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Synopsis

Health and Medical Informatics Education

Need for Education

At the 6th IMIA Conference on Health and Medical Informatics Education [1], held in 1997 in Newcastle, Australia, it was argued that [2]:

1. Pogress in information processing and information technology is changing our societies;
2. There is a significant economic relevance of information technology for medicine and health care;
3. There is also a significant relevance of information processing and information technology, and for its systematic application, for the quality of health care;
4. It is expected that these developments will continue in the next decade, probably at least at the same pace as can be observed today;
5. For a systematic processing of information in medicine and in health care, and for an appropriate and responsible application of information technology, health professionals are needed who are well-educated in health informatics or medical informatics;
6. Increasing the scope and providing high quality of education in the field of health and medical informatics, and having well-educated health professionals worldwide, would considerably help to raise the quality and efficiency of health care.

In order to provide good quality of health care, training and education in health and medical informatics (HMI) is needed:

1. for various health care professions,
2. in different modes of education,
3. with different, alternate types of specialization in HMI, and
4. on various levels of education. There must be
5. qualified teachers for HMI courses and
6. recognized qualifications for HMI positions [3, p. 537-547].

In more detail:

1. Practically all health care professions are to be considered with respect to HMI education: e.g. physicians, nurses, health care administrators, medical records librarians, and also health and medical informaticians as graduates from specialized programs in HMI. Computer scientists and engineers, who intend to work in the fields of medicine and health care also need HMI education.
2. Besides lectures it is of importance that practical exercises and practicums within health care institutions (e.g. in hospitals) are offered. Besides "traditional" lectures and exercises within universities, and given the explosive growth of the Internet, distance learning should be actively pursued.
3. The types of specialization range from a few courses as educational components in certain curricula to dedicated programs in health and medical informatics. Many health care professionals only need to know about the potential and the risks of information processing in health care. Students for these professions, e.g. medical students, nursing students should have the opportunity to learn the basics of HMI. These basics should include an introduction into the methodology of information processing, the potentials for medicine and health care, and the use of computers as information processing tools. In addition, there should also be the possibility to specialize in the field of health and medical informatics. Such a specialization can e.g. be offered within specific programs, leading to a dedicated Bachelor, Master, or PhD/MD degree in HMI.
4. HMI courses should be offered within educational programs (e.g. medicine, nursing, computer science), where information processing in medicine and health care is of importance, and as educational programs of their own (e.g. Bachelor, Master, PhD programs in HMI). They should be offered at universities, but also e.g. at professional

schools (e.g. medical records administration). For health care professionals, in addition, courses for continuing education in HMI should be offered. In those countries, where courses in HMI have not yet been sufficiently established, summer schools etc. on HMI for health care professionals should be offered for a certain period of time.

5. HMI courses and programs must be of good quality. Teachers of HMI courses must have adequate and specific qualifications in this field. It must be possible to obtain such qualifications for lecturing in HMI, usually from universities.
6. There must be recognized qualifications in HMI, e.g. for positions in HMI.

Examples for Education

In the education section of this year's Yearbook of Medical Informatics we can see different examples for HMI education and for partially controlled and even randomized evaluation studies. The range and meaning of HMI education is used here in a broader sense than introduced above: besides future health care professionals such as physicians and health sciences librarians, also patients are educated. Computer-supported education is emphasized in these papers.

In a prospective study, medical students were using a patient simulation program with a case, involving the sexual abuse of a 6-year-old girl [4]. The students' opinion was that using such simulated cases can improve diagnostic reasoning. Another study investigated the usefulness of an educational software product for medical students about neuromuscular blockades [5]. Here, the results were compared with an (age and sex stratified) control group. The test scores of the students, working with this software, were superior to the results of the control group students.

Guise et al. [6] report on a model training program for health sciences librarians, using an established, integrated IAIMS. Brown et al. [7] report on the evaluation of a game for children suffering from diabetes. As a result of their randomized trial they concluded that well-designed educational video games support effective treatment of this frequently occurring chronic disease. Another software product presented sexual issues for young adults; it was specifically designed for use in school settings [8].

Knowledge-based systems and their use for medical education in developing countries is the topic of [9]; this paper was part of a special issue of Methods of Information in Medicine, containing papers of an outstanding African medical informatics congress: HELINA '96.

Information Exchange on Education

IMIA's working group on Health and Medical Informatics Education (IMIA WG1) has established a WWW site to provide up-to-date information about its work [10]. The core of the site is an underlying database providing information on health and medical informatics programs and courses worldwide [11]. To achieve a database of high quality and value, all teachers and institutions are encouraged to submit information about courses and programs on HMI education offered and to set pointers to their own WWW sites. In addition, IMIA WG1 installed a mailing list to facilitate communication between all persons interested in health and medical informatics education worldwide.

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