• Information Retrieval (aka, Search)
  – Access to online information, from journals, Web sites, images, etc. to electronic health records (EHRs)
  – Major effort now focused on cohort discovery in EHR – opportunities for students and fellows
  – Published third edition of textbook in 2009
• Informatics Workforce and Education
  – How do we characterize workforce needed and its optimal education?
William Hersh, MD – Education

• Has led OHSU to national prominence in informatics education
  – Awarded many grants over the years for research and education
    • Research – NLM, AHRQ, Google
    • Training grants: NLM, Fogarty
• Still love to teach
  – BMI 510/610 and AMIA 10x10 (“ten by ten”) program
  – BMI 514/614
  – BMI 536
Melissa Haendel - Background

- PhD in Neuroscience, identified novel genes involved in mouse nervous system development
- Post-doc in Developmental Neuroscience, cellular development in zebrafish
- Post-doc in Developmental Toxicology, pesticide toxicity and carcinogenesis in zebrafish and trout
- Worked at the Zebrafish Information Network as an ontologist to link phenotypes across species
- Joint appointment with DMICE and the Library
- Mentored DMICE fellow, participate on committees
- Enjoy teaching and leading journal clubs, workshops, and other outreach events
Melissa Haendel - Research

- Ontology development
  - Design & implementation, integration
  - Anatomy and phenotype
  - Scientific method and workflow
  - OBO Foundry Coordinating committee

- Ontology applications
  - User interfaces
  - Genotype-phenotype correlation
  - Use of animal model data to link diseases
  - Biospecimen query
  - Researcher networking
Joan Ash, Ph.D., M.L.S., M.B.A.

• Teaching
  – Organizational Behavior in Informatics
  – Qualitative Methods in Informatics
• Research
  – Clinical systems implementation
    (order entry, unintended consequences, CDS, and HIT safety)
  – Qualitative methods
Michael F. Chiang, MD, MA

• Started as an electrical engineer
• Became a physician, then an ophthalmologist
• NLM Fellowship in biomedical informatics
• Worked at Columbia Univ. from 2001-2010: research, patient care, directed introductory informatics course & directed medical student education in ophthalmology
• Came to OHSU in 2010: research, teaching (BMI 548 Human-Computer Interaction), patient care
• Love teaching & collaborating with smart and motivated students on projects
Michael F. Chiang: Research

- **Telemedicine**
  - Design & implementation, evaluation, education

- **Biomedical imaging**
  - Diagnosis using computer-based image analysis
  - Novel screening algorithms

- **Clinical information systems**
  - Evaluation
  - Standards and terminologies
  - User interfaces and workflow
  - Genotype-phenotype correlation
Aaron M. Cohen

Research Interests

• Apply biomedical text processing to enhance the capabilities of biomedical researchers, curators, annotators, and systematic reviewers:
  – Meta-search engine for systematic reviewers
  – Confidence based retagging of publication evidence types

• Apply advanced analytics to improve healthcare resource management and process redesign:
  – Utilization and readmission risk modeling using a wide selection of coded and raw data types
  – Leading the analytics partnership effort with KCVI

• Design and adapt new approaches to solve computational challenges in biomedical research:
  – New computational algorithms to protein inference
  – Improved methods of collecting and reusing clinical data for research
Aaron M. Cohen

Teaching

• Software Engineering (BMI 546, Spring Term)
• Director of the Informatics Discovery Lab (IDL), industry partnership projects
• Projects for the Research In Bioinformatics course (BMI 652)
• Mentoring and advising Masters and PhD students interested in biomedical text processing and/or machine learning
• Mentoring student teaching for PhD candidates
David Dorr, MD, MS

- Teaching
  - Healthcare Quality
  - Student mentoring

The solid line represents the Kaplan-Meier curve for the Agency for Healthcare Research and Quality (AHRQ) guidelines.

Dashed lines represent the 95% confidence interval (JAMA. 2001;286:1461-1467)
David Dorr, MD MS

- Research
  - Care management and information systems caremanagementplus.org
    - Chronic illness care and needs of older adults
    - Collaboration / coordination of care
  - General quality and safety issues
  - Evaluation of informatics initiatives

Care management

- **Care manager**
  - Assess & plan
  - Catalyze
  - Enact

- **Technology**
  - Access
  - Best Practices
  - Communication

We love to work with students – Mondays at 0900 – come by!
Karen B. Eden, PhD
Associate Director of PhD and Postdoctoral Programs

RESEARCH INTERESTS
Evidence-based medicine
Decision-making,
Patient Decision Aids
Childbirth after Cesarean
Domestic violence
Mammography for women in their 40’s

edenk@ohsu.edu, 4-2456
Medical Decision Making, BMI 538/638, 3 credits
Online Course, W15

No Diagnostic Test

Diagnostic Test

- test

+ test

Disease

No Disease

Disease

No

No Disease

Disease

No

Disease

No

Eden, cont.
Justin Fletcher, PhD
Instruction

- BMI 517: Organizational Behavior
- BMI 540: Computer Science with Java Programming
- BMI 542: Computer Networks
- BMI 549: Health Information Privacy and Security
- BMI 590: Capstone/Internship
- Mentoring and advising certificate, masters and PhD students with an interest in technology or security and privacy
Justin Fletcher, PhD
Research

• Identify issues associated with policy definition and security implementation related to medical information from the executive perspective
Paul Gorman, MD
Education and Patient Care

- **Teaching Informatics**
  - BMI 530 Practice of Healthcare
  - Advising: thesis, capstone, PhD

- **Teaching Med Students**
  - New MD Curriculum
  - Integrated threads: informatics, epidemiology, safety
  - Med student ‘coach’

- **Teaching Medicine**
  - OHSU Hospital Rounds
  - join me sometime to observe
Collaborative Sociotechnical Research: Interdependence of Information, Systems, and People

Develop and evaluate systems
- RxSafe, SyncRx
- Health Coaching Platform

Understand workflow + HIT
- Solo rural MDs & EHR
- Small practice workflows

Community practice change
- Shared decision making
- Cancer screening

Evidence reports
- Consumer health IT
- Health information exchange
Judith R. Logan, MD, MS
Teaching

- **BMI 516: Standards and Interoperability in Healthcare** (Summer, hybrid)
  - with Harry Solomon, Interoperability Architect for GE Healthcare
  - messaging and vocabulary standards, including HL7 and SNOMED

- **Clinical Research Informatics (Fall 2014)**
  - with Rob Schuff, Director of Clinical Research Informatics for OCTRI
  - given in coordination with the Human Investigations Program
  - educating informaticians in the needs of clinical investigators
  - educating clinical investigators in informatics issues and tools to improve research
Judith R. Logan, MD, MS

Research

• Director of Development and Technology for the Clinical Outcomes Research Initiative (CORI)
  – A multi-site consortium of GI endoscopic practices
  – Data is collected on all endoscopic procedures for the National Endoscopic Database
  – Data is collected using the modular certified EHR, the CORI v4 Endoscopic Reporting Software
  – Interesting informatics topics include:
    – Data models and terminology development
    – Interoperability using C-CDA and FHIR
    – Use of images for quality improvement/image processing
    – Quality measures
Judith R. Logan, MD, MS

Service

• OHSU School of Medicine Admissions Committee member
• DMICE Professional Conduct Committee
Dr. Shannon McWeeney: Research Division Head, BCB

• Development and application of statistical and computational methodologies for functional genomics data such as gene expression, chIP-Chip and proteomics to allow interpretation of these data and to model the relationships of these systems.
  – Related to these analyses is a long standing interest in data cleaning and integration.

• Applications of this work have included such complex traits as diabetes, cancer and alcoholism, as well as infectious diseases
  – Integrated approaches to facilitate identification of drugs for individualized clinical trials (personal genomics)
  – Systems Biology approaches to identify therapeutic targets for infectious respiratory viruses
  – Structuring and integration of Electronic Health Records with genomics studies to improve patient care

Common theme is to facilitate the diagnosis, prevention, and treatment of human disease
Vishnu Mohan MD MBI

• Board certified in clinical informatics (first person to be certified in the US west coast!), internal medicine
• was Associate Program Director of an internal medicine training program before joining DMICE
• Medical school in India → residency + practice in Pittsburgh, PA → moved to Portland, OR for the rain + the beer
• DMICE alum – initially Certificate student, then signed up for the MBI
• **Teaching:**
  – BMI 512 (Clinical Information Systems), BMI 513 (EHR Lab course), BMI 560 (Design and Evaluation in Informatics)
  – Courses for OHSU-PSU Healthcare MBA program
  – Teach residents + medical students as IM faculty
• **Areas of interest:**
  – How clinicians make decisions, how technology influences their decision making
  – improving patient safety
  – EHR simulations
  – medical + informatics education and workforce development
Vishnu Mohan MD MBI

- **Recent areas of research:**
  - Using high-fidelity simulation to improve EHR safety
  - Developing tools and guides to improve EHR safety
  - Creating and providing clinical decision support tools and services, defining best practices of CDS deployment and knowledge management lifecycle.

- **Recently published papers you may find interesting (or not):**
Our Chair Dr Hersh often travels to far-away places and sends pictures from exotic lands...

I too would like to share a picture from my last trip to an exotic land:
hello new dmice students
Michael Mooney, PhD

• Instructor for BMI 565/665 – Bioinformatics Programming & Scripting

• The course teaches the fundamentals of Python programming and Unix scripting, with a focus on techniques and tools to help you process and analyze biological data.
Michael Mooney, PhD

My research is focused on developing statistical and computational techniques for identifying predictive signatures of disease susceptibility and outcome. I’m especially interested in exploring the combined effects of genomic (e.g. sequence variation) and environmental (e.g. exposures, life style) risk factors.

Network-based approaches, and machine learning methods, such as evolutionary algorithms, are a major focus of my work.
BMI 570/670

Scientific Writing and Communication

This course covers

- General principles of good writing
- Database searching/reference software
- Thesis and capstone proposals
- Writing journal articles and proposals
- Preparing presentations and posters

Kathryn Pyle, AMLS, MA
Medical Informatics & Clinical Epidemiology

Acknowledging the work of Michael Alley
College of Engineering
Penn State
Kemal Sonmez (BCB) Teaching

- Bioinformatics and Computational Biology I-II (with Shannon McWeeney)
  - Problem driven examination of quantitative issues in computational biology
  - Hands-on to allow integration and synthesis of concepts
- Systems Biology
  - Network motifs, regulation mechanisms, robustness and agility of cell response
  - Class projects on modeling and simulation of recently published data
- Computational Medicine
  - New course under development across divisions
  - Translational applications of comp bio, e.g. TCGA
Kemal Sonmez (BCB) Research

- **Systems Biology and Systems Medicine**
  - joint modeling of genomic, proteomic, metabolic data from humans and model animals for understanding disease and developing targeted therapeutics

- **Computational Peptidomics**
  - identify, characterize, and *design* novel peptides for medical applications and bionanotechnology

- **Genome-Wide Association Studies and New Generation Sequencing**
  - statistical inference for GWAS and NGS, systems biological and systems medicine implications of genomic variation to gene expression, molecular structure, pathway interactions

Focus: Translational research into systems medicine and personalized medicine
Joanne Valerius, PhD, MPH, RHIA
Assistant Professor

- Teaching
  - Director, Health Information Management track curriculum
  - Content delivered on Information Governance, Data Quality, Clinical Classification Systems, Electronic Health Records, Privacy, Ethics and Legal Aspects of Health Information, Human Resource Management
Joanne Valerius, ABD, MPH, RHIA
Assistant Professor

- Research Interests:
  - Centers on human resource development in health care settings.
  - Focus is on a holistic approach to the workplace and how diversity impacts the workplace.
  - Practitioner perspective on the changes in HIM over the past 20 years.
  - International HIM and electronic health records
Christina Zheng (BCB) Research

- **Functional Genomics**
  - understanding gene regulatory models in relation to disease progression (i.e., cancer) through the use of computational methods
  - identification of disease specific biomarkers

- **Genome annotation and evolution**
  - understanding the role of the genome in human evolution and disease

- **Analysis of Next Generation Sequencing Data**
  - DNA-seq and RNA-seq
  - mutational studies, transcriptomics, alternative splicing
  - reproducibility of clinical sequencing