

ARRA, HITECH, and Informatics in Public Health

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Outline of talk

- A new “ARRA”
- Why do we need more informatics?
- Why are we not there?
- Details of ARRA programs
- The workforce need for informatics
- Educational and career opportunities in informatics

We are in a new “ARRA” of health information technology (HIT)

- Health Information Technology for Economic and Clinical Health (HITECH) Act of the American Recovery and Reinvestment Act (ARRA)
 - Incentives for electronic health record (EHR) adoption by physicians and hospitals (\$36-40B, offset by \$20B in savings)
 - Direct grants administered by federal agencies (\$2B)
- Other provisions in other areas of ARRA, e.g.,
 - Comparative effectiveness research
 - NIH and other research funding
 - Broadband and other infrastructure funding

Rationale from a new 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, 2009

Motivations – why do we need more information technology (IT) in healthcare?

- Quality – not as good as it could be (McGlynn, 2003; NCQA, 2009; Schoen, 2009)
- Safety – IOM “errors report” found up to 98,000 deaths per year (Kohn, 2000)
- Cost – rising costs not sustainable; US spends more but gets less (Angrisano, 2007)
- Inaccessible information – missing information frequent in primary care (Smith, 2005)

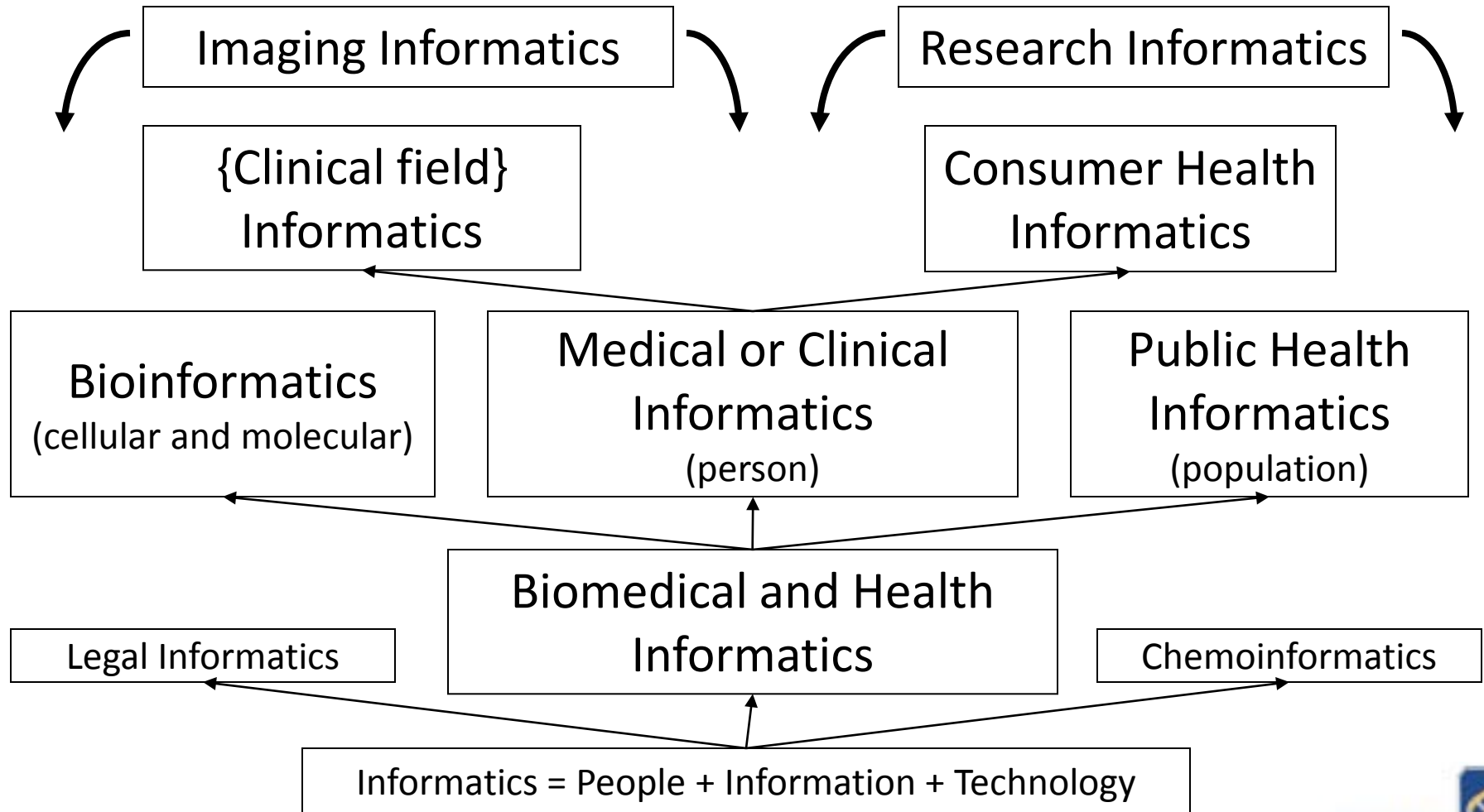
Can informatics help?

- Systematic reviews (Chaudhry, 2006; Goldzweig, 2009) have identified benefits
 - Adherence to guideline-based care
 - Enhanced surveillance and monitoring
 - Decreased medical errors
- Caveat: 20-25% of studies came from 4 institutions and there have been few studies of commercial systems
 - Concerns about generalizability
 - One recent study of 41 urban hospitals in Texas found those with EHR and clinical decision support had improved clinical outcomes and lower costs (Amarasingham, 2009)

Just what is “informatics” (Hersh, 2009)?

- *Biomedical and health informatics* (BMHI) is the field concerned with the optimal use of information, often aided by technology, to improve individual health, health care, public health, and biomedical research
 - It is about information, not technology
- Practitioners in BMHI are usually called *informaticians* (sometimes *informaticists*)
- BMHI is the science underlying the application of IT to healthcare (and other disciplines)

BMHI has an “adjective problem”



Public health informatics

- Recognized as distinct subdiscipline within BMHI (Araujo, 2009)
- Programs of CDC and others not always widely accepted, e.g.,
 - Biosense and syndromic surveillance research
 - National Center for Public Health Informatics (NCPHI)
- However, recognized as essential component in HITECH, e.g.,
 - Public health reporting part of meaningful use
 - HIE programs administered at state level
 - Workforce development includes options for public health

Why are we not there? What are the barriers? (Hersh, 2004)

Health Care Information Technology Progress and Barriers

William Hersh, MD

IN THE 3 DECADES SINCE THE TERM "MEDICAL INFORMATICS" was first used, individuals working at the intersection of information technology (IT) and medicine have developed and evaluated computer applications aiming to improve health and health care. The need to

in this issue of JAMA, Slack demonstrates the value that patient-physician e-mail can have in improving patient care, and also catalogs the incomplete but encouraging underlying evidence.¹¹ As with many applications of IT, the technology can improve the existing situation but also empower clinicians and patients to think more fundamentally about how innovation can lead to changes in the way medicine is practiced.

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

care IT.^{8,9} It is no exaggeration to declare that the years ahead portend the "decade of health information technology."¹⁰

Informatics is poised to have a major impact in patient-clinician communication. In the Clinical Crossroads article

See also p 2255.

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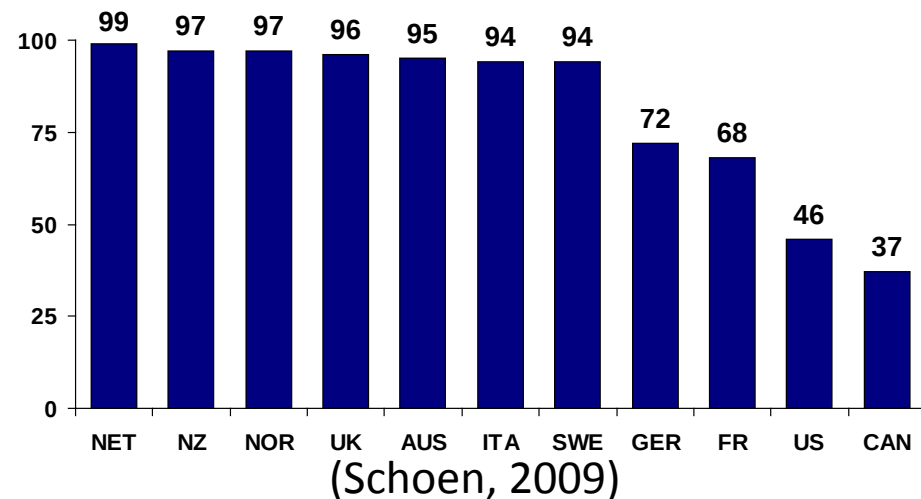
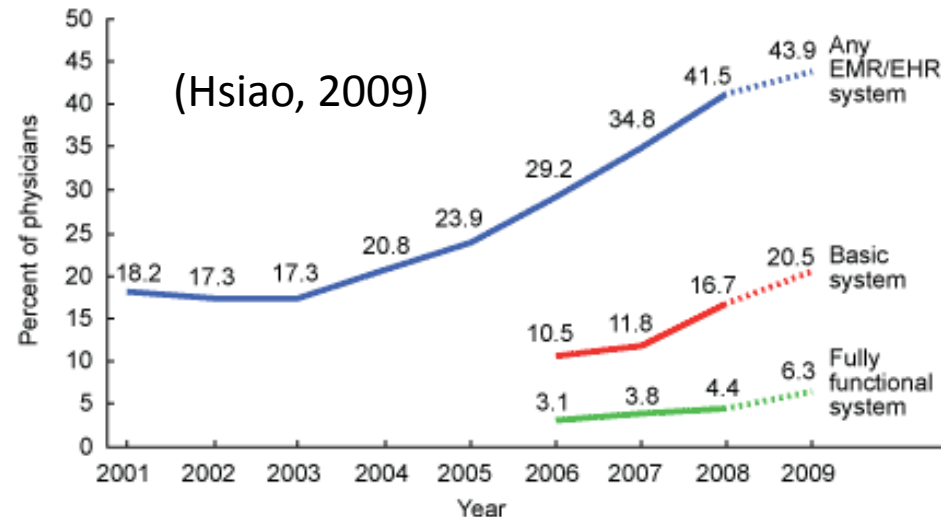
ment. The rest goes to those who typically do not pay for

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US has low rates of adoption in inpatient and outpatient settings

- Adoption in the US is low for both outpatient (Hsiao, 2009; Des Roches, 2008) and inpatient settings (Jha, 2009)
- By most measures, US is a laggard and could learn from other countries (Schoen, 2009)
- Most other developed countries undertaking ambitious efforts, e.g.,
 - England (Hayes, 2008)
 - Denmark (Protti, 2010)



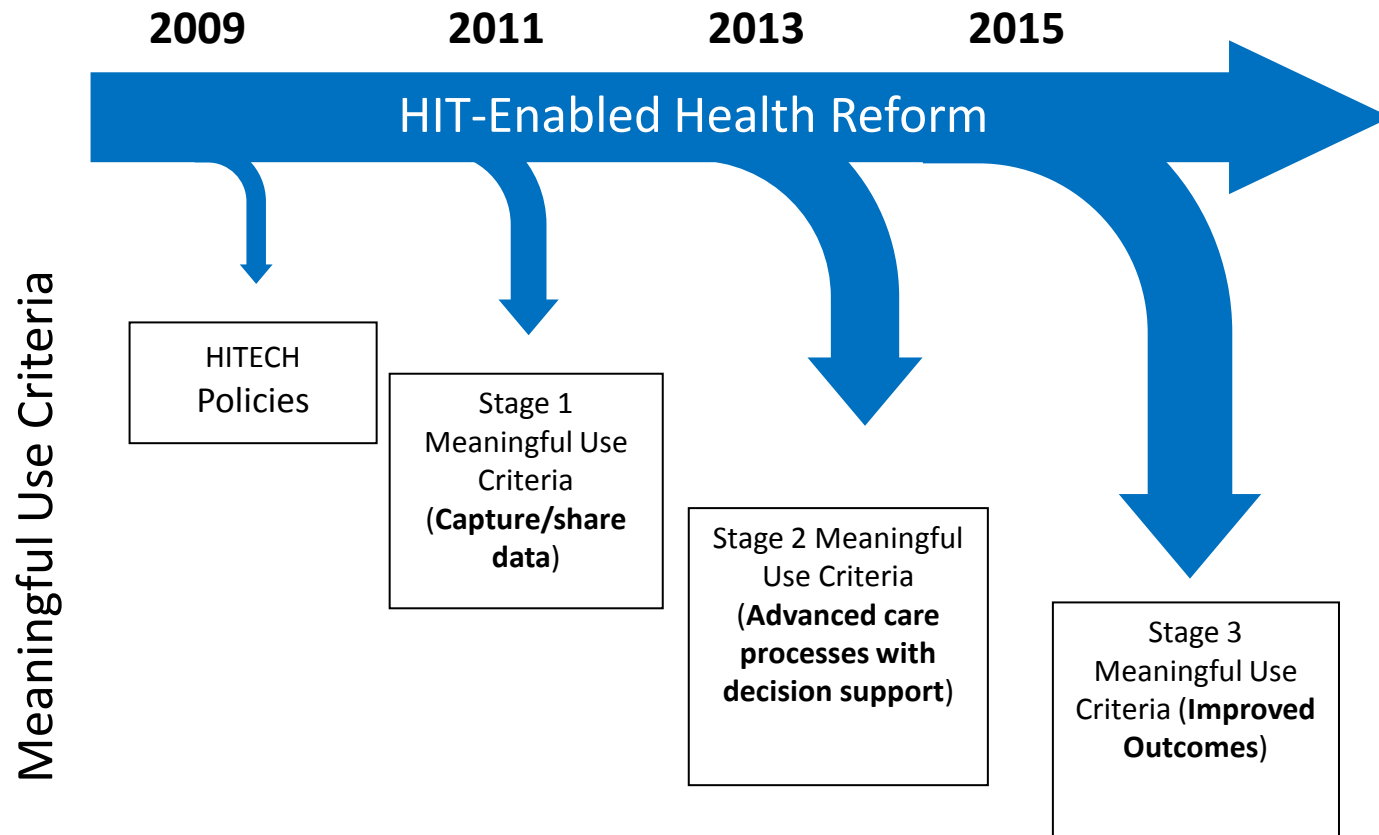
But now we are in a new “ARRA” of health information technology (HIT)

- HITECH provides financial incentives for “meaningful use” of HIT
 - Incentives for EHR adoption by physicians and hospitals (\$36-40B)
 - Direct grants administered by federal agencies (\$2B)
- All initiatives overseen by Office of the National Coordinator for Health IT (ONC, <http://healthit.hhs.gov/>)
 - Headed by Dr. David Blumenthal, who has expounded his views (NEJM, 2009; NEJM, 2010)

What is “meaningful use” of an EHR?

- Driven by five underlying goals for healthcare system
 - Improving quality, safety and efficiency
 - Engaging patients in their care
 - Increasing coordination of care
 - Improving the health status of the population
 - Ensuring privacy and security
- Consists of three requirements
 - Use of certified EHR technology in a meaningful manner
 - Utilize certified EHR technology connected for health information exchange (HIE)
 - Use of certified EHR technology to submit information on clinical quality measures

Meaningful use will be implemented in three stages



Implementation of meaningful use

- Implemented through Medicare or Medicaid reimbursement to
 - Eligible professionals (EPs) – up to \$44K
 - Eligible hospitals (EHs) – \$2-9M
- Differences in definitions of above as well as amounts for Medicare vs. Medicaid reimbursement
- Elaborated in CMS Notice of Proposed Rule-Making (2010) and ONC Interim Final Rule (2010)
 - Comment period closed; final rules expected in July

Phase 1 meaningful use criteria

- Variety of criteria in areas of
 - Data collection – e.g., problem list, demographics, etc.
 - Functions – e.g., five clinical decision support rules
 - Computerized provider order entry (CPOE) – 80% for EPs, 10% for EHs
 - Health information exchange and public health reporting – test of capability
 - Security – various encryption and network standards
 - Quality reporting – various measures for EPs based on specialty and for EHs

Other funding initiatives for the HIT infrastructure

- HIT Regional Extension Centers (RECs)
 - \$643 million to fund 60 RECs that will provide guidance, mainly to small primary care practices, in achieving meaningful use
- State-based health information exchange (HIE)
 - \$547 million in grants to states to develop HIE programs
- Beacon communities
 - \$220 million to fund 15 communities that provide exemplary demonstration of the meaningful use of EHRs
- Strategic health information advanced research projects (SHARP)
 - \$60 million for four collaborative research centers

Other funding for the infrastructure: HIT workforce

- A competent workforce is essential to achieve meaningful use of HIT
- ONC estimates 50,000 workers needed to implement federal HIT agenda (Monegain, 2009)
- ONC is funding \$118 million for short-term programs
 - Community college consortia (\$70M) – six-month, non-degree certificates
 - Curriculum development centers (\$10M) – developing curricula for community college consortia
 - Competency testing (\$6M)
 - University-based training grants (\$32M) – funding for certificate and master's programs, including (for some) focus in public health
 - Nine universities funded, including OHSU

ONC estimates 51,000 needed for the HITECH agenda in 12 job roles

- Mobile Adoption Support Roles
 - Implementation support specialist*
 - Practice workflow and information management redesign specialist*
 - Clinician consultant*
 - Implementation manager*
- Permanent Staff of Health Care Delivery and Public Health Sites
 - Technical/software support staff*
 - Trainer*
 - Clinician/public health leader†
 - Health information management and exchange specialist†
 - Health information privacy and security specialist†
- Health Care and Public Health Informaticians
 - Research and development scientist†
 - Programmers and software engineer†
 - Health IT sub-specialist†

(to be trained in *community colleges and † universities)

Opportunities for career development and study in BMHI

- Educational programs at growing number of institutions
 - <http://www.amia.org/informatics-academic-training-programs>
- OHSU is an example of a large and well-established program (Hersh, 2007)
 - Graduate-level programs at Certificate, Master's, and PhD levels
 - “Building block” approach allows courses to be carried forward to higher levels
 - New financial aid available through HITECH university-based training program
 - www.ohsuscholarships.info

Experience of the OHSU program (<http://www.ohsu.edu/dmice/>)

- 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>
 - Funding for program available for public health professionals through grant from CDC to AMIA

Overview of OHSU graduate programs

		<u>PhD</u> - Knowledge Base - Advanced Research Methods - Biostatistics - Cognate - Advanced Topics - Doctoral Symposium - Mentored Teaching - Dissertation
<u>Masters</u> - Tracks: - Clinical Informatics - Bioinformatics - Thesis or Capstone		
<u>Graduate Certificate</u> - Tracks: - Clinical Informatics - Health Information Management		
<u>10x10</u> - Or introductory course		

Conclusions

- Why does informatics now live in a HITECH world?
 - Touches not only on clinical informatics (e.g., EHRs), but also other areas (e.g., bioinformatics, public health informatics, imaging informatics, etc.)
- What if you want to pursue a career in the field?
 - Learn more – see next slide
 - Consult OHSU DMICE Web site for more information on programs and financial aid

For more information

- Bill Hersh
 - <http://www.billhersh.info>
- Informatics Professor blog
 - <http://informaticsprofessor.blogspot.com>
- OHSU Department of Medical Informatics & Clinical Epidemiology (DMICE)
 - <http://www.ohsu.edu/dmice>
 - <http://oninformatics.com>
- OHSU financial aid for informatics training
 - <http://www.ohsuscholarships.info>
- What is BMHI?
 - <http://www.billhersh.info/whatis>
- Office of the National Coordinator for Health IT (ONC)
 - <http://healthit.hhs.gov>
- American Medical Informatics Association (AMIA)
 - <http://www.amia.org>