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**Health Management
Information Systems**

Unit 1
What is Health Informatics?

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Objectives

- State the professional roles and skills of health informaticians
- Identify how health informaticians process data into information and knowledge for health care tasks with the support of information technology to improve patient care

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What is the practice of informatics?

- A set of skills and methodological tools
- Knowledge, experience, and activity

Training the Next Generation of Informaticians: The Impact of "BISTT" and Bioinformatics—A Report from the American College of Medical Informatics
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC400513/pdf/167.pdf>

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Skills/tools of health informaticians

- Derived from knowledge of
 - Computer Science (hardware/software)
 - Clinical Science
 - Basic Biomedical Science
 - Cognitive Science
 - Bioengineering
 - Management Science
 - Epidemiology & Statistics

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Application domains

- Public health
 - Population
- Clinical
 - Patient care
 - Specific fields, e.g., nursing, dentistry, pharmacy, etc.
 - Consumer
- Imaging
- Bioinformatics

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Health informatics team

- Informaticians with different backgrounds, experience, and education
 - Skills, roles, and responsibilities depend on
 - Levels of education
 - Stages of career progression

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Bioinformaticians

- Develop and apply computational tools and approaches for expanding the use of biological data

<http://www.ih.umn.edu/about/ifaq/home.html>

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Health informaticians

- Required training
 - Processes associated with
 - Acquisition
 - Storage
 - Retrieval,
 - Presentation, and
 - Use of information

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Health informaticians

- Varied assortment of responsibilities such as
 - Help design software for patient care
 - Build and maintain research systems for clinical research
 - Purchase and implement information systems
 - Provide training and assistance to health care providers in using health information technology
 - Conduct analyses of large health datasets
 - Conduct research and development

<http://www.ih.umn.edu/about/ifaq/home.html>

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Environments where health informaticians work

- Academic
- Research
- Health care delivery
- Health care related industries such as government, medical software firms, medical information services, insurance or medical device companies

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Academic role

- Professors
 - Focus
 - Teaching and research
 - Responsibilities
 - Educate those interested in the field of health informatics
 - Conduct research to improve the acquisition, storage, retrieval, representation, and use of information in health and biomedicine

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Research role

- Researchers
 - Focus
 - Informatics applications in clinical and translational research
 - Responsibilities
 - Advancement of medical science and public health
 - Advancement of informatics science

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Health care delivery role

- Clinical personnel
 - Physicians, Nurses, Pharmacists, Dentists
 - Focus
 - Patient care
 - Responsibilities
 - Manage and process clinical data, information, and knowledge to support clinical practice

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Clinical informaticians

- Assess information and knowledge needs
- Characterize, evaluate, and refine clinical processes
- Develop, implement, and refine clinical decision support systems
- Lead or participate in the various facets of clinical information systems

http://en.wikipedia.org/wiki/Health_informatics

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Health care delivery role

- Health information professionals
 - Health information management professionals, health information exchange specialists, programmers and software engineers, privacy and security specialists
 - Focus
 - Clinical information resources, workflow, and connectivity
 - Responsibilities
 - Varies by individual
 - Example: creating health networks that allow doctors and nurses to share knowledge and best practices

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Biomedical informatics

- Biomedical informatics
 - Biological and clinical data are collected, stored, communicated, and presented
 - Data are processed into health information and knowledge
 - Information technology can be applied to support these processes

Jiajie Zhang, PhD (University of Texas School of Biomedical Informatics at Houston)

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Health informaticians

- Possess cognitive skills in logical and analytical thinking
- Have a technical understanding of the computing environment
- Have different backgrounds, experience, and education
- Varied assortment of responsibilities
- Transform data into information and information into knowledge

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