

An update on master's degrees in medical education

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SUMMARY *Planning and implementing educational programs in medicine optimally requires a background in educational theory and practice. An avenue of training open to such practitioners is a master's degree in medical education. A single 1998 report lists the programs known at that time and information about them remains scarce. The authors have re-examined all current programs offering master's degrees in medical or health sciences education in the English-speaking world, including the Netherlands. The authors contacted the programs identified in the 1998 report to establish how many were still in operation. The search was extended using Pubmed and other search engines. A further verification targeted a selected sample of 10 prominent US medical schools. Twenty-one currently operating programs were identified: six in the US, eight in the UK, three in Canada, three in Australia and one in Holland. Seven of nine original master's programs were still in existence. URLs, website and other logistical information about each program are tabled. A master's degree in medical or health sciences education is the most specific method for medical faculty to obtain a credentialed grounding in educational theory and practice. The authors provide up-to-date contact information for current programs and summarize other related essential logistical data.*

Introduction

Educating medical students and residents is a complicated and time-consuming process. Prospective physicians must acquire a large body of knowledge and incorporate it into a working framework of clinical reasoning that in turn informs effective medical practice. The skills, techniques and mind-sets which medical instructors must possess in order to cultivate the transformation of students into physicians do not arise automatically, nor are they inborn.

There is an increasing appreciation of the contributions of educational research and theory as valuable resources in developing and delivering effective medical training (Whitcomb, 2003). Specialists who focus their academic work and research on educational issues need appropriate academic training in educational theory and practice in order to make significant contributions to understanding and improving 'what works' in medical education.

Various avenues are open to physicians or other healthcare professionals and educators who wish to enhance their skills in educational theory and research in medical education contexts. Many faculty development programs are operated by medical schools themselves. These programs extend anywhere from a single lecture to a single day, to a year or two in length, and all aim to increase the academic expertise of their participants.

Steinert *et al.* (2003) reported on a one-year faculty development program offered by the medical education department at McGill University aimed at increasing skills in teaching, administration and educational research and leadership. A one-year post-completion survey showed that many faculty members had joined new educational committees, taken on new leadership roles in medical education, and developed new courses for students and residents. Likewise, Gruppen *et al.* (2003) at the University of Michigan reported on a program with similar objectives and outcomes. Paloli *et al.* (2003) demonstrated that even short-term programs combined with proper needs assessments can provide practical and theoretical foundations for developing educational skills.

What of those individuals who require a deeper understanding of educational theory, research and practice, either in the hope of assuming leadership roles in educational development and administration of medical schools, or for their academic ends alone? Schön (1995) has pointed out that scholarship which goes beyond telling practitioners 'how' requires a new epistemology, one that examines the theoretical foundations and rationale behind educational practices and which focuses on the philosophical justification of the specific outcomes sought in medical education. Schools of education commonly have departments of curriculum studies giving instruction in specific areas, but these are usually aimed at the elementary or secondary educational levels. Further study in adult education is also an option but the field is vast, and in most departments is usually directed toward the social sciences. The unique demands of medicine require the depth and breadth of a master's degree specific to medical (or health professions) education—a training platform aimed at a higher level than those provided by most faculty development, certificate or diploma programs. Cusimano and David (1998) reported on existing opportunities in health professions education and identified 15 programs. There are critical access problems for anyone seeking information on such programs, however. Although their article has been available for seven years, it has only been cited twice elsewhere in the literature, and on both occasions by the same author (Steinert, 2000; Steinert *et al.*, 2003). Thus we had three objectives in conducting this study: first, to re-examine Cusimano and David's data to see which of those programs still existed; second, to identify any new programs that had been established in the interim; and third, to summarize the information available on these programs' websites for the medical community at large.

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Table 1. Data summary for the twenty-one programs.

Institution	Geographic location	Academic location	Degree title	Certificate	Diploma	Website	Contact name	Contact email	Program director	Duration	Program delivery
CANADA											
University of Toronto (Ontario Institute for Studies in Education)	Toronto, ON, Canada	Faculty of Education (OISE)	Master's of Education (Health Professions Specialization)	No	No	http://www.oise.utoronto.ca/depts/tps/program_he_masters.html	Dr. Daniel Lang	dan.lang@utoronto.ca	Dr. Daniel Lang, PhD	3 years	Both
Dalhousie University and Mount Saint Vincent University	Halifax, NS, Canada	Department of Education (Mount Saint Vincent University)	Masters of Education/ Master of Arts in Education with a Conc. In Med Ed	No	No	http://facdev.medicine.dal.ca/degree.htm	Cynthia Mantley	Cynthia.Mantley@msvu.ca	Dr. Fred French, PhD	2-3 years	Both
University of Calgary	Calgary, AB, Canada	Faculty of Medicine	Masters of Science in Medical Education	No	No	http://gse.myweb.med.ucalgary.ca/MedicalEducation.html	Kate Judycki	mededgrd@ucalgary.ca	Dr. Claudio Violato, PhD	2-7 years	Face to Face
UNITED STATES											
University of Illinois at Chicago	Chicago, Illinois, USA	College of Medicine	Masters of Health Professions Education (MHPE)	No	No	www.uic.edu/com/mcme/mhpeweb/Home.html	Janet Settle	jsettle@uic.edu	Dr. Ilene Harris	2-3 years	Both
University of Pittsburgh	Pittsburgh, Pennsylvania, USA	School of Medicine	Masters in Medical Education	Yes	No	www.crhc.pitt.edu/cetp/	Claudia Brink	cetp@pitt.edu	Dr. Rosanne Granieri, MD	2-3 years	Face to Face
University of Southern California (Keck School of Medicine)	Los Angeles, California, USA	Faculty of Medicine	Masters of Science in Education	No	No	http://mededonline.hsc.usc.edu/msedprog.html	Cris Argosino	argosino@usc.edu	Ms. Diane Boughton, MSED	2 years	Both
University of Cincinnati	Cincinnati, Ohio, USA	College of Education	Online Masters Degree in Education	Yes	Yes	www.cincinnatichildrens.org/ed/clinical/grad/masters/default.htm	Lea Alace	lea.alace@cchmc.org	Dr. Kadriye Lewis, EdD	2 years	Online only
Loma Linda University (Graduate School)	Loma Linda, California, USA	Faculty of Medicine	Master of Science	Yes	No	www.llu.edu/llu/grad/healthprofessions/	Lisa M. Beardsley, PhD, MPH Vice Chancellor, Academic Affairs	lbeardsley@llu.edu vcaa@llu.edu	Dr. Billy Hughes, PhD	Not Specified	Not Specified
University of Michigan	Ann Arbor, Michigan, USA	School of Education	Masters of Education with a Concentration in Medical Education	No	Yes	http://www.soe.umich.edu/highereducation/overview/index.html	Larry Gruppen	lgruppen@umich.edu	Dr. Patricia King, PhD	2 years	Both

UNITED KINGDOM

University of Sheffield (Academic Unit of Medical Education)	Sheffield, England	Faculty of Medicine	Masters in Medical Education	Yes	Yes	http://www.shef.ac.uk/%7edme/courses/masters.htm	Gail Hible	g.hible@sheffield.ac.uk	Dr. Patsy Stark, PhD	3 years	Both
University of Dundee	Dundee, Scotland	Faculty of Medicine, Dentistry and Nursing	Masters in Medical Education	Yes	Yes	www.dundee.ac.uk/prospectus/graduate/profiles/meded.html	Margaret Christie	c.m.e.courses@dundee.ac.uk	Dr. Margery H. Davis	1–6 years	Both
Cardiff	Cardiff, Wales	Faculty of Medicine	Masters of Science in Medical Education	No	Yes	http://www.uwcm.ac.uk/study/postgraduate/medical_education/index.htm	Zara Evans	evanzsl@cf.ac.uk	Prof. T.M. Hayes, FRCP	2–3 years	Face to Face
University of Bristol	Bristol, England	Faculty of Medicine and Dentistry	Masters in Medical Education	Yes	Yes	http://www.bris.ac.uk/fmd/gradschool/courses/tlhp	Marcia Dring	tlhp-enquire@bristol.ac.uk	Dr. Stephen Greenwood EdD	3–8 years	Both
Queen's University at Belfast	Belfast, Northern Ireland	Faculty of Medicine	Master of Medical Education for the Health Care Professions	Yes	Yes	http://www.qub.ac.uk/cm/me/msc-handbook.pdf	Mairead Boohan	m.boohan@qub.ac.uk	Ms. Mairead Boohan	2 years	Face to Face
Keele University	Stoke-On-Trent, England	School of Medicine	Masters of Medical Education	Yes	Yes	http://www.keele.ac.uk/depts/aa/postgraduate/studyguide/pdfs/Health/medicaleducationsmall.pdf	Pam Stone	p.stone@keele.ac.uk	Dr. Vincent Cooper	3 years	Both
University of Newcastle (Upon Tyne)	Newcastle, England	Faculty of Health Sciences (School of Medical Education Development)	Masters of Clinical Education	Yes	Yes	www.ncl.ac.uk/postgraduate/taught/subjects/taught-bbsmd/courses/36	Ms Marian Beavis	marian.beavis@newcastle.ac.uk	Dr. Gabrielle Greveson, MD, EdD	3–6 years	Both
University of Nottingham	Nottingham, England	Faculty of Health Sciences/School of Community Health Sciences	Masters of Medical Science in Clinical Education	Yes	Yes	http://www.nottingham.ac.uk/~mczchs/pg/prospectus/clined/	Trina Medicott	trina.medicott@nottingham.ac.uk	Dr. Reg Dennick	2 years	Face to Face
AUSTRALIA											
University of Sydney	Sydney, NSW, Australia	Faculty of Medicine	Masters of Medical Education	Yes	Yes	http://www.dme.med.usyd.edu.au/mmeded/index.html	Cheryl Henderson-Smart	cherylhs@med.usyd.edu.au	Dr. Greg Ryan, PhD	2–5 years	Both
University of New South Wales	Sydney, NSW, Australia	Faculty of Medicine	Masters of Clinical Education	Yes	Yes	http://www.handbook.unsw.edu.au/postgraduate/programs/2005/9050.html	Ms Karin Banna	k.banna@unsw.edu.au	Not Specified	2 years	Both
Flinders University	Adelaide, South Australia	Faculty of Medicine	Masters in Clinical Education	Yes	Yes	http://som.flinders.edu.au/FUSA/GP-Evidence/rural/education/postgrad/clinicaled/index.htm	Dr. Jennene Greenhill	Clinical. Education@flinders.ac.au	Dr. Jennene Greenhill PhD	2 years	Both
NETHERLANDS											
Maastricht University	Maastricht, Netherlands	Faculty of Health Sciences	Masters of Health Professions Education (MHPE)	No	No	www.mhpe.unimaas.nl/general_information.html	Caroline Steeghs, Tanja van Zoeren	mhpe@educ.unimaas.nl	Dr. Jan van Dalen, PhD	2 years	Both

Methods

Cusimano and David's paper provided an initial 'compendium' of higher education opportunities in health professions education. However, our inclusion and exclusion criteria differ from their original paper. Our database was restricted to programs that offered a master's degree at completion, and we focused exclusively on advanced educational training in medicine or the healthcare professions. We excluded all programs that led only to diplomas, certificates or attendance acknowledgements irrespective of their length, although many master's programs offered credentialed modules on the way to completion of a master's degree. As well, we excluded PhD programs based on two assumptions. First, that people involved in medical (or health) education have limited time to commit to additional formal training. Whether they are full-time faculty or students taking time out of residency programs, they must subtract time from other responsibilities to engage in further medical or health education training. Because PhD programs require several years to complete and often require a year or more of full-time commitment, such programs may exceed the time available. Second, that people involved in medical or health education seek further training in order to make more informed contributions to medical or health education practice rather than establishing careers as researchers in medical education. For the most part, PhD programs are intended to train researchers while master's programs focus on practitioners; thus we assumed that master's programs would be more in line with current trends. Therefore, because most PhD programs require greater time commitment, emphasize original research and aim to prepare people for research-based careers, we excluded them from our inventory.

An initial citation index search yielded two sources that had referenced Cusimano and David's compendium, both by the same author (Steinert, 2000; Steinert *et al.*, 2003). These papers discussed the importance of faculty development programs in medical education. A Medline search on the same topic yielded only a single paper that was chiefly concerned with master's degrees in the general field of education (Burton, 2000). Though this paper discussed master's degrees in medical education, it was not specific to this topic. We expanded our search by using a variety of public search engines (Google, Yahoo, Alta Vista) and web-based information provided by individual medical schools. We constructed the search using a variety of search phrases including: 'master's of/in medical education', 'graduate degree in medical education', 'master's of health professions education', or 'master's of clinical education', among others. These searches resulted in a number of retrievals that we explored to determine their suitability for inclusion.

To further enrich the scope of our search, we communicated directly with a number of organizations to enquire about their knowledge of existing directories—complete or otherwise—including the Association of American Medical Colleges (AAMC), the Association of Faculties of Medicine in Canada (AFMC), the Association for the Study of Medical Education (ASME), the Association for Surgical Education (ASE), and the Association for Medical Education in Europe (AMEE). Though they were

clearly interested in such a directory, none of these organizations was able to provide additional information.

As a further check on our initial findings, we contacted a sample of 10 prominent medical schools in the USA that were not in our initial data set. We received replies from nine of them, but identified only one new master's degree program in medical education, at the University of Michigan. Further, we initiated direct electronic communication with all institutions where there was a previous report (or hint by expert opinion) of an existing program. This further expanded our own inventory to its current total of 21 master's degree programs.

From this information, we generated a database containing the following 12 fields: name of institution, geographic location, academic location, title of the degree, whether intermediate certificates or diplomas were offered, website URL, the program's contact name and email, the program director's name, the anticipated duration of study, and finally whether the program was offered online, face-to-face, or some combination of the two. Any information not specified on the school's website was sought directly from the program. Program information was emailed to each program's director for verification with an invitation to correct any errors. Simultaneously, program directors were informed of our intentions to compile their data along with that of other programs and to publish our findings.

Results

Table 1 summarizes the data from these 21 programs on three continents. We first explain each field, then briefly discuss our findings.

Geography

The programs are first grouped by country, then further located by city or region within each country in the 'geographic location' field. We identified three programs in Canada, six in the United States, eight in the United Kingdom (five in England, and one in each of Wales, Scotland and Northern Ireland), three in Australia, and one in the Netherlands.

Academic location of program

The majority of programs were located in the institution's faculty/school/college of medicine, or in a school of medical/health sciences (the institutional labels for these academic units varies considerably). Two programs granted their master's degrees from the departments of education at their institutions. In the case of Canada's Dalhousie University, the master's degree was awarded by a neighboring institution's Faculty of Education—Mount Saint Vincent's University.

Degree title

There was a range of nomenclature of the various programs. Most were labeled some variation of 'Master's of Medical Education'. A minority made explicit reference to all health professions in their title, for example, 'Master's of Health

Professions Education' (MHPE) at the University of Illinois at Chicago, at the University of New South Wales, and at Maastricht in the Netherlands. Degrees located in schools of education were generally designated as 'Master's of Education' (MEd) with a specialization/concentration in the health professions.

Certificates/diplomas

Twelve master's degree programs offered intermediate certificates and 10 programs offered intermediate diplomas. Some schools offered one but not both of these intermediate qualifications.

Website

We verified each individual program's URL as of 26 October 2005. In doing so, we strove to provide accurate, up-to-date, and direct access to each program.

Contact information

The name and electronic mail address of each program's contact individual is listed, as is its program director. In a few cases, these are the same person, but for the majority of programs, contact persons and program directors are different people with different addresses.

Duration

The allowable time to complete these programs ranged from one to eight years. This information was obtained from the program website or program director and indicates the minimum and maximum time allocated for degree completion in each program, not the average time taken.

Program delivery

Fourteen programs offered a program delivery structure that combined 'face-to-face' requirements together with certain distance learning components. Most distance learning was offered online, but some programs still use correspondence-by-mail. Five programs (the Universities of Calgary, Pittsburgh, Cardiff, Nottingham and Belfast) offered only 'face-to-face' instruction, while one program (the University of Cincinnati) offered their entire curriculum exclusively online.

Content

Course topics were displayed with varying degrees of detail on the websites of the 18 programs that had them. A majority of the programs offered courses in quantitative and qualitative research, learning theory, clinical teaching and problem-based learning, written and clinical assessment, curriculum management, program evaluation and teaching skills. Many programs also required a research-based thesis. A minority of programs offered courses on topics such as critical thinking and medical decision-making, basic science teaching, resident teaching, continuing medical education, faculty development, the role of technology in medical

education, ethics and multicultural education. Some programs also required students to complete a teaching practicum. Because of the irregularity and inconsistency of these data, we chose not to include this information in Table 1.

Discussion

We have identified 21 currently operating programs offering master's degrees in medical education—a more than twofold increase. Cusimano and David (1998) found nine programs that offered master's degrees in medical education that matched our inclusion criteria. We excluded three of their programs: two based on content and a third based on target audience. The program offered by Baylor College is limited exclusively to dentists. The University of Toronto Family and Community Medicine program is focused more broadly on community practice rather than medical education. The University of Washington program focuses on medical informatics as opposed to medical education. In our current search, we could locate only seven of their nine master's-level programs, thus raising the question of what happened to the remaining two—particularly in view of the relatively few such initiatives worldwide. It would be interesting to follow them up and inquire about the reasons for their disappearance in the hope that new offerings might avoid any identifiable mistakes.

A principal change since the original Cusimano and David paper is the proliferation of the Internet, which has made the dissemination of program information much easier. Most programs have websites, which vary as to ease of use and completeness of information. During our search, it was not possible to verify how up to date each website was. These caveats must be considered when interpreting the course topic data. What was clear was the variation in responsiveness from program directors or contact persons; some replied within the same day while others replied only after prolonged periods or not at all. We trust that this report challenges program administrators to update their websites regularly, and to respond accurately and promptly to all queries. Websites serve as vital interfaces between programs and students, but any program's intrinsic worth is damaged by weak information, poor communication or sluggish responsiveness.

Geographic concentration

The geographic distribution of these programs is striking. We were able to identify only six programs throughout the USA—a surprisingly small number given the country's population and its 126 medical schools (Association of American Medical Colleges, 2004). The UK currently offers eight programs with only 28 medical schools (Institute for International Medical Education, 2004). Likewise, the ratio of master's programs to medical schools is significantly higher for Canada, Australia and Holland than for the United States.

The striking variation in ratios of medical education degree programs to medical schools or national populations is all the more surprising considering the increased stature of educational research and development in medical schools

more generally. Many universities, including our own institution, now formally recognize the scholarship of teaching and educational research as criteria for promotion and tenure (Boyer, 1990). Similarly, there are also educational residency options under development in orthopedics, family and community medicine, ophthalmology and pediatrics that recognize and support extended study in medical education through our university's Department of Educational Studies. If our university is at all typical, we might assume an increasing demand for advanced study in medical education that includes not only practice-based content but explicit training in the theoretical and philosophical foundations of medical education.

As well, Whitcomb (2002, 2003) has recently encouraged initiatives that lead to large-scale results-oriented research in medical education and has emphasized the importance of faculty in the educational life of the medical school. Both of these measures would be facilitated by wider availability of graduate training in medical education. There is an evident and emerging need for further study and expertise that is not available through certificates, diplomas or faculty development initiatives. The increase in numbers and availability of master's degree programs may be a response to this growing need.

Need for a centralized and timely database

At times, it was challenging to locate and confirm information about these various master's degree programs. None of the major organizations monitoring medical education in Europe and North America had any centralized information regarding these programs, thus making it difficult for any individual wanting to identify or enroll in such a program and discouraging anyone wishing to expand a career choice into medical education. This moment may be a good opportunity for organizations such as the AAMC, ASME or AMEE, or alternatively the World Federation for Medical Education, to launch and maintain such a database. Once sufficient momentum is gathered and schools become aware of the database, it becomes relatively simple for new programs to submit their data and for existing programs to update their own information. Failing any central coordination, it will be up to individual researchers to address these questions periodically and to disseminate the information—a less productive strategy in the long term.

Our paper has at least two limitations that we must acknowledge. First, although we used multiple methods to verify and extend our search, we may still have missed some programs. We apologize to any programs that have inadvertently been omitted or for any information that is incorrect. Correcting such errors is certainly more easily handled through a centralized database. Second, our search covered only the English-speaking world (plus the Maastricht program in the Netherlands). There are very probably excellent programs in non-English-speaking countries as well.

Our research invites further questions concerning the quality of each program in addition to questions concerning their theoretical, philosophical and conceptual bases. These issues must be left for future studies. Previous papers have described qualitative changes in the careers of

individuals who graduate with higher training in medical education (Gruppen *et al.*, 2003; Steinert *et al.*, 2003). It might be worthwhile examining these careers in greater detail to determine whether faculty possessing these further qualifications can be shown to influence the educational outcomes at their respective institutions.

In summary, we have described master's degree programs in medical education, provided links to their relevant websites, emphasized the importance of maintaining an up-to-date database for interested individuals, and discussed avenues for future research. We have made no attempt here to judge individual programs or to supply detailed information on the nature or quality of their courses' content. However, the information provided will enable interested individuals to pursue further information on which to base their own opinions. We trust that this paper serves as a reminder to the medical education community to strengthen its efforts and interests in an area vital to the continuing educational development and renewal of the profession.

Practice points

- A master's degree in medical or health sciences education provides essential grounding in educational theory and practice for health science educators.
- An original 1998 study identified all programs offering master's degrees in medical education.
- We have significantly updated this information subsequent to the widespread use of the Internet.
- We provide suggestions for future research in the field.

Notes on contributors

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