

Toward Convergence of Health Information Management and Medical Informatics at OHSU and Beyond

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“Education is the most powerful weapon [that] you can use to change the world.”



Nelson Mandela



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Overview of talk

- A bright future for health information technology (HIT)
- Professional practice in HIT
- OHSU educational programs – curriculum and experiences
- Toward convergence of health information management (HIM) and biomedical informatics (BMI) at OHSU



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The picture is bright for HIT in the 21st century

- Recognition of its value, especially the electronic health record (EHR) with clinical decision support (CDS)
- Consensus of vision regarding health information exchange (HIE) embodied in the National Health Information Network (NHIN)
- Prominent role for informatics in the National Institutes of Health (NIH) Roadmap and clinical/translational research (CTSA) initiatives



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But there are impediments and challenges

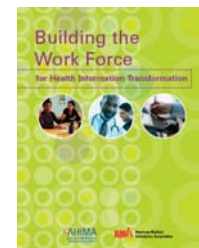
- On the clinical side (Hersh, 2004)
 - Cost and financing
 - Synchronization with clinical workflow
 - Interoperability, standards, and terminology
 - Privacy and confidentiality
- On the research side (Turisco, 2005)
 - Inadequate infrastructure
 - Lack of secondary reusability of data
- And for both
 - Developing a workforce of professionals and users (Hersh, 2006)



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Our professional associations have recognized the need

- Summit in Nov., 2005 to address issues of building workforce sponsored by AMIA and AHIMA
- Report published in 2006
- Advocates that HIT benefits will not accrue without a well-trained workforce to implement systems



http://www.ahima.org/emerging_issues/Workforce_web.pdf



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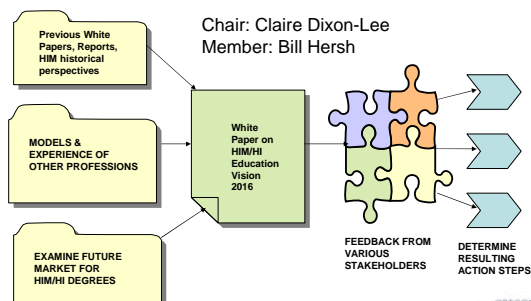
Major recommendations from AMIA-AHIMA workforce report

- Adopt IOM "Quality Chasm" vision
- Create incentives to adopt "systems" that promote quality through use of HIT
- Establish industry-wide advocacy for workforce training and development
- Build awareness of need for workforce development
- Utilize innovative learning environments to train workforce
- Develop formal educational programs and promote their value
- Disseminate tools and best practices for these new professionals to succeed

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AHIMA Educational Strategies Committee Blueprint for Vision 2016



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Even some politicians have recognize the need

- Congressman David Wu (D-OR) has introduced the "10,000 Trained by 2010 Act" (HR 1467) that aims to
 - Invest more in research to enhance the field of health care informatics so as to develop hardware and software solutions that improve patient care
 - Develop programs to train current medical professionals
 - Develop curriculum for a health care information workforce
 - Permit an organic approach to the establishment of information systems; one that develops incrementally over time and can adapt to the changing health care landscape
- (He has one of the strongest biomedical informatics programs in the country in his district! ☺)

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Professionals in the HIT workforce

- Biomedical informaticians
- HIM professionals
- IT professionals, often with computer science (CS) or management information systems (MIS) backgrounds
- Health science librarians
- Clinicians who gravitate into IT roles with or without formal training

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What do we know about the HIT workforce?

- General IT staff (Gabler, 2003)
 - Assessed 85 integrated delivery systems of varying size
 - Employ about one IT staff per 56 non-IT employees
 - Roles: programmer/analyst (51%), support (28%), telecomm (16%)
- Health care CIOs (Monegain, 2004)
 - Survey of 91 found 88% in agreement that understanding of health care environment is essential to IT practice in health care settings
- Health information management (Wing, 2003)
 - Historic role of medical records departments changing
 - Projected by Bureau of Labor Statistics for 49% growth by 2010 (Hecker, 2001)

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What do we know about the HIT workforce (cont.)?


- "Informatics" workforce in the UK (Eardley, 2006)
 - Estimated 25,000 full-time equivalents
 - Out of 1.3 million workers in NHS, or one IT staff per 52 non-IT workers
 - Distributed in following categories
 - Senior managers – 7%
 - Health records staff – 26%
 - Knowledge management staff – 9%
 - ICT staff – 37%
 - Information management staff – 18%
 - Clinical informatics staff – 3%
 - Other issues
 - Retention problems – attributed to uncompetitive pay
 - Future skills shortages anticipated
 - Strong support for establishment of formal informatics profession

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Do we know anything about informaticians?

- Hoffman and Ash (2001)
 - Survey of potential employers of informatics graduates
 - Most important skills desired included
 - Knowledge of clinical information
 - Interpersonal skills
 - Change management
 - Relational databases
 - Project management
- Knaup et al. (2003)
 - Survey of first 1024 University of Heidelberg and Heilbronn graduates
 - Most important topics of study included
 - Database and information systems
 - Software development/engineering
 - Economics
 - Information systems in health care

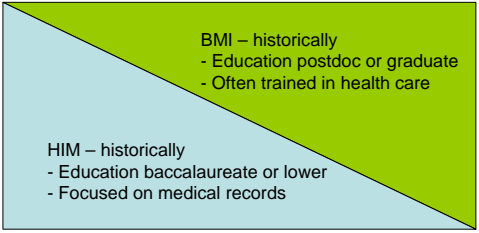
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Do we know anything about informatics leaders?


- AMDIS survey (Conn, 2003)
 - 82 AMDIS members
 - Little formal training in informatics
 - Value managerial and clinical over technical skills
- Analysis of five Chief Medical Information Officers (CMIOs) Leviss (2006)
 - Leadership, communication, and consensus-building among most important skills
 - Part of senior physician executive team
 - Do not want to be seen as just “techie” doctors

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What are the differences between HIM and medical informatics?




But these distinctions are blurring!

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Categories of biomedical informatics practice


Category	Jobs
Academic	Informatics researcher or teacher
Professional	CIO, Chief Medical/Nursing Information Officer, Developer, Trainer
Liaison	Represent clinical or research community in IT initiatives

- Adapted from Covvey et al., *Pointing the Way*, 2001
- Elaborated in Hersh, JAMIA, Mar/Apr 2006
 - “Liaison” a better word than “expert”
- The demarcations are admittedly blurry

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Historical categories of informatics education

Category	Typical Programs
Academic	- PhD - Postdoc ± master’s degree
Professional	- Postdoc ± master’s degree - Master’s Degree - Graduate Certificate
Liaison	- 10x10

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Biomedical informatics education and training in the United States

- Since a highly multi-disciplinary field, no standard curriculum or accreditation
 - Listing of programs on Web site of American Medical Informatics Association (www.amia.org)
 - Description of OHSU program to follow
- Education has historically focused on academics but is evolving to meet the needs of practitioners and users

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Biomedical informatics education at OHSU

- Academic
 - Predoc/Postdoc Fellowship funded by NLM and VA
 - PhD in Biomedical Informatics degree
 - Master of Science in Biomedical Informatics degree for postdocs from other fields
- Professional
 - Master of Science and Master of Biomedical Informatics degrees
 - Graduate Certificate Program (distance learning)
- Liaison
 - OHSU-AMIA 10x10 program

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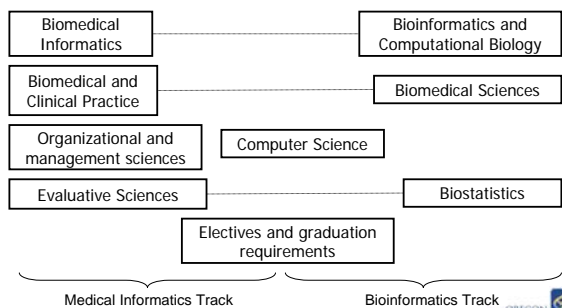
Informatics curriculum at OHSU – general principles

- Aims to cover the “full spectrum” of biomedical informatics (Hersh, 2005; Hersh, 2007)
- Curriculum centered around “knowledge base”
 - Core knowledge at master’s level
 - PhD adds advanced courses and research
 - “Building block” approach allows progression to higher levels
- Have established two “tracks”
 - Medical informatics
 - Bioinformatics
 - Aiming to establish others: health information management, public health informatics

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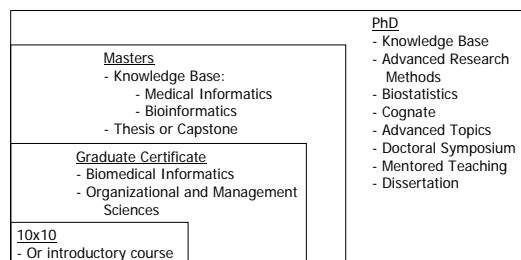
“Knowledge base” and its “domains”



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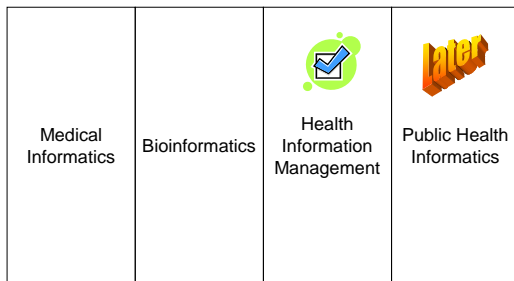
Building block approach to curriculum



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“Tracks” model is approach for others to be added



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Educating the liaisons – 10x10

- Partnership with American Medical Informatics Association (AMIA) to meet Charles Safran’s goal of educating one physicians and one nurse from each US hospital in informatics
 - Or, put another way, aim to educate 10,000 health care providers by 2010
- Course consists of introductory on-line course and adding one-day face-to-face session
 - Initial offering well-received (Hersh, 2007)
 - Other partners are also offering courses



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Topics of OHSU 10x10 course

- Overview of Discipline and Its History
- Biomedical Computing
- Electronic Health Records and Health Information Exchange
- Decision Support and Health Care Quality
- Standards, Privacy and Security, Costs and Implementation
- Evidence-Based Medicine and Medical Decision-Making
- Information Retrieval and Digital Libraries
- Bioinformatics
- Imaging Informatics and Telemedicine
- Other Informatics: Consumer Health, Public Health, and Nursing
- Organization and Management Issues in Informatics

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Educating beyond our site – distance learning

- (Hersh, JAMIA, 2001)
- Initially in Graduate Certificate, now master's
- Teaching modalities include
 - Voice-over-Powerpoint lectures
 - Threaded discussions
 - Readings, virtual projects, etc.
- Courses are not correspondence courses; interaction is a core component
- Have created a virtual community
 - Meet at AMIA, HIMSS, OHSU, etc.

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New models for education can be developed with this technology

- Translation of 10x10 course into Spanish for Latin American audience
- Offered in partnership with *Hospital Italiano* of Buenos Aires, Argentina
- Over 150 participants from 10 countries have completed course so far



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Toward convergence of BMI and HIM at OHSU – general plan

- Hire educational consultant to inventory resources determine approach
 - Completed by Ingrid Bentzen, MEd, RHIA, in late 2006
- Hire program director
 - Ongoing recruitment
- Apply for CAHIIM accreditation
 - Aim for candidacy in Fall, 2007 and accreditation in Spring, 2008
- Develop and implement initial curriculum
 - Aim to offer in 2007-2008 academic year

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Summary of consultant's report

- Should develop RHIA certification curriculum and draw on other resources
- Best model is "3+1" approach with RHIA certification curriculum consolidated in a single academic year
- Can start with adding RHIA year to existing OHSU graduate program
- Can later articulate with other undergraduate program(s) to add baccalaureate program

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Summary of report (cont.)

- Compared RHIA knowledge clusters with existing OHSU informatics curriculum
 - Substantial overlap but some additional courses needed
- Can develop program with around 29 credit hours, which is slightly larger than existing Graduate Certificate program (24 credit hours)
- Should create new track in Graduate Certificate and master's programs in HIM with accreditation for graduates to sit for RHIA certification exam

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Building on the “3+1” model

Model	Graduate	Undergraduate
Lower-division general ed	HIA curriculum in Graduate Certificate and/or master's degree	Lower-division general ed – PCC?
HIT curriculum		HIT curriculum – PCC?
Upper-division general ed		Upper-division general ed – partner?
HIA curriculum		HIA curriculum – OHSU

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Existing Graduate Certificate courses

- Required courses (4)
 - BMI 510 – Introduction to Medical Informatics
 - BMI 512 – Clinical Systems
 - BMI 514 – Information Retrieval & Digital Libraries
 - BMI 517 – Organizational Behavior & Management
- Elective courses (4), choosing from (among others)
 - BMI 509 – Practicum
 - BMI 515 – Ethical, Legal, and Social Issues in Biomedical Informatics
 - BMI 518 – Project Management
 - BMI 519 – The Business of Healthcare Informatics
 - BMI 520 – Consumer Health Informatics
 - BMI 521 – Public Health Informatics
 - BMI 536 – Evidence-Based Medicine (Hersh)
 - BMI 537 – Healthcare Quality
 - (Can also transfer in one outside graduate course)

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Possible new courses to incorporate in HIM track

- Electronic Records, Information Technology & Systems Analysis (similar to existing BMI 512)
- Professionalism and Leadership
- Revenue Cycle Management (Note: RHIT with experience may test out of this course)
- Project Management (similar to existing BMI 518)
- Quality Management, Utilization Management & Research (similar to existing BMI 537)
- Finance and Resource Management
- Capstone (similar to BMI 580/581)
- Current Issues in HIA

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What if you do not want to wait?

- Anyone who is eligible for graduate studies (i.e., has a baccalaureate degree) can enroll in existing graduate programs
- If you desire RHIA certification, you can initially focus on existing courses likely to be part of RHIA curriculum

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Another pertinent ongoing initiative

- Academia-industry collaboration – trying to build on ties to industry to benefit
 - Companies – synergistic economic development of HIT sector in Oregon
 - Health care institutions – making most effective use of HIT to improve health care and/or biomedical research
 - OHSU BMI students – provide opportunities and experience in real-world settings and connection to possible future employers
 - OHSU BMI faculty – identify collaborators for research and other projects
- Anyone can join email list: pdxminf@ohsu.edu

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Conclusions

- Probably the most important factor for the success of HIT will be the competencies of those who use and/or implement it
- A skilled and knowledgeable workforce must emerge to implement HIT most effectively
- There are challenges and opportunities for those of us who are passionate about leading the way

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