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Medical informatics education for "allied" profiles

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Abstract. Medical informatics education should be adapted for each speciality of "allied professions". In this paper we try to share from our experience with students of several profiles: medicine, dentistry, pharmacy, physio-kineto-therapy, clinical laboratory, dentistry techniques and stomatological prophylaxis.

1. Introduction

The success of medical activities is more and more dependent on the scientific and logistic support of other neighbouring fields. Several new specialities has occurred at these borders, often called "allied" professions [1, 2]. A modern medical educational system should cover all of them.

2. Place and role of "allied professionals" within healthcare system information flow

Their role within the medical/health information flow can be seen in fig. 1 which also comprises all connections between various activities contributing to the general healthcare system.

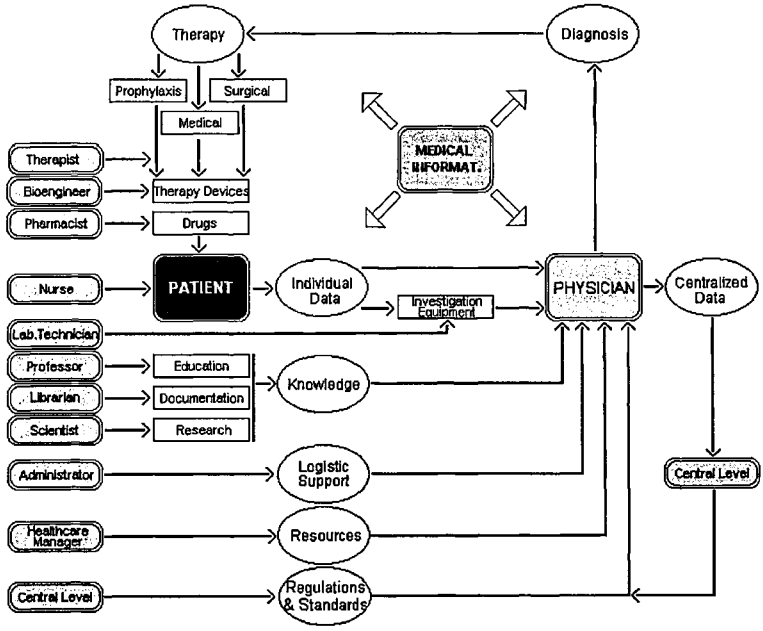

Fig. 1. Information flow diagram comprising "allied professionals" place

Most of the times the information flow associated with each activity, represented by arrows in this scheme, can benefit of computer aid [3]. It is an important task for all educators and trainers in medical informatics to start, for each profile, with such a scheme, revealing and emphasizing the particular place and role of each professional within the complex network of medical activities [4].

3. Medical Informatics at the University of Medicine and Pharmacy in Timisoara

The University of Medicine and Pharmacy in Timisoara covers some of the profiles presented above. It provides education in: medicine, dentistry, pharmacy and physio-kineto-therapy and also prepares clinical laboratory and dental technicians and stomatological prophilaxy therapists [5]. All these profiles comprise a semester of medical informatics. Besides a common core, we tried to differentiate the educational curriculum for each speciality.

The common core comprises [6]:
- general knowlwdge about computers (hardware, software, networking)
- medical information: data and knowledge
- medical data bases, coding and classification, DBMS
- biostatistics [7]
- principles of biosignal aquisition, filtering and processing
- medical imaging and digital image processing
- medical decision support: methods, knowledge bases, expert systems
- medical information systems (primary care, HIS), data protection
- computers in medical research, principles of modeling and simulation

The specific features introduced for each profile are:
a) for all dentistry profiles [8]:
- computer-based dental patient record
- signal and image processing for dental aspects
- use of CAD CAM techniques in prothetics
- decision support for dentistry
- visualization and simulations specific for facial surgery
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b) for pharmacy [9]:
- applications in pharmacology
  = pharmacokinetics: multicompartimental systems
  = pharmacodynamics: drug-receptor interaction, dose-response curves processing
- principles of drug design and QSAR (Quantitative Structure Activity Relation)
- drug interactions
- informatic systems for pharmaceutical units
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c) for physio-kineto-therapy
- multiple signal acquisition and processing
- treatment optimization procedures
- quality assessment for therapeutic protocols
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d) for clinical laboratory
- computers integrated in laboratory equipment

Our department has close collaboration with University "Politehnica" from Timisoara which has a section of bioengineering.

However, there are still some major difficulties in establishing an educational program for specialists in medical informatics, since this speciality is not included yet in the official nomenclator of jobs in our country.

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