An Overview of Education and Training of Medical Informatics in India

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Summary

Background: Medical Informatics in India is still in its infancy. Although the Indian Association for Medical Informatics (IAMI) was founded in 1993, proposed by major healthcare delivery institutions, the absence of independent career options in medical informatics in India has resulted either in the exodus of the needed faculty members for supporting education in the field. However, this situation may have been changing in the past few years, but a large gap exists which needs to be filled up quickly. The purpose of this report is to provide an assessment of the present situation of research and training in medical informatics in India, and its implications for future development of the field.

Objectives: To assess the current situation regarding the opportunities for research and education in Medical Informatics in India and related issues like availability of career options.

Methods: A survey questionnaire was sent by postal mail to well-known Indian institutions engaged in medical informatics training and research. In addition, key stakeholders working towards imparting education and awareness on the principles and practice of medical informatics were contacted to provide information about training and research in medical informatics in India. This was a purposive sampling based on prior knowledge. The responses were thematically analyzed.

Results: A total of six courses were identified in the survey. These were administered through face to face (F2F), e-learning and other modes of distance learning. In general, most of the students are graduates in medicine (allopathic, homeopathic, ayurvedic), allied sciences (nursing, physiotherapy) and medical administrators or graduates in engineering or library and information sciences. Most of them are also working, thus, the majority of the courses are for part-timers and act as on-job value addition. Most of the courses however do not directly train for jobs. Therefore, as most of the participants are already working somewhere, the question of placement due to the course may not be measurable directly. Since most of the students from India are already employed, by attending this course they gain further insights into health informatics that they want to pursue as a career.

Keywords

e-learning, Medical Informatics training, India

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Introduction

India is widely recognized as a leader in information and communication technology. It is believed that in health care, Information and communication technology (ICT) in India, while under-utilized, has the potential to make significant contributions. ***Medical informatics (MI)*** can be applied to utilize ICT and help impart quality medical education [1-3].

Students' ability to master subject matter is generally limited in face-to-face (F2F) classes. Additionally, students learn at different paces that cannot be easily considered in the conventional didactic or practical classes. Online courses or e-learning provides another learning option [1,6,7].

India has been recognized as one of the leaders in Information Technology (IT) amongst the emerging economies. Medical Informatics has however not kept apace. With increasing corporatization of healthcare on the one hand and demand for telemedicine facilities from the government side on the other, a need for trained personnel has only recently become recognized. A need to correct this mismatch between needs and availability is being felt.

The purpose of this paper is to provide an assessment of the existing state of education in medical informatics in India.

Study of Current Status of Medical Informatics Education and Training in India

Methods

A postal survey was administered to all known institutions as well as circulated amongst the known eMail groups working in informatics, particularly IAMI (iami_gen@googlegroups.com)

Results

Details of the courses are presented in Table I.

The School of Telemedicine and Biomedical Informatics in Lucknow is one of the largest and most equipped stand-alone telemedicine facilities which has developed in India over the past years with a budget of over 300 million Rupees (Nearly US$ 6.5 Million) having been spent on equipment alone.

The Master's level course at Amrita Institute of Medical Sciences has enrolled about 5 students per class since it started in 2005. It is divided into 4 semesters where the first three semesters have structured lectures and practicums. The fourth semester is intended for course work that may be undertaken outside with prior permission.

In general for these courses, most of the students are graduates in medicine

(allopathic, homeopathic, ayurvedic), allied sciences (nursing, physiotherapy) and medical administrators or graduates in engineering or library and information sciences.

Since most of them are also working, a majority of the courses are part-time and serve as on-job value addition. While the courses c and d are mostly face-to-face (with online access to some course materials), the courses a, b and e are completely online / distance learning based.

However, most of the courses mentioned here do not directly train for jobs. Therefore, as most of the participants are already working somewhere the question of placement due to the course is not measurable directly. Most of the students are already employed and attend this course to gain further insights into health informatics that they want to pursue. Some of them are interested in getting HL7 Certified after this.

For direct, low level, job and career-based training, as well as imparting IT skills to doctors many are running low-level short term courses and workshops [8]. These are especially important for front office workers and nurses who use hospital information systems, telemedicine based clinics as well as do secretarial work in clinics (Table 1).

International Institute of Health Management Research (IIHMR) is an institution with 4 branches across India. It runs postgraduate courses in Hospital, Healthcare, Pharma and Healthcare IT Management. The course in Healthcare IT has been developed in association with IAMI.

Its New Delhi branch has launched one year elective specialization in Management of Healthcare IT for their 2 year healthcare management course. The first cohort will be following the course in the last two semesters of 2010. Ten students with previous experience in the following fields have enrolled.- 2 from dental sciences, 3 from ayurvedic medical sciences, 2 from physiotherapy, 1 in occupational therapy, 1 is bachelor of pharmacology, and 1 radiology technician.

Table 1 Courses being offered on medical informatics from India

Sl.	Institute	Course	URL
a	Department of Biomedical Informatics, PSG Institute of Medical Sciences and Research, Peelamedu, Coimbatore 641 004	12-week Certificate Course – entirely online, asynchronous / part-time	http://psgimsr.in/online-hi/
b	Health Level Seven India	14-week Certificate Course – entirely online, asynchronous / part-time	http://122.166.102.206/moodle/
c	Amrita Institute of Medical Sciences, Kochi, Kerala 682 041	Masters program in medical informatics. Duration – One year full time contact session followed by one year project at candidates desired location. Total 2 years	http://aims.amrita.edu/digital-health.html
d	International Institute of Health Management Research, (IIHMR) Plot 3 , Sector 18 A, Dwarka, New Delhi – 110 075	Various 2-12 day Workshops on topics of relevance and some lectures as a part of PG Diploma in Health and Hospital Management. 2 months elective training for Management Students from 2010 course. 1 year specialization in Management of Healthcare –IT	www.iihmrdelhi.org
e	eHCF School of Medical Informatics, B-5 A/B, 2nd Floor, Street #-13, Madhu Vihar, I P Extension, Delhi-110092	3-month Certificate Course – Distance Learning mode based on print material and email assignments	http://www.ehcfsmi.edu.in/
f	School of Telemedicine and Biomedical Informatics, S.G.P.G.I.M.S., Lucknow, UP, India	6 months and one year Diploma in Telemedicine and ELearning. It is providing training to delegations from India and abroad on incorporating E Based learning in the curriculum as well as HMIS systems	www.sgpgi.ac.in

Discussion

Current Status of relevant developments in India

The Government of India has declared 2010-20 as the "Decade of Innovations" [9]. In line with this theme they have appointed Sam Pitroda as the Prime Minister's Advisor on "Information, Infrastructure and Innovation" with the rank of a Cabinet Secretary [10,11]. Earlier Mr Pitroda, as the Chairman of the National Knowledge Commission had proposed the development of a Health Information Network for India [12].

In another related development, Nandan Nilekani has also been appointed as Chairman of the Unique Identification Authority of India (UIDAI) with a Cabinet Minister rank and the UIDAI has outlined the role of UID for public health [13]. This has paved the way for creating a nationwide Unique Health ID and a possible

National Health Information System [14] which will create a huge demand for Health Informatics Professionals.

All the above points towards the likelihood that medical informatics will grow considerably in the coming years in India.

However, working against this is the fact that most of the IT programs in India do not give any special stress on Health IT and often it is only student projects that may be encouraged to explore further. Similarly, a significant majority of hospitals are yet to be digitalized. Moreover, the hi-tech hospitals, being in the corporate sector usually do not view public health as a thrust area, unlike governmental institutions. In India, there are very few full-fledged departments, and most of them are extremely short on human resources. Also, many apparently active research topics in the field of health IT in India, like mHealth, are hardly prospering in an academic setting – industry is taking lead in that area.

Conclusions and Future Directions

India is recognized to be a leader in software skills, and it is rated high also in medical skills being the second only favored country, after Thailand, for medical tourism [13]. However the combination of the two *i.e.*, Medical Informatics, is still not a recognized career choice. Perhaps after 3-5 years the demand for such courses will increase as the market offers more jobs.

Even newspapers discussing career options are finding "informatics" as a promising area [14]. Therefore, we might expect that the future of medical informatics training in India is likely to show an upward trend very soon.

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