

“Skilling Up” for Patient-Centered E-Health

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Situation: Responding to Change

- Healthcare providers (and associated organizations) are now making some level of *provider-delivered* e-health available to patients:
 - Encyclopedic health content
 - Some automation of routine processes (prescription refills, appointment scheduling) and communication (often limited to clinic/office representative)
- Yet patients (and caregivers) are changing . . .
 - Greater dependence on Internet in general
 - Increasing desire for online healthcare services
 - Rising market power accompanying increases in the patient’s portion of payment for services

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- Recent U.S. consumer surveys find:
 - Healthcare is a major interest for Internet users; 117 million Americans access the Internet for health information and 85% searched within the month prior to being surveyed
 - Respondents especially want online access to their own healthcare provider, including advanced features such as availability of test results, inspection and management of billing and insurance claims, and communication with physicians and clinical staff
- Responding effectively to patients' desires for e-health is becoming important in patient retention and recruitment
 - But what is the appropriate goal in this response?
 - And how should this goal be achieved?

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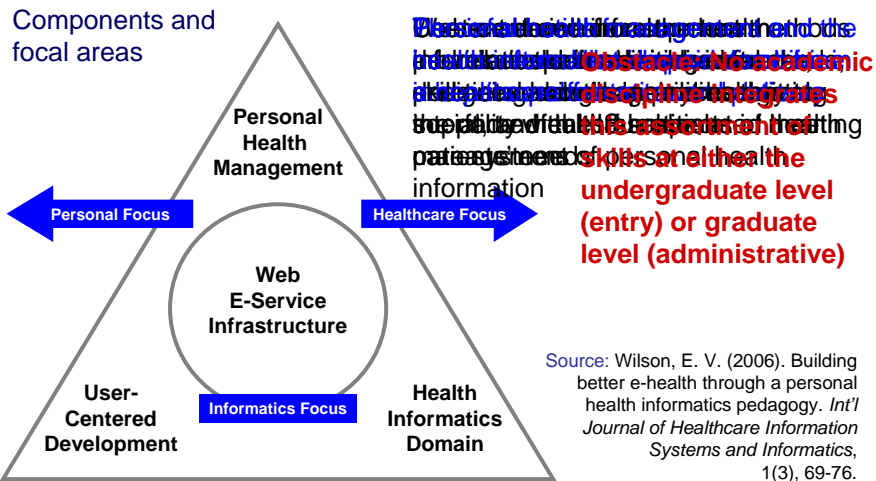
Goal: Patient-Centered E-Health

- *Patient-centered* e-health applies user-centered design principles to e-health development:
 1. Incorporate only services that meet expressed needs of patients or are validated against patient needs
 2. Focus on supporting interactions in which the patient is an active participant
 3. Be understandable to patients
 4. Provide easy access for patients to completely manage and control functionality
 5. Provide ready interoperability to support interaction with external parties and health information systems

Source: Wilson, E. V. (Forthcoming). Creating patient-centered e-health. In N. Wickramasinghe and E. Geisler (Eds.), *Encyclopedia of Healthcare Information Systems*. Hershey, PA: IDEA Group

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Method: Personal Health Informatics



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A Foundational PHI Curriculum

- Essential skills for developing patient-centered e-health at the undergraduate or graduate level can be presented by a single course in each of the four PHI structural areas
 - Web e-service infrastructure
 - User-centered development
 - Personal health management
 - Health informatics domain
- Students enrolled in computer technology or health informatics programs typically would complete one course within the major program, leaving three courses to be completed as a concentration or certificate in PHI

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Web E-Service Infrastructure

- E-service: Any service provided over electronic networks, such as the Internet
- E-health provides services including health information, scheduling, procurement, communication, peer support, diagnosis, and monitoring
- Professional skills needed in this area:
 - Web software development and maintenance
 - Internet database connectivity
 - Network security and administration
 - Emerging technologies, including mobile devices, speech applications, and natural language parsers

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User-Centered Development

- Patient-centered e-health represents a specialized case of user-centered software development
- Professional skills needed in this area:
 - Generally-accepted design guidelines, including web standards (W3C) and human-computer interaction principles
 - Planning, visualization, and evaluation methodologies for conducting effective analysis, design, and testing of specialized applications that are not well-informed by general design guidelines, e.g., developing online tools appropriate for a macular degeneration support group

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Personal Health Management

- Personal health management addresses how people plan and organize health-related activities, including storage and retrieval of health information
 - Personal health records are an electronic example of personal health management
- Professional skills needed in this area:
 - Behavioral and social analysis
 - Data and knowledge management
 - Communication and collaboration technologies

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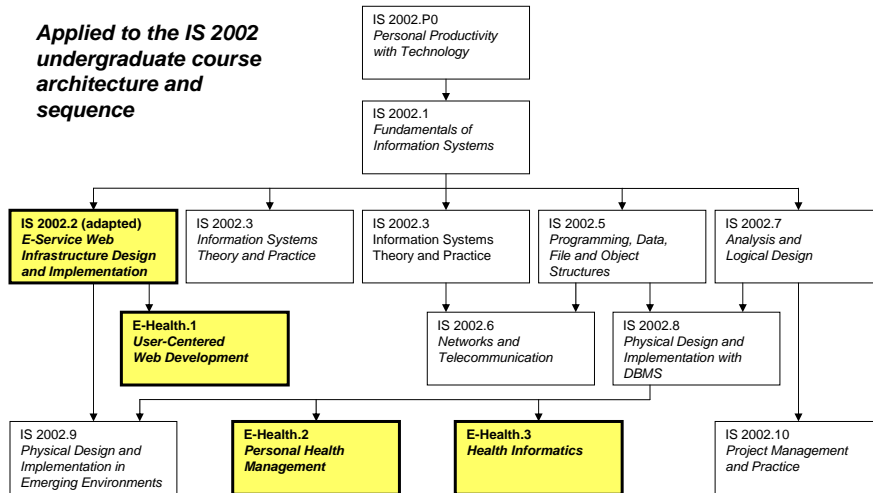
Health Informatics

- Health informatics is the use of IT to support delivery of healthcare services as well as applicable practices and procedures surrounding use of IT in healthcare settings
- Professional skills needed in this area:
 - History of the origins of health information systems
 - Standards for medical nomenclature (e.g., SNOMED) and medical data communication (e.g., HL7)
 - Technical aspects of health information systems used in hospitals, clinical support, and medical offices
 - Electronic patient records and computerized physician order entry (CPOE)
 - Legal requirements (e.g., HIPAA)

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Fitting PHI Into the IS Curriculum

Applied to the IS 2002 undergraduate course architecture and sequence



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Summary

- Healthcare providers face new market forces to fulfill patients' increasing demands for e-health services
- Effective patient-centered e-health could improve patient retention and recruitment while reducing service delivery costs when compared to alternative methods, such as phone and printed materials
- Developing effective patient-centered e-health requires integrated skills across areas that uncommon to find combined within a single academic discipline
- The four structural areas of PHI can augment existing programs in computer technology or health informatics to provide these foundational skills

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