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Clinical Informatics Board Specialty Certification for Physicians: A Global View

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Abstract

Clinical informatics workforce development is a high priority for medicine. Professional board certification for physicians is an important tool to demonstrating excellence. The recent recognition of clinical informatics as a subspecialty board in the U.S. has generated interest and excitement among the U.S. informatics community. To determine the extent of similar programs in countries around the world, we performed literature searches with relevant keywords and internet searches of websites of informatics societies around the world for mentions or descriptions of certifications and reviewed publicly available sources. The U.S. certification was prominent in the recent published literature. Germany and Belgium have long-standing certifications with South Korea and Sri Lanka considering similar programs. This is the first global view of clinical informatics board certification for physicians. Training and certification for non-physician informatics professionals in allied areas are widespread. Official recognition and certification for physicians and all informatics professionals represents a key component of capacity building and a means of addressing the shortage of a skilled informatics workforce. Wider adoption of certification programs may further attracting talent and accelerate growth of the field.

Keywords:

Clinical informatics, board certification, physicians, informatics workforce.

Introduction

There is a global need for sustaining and growing the informatics workforce. A key aspect of fostering interest and attracting talented candidates is to provide opportunities for training and career advancement in the field. Voluntary 'certification' of professionals is a highly-visible quality indicator and a tool to improve physician recognition. Professionals from diverse backgrounds such as nursing, pharmacy, clinical medicine, and computer science work in the field of clinical or health informatics. While there are many opportunities for certifications in allied fields such as information technology and information systems, there are fewer opportunities in the field of informatics. In the U.S., nursing informaticians have had a certification program [1, 2] and there are efforts underway to establish an interprofessional certification [3]. While physicians are eligible to apply for certification pursued by informatics professionals, there are limited opportunities exclusively designed for physicians.

Specialty training and "certification" by a professional board after graduating from medical school represents a path for physicians to demonstrate expertise and dedication in a specific area of clinical medicine. This common route for physicians practicing in the US exists in comparable pathways in Africa, Asia, Americas, Australia, and Europe. Well-recognized board certification pathways exist in most countries for clinical specialties such as internal medicine, family practice, surgery, pathology, or radiology. Many countries offer subspecialties in medical and surgical fields. These pathways are considered important and in the US have become essential for practicing clinical medicine, hospital staff privileges, faculty appointments in schools of medicine and to establish appropriate credentials and qualifications with healthcare purchasers [4].

Clinical informatics was recognized in 2011 as a medical subspecialty in the U.S. for physicians. The modern seeds were sown in 2005 during a town hall meeting conducted by the American Medical Informatics Association (AMIA) [5]. Subsequent development of the core content and fellowship requirements by leading informatics professionals [6, 7] formed the foundation of the recognition of clinical informatics as a distinct subspecialty [8, 9]. The subspecialty certification is co-sponsored by the American Board of Preventive Medicine and the American Board of Pathology. Until 2017, it is available to any physician who possesses a license to practice and an unexpired board certification in any other specialty from the American Board of Medical Specialties and can demonstrate more than 25% clinical informatics efforts for three of the last five years.

One of the motivations for the U.S. subspecialty certification was the recognition that informatics is now considered an essential component to the practice, education, and research aspects of all medical specialties and subspecialties [10, 11]. It is anticipated that in the short-term, the ability to show competency and expertise in this new field will act as a catalyst for the training and recruitment of experts to advance clinical informatics in hospitals and practices. In the long term, certification should allow for uniformity and standardization in training for physicians and prepare expert clinical informaticians. It is reasonable to assume that the desire and need to have qualified physician informatics specialists to fill positions such as chief medical/health informatics officers, directors of clinical informatics, and physician leads of EHR implementations will increase in the future.

With the excitement generated by the U.S. board certification [8], we sought to review existing data on the status of clinical informatics as a specialty or subspecialty for physicians outside the US. The hypothesis was that countries with well-established informatics infrastructure will have similar certification programs for physicians.

Methods

Literature Search

We used combinations of the following keywords for literature searches: "clinical informatics", "health informatics", "biomedical informatics", "specialty" or "subspecialty", "board certification", "physicians", "doctors" to search PubMed, Medline, Scopus, Web of Science, World Cat, CINAHL and Google Scholar. These databases were accessed through the University of Utah intranet.

Internet Search of Informatics Society Web Sites

A listing of member societies of the International Medical Informatics Association (IMIA) was reviewed as of November 30, 2014 from the IMIA website [12]. Brief descriptions of the member societies as listed on the IMIA page were first reviewed. Subsequently, individual society websites were accessed and contents reviewed for evidence of clinical informatics certifications or qualifications with an emphasis on physicians. Websites in languages other than English were reviewed using the automatic translation feature of either Google Chrome or Bing through Internet Explorer. Complying with rules for good scientific practice, all webpage screenshots or pdf versions used for this publication were archived.

Informal Discussions with Informaticians at International Meetings

The authors discussed the topic of board certification in clinical informatics for physicians with informatics professionals at the 2014 Asia Pacific Association of Medical Informatics (APAMI) held in New Delhi, India in early November 2014 and at the Annual Symposium of the American Medical Informatics Association (AMIA) in Washington, DC in mid-November 2014.

Results

Results of Literature Search

In reviewing the literature, the concept of an informatics subspecialty is not entirely new and was raised as early as 1985 and 1993 [13, 14]. The forward looking vision of Kunstaetter in 1985 is impressive [14]: *"The medical profession has to become directly involved by establishing and supporting medical informatics as a new specialty. To do otherwise would be equivalent to leaving the practice of radiology to physicists or medical therapeutics to the pharmaceutical industry."*

The search of databases yielded few relevant results related to clinical informatics board certification for physicians; as shown in Table 1, most of the recent papers were related to the US experience [5-11, 15]. The papers trace the history of the US board certification from concept to setting requirements to administration of the examination. The US certification generated considerable excitement in the US physician informatics community. The next step in this process is the establishment and sustenance of accredited fellowship programs for clinical informatics that will train the next generation of clinical physician informaticians.

During the literature search for clinical informatics certification, we noted separate pathology informatics training for pathologists in the US [16-18]. It is important to note that pathologists are eligible to apply for the US subspecialty board certification in clinical informatics.

Roger France *et al* review the certification process in existence in Belgium for physicians since an official ministerial decree was passed in 2001 by the Belgian parliament [19]. The criteria for being designated a "*Physician Specialist in Health Data Management"* in Belgium include being a licensed physician and requirements for formal coursework and practical training (each one year) and presentation of an original dissertation. There are no published articles regarding the success and challenges of this program nor an estimate of the number of physicians who hold this certification.

Two articles describe a "supplement medical informatics" qualification for German physicians first approved in 1991 [20, 21]. This qualification requires 1.5 years of formal coursework and practical experience that has to be certified by the physicians' institutional leadership. For this certification, we were unable to find published data on the number of physicians who hold this certification.

South Korea has established a formal training program in biomedical informatics for physicians [22]. The 18-month program leads to Certified Physicians in BioMedical Informatics (CPBMI), certified by the Korean Society of Medical Informatics (KOSMI). Kim anticipates that the next step would be to establish a board certification in biomedical informatics similar to the US program. There are numerous academic training programs (degree and non-degree granting) that are open to physicians with recommendations for standards and accreditation [23-25]. Several countries offer certification and recognition processes for informatics professionals including physicians [26, 27].

Table 1. Results of database searches for literature pertaining to clinical informatics board certification specifically for physicians (see text for combinations of keywords used)

Databases	Relevant articles from manual review of main search and 'related searches' (and top 100 results from Google Scholar)
PubMed, Medline, Scopus, Web of Science, World Cat, CINAHL and Google Scholar	Applicable specifically to physician certification: US related [5-11, 15]; World: [19-22]

Results of Internet Search of Informatics Society Web Sites

A review of the brief descriptions of the member societies charters on the IMIA website revealed training and career development of informatics professionals as an often cited goal with no specific mentions of certification specifically for physicians.

We reviewed the websites of 58 member societies of informatics listed on the IMIA website and 5 regional member associations. Countries listed as "Corresponding members" did not have websites listed. As shown in Table 2, most were amenable to review by virtue of being in English or translated using either Google Chrome or Bing. Information on certification specifically for physicians was noted on the US site (American Medical Informatics Association, AMIA). Information on the German site matched the literature search [20, 21], as did the link to the certification for physicians on the South Korean site [22]. There was no mention of the certification available in Belgium on their website. All other accessible websites had no mention of certification specifically for physicians.

Many countries offer certification for all informatics professionals and physicians would likely be eligible for those training and certification processes. Examples include the UK, Australia, and Canada.

The IMIA website and those of the Asia Pacific Association of Medical Informatics, European Federation for Medical Informatics, and Pan African Health Informatics Association yielded no information on certification specifically for physicians. The Regional Federation of Health Informatics for Latin America and the Caribbean website did not load and the Middle East Association for Health Informatics had no website listed.

Results of Informal Discussions with Informaticians

A meeting with the President of the Health Informatics Society of Sri Lanka resulted in our being alerted to the existence of the Specialty Board in Biomedical Informatics in that country at the Postgraduate Institute of Medicine at the University of Colombo and the possibility of a board certification for physicians in informatics in the near future (personal communication, Prof. Vajira H. W. Dissanayake). In performing internet searches on this topic, the Sri Lankan society on the IMIA webpage briefly mentions a master's course in biomedical informatics offered by the Specialty Board in Biomedical Informatics that is specifically offered for medical doctors and dentists in Sri Lanka [28].

Informal discussions with members of the editorial boards of the Applied Clinical Informatics journal and the International Journal of Medical Informatics at the 2014 AMIA Annual Symposium indicated no board certification pathways in clinical informatics for physicians in Brazil or Australia.

Discussion

Over the years, clinical informatics has had a significant impact on the practice of medicine. Demand for increasing quality and efficiency, while decreasing costs and errors, requires an informed and well-trained workforce in clinical informatics. As in any field, we face challenges in recruiting and retaining talented professionals to clinical informatics.

Table 2. Review of International Association of Medical Informatics member society websites for information on clinical informatics-related board certification opportunities and pathways specifically for physicians

Continent	Results/Comments
Africa	Cameroon, Kenya, Mali, Nigeria, South Africa: No information on clinical informatics board certification for physicians Burundi, Côte d'Ivoire, Ghana, Malawi, Togo: No website listed
Americas	Canada, Chile, Cuba, Uruguay: No information on clinical informatics board certification for physicians Argentina, Mexico, Peru: Website failed to load Brazil: Page could not be translated Colombia: No website listed ***USA: Information on US board certification for physicians***
Asia	China, Hong Kong, India, Japan, Pakistan, Philippines, Singapore, Taiwan, Thailand: No information on clinical informatics board certification for physicians Israel: No website listed Sri Lanka: Website failed to load Iran, Saudi Arabia: Website under construction ***South Korea: Link to certification for physicians in Biomedical Informatics***
Australia	Australia, New Zealand: No information on clinical informatics board certification for physicians
Europe	Belgium, Croatia, Czech Republic, Great Britain, Greece, Hungary, Finland, France, Ireland, Norway, Romania, Slovenia, Spain, Switzerland, Sweden, The Netherlands, Turkey, Ukraine: No information on clinical informatics board certification for physicians Austria: Page could not be translated Bosnia and Herzegovina, Italy: Page failed to load ***Germany: Medical informatics certification specifically for physicians***

A formal certification process with subsequent tangible benefits such as official acknowledgement and recognition of excellence, qualification for a named position of authority and possibly monetary benefits would go a long way in attracting and retaining professionals to this field.

Physicians are an integral part of the clinical informatics team that consists of dedicated professionals from various disciplines. While physicians are likely satisfied to be recognized for their knowledge, skills, and experience in informatics, it would also be important to recognize those that have achieved

official board certification in their chosen field. In this context, the US clinical informatics subspecialty board certification fulfills a long awaited aspirational need and has generated much excitement and discussion [29, 30].

With the news of the recent U.S. certification, we set out to find other similar programs in countries worldwide. As with the U.S., short- and long-term training and degree granting programs exist for informatics in many countries and these are open to physicians. It was more challenging to determine if there are programs that are reserved and specifically designed for physicians.

Our hypothesis that countries with well-established informatics infrastructure will have similar certification programs for physicians was not validated. It was interesting to note that the US is the latest to join a very short list of countries such as Germany and Belgium that have had programs equivalent or similar to US board certifications for physicians in the field of clinical informatics for many years. With South Korea and Sri Lanka actively considering similar programs, there appears to be an opportunity for other countries to consider and organize their training to offer similar recognition. The motivations and tangible returns will likely vary for different countries as will the infrastructure, logistics, social and political will to establish such programs.

We acknowledge several limitations of our study. Key word searches of online literature databases may be incomplete based on filtering for English language articles and choice of keywords. Our search would have missed the non-English literature. The automatic translation of non-English language websites was not independently verified by those familiar with the language and thus we may have missed references to board certification pathways. There were some sites that were not amenable to translation from their native language.

As this topic generates more interest among the international informatics community, there may also be opportunities to formally engage the IMIA member societies in dialog regarding certification opportunities and pathways for physicians. This could be conducted via email, online, or in-person surveys at international informatics meetings. IMIA might even serve as an authority on certification for member societies.

We encourage and request individuals with knowledge and experience with training and certification programs exclusively tailored for physicians in different countries to email us with details. We also encourage stewards of national informatics societies to email us with details of clinical informatics related certifications and qualifications for physicians in their countries. It would be important to have an exhaustive and as-complete-as-possible inventory of such programs so that best practices, motivations and lessons learned could be shared among informatics professionals.

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