Finding the Future Workforce to Support Data-Driven Healthcare

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References


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Overview

• Role of health information technology (HIT) and informatics to improve health and healthcare
• Need for a professional workforce and programs to develop it
• Future directions for the workforce in data-driven healthcare
Regardless of your political views, the US healthcare system needs fixin’

- Recent IOM report (2012) analyzes data to find annual
  - $750B in waste (out of $2.5T system)
  - 75,000 premature deaths
- Sources of waste
  - Unnecessary services provided
  - Services inefficiently delivered
  - Prices too high relative to costs
  - Excess administrative costs
  - Missed opportunities for prevention
  - Fraud

Health information technology (HIT) is part of solution

- Systematic reviews (Chaudhry, 2006; Goldzweig, 2009; Buntin, 2011) have identified benefits in a variety of areas
  - Although 18-25% of studies come from a small number of ‘health IT leader” institutions
HIT and informatics are required for the learning healthcare system

- Components of the learning healthcare system (IOM, 2012)
  - Records immediately updated and available for use by patients
  - Care delivered has been proven “reliable at the core and tailored at the margins”
  - Patient and family needs and preferences are a central part of the decision process
  - All healthcare team members are fully informed about each other’s activities in real time
  - Prices and total costs are fully transparent to all participants in the care process
  - Incentives for payment are structured to “reward outcomes and value, not volume”
  - Errors are promptly identified and corrected
  - Outcomes are routinely captured and used for continuous improvement

Informatics plays a role at every step of the learning healthcare system

- Clinical research informatics (CRI)
- Bioinformatics and personalized medicine
- Public health informatics
- Imaging informatics
- Information retrieval (search) and digital libraries
- Evidence-based medicine (EBM)
- Natural language processing (NLP)
- Standards and interoperability
- Electronic health records (EHRs)
- Clinical decision support (CDS)
- Computerized provider order entry (CPOE)
- Healthcare quality and improvement
- Health information exchange (HIE)
- Privacy and security
- Telemedicine
- Personal health records (PHRs)
- Analytics and business intelligence

(IOM, 2012)
Why has it been so difficult to get there? (Hersh, 2004)

- Cost
- Technical challenges
- Interoperability
- Privacy and confidentiality
- Workforce

Helped was provided by a new US president

“To improve the quality of our health care while lowering its cost, we will make the immediate investments necessary to ensure that within five years, all of America’s medical records are computerized ... It just won’t save billions of dollars and thousands of jobs – it will save lives by reducing the deadly but preventable medical errors that pervade our health care system.”

January 5, 2009

Health Information Technology for Economic and Clinical Health (HITECH) Act of the American Recovery and Reinvestment Act (ARRA) (Blumenthal, 2010)

- Incentives for electronic health record (EHR) adoption by physicians and hospitals (up to $27B)
- Direct grants administered by federal agencies ($2B, including $118M for workforce development)
ONC Workforce Development Program
Based on estimated need for 51,000 professionals in 12 workforce roles (Hersh, 2012)

- Nine universities funded, with emphasis on short-term training using distance learning
- OHSU funded to enroll trainees in existing programs
- Five universities funded to develop curricula for community college programs
- OHSU funded to develop curricula and to serve as National Training & Dissemination Center (NTDC)
- Curriculum available at www.onc-ntdc.info

One of the challenges has been lack of a professional workforce

- Analysis of HIMSS Analytics Database™ estimated need of 41,000 additional HIT professionals as we moved to more advanced clinical systems (Hersh, 2008)
- ONC increased estimate of need to 50,000, leading to Workforce Development Program being part of HITECH Program (Hersh, 2012)
- Actual numbers hired have been even higher (Furukawa, 2012) – see next slide
- Despite growth of jobs and number trained, shortfalls persist (CHIME, 2012)
HIT employment growth from Bureau of Labor Statistics (Furukawa, 2012)

Percent change in online health IT job postings per month (Furukawa, 2012)
Demand still persists for experienced health IT staff (CHIME, 2012)

- Skills most often in demand
  - Clinical software implementation and support staff (e.g., EHR, CPOE) – 74%
  - Infrastructure staff – 47%
  - Business software implementation and support staff – 45%
- 71% said IT staff shortages could jeopardize an enterprise IT project, while 58% said they would definitely or possibly affect meeting meaningful use criteria for incentive funding
- 85% also expressed concerns about being able to retain current staff
- 67% were aware of the ONC workforce programs, with 12% of those respondents reporting that they had hired graduates from them

Opportunities for career development and study in informatics

- Educational programs at growing number of institutions
  - [http://www.amia.org/education/programs-and-courses](http://www.amia.org/education/programs-and-courses)
- OHSU program one of largest and well-established (Hersh, 2007)
  - [http://www.ohsu.edu/informatics](http://www.ohsu.edu/informatics)
  - Graduate level programs at Certificate, Master’s, and PhD levels
  - “Building block” approach allows courses to be carried forward to higher levels
- Formal certification in various disciplines
  - Baccalaureate certification in nursing informatics for many years
  - Long-standing certification in HIM, e.g., CCS, RHIT, RHIA
  - New subspecialty for physicians recently approved (Shortliffe, 2011)
Experience of the OHSU program (http://www.ohsu.edu/informatics/)

- Graduate level programs at Certificate, Master’s, and PhD levels (Hersh, 2007)
  - “Building block” approach allows courses to be carried forward to higher levels
- Two “populations” of students
  - “First-career” students more likely to be full-time, on-campus, and from variety of backgrounds
  - “Career-changing” students likely to be part-time, distance, mostly (though not exclusively) from healthcare professions
- Many of latter group prefer “a la carte” learning
  - This has led to the successful 10x10 (“ten by ten”) program that began as OHSU-AMIA partnership (Hersh, 2007; Feldman, 2008)
    - Overview and access to demo: http://www.billhersh.info/10x10.html
    - Significant minority of these adult learners do not complete a program but still use knowledge and skills gained

Other important workforce developments

- From implementation to analytics
  - Now that adoption is widespread, work of informatics must change to make beneficial use of data and information (Haugen, 2010; Hersh, 2012)
- Clinical informatics subspecialty
  - Professional recognition for growing number of physicians who “practice” clinical informatics, exemplified by the Chief Medical Informatics Officer (CMIO) (Shortliffe, 2011)
Clinical informatics subspecialty for physicians

- History
  - 2009 – AMIA develops and publishes plans for curriculum (Gardner, 2009) and training requirements (Safran, 2009)
  - 2011 – ABMS approves; ABPM becomes administrative home
  - 2013 – first certification exam
- Will follow usual path of five years of “grandfathering” training requirements to take certification exam before formal fellowships required
  - Practice pathway and non-traditional fellowships; ABPM to define rules
- Some concerns (Hersh, 2012)
  - Age at which many physicians enter informatics
  - Ability of programs to provide both education and training
  - Who will pay?

Opportunities in informatics are **not** limited to healthcare

- Bioinformatics – genomics and personalized medicine (Altman, 2012)
- Clinical and translational research – building the “learning” healthcare system (Richesson, 2012)
- Public health – protecting the public and promoting health (Araujo, 2009)
- Consumer health – for all ages, especially aging Internet-savvy baby boomers (Detmer, 2008; Miller, 2009)
- Imaging informatics – use of images for biomedical research, clinical care, etc. (Bui, 2010)
Conclusions

• There is continued need and career opportunity for informatics professionals, researchers, and others
• Achieving the data-driven learning healthcare system will require informatics tools and professionals
• The grand experiment of HITECH is going on in the US – results not yet in

For more information

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  – http://healthit.hhs.gov
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• National Library of Medicine (NLM)