Component 6 - Health Management Information Systems

Unit 1-2
What is Health Informatics?

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 "BISTI" and Bioinformatics—A Report
from the American College of Medical Informatics
Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC400513/pdf/167.pdf

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

Application Domains

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

Health Informatics Team

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

Bioinformaticians

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

Available from: http://www.ihi.umn.edu/aboutihi/faq/home.html

Health Informaticians

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

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

Available from: http://www.ihi.umn.edu/aboutihi/faq/home.html

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

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

Research Role

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

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

Available from: 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)

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