



Introduction To Medical Informatics I

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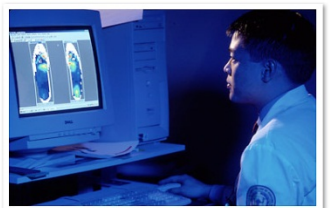
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What is Medical Informatics?

- *Medical Informatics comprises the theoretical and practical aspects of information processing and communication, based on knowledge and experience derived from processes in medicine.*
- *“Intersection of information technology and medicine in health care” (Gennari 2002)*

HISTORY

- ❑ *Medical informatics began in the 1950 with the rise of useable computation devices, and computers in medicine.*
- ❑ *Early names of medical informatics included **medical computing**, medical computer science, computer medicine, **medical electronic data processing**, medical automatic data processing, **medical information processing**, medical information science, medical software engineering and medical computer technology.*

HISTORY

- ❑ *The earliest use of computation for medicine was in dental projects in the 1950's at the National Bureau of Standards by Robert Ledley.*
- ❑ *The next step in the mid 1950s was the development of expert systems such as MYCIN and INTEREST-I.*

HISTORY

- ❑ *In France in **1968** university departments established with the title “informatique de medecine “*
- ❑ *In the United States in 1996, HIPAA regulations concerning privacy and medical record transmission created the impetus for large numbers of physicians to move towards using EMR software, primarily for the purpose of secure medical billing.*

INFORMATICS

The science concerned with gathering, manipulating, storing, retrieving and classifying recorded information.

ORIGIN OF TERM: "MEDICAL INFORMATICS"

***Russian = informatika 1968 by AI Mikhailov, "Oznoy Informatika" ("Foundation of Informatics")
structure and properties of scientific information***

***French = informatique de medecine 1968
university departments established with this title***

***English = first appeared in 1970s
Columbia University changed its name from Medical
Information Science to medical informatics***



- *is the intersection of information science, computer science, and health care.*
- *It deals with the resources, devices, and methods required to optimize the acquisition, storage, retrieval, and use of information in health and biomedicine.*
- *Health informatics tools include not only computers but also clinical guidelines, formal medical terminologies, and information and communication systems. It is applied to the areas of nursing, clinical care, dentistry, pharmacy, public health and (bio)medical research.*



- ***"...the understanding, skills, and tools that enable the sharing and use of information to deliver healthcare and promote health" and "...the name of an academic discipline developed and pursued over the past decades by a world-wide scientific community engaged in advancing and teaching knowledge about the application of information and technologies to healthcare - the place where health, information and computer sciences, psychology, epidemiology, and engineering intersect." British Medical Informatics Society***



- ***"Medical informatics is a rapidly developing scientific field that deals with the storage, retrieval, and optimal use of biomedical information, data, and knowledge for problem solving and decision making."***

Blois, M.S., and E.H. Shortliffe. in *Medical Informatics: Computer Applications in Health Care*, 1990, p. 20.



- ***"Medical informatics is the application of computers, communications and information technology and systems to all fields of medicine - medical care, medical education and medical research."*** definition by MF Collen (MEDINFO '80, Tokyo, later extended).



- *"Medical informatics attempts to provide the theoretical and scientific basis for the application of computer and automated information systems to biomedicine and health affairs . . . medical informatics studies biomedical **information, data, and knowledge** - their storage, retrieval, and optimal use for problem-solving and **decision-making**."*

Lindberg, D.A.B. NLM Long Range Plan. Report of the Board of Regents, 1987, p. 31.



- ***"Medical informatics is a developing body of knowledge and a set of techniques concerning the organizational management of information in support of medical research, education, and patient care.... Medical informatics combines medical science with several technologies and disciplines in the information and computer sciences and provides methodologies by which these can contribute to better use of the medical knowledge base and ultimately to better medical care."***
definition by Asso. of American Medical Colleges (AAMC) 1986.



- ***"Medical informatics comprises the theoretical and practical aspects of information processing and communication, based on knowledge and experience derived from processes in medical and Healthcare."***

Van Bemmelen, J.H. "The structure of medical informatics" *Medical Informatics*, 9(1984), p. 175.



- ***"Medical informatics is the application of computer technology to all fields of medicine - medical care, medical teaching, and medical research."***

Preliminary announcement for the Third World Conference on Medical Informatics, MEDINFO 80, 1977.

- ***Approximately more than 30 of the 150 medical schools in the United States have a department or Units of medical informatics***