

Review on Health Informatics

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Abstract — *Health informatics is informatics in health care. disciplines involved include information science, computer science, social science, behavioral science, management science, and others. 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 amongst others computers, clinical guidelines, formal medical terminologies, and information and communication systems. The main goal of this work is review on Health Informatics¹.*

Keywords — definition, health informatics, history.

I. INTRODUCTION

Definition of "health" in World Health Organization is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."

During the Ottawa Charter for Health Promotion in 1986, the WHO said that health is: "a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities."

Information is data that have meaning. It can be presented in any medium (text, lists or graphics) in the manner that the end user prefers. [1]

Information has two aspects:

-Static information

-Dynamic information

Static information is the info that remains the same after publication and Dynamic information is the info that always change to keep current.

Health Informatics is the science that uses information to improve health care [1].

Health informatics is an interdisciplinary field that applies technology and information to enhance health care delivery, support biomedical research, and foster education of health professionals and the public [2].

Health Informatics is the knowledge, skills and tools which enable information to be collected, managed, used and shared to support the delivery of healthcare and promote health. It helps doctors with their decisions and actions, and improves patient outcomes by making better use of information making more efficient the way patient data and medical knowledge is captured, processed, communicated, and applied. Health Informatics is a rapidly growing field that is concerned with applying Computer Science and information technology to medical and health data.

Health informatics tools include not only computers but also clinical guidelines, formal medical terminologies, and information and communication systems. It involves systems

such as electronic health records (EHR) and electronic medical records (EMR).

Health Informatics is a significant area of health systems

Investment, and potentially affects every professional and patient. It is therefore evident that Health Informatics should

Adopt similar robust guidelines as to build more solid evidence base. Health Informatics applications potentially have effects on health care organizations, health care delivery and outcomes, therefore a Health Informatics application may not directly affect the medical condition of the patient – as drugs do – but it will generally have an indirect effect by assisting the care givers in their decisions and their patient management [3-6].

Using computers to analyze health data has been around since the 1950s, but it wasn't until the 1990s that the first sturdy models appeared. The development of the internet has helped develop computational health informatics over the past decade. Computer models are used to examine various topics such as how exercise affects obesity, healthcare costs, and many more.[7]

It deals with the resources, devices and methods required to optimize the acquisition, storage, retrieval and use of information in health. It deals with the resources, devices and methods required to optimize the acquisition, storage, retrieval and use of information in health [8].

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II. METHODOLOGY

We based it on the search strategy, The Google scholar search engine was used to retrieve information from the internet, using the search string “+definition + health informatics” to find unpublished reports. We deemed 348 of 9670 titles identified in the searches potentially relevant. We excluded 214 of these after abstract review and another 134 after full-text review. The 43 articles selected for review.

III. FINDINGS

Health informatics is the understanding, skills and tools that enable the sharing and use of information to deliver healthcare and promote health. Health informatics support and analyses public health systems, public health decision, functions and practice such as statistical and health surveillance.

Use drives data; Interoperability using open standards, Incremental development and strengthening of systems, Enterprise Architecture approach and Collaborative Communities are Principles of Health Informatics.

Health Informatics is used to recording accurate data and has data available in a timely manner.

Health Informatics supports and informs managers to make better decisions [10]. It allocates resource and planning.

Health Informatics can use Email for therapy [11]. Health Informatics use for Risk management and training. It supports for shared care. Health Informatics can be used for patient assessment, evaluation of patient care, monitoring patients, staff coordination, tracking patients in hospital, stock management, tracking sterile supplies, drug control and medication dispensing or ordering. Health Informatics can be used to integrate engines and purchase equipment.

Payroll, clinical pathways, labour management, patient scheduling, budget analysis, research, word processing, national database, quality assurance, donor databases and

imaging equipment are other applications of Health Informatics. Also devices, monitors, analyzers and mobile computing are usage of Health Informatics.

Health informatics has several uses in Health Care. Telemedicine, Tele-radiology, Patient e-mail and Presentations are Communication Use of Informatics in Health Care.

Journals, Consumer Health information and Evidence-based medical information are Knowledge management avail of Informatics in Health Care.

Reminder systems, Drug Interaction and Diagnostic Expert Systems are Decision Support use of Informatics in Health Care and Information Management use of Informatics in Health Care are Ordering Systems, Electronic Medical Records and Billing transactions.

Health informatics is concerned with the systematic processing of data, information and knowledge in medicine and healthcare.

The domain covers computational and informational aspects of processes and structures, applicable to any clinical or managerial discipline within the health sector whether on a tele (remote) basis or not. Health informatics is delivered by operational health practitioners, academic researchers and educators, scientists and technologists in operational, commercial and academic domains [8] .

Health informatics is Domains of Delivery of care and promotion of health information management and technology and Organizational settings of health care.

Health informatics involves some services, Data processing services, Communication services; Knowledge based services, Electronic health record services, Basic capabilities services and Public Health decision support services.[10]

Health informatics law converses with progress and sometimes involved legal principles as they apply to information technology in health- relevant fields. Health Informatics Law applies to all matters that involve information technology, health care and the interaction of information.[11]

Some of the health informatics standards are DICOM,Health

MetricsNetwork,HL7,SNOMED,xDT,LOINC,Omaha System, openEHR,FastHealthcare Interoperability Resources (FHIR).

The International Medical Informatics Association (IMIA) is the world body for health and biomedical informatics. As an 'association of associations', IMIA acts as a bridging organization, bringing together the constituent organizations and their members. IMIA provides leadership and expertise to the multidisciplinary, health focused community and to policy makers, to enable the transformation of healthcare in accord with the world-wide vision of improving the health of the world population[12].

Health informatics applies informatics concepts, theories, and practices to real-life situations to achieve better health outcomes. This includes collecting, storing, analyzing, and presenting data in a digital format.

Health informatics in Iran appeared with education since

2009.

This education concerned health professionals, medical students and also students that wanted to become medical informaticians. In that same period also model curriculums were defined as a guide for programs. A change can be observed from a focus on computer science to a focus on informatics.[13].

TABLE I

| Country | Since | Established Group |
|------------------------|-------|--|
| Argentina | 1997 | Buenos Aires Biomedical Informatics Group |
| Brazil | 1986 | Brazilian Society of Health Informatics |
| Canada | 2001 | Canada Health Infoway (CHI) |
| United States | 2004 | Office of the National Coordinator for Health Information Technology (ONCHIT) as a division of the U.S. Department of Health and Human Services (HHS). |
| Europe (UK) England | 2000 | NHS informatics in England was contracted out to several vendors for national health informatics solutions under the National Programme for Information Technology (NPfIT) |
| Asia and Oceania | 1994 | Asia Pacific Association for Medical Informatics (APAMI) |
| Australia | 2009 | Health Informatics Society of Australia (HISA) |
| China | 2003 | China Medical Information Association (CMIA) |
| Hong Kong | 1994 | Hong Kong Society of Medical Informatics (HKSMI) |
| India | 1993 | Indian Association for Medical Informatics (IAMI) |
| New Zealand | 2000 | Health Informatics New Zealand (HINZ), |
| Saudi Arabia | 2006 | The Saudi Association for Health Information (SAHI) |
| The Russian Federation | 2013 | EMIAS (United Medical Information and Analysis System) |
| Sri Lanka | 1998 | Health Informatics Society of Sri Lanka (HISSL) |
| Taiwan | 2001 | Public Health Information System(PHIS) |
| Thailand | 2001 | Thailand Ministry of Public Health (MOPH) |

IV. DISCUSSION

Early names for health informatics included medical computing, biomedical 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.

The health informatics community is still growing. Health Informatics Professions has suggested eight key constituencies within the domain - information management, knowledge management, portfolio, program or project management, ICT,

education and research, clinical informatics, health records(service and business-related), health informatics service management. These constituencies accommodate professionals in and for the NHS, in academia and commercial service and solution providers.

Since the 1970s the most prominent international coordinating body has been the International Medical Informatics Association (IMIA).[14]

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