North America		
<i>A. United States</i>		
University of Illinois at Chicago ^c	MHPE	http://www.uic.edu/com/mcme/mhpeweb/
University of Southern California ^c	Masters of Academic Medicine	http://keck.usc.edu/en/Education/Division_of_Medical_Education/Master_of_Academic_Medicine.aspx
University of Iowa ^a	Masters in Medical Education	http://www.healthcare.uiowa.edu/ocrme/masters/programoverview.htm
University of Cincinnati ^b	Masters Degree in Education	http://www.cincinnatichildrens.org/ed/clinical/grad/masters/default.htm
Loma Linda University, California ^c	Masters of Science Degree in HPE	http://www.llu.edu/central/faculty-development/currentcourses.page
University of Pittsburg ^a	Masters of Science in Medical Education	http://www.icre.pitt.edu/degrees/msme_curric.html
University of New England ^a	Master of Science in Medical Education Leadership	http://www.une.edu/com/mmel
University of Michigan ^c	Master of Education with a Concentration in Medical and Professional Education	http://www.soe.umich.edu/highereducation/medicaleducation/index.html
Southern Illinois University ^c	Master of Education with Emphasis in HPE	http://www.siumed.edu/dme/online_masters.html
Texas A&M University ^a	Master of Science in HPE	http://www.tamucd.edu/education/studentdevelopment/healthprofessionseducation.html
<i>B. Canada</i>		
Dalhousie University ^c	Masters of Education/Master of Arts in Education in Curriculum Studies with a Concentration in Medical Education	http://facdev.medicine.dal.ca/degree.htm
University of Calgary ^a	Master of Science in Medical Education	http://www.med.ucalgary.ca/education/gse/medical%20science/meded.htm
University of Manitoba ^a	Masters in Education (MEd)	http://www.umanitoba.ca/faculties/medicine/education/ed_dev/mep.html
University of Toronto ^c	MScCH: Health Practitioner Teacher Education (HPTE)	http://www.phs.utoronto.ca/MScCH_HPTE.asp
University of Montreal ^a	MA (sciences de l'éducation - pédagogie universitaire des sciences médicales) – (French)	http://www.etudes.umontreal.ca/index_fiche_prog/281410_desc.html
Europe		
<i>A. United Kingdom</i>		
University of Bedfordshire ^a	Masters in Medical Education (MA)	http://www.beds.ac.uk/courses/bysubject/heacar/ma-mededu
Queen's University Belfast ^a	Master of Medical Science in Education for the Health Care Professions	http://www.qub.ac.uk/cm/me/
University of Bristol ^c	MSc in Teaching and Learning for Health Professionals	http://www.medic.bris.ac.uk/tlhp/modules/
Cardiff University ^a	MSc in Medical Education	http://www.cardiff.ac.uk/pgmde/medical_education/mscdip_me
University of Dundee ^c	Masters Degree in Medical Education	http://www.dundee.ac.uk/meded/frames/home.html
Edge Hill University ^c	MA Clinical Education	http://www.edgehill.ac.uk/study/courses/clinical-education
University of Edinburgh ^b	MSc Clinical Education	https://www.clinicaleducation.mvm.ed.ac.uk/node.asp?id=structure
University of Hertfordshire ^c	Masters in Health and Medical Education (MSc)	http://www.mastersportal.eu/students/browse/programme/8609/health-and-medical-education.html
Imperial College ^c	MEd in Surgical Education	http://www1.imperial.ac.uk/medicine/teaching/postgraduate/clinicalmastersmsc/surged/
Keele University ^c	Masters of Medical Education	http://www.keele.ac.uk/depts/aa/postgraduate/courses/medicaleducation.html
University of Leeds ^a	MEd in Clinical Education	http://www.education.leeds.ac.uk/prospective/programme.php?programme=32
Institute of Education, University of London ^a	Masters in Clinical Education (MA)	http://www.mastersportal.eu/students/browse/programme/14609/clinical-education.html
University of Newcastle Upon Tyne ^c	Masters in Clinical Education	http://www.ncl.ac.uk/medev/postgraduate/clined/
University of Nottingham ^a	Master of Medical Science (MMedSci)	http://pgstudy.nottingham.ac.uk/postgraduate-courses/medical-education-mmedsci_607.aspx
Peninsula College of Medicine and Dentistry ^d	Masters in Clinical Education (MClinEd)	http://www.findamasters.com/search/courseDetails.aspx?CID=19185
University of Sheffield ^c	MEd in Medical & Dental Education	http://www.governance.dept.shf.ac.uk/medicine/m-pg-med.pdf
Sheffield Hallam University ^c	Masters in Clinical Education	http://www.mastersportal.eu/students/browse/programme/11094/clinical-education.html
Staffordshire University ^d	Masters in Medical Education (MSc)	http://www.findamasters.com/search/CourseDetails.aspx?CID=1923
University of Warwick ^c	Masters in Medical Education	http://www2.warwick.ac.uk/fac/med/study/cpd/subject_index/meded/b9xd
University of Winchester ^d	Masters in Education (MA) – Medical Educator's Pathway	http://www.findamasters.com/search/courseDetails.aspx?CID=20428

(continued)

Table 1. Continued.

Institutions	Title of programs	Websites
<i>B. Other European Countries</i>		
University of Barcelona, Spain ^c	Masters in Medical Education (Spanish)	http://www.fdrobert.org/arees/emedica.html
University of Castilla La Mancha, Spain ^d	Masters in Medical Pedagogy (Spanish, French, Italian and Portuguese)	http://www.med-ab.uclm.es/publico/master/index_master.htm
University of Bern, Switzerland ^a	Masters of Medical Education	http://www.mme.iml.unibe.ch/
University of Lisbon, Portugal ^d	Masters in Medical Education	http://www.ul.pt/fm.html
University of Ambrosiana, Milan, Italy ^c	MSc in Medical Education	http://www.internationalgme.org/Medical/Masters/MSc_General.htm
University of Maastricht, The Netherlands ^c	MHPE	http://www.unimaas.nl/default.asp?template=werkveld.htm&id=WHI60520HGD600572524&taal=en
University of Heidelberg, Germany ^a	Master of Medical Education (MME) Deutschland	http://www.mme-de.de
Charite – University of Berlin, Germany ^d	University Diploma (which by German law is equivalent to a Masters degree)	http://www.charite.de/en/studies/to_study_at_the_charite/undergraduate_study_programs/medical_education_and_nursing_education/
Karolinska Institute, Sweden ^c	Master Programme in Medical Education	http://ki.se/?d=11786&a=107280&l=en&academicYear=11%2F12&id=4ME09&url=%2Fselma%2Fselma%2Fprogramme
Ankara University Ankara, Turkey ^a	MSc in Medical Education	http://sagbilens.ankara.edu.tr/eng/msd.php?msdid=31
Akdeniz University Antalya, Turkey ^a	MSc in Medical Education	http://saglikb.akdeniz.edu.tr/en
Dokuz Eylul University Izmir, Turkey ^a	MSc in Medical Education	http://www.deu.edu.tr/DEUWeb/English/Icerik/Icerik.php?KOD=81
Hacettepe University Ankara, Turkey ^a	MSc in Medical Education	http://www.healthsci.hacettepe.edu.tr
<i>Latin America</i>		
MHPE – Brazil (Sao Paulo & University of Maastricht) ^c	MHPE (MSc) (English and Portuguese)	http://www.maastrichtuniversity.nl/web/Faculties/FHML/Theme/Education/InstituteForEducationFHML/SchoolOfHealthProfessionsEducationSHE/MasterOfHealthProfessionsEducation/MHPEBrasil.htm
Universidad de Concepcion, Chile ^c	Magíster en Educación Médica para las Ciencias de la Salud	http://www2.udec.cl/ofem/nva/magister.html
Universidad de Chile ^d	Magister de Educación en Ciencias de la Salud	http://www.uchile.cl/?_nfpb=true&_pageLabel=conUrl&url=12573
Instituto Universitario Del Hospital Italiano, Buenos Aires, Argentina ^c	Maestria en Educación para profesionales de la Salud	http://www.hospitalitaliano.org.ar/educacion/index.php?contenido=ver_curso.php&id_curso=7043
Universidad Cesar Vallejo, Peru ^c	Maestria en Educacion Medica	http://www.ucvpiura.edu.pe/postgrado/web/programa.asp?id=E023
<i>Australia</i>		
University of New South Wales ^c	Master of Clinical Education	http://sphcm.med.unsw.edu.au/sphcm.nsf/website/Prog&Courses
University of Sydney ^c	Masters of Medical Education	http://www.dme.med.usyd.edu.au/mmeded/html/program_info/index.htm
Flinders University ^c	Master of Clinical Education	http://www.flinders.edu.au/courses/rules/postgrad/mce/mce_home.cfm
Monash University ^c	Master of Health Professional Education	http://www.med.monash.edu.au/sphc/cepdu/courses/master/professional-education.html
<i>Asia</i>		
Gadjah Mada University, Indonesia ^d	Masters in Medical Education	http://s2ipk.fk.ugm.ac.id/moodle/
KLE University, Belgaum, India ^a	MSc in HPE	http://www.kleuniversity.edu.in/udeph/index.html
Datta Meghe Institute of Medical Sciences, Bangladesh ^a	Master in Medical Education (MMEd)	http://www.pmtprep.com/posts/list/news-dmims-to-launch-medical-education-course-1087085.htm
Naresuan University Faculty of Medicine, Phitsanulok, Thailand ^a	Master of Science in Medical Education (MSc)	http://en.wikipedia.org/wiki/Faculty_of_Medicine_Naresuan_University#Master_of_Science_28MSc.29_in_Medical_Education
Shahid Beheshti University of Medical Sciences, Iran ^a	Masters in Medical Education	http://www.sbm.ac.ir
Isfahan University of Medical Sciences, Iran ^a	Masters in Medical Education	http://edc.mui.ac.ir
Tehran University of Medical Sciences, Iran ^a	Masters in Medical Education	http://www.tums.ac.ir
Mashhad University of Medical Sciences, Iran ^a	Masters in Medical Education	http://www.mums.ac.ir/
Tabriz University of Medical Sciences, Iran ^a	Masters in Medical Education	http://edc.tbzmed.ac.ir/
Kerman University of Medical Sciences, Iran ^a	Masters in Medical Education	http://www.kmu.ac.ir

(continued)

Table 1. Continued.

Institutions	Title of programs	Websites
Shiraz University of Medical Sciences, Iran ^a	Masters in Medical Education	http://www.sums.ac.ir/
University Kebangsaan Malaysia ^d University Sains Malaysia ^c	Master in Medical Education Master of Science – Medical Education	http://www.ppukm.ukm.my/index.php?menuid=MN09050089 http://www.ips.usm.my/index.php/programme/research/medicalAndDental/masterOfScience-medicalEducation
<i>Africa</i>		
Stellenbosch University, South Africa ^c	Master of Philosophy in Health Science Education	http://sun025.sun.ac.za/portal/page/portal/Health_Sciences/English/Centres%20and%20Institutions/CHSE%20(Centre%20of%20Health%20Sciences%20Education)/MPhil-programme
University of the Free State, South Africa ^a	Masters in Health Professional Education	http://apps.ufs.ac.za/dl/yearbooks/62_yearbook_eng.pdf
<i>Middle East</i>		
Suez Canal University & University of Maastricht (Joint program) Egypt ^c	Joint Masters in Health Professions Education (JMHP)	http://www.medfomscu.org
King Saud bin Abdulaziz University for Health Sciences, Saudi Arabia ^a	MHPE (MSc)	http://com.ksau-hs.edu.sa/eng/index.php?option=com_content&view=article&id=119:Program%20Objectives&catid=29:the-cms
Aga Khan University, Karachi, Pakistan ^a	MHPE (started but waiting official approval)	http://www.aku.edu/DED/program/courses.shtml
Dow University of Health Sciences, Karachi, Pakistan ^c	MHPE	http://pkeducation.org/2011/03/09/duhs-masters-in-health-professions-education

Note: Program delivery: ^aface-to-face only, ^bdistance/online only, ^cboth formats, ^dinformation not available.

we were not able to get all the required information from each program. Most of the other information is summarized under several of the subheadings in the “Results” section.

Results

Details about the specifics of these programs including the trends, characteristics, similarities and differences are reported in this section.

Geographic location

The 76 institutions that offer masters programs in HPE are unevenly distributed in the world. We classified the countries according to World Health Organization guidelines, and that is the reason that Pakistan is listed with the Middle East, and India within Asia. Forty three percent [43% (33)] of these programs are in Europe (20 in the United Kingdom alone, and 13 in the rest of Europe), 26% (20) in the Americas (15 in the United States, 5 in Canada, and 5 in Latin America), 17% (13) in Asia (7 in Iran, 2 in Malaysia, and 1 in each of the following countries – Bangladesh, India, Indonesia, and Thailand), 5% (4) in the Middle East (2 in Pakistan, 1 in Egypt, and 1 in Saudi Arabia), 5% (4) in Australia, and 3% (2) in South Africa.

Sponsoring department, title of programs, and endpoint recognition

Faculties or colleges of medicine sponsor most of the masters programs in HPE. However, colleges of education, or public health, or independent centers, sponsor a few programs. Titles of these programs include: Masters in Medical Education, Masters in HPE, Masters of Teacher Education, Masters in Surgical Education, Masters in Medical and Dental Education,

Masters of Clinical Education, Masters in Health and Medical Education, Masters in Academic Medicine, and Masters in Higher Education with Specialization in HPE. The endpoint recognition is a master’s degree, usually with the same name as the title of the program.

Mission and purposes

The mission of most of these programs is to prepare leaders in the health professions who can manage change within their institutions, overcome organizational barriers, and effectively direct the future of health care delivery systems. The purposes and goals of these programs vary depending on the focus of the program, such as to prepare clinical teachers, to prepare surgical educators, or to prepare generalist medical educators. The common goals typically are to educate HPE leaders in: the theory and practice of medical education, direct teaching knowledge and skills, competencies to appraise HPE scholarship and produce HPE scholarship, the skills to design, plan, and implement a relevant course for health professionals, and the skills to support and encourage the improvement of medical education through faculty development and consulting about curricular design, performance assessment and program evaluation.

Target audience and admission requirements

Usually, the target audience is health professionals who want to improve their education knowledge and teaching skills, or better prepare themselves for educational leadership roles. For some programs that are specifically geared toward a particular audience, such as the surgical education programs, the audience is more likely to be anesthetists, nurses, operating department staff, and some participants from other

allied health professions with backgrounds in education and training. Since all these programs lead to a master's degree, the minimum qualification to be admitted to such programs is a bachelor's degree. One program (University of Illinois at Chicago) has an additional specific requirement that the candidates should hold educational leadership positions or be actively preparing for such roles. A large number of these programs accept candidates both nationally and internationally. The masters program coordinated by the University of Heidelberg is intended for candidates only from Germany and the seven programs in Iran are intended only for candidates from Iran.

Specialization/concentration

The specialization refers to the focus of the program, which might be leadership development, surgical education, medical education, clinical education, or HPE more generally. For example, the Imperial College clearly specifies that the program is designed for professionals who have experience in their clinical practice field, such as surgery, anesthesiology, and nursing, to insure that the themes of clinical practice and education are always linked.

Program requirements and duration

There is a significant variation in the organization of required courses, credits, units, blocks, or module in the masters programs. The definition and calculation of credit hours are quite different in each program, ranging from 32 to 180 credit hours. There are different program requirements for graduation, with different combinations of mandatory and elective coursework, projects or theses, and in some cases examinations. The extent of credit hours given per course or module may also vary among institutions, and the duration of courses could be as short as 1–2 days, or as long as 2-week intensive courses, or semester-long courses. There are programs that give credit for every single day's work, which means that five different 1-day short courses could be worth the same amount of credit as another institution's 1-week course or module.

Most of these programs could be completed, on the average, within 2 years on a full-time basis or sometimes a few months less; however, a great majority of them allow enrolment on a part-time basis, extending the duration of 2–5 years. In general, the capstone requirement is either a thesis/dissertation or a project with certain specifications, such as word count.

Content/competencies

Most of the masters programs that were reviewed are structured to include: core courses or content and development of related competencies that are required to be completed by all the graduates, and electives on a variety of topics that either supplement the core courses or provide exposure to a new topic or skill. The core courses provide a foundation of educational principles, theories and practices, and are generally grouped under the following headings: curriculum development, instructional/teaching and learning methods, assessment strategies, program evaluation, research

design, and leadership skills and management. It is noteworthy that although most of these programs have as their mission, the goal to prepare HPE leaders, the principles and practices of leadership and management comprise only a small component of the various curricula worldwide.

Some programs have no or a very limited number of electives, such as the University of Bern, while others have a much larger selection of electives (condensed 1-week or semester-long), as many as 25 at the University of Illinois at Chicago. Sometimes, the variety of electives in one particular area is the result of the focus of the program or of a significant weight in faculty resources in that area. Some programs offer elective courses that are unique to that institution, reflecting faculty resources in that institution, such as medical ethics, consulting skills, quality assurance in higher education, accreditation and certification, and simulations in medicine. In addition to such elective courses, some programs also offer research seminars, which may be for credits, or just a requirement for graduation.

Instructional strategies and format

The descriptions of the masters programs clearly indicate that small group teaching is heavily utilized in these graduate programs. Lectures, tutorials, seminars, workshops, discussions, problem-based learning, and self-directed learning are the most commonly employed instructional methods. Additionally, there is one program (the Imperial College) that uses simulation and virtual learning as an instructional strategy. There are several programs that offer this degree program both distance/online and face-to-face, or a combination of the two formats, while others offer in one format.

Faculty

Although it was difficult to retrieve the exact number of teaching faculty in these programs, as well as to identify their areas of expertise, it was observed that there are a number of part-time teaching faculty who are involved in either teaching and/or advising at these institutions. The teaching faculty have different types and levels of education preparation, including MD and doctor of philosophy (PhD) degrees, and different levels of academic rank from instructor to full professors. On the average, institutions with masters programs employ about 6–10 full-time faculty members with a focus in HPE.

Cost

The cost of these programs are calculated based on the number of credit hours, units, or modules, and may vary depending on the format, distance/online versus onsite, and national versus international students. The least expensive program is around US \$8000 and the most costly one is approximately US \$32,000. These costs include just tuition fees and do not include any other expenses, such as books, health insurance, or other services. Recently, a number of masters programs were established which are totally free for their nationals, or require a token tuition fee, mostly utilized for registration expenses. The cost of masters programs in developing countries range from US \$2000–3000.

Discussion

It is interesting to note the geographic distribution in the world of these 76 institutions. Sixty three percent [63% (48)] of these programs are in Europe and in North America and another 9% (7) in Iran. Therefore, only about one-quarter of the programs are distributed in the rest of the world. There are several medical education departments, units or offices in other countries and continents; however, there are no master's degree programs in the Commonwealth of Independent States (the former Russian Republics). In the entire African continent, there are only three programs, one in Egypt, and two in South Africa. Most of the medical educators in these geographic regions received their masters' degrees in HPE either in the United States or in the United Kingdom. These individuals need to adapt the knowledge and skills that they have acquired to the educational and cultural needs of their countries. Some programs accept candidates from all over the world, and offer training locally, nationally, and internationally. The sensitivity and the response to different cultural nuances and needs of these programs should be examined.

Language is another consideration, and sometimes a barrier, for individuals who wish to specialize in HPE, but are not fluent in English. Among the list of programs in Table 1, the vast majority are offered only in English. Most of the HPE literature is in English, and most of the reputable journals in medical education, or HPE, are in English. Although teaching in one's own native language has its benefits, fluency in English as a second language for aspiring health professionals is becoming almost an essential requirement, because so much of the current research is published in English.

A systematic review of these 76 programs reveals that there are many commonalities in the focus, content, and educational requirements of these programs. Medical schools sponsor approximately two-thirds of these programs, and the rest are either independent, or sponsored by a college of education or public health. The target audience is mostly health professionals generally, with the exception of programs that are designed specifically for a specialized group of people, as indicated in the title of the program. Most programs do not express a specialization or an emphasis. There is a commonality in the purposes of these programs, namely to prepare HPE leaders, and very few variations. Small group teaching is one of the common instructional methods, and almost half of these programs are offered in both formats. The average duration for the completion of these masters programs is 2 years.

Most programs have a specific set of requirements, including core courses and electives. The content of the core courses include topics in curriculum development, instructional methods, assessment strategies, program evaluation, and research design. It is noteworthy, and potentially problematic, that although a major mission of all the programs is preparation of health professions leaders, formal instruction in the principles and practices of leadership and management comprise only a small component of any of the programs.

The faculty-to-student ratio, as well as the level of expertise of the teaching faculty, was difficult to calculate from the information available through the websites, description of

human resources in these programs, or through our e-mail communications. It appears that there is a shortage of medical education specialists teaching on a full-time basis in some of these master's programs, hence the need to rely on a few core faculty and a larger number of visiting faculty. Applicants to these programs should obtain information about faculty-to-student ratio, faculty expertise, and the content and structure of these programs before applying and enrolling in any one of them.

Overall, there are two major global issues that need to be addressed for the Masters in Medical Education programs worldwide. First, there is a clear geographic maldistribution of these programs. In some countries, the wave of accreditation of new medical education programs is so strong that there is an urgent need for expert medical educators. Individuals who have attended workshops or short courses, or have certificates of attendance at such short training programs, do not enjoy the same status as those who have a master's degree, nor the same level of competence. Second, given the fact that there is a proliferation of such masters-level programs in HPE, there is a clear need to establish criteria for evaluation of these programs and perhaps an accreditation process for such programs. Furthermore, best practices should also be established to insure that all programs maintain a minimum acceptable quality. These best practices would provide an example of excellence to strive for by all programs.

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