

BIOMEDICAL AND HEALTH INFORMATICS

From Foundations to Applications to Policy

November 8-12, 2008

Hilton Washington and Towers
Washington, DC

AMIA



2008

On-site Program

27.75 CATEGORY 1 CME CREDITS AVAILABLE

American Medical Informatics Association



A Welcome Message from the Scientific Program Committee Chair

Jaap Suermondt, PhD

Chair, AMIA 2008 Scientific Program Committee
HP Laboratories, Hewlett-Packard Company

I am proud to present an outstanding scientific program, with a keynote presentation by Dr. David Eddy. The Scientific Program Committee (SPC) and the many expert peer reviewers selected 180 papers for presentation, from a total of 415 strong paper submissions, as well as 340 posters and 30 expert panels in a very difficult and selective process. We were pleased to see that the number of submissions of state-of-the-art scientific and technical work continues to rise rapidly, reflecting the continuing investment and growing interest in our field.

I am very excited to offer a new pathway to publication in the Journal of the American Medical Informatics Association (JAMIA) to authors of 9 papers as a way of encouraging individuals to submit promising work to the symposium. The program also features special invited sessions by leading authorities in the field, several "late-breaking" sessions showcasing new issues and advances, as well as ACMI senior member presentations, tutorials, and workshops that bring together thought leaders for in-depth and active audience exchange about critical issues of the day. Demonstrations and Partnerships in Innovation allow for comprehensive presentation of advanced systems, including new developments and innovative uses of commercial systems. The program content has been assigned to one of twelve different themes identified in the program chronology.

A new type of session was introduced this year: Birds of a Feather (BoF) sessions. These sessions are informal sessions where people with common interests can discuss specific topics recommended by prospective conference attendees. There are nine dedicated BoF sessions.

I am excited about the active role played in the composition of our program by the members and leaders of AMIA's 20 Working Groups. They authored papers and posters, proposed many workshops, panels, and tutorials, participated as members of the SPC and as expert reviewers, and helped us with launching the BoF program.

This excellent program would not have been possible without the hard work by the members of the SPC. They spent countless hours managing the review process for the hundreds of papers, posters, workshops, and panels. In addition, they recommended featured sessions and speakers, suggested innovations, and helped make the program come together. I would especially like to thank my vice chairs, Lucila Ohno-Machado and R. Scott Evans and poster sub-committee chair, Patricia Abbott.

I would also like to thank the AMIA staff for their role in organizing and supporting the meeting in countless ways. In addition, we want to call out special thanks to Don E. Detmer, AMIA President and CEO, and David W. Bates, AMIA Board Chairman, who were closely involved in many aspects of the program.

Finally, I want to thank the members of AMIA, the attendees at the meeting, and the many researchers, practitioners, and leaders in the field who make this meeting what it is. You have provided us with a program full of amazing contributions. We are excited about seeing how your work will transform and shape health and the life sciences in the years to come.

TABLE OF CONTENTS

Invitation from the Scientific Program Committee Chair	1
Schedule-At-A-Glance.....	2
Keynote Presentation, SPC.....	3
Tutorial Overview, Themes	4
Continuing Education, Learning Objectives	5
State of the Association Meeting, Membership Information	7
Awards Program Overview	8
General Symposium Information	12
Committee Meetings.....	13
10x10 Program Information	14

Chronology for AMIA 2008 Annual Symposium

Friday, November 7	15
Saturday, November 8.....	15
Sunday, November 9	30
Monday, November 10.....	39
Tuesday, November 11.....	52
Wednesday, November 12.....	64

SCHEDULE-AT-A-GLANCE

Friday, November 7

8:00 am – 5:00 pm	IDAMAP Workshop
8:00 am – 5:00 pm	i2b2 Second Shared Task for Challenges in NLP for Clinical Data
6:30 pm – 9:30 pm	ANI Governing Directors Dinner **

Saturday, November 8

8:00 am – 12:00 pm	UIC 10x10 Session (10x10 students only)
8:00 am – 4:30 pm	Board of Directors Meeting + Tutorials*
8:30 am – 4:30 pm	People & Organizational Issues WG Doctoral Consortium**
5:00 pm – 6:30 pm	WG Business Meetings
7:00 pm – 9:30 pm	Workshops
7:00 pm – 10:00 pm	Leadership Dinner **

Sunday, November 9

7:00 am – 12:00 pm	OHSU 10x10 Session (10x10 students only)
8:00 am – 12:00 pm	Student Paper Competition
8:00 am – 12:00 pm	UAB 10x10 Session (10x10 students only)
8:00 am – 12:00 pm	Nursing Informatics WG Special Event
8:30 am – 12:00 pm	Tutorials*
1:00 pm – 3:00 pm	Opening Session and Keynote Presentation
3:30 pm – 5:00 pm	Scientific Sessions
5:00 pm – 7:00 pm	Innovation and Information Center Open
5:00 pm – 7:00 pm	Welcome Reception in the Innovation and Information Center
6:30 pm – 10:00 pm	ACMI Dinner and Induction of New Fellows **

Monday, November 10

7:00 am – 8:15 am	Committee Meetings
7:30 am – 8:30 am	WG Business Meetings
8:30 am – 10:00 am	Semi-plenary Sessions
10:00 am – 2:00 pm	Innovation and Information Center Open
10:30 am – 12:00 pm	Scientific Sessions
10:30 am – 2:00 pm	Poster Preview for Session I
12:00 pm – 1:30 pm	Committee Meetings
12:00 pm – 1:30 pm	CARING Luncheon*
12:30 pm – 1:30 pm	Birds of a Feather Sessions
1:45 pm – 3:15 pm	Scientific Sessions

3:30 pm – 5:00 pm
4:00 pm – 7:00 pm

5:00 pm – 6:30 pm
5:00 pm – 7:00 pm

5:15 pm – 7:00 pm
5:15 pm – 7:00 pm

5:15 pm – 7:00 pm

5:30 pm – 10:00 pm

6:30 pm – 7:30 pm
6:30 pm – 10:00 pm

Scientific Sessions
Innovation and Information Center Open
Committee Meetings
Townhall Meeting on Clinical Decision Support
Poster Session I (authors present)
Clinical Research Informatics WG Expo
Medical Imaging Systems WG Expo 1
WG Business Meetings and Receptions
International Reception **
JAMIA Editorial Board Dinner +

Tuesday, November 11

7:00 am – 8:15 am
8:30 am – 10:00 am
10:00 am – 2:00 pm

10:30 am – 12:00 pm
10:30 am – 2:00 pm
12:15 pm – 1:30 pm
1:45 pm – 3:15 pm
3:30 pm – 5:00 pm
4:00 pm – 7:00 pm

5:00 pm – 6:30 pm
5:15 pm – 7:00 pm
5:15 pm – 7:00 pm

5:30 pm – 7:00 pm
6:30 pm – 7:30 pm
7:30 pm – 9:00 pm
9:00 pm – 12:00 am

Committee Meetings
Scientific Sessions
Innovation and Information Center Open
Scientific Sessions
Poster Preview for Session II
State of the Association Meeting
Scientific Sessions
Scientific Sessions
Innovation and Information Center Open
Committee Meetings
Poster Session II (authors present)
Medical Imaging Systems WG Expo 2
WG Business Meetings
Corporate Reception **
Chairman's Club Reception **
Dance Party

Wednesday, November 12

8:30 am – 10:00 am
10:30 am – 12:00 pm
12:15 pm – 1:00 pm

Semi-plenary Sessions
Scientific Sessions
Closing Session

SCHEDULE LEGEND

* Additional fee required
** By Invitation only
+ Board members only
WG = Working Group

KEYNOTE PRESENTATION

Sunday, November 9, 2008

1:00 pm – 3:00 pm



David M. Eddy, MD, PhD

Senior Advisor for Health Policy and Management
Kaiser Permanente
Founder of Archimedes

David Eddy is Medical Director and Founder of Archimedes, responsible for the medical development of the model. He started his career as a Professor of Engineering and Medicine at Stanford, and the J. Alexander McMahon Professor of Health Policy and Management at Duke University. David received his MD

from the University of Virginia and his PhD in Engineering-Economic Systems (Applied Mathematics) from Stanford. More than 25 years ago David wrote the seminal paper on the role of guidelines in medical decision making, the first Markov model applied to clinical problems, the original criteria for coverage decisions, and was the first to use and publish the term evidence-based. David is the author of five books, more than 100 first-authored articles, and a series of essays for the *Journal of the American Medical Association*. His writings span from technical mathematical theories to broad health policy topics. David has received top national and international awards in fields including applied mathematics, health technology assessment, health care quality, and outcomes research.

FOUNDATIONS OF INFORMATICS

This track emphasizes conceptual advances relating to the structure, processing, management, and use of biomedical information. This track presents the results of innovative research on the scientific underpinnings of biomedical and health informatics - highlighting the fundamental advances that lead to new methods and, ultimately, to new applications in support of health care, biological research, and education.

Vice Chair: Lucila Ohno-Machado, Brigham and Women's Hospital

APPLICATIONS OF INFORMATICS

This track emphasizes innovations in the design, technology, implementation, use and evaluation of information systems and knowledge resources across the full spectrum of health care - in acute, ambulatory, and chronic care settings, public health departments, libraries, educational centers, and homes. Contributions to this track emphasize applications that work in the real world to solve important problems.

Vice Chair: R. Scott Evans, LDS Hospital, Intermountain Health Care

AMIA 2008 SCIENTIFIC PROGRAM COMMITTEE

Patti Abbott

Johns Hopkins University

James G. Anderson

Purdue University

Dominik Aronsky

Vanderbilt University

Joan Ash

Oregon Health & Science University

Riccardo Bellazzi

Universita di Pavia

Wendy W. Chapman

University of Pittsburgh

Christopher G. Chute

Mayo Clinic College of Medicine

Lewis Frey

University of Utah

Douglas B. Fridsma

University of Pittsburgh

Cynthia S. Gadd

Vanderbilt University

Betsy L. Humphreys

National Library of Medicine

Robert A. Jenders

UCLA School of Medicine

Stanley E. Kaufman

The Epimetrix Group

Johan E. Lundin

University of Helsinki

Heimar F. Marin

Federal University of Sao Paulo

Fernando J. Martin-Sanchez

National Institute of Health Carlos III

Julie J. McGowan

Indiana University School of Medicine

Eric G. Poon

Brigham and Women's Hospital/Partners

Wanda M. Pratt

University of Washington

Roberto A. Rocha

University of Utah

Jeffrey M. Rothschild

Brigham and Women's Hospital/Partners

Cornelia Ruland

Rikshospitalet University Hospital

Yuval Shahar

Ben Gurion University of the Negev

Ida Sim

University of California San Francisco

Catherine J. Staes

University of Utah

Adam B. Wilcox

Columbia University

Qing Zeng-Treitler

Harvard/Brigham and Womens Hospital

Nurse Planner

Judy G. Ozbolt

University of Maryland School of Nursing

Ex-officio members to the Scientific Program Committee include one liaison each to the AMIA Working Groups, Awards Committee, and Primary Care Informatics Working Group.

TUTORIAL OVERVIEW

More detailed descriptions can be found at www.amia.org

Methods Series

Designed for individuals looking for advanced instruction from leading experts on procedures and techniques characteristic of the field of biomedical informatics.

T01 – Introduction to HL7 Clinical Document Architecture and Continuity of Care Document Standards

T02 – Knowledge-Based Decision-Support Systems for Implementing Clinical Practice Guidelines

T16 – Support Vector Machines without Tears

T24 – Building Bayesian Decision Support Systems

T27 – Design & Conduct of Evaluation Studies in Biomedical Informatics

EHR Series

Focuses on the key expertise required for individuals responsible for EHR selection, implementation, deployment, and evaluation.

T04 – Practical Modeling Issues Representing Coded and Structured Patient Data in EHR Systems

T05 – Evaluating Health IT Projects: A Practical Approach

T06 – Human-Centered Design and Evaluation of Health Information Systems

T11 – Clinical Decision Support: A Practical Guide to Developing Your Program to Improve Outcomes

T15 – Standards for Storing and Exchanging Clinical Data in Electronic Health Record Systems

T18 – Electronic Health Records: How Might We Deliver the Benefits Rapidly and Inexpensively?

T22 – Practical Guide to Clinical Computing Systems: Design, Operations, and Infrastructure

T23 – Approaches to Clinical Computer-based Documentation

Primer Series

Designed to provide an introduction to key current and emerging areas in informatics considered essential to the core foundation of informatics theory, application, and practice.

T08 – Introduction to Biomedical and Health Informatics

T12 – Peering through the Looking Glass: An Examination of Public Health for Informaticians

T13 – The eXtensible Markup Language (XML)

T17 – A Primer on Quality Measurement and the Electronic Medical Record Environment

T19 – Discovering Knowledge: An Introduction to Data Mining Principles and Practice

T20 – Introduction to Translational Bioinformatics

T25 – Unified Medical Language System - UMLS[®] Overview

T26 – Ontologies in Biomedicine

Selected Topics Series

Provides in-depth treatment of special topics in biomedical and health informatics, bioinformatics, and public health informatics.

T03 – Transforming & Visualizing Clinical Data for Research

T07 – Healthcare Networks: Wireless Communication, Mobile Computing, and Clinical Video-conferencing

T09 – Clinical Classifications and Biomedical Ontologies: Terminology Evolution, Principles, and Practicalities

T10 – Optimizing Nursing Documentation: Current Research and Practice

T14 – Personal Health Records and E-health Portals

T21 – From “Aha!” to Profitability: Building a Business Around the Big Idea

THEMES

AMIA 2008 submissions are categorized as either foundational contributions of novel informatics methods, or as more practical reports of the application of informatics in the biomedical sciences or the day-to-day practice of health care. To help attendees identify sessions in which they are most interested, we have organized them into the following themes:

- Clinical Decision Support, Outcomes, and Patient Safety
- Clinical Research Informatics
- Clinical Workflow and Human Factors
- Consumer Informatics and PHRs
- Data Integration and Exchange
- Data Mining, NLP, Information Extraction
- Education
- Policy and Ethical Issues
- Public Health Informatics and Biosurveillance
- Terminology and Standards
- Translational Bioinformatics

AMIA 2008 themes appear in the program chronology beginning on page 15.

CONTINUING EDUCATION

Attendees of the AMIA 2008 Annual Symposium may earn valuable continuing education credits by participating in scientific sessions, tutorials, and workshops.

Physician Continuing Education

AMIA is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to sponsor continuing medical education for physicians. AMIA designates this continuing medical education for up to 27.75 hours of Category 1 credit toward the American Medical Association (AMA) Physician's Recognition Award. Each physician should claim only those hours of credit that he or she actually spends in the educational activity.



UNIVERSITY OF MARYLAND
SCHOOL OF NURSING

Nursing Contact Hours

Nursing contact hours will be provided by the University of Maryland School of Nursing's Office of Professional Development. In order to earn contact hours, please sign in at the registration desk each day to receive contact hours for this

conference. Please complete the evaluation provided after you attend each session. Before you leave the conference, drop the evaluation form off at the registration desk. The total number of hours for tutorials, workshops and the symposium is 27.75.

The University of Maryland School of Nursing's Office of Professional Development and Continuing Education is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's (ANCC) Commission on Accreditation.

Continuing Education Accreditation for Pharmacists



The American Society of Health-System Pharmacists (ASHP) is accredited by the Accreditation Council for Pharmacy Education (ACPE) as a provider of continuing pharmacy education. The programs identified with an

ACPE Program Number are cosponsored by ASHP and will provide continuing pharmacy education credit for the number of hours indicated. Pharmacists may earn up to 16.5 contact hours (1.65 CEUs) at the AMIA 2008 Annual Symposium and should request CE only for the sessions they attended. To receive continuing pharmacy education credit, please identify the sessions that you plan to attend. You will be asked to record the hours and return the completed form to the staff monitor at the AMIA Registration Desk. An official ASHP Statement of Continuing Pharmacy Education will be mailed to you within six to eight weeks after the Symposium.

Sunday, November 9, 2008

S02 - Broad-based Initiatives for Clinical Decision Support 204-999-08-886-L04-P - 1.5 hours

Learning Objectives: Identify the barriers and gaps to dissemination and adoption of CDS; Describe federal initiatives and plans to support CDS; Explain AHIC's recommendations for promoting CDS; Summarize three broad-based projects aimed at wider adoption and use of CDS

Monday, November 10, 2008

S11 - National Health IT Agenda: The Next Generation 204-999-08-887-L04-P - 1.5 hours

Learning Objectives: Describe the future of the national initiative to deploy an interoperable health information technology infrastructure to improve the quality and efficiency of health care; Outline and review the Health IT Strategic Plan and the steps taken to implement it since the Plan's release in June 2008; Explain the status of the AHIC Successor, legislation related to Health IT, the Nationwide Health Information Network, and other initiatives of current interest.

S19 - Adverse Drug Events 204-999-08-888-L04-P - 1.5 hours

Learning Objectives: Describe an adverse drug event and medication error reporting system for Ambulatory Care; Explain semantic categories and relations for modelling adverse drug reactions towards a categorial structure for pharmacovigilance; Describe how to assess the performance characteristics of signals used by a clinical event monitor to detect adverse drug reactions in the nursing home; Explain an informatics tool used for the development of adverse drug event triggers.

S25 - Informatics as a Health Profession and AMIA as Its Home 204-999-08-889-L04-P - 1.5 hours

Learning Objectives: Explain AMIA's efforts to enable biomedical and health informatics to become fully recognized as a profession; Outline AMIA's discussions leading to its decision to create interdisciplinary applied clinical informatics tracks to formal training and certification for clinicians and others seeking or already having doctoral level training, e.g., physicians, nurses, dentists, pharmacists, doctorate in informatics, and other health professionals; Describe the initiative to create a public health informatics track for formal training and certification at the Master's level for practicing state and territorial public health informaticians.

S37 - Web 2.0 and Clinical Decision Support 204-999-08-890-L04-P - 1.5 hours

Learning Objectives: Define Web 2.0; Describe common Web 2.0 technologies; Explain how Web 2.0 has been applied to clinical decision support.

Tuesday, November 11, 2008

S48 - Designing Technology for Safer Patient Care 204-999-08-891-L04-P - 1.5 hours

Learning Objectives: Describe how to hard-wire patient safety defenses is to use technologies that maximize the capability of the workforce, and improve workflow to reduce waste and errors; Explain how the rapid access to information at the point of care, to smart devices that ease the burden of work of health care providers, allowing more time for essential care and interaction with patients, families, and team members; Summarize how greater collaboration between developers of technology, purchasers, and end users, is important for more rapid deployment of useful devices and systems that will improve quality, safety, and efficiency of care.

S52 - New Perspectives from the Health Information Community
204-999-08-892-L04-P - 1.5 hours

Learning Objectives: Describe the mechanisms and methods by which AHIC workgroups affect the national HIT environment; Identify the recent work to make quality measurement, CDS, and personalized health IT widely effective; Explain how the new AHIC structure will impact progress toward these goals; Describe how informatics professionals are affected by, and can affect, AHIC initiatives.

S71 - Shared Resources
204-999-08-893-L04-P - 1.5 hours

Learning Objectives: Demonstrate the public availability of the resources of the National Resource Center; Demonstrate the ease of use of a tool to support evaluation of health IT; Demonstrate the ease of use of a tool to support content development of CDSS; Demonstrate use of the BioPortal system; Demonstrate how to access ontologies online; Demonstrate how to map ontologies to one another; Demonstrate how to use ontologies to search for biomedical data.

S76 - The Digital Patient Record Certification
204-999-08-894-L04-P - 1.5 hours

Learning Objectives: Identify intended candidates for the digital patient record exam; State two of the four ICDL-Health syllabus content categories; Describe aspects of the digital patient record exam validation process.

Wednesday, November 12, 2008

S85 - Towards a Rigorous Evidence Base for Health Informatics
204-999-08-895-L04-P - 1.5 hours

Learning Objectives: Describe the STARE-HI principals for publications; Demonstrate how to analyze publications to determine which STARE-HI principals are present in a given publication; Demonstrate the development of publications using STARE-HI.

S100 - Tools and Systems for Infection Control
204-999-08-896-L04-P - 1.5 hours

Learning Objectives: Explain the regional nature of MRSA infections; Demonstrate the role of informatics tools to coordinate regional infection control efforts; Demonstrate the requirements for implementation at other sites; Demonstrate processes needed to perform workflow analysis, standardization and change facilitation; Demonstrate the architecture and functionalities required for development of a surveillance system; Demonstrate methods to utilize, display and share data available from a surveillance system.

Learning Objectives

The objectives of the AMIA 2008 Annual Symposium are:

- To demonstrate and discuss issues related to the development, application, and evaluation of information technologies in medicine and health care.
- To provide a comprehensive portfolio of presentations that detail work, progress, and challenges in theoretical and applied information systems development.
- To improve the knowledge and skill of attendees with respect to using, developing, and managing information technologies as they relate to medicine and health care.
- To present research and applied methodologies and results in the broad field of medical informatics.
- To promote information exchange among attendees.

Disclosure

Before the program, all faculty disclose the existence of any financial interest and/or other relationships they may have with the manufacturer or manufacturers of any commercial product or products to be discussed during their presentation. This includes any honoraria/expenses, grants, consultant role, speaker's bureau membership, stock ownership, or any other special relationship. AMIA includes a disclosure list with the on-site registration materials.

CME/CE Credit and AMIA 2008 Evaluation

CME credit, continuing education credit for nurses, and all AMIA 2008 evaluation collection will be conducted on-line. Attendees should visit <http://amia2008.cme360.net> to claim credit, submit their AMIA 2008 evaluation, and print out certificates of attendance. Attendees claiming pharmacy credits should complete the paper form included in the registration materials and drop off completed forms at the registration desk.



STATE OF THE ASSOCIATION MEETING AND MEMBERSHIP INFORMATION

State of the Association

It has been an exciting year for AMIA and informatics. Please join us for the State of the Association Meeting on Tuesday, November 11, from 12:15 pm to 1:30 pm.

David Bates, AMIA Chairman, and Don E. Detmer, AMIA President and CEO will co-chair this session which is designed to provide AMIA members and attendees with a state of the association address. Topics will include work of the Board of Directors and task forces, new and continuing initiatives of AMIA, and a general update of AMIA's strategic directions in clinical informatics, clinical research informatics, public health/population informatics, and translational bioinformatics.

Drs. Bates and Detmer will also review AMIA's work in the policy arena including initiatives around clinical decision support, policy papers, and general advocacy efforts.

A light lunch will be served.

About AMIA and Membership

AMIA is the professional home for biomedical and health informaticians. AMIA is dedicated to the development and application of informatics in support of patient care, public health, teaching, research, administration, and related policy. AMIA's 4,000 members advance the use of health information and communications technology in clinical care and clinical research, personal health management, public health/population, and translational science with the ultimate objective of improving health. Since its inception in 1990, AMIA has grown to encompass an interdisciplinary and diverse group of members representing over 55 countries. Members include:

- Physicians, nurses, dentists, pharmacists, and other clinicians
- Researchers and educators
- Advanced students pursuing a career in informatics
- Scientists and developers
- Government officials and policy makers
- Consultants and industry representatives
- Standards developers

The demand for workers who understand health care, information systems, and technology is growing rapidly. The US Department of Labor estimates a 49% growth in the demand for trained individuals prepared to be administrators, specialists, consultants, educators, and researchers at organizations that include:

- Academic institutions
- Community-based organizations
- Government agencies and the military
- Health care facilities
- Industry
- International health
- Private practice
- Research facilities

Informatics is fundamental to the future of health care, biomedical research, and public health.

Informatics puts you in a position to make a difference and joining AMIA assures that you will succeed!

AMIA plays a pivotal role in the transformation of the US health system and makes measurable contributions to the improvement of health of the nation through continued development and implementation of informatics. AMIA is an integrating force that strengthens the nation's ability to create and manage the science and knowledge base of health care. AMIA is an active participant in the development of global health information policy and technology with particular emphasis on using health information technology to meet the health needs of underserved populations around the world.

AMIA's programs and initiatives support the major domains of informatics which include clinical informatics, clinical research informatics, public health informatics, and translational bioinformatics.

Be part of the professional home for biomedical and health informatics, join AMIA today! Membership is open to individuals and organizations. Visit www.amia.org for more detailed information.

**BE PART OF THE PROFESSIONAL HOME FOR
BIOMEDICAL AND HEALTH INFORMATICS – JOIN TODAY!**

AWARDS PROGRAM OVERVIEW

AMIA Signature Awards

The Signature Awards program provides an opportunity for AMIA members to be recognized for significant contributions to the field at different stages of their career.

AMIA New Investigator Award

This award recognizes an individual for early informatics contributions and significant scholarly contributions on the basis of scientific merit and research excellence. The criteria for nomination include significant scientific productivity in informatics prior to reaching eligibility for fellowship in the College of Informatics, multiple significant scientific publications, and demonstrated commitment to AMIA.

Atul J. Butte

2008 AMIA New Investigator Award Recipient

Atul Butte, is an Assistant Professor in Medicine (Medical Informatics) and Pediatrics, and by courtesy, Computer Science, at Stanford University and the Lucile Packard Children's Hospital, and is a board-certified pediatric endocrinologist. Dr. Butte received his undergraduate degree in Computer Science from Brown University in 1991, and worked in several stints as a software engineer at Apple Computer (on the System 7 team) and Microsoft Corporation (on the Excel team). He graduated from the Brown University School of Medicine in 1995, during which he worked as a research fellow at NIDDK through the Howard Hughes/NIH Research Scholars Program. He completed his residency in Pediatrics and Fellowship in Pediatric Endocrinology in 2001, both at Children's Hospital, Boston.

Dr. Butte received a Ph.D. in Health Sciences and Technology from the Medical Engineering / Medical Physics Program in the Division of Health Sciences and Technology, at Harvard Medical School and Massachusetts Institute of Technology. Dr. Butte's laboratory focuses on solving problems relevant to genomic medicine by developing new methodologies in translational bioinformatics.

Dr. Butte has authored more than 30 publications in bioinformatics, medical informatics, and molecular diabetes, and has delivered more than 70 presentations world-wide on bioinformatics, including 13 at the National Institutes of Health or NIH-sponsored meetings. Dr. Butte is on the Board of Directors of the American Medical Informatics Association.

Dr. Butte's recent awards include the 2007 Genome Technology "Tomorrow's Principal Investigator" Award, the 2006 Howard Hughes Medical Institute Early Career Award, the 2006 PhRMA Foundation Research Starter Grant in Informatics, the 2002 and 2003 American Association for Clinical Chemistry Outstanding Speaker Award, and the 2001 Lawson Wilkins Pediatric Endocrine Society Clinical Scholar Award.

Virginia K. Saba Informatics Award

This award recognizes a distinguished career with significant impact permeating the care of patients and the discipline of nursing. The Virginia K. Saba Informatics Award recipient will demonstrate the use of informatics to transform patient care; visionary leadership; goal impact; enduring contribution to professional practice, education, administration, research, and/or health policy; and a commitment to AMIA demonstrated through membership.

Elizabeth Weiner

2008 Virginia K. Saba Informatics Award Recipient

Betsy Weiner is the Senior Associate Dean for Informatics at the Vanderbilt School of Nursing. She is also a Professor in Nursing and Biomedical Informatics, a joint appointment between nursing and medicine. Prior to joining Vanderbilt in 2000, she served 21 years at the University of Cincinnati, 10 as director for a university wide faculty technology center, and four years as director of university academic computing.

Considered a pioneer in multimedia development (with over 30 years of experience in the health sciences), she is responsible for the distance learning programs in nursing, and the informatics tools that help to tie together the research, practice, and academic arenas. She also serves as Associate Director for the Nursing Emergency Preparedness Education Coalition (NEPEC). Dr. Weiner publishes and speaks nationally and internationally on both informatics and emergency planning and response, and has served as an international consultant for the World Health Organization.

Donald A.B. Lindberg Award for Innovation in Informatics

This award recognizes an individual at any stage of a career for a specific technological, research, or educational contribution that advances biomedical informatics. Dr. Lindberg's continuous commitment to the field has dramatically altered the scope and extent of informatics' practice and research. The work leading to a winner of this award will have been conducted in a not-for-profit setting, and the adoption of the particular advance by the informatics community will be on a national or international level.

William Hersh

2008 Donald A.B. Lindberg Award for Innovation in Informatics Recipient

William Hersh, is Professor and Chair of the Department of Medical Informatics & Clinical Epidemiology in the School of Medicine at Oregon Health & Science University (OHSU) in Portland, Oregon, USA. Dr. Hersh is a leader and innovator in biomedical informatics both in education and research.

Dr. Hersh is an international leader in biomedical informatics education. He developed and serves as Director of all of OHSU's graduate biomedical informatics education

programs: the Master of Science, the Master of Biomedical Informatics, the Graduate Certificate, and the Doctor of Philosophy. Dr. Hersh also serves as Director of the OHSU NLM-funded Fellowship Training Grant. He also led the development of OHSU's distance learning programs, which led to the Graduate Certificate and the Master of Biomedical Informatics programs. Dr. Hersh also conceptualized and implemented the first offering of the AMIA 10x10 program, which aims to educate 10,000 health care professionals and others in medical informatics by the year 2010.

Dr. Hersh has won numerous awards for his educational innovations. These include the OHSU Faculty Senate Distinguished Faculty Award for outstanding teaching and was the 2008 AMIA Donald A.B. Lindberg Award for Innovation in Informatics.

In research, Dr. Hersh's main focus has been in the area of information retrieval, where he has authored over 100 scientific papers as well as the book, *Information Retrieval: A Health & Biomedical Perspective*, just released in its third edition. Dr. Hersh is also active in clinical and translational research informatics. He serves as Director of the Biomedical Informatics Program of the Oregon Clinical & Translational Research Institute (OCTRI, www.octri.org) and was Chair of the National Informatics Steering Committee of the Clinical & Translational Science Award (CTSA) program of the National Institutes of Health from 2006-2008.

Morris F. Collen Award of Excellence

In honor of Morris F. Collen, a pioneer in the field of medical informatics, this prestigious award is presented by the American College of Medical Informatics (ACMI) to an individual whose personal commitment and dedication to medical informatics has made a lasting impression on the field. The award is determined by ACMI's Awards Committee.

Robert Greenes

2008 Morris F. Collen Award of Excellence Award Recipient

In the early 1960s Bob incorporated an interest in computing into his studies leading to an MD (at Harvard), and then became possibly the first MD to then get a PhD in computer science (also at Harvard). During his time as a student, working at Massachusetts General Hospital, he and collaborators developed one of the first uses of computer mapping for health services research (1964), the MUMPS language (1968) as a basis for the MGH-based Hospital Computer Project, and a system for physician entry of structured progress notes using a novel touchscreen interface (1970). After a short time in the commercial world and a year at Stanford, Bob did a radiology residency at MGH and joined the Peter Bent Brigham Hospital (future Brigham and Women's Hospital) as a radiologist. Obtaining a program project grant from NLM in 1980 he established the Decision Systems Group at the Brigham, which he then directed for 27 years, and which is widely recognized for its work in data

mining and knowledge discovery, knowledge management, decision support, natural language processing, and education. For over 20 years, Dr. Greenes was Program Director of the NLM-supported Boston Biomedical Informatics Research Training Program. He held the positions of Distinguished Chair in Biomedical Informatics at the Brigham, and Professor of Radiology, Health Sciences and Technology, and Health Policy and Management at Harvard.

Bob and his many collaborators have had a track record of innovation, including one of the first clinical ultrasound measurement and reporting systems (1980), a correction method for selection bias in diagnostic testing (1983), an early hypermedia system for decision support (1989), a distributed systems approach to clinical information systems (1990), one of the first database-driven patient/consumer/provider portals (1997), the initiation of the Integrating the Healthcare Enterprise (IHE) initiative of the RSNA and HIMSS (1998), development and standardization of GELLO as a language for clinical decision support (2003), and launching of the Morningside Initiative, to develop a means of sharing and content libraries of executable knowledge for clinical decision support (2007).

Bob is author/editor of "Clinical Decision Support: the Road Ahead", Elsevier (2007). He is a member of the Institute of Medicine and a Fellow of the American College of Medical Informatics (also its past President), the American College of Radiology, and the Society of Imaging Informatics in Medicine.

Bob was attracted to new opportunities in 2007 with the opening of a new medical school in downtown Phoenix, run by the University of Arizona in partnership with Arizona State University (ASU), where a key component was the launch of an ASU Department of Biomedical Informatics. He joined ASU as Ira A. Fulton Chair and Professor of Biomedical Informatics, in September 2007, and is now actively engaged in developing this program. an international Dr. Hersh has won numerous awards for his educational innovations. These include the OHSU Faculty Senate Distinguished Faculty Award for outstanding teaching and was the 2008 AMIA Donald A.B. Lindberg Award for Innovation in Informatics.

The Martin Epstein and Student Paper Awards

The Martin Epstein and Student Paper Awards are issued in recognition of best student papers at the Annual Symposium. Student papers are selected by the Annual Symposium Scientific Program Committee and forwarded to the Student Paper Advisory Committee (SPAC) who nominate eight finalist papers for presentation at the Student Paper Competition. Based on a combination of the written paper and oral presentation, the judges will select a first, second, and third place paper. If the first place paper is truly extraordinary, the SPAC awards the Martin Epstein Award. The oral presentations of the Student Paper Competition will take place on Sunday, November 9, 8:00 am - 12:00 pm in the Thoroughbred room.

AWARDS PROGRAM (CONT)

Student Paper Competition Finalists

S68 – A Scientific Collaboration Tool Built on the Facebook Platform
S. Bedrick, Oregon Health and Science University; D. Sittig, Northwest Permanente

S56 – Alert Override Reasons: A Failure to Communicate
A. Chused, G. Kuperman, P. Stetson, Columbia University

S41 – Using Natural Language Processing to Improve Accuracy of Automated Notifiable Disease Reporting
J. Friedlin, S. Grannis, J. Overhage, Regenstrief Institute

S98 – Models for Predicting and Explaining Citation Count of Biomedical Articles
L. Fu, C. Aliferis, Vanderbilt University

S09 – Evaluation of MedLEE Semantic Features to Classify Patient Smoking Status
P. McCormick, N. Elhadad, C. Friedman, P. Stetson, Columbia University

S32 – Visualizing Multivariate Time Series Data to Detect Specific Medical Conditions
P. Ordonez, M. desJardins, University of Maryland, Baltimore County; C. Feltes, C. Lehmann, J. Fackler, Johns Hopkins University School of Medicine

S81 – Somatic Mutation Signatures of Cancer
S. Piccolo, L. Frey, University of Utah

S33 – Using Computerized Provider Order Entry and Clinical Decision Support to Improve Primary-Care Physicians' Implementation of Consultants' Medical Recommendations
M. Were, G. Abernathy, Regenstrief Institute, Inc.; S. Hui, C. Kempf, Roudebush VA Center of Excellence for Implementing Evidence Based Practice; M. Weiner, Regenstrief Institute, Inc.; M. Weiner, Indiana University

AMIA Symposium Awards

AMIA provides a series of merit awards each year for research work submitted to its Annual Symposium through the rigorous submission and review process.

Distinguished Paper Awards

From a slate of candidate papers recommended by the Annual Symposium Scientific Program Committee, the Awards Committee will recognize five notable and distinguished papers from the Annual Symposium. Distinguished papers are awarded at Annual Symposium but contain no ordinal designation. Papers of the Student Paper Competition finalists are not eligible.

S56 – A Rapid Assessment Process for Clinical Informatics Interventions
J. Ash, OHSU School of Medicine; D. Sittig, Northwest Permanente; C. McMullen, Kaiser Permanente Northwest; K. Guappone, R. Dykstra, Oregon Health & Science University; J. Carpenter, Providence Portland Medical Center

S97 – Optimizing Feature Representation for Automated Systematic Review Work Prioritization
A. Cohen, Oregon Health & Science University

S43 – Development and Evaluation of a Clinical Note Section Header Terminology
J. Denny, R. Miller, K. Johnson, A. Spickard, Vanderbilt University Medical Center

S96 – The CHICA Smoking Cessation System
S. Downs, Indiana University School of Medicine; V. Zhu, Regenstrief Institute; V. Anand, Indiana University School of Medicine; P. Biondich, Regenstrief Institute; A. Carroll, Indiana University School of Medicine

S79 – Semantic Processing to Support Clinical Guideline Development
M. Fisman, National Library of Medicine; E. Ortiz, National Heart Lung and Blood Institute; B. Bray, University of Utah; T. Rindfleisch, National Library of Medicine

S59 – Extracting Structured Medication Event Information from Narrative Clinical Notes
S. Gold, N. Elhadad, X. Zhu, Columbia University; J. Cimino, NIH; G. Hripcsak, Columbia University

S08 – Evaluating Online Health Information: Beyond Readability Formulas
G. Leroy, Claremont Graduate University; S. Helmreich, New Mexico State University; J. Cowie, New Mexico State University; T. Miller, Claremont Graduate University; W. Zheng, Claremont Graduate University

S22 – Validation of an Electronic System for Recording Medical Student Patient Encounters
F. Nkoy, University of Utah; S. Petersen, University of Kansas School of Medicine; A. Antommaria, University of Utah; C. Maloney, University of Utah

S56 – Web Screening of US Nursing Homes by Location and Quality
G. Pearson, M. Gill, G. Thoma, National Library of Medicine/NIH

S99 – Using an Integrated Ontology and Information Model for Querying and Reasoning about Phenotypes: The Case of Autism
S. Tu, L. Tennakoon, A. Das, Stanford University

S34 – Connecting Public Health IT Systems with Enacted Work: Report of an Ethnographic Study
A. Turner, J. Ramey, S. Lee, University of Washington

S30 – A Patient-centric Taxonomy for Personal Health Records (PHRs)
A. Vincent, Center for Information Technology Leadership; D. Kaelber, E. Pan, Partners HealthCare System; S. Shah, D. Johnston, Center for Information Technology Leadership; B. Middleton, Partners HealthCare

S20 – Embracing Change in a Health Information Exchange
D. Vreeman, M. Stark, G. Tomashefski, D. Phillips, P. Dexter, Regenstrief Institute, Inc

JAMIA-eligible Papers

As an innovation for AMIA 2008, the Scientific Program Committee identified a set of promising papers that were presented to the editors of the Journal of the American Medical Informatics Association (JAMIA). Ultimately, nine papers were selected and now are under review by JAMIA. These papers are noted with a JAMIA icon in the program chronology and the abstracts can be found in the paper section of the AMIA 2008 Annual Symposium Proceedings. The SPC would like to thank leadership of JAMIA for their support of the effort and

in particular Randolph A. Miller, Betsy L. Humphreys, and Lucila Ohno-Machado.

Distinguished Poster Awards

The Awards Committee will recognize between two and ten distinguished posters with awards presented at the Annual Symposium Closing Session. Posters are selected by the Annual Symposium Poster Committee and forwarded to a committee who judge nominated posters during poster sessions held at the Annual Symposium. A ribbon will be displayed for nominated work on the board.

Homer R. Warner Award

The Homer R. Warner Award is named for Homer R. Warner, MD, PhD, a pioneer in the field of informatics and the founder of the Department of Medical Informatics at the University of Utah. A cash prize is awarded for the paper chosen at the AMIA Annual Symposium that best describes approaches to improving computerized information acquisition, knowledge data acquisition and management, and experimental results documenting the value of these approaches. The candidate papers are drawn from the distinguished paper nominees recommended by the AMIA Annual Symposium Scientific Program Committee, and the selection of the recipient is made by the University of Utah Department of Biomedical Informatics.

AMIA Working Group Awards

AMIA provides a series of merit awards each year for research work submitted to its Annual Symposium through the rigorous submission and review process.

Diana Forsythe Award

Honors either a peer-reviewed AMIA paper published in the Proceedings of the Annual Symposium or peer-reviewed article published in JAMIA or other journals publishing medical informatics-related content that best exemplifies the spirit and scholarship of Diana Forsythe's work at the intersection of informatics and social sciences with a cash prize. Selection is determined by a sub-committee of the AMIA Awards Committee and the AMIA People and Organizational Issues Working Group, with the award presented annually at the AMIA Annual Symposium.

Georgiou A, Westbrook J, Braithwaite J, Iedema R, Ray S, Forsyth R, Dimos A, Germanos T. When Requests Become Orders—A Formative Investigation Into The Impact Of A Computerized Physician Order Entry System On A Pathology Laboratory Service. *Int J Med Inform.* 2007;76(8):583-91.

Miscione G. Telemedicine In The Upper Amazon: Interplay With Local Health Care Practices. *MIS Q.* 2007;31(2):403-25.

S90 - Barriers to Organizing Information during Cancer Care: "I don't Know how People do it"
K. Unruh, W. Pratt, University of Washington

Wathen CN, Harris RM. "I Try to Take Care of It Myself." How Rural Women Search for Health Information. *Qual Health Res.* 2007;17(5):639-51.

Nursing Informatics Working Group Award

Honors a student who demonstrates excellence in nursing informatics and who has the potential to contribute significantly to the discipline of nursing and health informatics. The candidate papers are recommended by the AMIA Annual Symposium Scientific Program Committee, and the selection of the recipient is made by a special committee within the AMIA Nursing Informatics Working Group.

S32 - Generating Nurse Profiles from Computerized Labor and Delivery Documentation
E. Hall, University of Utah; S. Thornton, Intermountain Healthcare

S66 - Comparison of RFID Systems for Tracking Clinical Interventions at the Bedside
K. Ohashi, Brigham and Women's Hospital; S. Ota, Tokyo Medical and Dental University Graduate School; H. Tanaka, Tokyo Medical and Dental University Center for Information Medicine; L. Ohno-Machado, Brigham and Women's Hospital, Harvard Medical School

Harriet H. Werley Award

A cash prize is presented to the paper presented at the AMIA Annual Symposium with a nurse as first author that is judged to make the greatest contribution to advancing the field of nursing informatics. The candidate papers are recommended by the AMIA Annual Symposium Scientific Program Committee, and the selection of the recipient is made by a special committee within the AMIA Nursing Informatics Working Group.

S22 - A State Profile of IT Sophistication in Nursing Homes
G. Alexander, University of Missouri Columbia

S58 - Identifying Logical Clinical Context Clusters in Nursing Orders for the Purpose of Information Retrieval
S. Collins, S. Bakken, Columbia University; J. Cimino, NIH; L. Currie, Columbia University

S99 - Annotating Breast Cancer Microarray Samples Using Ontologies
H. Liu, X. Li, Georgetown University; V. Yoon, University of Maryland - Baltimore County; R. Clarke, Georgetown University

S66 - Intravenous Medication Administration in Intensive Care: Opportunities for Technological Solutions
J. Moss, E. Berner, O. Bothe, I. Rymarchuk, University of Alabama at Birmingham

S43 - Using Multi-terminology Indexing for the Assignment of MeSH Descriptors to Health Resources in a French Online Catalogue
S. Pereira, CHU Rouen; A. Neveol, NLM; G. Kerdelhue, CISMef; E. Serrot, Vidal; M. Joubert, LERTIM; S. Darmoni, CISMef

S70 - Implementing an Integrated Computerized Patient Record System: The Need for an Evidence-based System Implementation Practice in Healthcare
B. Rahimi, Linkoping University; A. Moberg, Affiliation County Council; T. Timpka, V. Vimarlund, Linkoping University

S28 - Structured Product Labeling Improves Detection of Drug-Intolerance Issues
G. Schadow, Indiana University School of Informatics

S90 - Informatics Competencies for Nursing and Healthcare Leaders
B. Westra, C. Delaney, University of Minnesota

GENERAL SYMPOSIUM INFORMATION

WIRELESS INTERNET

General Information

For your convenience, AMIA provides wireless internet to attendees. Excessive bandwidth usage, such as broadcasting, streaming or continuous downloading of files may affect network performance and is strongly discouraged. Any device which adversely impacts our network may be blocked from further access without prior notice to you. Please limit your usage to e-mail access and web browsing.

Connecting Your Laptop to WiFi

Wireless Internet access is available in the Concourse Pre-function Area (Registration) and the Cabinet Room (Cyber Café). You can connect to our wireless network by selecting the wireless network SSID "AMIA". Set your WPA key (password) to "amia2008" and launch the browser of your choice. You now should have Internet connectivity.

Viruses, Trojans, and Worms

Your computer's performance and stability may be adversely affected if your device is infected with a virus, trojan or worm. In addition, your confidential data may be at risk. Please install an anti-virus software program and update the virus definitions prior to connecting your computer to our network. Also, please download and install all Microsoft critical updates, patches and service packs. For information on using Windows Update services, go to "<http://www.microsoft.com/windows/downloads/windowsupdate/default.aspx>".

Technical Assistance

For assistance, please come to the Registration Desk.

Cyber Café

Cabinet Room

Computers will be provided, complete with internet connection via T-1 lines, to registered Symposium attendees. The connection will be available for any attendees who wish to check their e-mail accounts provided that the attendee has configuration information. Please limit your use to 10 minutes.

Note about Firewalls:

If your mail account is on a server that is protected by a firewall, be sure to bring any proxy server information with you. Check with your site administrator to determine this information, as we will not have access to it.

Speaker Ready Room

Chevy Chase

Freeman Audiovisual will have equipment and a technician available for speakers who wish to review slides or overheads, set-up laptops for demos, or need technical assistance. Speakers should report to their session room 30 minutes before their scheduled presentation to set-up their computer with LCD projectors.

No Smoking Policy

Smoking is not permitted inside the hotel.

Responsible Drinking Policy

Alcohol will be available at some of the AMIA 2008 receptions. Please exercise a responsible drinking policy. Your cooperation will help keep our events pleasant and enjoyable for everyone.

Safety First

We want you to have a safe and enjoyable time visiting Washington, DC. Please observe the caution appropriate for any major urban area. Don't forget to remove your name badge before leaving the hotel. The badge clearly identifies you as a tourist in unfamiliar surroundings.

Attendance Policy at Program Sessions

All attendees must be registered either for the full conference or as a daily registrant specifically for the day of an activity they are attending. Attendees **MUST** show their badge for entrance. Room monitors are instructed to ask individuals not wearing a badge to either display one or have a replacement issued at the registration desk before being admitted to a session or other activity. Tutorial attendees may attend only those tutorials for which they are registered and will be required to turn in a ticket at the door. Tickets will be distributed with registration materials or are available for purchase at the registration desk.

COMMITTEE MEETINGS

Awards Committee

Monday, November 10
12:00 pm – 1:30 pm
Bancroft

Education Committee

Tuesday, November 11
5:00 pm – 6:30 pm
Edison

Ethics Committee

Tuesday, November 11
7:00 am – 8:15 am
Edison

Finance Committee

Monday, November 10
12:00 pm – 1:30 pm
Dupont

International Affairs Committee

Monday, November 10
5:00 pm – 6:30 pm
Edison

Meetings Committee

Monday, November 10
7:00 am – 8:15 am
Dupont

Membership Committee

Monday, November 10
5:00 pm – 6:30 pm
Bancroft

Public Policy Committee

Tuesday, November 11
7:00 am – 8:15 am
Farragut

Publications Committee

Tuesday, November 11
7:00 am – 8:15 am
Bancroft

Working Group Steering Committee

Tuesday, November 11
5:00 pm – 6:30 pm
Bancroft

SCIENTIFIC PROGRAM COMMITTEE MEETINGS

AMIA 2009

Monday, November 10
7:00 am – 8:15 am
Caucus

2009 AMIA Spring Congress

Tuesday, November 11
5:00 pm – 6:30 pm
Farragut

2009 Summit on Translational Bioinformatics

Monday, November 10
5:00 pm – 6:30 pm
Dupont

OTHER BUSINESS MEETINGS

Academic Forum Meeting

Tuesday, November 11
7:00 am – 8:30 am
Hemisphere

ACMI Business Meeting

Tuesday, November 11
5:30 pm – 6:30 pm
Military

ACMI Executive Committee Meeting

Monday, November 10
5:00 pm – 6:30 pm
Grant

CRIS Task Force Meeting

Tuesday, November 11
5:00 pm – 6:30 pm
Grant

Industry Advisory Council Meeting

Monday, November 10
12:00 pm – 1:30 pm
Edison

JAMIA Editorial Board Meeting

Monday, November 10
6:30 pm – 10:00 pm
Georgetown

AMIA 10X10 - 10,000 TRAINED BY 2010



Goal

AMIA believes that strengthening the breadth and depth of the health informatics workforce is a critical component in the transformation of the American health care system. AMIA is committed to the education and training of a new generation of biomedical and health informaticians to lead the transformation of the American health care system through the deployment and use of advanced computing systems of care.

The AMIA 10x10 program aims to realize the goal of training 10,000 health care professionals in biomedical and health informatics by the year 2010. This training is conducted in a wide range of settings across the United States by AMIA in collaboration with key strategic partners in the informatics education community.

Program Outline

AMIA's 10x10 programs utilize curricular content from existing informatics training programs and other AMIA educational initiatives, with a special emphasis toward those programs with a proven track record in distance learning.

AMIA 10x10 partner programs are geared toward three major domains in the field:

- Clinical informatics (including health care, research, and personal health management)
- Public health/population informatics
- Translational bioinformatics

Several in-person sessions for 10x10 offerings held earlier this year, will be hosted at the AMIA 2008 Annual Symposium. These sessions provide additional lectures, panel discussions, project work, and an opportunity for students to interact with faculty.

Program Outline

- To provide introductory level informatics knowledge/education for health care professionals who are in a position to advise or apply informatics-rooted solutions to problems encountered in their health care practice settings.
- To raise awareness to the importance and role of informatics in answering the health information technology training challenge across the clinical informatics, public health/population informatics, and translational bioinformatics domains.
- To promote information exchange about AMIA's member institutions currently providing education and training opportunities in informatics.
- To prepare individuals for further training.

10x10 Partners

- Oregon Health & Science University (OHSU)
- Stanford University
- The University of Alabama at Birmingham (UAB)
- University of Cincinnati (UC)
- University of Illinois at Chicago (UIC)
- University of Minnesota School of Nursing

New Offerings - Opening in January 2009

AMIA 10x10 at the University of Cincinnati (UC)
AMIA 10x10 at Oregon Health & Science University (OHSU)

Peter J. Embi, MD, MS, Assistant Professor of Clinical Medicine, Director of the UC Center for Health Informatics (CHI), and Director of Clinical and Translational Research Informatics for the UC Medical Center, is the director of the UC 10x10 offering.

Dr. William Hersh, Professor and Chair of the Department of Medical Informatics & Clinical Epidemiology in the School of Medicine at Oregon Health & Science University (OHSU) in Portland, Oregon, is the Director of the OHSU 10x10 offering.

Students who complete the 10x10 course have the option of continuing their education and training through programs offered by UC or OHSU. For additional information, visit www.uc.edu or www.ohsu.edu.

An in-person session for both offerings will be held in conjunction with the Spring Congress taking place May 28-30, 2009 in Orlando, Florida.

View a detailed course description and register for these offerings at www.amia.org/e-learning.

Registration Information and Details

Please refer to www.amia.org for up-to-date information regarding registration and additional offerings

FRIDAY, NOVEMBER 7

8:00 am – 5:00 pm
8:00 am – 5:00 pm
6:30 pm – 9:00 pm
7:00 pm – 8:00 pm

IDAMAP Workshop
i2b2 Second Shared Task for Challenges in NLP for Clinical Data
ANI Governing Directors Dinner
CDC 10x10 Participant Reception & Networking Event

SATURDAY, NOVEMBER 8

8:00 am – 12:00 pm
8:00 am – 4:00 pm
8:00 am – 4:30 pm
8:30 am – 12:00 pm

10x10 at UIC – In-person Session
Biomedical Informatics Research Collaborative
AMIA Board of Directors Meeting
Half-day Tutorials

T01 Introduction to HL7 Clinical Document Architecture and Continuity of Care Document Standards
T02 Knowledge-Based Decision-Support Systems for Implementing Clinical Practice Guidelines
T03 Transforming & Visualizing Clinical Data for Research
T04 Practical Modeling Issues Representing Coded and Structured Patient Data in EHR Systems
T05 Evaluating Health IT Projects: A Practical Approach
T06 Human-Centered Design and Evaluation of Health Information Systems
T07 Healthcare Networks: Wireless Communication, Mobile Computing, and Clinical Video-conferencing

8:30 am – 4:30 pm

Full-day Tutorials

T08 Introduction to Biomedical and Health Informatics
T09 Clinical Classifications and Biomedical Ontologies: Terminology Evolution, Principles, and Practicalities
T10 Optimizing Nursing Documentation: Current Research and Practice

8:30 am – 4:30 pm
10:00 am – 10:30 am
1:00 pm – 4:30 pm

People and Organizational Issues WG Doctoral Consortium (by invitation)
Coffee Break
Half-day Tutorials

T11 Clinical Decision Support: A Practical Guide to Developing Your Program to Improve Outcomes
T12 Peering through the Looking Glass: An Examination of Public Health for Informaticians
T13 The eXtensible Markup Language (XML)
T14 Personal Health Records and E-health Portals
T15 Standards for Storing and Exchanging Clinical Data in Electronic Health Record Systems
T16 Support Vector Machines without Tears
T17 A Primer on Quality Measurement and the Electronic Medical Record Environment

2:30 pm – 3:00 pm
5:00 pm – 6:30 pm
7:00 pm – 9:30 pm

Coffee Break
Working Group Business Meetings (Primary Care Informatics WG)
Workshops

W01 Using Electronic Health Records to Collect Patient-Specific Performance Measures and Outcomes
W02 Implementing Intentionally Designed Automation to Support Evidence-Based Practice: Lessons from International Consortium
W03 Mapping the Sociotechnical Healthcare Ecosystem: Expanding the Horizons of Sociotechnical Inquiry
W04 Improving the patient experience by Improving performance: The Six Sigma Way
W05 Intuitive Information Technology: Enhancing Clinician Efficiency
W06 Second i2b2 Workshop on Natural Language Processing Challenges for Clinical Records
W07 Writing for Publication in Biomedical Informatics
W08 Faculty Development for Informatics: Education Working Group Workshop on Objectives, Methods, and Assessment in Informatics Education
W09 Interdisciplinary Evidence-based Practice and the Electronic Health Record: From Theory to Reality
W10 Compressing ICD9 Codes for Predictive Modeling
W11 Extracting Coded Information From Large Databases
W12 Standards in Clinical Decision Support: Activities in Health Level Seven

7:00 pm – 10:00 pm

AMIA Leadership Dinner (by invitation)

Friday, November 7, 2008

8:00 AM–5:00 PM AFFILIATE EVENTS

IDAMAP Workshop

Georgetown West

IDAMAP-2008, a colloquium on intelligent data analysis in biomedicine and pharmacology, will be held in conjunction with the AMIA 2008 Annual Symposium on Friday, November 7, 2008. IDAMAP is devoted to computational methods for data analysis in medicine, biology and pharmacology that present results of analysis in the form communicable to domain experts and that somehow exploit knowledge of the problem domain. Such knowledge may be available at different stages of the data-analysis and model building process.

Typical methods include data visualization, data exploration, machine learning, and data mining. Gathering in an informal setting, colloquium participants will have the opportunity to meet and discuss selected technical topics in an atmosphere which fosters the active exchange of ideas among researchers and practitioners. The colloquium is intended to be a genuinely interactive event and not a mini-conference; thus, ample time will be allotted for general discussion. Registration is \$50 and includes two coffee breaks and colloquium materials. The registration fee is payable through the AMIA 2008 registration form.

i2b2 Second Shared Task for Challenges in NLP for Clinical Data

Jefferson West

6:30 PM–9:00 PM AFFILIATE EVENTS

ANI Governing Directors Dinner

Jefferson East

7:00 PM–8:00 PM SPECIAL EVENTS

CDC 10x10 Participant Reception & Networking Event

Georgetown East

(CDC 10x10 alumni only)

Saturday, November 8, 2008

8:00 AM–12:00 PM SPECIAL EVENTS

10x10 at UIC In-person Session

Monroe West

(10x10 students only)

8:00 AM–4:00 PM AFFILIATE EVENTS

Biomedical Informatics Research Collaborative

1919 East

8:00 AM–4:30 PM BUSINESS MEETINGS

AMIA Board of Directors Meeting

Caucus

(Board members only)

8:30 AM–12:00 PM TUTORIALS

T01: Methods Series

Georgetown West

Introduction to HL7 Clinical Document Architecture and Continuity of Care Document Standards

Robert Dolin, Kaiser Permanente

This tutorial will introduce the audience to the HL7 Clinical Document Architecture, Release 2 (CDA R2) and Continuity of Care Document (CCD) specifications. CDA R2 became an ANSI-approved HL7 Standard in May 2005, is derived from the HL7 Reference Information Model, and is expressed in XML. Its model is richly expressive, providing a mechanism for incremental semantic interoperability. CCD is the product of collaboration between ASTM and HL7, and reflects the ASTM Continuity of Care Record data elements expressed as a CDA R2 document.

The first part of the tutorial will begin with a didactic overview of HL7 Clinical Document Architecture (CDA), followed by a group exercise where a CDA instance will be built. The second part of the tutorial will provide a didactic overview of HL7 Continuity of Care Document (CCD), followed by a group exercise where a CCD instance will be built. A basic knowledge of XML will be helpful, but isn't required to participate in this tutorial.

By the end of the tutorial, participants will be able to:

- Recognize key concepts included in HL7 Version 3
- Understand the approach and objectives used in the creation of the standard

- Understand the overview of the standard, not sufficient for implementation but sufficiently detailed to enable the attendee to understand the scope and contents of the standard.

Outline of Topics:

- HL7 Clinical Document Architecture
- HL7 Continuity of Care Document

Intended Audience: Those seeking to understand the CDA and/or CCD standards; those seeking an introduction to CDA and/or CCD as a step towards full certification; those seeking to influence the future direction of the CDA and/or CCD standards; decision makers seeking to understand the business rationale for implementing CDA and/or CCD.

Content level: 25% basic, 50% intermediate, 25% advanced

T02: Methods Series

Lincoln West

Knowledge-Based Decision-Support Systems for Implementing Clinical Practice Guidelines

Samson Tu, Stanford University; Mor Peleg, University of Haifa; Susana Martins, VA Palo Alto Health Care Center; Mary Goldstein, VA Palo Alto Health Care System and Stanford University

Clinical practice guidelines (CPG), or more generally clinical recommendations, are summaries of evidence-based best practices. In recent years, there has been an explosion of published guidelines. Computer-based clinical decision-support systems (CDSS) can enhance the implementation of these guidelines by bringing focused recommendations to care providers at the point of decision-making. This tutorial will give a comprehensive introduction to the technology, practices, and challenges in the development and deployment of CDSS for guideline-based care. It will first give a general introduction to the problems of implementing clinical decision support systems and then look at alternative methods for representing and delivering guideline-based clinical recommendations.

We will use examples of guideline-based knowledge-based systems that have been implemented to illustrate both technical aspects of system development and organizational aspects of deployment and integration into clinical workflow. The technical aspects will include the steps and problems involved in formalizing guideline recommendations in computable format, system architecture, and technical challenges of integrating an external application into a continually-changing IT environment. The organizational aspect will address successful strategies for implementing the system into multiple medical centers of a large health care network. Presentation will be mixed with exercises and demonstrations of actual clinical systems that can provide decision support to primary care clinicians.

By the end of the tutorial, participants will be able to:

- Discuss characteristics of CDSS that help or hinder their acceptance
- Describe alternative methods for representing computable CPGs
- Understand the steps and issues involved in encoding guideline knowledge
- Outline the issues involved in deploying, integrating, and maintaining a knowledge-based DSS for implementing guidelines

Outline of Topics:

- Introduction to CDSS
- Alert and reminder systems
- Alternative computable models of CPG
- The roles of standards
- Knowledge acquisition and maintenance for guideline-based CDSS
- Sociotechnical issues of deploying CDSS

Intended Audience: Researchers; physicians, nurses, and other health care professionals; and computer scientists, system developers, and programmers.

Content level: 20% basic, 60% intermediate, 20% advanced

T03: Selected Topics Series

Lincoln East

Transforming & Visualizing Clinical Data for Research

Shawn Murphy, Massachusetts General Hospital

Using data collected in the clinical care domain for clinical research poses many challenges. Clinical data is diverse in structure and reliability. It is generated in truly massive quantities, but for consumption mostly by human eyes, not by machines. To be useful for clinical research, the data must usually be transformed to a machine readable format. Considerations of sensitivity and specificity must be considered when performing these transformations. One then needs a systematic approach to organizing the data such that queries can be generated against seemingly disparate data. This usually translates into finding a suitable "atomic fact" and organizing the data into these discrete pieces. Finally, the data must be shown to clinical researchers and allowed to be queried in a format that provides insights into and hypothesis testing of the data.

By the end of the tutorial, participants will be able to:

- Understand the complexities of using clinical data for research and be given methods and approaches for which to solve local problems.
- Understand the concept and value of structuring clinical data such that queries against disparate data can be performed.
- Understand the various solutions that currently exist for querying and visualizing clinical data

Outline of Topics:

- Principles and methods for transforming clinical data for use in clinical research
- Organizing clinical data into databases for use in clinical research
- Visualizing and querying clinical data to test hypothesis
- Insights and solutions from querying and visualizing clinical data
- Limitations in using this data for clinical research

Intended Audience: Scientists, clinical researchers, people working in safety and quality research, biomedical engineers and workers in bioinformatics, and programmers.

Content level: 100% intermediate

T04: EHR Series

Georgetown East

Practical Modeling Issues Representing Coded and Structured Patient Data in EHR Systems

Stanley M. Huff, Intermountain Healthcare

This tutorial will describe the need for formal data models for the EHR and how standard terminologies are used in the models. Starting with use cases encountered while developing EHR systems at Intermountain Healthcare, the instructors will discuss the basic name-value pair paradigm for flexible representation of patient data; the proper roles for standard terminologies like LOINC, SNOMED CT, First DataBank, and RxNORM; approaches to handling pertinent negative findings and negation; support for pre-coordinated data entry while storing the data in a post-coordinated database; and storage of data that belongs to another patient (baby or donor) in the patient record.

There are no absolute prerequisites for this tutorial. However, those who have experience in designing, developing, configuring, and implementing EHR systems will find the tutorial more meaningful. Experience in modeling of medical data and knowledge of standard coded terminologies like SNOMED CT, LOINC, and RxNORM will also be very helpful.

By the end of the tutorial, participants will be able to understand:

- The assumptions and motivation for formal definitions of detailed clinical models
- How standard coded terminologies are referenced by detailed clinical models, and the different roles that SNOMED CT and LOINC play in the models
- The various alternative logical models for implementing clinical models related to diagnoses, allergies, problems, procedures, orders, and observations.
- The importance of adhering to terminology and modeling standards in developing or purchasing interoperable EHR systems
- National and international activities for sharing models that enable interoperability of EHR systems

Outline of Topics:

- What are detailed clinical models?
- Why are detailed clinical models important?
- What are the requirements for defining and using detailed clinical models?
- Name-value pair (NVP) and entity-attribute-value (EAV) strategies for representing clinical data
- What are the proper roles for use of LOINC, SNOMED CT, drug codes (First DataBank, RxNorm) and classifications in the models
- The necessity of supporting both pre and post-coordinated models in a clinical system
- Approaches to the representation of negation and pertinent negative findings
- Storing data that belongs to another person (relative, family member, donor) in the patient record
- Specific alternatives for modeling including observations, diagnoses, problems, procedures, and allergies

- Open candid discussion of ideas that the participants have about ways that the modeling issues can be addressed
- Importance of supporting open consensus standards for EHR systems that are purchased or developed
- Brief discussion of various national and international activities related to formal clinical data models

Intended Audience: Designers, developers, implementers of EHR systems, scientists, educators, researchers, and biomedical engineers interested in clinical data modeling and interoperability of EHR systems.

Content level: 50% intermediate, 50% advanced

T05: EHR Series

Monroe East

Evaluating Health IT Projects: A Practical Approach

Caitlin M. Cusack, NORC at the University of Chicago

Dan Gaylin, NORC at the University of Chicago

Adil Moiduddin, NORC at the University of Chicago

For years, health information technology (health IT) has been implemented with the goals of improving clinical care processes, health care quality, and patient safety. Evaluations frequently take a back seat to project work, and frequently do not take place at all. Given the large investment required for health IT projects, stakeholders are increasingly demanding to know both the actual and future value of these projects. As a field we are gradually moving away from talking about theoretical value of these implementations, to a place where we must measure actual value. Isolated studies and anecdotal evidence are not enough – not for our stakeholders, nor for the health care community at large. Evaluations must be viewed as an integral piece of every project, not as an afterthought.

While much has been written about the theory of evaluation, there has been a dearth of practical real-world tools to ease the process of writing evaluation plans. As more health IT projects have kicked-off, the lack of such practical tools has become even more apparent. The instructors in this course have taken the theory of evaluating HIT, and developed a practical approach to planning and executing evaluations. The tutorial has been designed to share these tools with others as they embark on developing evaluation plans of their own.

By the end of the tutorial, participants will be able to:

- Compile metrics for a health IT project
- Determine which metrics are practical to measure
- Formulate a plan around the chosen metrics
- Write an evaluation plan

Outline of Topics:

- Why conduct evaluations of Health IT: The motivations behind evaluation
- A practical methodology to write an evaluation plan
- Quantitative considerations
- Qualitative considerations
- Survey considerations

The tutorial will end with a group Q&A

Intended Audience: Health care professionals looking for guidance as to how to evaluate their health IT project.

Content Level: 80% basic, 20% Intermediate

T06: EHR Series

Jefferson East

Human-Centered Design and Evaluation of Health Information Systems

Jiajie Zhang, University of Texas Health Science at Houston
Vimla Patel, Arizona State University

A current and significant challenge in the design and implementation of health information technology (HIT) is to deal with the high failure rate of HIT projects. Most of these failures are not due to flawed technology, but rather due to the lack of systematic considerations of human and other non-technology issues in the design and implementation processes. In other words, designing and implementing HIT is not so much an IT project as a human project about human-centered computing such as human-computer interaction, workflow, organizational change, and process reengineering. Due to the complexity and unique features of health care, human-centered methods and techniques specifically developed for health care are necessary for the successful development of health information systems that would increase efficiency and productivity, increase ease of use and ease of learning, increase user adoption, retention, and satisfaction, and decrease medical errors, decrease development time and cost, and decrease support and training cost. This tutorial covers a few selected conceptual frameworks, methodologies, techniques, processes, and examples for human-centered design and evaluation of health information systems.

By the end of the tutorial, participants will be able to:

- Understand the principles of human-centered design
- Understand the significance of human-centered design and the consequences of technology-driven development
- Use human-centered methodologies and techniques to evaluate health information systems
- Use human-centered processes to design health information systems that have good usability

Outline of Topics:

- The human side of human-computer interaction
- Basic frameworks and methodologies of human-centered design
- Usability evaluation techniques
- UFuRT: A new framework and process for human-centered design and evaluation
- Case studies: Usability evaluation of EHR
- Case studies: Usability evaluation of medical devices
- Patient safety and human-centered design

Intended Audience: Scientists; researchers; physicians, nurses, and other health care professionals; and computer scientists, system developers, and programmers; graduate students and postdoctoral fellows.

Content level: 40% basic, 50% intermediate, 10% advanced

T07: Selected Topics Series

Hemisphere

Healthcare Networks: Wireless Communication, Mobile Computing, and Clinical Video-conferencing

Helmuth Orthner and Feliciano Yu, University of Alabama Birmingham

This tutorial provides an overview of several clinically-relevant technologies that form the basis for wireless Local Area Networks (wLANs) such as WiFi (802.11), wireless Personal Area Networks (wPANs), and wireless Wide Area Networks (wWANs) such as WiMAX (802.16) and various 3G cellular systems (W-CDMA, CDMA2000 EV-DO). One characteristic of the next generation systems are their support for Internet Protocols (IP, TCP, SIP) which enhances mobile communication such as Voice over IP (VoIP), Instant Messaging (IM), and Clinical Video-Conferencing (CVC). However, the network such have sufficient quality to assure acceptable performance. The Quality of Service (QoS) parameters are very important for VoIP and CVC.

Wired and wireless communication in the hospital Emergency Department (ED) and in the pre-hospital Emergency Medical Services (EMS) environment will be used to elucidate the strengths and weaknesses of above wireless and clinical video conferencing technologies. Also, wireless networks to assure reliable communication and automatic switching between communication modalities (e.g., between WiFi and 3G) will be addressed. The basic principles of mobile data communication using IP and the architectural components to achieve continuous connectivity in spite of signal loss. The security of wireless networks has been problematic in the past but industry developed "best practices" assure compliance with HIPAA requirements. Real implementations will demonstrate the usefulness and limitations of mobile tablets in the ED and wireless-based IM & VC between EMS field personnel and online Medical Control in the ED.

By the end of the tutorial, participants will be able to:

- Learn about the basic principles of wireless communication technologies and be familiar with fundamental concepts and their acronyms
- Know the advantages and disadvantages of various wireless communication modalities useful in health care settings
- Select and configure simple wLANs, which are HIPAA compliant
- Recognize the difficulty of setting up mobile communication environments involving different networks such as WiFi wLANs, and 3G cellular networks
- Appreciate the security concerns of wireless communication in health care
- Describe the interplay of clinical systems (both mobile and tethered) with telemedicine in an acute care setting and the importance of proper QoS parameters

Outline of Topics:

- Fundamental concepts of wireless communication for local, personal, and wide area networks. Current and evolving standards with their advantages and disadvantages
- Fundamental concepts of current wireless wider area networks using cellular communication technologies such as GSM and CDMA and their migration towards a third generation (3G) system

- Mobile communication for voice, data, and video using Internet protocols and the need of assuring proper QoS levels
- Planning for wireless networks and practical considerations related to reliability and security in health care settings
- Description and experiences of using a wLAN in the Emergency Department and a discussion of a mobile wireless wide area network using WiFi, WiMax, and 3G technologies for communicating in the pre-hospital EMS environment
- Description and experience of effectively using clinical video-conferencing in the Emergency Department and Urgent Care facility in an on-demand unscheduled telemedicine environment

Intended Audience: Professionals interested in mobile communication in health care, including nurses and physicians who are planning to use wireless devices for patient care. Medical and health informaticians involved with clinical information systems; their selection, installation, and the training of their use to clinicians. Network engineers and LAN specialists interested in expanding their roles to wireless networking and video conferencing technologies.

Content Level: 50% basic, 40% intermediate, 10% advanced

8:30 AM–4:30 PM TUTORIALS

T08: Primer Series

Jefferson West

Introduction to Biomedical and Health Informatics

Dominic Covvey, University of Waterloo

John Holmes, University of Pennsylvania

Chris Cimino, Albert Einstein College of Medicine

This is an intense, multi-instructor, full-day tutorial intended to introduce those with little or no knowledge of informatics, to the nature, key concepts, and applications of this discipline. We examine what the field is about and how it can help us address key challenges in the health field. Major objectives of the tutorial include enhancing the value of the conference to the participant and helping the participant discover specific topics of interest that can be explored both during and after the conference. Although no tutorial of this duration can cover all topics, the material targets the high profile areas of informatics such as clinical or health care informatics, bioinformatics, and public health informatics, and points the participants in the direction of broader and deeper enquiry.

By the end of the tutorial, participants will be able to:

- Understand the current landscape of the science and practice of Health Informatics
- Better determine and define your areas of interest in informatics
- Select sessions at the conference in your areas of greatest interest
- Launch a systematic process of broadening and deepening their knowledge
- Access Health Informatics information resources

Outline of Topics:

- Health, health care, and their challenges for health informatics
- Bioinformatics

- The nature, structure, and management of health data, information, and knowledge “Intelligent” health systems
- Health communications systems
- The health user interface and interactive systems
- Human/ social aspects of health information systems
- Major health care applications
- Health informatics education
- The future and persistent issues in health informatics

Intended Audience: Health care professionals (physicians, nurses, and allied professionals), health system administrators, CIOs and managers, medical librarians, other information professionals, academics from other fields interested in Health Informatics.

Content level: 100% basic.

T09: Selected Topics Series

Military

Clinical Classifications and Biomedical Ontologies: Terminology Evolution, Principles, and Practicalities

James Cimino, National Library of Medicine

Christopher Chute, Mayo Clinic College of Medicine

Standardized terminologies and classification systems are an essential component of the information infrastructure that supports health care delivery and evaluation. Despite significant advances and increased motivation for the use of terminology systems, widespread integration of standardized terminologies into computer-based systems has not yet occurred. In this tutorial, we provide an overview of the state of the science related to terminologies and classification systems and demonstrate application of selected terminologies to a patient case study to highlight the strengths and weaknesses of various terminologies. Standardized terminologies alone are insufficient to achieve semantic interoperability. Consequently, the tutorial will include content designed to elucidate the relationships among standards for terminologies, information models, messages, and document and record structures. In addition, we will demonstrate the use of advanced terminology tools that facilitate the use of standardized terms in computer-based systems and provide an overview of significant international and national initiatives related to terminology systems.

By the end of the tutorial, participants will be able to:

- Understand the motivation and challenges to standardized coding of clinical data from local, national, and international perspectives
- Identify a minimum of five desiderata for high-quality controlled terminologies and describe the extent to which existing controlled terminologies meet these desiderata
- Discuss the relationships among standards for terminologies, information models, messages, and document and record architectures and the role of advanced terminology tools in achieving semantic interoperability

Outline of Topics:

- Types of terminology systems
- National and international contexts (motivations and challenges) for the development and dissemination of terminologies and classifications

- Desiderata for high-quality controlled terminologies
- Overview of selected terminologies such as ICD, SNOMED CT, LOINC, NANDA, and application to a patient case study
- Relationships among standards for terminologies, information models, messages, and document and record architectures
- Demonstration of advanced terminology tools and discussion of their role in achieving semantic interoperability
- International and national initiatives

Intended Audience: Scientists, educators, and researchers; physicians, nurses, and other health care professionals; computer scientists, system developers, and programmers.

Content level: 50% basic, 50% intermediate

T10: Selected Topics Series

Thoroughbred

Optimizing Nursing Documentation: Current Research and Practice

Patricia A. Abbott, Johns Hopkins University; Anne Bane, Brigham & Women's Hospital; Jane Carrington, University of Arizona, College of Nursing; Patti Dykes, Partners HealthCare; Gail M. Keenan, College of Nursing, University of Illinois Chicago; Judy Murphy, Aurora Health Care; Judith J. Warren, KUMC Center for Healthcare Informatics, University of Kansas School of Nursing

Effective design of nursing documentation systems continues to be an important area of nursing informatics research and practice. Poorly designed documentation systems may increase time away from the bedside, may result in work-arounds thus removing the opportunity for decision support, and may impair interdisciplinary and nurse-to-nurse communication. Recent research focusing on user interface design, standardized terminologies and templates, guideline integration and best practice to support effective team communication has the potential to inform the next generation of nursing documentation systems. The purpose of this tutorial is to provide an overview of current research and best practices that maximize system design for effective nursing documentation. This tutorial was designed and is sponsored by the AMIA Nursing Informatics Working Group (AMIA-NIWG).

By the end of the tutorial, participants will be able to:

- Describe nursing workflow and device selection issues related to medication management and clinical documentation
- Identify strategies to facilitate evidence-based practice and guideline integration in a nursing documentation system
- Explain how to incorporate the use of standardized terminologies and templates when designing a nursing documentation system
- Understand interdisciplinary communication factors that influence decisions related to nursing documentation

Outline of Topics:

- Device selection
- User interface design

- Workflow considerations, particularly around complex processes like eMAR/barcoding
- Interdisciplinary and shift report communication
- Strategies for evidence-based practice and guideline integration
- Terminology systems to support documentation

Intended Audience:

Nurses, physicians, and others involved in clinical information system development and implementation.

8:30 AM-4:30 PM SPECIAL EVENTS

People and Organizational Issues WG Doctoral Consortium

Map

(by invitation only)

The Doctoral Consortium is a forum in which doctoral students meet and discuss their research with each other and with a panel of experienced researchers and practitioners. During the consortium, students will receive feedback on their research and insights into issues of interest such as dissertation writing and job searching.

Sponsors

- AMIA People and Organizational Issues Working Group
- The National Science Foundation
- Vanderbilt University Department of Biomedical Informatics
- IMIA Organizational and Social Issues Working Group

Student Participants

M.M. Ali, London School of Economics and Political Science; Thomas Campion, Vanderbilt University; Jeannette de Richmond, Rutgers University; Christopher Harle, Carnegie Mellon University; Holly Lanham, The University of Texas at Austin; Angella Musiimenta, University of Manchester; Lori Pelletier, Worcester Polytechnic Institute; Meredith Skeels, University of Washington; Kim Unertl, Vanderbilt University; Xiaomu Zhou, University of Michigan

Doctoral Consortium Faculty

Cindy Gadd, Vanderbilt University; Bonnie Kaplan, Yale University; Madhu Reddy (Chair), The Pennsylvania State University; Wanda Pratt, University of Washington; Teresa L. Panniers, George Mason University

10:00 AM-10:30 AM COFFEE BREAK

Crystal Corridor

1:00 PM–4:30 PM TUTORIALS

T11: EHR Series

Jefferson East

Clinical Decision Support: A Practical Guide to Developing Your Program to Improve Outcomes

Jerome A. Osheroff, Thomson Micromedex and University of Pennsylvania; Jonathan M. Teich, Brigham and Women's Hospital and Harvard University; Eric A. Pifer, El Camino Hospital; Dean F. Sittig, Northwest Permanente and Oregon Health and Science University; Robert A. Jenders, Cedars-Sinai Medical Center and the University of California

This tutorial will provide attendees with a practical approach to developing and deploying clinical decision support (CDS) interventions that measurably improve outcomes of interest to a health care delivery organization. The following key steps, including overcoming barriers, will be examined in detail: selecting appropriate CDS goals and enhancing organizational structures needed for CDS success; surveying available organizational information systems pertinent to delivering CDS; selecting appropriate CDS interventions to accomplish the goals from a broad array of options; and developing and launching the interventions and measuring their effects. The systematic approach to CDS implementation will be presented in an interactive, “case-oriented” fashion, incorporating examples provided by tutorial leaders and participants’ experiences. The course content is drawn from the tutorial leaders’ award-winning book: “Improving Outcomes with Clinical Decision Support; An Implementer’s Guide.”

By the end of the tutorial, participants will be able to:

- Understand a systematic approach to addressing key health care organizational goals through a clinical decision support program
- Understand the broad range of potential clinical decision support interventions, and opportunities to use them to accomplish specific objectives
- Describe individual techniques and considerations for overcoming organizational and technical barriers to successful clinical decision support

Outline of Topics:

- A 6-step process for improving outcomes with CDS
- Key tasks and lessons for accomplishing each step in successful CDS implementation
- Case example of building a successful CDS program to accomplish your objectives using CDS program development worksheets
- Interactive discussion addressing questions you’ve always wanted to ask about CDS
- Developing an action plan to bring back to your organizations
- Overcoming organizational and technical barriers to successful CDS

Intended Audience: Individuals from health care organizations interested in CDS deployment, including both those contemplating and undertaking the process. Pertinent roles include those responsible for CDS such as managers and directors of clinical information systems,

and clinicians and administrators associated with CDS projects. Representatives from organizations both with and without robust clinical information systems (e.g. EHR and CPOE). CDS researchers and CIS vendors will also find the material of interest.

Content level: 100% intermediate

T12: Primer Series

Georgetown East

Peering through the Looking Glass: An Examination of Public Health for Informaticians

Janise Richards, Centers for Disease Control and Prevention; David Buckeridge, McGill University; Seth Foldy, health.evolution Consulting; Martin LaVenture, Minnesota Department of Health; Barbara Massoudi, RTI, Inc; David Ross, Public Health Informatics Institute

Improved public health practices have accounted for society’s general health and well-being during the last century. Public health’s focus has remained on assessment, policy development and assuring conditions in which people can be healthy. This tutorial focuses on the guiding principles and practices of public health with the intent of making problems and challenges in public health informatics more accessible to those who have some understanding of medical informatics, but little or no experience in public health. The tutorial presents an overview of the unique and diverse framework of public health, and offers perspectives of public health from the local through the federal levels. Throughout the tutorial, the presenters will provide examples of the integration of informatics principles and practices within public health.

By the end of the tutorial, participants will be able to:

- Describe the main components of public health practice
- Describe how local, state, and federal public health agencies work together and exchange information
- Describe the structure and function of a public health surveillance system
- Discuss at least two issues that are currently the focus of public health informatics research and practice

Outline of Topics:

- The structure of public health
- A local health agency perspective on public health informatics
- A state health agency perspective on public health informatics
- A federal perspective on public health informatics
- Assessment/monitoring/surveillance systems in public health
- The future of public health informatics

Intended Audience: Those with some understanding or interest in medical informatics, but little or no experience in public health, including: scientists; researchers; physicians, nurses, and other health care professionals; and computer scientists, system developers, and programmers.

Content level: 75% basic, 25% intermediate

T13: Primer Series

Georgetown West

The eXtensible Markup Language (XML)

Gretchen P. Purcell, Vanderbilt University

The eXtensible Markup Language (XML) is a standard for characterizing the content and structure of documents and data. Both standards organizations and technology groups have adopted this language. In health care, XML has been used for diverse applications from representing and exchanging patient data in medical record systems to publishing clinical knowledge in electronic information resources. This tutorial provides a rapid, but comprehensive introduction to the concept of markup languages and the syntax of XML.

Participants will learn to encode documents with the basic components of XML and to define information structures using document type definitions (DTDs) and schemas. Tools for processing and displaying XML documents, including cascading style sheets (CSS) and the eXtensible Style Language (XSL), will be described. Attendees will participate in short exercises to reinforce XML concepts, and the lessons will incrementally develop a small XML application. This tutorial will be valuable to individuals who are involved in sharing, distributing, or processing clinical information and want a thorough understanding of the syntax and functionality of XML.

By the end of the tutorial, participants will be able to:

- Understand and author simple to moderately complex documents using XML
- Define document structures using XML DTDs and schemas
- Format, display, and process information from XML documents using CSSs and XSL

Outline of Topics:

- Markup languages
- XML tags, elements, attributes, and entities
- Document type definitions
- XML schemas
- Well-formedness and validity
- Cascading style sheets (CSS)
- Extensible style language (XSL)
- XML development tools

Intended Audience: Scientists, educators, and researchers; physicians, nurses, and other health care professionals; biomedical engineers and workers in bioinformatics; computer scientists, system developers, and programmers; and medical librarians and other information professionals.

Content level: 25% basic, 50% intermediate, 25% advanced

T14: Selected Topics Series

Lincoln East

Personal Health Records and E-health Portals

Patricia Flatley Brennan, University of Wisconsin-Madison
Jonathan S. Wald, Partners HealthCare; Stephen E. Ross, University of Colorado Denver Division of General Internal Medicine

Personal health records (PHRs) complement clinical documentation by providing patients with access to subsets of their clinical

records and with the health information management tools needed for self-care and effective health care utilization. E-health portals provide lay people with access to a health care systems resources, including health information, appointment scheduling and provider communication, and personal health tracking. This tutorial will introduce clinicians, systems administrators, and IT developers to critical issues regarding the design and deployment of personal health records. During the tutorial, participants will have an opportunity to examine and critically evaluate existing personal health records tools, explore e-health portals, and discuss technical, ethical, and policy considerations related to the deployment of personal health records tools. An update of the national environment and how it may affect individual programs will be provided: AHIC, HITSP, consumer empowerment use case and associated standards, and the health plans' initiative.

By the end of the tutorial, participants will be able to:

- Differentiate personal health records from other information processing tools used in health care
- Develop a strategy to appraise the clinical consequences of PHRs
- Evaluate the technical requirements, ethical considerations, and social value of personal health records.

Outline of Topics:

- Personal Health Records and E-health portals
- Basic definitions
- Shared features
- Unique aspects
- Demonstration – Prototypes and early approaches
- Tethered and untethered systems
- Portals to health care systems
- Clinical considerations
- Fostering health goals with PHRs and eHealth Portals
- Health education
- Personal health monitoring
- Communication with professionals
- Creating a life-long health record
- View from the National Scene
- AHIC, & HITSP
- Consumer empowerment use case and associated standards
- Health Plans initiative
- Social benefits of PHRs and eHealth Portals
- Surveillance
- Public health education
- Health services research
- Technical considerations and challenges
- Platforms and devices
- Integration with clinical information systems
- Human-computer interaction
- Policy considerations
- Privacy
- Impact on clinician workload
- Burden on patients and families

Who should attend: Clinicians, managers of E-Health Portals, health educators, public health practitioners, engineers and computer scientist who work with distributed information systems, integration of disparate data bases or network-level authorization, authentication, or privacy policies.

Content Level: 50% basic, 30% intermediate, 20% advanced

T15: EHR Series

Monroe East

Standards for Storing and Exchanging Clinical Data in Electronic Health Record Systems

Walter Sujansky, Sujansky & Associates, LLC

The absence of widely implemented clinical data standards has been cited as a major barrier to the adoption of EHRs in the United States. This tutorial discusses the practical importance of data standards in ambulatory EHRs and describes some of the most important standards for storing and exchanging clinical data in real-world systems. Specific standards that will be covered include HL7, NCPDP Script, CCR, LOINC, and SNOMED.

The tutorial will also address issues that have hindered the adoption and effective use of clinical data standards in the U.S, and will describe ongoing efforts to address these issues within the government and private sector. A recently developed HL7 standard for reporting laboratory results to ambulatory EHRs (ELINCS) will be presented as a case study of the process for developing, disseminating, and implementing a clinical data standard to meet a practical need.

By the end of the tutorial, participants will be able to:

- Understand how clinical data standards influence the functionality and usability of EHRs
- Evaluate the appropriate roles and the strengths/limitations of several prominent data standards
- Appreciate the practical difficulties of applying existing data standards effectively within EHRs
- Understand a number of current initiatives striving to increase the value of standards for EHRs, including the ELINCS lab-reporting project

Outline of Topics:

- Purpose/role of data standards in ambulatory EHRs
- No EHR is an island
- Semantic interoperability
- Important data standards for EHRs
- Messaging standards (HL7, NCPDP SCRIPT)
- Document standards (CCR, CDA)
- Terminology standards (LOINC, SNOMED-CT, NDC, RxNorm, other drug terminologies)
- Issues/barriers in the practical adoption and use of data standards
- Current initiatives to address/overcome barriers
- Work of private entities (HL7, IHE, Connecting For Health)
- Work of federal government (HITSP, CCHIT, NLM)
- Case Study: ELINCS (EHR-Laboratory Interoperability and Connectivity Standards)

Intended Audience:

Developers of ambulatory EHR systems, including systems for decision support, reporting, analysis, and interfacing; purchasers and users of ambulatory EHR systems; developers of clinical data standards; students interested in the practical uses and technical features of existing clinical data standards.

Content level: 40% basic, 40% intermediate, 20% advanced

T16: Methods Series

Hemisphere

Support Vector Machines without Tears

Alexander Statnikov; Douglas Hardin, Vanderbilt University; Isabelle Guyon, Clopinet; Constantin Aliferis, Vanderbilt University

This half-day tutorial will provide an introduction to biomedical informatics researchers about support vector machines (SVMs) and how these methods are applied in biomedical applications. SVMs are among the most important recent developments of machine learning and pattern recognition and have extensive applications in biomedicine. Unlike other approaches, these techniques are robust to the high variable-to-sample ratio and large number of irrelevant variables, they can learn efficiently very complex functions, and they employ powerful regularization principles to avoid overfitting.

First, we will introduce mathematical and pattern recognition principles behind SVMs in an intuitive manner making them accessible to attendees lacking sophisticated mathematical backgrounds. Then we will describe SVM-based algorithms for classification, regression, clustering and novelty detection, variable selection and dimensionality reduction that are widely used or gaining popularity in biomedical applications. Throughout the tutorial we will provide case studies for each class of methods and give pointers to software implementations and additional introductory literature. The knowledge gained in this tutorial will allow researchers to break the barriers of classical statistics and older pattern recognition and be able to conduct complex and high-dimensional analyses easily and efficiently.

By the end of the tutorial, participants will be able to:

- Execute complex machine learning and pattern recognition tasks in high-dimensional biomedical datasets
- Efficiently perform variable selection using state-of-the-art SVM-based methods
- Understand advantages and limitations of SVM-based algorithms over classical statistics and older pattern recognition techniques

Outline of Topics:

Part I

- Necessary mathematical concepts
- Support vector machines (SVMs) for binary classification: classical formulation
- Overfitting and regularization

Part II

- Fitting an SVM to your data
- Extensions to basic SVM model:
- SVMs for multiclass classification
- Support vector regression
- Novelty detection with SVM-based methods
- SVM-based variable selection
- Other recent research in SVM-based methods

Part III

- *Case study I:* Application and comparison of multiclass SVMs and state-of-the-art classifiers in cancer microarray gene expression data

- *Case study 2:* Application of SVM classifiers to a variety of text categorization tasks in biomedicine
- *Case study 3:* Prediction of clinical laboratory values using SVM classifiers
- *Case study 4:* Using SVMs for modeling clinical judgment and implicit guideline compliance in the diagnosis of melanomas
- *Case study 5:* Using SVMs for feature selection
- *Case study 6:* Comparison of SVM-based variable selection methods with Markov-blanket methods. Pitfalls of using SVM-based methods for causal feature selection
- *Case study 7:* Outlier detection with SVM-based methods in ovarian cancer mass-spectrometry proteomics data

Part IV

- Software implementations of SVM-based algorithms
- Additional literature
- Conclusions

Intended Audience: Biomedical informatics scientists and researchers, clinicians, bioinformaticians, biostatisticians, data analysts, programmers, students.

Content level: 25% basic, 50% intermediate, 25% advanced

T17: Primer Series

Lincoln West

A Primer on Quality Measurement and the Electronic Medical Record Environment

L. Gregory Pawlson, Rick A. Moore, National Committee for Quality Assurance

There is a growing recognition that the future of performance measurement in health care is closely linked to the development and implementation and use of electronic medical records and health information systems. Yet the fields of informatics or EMR development, and that of clinical performance measurement have developed in parallel but with very little overlap or mutual understanding. Most performance measures are still developed within the context of paper medical records and claims data, and few EMR or health information systems have been tailored to incorporate standardized measurement of performance. This tutorial session will provide attendees with an introductory understanding of the quality measurement development process to include the current and future intersection with Electronic Medical Records. The session will review the scientific basis and derivation of developing measures with special focus on the ambulatory care environment and how the measures are used by an evaluation organization (NCQA) in various accreditation, certification, and physician recognition programs. Attendees will also learn how the implementation of electronic medical records is impacting the collection of quality measurement data, and vice versa; and how the two fields will inform the future of quality measurement and reporting.

By the end of the tutorial, participants will be able to:

- Have an understanding of the quality measurement development process

- Have an understanding of quality measurement application in the ambulatory setting from the perspective of NCQA's accreditation, certification, and recognition programs
- Have an understanding of current data collection processes supporting quality measurement reporting – electronic medical records and others
- Have an understanding of the impact electronic medical records is making and will provide in the future of quality measurement, development, collection, and reporting

Outline of Topics:

- The science of quality measurement development
- How a measure get “approved”
- Real world example of the process and application of quality measures
- The enabler of quality measurement reporting – electronic medical records
- How we collect and report measures today
- Real world examples from the field
- The future of quality measurement reporting:
- Work of the Collaborative

Intended Audience: Individuals responsible for EMR development, for implementing quality/cost improvement in a health system, or responsible for implementing or developing information technology to enable those improvements.

Content level: 50% basic, 40% intermediate, 10% advanced

2:30 PM–3:00 PM COFFEE BREAK

Crystal Corridor

5:00 PM–6:30 PM BUSINESS MEETINGS

Primary Care Informatics WG Business Meeting
1919 East

7:00 PM–9:30 PM WORKSHOPS

Workshop 1

Lincoln West

Using Electronic Health Records to Collect Patient-Specific Performance Measures and Outcomes

A. Jain, eCleveland Clinic/eResearch, Cleveland Clinic; S. Hayden, Cleveland Clinic

It is clear that performance measurement and quality outcomes are increasingly linked to reimbursement. Moreover, EHR adoption is seen as a vehicle for high quality care. We discuss the role of the secondary use of EHR data in the effort to make measuring and reporting of patient-specific processes and outcomes more

efficient. Governance issues, workflow consistently, and technical challenges remain obstacles as institutions that have implemented EHRs try to obtain high quality data for quality initiatives. Through an interactive workshop, we will explore the role of a multi-disciplinary group at our institution in leveraging our EHR-based clinical data repository to design and implement algorithms for rapidly deriving, validating, and delivering patient-specific performance measures and outcomes related to quality improvement projects. Our measures are based on widely-accepted national guidelines. Finally, we will focus on overcoming governance and clinical workflow challenges, extending investments already made in the health IT infrastructure, and developing a team to manage the complexity of secondary use of EHR data to measure and impact on quality.

Workshop 2

Georgetown East

Implementing Intentionally Designed Automation to Support Evidence-Based Practice: Lessons from the International Consortium

D. Hanson, CPM Resource Center; B. Doebbeling, IU Center for Health Services & Outcomes Research and Regenstrief Institute, Inc.; M. Kahn, Blessing Hospital; S. Shaha, Principal Outcomes Consultant

The great need for evidence-based practice to ensure safety and quality for both those who give care and receive care is not disputed. However, the role of technology in the support of evidence-based practice requires further development, implementation and integration into workflow. Billions of dollars are being spent on the implementation of technology in the U.S. Numerous published opinions, challenges, lengthy and costly implementation processes and failure to achieve desired clinical outcomes all raise serious concerns about the best way to use technology in clinical practice transformation. This workshop will present the lessons learned in the field from an International Consortium of over 230 rural, community and university settings collectively leading the work to implement evidence-based practice and co-create the best places to work and receive care. The focus of this presentation will be on the structure, process and outcomes of implementing in 21 acute care clinical settings “Intentionally Designed Automation” (IDA) that is pre-configured, evidence-based, integrated, interdisciplinary and based on a professional practice framework called the Clinical Practice Model (CPM). The IDA delivers executable evidence based Clinical Practice Guidelines to the finger tips of clinicians within a documentation system that supports work and thought flow. The implementation methodology and clinical outcomes of 21 lives sites who have collectively implemented IDA to achieve evidence-based practice will be shared. The implications of the lessons learned within the Consortium will be correlated to the call for “Implementation Science” that demonstrates effective, efficient, cost-effective technological implementation.

Workshop 3

Jefferson West

Mapping the Sociotechnical Healthcare Ecosystem: Expanding the Horizons of Sociotechnical Inquiry

M. Brown, Integrated Centre for Care Advancement through Research; N. Shaw, University of Alberta and Capital Health

In recent years, sociotechnical approaches have become increasingly popular for understanding the design, implementation, and evaluation of information technology in health informatics. On the whole, these approaches have sought to unite essential knowledge from the domains of the social sciences and information technology in the study of health informatics, with the central assertion that health information technology cannot be properly understood apart from its social and systemic contexts. This perspective has been enormously beneficial, as it has provided a solid and sophisticated theoretical basis from which health informatics researchers have begun to describe, study, and understand human-IT interactions and their consequences at a microsystemic level. As this theory continues to be applied, however, it has become increasingly clear that these human-IT microsystems are themselves imbedded within larger systemic contexts, and that both these contexts “as well as the interactions and change processes both between and among them” need to be clearly conceptualized and explored in greater detail. In this workshop, sponsored by the AMIA People and Organizational Issues Working Group, we present human ecological theory as means for facilitating this theoretical growth and invite health informaticians from all disciplines to actively explore the emerging Sociotechnical Healthcare Ecosystem®.

Workshop 4

Jefferson East

Improving the Patient Experience by Improving Performance: The Six Sigma Way

K. Moidu, George Mason University; S. Margolis, Orlando Regional Healthcare; R. Pandey, BIPRO Inc.

The clinicians and health administrators continue to seek methods to improve delivery of care and contain costs. In this endeavor, they are applying systems engineering principles to improve patient experience, enhance safety, and reduce costs as they re-engineer the system. The foundations for this change are information and metrics to track improvement. Six Sigma is a methodology developed in 1986, to improve processes by eliminating defects in a service or a product. At operational level the health care informatics teams need to plan and implement changes in workflow to integrate technology while delivering care or conducting the clinical service. Here, we have many opportunities to improve the process. Health care could benefit from applying Six Sigma to reduce variation in process outputs as key to ensure quality and improve patient satisfaction. This workshop will introduce the concepts and cover the steps in a roadmap that will provide fast, reliable, sustainable, and cost effective solution to the challenges faced by the health care industries as well as demanded by the patients. The methodology and the tools are quite involved and it takes a few weeks to get into the depth of the topics.

Workshop 5

Military

Intuitive Information Technology: Enhancing Clinician Efficiency

M. Proconiar, S. Murphy, Standard Register

Although medical technology is making great strides in improved diagnosis and treatment, the technologies used to document, communicate, and manage those activities are limiting its progress by converting clinicians into computer operators. In an environment of nurse and doctor shortages, reducing their efficiency is counterproductive. Technology in health care that does not serve patients by improving cost, quality, or care delivery is technology that serves no purpose. Requiring clinicians to chart away from the bedside using technologies that do not feel intuitive, such as keyboarding and mouse use reduces efficiency of workflow, impedes direct care, and increases the cost of training. Intuitive forms of technology such as surface technology, voice activated charting, or digital pens, if embraced, could cause significant changes in health care workflows. Clinicians could be more focused on direct care and less utilized in clerical activity. The time it takes to access information could be decreased exponentially – and the opportunities to interact with that information would present a nearly endless horizon. This impact would be especially crucial in high acuity areas and emergency patient care situations. In short, technology should embrace familiar, natural movements and develop intuitive interfaces to improve effectiveness in the health care market of the future.

Workshop 6

Lincoln East

Second i2b2 Workshop on Natural Language Processing Challenges for Clinical Records

O. Uzuner, SUNY- Albany

The second i2b2 workshop on Natural Language Processing (NLP) for clinical records is a challenge on the automated processing of obesity data. The goal of the obesity challenge is to continue i2b2's effort to open patient records to studies by the NLP and medical informatics communities for the advancement of the state-of-the-art. For this, i2b2 is to make available a set of de-identified patient records that are hand-annotated by medical professionals for obesity and its co-morbidities. This enables studies of these records for the development of systems that can automatically identify obese patients from information in their records and that can extract co-morbidities of obesity that are exhibited by each patient. In this workshop, we will discuss the obesity challenge, study the complexity of the set task, review some approaches to automatically identifying obese patients and obesity co-morbidities from medical records, and present the challenge results. The findings of the i2b2 challenge on obesity will shed light onto the state-of-the-art in natural language processing for multi-label multi-class classification for clinical applications. It will showcase applications that are available for accurate classification of patients based on information in their narrative records.

Workshop 7

Monroe East

Writing for Publication in Biomedical Informatics

D. Aronsky, Vanderbilt University; T. Leong, National University of Singapore; J. Talmon, University of Maastricht; R. Haux, Peter L. Reichertz Institute for Medical Informatics, University of Braunschweig - Institute of Technology & Hannover Medical School; C. Safran, Beth Israel Deaconess Medical Center

Writing for publication can be a rewarding activity for researchers at all levels of experience. However, many students and researchers are less familiar with the various aspects of the publication process. The purpose of this workshop is to provide participants with the knowledge, skills, and practical advice that can lead to successful scientific publications. Participants will learn how to plan and prepare manuscripts, select an appropriate audience, decide on an appropriate type of publication, understand the submission, peer review, and editorial decision making process, and learn how to reply to reviewers' comments. Manuscript preparation will include a detailed explanation of the various sections of a manuscript, elements of writing style, use of abbreviations, formatting of tables, preparing of figures, creating bibliographies, and common errors to avoid. Ethical considerations, such as authorship responsibilities, conflict of interest, duplicate submissions, plagiarism, prepublication, etc., will be discussed. For authors whose primary language is not English, the workshop will provide advice on addressing relevant aspects. The presenters will share their knowledge and learned lessons from being authors, research advisors, reviewers, editorial board members and editors, so that participants can become more familiar with the process. During the interactive workshop participants are expected and encouraged to share their experiences. At the end of the workshop, participants should understand the scientific publication process and be able to overcome barriers that will lead to successful manuscript submissions.

Workshop 8

Monroe West



Faculty Development for Informatics: Education Working Group Workshop on Objectives, Methods, and Assessment in Informatics Education

P. Gorman, Oregon Health & Science University; L. Taylor, Johns Hopkins University School of Nursing

Biomedical informatics is maturing and growing rapidly as a discipline. There is an increasingly recognized need to expand the biomedical and health informatics workforce, and an expanding array of educational opportunities and training programs, addressing the needs of learners from a wide array of disciplines, at multiple levels of expertise. On the horizon are new forms of certification, and existing efforts to define the competencies that are needed in the various roles that biomedical and health informatics professionals will occupy. In the midst of all this, an unmet need exists for faculty development. Who will train the thousands of learners expected to enter our field? Who will train the trainers? AMIA's Education Working Group will help address

this need with this faculty development workshop, hopefully, the first in a series of such workshops and other activities which will enrich the capabilities of faculty and enhance the training of the coming biomedical and health informatics workforce.

Workshop 9

Georgetown West

Interdisciplinary Evidence-Based Practice and the Electronic Health Record: From Theory to Reality

M. Troseth, T. Cristopherson, CPM Resource Center/Elsevier; D. Gilbert Bradley, Eclipsys Corporation

This session will share the vision of a growing international health care consortium that has created collaborative approaches in creating a common clinical practice framework that supports practice interoperability that is critical to health care technology and patient and clinician safety. The framework is grounded in integrated scopes of practice and a wealth of evidence-based clinical tools and resources to support learning and work environments that are intentionally designed to keep both clinicians and patients safe. Through partnerships with health care technology companies, the framework is now live in over 30 acute care EHRs and being used by thousands of interdisciplinary clinicians everyday to enhance the delivery of safe, quality care and maintain a healthy culture. A key focus of this session is on the nature of the relationships between nurses, physicians, respiratory care practitioner, physical therapists, and other disciplines and how one discipline alone cannot be accountable for creating and sustaining evidence-based practice in health care settings. We will explore the role of evidence-based clinical practice guidelines and linkage to evidence-based order sets, as well as shared evidence-based computerized clinical documentation amongst all team members that is patient focused.

Workshop 10

Hemisphere

WG

Compressing ICD9 Codes for Predictive Modeling

P. Cerrito, University of Louisville; J. Cerrito, Kroger Pharmacy

There have been models defined to rank the quality of health care providers. The definition of quality must take into consideration the severity of a patient's condition. Sicker patients will be more at risk for complications and mortality. Without considering patient severity, hospitals might only admit low risk patients to improve quality rankings, while transferring their more severe patients. The problem is to define what patient severity really means. It is the purpose of this module to discuss the development of patient risk adjustment. We will discuss typical adjustment methods that rely upon a specific list of patient diagnoses. Next, we will discuss a method that uses all possible combinations of diagnoses. Risk adjustment is based upon the diagnoses that define the patient's condition. A patient with diabetes and congestive heart failure, for example, will be at much higher risk for any procedure compared to a patient with no severe diagnoses. There has to be some way of choosing which diagnoses to use for risk adjustment, and which should be discarded. The Charlson Index, for example, uses a list of 17 major diagnoses and assigns weights of 1 to 3 to each

diagnosis. The severity score for one patient is a sum of the weights of the 17 diagnoses that the patient has. Patients in a higher risk category should have a higher predicted mortality rate, and higher treatment costs. Otherwise, the risk adjustment has questionable results. Usually, risk is defined for each individual procedure as well, since some procedures have higher risk compared to others. Once the risk adjustment is determined, regression is used to predict outcomes, mortality, morbidity, or cost. Providers are ranked based upon the difference between the actual outcome and the predicted outcome. Problems occur because different providers do not code diagnoses uniformly. Over-coders are rewarded because they successfully shift patients into higher risk categories, reducing the difference between actual and predicted outcomes. It would be preferable to develop an index that uses all of the possible patient diagnoses, and all possible combinations of diagnoses. However, there has to be some method used to compress all of these different combinations into a meaningful index of severity so that the adjusted risk can be used to predict patient outcomes. In this module, we will demonstrate such a technique, and discuss its superiority as a tool of risk adjustment.

Workshop 11

Thoroughbred

WG

Extracting Coded Information from Large Databases

P. Cerrito, University of Louisville; J. Cerrito, Kroger Pharmacy

It is the purpose of this workshop to examine the necessary preprocessing of data to analyze information in nationally available databases, including the National Inpatient Sample and the SEER-Medicare database. Health care researchers cannot extract meaningful information without first processing the data into a format that allows for statistical analysis. For example, a quick examination of Medline via PubMed using the keywords, "National Inpatient Sample" returns 458 records. A search of "MEPS" returns 1363 records; "ambulatory care survey" returns 9803. Societies such as the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) and the American Pharmacists Association (APhA) have numerous presentations that utilize these databases as well. None of these papers discuss the necessary extraction techniques. In addition, publications that concentrate on the preprocessing required to work with these databases are virtually nonexistent. These databases can have over 100 variables, and millions of patient records. Traditional statistical methods cannot work with such complexity, and typically, the dataset is reduced to a handful of variables, and a filter to reduce the dataset to a much smaller, more restrictive set of patients. Moreover, the primary patient outcome studied is cost, where the different patient claims can be combined to a total cost of treatment. One of the most difficult problems is how to handle nominal data. In these databases, nominal data can have thousands of possible levels, too many to use in a regression model. There has to be a way to compress these values. There are many different coding schemes used to record patient conditions, including DRG codes, ICD9 codes, CPT codes, and HCPCS codes. Simply because of the complexity, there needs to be information provided on how the variables and categorical levels are reduced and extracted. In addition, information is often in different datasets, requiring files to be merged based upon

a patient identifier. Topics include compressing filtering and merging of datafiles, transformation of variables to satisfy model assumptions, and partitioning data to validate results. It will also focus on the required merging of different datasets (for example, the MEPS) by patient identifier so that the information extracted is accurate. The focus will be on how data files with thousands, if not millions of patient entries must be developed to extract meaningful information.

Workshop 12

Map

Standards in Clinical Decision Support: Activities in Health Level Seven

R. Jenders, Cedars-Sinai Medical Center / UCLA; G. Del Fiol, University of Utah; K. Kawamoto, Duke University; R. Sailors, The Methodist Hospital

Health Level Seven (HL7) has evolved into an international standards development organization (SDO) with a suite of standards. Prominent among these are formalisms related to clinical decision support, including the Arden Syntax, GELLO and Decision Support Service (DSS) standards. Continuing improvement in these standards and ongoing development of future decision support standards require wide participation in order to maximize their success. Accordingly, the purpose of the workshop is twofold. First, instructors will convey the latest developments regarding existing decision support standards and related efforts to develop new standards. Second, the instructors will solicit feedback so that attendees who do not participate in HL7 can have input into the standards activities of that organization. The instructors of this workshop, who are the co-chairs and/or members of the Clinical Decision Support Technical Committee of HL7, will review progress in these areas. They will present the details of the ongoing development of the extant Arden Syntax, GELLO, and DSS standards. They will discuss work on current draft and proposed future standards, including the Infobutton communication and Order Set standards that are undergoing development in anticipation of certification as standards. Finally, they will solicit discussion regarding the future direction of standards development in these areas.

7:00 PM-10:00 PM SPECIAL EVENTS

AMIA Leadership Dinner

The Cosmos Club - 2121 Massachusetts Avenue NW

(by invitation only)

Sponsored by Vanderbilt University Medical Center

Nursing Informatics Working Group

*Hospitality Suite sponsored by:
NIWG Membership &
Education Committee*

- Network with Nursing Informatics members
- Meet the NIWG leadership team
- Understand national Nursing Informatics activities

Activities will include:

- Guide to Nursing Informatics content & activities at AMIA
- Tools to navigate AMIA
- Nursing School recruitment
- History Project Videos

Hospitality Suite Schedule

- Saturday 5:00 pm - 6:30 pm
- Sunday 12:00 pm - 1:00 pm
- Sunday 5:00 pm - 6:30 pm
- Monday 12:00 pm - 1:30 pm
- Tuesday 5:00 pm - 6:30 pm

SUNDAY, NOVEMBER 9

7:00 am – 12:00 pm

8:00 am – 12:00 pm

8:00 am – 12:00 pm

8:00 am – 12:00 pm

8:30 am – 12:00 pm

10x10 at OHSU In-person Session

10x10 at UAB In-person Session

Nursing Informatics WG Special Event

Student Paper Competition

Half-day Tutorials

- T18 Electronic Health Records: How Might We Deliver the Benefits Rapidly and Inexpensively?
- T19 Discovering Knowledge: An Introduction to Data Mining Principles and Practice
- T20 Introduction to Translational Bioinformatics
- T21 From "Aha!" to Profitability: Building a Business Around the Big Idea
- T22 Practical Guide to Clinical Computing Systems: Design, Operations, and Infrastructure
- T23 Approaches to Clinical Computer-based Documentation
- T24 Building Bayesian Decision Support Systems
- T25 Unified Medical Language System - UMLS® Overview
- T26 Ontologies in Biomedicine
- T27 Design & Conduct of Evaluation Studies in Biomedical Informatics

10:00 am – 10:30 am

1:00 pm – 3:00 pm

3:30 pm – 5:00 pm

Coffee Break

Opening Session and Keynote Address

Scientific Sessions

- S01 A Perspective on the National Elections, the Administration and Congress, Health Policy, and Informatics
- S02 Broad-based Initiatives for Clinical Decision Support Dissemination and Adoption: Toward Addressing the Barriers and Overcoming the Gaps
- S03 Distributed Cognition in Healthcare
- S04 Global Public Health Informatics for Low-Resource Settings - Vision, Strategies and Challenges
- S05 Implementing Standardized Nursing Terminologies in EHRs: Challenges and Opportunities
- S06 Adherence and Compliance
- S07 Building Usable Systems
- S08 Delivering Information to Patients
- S09 Methods for Information Extraction
- S10 Development and Use of Ontologies

5:00 pm – 7:00 pm

5:30 pm – 7:00 pm

6:00 pm – 9:00 pm

6:30 pm – 7:30 pm

7:30 pm – 10:00 pm

Welcome Reception – Innovation & Information Center Open

Working Group Business Meetings (Open Source, Student)

NLP WG Annotation Meeting

ACMI Reception (by invitation)

ACMI Dinner and Induction of Fellows (by invitation)

SUNDAY, NOVEMBER 9, 2008

7:00 AM-12:00 PM SPECIAL EVENTS

10x10 at OHSU In-person Session

Map

8:00 AM-12:00 PM SPECIAL EVENTS

10x10 at UAB In-person Session

1919 East

Nursing Informatics WG Special Event

Caucus

Student Paper Competition

Thoroughbred

8:30 AM-12:00 PM TUTORIALS

T18: EHR Series

Georgetown West

Electronic Health Records: How Might We Deliver the Benefits Rapidly and Inexpensively?

*W. Ed Hammond, Duke University Medical Center
William Stead, Vanderbilt University Medical Center*

Everyone concerned with the access, quality, and cost problems of today's healthcare quickly recognizes electronic health records as a critical need. The benefits of the ready access to the right information have been documented in the medical literature. Yet "adoption" is slow. This tutorial begins with the hypothesis that the academic biomedical informatics community, and the health care information technology industry, may bear part of the responsibility for this adoption gap. Attention to the perfect may be getting in the way of achieving the good.

By the end of the tutorial, participants will be able to:

- Have an understanding of the splitter's view of the benefit of EHRs
- Have an understanding of the power of loosely coupled components when supporting different but overlapping roles
- Have an approach to breaking up the EHR problem to deliver benefit earlier and less expensively

Outline of Topics:

- Granular benefit framework
- Measurable quality or cost return
- Changes required (Process, Role, Technology) for that return
- Shortest path to that return
- Putting pieces together to gain speed and flexibility:
- Case example: How decoupled PHRs and EMRs might work together
- Staging implementation of EHR components to deliver benefit in excess of cost
- Examples of how this might be done in a mall practice or health system

Intended Audience: Individuals responsible for quality/cost improvement in a health system or responsible for implementing or developing information technology to enable those improvements.

Content level: 10% basic, 80% intermediate, 10% advanced

T19: Primer Series

Jefferson West

Discovering Knowledge: An Introduction to Data Mining Principles and Practice

John Holmes, University of Pennsylvania

This interactive tutorial will introduce attendees to the theory, tools, and techniques for discovering knowledge in biomedical data. Using a well-known data mining life cycle as a conceptual framework, attendees will experience first-hand, thorough demonstration and direct participation, the techniques of mining clinical data. These techniques include data preparation, description and visualization, mining association, classification, and prediction rules, clustering. The capstone of the tutorial will be the application of mined data to informing traditional statistical analysis.

The Weka data mining software package (<http://www.cs.waikato.ac.nz/ml/weka/>) will be used for interactive demonstration in the tutorial. Weka is freely available in the public domain, and runs on even modestly equipped computers within a Java runtime environment (JRE). The software will be distributed to attendees on CD-ROM free of charge. Attendees are strongly encouraged to bring laptops with fully charged batteries to the tutorial, during which they will be given the opportunity to install and use Weka. However, even those who do not bring laptops will benefit from the detailed demonstrations in the tutorial. This tutorial requires basic familiarity with databases and data warehouses.

By the end of the tutorial, participants will be able to:

- Understand the basic principles of data mining
- Apply appropriate data mining techniques in clinical research
- Interpret data mining results and how they inform statistical analysis

Outline of Topics:

- Biomedical databases
- Data visualization
- Intelligent data analysis
- Explanatory data mining
- Predictive data mining
- Data mining software
- Applications of data mining in biomedical domains
- Data preparation: methods for cleaning, reduction, and coding
- Association rule discovery
- Classification and prediction
- Clustering and visualization
- When to data mine
- Evaluating data mining software
- Ethical concerns in data mining

Intended Audience: Scientists; researchers; physicians, nurses, and other health care professionals; and computer scientists, system developers, and programmers.

Content level: 100% basic

T20: Primer Series

Georgetown East

Introduction to Translational Bioinformatics

Atul Butte, Stanford University

In 2005, Dr. Elias Zerhouni, Director of the National Institutes of Health (NIH), wrote "It is the responsibility of those of us involved in today's biomedical research enterprise to translate the remarkable scientific innovations we are witnessing into health gains for the nation... At no other time has the need for a robust, bidirectional information flow between basic and translational scientists been so necessary." Clearly evident in Dr. Zerhouni's quote is the role biomedical informatics needs to play in facilitating translational medicine. American Medical Informatics Association (AMIA) recently added Translational Bioinformatics as one of its three major domains of informatics. This tutorial is designed around the successful curriculum used in Stanford's 2007 Translational Bioinformatics, one of the first courses to be offered in this field. This tutorial is designed to teach the basics of the various types of molecular data and methodologies currently used in bioinformatics and genomics research, and how these can interface with clinical data. This tutorial will address the hypotheses one can start with by integrating molecular biological data with clinical data, and will show how to implement systems to address these hypotheses. The tutorial will cover real-world case-studies of how genetic, genomics, and proteomic data has been integrated with clinical data.

By the end of the tutorial, participants will be able to:

- Understand why biologists and clinicians use each measurement technology, and the advantages of each
- Be able to explain which genomic and genetic methods are most appropriate for studying diseases
- Be able to list high-level requirements for an infrastructure relating research and clinical genetic and genomic data

Outline of Topics:

- Basic understanding of various genome-scale measurement modalities: sequencing, polymorphisms, haplotypes, proteomics, gene expression, metabolomics, and others
- Crucial difference between genetic and genomic data
- Nature and format of expression, polymorphism, proteomics, and sequencing data
- Overview of the most commonly used structured vocabularies, taxonomies, and ontologies used in genomics research
- Description of the most frequently used analysis and clustering techniques
- How the genetic predisposition to disease is studied
- Use of genetic information across medical specialties
- How to find clinical genetic tests
- Genomic and clinical data to study patient disease-free status and survival
- How informatics can be used to identify potential drug targets
- Types of biomarkers
- Parallels between research methods in medical informatics and bioinformatics
- Relating clinical measurements with molecular measurements

Intended Audience: Academic faculty or professionals setting up bioinformatics facilities and/or relating these to clinical data repositories, or to data from General Clinical Research Centers or Clinical and Translational Science Awards; health information professionals responsible for clinical databases or data warehouses and tying these to researchers; informaticians, clinicians, and scientists interested in genetics, functional genomics, and microarray analysis; physicians interested in how medicine is advancing through the use of genomics and genetics; and students.

Content level: 20% basic, 50% intermediate, 30% advanced

T21: Selected Topic Series

Hemisphere

From "Aha!" to Profitability: Building a Business Around the Big Idea

Barbara Rapchak, *Leap of Faith Technologies, Inc*; Frank Naeymi-Rad, *Intelligent Medical Objects*; Mark V.B. Partridge, *Pattishall, McAuliffe, Newbury, Hilliard & Geraldson LLP*; Connie Dresser, *National Cancer Institute*; Raymond G. Falci, *Cain Brothers & Company LLC*; Jon Paul, *Value Added Finance Resources*

You've got a great business idea. Now you need a way to finance it and turn it into a profitable enterprise. This lively and engaging half-day tutorial will teach you what you need to know about seeking and securing outside financing for your business while protecting your intellectual property. The curriculum comes from a dynamic mix of experienced entrepreneurs and industry experts. It offers a snapshot of the entrepreneurial process, including a workshop to develop a 30-second "elevator pitch" of your business. The tutorial will culminate in a "Fast Pitch" exercise where participants will have the opportunity to present their pitch to industry analysts and experts.

By the end of the tutorial, participants will:

- Identify various sources of funding and ways to raise capital in order to propel their idea into a business
- Identify what intellectual property needs protection, and understand why, when, and how to protect it
- Develop a 30-second pitch of their business idea for potential investors, and have the opportunity to present it

Outline of Topics:

- Financing Your Business: Financing is a key variable in starting a business that shapes the planning process
- How do financing methods vary as a function of the stage of the company?
- What is a typical sequence for different financing options?
- How do personal goals interact with the available alternatives?
- Where do mechanisms like SBIR and STTR grants fit into the overall picture?

Protecting Your IP: Your Greatest Asset: Intellectual property is your greatest asset when building a business around a big idea. Critical steps must be taken early to avoid the loss of valuable rights, business and money. Many medical informatics companies and related businesses have benefited from early protection of their IP. You can too.

In the session you will learn:

- How to transform ideas and knowledge into valuable protected property
- The four Guiding Rights of intellectual property necessary to protect your business
- Five keys to creating a distinctive competitive advantage using IP principles
- Six IP strategies to make more money for your business.
- Inexpensive actions you can take today to protect IP and increase the value of your company

Communicating the Big Idea for Fun and Profit: Elevator Pitch Workshop:

If you were in an elevator with a potential business investor and you had only a 30-second elevator ride to make a memorable impression, what could you say to make an impact? Having a sharp, intriguing statement ready makes the difference between being remembered and being forgotten. You never know which simple conversation may lead to that big deal. Entrepreneurs will learn how to make an effective 30-second elevator pitch to potential investors. We'll take you step-by-step through the process so you're prepared to hit the ground running with your new venture. Then you'll have the opportunity to participate in an interactive "Fast Pitch" exercise.

Who Should Attend:

Entrepreneurs wanting to start a business in informatics related products/services. Scientists, educators, researchers, physicians, nurses, other health care professionals, computer scientists, system developers, and programmers.

Content Level: 70% basic, 30% intermediate

T22: EHR Series

Lincoln West

Practical Guide to Clinical Computing Systems: Design, Operations, and Infrastructure

Thomas Payne, University of Washington
Soumitra Sengupta, Columbia University

This tutorial is intended for those who find themselves adding informatics to their existing responsibilities, those in graduate or fellowship training in informatics who intend to have informatics careers, and anyone who wants to learn more about the practical side of clinical computing. We will cover the architecture of clinical computing systems in medical centers, the realities of building HL7 interfaces, interface engines, maintaining a stable technical infrastructure, medical record requirements, providing ongoing user training and support, and what it takes to keep clinical computing systems continuously available. There are many good articles and books covering implementation of clinical computing systems. However, most of our time and energy will be spent keeping existing systems operating so that EMRs, CPOE systems, decision support systems, and other clinical computing systems can be used efficiently and reliably. That is the focus of this tutorial.

By the end of the tutorial, participants will be able to:

- Understand architecture of clinical computing systems in a medical center
- Know approaches and challenges to interfacing clinical computing systems
- Understand options for supporting clinician users during routine operations and downtimes
- Appreciate importance and complexity of supporting hosts, networks, workstations, and other infrastructure required for dependable clinical computing system operations
- Understand how clinical computing systems fit into medical center governance and oversight
- Feel better prepared to assume membership or leadership of clinical computing operations in your medical center

Outline of Topics:

- Introduction and overview of clinical computing systems within a medical center
- Architecture of clinical computing systems
- Creating and supporting interfaces
- Infrastructure and security
- Troubleshooting: What can go wrong and how to fix it
- Working with the user community
- Health information management and legal aspects of the electronic medical record
- Working with organizational leadership

Intended Audience: Physicians, nurses, and other healthcare professionals; informatics trainees; anyone who wants to learn more about the practical side of clinical computing.

Content level: 70% basic, 20% intermediate, 10% advanced

T23: EHR Series

Jefferson East

Approaches to Clinical Computer-based Documentation

S. Trent Rosenbloom and Kevin B. Johnson,
Vanderbilt University Medical Center

Health care professionals have increasingly adopted electronic health record (EHR) systems, especially in larger practices or health care settings. Many currently available EHR systems include modules to support direct clinical computer-based documentation (CBD), and traditional documentation methods can be made to support EHR system adoption and use. Documentation methods that can integrate with EHR systems include scanning handwritten notes, dictating to a transcriptionist, typing into or making selections via specialized computer programs, and hybrid methods. There exists a long and rich history of research exploring the use of CBD systems. This research has demonstrated that the choice of a documentation method may impact overall documentation quality, provider satisfaction, and clinical workflow.

Different documentation methods have varying strengths and weaknesses related to quality, usability, efficiency, and data availability. It is likely that each note-capture mechanism will find a clinical niche, with different clinicians and different sites each using the type that best fits the practice situation. The proposed tutorial will outline different methods for documenting clinical care, will review existing literature covering the history and evaluations of CBD systems, will discuss factors contributing to documentation content, will address how templates can impact documentation, and will conclude with summary recommendations for developers and adopters.

By the end of the tutorial, participants will be able to:

- Understand the different methods for clinical documentation and their rationale
- Understand the history and near-term future of clinical documentation tools
- Characterize functional considerations that are important when selecting a clinical documentation tool

Outline of Topics:

- Types of clinical documentation
- External drivers of clinical documentation content
- History of computer based documentation systems
- Different approaches for templating notes
- An approach for selecting documentation systems

Intended Audience: Computer-based documentation system developers and evaluators, health care providers, electronic health record system users, evaluators and purchasers.

Content level: 30% basic, 50% intermediate, 20% advanced

T24: Methods Series

Monroe West

Building Bayesian Decision Support Systems

Peter J. Haug, Intermountain Healthcare
Dominik Aronsky, Vanderbilt University

Medical decision support systems are often required to classify patients in accordance with patterns recognized in their data. Uncertainty and missing information are an inherent characteristic of the medical domain. In contrast to rule-based systems, Bayesian systems are able to model uncertainty and missing information explicitly. The availability of large databases makes Bayesian systems attractive for creating decision support systems in the medical domain. The tutorial gives attendees a theoretical and practical introduction to Bayesian systems. Participants are provided with some basic theoretical background that is necessary for developing and understanding Bayesian systems. Theory will be balanced with hands-on experience in the construction of simple Bayesian systems (with an emphasis on Bayesian belief networks). Database requirements and evaluation techniques to assess the systems' accuracy will be discussed. A demonstration of more complicated Bayesian models as well as systems currently in use, gives participants an idea how and where systems can be applied. To participate in the hands-on exercises participants need to bring an IBM-compatible laptop with a fully charged battery.

By the end of the tutorial, participants will be able to:

- Understand the theoretical background of probabilistic reasoning
- Review of existing Bayesian systems and understanding their advantages and disadvantages
- Become familiar with the requirements for building, implementing, and evaluating Bayesian systems

Outline of Topics:

- Introduction to Bayesian systems
- Technical background including Bayes theorem
- Definitions for common terms
- Introduction to Netica, a Windows-based application for building Bayesian systems
- Basic software functionality
- Different models of Bayesian systems
- Performance and accuracy of decision support
- Evaluation of Bayesian systems
- Using databases for creating applications with Bayesian systems

Intended Audience: Scientists, researchers; physicians, nurses and other health care professionals; system developers, and programmers.

Content level: 20% basic, 50% intermediate, 30% advanced

T25: Primer Series

Military

Unified Medical Language System - UMLS® Overview

Jan Willis and Rachel Kleinsorge, National Library of Medicine (NLM)

The purpose of NLM's Unified Medical Language System® (UMLS®) is to facilitate the development of computer systems that behave as if they "understand" the meaning of the language of biomedicine and health. Toward that end, NLM produces and distributes the UMLS Knowledge Sources (databases) and software tools (programs) for use by system developers. The UMLS Metathesaurus serves as an official distribution vehicle for HIPAA standard code sets and US government target clinical vocabulary standards.

This course provides an overview of UMLS Knowledge Sources and associated programs, including the Metathesaurus, a database of 1 million+ concepts from over 100 biomedical vocabularies, the Semantic Network, used to categorize all concepts in the Metathesaurus and help interpret meaning, and the SPECIALIST Lexicon and lexical tools, used to process text and language for clinical, research, and educational purposes.

By the end of the tutorial, participants will be able to:

- Identify the 3 UMLS Knowledge Sources, and describe how systems developers can use these data and programs to build electronic information systems that process biomedical and health data and information

- Understand how the Metathesaurus data files represent many different vocabularies (including SNOMED CT and RxNorm, HIPAA standard code sets, etc.) in a common, explicit format, while preserving “source transparency” for each individual vocabulary
- (1) Access UMLS resources via the UMLS Knowledge Source Server (UMLSKS), including its Web browser; and to (2) use MetamorphoSys to install the UMLS and to produce customized Metathesaurus subsets, and search and view subsets using the companion RRF Browser.

Outline of Topics:

- UMLS Introduction and Overview
- Metathesaurus
- Semantic Network
- SPECIALIST Lexicon and Tools
- UMLS Tools (UMLSKS, MetamorphoSys, & the RRF Browser)
- UMLS Use Cases

Intended Audience: Biomedical informatics and other researchers; physicians, nurses, and other healthcare professionals; computer scientists, system developers, and programmers; and medical librarians and other information professionals.

Content level: 100% basic

T26: Primer Series

Lincoln East

Ontologies in Biomedicine

Mark A. Musen, Stanford University and the National Center for Biomedical Ontology

Ontologies are at the core of biomedical informatics. The ability to describe formally the entities in an application area and the relationships among those entities is a fundamental skill in informatics and an essential prerequisite to the development of complex software systems. From systems for annotating experimental data (such as the Gene Ontology), to large terminological systems (such as SNOMED), to descriptions of medical knowledge for decision support (such as in the case of guideline-based care), ontologies have become pervasive in biomedicine. This tutorial will provide an overview of what ontologies are and why they are important. Participants will learn to distinguish ontologies from controlled terminologies and from knowledge bases. They will learn how ontologies are used in biomedical practice and the role of informatics in the construction, management, and application of ontologies. Participants will learn about the role of ontologies in applications for decision support, electronic health records, information retrieval, knowledge management, and the Semantic Web.

By the end of the tutorial, participants will be able to:

- Know what ontologies are and how they are structured and developed
- Know about some important ontologies used in biomedical informatics
- Know how ontologies are used to build representative types of application systems in biomedical informatics

Outline of Topics:

- What is an ontology?
- Kinds of ontologies
- Applications of ontologies
- Structured-data entry for EHR
- Information retrieval
- Data annotation and integration
- Knowledge-based systems
- Languages for building ontologies
- Principles of ontology development
- Tools for building and managing ontologies
- Future trends
- Collaborative ontology engineering
- Model-Driven Architecture
- The Semantic Web

Intended Audience: Scientists, educators, and researchers; biomedical engineers and workers in bioinformatics; administrators and CIOs; computer scientists, system developers, and programmers; and medical librarians and other information professionals.

Content level: 100% basic

T27: Methods Series

Monroe East

Design & Conduct of Evaluation Studies in Biomedical Informatics

Charles P. Friedman, Office of the National Coordinator, U.S. Department of Health and Human Services

It is now generally accepted that evaluation of information resources and their users is one of the fundamental activities of biomedical and health informatics. Evaluation studies can address a wide range of questions using a wide range of methods. Studies are carried out before, during, and following the deployment of information resources. This tutorial is designed to support anyone designing, carrying out or critically appraising an evaluative study of a biomedical information resource. The tutorial will offer an introduction to the rigorous scientific methods underlying evaluation, in such a manner that they are understandable and practical to apply. The tutorial starts by defining evaluation and describing why we do it, then discusses alternative approaches and how to select between them. A case study is used to introduce evaluation techniques and examine their strengths and weaknesses.

The content of this tutorial is coordinated with the textbook: Friedman CP, Wyatt JC, “Evaluation Methods in Biomedical Informatics, 2nd Edition.” New York: Springer, 2005.

By the end of the tutorial, participants will be able to:

- Define the process and role of evaluation within the field of informatics
- Given an evaluation study, identify the approach that it employs
- State specific evaluation questions, appropriate to an informatics project setting
- Analyze evaluation studies with attention to issues of measurement and demonstration study design

Outline of Topics:

- What is evaluation, why do we do it and why is it difficult?
- Alternative approaches to evaluation, and their underpinnings
- The range of what can be studied in informatics
- Quantitative (objectivist) approaches in depth: measurement and demonstration studies.

Intended Audience: The tutorial is appropriate for anyone designing, carrying out, or critically appraising the study of information resources—as applied to health care, biomedical research, or the education of health professionals.

Content level: 80% basic, 20% intermediate

10:00 AM–10:30 AM COFFEE BREAK

Crystal Corridor

1:00 PM–3:00 PM PLENARY SESSION

Opening Session and Keynote Presentation

David M. Eddy

International Ballroom Center

David M. Eddy, Medical Director and Founder of Archimedess

(for more information on Dr. Eddy, please see page 3)

3:30 PM–5:00 PM SCIENTIFIC SESSIONS

S01 – Featured Panel

Theme: Policy and Ethical Issues

International Ballroom East

Session Chair: Julie McGowan

A Perspective on the National Elections, the Administration and Congress, Health Policy, and Informatics

Julie McGowan, Indiana University School of Medicine, Indianapolis, IN and AMIA Public Policy Committee Chair and Doug Peddicord, President, WHA, Washington D.C., David Blumenthal, Gail Wilensky (invited)

Join us as we look into the crystal ball to forecast new administration's national health policy agenda. Learn about challenges and opportunities on key policy topics. We will hear presentations from diverse panelists on a wide variety of public health, applied, clinical, and research informatics topics including proposed and pending legislation, recent regulatory changes, agency strategic priorities and programs relevant to informatics, such as the CTSAs, and research priorities and funding opportunities.

S02 – Panel

Theme: Clinical Decision Support, Outcomes, and Patient Safety

International Ballroom West

Broad-based Initiatives for Clinical Decision Support Dissemination and Adoption: Toward Addressing the Barriers and Overcoming the Gaps

R. Greenes, Arizona State University; T. Payne, University of Washington; B. Middleton, Partners HealthCare; S. Richard, Yale School of Medicine; P. White, Agency for Healthcare Research and Quality; H. Pak, Telemedicine & Advanced Technology Research Group

The ability to provide computer-based clinical decision support (CDS) has been a primary motivation for adoption of electronic health records, computer-based provider order entry, and personal health records. The need for timely, accurate, and highly personalized CDS is growing rapidly as knowledge of the nuances of disease and treatment is expanding due to advances in the various ‘-omics’ and development of novel biomarkers and therapies. Yet, very limited use of CDS is in place, primarily in the form of simple abnormal lab alerts and drug interaction and dosage warnings. The processes of managing and updating the knowledge base underlying CDS are cumbersome and expensive and are largely done on a health systems-specific or vendor-specific basis, with attendant incompatibilities and lack of opportunity, or even demonstrated willingness, to share in this effort. The 2006 AMIA White Paper “A Roadmap for National Action on Clinical Decision Support” identified these issues and a number of possible steps that could be taken. This panel explores federal and public-private initiatives that have begun and plans for future efforts aimed at tackling this problem and charting a course for the road ahead.

S03 – Panel

Theme: Clinical Workflow and Human Factors

Jefferson West

Distributed Cognition in Healthcare

B. Hazlehurst, Kaiser Permanente Center for Health Research; Y. Xiao, University Of Maryland At Baltimore; J. Zhang, University of Texas at Houston; M. Beuscart-Zephir, EVALAB, Faculté de Médecine de Lille; P. Gorman, Oregon Health & Science University

Health care work is multi-disciplinary, dynamic, interruptive, knowledge-intensive, and spatio-temporally distributed. The consequences of action or inaction can often be life-determining. These properties create limitations for conventional approaches to design and evaluation of technology in health care, which most often focus on individual actions and user-tool interactions in highly localized context. Distributed Cognition is a systems approach that can provide useful insights for reengineering health care processes with more appropriate technology interventions. Distributed Cognition provides a framework for understanding situated human performance. It attempts to account for interactions among information resources that are distributed across the traditional boundaries in classical cognitive science theories. In this panel we

will discuss the theory of Distributed Cognition and its application in biomedical informatics research, and its implications for the future of computing technology. There will be a focus on technology design research aimed at supporting situated interactions (e.g., team communication in intensive care units, coordination during surgery, medication management) in the hospital.

S04 - Panel

Theme: Public Health Informatics and Biosurveillance

Jefferson East

Global Public Health Informatics for Low-Resource Settings - Vision, Strategies and Challenges

S. Fuller, University of Washington; H. Ladd, AED Satellife; W. Curioso, Universidad Peruana Cayetano Heredia; D. Lubinski, World Health Organization; T. Herman, Centers for Disease Control and Prevention

In the last fifty years we have witnessed the advance of information and communications technology in the 'developed' world and how these advances have played an important and increasing role in improving health and in disease prevention. In the developing world, however, the digital divide that reflects existing patterns of economic disparities threatens to wipe out the potential benefits that may accrue from insightful application of these technologies for improving health. The goal of this panel is to describe the vision and current progress in creating integrated public health informatics initiatives in developing countries. In particular, we will describe insights and lessons learned to: (1) enable developing nations to create a sustainable public health information infrastructure; (2) leverage open-source software initiatives; (3) develop information policy and technology frameworks; and (4) create innovative partnerships among key stakeholders for capacity building including, in particular, workforce development.

S05 - Panel

Theme: Terminology and Standards

Lincoln West

Implementing Standardized Nursing Terminologies in EHRs: Challenges and Opportunities

S. Matney, University of Utah; R. Dadamio, Siemens Medical Solutions; J. Warren, University of Kansas; G. Keenan, University of Illinois Chicago; M. Harris, Mayo Clinic

Nursing documentation is present in almost all electronic health record (EHR) systems. Historically, this data has been created using legacy codes in legacy applications. Recording nursing care in a non-standardized fashion, however, does not support interoperability, secondary data use, or knowledge generation. In contrast, accurate documentation in a standardized format enables comparison and exchange of nursing data across systems. Data collected at the point of care can be used to analyze, evaluate, and optimize nursing care at all levels of aggregation. National and international standards that require the use of standardized terminologies are emerging. The American Nurses Association (ANA) recommends that the electronic health record (EHR) contain Problems, Interventions and Outcomes, which can be achieved by using ANA recognized terminologies.

S06 - Papers: Adherence and Compliance

Georgetown

Session Chair: Charles Barr

Theme: Clinical Decision Support, Outcomes, and Patient Safety

A Real-time Ventilator Management Dashboard: Toward Hardwiring Compliance with Evidence-based Guidelines

J. Starmer, D. Giuse, Vanderbilt University Medical Center

Leading a Horse to Water: Using Automated Reminders to Increase Use of Online Decision Support

J. Cimino, D. Borotsov, Columbia University

Identification of Documented Medication Non-Adherence in Physician Notes

A. Turchin, Partners HealthCare; A. Turchin, Brigham and Women's Hospital; H. Wheeler, Partners HealthCare; M. Labreche, Brigham and Women's Hospital; J. Chu, Harvard Medical School; M. Pendergrass, Brigham and Women's Hospital; J. Einbinder, Partners HealthCare

Adherence to Home-Monitoring and its Impact on Survival in Post-Lung Transplantation Patients

H. Yoon, H. Guo, M. Hertz, S. Finkelstein, University of Minnesota

S07 - Papers: Building Usable Systems

Theme: Clinical Workflow and Human Factors

Lincoln East

Session Chair: Madhu Reddy

 JAMIA

iPad: Semantic Annotation and Markup of Radiological Images

D. Rubin, C. Rodriguez, P. Shah, C. Beaulieu, Stanford University

Multi-Factor De-Identification of Facial Images

R. Gross, Carnegie Mellon University; J. Cohn, University of Pittsburgh; F. de la Torre, Carnegie Mellon University; S. Baker, Microsoft Research; L. Sweeney, Carnegie Mellon University

Ontology-Based Annotation of Brain MRI Images

A. Mechouche, Unit/Project Visages U746; C. Golbreich, University of Versailles Saint-Quentin; X. Morandi, B. Gibaud, Unit/Project Visages U746, INSERM/INRIA/CNRS/Univ. of Rennes 1

Integrating an Automatic Classification Method Into the Medical Image Retrieval Process

E. Uwimana, State University of New York at Buffalo; M. Ruiz, University of North Texas

S08 - Papers: Delivering Information to Patients
Theme: Consumer Informatics and PHRs

Monroe

Session Chair: Kenneth Mandl

The Impact of Web-Based Diabetes Risk Calculators on Information Processing and Risk Perceptions

C. Harle, R. Padman, J. Downs, Carnegie Mellon University

Improving Patient Comprehension and Recall of Discharge Instructions by Supplementing Free Texts with Pictographs

Q. Zeng-Treitler, Harvard Medical School; H. Kim, Partners HealthCare; M. Hunter, Brigham and Women's Hospital

Creating a Gold Standard for the Readability Measurement of Health Texts

S. Kandula, Brigham and Women's Hospital; Q. Zeng-Treitler, Harvard Medical School

Evaluating Online Health Information: Beyond Readability Formulas

G. Leroy, Claremont Graduate University; S. Helmreich, New Mexico State University; J. Cowie, New Mexico State University; T. Miller, W. Zheng, Claremont Graduate University

S09 - Papers: Methods for Information Extraction
Theme: Data Mining, NLP, and Information Extraction

Thoroughbred

Session Chair: Aaron Cohen

Automated Knowledge Acquisition from Clinical Narrative Reports

X. Wang, C. Friedman, A. Chused, M. Markatou, N. Elhadad, Columbia University

Building an Automated Problem List Based on Natural Language Processing: Lessons Learned in the Early Phase of Development

I. Solti, B. Aaronson, G. Fletcher, University of Washington; M. Solti, US Oncology; J. Gennari, M. Cooper, T. Payne, University of Washington

Identification and Extraction of Family History Information from Clinical Reports

S. Goryachev, Brigham and Women's Hospital; H. Kim, Partners HealthCare; Q. Zeng-Treitler, Harvard Medical School

Evaluation of MedLEE Semantic Features to Classify Patient Smoking Status

P. McCormick, N. Elhadad, C. Friedman, P. Stetson, Columbia University

S10 Papers: Development and Use of Ontologies
Theme: Terminology and Standards

Military

Session Chair: Christopher Chute

Developing Biomedical Ontologies Collaboratively

N. Noy, T. Tudorache, Stanford University; S. de Coronado, National Cancer Institute; M. Musen, Stanford University

Generating Application Ontologies from Reference Ontologies

M. Shaw, J. Brinkley, D. Suci, L. Detwiler, University of Washington

Comparison of Ontology-based Semantic-Similarity Measures

W. Lee, N. Shah, Stanford University; K. Sundlass, Medical College of Wisconsin; M. Musen, Stanford University

FMA-RadLex: An Application Ontology of Radiological Anatomy derived from the Foundational Model of Anatomy Reference Ontology

J. Mejino, University of Washington; D. Rubin, Stanford University; J. Brinkley, University of Washington

5:00 PM-7:00 PM

INNOVATION & INFORMATION CENTER

Welcome Reception – Innovation & Information Center Open

Registrants are invited for hors d'oeuvres and a cash bar in the Innovation & Information Center. This provides an opportunity to see the exhibits and the first networking opportunity.

5:30 PM-7:00 PM BUSINESS MEETINGS

Open Source WG Business Meeting

Map

Student WG Business Meeting

Caucus

6:00 PM-9:00 PM BUSINESS MEETINGS

NLP Working Group Annotation Meeting

Military

6:30 PM-7:30 PM SPECIAL EVENTS

ACMI Reception

Jefferson West

(by invitation)

7:30 PM-10:00 PM SPECIAL EVENTS

ACMI Dinner and Induction of Fellows

Jefferson East

(by invitation)

MONDAY, NOVEMBER 10

7:00 am – 8:15 am
7:00 am – 8:15 am
7:00 am – 8:15 am
7:00 am – 8:30 am
7:00 am – 11:00 am
7:30 am – 8:30 am
8:30 am – 10:00 am

Committee Meetings (AMIA 2009 Scientific Program, Meetings)
NIWG Leadership Meeting
Corporate Roundtable (Intelligent Medical Objects)
VA Informatics Research Breakfast
Methods of Information in Medicine Editorial Board Meeting
Working Group Business Meetings (Ethical, Legal, and Social Issues)
Semi-plenary Sessions

S11 National Health IT Agenda: The Next Generation
S12 The Convergence of Translational Bioinformatics and Clinical Care

10:00 am – 10:30 am
10:00 am – 12:00 pm
10:00 am – 2:00 pm
10:00 am – 2:00 pm
10:30 am – 12:00 pm

Coffee Break
Morningside Initiative Technical Working Group Meeting (by invitation)
Innovation & Information Center Open
Poster Preview (for poster session-1)
Scientific Sessions

S14 Clinical Research: The Role of Informatics and Information Technology
S15 Computerized Status Boards in Acute Care Settings: Promise and Pitfalls
S16 Emerging Options for Personal Health Records: Integrated, Patient-Controlled, and Agnostic
S17 Changing EHRs, Improving Care: A Progress Report from NYC
S18 Applied Terminology Services: From Foundations to Applications to Policy
S19 Adverse Drug Events
S20 Data Relationships and Exchange
S21 Applied Machine Learning
S22 Analysis of Informatics Issues
S23 Delivering Information Naturally
S24/LB1 Late Breaking Session: Informaticians and the 111th Congress: ABCs of Policy Perspectives and Issues

12:00 pm – 1:30 pm
12:00 pm – 1:30 pm
12:00 pm – 1:30 pm
12:00 pm – 1:30 pm
12:00 pm – 1:30 pm
12:00 pm – 2:00 pm
12:15 pm – 1:30 pm
12:30 pm – 1:30 pm

Committee Meetings (Awards, Finance)
Industry Advisory Council Meeting
JAMIA Associate Editors Meeting
Public Health EMR Alerting Stakeholders' Meeting
Affiliate Events (CARING Luncheon)
Morningside Initiative Content Working Group Meeting (by invitation)
UMLS Users' Meeting
"Birds of a Feather" Sessions (1-9)

1:45 pm – 3:15 pm

Scientific Sessions

S25 Informatics as a Recognized Health Profession and AMIA as its Professional Home
S26 Confronting Racial and Ethnic Healthcare Disparities: Creating Culturally-Informed Information Technology Solutions
S27 Imaging Informatics: Opportunities and Research Challenges from Molecules to Man
S28 Errors and Safety
S29 Use of Computer Tools to Improve Workflow
S30 Patient-centric Health Information
S31 Use of Information Extraction Programs
S32 Summarizing Clinical Data
S33 Novel Use and Measurement of CPOE
S34 Public Health Informatics
S35 ACMI Senior Member Presentations - 1

3:30 pm – 5:00 pm

Scientific Sessions

S36 Clinical Trials Registration: New Legislation and the Impact on Clinical Trials and Informatics Initiatives
S37 Web 2.0 and Clinical Decision Support
S38 Challenges and Opportunities for Multidisciplinary Approaches to Personalized Medicine Research and Delivery
S39 Family Health History - New Standards and Enhanced Utility for a Valuable Preventive Tool
S40 Virtual Worlds, Virtual Patients and Virtual EHR for Health Care Education
S41 NLP for Surveillance
S42 Text Categorization
S43 Improved Care Using Terminologies
S44 Translational Bioinformatics Research
S45 Collaborative Technologies
S46/LB2 Late Breaking Session: Clinical Informatics as a Medical Specialty—Progress Report

4:00 pm – 7:00 pm
5:00 pm – 6:30 pm

Innovation and Information Center Open
Committee Meetings (2009 Summit on Translational Bioinformatics Scientific Program, ACMI Executive, International Affairs, Membership)
Corporate Roundtable (SNOMED)
Townhall Meeting on Clinical Decision Support
Poster Session 1

5:00 pm – 6:30 pm
5:00 pm – 7:00 pm
5:15 pm – 7:00 pm
5:15 pm – 7:00 pm
5:15 pm – 7:00 pm
5:30 pm – 7:00 pm

Clinical Research Informatics WG Expo
Medical Imaging Systems WG Expo 1
Working Group Business Meetings (Clinical Information Systems, Dental Informatics, Education, Knowledge in Motion, Nursing Informatics, People and Organizational Issues, Pharmacoinformatics)
International Reception (by invitation)

6:30 pm – 7:30 pm
6:30 pm – 9:00 pm
6:30 pm – 10:00 pm
7:00 pm – 8:00 pm
7:30 pm – 10:00 pm

Working Group Business Meetings (Public Health Informatics)
JAMIA Editorial Board Meeting (Board members only)
Nursing Informatics WG Reception
Working Group Business Meetings (Clinical Research Informatics, Formal (Bio)Medical Knowledge Representation, Medical Imaging Systems, Natural Language Processing)

MONDAY, NOVEMBER 10, 2008

7:00 AM–8:15 AM COMMITTEE MEETINGS

AMIA 2009 Scientific Program Committee Meeting
Caucus

Meetings Committee Meeting
Dupont

NIWG Leadership Meeting
Bancroft

7:00 AM–8:15 AM SPECIAL EVENTS

Intelligent Medical Objects Corporate Roundtable
Edison

7:00 AM–8:30 AM AFFILIATE EVENTS

VA Informatics Research Breakfast
Military

7:00 AM–11:00 AM AFFILIATE EVENTS

Methods of Information in Medicine Editorial Board Meeting
Map

7:30 AM–8:30 AM BUSINESS MEETINGS

Ethical, Legal, and Social Issues WG Business Meeting
Hemisphere

8:30 AM–10:00 AM SEMI-PLenary SESSIONS

S11 - Featured Session
Theme: Policy and Ethical Issues
International Ballroom East
Session Chair: Paul Tang

National Health IT Agenda: The Next Generation
Presenters include Dr. Robert Kolodner, National Coordinator; Dr. Charles Friedman, Deputy National Coordinator; and members of the ONC leadership team, Office of the National Coordinator for Health IT (ONC)

This session will focus on the future of the national initiative to deploy an interoperable health information technology infrastructure to improve the quality and efficiency of health care. The presentations

will reflect the immediate state of this rapidly moving area. The session will begin with a review of the Health IT Strategic Plan and the steps taken to implement it since the Plan's release on June 3 of this year. It will also update attendees on such topics as the status of the AHIC Successor, legislation related to Health IT, the Nationwide Health Information Network, and other initiatives of current interest. Attention will then turn to the future coordination of the nation's health IT agenda, with a focus on what "coordination" means, and attendant challenges, and how it might be achieved across the public and private sectors, with implications for the role of informatics and the informatics community. The session will conclude in Town Hall format, with the ONC senior staff addressing questions from the attendees.

S12- Featured Session
Theme: Translational Bioinformatics

International Ballroom West
Session Chair: Yves Lussier

The Convergence of Translational Bioinformatics and Clinical Care

Russ Altman and Atul Butte, Stanford University

Translational bioinformatics is hitting the mainstream of health care with the landscape of clinical practice now being impacted and altered by groundbreaking translational research. This session will feature two of the foremost experts in this discipline providing real world examples of this work, actionable insights for clinical informaticians, researchers, and practitioners, and implications for policy makers and educators.

10:00 AM - 10:30 AM COFFEE BREAK

Innovation & Information Center

10:00 AM–12:00 PM AFFILIATE EVENTS

Morningside Initiative Technical Working Group Meeting
Hamilton

10:30 AM–12:00 PM SCIENTIFIC SESSIONS

S14 - Featured Presentation
Theme: Clinical Research Informatics
International Ballroom East

Clinical Research: The Role of Informatics and Information Technology

John Glaser, Partners HealthCare; Daniel Ford, Stephanie Reel, Johns Hopkins School of Medicine; Michael Lin, Mayo Clinic;

Clinical research can benefit from the application of informatics and information technology expertise. However, leveraging this expertise confronts significant challenges of organizational governance and funding, career paths, multi-disciplinary collaboration and data and software tools design and use. This panel will discuss the status of clinical research and information technology/informatics support of clinical research and review strategies for addressing

these challenges. This session will feature speaker representing the Clinical Research Forum, an organization comprised of 62 of the nation's most prestigious and acclaimed academic health centers and professional organizations whose goal is to sustain and expand a cadre of talented, well-trained clinical investigators at all stages of career development, and support nurturing environments and comprehensive research capacities within academic institutions. The mission of The Forum is to provide leadership to the national clinical and translational research enterprise and promote understanding and support for clinical research and its impact on health and health care.

S15 - Panel 
Theme: Clinical Workflow and Human Factors
Jefferson West

Computerized Status Boards in Acute Care Settings: Promise and Pitfalls

R. Wears, Emergency Medicine, University of Florida; A. Bisantz, Industrial Engineering, University at Buffalo; Y. Xiao, Anesthesiology & Information Systems, University of Maryland; D. Aronsky, Vanderbilt University; C. Nemeth, Anesthesia and Critical Care, University of Chicago

Many clinical units in health care organizations use shared cognitive artefacts to help support and coordinate clinical work. For example, emergency departments (EDs) and operating theaters (ORs) often use large status boards ('whiteboards') to track patients, staff, and work as it evolves. Manual status boards in these settings are steadily being replaced by computerized whiteboards, but, as with many other information technology innovations in health care, adoption has been slow and success highly variable. This panel will use 4 contrasting case studies to examine the relationship between the cognitive properties of whiteboards and their explicit, implicit, and latent functionalities on the adoption of computerized whiteboards, paying special attention to the effects on workflow and patient safety. The case studies will include both ED and OR settings and a broad range of outcomes, from failed implementations (ie, manual whiteboard remains in heavy use) to partial and complete successes. The panelists will compare and contrast issues of workplace and organizational context, interface design, and effects on workflow and distributed cognition, and how those issues affect performance, safety, and system acceptance.

S16 - Panel
Theme: Consumer Informatics and PHRs
International Ballroom West

Emerging Options for Personal Health Records: Integrated, Patient-Controlled, and Agnostic

P. Tang, Palo Alto Medical Foundation; W. Angst, CapMed; J. Halamka, Harvard Medical School; K. Mandl, Children's Hospital Boston; R. Zeiger, Google

Although the personal health record (PHR) space is becoming more crowded, the definition and concept of a PHR is not necessarily becoming clearer. While more health systems are offering PHRs integrated with electronic health records to their patients, new entrants to the field are focusing on the clinical data repository as a data aggregation service and a platform for personal health applications. In this panel, we will describe emerging PHR architectures and applications and explore the value proposition they bring to consumers as well as the challenges and limitations associated with their

implementation. Each panelist will describe their architecture, sources of data, portability, communication services, applications, privacy policies, business model, and any secondary uses of data.

S17 - Panel 
Theme: EHR and CPOE Systems
Georgetown

Changing EHRs, Improving Care: A Progress Report from NYC

F. Mostashari, J. Singer, L. Rosas, K. LaSorsa, Primary Care Information Project, New York City Department of Health and Mental Hygiene

This panel will present the Primary Care Information Project in the New York City Department of Health and Mental Hygiene and its progress toward 2008 goals in 1) software and systems design for quality improvement; 2) outreach, implementation, and infrastructure support; 3) health information exchange; and 4) evaluation.

S18 - Panel
Theme: Terminology and Standards
Monroe

Applied Terminology Services: From Foundations to Applications to Policy

R. McClure, Apelon, Inc.; C. Chute, Mayo Clinic; R. Dolin, Kaiser Permanente; S. Huff, Intermountain Healthcare; M. Lincoln, Veterans Health Affairs

If Interoperability is the current buzzword, then terminology service functionality is the foundation we can build on to turn hype into reality. This panel of experts brings decades of experience working with terminologies and have been directly responsible for developing standards on the use of terminologies and terminology services, implementing them within real systems, and then crafting US national and local policy to ease adoption and establish a consistent approach to terminology use. The panel will discuss applied terminology services and the terminology asset management processes. We will begin by describing the foundation built through the establishment of critical standards on terminology services and the interface between

terminology and the information model; this will be followed by a discussion of why terminology services and terminology asset management are important to health care delivery systems and the requirements real systems met and overcome to succeed; we then will discuss the policy implications (both current and proposed) of work accomplished to date. After this review the floor will be open for questions.

S19 - Papers: Adverse Drug Events
Theme: Clinical Decision Support, Outcomes, and Patient Safety

Jefferson East
Session Chair: R. Scott Evans

An Adverse Drug Event and Medication Error Reporting System for Ambulatory Care

A. Zafar, W. Tierney, Regenstrief Institute, Indiana University; J. Hickner, Family Medicine, The University of Chicago Pritzker School of Medicine; W. Pace, Family Medicine, UCDHSC

Semantic Categories and Relations for Modelling Adverse Drug Reactions Towards a Categorical Structure for Pharmacovigilance

C. Bousquet, Service de Santé Publique et Information Médicale, CHU de Saint-Etienne and INSERM U872, Eq 20; B. Trombert, A. Kumar, J. Rodrigues, Service de santé Publique et Information Médicale, CHU de Saint-Etienne, Saint Priest en Jarez, France

Informatics Tools for the Development of Adverse Drug Event Triggers

H. Mull, Health Policy and Management, Boston University School of Public Health; J. Nebeker, VA Salt Lake City

Assessing the Performance Characteristics of Signals Used by a Clinical Event Monitor to Detect Adverse Drug Reactions in the Nursing Home

S. Handler, University of Pittsburgh; J. Hanlon, School of Pharmacy, University of Pittsburgh; S. Perera, Graduate School of Public Health, University of Pittsburgh; M. Saul, University of Pittsburgh; D. Fridsma, Arizona State University; S. Visweswaran, S. Studenski, Y. Roumani, University of Pittsburgh; N. Castle, Graduate School of Public Health, University of Pittsburgh; D. Nace, M. Becich, University of Pittsburgh

S20 - Papers: Data Relationships and Exchange Theme: Data Integration and Exchange

Hemisphere

Session Chair: John White

A Regional Health Information Exchange: Architecture and Implementation

M. Frisse, J. King, W. Rice, L. Tang, J. Porter, T. Coffman, M. Assink, K. Yang, M. Wesley, R. Holmes, C. Gadd, K. Johnson, V. Estrin, Vanderbilt University

FRIL: A Tool for Comparative Record Linkage

P. Jurczyk, Emory University and Centers for Disease Control and Prevention; J. Lu, L. Xiong, Emory University; J. Cragan, A. Correa, Centers for Disease Control and Prevention

Probabilistic Asthma Case Finding: A Noisy OR Reformulation

V. Anand, Indiana University School of Medicine; S. Downs, Indiana University

Embracing Change in a Health Information Exchange

D. Vreeman, M. Stark, G. Tomashefski, D. Phillips, P. Dexter, Regenstrief Institute, Inc

S21 - Papers: Applied Machine Learning Theme: Data Mining, NLP, and Information Extraction

Lincoln West

Session Chair: Johan Lundin

Improving Classification Performance with Discretization on Biomedical Datasets

J. Lustgarten, V. Gopalakrishnan, H. Grover, S. Visweswaran, University of Pittsburgh

A Bayesian Classifier for Differentiating Benign Versus Malignant Thyroid Nodules using Sonographic Features

Y. Liu, A. Kamaya, T. Desser, D. Rubin, Stanford University

Analysis of Maryland Poisoning Deaths Using CART

C. Pamer, US FDA; T. Serpi, Maryland Department of Health and Mental Hygiene; J. Finkelstein, University of Maryland

Survival Prediction Models for Estimating the Benefit of Post-Operative Radiation Therapy for Gallbladder Cancer and Lung Cancer

J. Kalpathy-Cramer, W. Hersh, Oregon Health & Science University; J. Kim, Portland State University; C. Thomas, Jr., S. Wang, Oregon Health & Science University

S22 - Papers: Analysis of Informatics Issues Theme: Policy and Ethical Issues

Thoroughbred

Session Chair: Judy Logan

What Workforce is Needed to Implement the Health Information Technology Agenda? An Analysis from the HIMSS Analytics™ Database

W. Hersh, Oregon Health & Science University; A. Wright, Partners HealthCare

A State Profile of IT Sophistication in Nursing Homes

G. Alexander, University of Missouri Columbia

Validation of an Electronic System for Recording Medical Student Patient Encounters

F. Nkoy, University of Utah; S. Petersen, University of Kansas School of Medicine; A. Antommara, University of Utah; C. Maloney, University of Utah

Analysis of Data Errors in Clinical Research Databases

S. Goldberg, A. Niemierko, Massachusetts General Hospital; A. Turchin, Partners HealthCare, Brigham and Women's Hospital

S23 - Demonstrations: Delivering Information Naturally

Theme: Clinical Decision Support, Outcomes, and Patient Safety

Military

Session Chair: Pierre Zweigenbaum

Summarising Complex ICU Data in Natural Language: Demonstration of the BT-45 system

F. Portet, A. Gatt, E. Reiter, J. Hunter, S. Sripada, University of Aberdeen; C. Sykes, Y. Freer, N. McIntosh, Royal Infirmary of Edinburgh; M. van der Meulen, R. Logie, University of Edinburgh

As ICUs generate increasing amounts of information, writing medical reports involves complex time-consuming reasoning to build a coherent text which will be meaningful to those who will use it for decisions making (e.g.: for nurse handover). Moreover, it has been

shown that summarizing complex multi-channel physiological and discrete data in natural language (text) can lead to better decision-making in the intensive care unit (ICU). To facilitate this summarization, as part of the BabyTalk project, we developed a system called BT-4.5 that automatically generates textual summaries from periods of continuous and discrete data in a neonatal ICU. The demonstration will show the system running on real data and will detail the steps in the construction of the final text. Although these summaries are not yet as good as those generated by human experts, we have demonstrated experimentally that they lead to as good decision-making as can be achieved through presenting the same data graphically.

Movie Magic in the Clinic: Computer-Generated Characters for Automated Health Counseling

T. Bickmore, Northeastern University

Computer-animated health counselors simulate human face-to-face dialogue as a computer interface medium, including not only verbal behavior but nonverbal conversational behavior such as hand gesture, body posture shifts, and facial display of emotion. This technology has now been successfully used in a wide range of health interventions for education and counseling of patients and consumers, including applications in physical activity promotion, medication adherence, and hospital discharge. These automated counselors have been deployed on home computers, hospital-based touch screen kiosks, and mobile devices with integrated health behavior sensing capability. Development of these agents is an interdisciplinary endeavor spanning the fields of character modeling and animation, computational linguistics, artificial intelligence, health communication and behavioral medicine.

S24/LB1 - Late Breaking Session Theme: Policy and Ethical Issues

Lincoln East

Informaticians and the 111th Congress: ABCs of Policy Perspectives and Issues

Julie J. McGowan, Indiana University; Doug Peddicord, Washington Health Advocates; William Hersh, Oregon Health & Science University

The session will focus on how AMIA works with the United States Congress on potential and relevant legislation. Each year, many AMIA members are active in health policy by meeting with congressional staff, providing testimony on Capitol Hill, and offering subject matter expertise and consultation to lawmakers on subjects related to biomedical and health informatics. In this session, panelists will demonstrate through case studies how the organization, through its members have influenced national policy. The goals of this session are two-fold--to raise member awareness on matters related to U.S. health policy and to increase membership participation in policy activities like AMIA's Annual Capitol Hill Day. The session will be highly interactive with dialogue between the speakers and audience. AMIA Public Policy Committee members will be present to hear from AMIA members that wish to become more active and receive additional policy training.

10:30 AM- 2:00 PM POSTER SESSION I

Poster Preview

Posters are listed in detail beginning on page 12 of the Guide to the Innovation & Information Center.

12:00 PM-1:30 PM COMMITTEE MEETINGS

Awards Committee Meeting

Bancroft

Finance Committee Meeting

Dupont

Industry Advisory Council Meeting

Edison

12:00 PM-1:30 PM AFFILIATE EVENTS

CARING Luncheon

Back Terrace

JAMIA Associate Editors Meeting

Grant

Public Health EMR Alerting - Stakeholders' Meeting

Caucus

12:00 PM-2:00 PM AFFILIATE EVENTS

Morningside Initiative Content Working Group Meeting

Hamilton

12:15 PM-1:30 PM AFFILIATE EVENTS

UMLS Users' Meeting

Hemisphere

12:30 PM-1:30 PM

BIRDS OF A FEATHER SESSIONS

These sessions are informal discussions, free of formal presentations, where people with common interests meet for in-depth conversation on *specific topics* recommended by prospective conference attendees.

BoF-1: Clinical Decision Support – What's the Right Type and Amount?

Moderator: Eric Poon

International Ballroom East

BoF-2: Unintended Consequences of Health IT – What's the Next Frontier?

Moderator: Dean Sittig

Georgetown

BoF-3: Health IT Projects: Do Today's Systems Work? Can Trained Informaticists Help? How Do We Bridge the Academics/Industry Divide?

Moderator: Michael Cantor

Jefferson West

BoF-4: Informatics Cooperation, Not Competition: How Do We Foster More Exchange and Collaboration Among Societies and Groups That Are Working Toward Similar Goals?

Moderator: Jonathan Teich

Jefferson East

BoF-5: International Collaboration: How Do We Get More Informatics Research Collaboration Between the Us and the Rest of the World?

Moderator: Catherine Craven

Lincoln West

BoF-6: Biomedical informatics as the foundation of CTSA: tools and translations

Moderator: Philip Payne

Lincoln East

BoF-7: Trends In Grants: Where is the Money Going to Come From?

Moderator: Edward Shortliffe

Monroe

BoF-8: Qualitative Evaluation - Theory and Experience: the Good, the Bad, and the Ugly

Moderator: Bonnie Kaplan

Military

BoF-9: Public Health Informatics: How Can Public Health Practitioners Benefit From Informatics? What Are the Barriers And What Can We Do About It?

Moderator: Catherine Staes

Thoroughbred

1:45 PM-3:15 PM SCIENTIFIC SESSIONS

S25 - Featured Panel

Theme: Education

International Ballroom East

Informatics as a Recognized Health Profession and AMIA as its Professional Home

Moderator: Don Detmer, AMIA

Panelists: David Bates, Partners HealthCare; Connie Delaney, University of Minnesota; Mark Musen, Stanford University; Denise Koo, CDC, Isaac Kohane, Harvard Medical School

This panel will discuss the future of biomedical and health informatics as a fully recognized profession. It will review AMIA's discussions leading to its decision to create interdisciplinary applied clinical informatics tracks to formal training and certification for clinicians and others seeking or already having doctoral level training, e.g., physicians, nurses, dentists, pharmacists, doctorate in informatics, and other health professionals. It will also discuss the initiative to create a public health informatics track for formal training and certification at the Master's level for practicing state and territorial public health informaticists. Should there be formal educational

preparation for research informaticists, and if so, at what level? What is the status of informatics as a profession internationally? AMIA's Academic Forum and Academic Strategic Leadership Council will be described. The goal of the session is to encourage general discussion rather than engaging details that relate to accomplishing specific objectives. In addition to general issues, important educational, inter-organizational, philosophical, policy, and practical considerations abound. This session is a must for: individuals considering a career in biomedical and health informatics; educators and employers - potential or actual - of such professionals; organizations interested in collaboration with AMIA in advanced informatics education and training; and Workforce policy experts.

S26 - Panel

Theme: Policy and Ethical Issues

Jefferson West

Confronting Racial and Ethnic Healthcare Disparities: Creating Culturally-Informed Information Technology Solutions

R. Valdez, University of Wisconsin; R. Kukafka, Columbia University; M. Gibbons, Johns Hopkins University; E. Siegel, National Library of Medicine; P. Brennan, University of Wisconsin-Madison

Healthcare disparities between racial and ethnic groups remain even after accounting for income, insurance, age, and severity of condition. These disparities span health access, health delivery, and health status. Information technology (IT) has shown promise of reducing healthcare disparities; culturally-informed interventions have been successful in increasing screening rates and overcoming barriers to disease management in minority populations. Creating culturally-informed IT solutions may, therefore, be an especially effective means of reducing racial and ethnic healthcare disparities. This panel will examine the problem of racial and ethnic disparities in healthcare and present how these disparities may be mitigated through the use of IT. This panel will also highlight the national attention being given to the problem, with a focus on describing programs being implemented by the National Library of Medicine. Panelists will present dimensions of the complex constructs of race and ethnicity that may be amenable to intervention and discuss user-centered design methods for designing culturally-informed IT such as rapid ethnography and participatory design. Panelists will also present examples of IT that has been culturally-informed and discuss how these interventions have been received by the communities for which they were designed.

S27 - Panel



Theme: Translational Bioinformatics

Georgetown

Imaging Informatics: Opportunities and Research Challenges from Molecules to Man

D. Rubin, Stanford University; D. Channin, Northwestern University; S. Guccione, Stanford University; C. Kahn, Medical College of Wisconsin

The challenge for imaging informatics is to relate experimental data reflecting the molecular insights to the phenotypes seen in clinical images ("from molecules to man"). New ways to describe imaging phenotypes are needed, as well as methods to make the

semantic content in images explicit and machine processable in the high-throughput era of e-Science. Novel discoveries with imaging technologies hinge on accessing, abstracting, analyzing, and testing the biomedical information content in the images, tasks which are the domain of imaging informatics. This panel will identify and discuss the key research challenges that lie at this intersection of imaging science and bioinformatics and describe opportunities for new scientific insights that may evolve from informatics methods applied to images. Tackling these challenges will require building and fostering collaboration among researchers in imaging informatics and bioinformatics. This panel will take a first step toward this objective by bringing together national experts from these domains who will describe the opportunities for research and discovery in this exciting emerging new field.

S28 - Papers: Errors and Safety
Theme: Clinical Decision Support, Outcomes, and Patient Safety

Jefferson East

Session Chair: Robert A. Jenders

Journal **JAMIA**

An Agent-Based Model for Evaluating Surveillance Methods for Catheter-Related Bloodstream Infection

M. Rubin, University of Utah; M. Rubin, Salt Lake City VAMC IDEAS Center; J. Mayer, T. Greene, B. Sauer, University of Utah; B. Sauer, Salt Lake City VAMC IDEAS Center; B. Hota, Rush University Medical Center; W. Trick, Stroger Hospital of Cook County; J. Jernigan, Centers for Disease Control and Prevention; M. Samore, University of Utah; M. Samore, Salt Lake City VAMC IDEAS Center

Structured Product Labeling Improves Detection of Drug-Intolerance Issues

G. Schadow, Indiana University School of Informatics

Analysis of a Failed Clinical Decision Support System for Management of Congestive Heart Failure

R. Wadhwa, The Canberra Hospital, D. Fridsma, M. Saul, L. Penrod, S. Visweswaran, G. Cooper, W. Chapman, University of Pittsburgh

The Potential for Interface Design to Contribute to Medical Error

T. Graham, University of Alberta Hospital; A. Kushniruk, University of Victoria; M. Bullard, B. Holroyd, D. Meurer, B. Rowe, University of Alberta

S29 - Papers: Use of Computer Tools to Improve Workflow
Theme: Clinical Workflow and Human Factors
Lincoln West

Session Chair: James G. Anderson

An Integrated Computerized Triage System in the Emergency Department

D. Aronsky, I. Jones, W. Raines, R. Hemphill, R. Mayberry, T. Slusser, M. Luther, Vanderbilt University

An Agent Based Simulation Tool for Scheduling Emergency Department Physicians

S. Jones, R. Evans, University of Utah

Barcode Medication Administration: Supporting Transitions in Articulation Work

L. Novak, Vanderbilt University Medical Center; N. Lorenzi, Vanderbilt University

Integrating Electronic Patient Questionnaires into the Electronic Medical Record to Support Patient-Centered Care – Architectural Choices and Challenges

B. Moore, S. Gaehde, VA Boston Healthcare System; C. Curtis, Veterans Health Administration

S30 - Papers: Patient-centric Health Information
Theme: Consumer Informatics and PHRs

Lincoln East

Session Chair: Cornelia Ruland

PatientsLikeMe: Consumer Health Vocabulary as a Folksonomy

C. Smith, University of Wisconsin-Madison; P. Wicks, Institute of Psychiatry

Selecting Data elements to Build a Patient-centric Electronic Health Record That Will Support Adherence to Therapeutic Lifestyle Change

C. Chan, A. Cohall, A. Cohall, D. Kaufman, S. Khan, R. Kukafka, Columbia University

A Patient-Centric Taxonomy for Personal Health Records (PHRs)

A. Vincent, Center for Information Technology Leadership; D. Kaelber, E. Pan, Partners HealthCare System; S. Shah, D. Johnston, Center for Information Technology Leadership; B. Middleton, Partners HealthCare

Design and Implementation of a Personal Medication Record-MyMedicationList

K. Zeng, O. Bodenreider, S. Nelson, National Library of Medicine

S31 - Papers: Use of Information Extraction Programs
Theme: Data Mining, NLP, and Information Extraction

Hemisphere

Session Chair: Constantine Aliferis

Paraphrase Acquisition from Comparable Medical Corpora of Specialized and Lay Texts

L. Deleger, INSERM, UMR_S 872, Eq. 20; L. Deleger, LIMSI-CNRS

Coping Efficiently With Now-relative Medical Data

P. Terenziani, Universita' del Piemonte Orientale; B. Stantic, A. Sattar, Griffith University

Towards a Collaborative Filtering Approach to Medication Reconciliation

S. Hasan, G. Duncan, D. Neill, R. Padman, Carnegie Mellon University

Automatically Extracting Information Needs from Ad Hoc Clinical Questions

Y. Cao, h. Yu, University of Wisconsin-Milwaukee

S32 - Papers: Summarizing Clinical Data Theme: Data Mining, NLP, and Information Extraction

Military

Session Chair: Yuval Shahar

Comparing ICD9-Encoded Diagnoses and NLP-Processed Discharge Summaries for Clinical Trials Pre-Screening: A Case Study

L. Li, H. Chase, C. Patel, C. Friedman, C. Weng, Columbia University

Summarising Complex ICU Data in Natural Language

J. Hunter, University of Aberdeen; Y. Freer, Royal Infirmary of Edinburgh; A. Gatt, University of Aberdeen; R. Logie, University of Edinburgh; N. McIntosh, Royal Infirmary of Edinburgh; M. van der Meulen, University of Edinburgh; F. Portet, E. Reiter, S. Sripada, University of Aberdeen; C. Sykes, Royal Infirmary of Edinburgh

Generating Nurse Profiles from Computerized Labor and Delivery Documentation

E. Hall, University of Utah; S. Thornton, Intermountain Healthcare

Visualizing Multivariate Time Series Data to Detect Specific Medical Conditions

P. Ordonez, M. desJardins, University of Maryland, Baltimore County; C. Feltes, C. Lehmann, J. Fackler, Johns Hopkins University School of Medicine

S33 - Papers: Novel Use and Measurement of CPOE Theme: EHR and CPOE Systems

Monroe

Session Chair: Joan Ash



Using Computerized Provider Order Entry and Clinical Decision Support to Improve Primary-Care Physicians' Implementation of Consultants' Medical Recommendations

M. Were, G. Abernathy, Regenstrief Institute, Inc.; S. Hui, C. Kempf, Roudebush VA Center of Excellence for Implementing Evidence Based Practice; M. Weiner, Regenstrief Institute, Inc.; M. Weiner, Indiana University

Enhancing an ePrescribing System By Adding Medication Histories and Formularies: the Regenstrief Medication Hub

L. Simonaitis, A. Belsito, J. Overhage, Regenstrief Institute

Field Evaluation of Commercial Computerized Provider Order Entry Systems in Community Hospitals

K. Guappone, J. Ash, OHSU; D. Sittig, Northwest Permanente

Negative CPOE Attitudes Correlate with Diminished Power in the Workplace

C. Bartos, B. Butler, University of Pittsburgh; L. Penrod, University of Pittsburgh Medical Center; L. Penrod, University of Pittsburgh; D. Fridsma, Arizona State University; R. Crowley, University of Pittsburgh

S34 - Papers: Public Health Informatics Theme: Public Health Informatics and Biosurveillance

Thoroughbred

Session Chair: Catherine Staes

Three Years Experience with the Implementation of a Networked Electronic Medical Record in Haiti

W. Lober, C. Quiles, S. Wagner, E. Webster, University of Washington; R. Cassagnol, R. Lamothe, D.R. Pierre Alexis, I-TECH Haiti; P. Sutton, N. Puttkammer, B. Nodell, Itech - Seattle; M. Kitahata, University of Washington

Characterization of Patients who Suffer Asthma Exacerbations using Data Extracted from Electronic Medical Records

B. Himes, I. Kohane, M. Ramoni, S. Weiss, Harvard Medical School

Connecting Public Health IT Systems with Enacted Work: Report of an Ethnographic Study

A. Turner, J. Ramey, S. Lee, University of Washington

Clinician Use and Acceptance of Population-Based Data about Respiratory Pathogens: Implications for Enhancing Population-Based Clinical Practice

P. Gesteland, University of Utah and Intermountain Healthcare; M. Allison, C. Staes, University of Utah; M. Samore, University of Utah, School of Medicine; M. Rubin, University of Utah; M. Carter, A. Wuthrich, A. Kinney, University of Utah, School of Medicine; S. Mottice, Utah Department of Health; C. Byington, University of Utah, School of Medicine

S35 - ACMI Sponsored: ACMI Senior Member Presentations - 1

Theme: Education

International Ballroom West

Session Chair: Blackford Middleton

Infobuttons: Anticipatory Passive Decision Support

J. Cimino, National Institutes of Health

"Infobuttons" are context-specific links from one system (typically a clinical information system) to a second system (typically an on-line knowledge resource) that attempt to use contextual information to anticipate users' information needs. Infobuttons have been

around for over 15 years, but are only recently finding wide-spread adoption, with various “infobutton managers”, and infobutton-like projects being developed at several academic medical centers. Vendors of electronic health records systems have begun working with vendors of knowledge resources to create “infobutton access” methods for communicating from the former to the latter. In response to this increased interest, and the attendant need to standardize communication between clinical systems and infobutton managers and between infobutton managers and knowledge resources, Health Level 7 (HL7) is developing a standard message structure for exchange contextual information and information-needs requests. At least one project is underway to develop a tailoring environment that can be used by health librarians to customize infobutton managers for use at their own institutions, with their own users, and their preferred knowledge resources.

Recent Trends in Biomedical and Health Informatics Education: Implications for Practice, Research, and Policy

W. Hersh, Oregon Health & Science University

The discipline of biomedical and health informatics has seen substantial change in practice as well as education in recent years. Most early programs in the field focused on either post-doctoral apprenticeship-like experiences or PhD degrees, usually with a strong research emphasis. More recently, however, a variety of new educational options have emerged, from certificate and professional master's programs to shorter courses, such as the AMIA 10x10 program. Other programs have emerged from the health information management field as well as at the undergraduate level. At the same time, the real growth and need for informatics expertise has emerged more in operational than academic settings. In this talk, an informatics educational leader and innovator will describe these changes, the research data that has explored them, and how they have impacted informatics educational programs, including his own at Oregon Health & Science University.

DXplain - 20 Years Later - What Have We Learned

O. Barnett, E. Hoffer, M. Feldman, R. Kim, K. Famiglietti, Massachusetts General Hospital

For a computer-based application to be widely used for 20 years suggests either the clinical usefulness of the application or the stubbornness of its developers - or a combination of both. The lessons learned during this two-decade distribution may provide useful insights into the development, evolution, evaluation, and distribution of computer-based medical care applications. Relevant questions include: 1 - What are the clinical issues that the application attempts to address? 2 - How is the application distributed and integrated within the working environment and perceived needs of clinicians? 3 - To what extent is the application a presentation of medical knowledge, versus a specific concern with differential diagnosis? 4 - How did the application and patterns of distribution/integration evolve? 5 - How is the value of the application determined? How is it reimbursed? 6 - What are the problems and limitations of the application, and how potentially can these be overcome? There are two major challenges in the further evolution of DXplain: 1 - How to automatically link to DXplain from clinical manifestations recorded in the medical record; 2 - How to use DXplain in medical education to teach and give experience in probabilistic reasoning.

3:30 PM-5:00 PM SCIENTIFIC SESSIONS

S36 - Panel

WG

Theme: Clinical Research Informatics

International Ballroom East

Clinical Trials Registration: New Legislation and the Impact on Clinical Trials and Informatics Initiatives

D. Fridsma, Arizona State University; R. Nosowsky, Miller Canfield; R. Miller, GlaxoSmithKline; C. Chute, Mayo Clinic; D. Zarin, Lister Hill National Center for Biomedical Communications

Although the medical informatics community has been actively engaged in the development of clinical trials registration and results reporting databanks, recent legislation has accelerated the pace at which clinical trials databanks are being developed. This legislation will require registration of specific types of clinical trials of drugs, devices, and biologics, and sets both implementation criteria and penalties for non-compliance. In the same way that HIPAA legislation has imposed restrictions on electronic health records, this legislation will impact how investigators manage data for clinical trials research. In this panel, we have assembled a broad range of experts who will describe the key features of the legislation and the implications that this legislation has on principal investigators, pharmaceutical sponsors who perform clinical trials, government agencies that are developing clinical trials, and informatics and policy issues related to clinical trials registries. The nature of the legislation dictates some solutions and at the same time provides opportunities for additional clarification. Emphasis in this panel will be placed on understanding the implications of this legislation from a variety of perspectives - legal, pharmaceutical, the NLM and the implementation in ClinicalTrials.gov, and the policy and informatics issues related to this legislation.

S37 - Panel: Web 2.0 and Clinical Decision Support

Theme: Clinical Decision Support, Outcomes, and Patient Safety

International Ballroom West

Web 2.0 and Clinical Decision Support

A. Wright, D. Bates, Brigham and Women's Hospital; B. Middleton, Partners HealthCare; S. Thomas, Epic Systems Corporation; D. Sittig, Northwest Permanente

Clinical Decision Support (CDS) is an effective tool for improving safety, quality, and efficiency in medicine, but adoption of sophisticated CDS has been limited outside of leading centers. Developing good CDS content is difficult, time-consuming and expensive, and has been a major obstacle to widespread adoption of CDS. Collaboration and sharing of CDS content, facilitated by Web 2.0 technologies, may lead to wider and more efficient adoption of CDS. Web 2.0 is a collection of technologies and principles centered on open collaboration and shared production. Wikipedia, Flickr, and del.icio.us are well-known examples of Web 2.0 technologies. In this panel, we present an overview of Web 2.0 and three case studies of its use for developing CDS: the Clinfowiki, a world-accessible wiki for developing CDS content; Partners HealthCare eRooms, web-based tools for developing CDS within

a single organization; and Epic Systems Corporation's Community Library, a repository for sharing CDS content among Epic customers. We will also discuss issues faced by contributors, users, and hosts of CDS content in a Web 2.0 environment, including technical issues, such as content and metadata formats; legal issues, such as intellectual property and indemnification; and organizational issues relating to governance, review, customization and integration into workflow.

S38 - Panel

Theme: Clinical Research Informatics

Georgetown

Challenges and Opportunities for Multidisciplinary Approaches to Personalized Medicine Research and Delivery

P. Tulipano, Philips Research NA; P. Payne, The Ohio State University; D. Rubin, Stanford University; A. Butte, Stanford University School of Medicine; J. Starren, Marshfield Clinic

With increasing attention being focused upon personalized medicine throughout the U.S. health care system, there is a rapidly growing need for an integrated framework to support multidisciplinary research and delivery of such adaptive preventative care and therapies. To fully realize the promises of personalized medicine, a number of challenges must be met, including the interpretation, translation, and integration of experimental and operational bio-molecular, phenotypic, and imaging data. Addressing these challenges will require collaboration among multidisciplinary research teams. This panel will address such challenges by bringing together industry and translational research experts to describe the informatics platforms needed to support the effective integration, presentation, and analysis of heterogeneous data in the context of personalized medicine research and delivery.

S39 - Panel

WG

Theme: Data Integration and Exchange Family Health History - New Standards and Enhanced Utility for a Valuable Preventive Tool

M. Bigley, C. Lamer, G. Downing, Department of Health and Human Services; W. Feero, National Institutes of Health

Jefferson West

Family health history is an underutilized tool and could play a central role in enhancing the uptake and effectiveness of preventive services for a variety of disorders of major public health importance. Obtaining a family health history is time consuming; numerous studies show that health care providers often fail to obtain a family health history due to time constraints. A potential solution would be the development and adoption of interoperable, patient completed, family health history tools in health IT systems. The American Health Information Community (AHIC) is a federal advisory body, chartered in 2005 to make recommendations to the Secretary of the Department of Health and Human Services on how to accelerate the development and adoption of HIT. The Personalized Health Care (PHC) Workgroup of the AHIC advanced recommendations to improve electronic health information exchange via the implementation of standards for family health history information. Following acceptance of these recommendations by the AHIC, a core minimum data set for family health history was developed. The document should serve as a solid foundation for public and private efforts to create HIT systems and demonstration projects examining

the utility of interoperable family health history information in clinical and research settings.

S40 - Panel

WG

Theme: Education

Virtual Worlds, Virtual Patients and Virtual EHR for Health Care Education

P. Dev, Innovation in Learning, Inc.; T. Agresta, University of Connecticut Health Center; J. Brixey, University of Kansas; T. Horan, Claremont Graduate School; I. Willcockson, School of Health Information Sciences

Jefferson East

Simulation-based learning and learning through role-playing and reflection are some of the methods of experiential learning that are seeing increasing use in health care education. New technologies, such as 3D virtual medical spaces, populated by virtual patients and by avatars, or role-playing representations of real participants, provide new opportunities for team interaction around critical medical events. The mock electronic health record of the members of a family creates an illusion of following a family, medically, over many years. Presentation of the electronic health record and the personal health record, through multimedia modules, encourages students to understand the structure of these records as well as the issues that may arise in their use. These topics, and their systematic integration in the curriculum, will be presented and discussed in the proposed panel.

S41 - Papers: NLP for Surveillance

Theme: Data Mining, NLP, and Information Extraction

Lincoln West

Session Chair: Wendy Chapman

Using Regular Expressions to Extract Information on Pacemaker Implantation Procedures from Clinical Reports

A. Burgun, A. Rosier, Université Rennes 1; P. Mabo, CHU Rennes

Optimizing Syndromic Surveillance Text Classifiers for Influenza-like Illness: Does Document Source Matter?

B. South, University of Utah; W. Chapman, University of Pittsburgh; S. Delisle, University of Maryland; S. Shen, University of Utah; E. Kalp, Johns Hopkins Medical Institutions and University; T. Perl, Johns Hopkins University School of Medicine; M. Samore, A. Gundlapalli, University of Utah, School of Medicine

NLP-based Identification of Pneumonia Cases from Free-Text Radiological Reports

P. Elkin, D. Froehling, D. Wahner-Roedler, B. Trusko, G. Welsh, Mayo Clinic; H. Ma, A. Asatryan, J. Tokars, CDC; S. Rosenbloom, S. Brown, Vanderbilt University

Using Natural Language Processing to Improve Accuracy of Automated Notifiable Disease Reporting

J. Friedlin, S. Grannis, J. Overhage, Regenstrief Institute

S42 - Papers: Text Categorization
Theme: Data Mining, NLP, and Information Extraction

Lincoln East

Session Chair: Cathy Blake

From Episodes of Care to ICD Codes: Automatic Text Categorization for Medico-Economic Encoding

P. Ruch, University and Hospital of Geneva

Word Sense Disambiguation via Semantic Type Classification

J. Fan, C. Friedman, Columbia University

Two Approaches to Assertion Classification

O. Uzuner, SUNY, Albany; X. Zhang, T. Sibanda, MIT

A Fast Document Classification Algorithm for Gene Symbol Disambiguation in the BITOLA Literature-Based Discovery Support System

A. Kastrin, University Medical Centre; D. Hristovski, Faculty of Medicine

S43 - Papers: Improved Care Using Terminologies
Theme: Terminology and Standards

Hemisphere

Session Chair: Stanley Huff

Using Multi-terminology Indexing for the Assignment of MeSH Descriptors to Health Resources in a French Online Catalogue

S. Pereira, CHU Rouen; A. Neveol, NLM; G. Kerdelhue, CISMef; E. Serrot, Vidal; M. Joubert, LERTIM; S. Darmoni, CISMef

Auditing the NCI Thesaurus with Semantic Web Technologies

F. Mouglin, LESIM; O. Bodenreider, NLM

Development and Evaluation of a Clinical Note Section Header Terminology

J. Denny, R. Miller, K. Johnson, A. Spickard, Vanderbilt University Medical Center

RxTerms – an Interface Drug Terminology Derived from RxNorm

K. Fung, National Library of Medicine; C. McDonald, LHNCCB; B. Bray, NLM

S44 - Papers: Translational Bioinformatics Research

Theme: Translational Bioinformatics

Thoroughbred

Session Chair: Riccardo Bellazzi

caBIG™ Compatibility Review System: Software to Support the Evaluation of Applications Using Defined Interoperability Criteria

R. Freimuth, M. Schauer, Mayo Clinic; P. Lodha, P. Govindrao, Persistent Systems; R. Nagarajan, Washington University; C. Chute, Mayo Clinic

Gene-L'EXPO: A Tool for Knowledge Discovery from Transcriptome That Assists Finding "literature-sparse" Relations Between the Genes and the Tissues

T. Hishiki, Toho University; I. Tamada, Dynacom; K. Okubo, National Institute of Genetics

Ranking single nucleotide polymorphisms by potential deleterious effects

H. Shatkay; P. Lee, Queen's University

Variable-length Positional Modeling for Biological Sequence Classification

A. Malousi, I. Chouvarda, V. Koutkias, S. Kouidou, N. Maglaveras, Faculty of Medicine, Aristotle University of Thessaloniki

S45 - Partnerships in Innovation: Collaborative Technologies

Military

Session Chair: Joshua Denny

"Collaboration Technology": A Case Study of Innovation in Order Set and Clinical Care Standardization

B. Yount, Saint Francis Health System; B. Yount, University of Oklahoma College of Medicine, Tulsa; T. McNamara, HealthGate Data Corp; T. McNamara, University of Kansas Medical Center

Effective standardization of clinical processes, which is a growing priority for health care provider organizations and networks, requires effective teamwork among clinicians and staff from multidisciplinary backgrounds - often from geographically dispersed facilities - to reach consensus on care practices. Yet, most health care provider organizations have no precedence or tools for managing large-scale, sustained, collaborative activities. This presentation explores the human and social implications of technology. It specifically addresses health care collaboration and describes how innovative collaboration management technologies can be used in the health care industry to accelerate care standardization, order set standardization, and other initiatives necessary for successful computerized provider order entry and electronic health record deployments. These topics are explored through presentation of a survey of health care executives and a case study of an advanced collaboration application that was adapted and deployed in a partnership between a large health care provider organization and a commercial developer of document management and collaboration management technologies.

Delivering Informatics Capabilities to an AHC Research Community through Public/Private Partnerships (PPP)

K. Smith, B. Athey, University of Michigan; A. Chahal, Aithent, Inc.; P. Sahai, Velos, Inc.

Velos eResearch is a commercially-developed, regulatory-compliant, web-based clinical research information system. Aithent Inc. is a software development services company. The University of Michigan (UM) has public/private partnerships with Velos and Aithent to develop additional capabilities and products to better support the needs of clinical and translational research communities. These partnerships provide UM with a mechanism for obtaining high-quality comprehensive capabilities more quickly and at lower cost. The industry partners get a quality advisory and development partner. The UM chose to partner with Velos because of its commitment to interoperability. Velos is active in caBIG and provides interoperability with Velos sites across the CTSA. One example of the partnership is co-development of integrated specimen management capabilities. UM spent more than a year defining requirements and specifications, and is funding development of this capability. UM also facilitates a Velos user community (20+ institutions, 7 CTSA awardees) that shares experiences and expertise, and provides a source of future needs identification to Velos. Advantages and risks related to delivering informatics capabilities to an AHC research community through a public/private partnership will be presented. The UM, Velos, and Aithent will discuss frameworks, agreements, and other factors that contribute to successful partnerships.

S46/LB2 - Late Breaking Session Theme: Education

Monroe

Clinical Informatics as a Medical Specialty— Progress Report

Don E. Detmer, American Medical Informatics Association, Bethesda, MD; Benson S. Munger, University of Arizona, Tucson, AZ; Reed Gardner, University of Utah, Salt Lake City, UT; Charles Safran, Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA

The American Medical Informatics Association has completed the development of a clinical informatics core content document necessary to certify the competency of physicians and has recently finished documenting a process for the accreditation of training programs in clinical informatics. The project, funded by the Robert Wood Johnson Foundation, has produced two foundational documents that the AMIA Board will be asked to endorse as official policy. These documents will be carried forward to the American Board of Medical Specialties (ABMS) and the Accreditation Council for Graduate Medical Education (ACGME). At the AMIA 2006, AMIA 2007, and the 2008 AMIA Spring Congress, we have provided the project updates and heard helpful advice from the membership. The goal of this session is to continue sharing the latest developments communicating specifically what this means for individuals and training programs.

4:00 PM–7:00 PM INNOVATION & INFORMATION CENTER OPEN

5:00 PM–6:30 PM COMMITTEE MEETINGS

2009 Summit on Translational Bioinformatics Scientific Program Committee Meeting

Dupont

ACMI Executive Committee Meeting

Grant

International Affairs Committee Meeting

Edison

Membership Committee Meeting

Bancroft

5:00 PM–6:30 PM SPECIAL EVENTS

SNOMED Corporate Roundtable

Farragut

5:00 PM–7:00 PM SPECIAL EVENTS

Townhall Meeting on Clinical Decision Support (CDS)

Moderator: Thomas Payne, MD, FACP, Medical Director, IT Services, UW Medicine

International Ballroom East

In 2006, AMIA released the Roadmap for National Action on Clinical Decision Support (CDS), which was commissioned by Agency for Healthcare Research and Quality (AHRQ) and the U.S. Office of the National Coordinator for Health Information Technology (ONC). The Roadmap called for a need to coordinate an agenda to address impediments to widespread adoption. Attendees will review the progress made since its release. The session will solicit dialogue on design strategies for CDS and how best to incorporate CDS into healthcare delivery. Utilizing an interactive format, meeting participants will provide insights to the challenges faced when implementing CDS, as well as approaches to overcome these challenges. The discussion will focus on the numerous CDS projects and activities currently funded by AHRQ and other Federal agencies. This session is made possible in part through support from AHRQ.

5:15 PM–7:00 PM POSTER SESSION 1

Innovation & Information Center

Posters are listed in detail beginning on page 12 of the Guide to the Innovation & Information Center.

5:15 PM–7:00 PM SPECIAL EVENTS

Clinical Research Informatics WG Expo

Innovation & Information Center

The Clinical Research Informatics Expo is sponsored by AMIA's Clinical Research Informatics Working Group (CRI-WG). The Expo highlights projects and initiatives relevant to the field of Clinical Research Informatics through posters and demonstrations.

Poster abstracts are listed in detail beginning on pages 31 of the Guide to the Innovation & Information Center.

5:15 PM–7:00 PM SPECIAL EVENTS

Medical Imaging Systems WG Expo 1

Sponsored by Philips Research North America

Innovation & Information Center

The MIS-WG is sponsoring this exhibit to provide a forum for researchers to demonstrate the latest cutting-edge work in imaging informatics research from foundations to applications.

Additional information can be found on page 32 of the Guide to the Innovation & Information Center.

5:30 PM–7:00 PM BUSINESS MEETINGS

Clinical Information Systems WG Business Meeting and Reception

Sponsored by Partners HealthCare

International Ballroom West

Dental Informatics WG Business Meeting

Military

Education WG Business Meeting

Caucus

Knowledge in Motion WG Business Meeting

Hemisphere

Nursing Informatics WG Business Meeting

Jefferson West

People and Organization Issues WG Business Meeting

Thoroughbred

Pharmacoinformatics WG Business Meeting

Map

6:30 PM–7:30 PM SPECIAL EVENTS

International Reception

(by invitation only)

Monroe

6:30 PM–9:00 PM BUSINESS MEETINGS

Public Health Informatics WG Business Meeting

Sponsored by Northrop Grumman

Lincoln East

6:30 PM–10:00 PM BUSINESS MEETINGS

JAMIA Editorial Board Meeting

(Board members only)

Georgetown

7:00 PM–8:00 PM SPECIAL EVENTS

Nursing Informatics WG Reception

Sponsored by Vanderbilt School of Nursing

Jefferson East

7:30 PM–10:00 PM BUSINESS MEETINGS

Clinical Research Informatics WG Business Meeting and Reception

Sponsored by PercipEnz Technologies and Velos

Lincoln West

Formal (Bio)Medical Knowledge Representation WG Business Meeting

Hemisphere

Medical Imaging Systems WG Business Meeting

Military

Natural Language Processing WG Business Meeting

Thoroughbred

TUESDAY, NOVEMBER 11

7:00 am – 8:15 am
7:00 am – 8:15 am
7:00 am – 8:30 am
7:00 am – 8:30 am
8:30 am – 10:00 am

Committee Meetings (Ethics, Publications, Public Policy)
Corporate Roundtables (Cisco)
CHIR Investigators Social Event
Academic Forum Meeting
Semi-plenary Sessions

S47 Informatics Year in Review
S48 Technology Enabled Work Environments
S49 An Update from the NCPHI

10:00 am – 10:30 am
10:30 am – 12:00 pm

Coffee Break
Scientific Sessions

S51 Informaticians, Innovations, and Entrepreneurship
S52 New Perspectives and Progress from the American Health Information Community
S53 Electronic Case Reporting of Notifiable Diseases to Local and State Health Departments Using HL7
S54 Interdisciplinary Communication and Patient Safety: The Case of Fall and Injury Prevention
S55 Clinical Research Informatics
S56 Effects of Systems on Workflow
S57 Enabling and Assessing Data Exchange
S58 New Algorithms for Data Mining
S59 Identifying Clinical Concepts and Free-text Notes and Reports
S60 SNOMED-CT: Complexity, Quality, Interoperability
S61 Ontology-enabled tools

10:00 am – 2:00 pm
10:00 am – 2:00 pm

Innovation and Information Center Open
Poster Preview (for poster session-2)

12:15 pm – 1:30 pm
1:00 pm – 3:00 pm
1:45 pm – 3:15 pm

AMIA State of the Association Meeting
Morningside Initiative Joint Technical/Content Meeting (by invitation)
Scientific Sessions

S62 How to Review a Scientific Paper for Biomedical Informatics Journals and Conferences
S63 Is it Really Research? Getting Informatics Work Approved by the IRB
S64 Lessons from Data-Sharing Collaboratives: What Organizational Support Systems and Incentives Are Required for Success?
S65 Public Health Research Grid
S66 Point of Care Decision Support
S67 Visualization and Cognitive Processes
S68 Patient Collaboration
S69 Methods for Assessing Calibrations...
S70 Studies of Clinician Use
S71 Shared Resources
S72 ACMI Senior Member Presentations - 2

3:30 pm – 5:00 pm

Scientific Sessions

S73 2008 Data Mining Competition: Discovering Knowledge in NHANES Data
S74 The State of the Art and an Agenda for Research in Home Telehealth
S75 Lessons learned from Four Informatics Training for Global Health (ITGH) programs
S76 The Digital Patient Record Certification – A Foundation for Healthcare Workers and Novice Clinicians for Effective Use of the EHR
S77 Secondary Uses of Data: Ethical and Social Considerations in Data Sharing, Quality Improvement, and Patient Internet Interaction
S78 Supporting Triage and Prediction of Outcomes
S79 Identifying Semantic Relationships
S80 Public Health Surveillance
S81 Knowledge Bases and Terminology
S82 Decision Support - Personal medication lists
S83/LB3 Late Breaking Session: The AHIC Successor—Furthering the Adoption of Interoperable Electronic Health Records

4:00 pm – 7:00 pm
5:00 pm – 6:30 pm

Innovation and Information Center Open
Committee Meetings (2009 Spring Congress Scientific Program, CRIS Task Force, Education Working Group Steering)

5:15 pm – 7:00 pm
5:15 pm – 7:00 pm
5:30 pm – 6:30 pm
5:30 pm – 7:00 pm

Poster Session 2
Medical Imaging Systems WG Expo 2
ACMI Business Meeting
Working Group Business Meetings (Consumer Health, Evaluation, Genomics, Knowledge Discovery and Data Mining)

6:30 pm – 7:30 pm
6:30 pm – 7:30 pm
7:30 pm – 9:00 pm
9:00 pm – 12:00 am

Corporate Reception (by invitation)
AMIA 2008 Scientific Program Committee Reception (by invitation)
Chairman's Club Reception (by invitation)
Social Event and Dance Party

TUESDAY, NOVEMBER 11, 2008

7:00 AM-8:15 AM COMMITTEE MEETINGS

Ethics Committee Meeting

Edison

Publications Committee Meeting

Bancroft

Public Policy Committee Meeting

Farragut

7:00 AM-8:15 AM SPECIAL EVENTS

Cisco Corporate Roundtable

Grant

7:00 AM-8:30 AM AFFILIATE EVENTS

CHIR Investigators Social Event

Military

7:00 AM-8:30 AM BUSINESS MEETINGS

Academic Forum Meeting

Hemisphere

8:30 AM-10:00 AM SEMI-PLenary SESSIONS

S47 - Featured Session

Theme: Education

International Ballroom East

Session Chair: David Bates

Informatics Year in Review

Daniel Masys, Vanderbilt University Medical Center

This popular session has become a regular feature of the Annual Symposium. This session will review a sample of notable events that have occurred in the past twelve months. Included will be new findings from the published literature, achievements in operational applications of informatics, changes in public policy and government, and emerging new technologies. The implications of these events for the future of bioinformatics, clinical informatics and health care will be addressed. Dr. Daniel R. Masys is Professor and Chair of the Department of the Department of Biomedical Informatics and Professor of Medicine at Vanderbilt University Medical Center.

S48 - Featured Speaker - 1

Theme: Clinical Decision Support, Outcomes, and Patient Safety

Georgetown

Session Chair: Patricia Abbott

Technology Enabled Work Environments: Results of the AAN Technology Drill-Down Study

Pamela F. Cipriano, University of Virginia Medical Center

Pamela Cipriano is the Chief Clinical Officer and Chief Nursing Officer at the University of Virginia Medical Center, a Magnet Hospital. In this role she is responsible for the provision of clinical care by over 3,000 employees, including more than 1,700 registered nurses, as well as pharmacists, social workers, therapists, and other support personnel. She is also a clinical associate professor in the School of Nursing. In 2008, she received the "Distinguished Membership Award" from the American Nurses Association, and the University of Pennsylvania School of Nursing Outstanding Alumna Award for leadership in Nursing. Dr. Cipriano, a Fellow in the American Academy of Nursing, has served in numerous elected and appointed positions in national nursing organizations throughout her career. Most notably, she was Treasurer of the American Nurses Association, and on the Board of Directors of the American Academy of Nursing. She serves as the Editor-in-Chief of the new official journal of the American Nurses Association, *American Nurse Today*, and is a member of the Joint Commission's National Nursing Advisory Council. She has been a Sigma Theta Tau International Distinguished Scholar, and an American Nurses Foundation Scholar. In addition to serving as a hospital nurse executive, she has held roles as a clinical nurse specialist, manager, faculty member, and staff nurse.

S49 - Featured Speaker - 2

Theme: Public Health Informatics and Biosurveillance

International Ballroom West

Session Chair: Jaap Suermondt

An Update from the National Center for Public Health Informatics

Leslie Lenert, Director of the National Center for Public Health Informatics, Centers for Disease Control and Prevention

Dr. Leslie Lenert is Director of the Centers for Disease Control and Prevention's National Center for Public Health Informatics. Prior to this appointment, he served as Director for the Health Services Research and Development section of the Veterans Medical Research Foundation, Professor of Medicine at the University of California, San Diego School of Medicine, Staff Physician at the VA San Diego Healthcare System and Associate Director of Medical Informatics at the California Institute for Telecommunications and Information Technology (CallT 2). A graduate of the University of California, Riverside and the University of California, Los Angeles School of Medicine, he completed postgraduate training in Internal Medicine at the University of Texas Southwestern Medical School and a Fellowship in Clinical Pharmacology at Stanford University School of Medicine. Dr. Lenert is a member of the editorial boards of *Medical Decision Making*, the *Journal of the American Medical Informatics Association* and *Journal of Biomedical Informatics*. He is also a member of the Agency for Healthcare Research and Quality Healthcare Technology and Decision Sciences study section. In 2002, he was appointed to the American College of Medical

Informatics, in recognition of his work in the field of Informatics. Dr. Lenert has research interests in the approach for measurement of patient preferences and assisting patients, clinicians and policy makers with difficult decisions. From a technical (informatics) perspective, Dr. Lenert pioneered use of computer interviewing techniques for preference surveys, the development of surveys with integrated multimedia materials and the development of web-based delivery mechanisms for surveys. Dr. Lenert also has extensive experience developing “toolkit” type software designed to help other investigators create their preference surveys and decision support programs. An additional area of research interest for Dr. Lenert is the Wireless Internet Information System for Medical Response in Disasters (WIISARD) project. WIISARD is an advanced wireless location-aware electronic records system designed to facilitate the care of victims at the site of disasters or terrorist attacks.

10:00 AM-10:30 AM COFFEE BREAK

Innovation & Information Center

10:00 AM-2:00 PM INNOVATION & INFORMATION CENTER OPEN

10:30 AM-12:00 PM SCIENTIFIC SESSIONS

S51 - Featured Session

Theme: Education

International Ballroom East

Informaticians, Innovations, and Entrepreneurship

Charles Safran, National Center for Public Health Informatics at CDC, Harvard Medical Faculty Physicians at Beth Israel Deaconess Medical Center; Craig Feied, Microsoft, Frank Naeymi-Rad, Intelligent Medical Objects, Michael Kaufman, Barbara Rapchak

This panel session will include discussions with AMIA members, entrepreneurs, and venture capitalists (VC) with experience in running, starting, owning their own businesses or selling their research/ideas/services/products to existing corporations. This session is a must for: individuals wanting to develop informatics related products/services with commercial potential; motivated business entrepreneurs and researchers interested in partnering on collaborative R&D projects; and organizations interested in developing strategic alliances with informatics researchers with informatics researchers.

S52 - Panel

Theme: Policy and Ethical Issues

International Ballroom West

New Perspectives and Progress from the American Health Information Community

J. Teich, Elsevier and Harvard University; C. Clancy, Agency for Healthcare Research and Quality; C. Friedman, Department of Health and Human Services; J. Glaser, Partners HealthCare

Since its formation by the Secretary of Health and Human Services in 2005, the American Health Information Community (AHIC) has been at the center of policy development and national coordination

concerning health information technology. AHIC workgroups have addressed the core elements of successful EHRs, such as standards, interoperability, and privacy, and the applications of EHRs to better health, including quality measures, clinical decision support, genomics, and biosurveillance. AHIC is now preparing for its re-establishment as a public-private partnership, even as it continues to work to advance a national roadmap for widespread, effective health information systems. In this panel, national informatics leaders chairing the AHIC workgroups on Quality, Personalized Healthcare, and Clinical Decision Support join the Deputy National Coordinator in sharing their views on AHIC's progress, effectiveness, and future.

S53 - Panel

Theme: Public Health Informatics and Biosurveillance

Georgetown

Electronic Case Reporting of Notifiable Diseases to Local and State Health Departments Using HL7

S. Evans, LDS Hospital/Intermountain Healthcare; C. Staes, D. Rajeev, University of Utah; M. Klompas, Brigham and Women's Hospital

Notifiable diseases are communicable and non-communicable diseases that are of public health importance. Local, state, and national public health agencies require that such diseases be reported when diagnosed. Reporting helps identify disease trends and outbreaks and is essential for implementing public health control measures. In hospitals, reporting is usually done by infection control while community reporting is usually the initiative of clinicians. For 24 years, LDS Hospital has used electronic reporting of laboratory results to create case reports that are faxed to local and state health departments. Intermountain Healthcare is working with the Utah Department of Public Health and the University of Utah to develop a HL7 message that will be sent directly to the health department. The Department of Ambulatory Care and Prevention at Harvard Medical School has been developing a similar program in the ambulatory setting. While electronic reporting can streamline data processing, it has its own limitations and can create new problems in data quality, shifted work demands, and the need for additional skills. This panel will discuss the use of electronic case reporting in Utah and Massachusetts, present problems we identified, solutions for identifying cases, protocols for exchanging information with public health authorities, and future plans.

S54 - Panel

Theme: Clinical Decision Support, Outcomes, and Patient Safety

Monroe

AMIA NIWG Sponsored Panel: Interdisciplinary Communication and Patient Safety: The Case of Fall and Injury Prevention

L. Currie, Columbia University; J. Murphy, Aurora Health Care; P. Dykes, Partners HealthCare; M. Reynolds, Trinity Health; S. Collins, Columbia University

Effective communication amongst the interdisciplinary team is critical for safe patient care across the care continuum. Nurses have historically been responsible for managing and monitoring patients at risk for falls and related injuries and as such, falls are considered a nursing sensitive quality indicator. Well-designed information and communication technologies have the potential to improve patient

safety; however, challenges to using information technology to facilitate interdisciplinary communication persist. Communication failure can result in unsafe situations and may promote errors of omission or errors of commission. A model of communication in health care put forth by Coeira is the Communication Information Continuum. The overarching goal of the model is to identify the best tool to facilitate communication and information transfer at specific stages of individual and shared understanding. Patient Safety was identified as one of the top areas of interest for AMIA NIWG members based on a NIWG Education Survey conducted in 2007. This panel will address the issues related to interdisciplinary communication for fall and injury prevention in the context of patient safety. Using Coiera's Communication-Information Continuum to frame the problem, these four presentations will discuss issues related to interdisciplinary communication and strategies to improve interdisciplinary communication towards fall and injury prevention.

S55 - Papers: Clinical Research Informatics Theme: Clinical Research Informatics

Lincoln East

Session Chair: Stan Kaufman

Automated Information Extraction of Key Trial Design Elements from Clinical Trial Publications

B. de Bruijn, National Research Council; S. Carini, University of California, San Francisco; S. Kiritchenko, J. Martin, National Research Council; I. Sim, University of California, San Francisco

Supporting the Design of Translational Clinical Studies Through the Generation and Verification of Conceptual Knowledge-anchored Hypotheses

P. Payne, T. Borlawsky, A. Kwok, The Ohio State University; A. Greaves, UCSD Moores Cancer Center

Re-engineering Opportunities in Clinical Research using Workflow Analysis in Community Practice Settings

S. Khan, R. Kukafka, T. Bigger, S. Johnson, Columbia University

Tool Support to Enable Evaluation of the Clinical Response to Treatment

M. Levy, D. Rubin, Stanford University

S56 - Papers: Effects of Systems on Workflow; Information Delivery for Community Care Theme: Clinical Workflow and Human Factors

Jefferson West

Session Chair: Yang Gong

A Rapid Assessment Process for Clinical Informatics Interventions

J. Ash, OHSU School of Medicine; D. Sittig, Northwest Permanente; C. McMullen, Kaiser Permanente Northwest; K. Guappone, R. Dykstra, Oregon Health & Science University; J. Carpenter, Providence Portland Medical Center

Alert Override Reasons: A Failure to Communicate

A. Chused, G. Kuperman, P. Stetson, Columbia University

Experiences of Technology Integration in Home Care Nursing

K. Leef, University of Wisconsin Madison; R. Valdez, University of Wisconsin; G. Casper, S. Kossman, University of Wisconsin-Madison; P. Carayon, C. Or, University of Wisconsin; L. Burke, Aurora Health Care System; P. Brennan, University of Wisconsin-Madison

Web Screening of US Nursing Homes by Location and Quality

G. Pearson, M. Gill, G. Thoma, National Library of Medicine/NIH

S57 - Papers: Enabling and Assessing Data Exchange: Modeling Information and Processes Theme: Data Integration and Exchange

Hemisphere

Session Chair: Peter Embi

Development of a Reference Information Model and Knowledgebase for Electronic Bloodstream Infection Detection

T. Borlawsky, The Ohio State University; B. Hota, M. Lin, Rush University Medical Center; Y. Khan, J. Young, The Ohio State University College of Medicine; J. Santangelo, The Ohio State University Medical Center; K. Stevenson, The Ohio State University College of Medicine

Using the RxNorm Web Services API for Quality Assurance Purposes

L. Peters, O. Bodenreider, National Library of Medicine

The MidSouth eHealth Alliance: Use and Impact In the First Year

K. Johnson, C. Gadd, D. Aronsky, K. Yang, L. Tang, V. Estrin, J. King, M. Frisse, Vanderbilt University

Early Experiences in Evolving an Enterprise-Wide Information Model for Laboratory and Clinical Observations

E. Chen, L. Zhou, . Kashyap, M. Schaeffer, P. Dykes, H. Goldberg, Partners HealthCare System

S58 - Papers: New Algorithms for Data Mining Theme: Data Mining, NLP, and Information Extraction

Thoroughbred

Session Chair: John Holmes

Fuzzy Temporal Constraint Networks for Clinical Information

A. Lai, Columbia University; S. Parsons, Brooklyn College of the City University of New York; G. Hripcsak, Columbia University

Learning Detectors of Events in Multivariate Time Series

J. Roue, A. Dubrawski, J. Schneider, Carnegie Mellon University

Journal of
JAMIA

Identifying Logical Clinical Context Clusters in Nursing Orders for the Purpose of Information Retrieval

S. Collins, S. Bakken, Columbia University; J. Cimino, NIH; L. Currie, Columbia University

Exploring MEDLINE Space with Random Indexing and Pathfinder Networks

T. Cohen, Arizona State University

S59 - Papers: Identifying Clinical Concepts in Free-text Notes and Reports

Jefferson East

Session Chair: Betsy Humphreys

Journal of
JAMIA

eQuality for All: Extending Automated Quality Measurement of Free Text Clinical Narratives

S. Brown, Vanderbilt University; P. Elkin, Mayo Clinic; T. Rosenbloom, Vanderbilt University Medical Center; E. Fielstein, Department of Veterans Affairs; T. Speroff, Department of Veterans Affairs

Identification of Inactive Medications in Narrative Medical Text

E. Breydo, Partners HealthCare; J. Chu, Harvard Medical School; A. Turchin, Partners HealthCare; A. Turchin, Brigham and Women's Hospital

Extracting Structured Medication Event Information from Narrative Clinical Notes

S. Gold, N. Elhadad, X. Zhu, Columbia University; J. Cimino, NIH; G. Hripcsak, Columbia University

Methods for Building Sense Inventories of Abbreviations in Clinical Notes

H. Xu, C. Friedman, P. Stetson, Columbia University

S60 SNOMED-CT: Complexity, Quality, Interoperability

Lincoln West

Session Chair: W. Ed Hammond

Complexity Measures to Track the Evolution of a SNOMED Hierarchy

D. Wei, Y. Wang, Y. Perl, J. Xu, New Jersey Institute of Technology; M. Halper, Kean University; K. Spackman, OHSU

Auditing Complex Concepts in Overlapping Subsets of SNOMED

Y. Wang, D. Wei, J. Xu, NJIT; G. Elhanan, 3M Healthcare Information Systems; Y. Perl, NJIT; M. Halper, Kean University; Y. Chen, BMCC, City University of New York; K. Spackman, OHSU; G. Hripcsak, Columbia University

SNOMED CT Coding Variation and Grouping for "other findings" in a Longitudinal Study on Urea Cycle Disorders

T. Patrick, University of Wisconsin-Milwaukee; R. Richesson, University of South Florida College of Medicine; J. Andrews, University of South Florida; L. Folk, University of Wisconsin-Milwaukee

Issues in Mapping LOINC Laboratory Tests to SNOMED CT

O. Bodenreider, National Library of Medicine

S61 - Demonstrations: Ontology-enabled tools Theme: Data Integration and Exchange

Military

Session Chair: Carol Bean

TrialWiz: An Ontology-driven Tool for Authoring Clinical Trial Protocols

R. Shankar, Stanford University; S. Aralgud, Immune Tolerance Network; M. Connor, Stanford University; K. Boyce, Immune Tolerance Network; D. Parrish, Immune Tolerance Network; A. Das, Stanford University

There has long been great interest in the clinical research community for automated support of clinical trials management. At the core of such efforts is formal specification of protocol knowledge. Building a clinical-trial knowledge base is a complex task involving software engineers and domain experts. As part of our Epoch ontological framework for clinical trials management at the Immune Tolerance Network (ITN), we have developed TrialWiz, an authoring tool for encoding a clinical-trial knowledge base. The main goals of TrialWiz are to manage the complexity of the protocol-encoding process and to improve efficiency in knowledge acquisition. TrialWiz provides intelligent guidance through the process of acquiring clinical-trial knowledge; graphical user interfaces intuitive to clinical trialists; a repository of reusable knowledge; and facilities to export the knowledge in different formats. We have successfully used TrialWiz to encode example clinical trials at ITN. In this presentation, we will demonstrate the intuitive authoring of clinical trial protocols using TrialWiz and how the protocol knowledge can be used by different clinical trial management applications at run time.

Data Federation in the Biomedical Informatics Research Network: Tools for Semantic Annotation and Query of Distributed Multiscale Brain Data

W. Bug, V. Astahkov, University of California, San Diego; J. Boline, University of California, Los Angeles; C. Fennema-Notestine, J. Grethe, A. Gupta, University of California San Diego; D. Kennedy, Massachusetts General Hospital; D. Rubin, Stanford University; B. Sanders, University of California, San Diego; J. Turner, University of California, Irvine; M. Martone, University of California, San Diego

The broadly defined mission of the Biomedical Informatics Research Network (BIRN, www.nbirn.net) is to better understand the causes of human disease and the specific ways in which animal models inform that understanding. To construct the community-

wide infrastructure for gathering, organizing, and managing this knowledge, BIRN is developing a federated architecture for linking multiple databases across sites contributing data and knowledge. Navigating across these distributed data sources requires a shared semantic scheme and supporting software framework to actively link the disparate repositories. At the core of this knowledge organization is BIRNLex, a formally-represented ontology facilitating data exchange. Source curators enable database interoperability by mapping their schema and data to BIRNLex semantic classes thereby providing a means to cast BIRNLex-based queries against specific data sources in the federation. We will illustrate use of the source registration, term mapping, and query tools.

10:30 AM-2:00 PM POSTER SESSION 2

Poster Preview

Posters are listed in detail beginning on page 21 of the Guide to the Innovation & Information Center.

12:15 PM-1:30 PM BUSINESS MEETINGS

State of the Association Meeting

International Ballroom East

1:30 PM-3:00 PM AFFILIATE EVENTS

Morningside Initiative Joint Technical/Content Meeting

Hamilton

1:45 PM-3:15 PM SCIENTIFIC SESSIONS

S62 - Featured Session

Theme: Education

International Ballroom East

How to Review a Scientific Paper for Biomedical Informatics Journals and Conferences

Edward H. Shortliffe, University of Arizona College of Medicine - Phoenix

Dr. Shortliffe and fellow editors from the Journal of Biomedical Informatics (JBI) will provide attendees with a detailed case example of a paper that was previously submitted to the journal and eventually revised until it was judged acceptable for publication. Attendees are encouraged to download the original version of the paper in advance from the JBI home page (<http://www.elsevier.com/locate/yjbin>) so that they can formulate an opinion about the paper in preparation for the discussions at the AMIA Annual Symposium. Examining the sample paper in detail, attendees will learn about the fundamentals and mechanics of manuscript review. A discussion format will allow full participation by attendees, as they see the actual reviewers' comments and then the revised paper, including the comments from

the authors. Attendees will leave the session class with a greater understanding of the processes and criteria involved both for informaticians when they review manuscripts and for authors when they respond to reviewers' comments and criticisms.

S63 - Panel WG

Theme: Clinical Research Informatics

Georgetown

Is it Really Research? Getting Informatics Work Approved by the IRB

S. Haque, Syracuse University; B. Bukaveckas, Virginia Commonwealth University; J. Cooper, Accordant; J. Holmes, University of Pennsylvania School of Medicine; J. Starren, Marshfield Clinic

AMIA has recently identified workflow as a grand challenge. This focus on workflow leads to studies of clinical routines and how information systems can be developed to support them. These kinds of studies do not involve interventions on patients, but a focus on processes and the practices of clinical and administrative staff. These studies often involve qualitative methods such as participant observation, document review, and semi-structured interviews. When dealing with the clinical and administrative staff, a different set of policies and procedures is needed. The Ethical, Legal, and Social Issues Working Group has put together a panel to address some of the issues to take into consideration and propose suggestions to address them. Many IRBs are not familiar with this kind of research and may consider it part of quality improvement efforts rather than research efforts, so working with the IRB so facilitate these kinds of studies can help in answering this grand challenge.

S64 - Panel WG

Theme: Data Integration and Exchange

Monroe

Lessons from Data-Sharing Collaboratives: What Organizational Support Systems and Incentives Are Required for Success?

C. Aydin, Cedars-Sinai Medical Center; V. Estrin, Vanderbilt Center for Better Health; T. Horan, Claremont Graduate University; J. Aarts, Erasmus University Medical Center

Regional data-sharing among health care organizations is an important step in the development of health information technology. Such data-sharing promises to improve the coordination of patient care and information, yet it has recently become clear that establishing and sustaining these initiatives is extremely challenging. Indeed, little is known about how to successfully implement and maintain regional data-sharing efforts. What lessons have we learned from regional data-sharing collaboratives, and what will it take to make them successful? The objective of this panel is to engage POI Working Group members and others in exploring the challenges and potential of inter-organizational data-sharing, and to provide a framework for determining an organization's readiness to participate in such efforts. Each type of organization represented by the panelists has a distinct rationale for existence: data-sharing collaboratives for reporting quality outcomes; Regional Health Information Organizations; emergency medical response health information exchanges; and disease management coordination

and collaboration endeavors. The collective experience of these organizations emphasizes the importance of both technical and organizational resources not only within individual organizations, but also within an overarching and formal governance structure.

S65 - Panel

Theme: Public Health Informatics and Biosurveillance

Lincoln West

Public Health Research Grid

J. Lombardo, JHU Applied Physics Laboratory; C. Friedman, Columbia University; W. Lober, University of Washington; J. Facelli, University of Utah; T. Savel, CDC

Public health agencies are increasingly asked to provide new services to their communities with limited resources. With the rapid spread of highly communicable diseases, public health officials are faced with the challenge of knowing the health status of their jurisdictions, as well as having world-wide knowledge of diseases that could quickly be present in their community. Informatics is playing an increasing role in providing health agencies with the tools needed to meet these challenges, but the cost of developing and maintaining applications will eventually make new tools unaffordable. The CDC's National Centers for Public Health Informatics (NCPHI) and its Academic Centers of Excellence are conducting research toward the development of a Public Health Grid (PHGrid). The PHGrid is a collaborative environment that will encourage health care providers, federal agencies, and health departments to provide grid-enabled services to their disease surveillance systems. These services will allow users to dynamically assemble tools as needed to effectively execute public health's mission. This panel will provide an overview of the PHGrid and discuss the data and information services required for collaboration. In addition, attendees will learn about the analytic and natural language processing services that will be available to researchers on the grid.

S66 - Papers: Point of Care Decision Support

Theme: Clinical Decision Support, Outcomes, and Patient Safety

Hemisphere

Session Chair: Dominik Aronsky

Comparison of RFID Systems for Tracking Clinical Interventions at the Bedside

K. Ohashi, Brigham and Women's Hospital; S. Ota, Tokyo Medical and Dental University Graduate School; H. Tanaka, Tokyo Medical and Dental University Center for Information Medicine; L. Ohno-Machado, Brigham and Women's Hospital, Harvard Medical School

Engineering of a Clinical Decision Support Framework for the Point of Care Use

S. Wilk, W. Michalowski, D. O'Sullivan, University of Ottawa; K. Farion, Children's Hospital of Eastern Ontario; S. Matwin, University of Ottawa

Medication and Indication Linkage: A Practical Therapy for the Problem List?

M. Burton, G. Schadow, L. Simonaitis, Regenstrief Institute

Intravenous Medication Administration in Intensive Care: Opportunities for Technological Solutions

J. Moss, E. Berner, O. Bothe, I. Rymarchuk, University of Alabama at Birmingham

S67 - Papers: Visualization and Cognitive Processes

Theme: Clinical Workflow and Human Factors

Jefferson East

Session Chair: Daniel Rubin

Assessing the Use of Cognitive Heuristic Representativeness in Clinical Reasoning

V. Payne, R. Crowley, University of Pittsburgh

Application of Statistical Process Control Methods to Monitor Guideline Adherence: A Case Study

N. Peek, R. Goud, A. Abu-Hanna, Academic Medical Center

A Tool for Improving the Longitudinal Imaging Characterization for Neuro-Oncology Cases

R. Taira, UCLA

An Interactive Tool for Visualizing Design Heterogeneity in Clinical Trials

M. Hernandez, University of Victoria; S. Carini, University of California San Francisco; M. Storey, University of Victoria; I. Sim, University of California San Francisco

S68 - Papers: Patient Collaboration

Theme: Consumer Informatics and PHRs

Thoroughbred

Session Chair: Wanda Pratt

CHMP: A Collaborative Medical History Portal

N. Zimmerman, C. Patel, Stanford University; D. Chen, Stanford University School of Medicine

Synthesizing Community Wisdom: A Model for Sharing Cancer-Related Resources through Social Networking and Collaborative Partnerships

J. Weiss, N. Lorenzi, Vanderbilt University

How the Social Web Supports Patient Experimentation with a New Therapy: The Demand for Patient-centered Medical Informatics

J. Frost, M. Massagli, P. Wicks, J. Heywood, PatientsLikeMe

A Scientific Collaboration Tool Built on the Facebook Platform

S. Bedrick, Oregon Health and Science University; D. Sittig, Northwest Permanente

S69 - Papers: Methods for Assessing Calibration, Interrater Agreement, and Information Retrieval Quality

Theme: Data Mining, NLP, and Information Extraction

Jefferson West

Session Chair: Kirk Phillips



Improving Calibration of Logistic Regression Models by Local Estimates

M. Osl, University of Health Sciences, Medical Informatics and Technology; L. Ohno-Machado, Brigham and Women's Hospital, Harvard Medical School; S. Dreiseitl, University of Health Sciences, Medical Informatics and Technology

Comparison of Methods to Quantify Agreement in Qualitative Data

D. McFarlane, J. Ancker, R. Kukafka, Columbia University

Evaluation of a Document Search Engine in a Clinical Department System

S. Schulz, University Hospital; P. Daumke, Averbis GmbH; P. Fischer, M. Muller, Freiburg University Medical Center

Evaluating Relevance Ranking Strategies for MEDLINE Retrieval

Z. Lu, W. Kim, J. Wilbur, NCBI

S70 - Papers: Studies of Clinician Use Theme: EHR and CPOE Systems

Lincoln East

Session Chair: David Lobach

Implementing an Integrated Computerized Patient Record System: The Need for an Evidence-based System Implementation Practice in Healthcare

B. Rahimi, Linköping University; A. Moberg, Affiliation County Council; T. Timpka, V. Vimarlund, Linköping university

Understanding Intention to Use Electronic Information Resources: A Theoretical Extension of Technology Acceptance Model (TAM)

D. Tao, University of Missouri

Physician Use of Outpatient Electronic Health Records to Improve Care

A. Wilcox, Columbia University; W. Bowes, S. Thornton, Intermountain Healthcare; S. Narus, University of Utah

Evaluating the Technical Adequacy of Electronic Prescribing Standards: Results of an Expert Panel Process

D. Bell, UCLA

S71 - Demonstrations: Shared Resources Theme: Data Integration and Exchange

Military

Session Chair: Chunhua Weng

Web-Based Tools from AHRQ's National Resource Center

C. Cusack, NORC; S. Shah, Center for IT Leadership

Abstract The Agency for Healthcare Research and Quality (AHRQ) has made an investment of over \$216 million in research around health information technology (health IT). As part of their investment, AHRQ has developed the National Resource Center for Health IT (NRC) which includes a public domain Web site. New content for the web site, such as white papers, toolkits, lessons from the health IT portfolio and web-based tools, is developed as needs are identified. Among the tools developed by the NRC are the Compendium of Surveys and the Clinical Decision Support (CDS) Resources. The Compendium of Surveys is a searchable repository of health IT evaluation surveys made available for public use. The CDS Resources contains content which may be used to develop clinical decision support tools, such as rules, reminders and templates. This live demonstration will show the access, use, and content of both these freely available web-based tools.

BioPortal: Ontologies and Data Resources with the Click of a Mouse

M. Musen, N. Shah, N. Noy, B. Dai, M. Dorf, N. Griffith, Stanford University; J. Buntrock, Mayo Clinic College of Medicine; C. Jonquet, M. Montegut, D. Rubin, Stanford University

Ontologies provide essential domain knowledge to drive data integration, information retrieval, natural language processing, and decision support. The National Center for Biomedical Ontology, one of the seven National Centers for Biomedical Computing created under the NIH Roadmap, is developing BioPortal, a Web-based system that serves as a repository for biomedical ontologies. BioPortal defines relationships among those ontologies and between the ontologies and online data resources such as PubMed, ClinicalTrials.gov, and the Gene Expression Omnibus (GEO). BioPortal supports not only the technical requirements for access to biomedical ontologies either via Web browsers or via Web services, but also community-based participation in the evaluation and evolution of ontology content. BioPortal enables ontology users to learn what biomedical ontologies exist, what a particular ontology might be good for, and how individual ontologies relate to one another. The BioPortal system is available online at the following location: <http://alpha.bioontology.org>.

S72 - ACMI Senior Member Presentations 2 Theme: Education

International Ballroom West

Session Chair: Heimer F. Marin

A Socio-technical Model of Health Information Technology-related e-Introgenesis

D. Sittig, Northwest Permanente

When encouraging reports of Health Information Technology successes are coupled with recent recommendations from the

Institute of Medicine that health care organizations adopt state-of-the-art clinical information systems (CISs) as a key component of the solution to care-quality problems, the pressure on hospitals and physician practices to implement CISs has never been greater. Unfortunately, few hospitals or physician practices have the organizational, IT, or informatics resources in place to achieve these goals. Recently there have been several reports that have begun to raise questions about the safety of CISs themselves. This so-called e-iatrogenesis, or patient harm resulting from use, at least in part, of health information technology, must be explored. This talk will focus on the need for, a discussion of, and potential uses of a socio-technical model that can help us understand e-iatrogenesis as it occurs in the modern, state of the art, health information technology-enabled healthcare organization.

Is the CTSA Initiative Mandating a Role for Knowledge Informatics?

J. McGowan, Indiana University School of Medicine

The Clinical and Translational Sciences Awards (CTSA) of the National Institutes of Health promise to transform the way research is conducted in academic medicine. Rather than conducting research in silos, institutions are being asked to take a broader approach, engaging researchers across a wide range of disciplines to consider not only the primary focus of their own research but also its context within the total health care environment. An integral part of this translation of research from the bench to the bedside and into population medicine is the ability of researchers from disparate backgrounds to share ideas and work within a common framework to advance basic research into improved health care outcomes. To do this requires the capture not only of researcher knowledge and interests but also less tangible products of the human experience, tacit knowledge that, when shared, can generate new ideas and push the frontiers of science. While knowledge management offers some promise in being able to collect, catalog, and disseminate such knowledge when and where it is needed, the CTSA infrastructure implies a broad based informatics infrastructure, hence a potential role for knowledge informaticians.

Improving the Quality of the Evidence Base of Health Informatics

J. Talmon, University of Maastricht

Evaluation of health informatics technology has had attention from several researchers in health informatics in the last few decades. In the early nineties several working groups and research projects have been discussing methods and methodologies. Despite these activities, evaluation of health informatics has not received the recognition it deserves. In this presentation we will reiterate the arguments put forward in the Declaration of Innsbruck to consider evaluation as an essential element of the evidence base of health informatics. Not only are evaluation studies essential, it is also required that such studies are properly reported. A joint effort of the IMIA, EFMI, and AMIA working groups on evaluation has resulted in guideline for reporting evaluation studies in health informatics (STARE-HI). STARE-HI is currently formally endorsed by EFMI and processes are in place to get endorsement from AMIA and IMIA in the next coming months. A pilot study in which STARE-HI was applied to assess the quality of current reporting clearly indicates that there is quite some room for improvement. Application of guidelines

such as STARE-HI would contribute to a further improvement of the evidence base of health informatics and would open the road for high quality reviews and meta-analyses.

3:30 PM-5:00 PM SCIENTIFIC SESSIONS

S73 - Featured Panel

Theme: Data Mining, NLP, and Information Extraction

Jefferson West

2008 Data Mining Competition: Discovering Knowledge in NHANES Data

S74 - Panel



Theme: Clinical Research Informatics

Georgetown

The State of the Art and an Agenda for Research in Home Telehealth

S. Speedie, University of Minnesota; G. Demiris, University of Washington; S. Finkelstein, University of Minnesota; D. Puskin, Health Services and Resources Administration

Home telehealth is a rapidly emerging mix of information, engineering and communications technologies designed to provide care to patients at home. It is the subject of media attention in the popular press and legislative attention in the halls of Congress. Some have heralded it as a set of disruptive technologies that will revolutionize health care delivery. But does it live up to its reputation? Does it really work? What is the practical impact of home telehealth? Does it improve patient outcomes and reduce costs? Does it provide for new and better ways of delivering care? Do patients desire it? Do health care providers want to use it? Do they believe it is effective? These are a few of the important questions that arise for any new technology that can only be accurately and completely answered through programmatic research. This panel will undertake the following: 1. An analysis of the major research questions in home telehealth; 2. An assessment of the state of the art in research; 3. Assessments of important research directions to pursue from several perspectives.

S75 - Panel

Theme: Education

Monroe

Lessons learned from four Informatics Training for Global Health (ITGH) Programs

H. Marin, Federal University of Sao Paulo

Fogarty International Center's Informatics Training for Global Health (ITGH) program supports informatics research training in low- and middle-income country academic institutions, in partnership with U.S.-based institutions. Training is integrated with ongoing research at the foreign institutions to develop informatics capacity and train the next generation of biomedical informatics researchers. This panel will present the experiences and lessons learned from four of these programs: (1) the Stanford's South Africa Biomedical

Informatics Training Program; (2) the Amauta Global Training in Health Informatics in Peru; (3) the Biomedical Informatics Training Program of the University of KwaZulu-Natal in South Africa, and (4) the Biomedical Research Informatics for Global Health Training program in Brazil.

S76 - Panel

Theme: EHR and CPOE Systems

Military

The DPRC - Digital Patient Record Certification™ Exam and Certification – A Foundation for Healthcare Workers and Novice Clinicians for Effective Use of the EHR

B. Gugerty, Gugerty Consulting, LLC; D. Detmer, AMIA; J. Poikonen, UMass Memorial Medical Center; M. Wilson, University of Maryland School of Nursing; M. Cappeto, Marymount Manhattan College

Healthcare professional educators and leaders are actively incorporating knowledge, skill and awareness about the electronic health record (EHR) into curricula and practice competencies. At the same time healthcare entities are hiring workers, for a wide variety of positions, who have never been exposed to an EHR, a fundamental tool for their job. A basic level of understanding about EHR concepts; issues such as confidentiality and security; user skills like navigation within an EHR; and policy/procedure issues such as authorized electronic release of PHI is needed for healthcare workers to perform their jobs. It's also needed by healthcare professional students to allow their instructors to build on that foundation and design/ deliver educational offerings with intermediate and advanced EHR content. AMIA, in order to address this need, has participated as a partner in the development of the ICDL-Health syllabus. The practical manifestation of the ICDL-Health syllabus is the DPRC™ Digital Patient Record Certification exam. Individuals who pass the exam will exhibit knowledge and ability in relevant EHR concepts and skills. The panel will discuss the background, history, development, validation, uses and related issues of the ICDL-Health syllabus and DPRC exam and certification.

S77 - Panel



Theme: Policy and Ethical Issues

Jefferson East

Secondary Uses of Data: Ethical and Social Considerations in Data Sharing, Quality Improvement, and Patient Internet Interaction

C. Petersen, Mayo Clinic; T. Liaw, University of Melbourne; D. Dorr, OHSU; B. Kaihoi, Mayo Clinic

Advances in biomedical technology have made it possible to treat disease at the level of the genome, collect and catalogue vast quantities of digitized clinical information about individual patients, and manipulate information and tissue samples to develop new therapies. With these advances come equally innovative ways of manipulating accumulated data for benefit to individual patients, institutions, and society as a whole. Less well-studied or understood, however, are complex questions about how data may appropriately be gathered, used, and secured, both in the short-term and for decades to come. This panel examines the ethical and social implications

associated with secondary data uses through the presentation of case studies describing regional data linkage, data collection for quality improvement, and patient institution interactions through the Internet.

S78 - Papers: Supporting Triage and Prediction of Outcomes

Theme: Clinical Decision Support, Outcomes, and Patient Safety

Hemisphere

Session Chair: TBD

Automatic Quality of Life Prediction Using Electronic Medical Records

S. Pakhomov, University of Minnesota; N. Shah, P. Hanson, S. Balasubramaniam, S. Smith, Mayo Clinic

Automatic Pre-Hospital Vital Signs Waveform and Trend Data Capture Fills Quality Management, Triage and Outcome Prediction Gaps

C. Mackenzie, National Study Center for Trauma & EMS; P. Hu, University of Maryland School of Medicine, University of Maryland Shock Trauma Center; A. Sen, University of Maryland Shock Trauma Center; R. Dutton, University of Maryland School of Medicine; S. Seebode, University of Maryland Shock Trauma; D. Floccare, Maryland Institute for Emergency Medical Services Systems; T. Scalea, University of Maryland Shock Trauma Center

Development and Evaluation of Predictive Alerts for Hemodynamic Instability in ICU Patients

L. Eshelman, K. Lee, Philips Research; J. Frassica, W. Zong, M. Saeed, L. Nielsen, Philips Healthcare

Evaluation of a Dynamic Bayesian Belief Network to Predict Osteoarthritic Knee Pain using data from the Osteoarthritis Initiative

E. Watt, A. Bui, University of California Los Angeles

S79 - Papers: Identifying Semantic Relationships Theme: Data Mining, NLP, and Information Extraction

Thoroughbred



Session Chair: Catherine Blake

Methodology for Creating UMLS Content Views Appropriate for Biomedical Natural Language Processing

A. Aronson, J. Mork, A. Neveol, S. Shooshan, D. Demner-Fushman, National Library of Medicine

Semantic Processing to Support Clinical Guideline Development

M. Fiszman, National Library of Medicine; E. Ortiz, National Heart Lung and Blood Institute; B. Bray, University of Utah; T. Rindflesch, National Library of Medicine

Finding the Meaning of Medical Concept Correlations

M. Yetisgen-Yildiz, W. Pratt, University of Washington
Using Semantic and Structural Properties of the UMLS to Discover Potential Terminological Relationships
C. Patel, J. Cimino, Columbia University

S80 – Papers: Public Health Surveillance **Theme: Public Health Informatics and Biosurveillance**

International Ballroom West
Session Chair: Barbara Massoudi

Electronic Medical Record (EMR) Utilization for Public Health Surveillance

Z. Mnatsakanyan, JHU Applied Physics Laboratory; D. Mollura, JHMI; J. Ticehurst, M. Hashemian, L. Hung, JHU Applied Physics Laboratory

Predicting Outbreak Detection in Public Health Surveillance: Quantitative Analysis to Enable Evidence-based Method Selection

D. Buckeridge, A. Okhmatovskaia, McGill University; S. Tu, M. Connor, C. Nyulas, M. Musen, Stanford University

Template-driven Spatial-temporal Outbreak Simulation for Outbreak Detection Evaluation

M. Zhang, G. Wallstrom, University of Pittsburgh

A Multi-level Spatial Clustering Algorithm for Detection of Disease Outbreaks

J. Que, F. Tsui, University of Pittsburgh

S81 – Papers: Knowledge Bases and Terminology **Theme: Terminology and Standards**

Lincoln East
Session Chair: Muzna Mirza

Regular Paths in SparQL: Querying the NCI Thesaurus

L. Detwiler, D. Suciu, J. Brinkley, University of Washington

A Framework for Characterizing Drug Information Sources

M. Sharp, Rutgers; O. Bodenreider, U.S. National Library of Medicine; N. Wacholder, Rutgers University

Bridging Biological Ontologies and Biosimulation: The Ontology of Physics for Biology

D. Cook, J. Mejino, J. Gennari, University of Washington

Somatic Mutation Signatures of Cancer

S. Piccolo, L. Frey, University of Utah

S82 – Demonstration: Decision Support – Personal Medication Lists

Theme: Clinical Decision Support, Outcomes, and Patient Safety

Lincoln West
Session Chair: Karl Gumpfer

Stroke Navigator – A Clinical Decision Support System for Managing Acute Stroke

K. van Zon, W. Lord, C. Lagor, Philips Research North America
The Stroke Navigator is a clinical decision support system aimed at improving the diagnosis and treatment of acute stroke. It combines an audit trail, a differential diagnosis window, an interactive stroke protocol map, and a list of recommendations for hospital staff. It provides a patient-specific overview of the workflow status and of the available clinical findings, with the goal of improving the continuity of care. For this purpose, it uses a workflow engine that was specifically designed to meet the demands of clinical practice. The Stroke Navigator furthermore calculates and displays the probabilities of various stroke differential diagnoses. The demonstration will introduce these and other features by means of a hypothetical patient case. It will also summarize the status of alpha-testing the first prototype.

MyMedicationList: Integrating Personal Medication Records with Resources

S. Nelson, K. Zeng, O. Bodenreider, National Library of Medicine

A record of current medications as well as prior medication history is useful information to an individual. MyMedicationList is a prototype application developed at the National Library of Medicine that helps users manage their medication lists and make the records readily available when needed. This personal medication list can be printed out and serve as a reminder to the individual for taking medications, or as reference information to support continuity of care at doctor's offices or hospitals. We present functionalities and features of MyMedicationList: adding, deleting, updating entries from the list; creating, saving, viewing the list; and storing the list in a standard format. In particular, we demonstrate the integration of personal medication records with a variety of resources. MyMedicationList is currently being tested with user groups. An early version of MyMedicationList is publicly available at <http://mml.nlm.nih.gov/>.

S83/LB3 – Late Breaking Session **Theme: Policy and Ethical Issues**

International Ballroom East

The AHIC Successor—Furthering the Adoption of Interoperable Electronic Health Records

John P. Glaser, Partners Healthcare; Robert M. Kolodner, Office of the National Coordinator U.S. Department of Health and Human Services; Paul Tang, Palo Alto Medical Foundation; Laura Miller, Washington, DC

This late breaking session will describe the latest developments surrounding the American Health Information Community (AHIC). The session will feature incorporators who led the design of the AHIC successor organization. The goal of this session is to articulate how the AHIC successor plans to operate and what this means for the national health information technology agenda.

4:00 PM–7:00 PM INNOVATION & INFORMATION CENTER OPEN

5:00 PM–6:30 PM COMMITTEE MEETINGS

2009 Spring Congress Scientific Program Committee Meeting

Farragut

CRIS Task Force Meeting

Grant

Education Committee Meeting

Edison

Working Group Steering Committee Meeting

Bancroft

5:15 PM–7:00 PM POSTER SESSION 2

Innovation & Information Center

Posters are listed in detail beginning on page 21 of the Guide to the Innovation & Information Center.

5:15 PM–7:00 PM SPECIAL EVENTS

Medical Imaging Systems WG Expo 2

Sponsored by Philips Research North America

Innovation & Information Center

The MIS-WG is sponsoring this exhibit to provide a forum for researchers to demonstrate the latest cutting-edge work in imaging informatics research from foundations to applications.

Additional information can be found on page 32 of the Guide to the Innovation & Information Center.

5:30 PM–6:30 PM BUSINESS MEETINGS

ACMI Business Meeting

Military

5:30 PM–7:00 PM BUSINESS MEETINGS

Consumer Health WG Business Meeting

Jefferson East

Evaluation WG Business Meeting

Thoroughbred

Genomics WG Business Meeting

Caucus

Knowledge Discovery and Data Mining WG Business Meeting

Jefferson West

6:30 PM–7:30 PM SPECIAL EVENTS

Corporate Reception

(by invitation only)

Suite TBD

AMIA 2009 Scientific Program Committee Reception

(by invitation only)

Suite TBD

7:30 PM–9:00 PM SPECIAL EVENTS

Chairman's Club Reception

(by invitation only)

Georgetown

9:00 PM–12:00 AM SPECIAL EVENTS

Social Event and Dance Party

Lincoln East/Monroe

WEDNESDAY, NOVEMBER 12

7:00 am – 8:30 am
8:30 am – 10:00 am

Journal of Biomedical Informatics Board Meeting Scientific Sessions

- S84 A Virtual World as a Health Information Platform
- S85 Towards a Rigorous Evidence Base for Health Informatics: the Issue of the Quality of Reporting
- S86 A 360 Degree View of Translational Medicine
- S87 Decision Support and Guidelines
- S88 Human Computer Interaction
- S89 Concept Extraction from Clinical Text
- S90 Issues in Education
- S91 Interacting with Terminology Services
- LB4 Late Breaking Session: Towards Patient-centeredness—The Medical Home Movement

10:00 am – 10:30 am
10:30 am – 12:00 pm

Coffee Break Scientific Sessions

- S92 Harnessing Mass Collaboration to Synthesize and Disseminate Successful CDS Implementation Practices
- S93 The challenges of bridging HIS/EMRs and Research Information Systems
- S94 Careers in Medical Informatics: Marketing Yourself to Prospective Employers
- S95 Qualitative Studies
- S96 PHRs
- S97 Quality of Information Retrieval
- S98 Clusters of Biomedical Literature
- S99 Ontologies
- S100 Tools and systems for infection control
- S101/LB5 Late Breaking Session: Policy on Evidence-based Care in Informatics

12:15 pm – 1:00 pm

Closing Session



WEDNESDAY, NOVEMBER 12, 2008

7:00 AM–8:30 AM AFFILIATE EVENTS

Journal of Biomedical Informatics Board Meeting
Military

8:30 AM–10:00 AM SCIENTIFIC SESSIONS

S84 – Featured Panel
International Ballroom East

A Virtual World as a Healthcare Information Platform

Daniel B. Hoch, Massachusetts General Hospital; John Lester, Linden Lab; Ramesh Ramloll, Idaho State University; Daniel Z. Sands, Cisco Systems; James Kinross, David Taylor, Imperial College, London

Online virtual worlds such as Second Life allow users to create elaborate multidimensional content and provide a rich environment for social interaction, simulation, and information sharing. Second Life is not the only virtual environment of its kind but is the most popular. Its “residents” already use for health-related activities. There are support communities for many diseases. Therapists with real-world credentials offer counseling. Health educators provide education through rich media interactions and health care organizations are able to test new hospital configurations and services. This panel will explore the power of this relatively new platform. Lester will provide an overview and differentiate virtual worlds from traditional platforms. Ramloll will show how simulation of a mass casualty disaster uses the immersive quality of the virtual world. Sands will describe how a virtual hospital can be used to familiarize future patients and providers with the physical qualities and technological innovation of a real world hospital presently under construction. Hoch will describe a medical intervention which can be delivered in the virtual world. Finally, Taylor and Kinross will describe the many ways this world is being used in the United Kingdom.

S85 – Panel 
Theme: Clinical Decision Support, Outcomes, and Patient Safety
Georgetown

Towards a Rigorous Evidence Base for Health Informatics: the Issue of the Quality of Reporting

J. Talmon, University of Maastricht; D. Dorr, OHSU; P. Elkin, Mayo Clinic College of Medicine; J. Linder, Brigham and Women’s Hospital and Harvard Medical School; M. Goldstein, Palo Alto VA

As Health Informatics has the potential to affect every stakeholder within a health care system (policy makers, payers, providers, and patients), it is essential that the highest quality evidence is available to those selecting health information system components for their organizations. A key element in assuring the reliability and generalizability of this evidence base is that evaluations are performed using similar criteria. The ‘Statement on Reporting of Evaluation Studies in Health Informatics’ or STARE-HI, contains a comprehensive list of principles relevant for properly describing

Health Informatics evaluations. STARE-HI has been endorsed by the European Federation of Medical Informatics (EFMI) council as well as the American Medical Informatics Association (AMIA) Working Group (WG) on Evaluation. Currently endorsements by AMIA and the International Medical Informatics Association (IMIA) are being sought. This panel will provide an overview of the STARE-HI principals and their applications using four case studies as examples.

S86 – Panel 
Theme: Translational Bioinformatics
International Ballroom West

A 360 Degree View of Translational Medicine

H. Cao, Deloitte Consulting; P. Payne, The Ohio State University; K. Strier, Deloitte Consulting; P. Embi, University of Cincinnati; J. Anson, the Food and Drug Administration; W. Hersh, Oregon Health & Science University

With an increasing focus on translational medicine throughout the biomedical community, the role of biomedical informatics as an enabling and in many cases driving discipline has become evident. This panel will discuss the intersection of biomedical informatics and translational medicine from multiple viewpoints including: the private sector, academic medicine, government, and national-scale consortia. We will place particular emphasis on the need for greater integration across the sub-disciplines of biomedical informatics in order to facilitate translational research and healthcare delivery paradigms, framed using practical examples from each of the panelists respective domains.

S87 – Papers: Decision Support and Guidelines
Theme: Clinical Decision Support, Outcomes, and Patient Safety

Monroe
Session Chair: Adam Wright

Coupling Direct Collection of Health Risk Information from Patients through Kiosks with Decision Support for Proactive Care Management

D. Lobach, G. Silvey, J. Willis, K. Kooy, Duke University University Medical Center; K. Kawamoto, Duke University; K. Anstrom, Duke University Medical Center; E. Eisenstein, Duke Clinical Research Institute; F. Johnson, Duke University Medical Center

A Prototype System to Support Evidence-based Practice

D. Demner-Fushman, National Library of Medicine; C. Seckman, C. Fisher, NIH; S. Hauser, J. Clayton, G. Thoma, National Library of Medicine

A Constraint Satisfaction Approach to Data-driven Implementation of Clinical Practice Guidelines

C. Kuziemsy, D. O’Sullivan, W. Michalowski, S. Wilk, K. Farion, University of Ottawa

Predicting Hemodialysis Mortality Utilizing Blood Pressure Trends

R. Lacson, Brigham and Women’s Hospital

S88 - Papers: Human Computer Interaction
Theme: Clinical Workflow and Human Factors

Jefferson East

Session Chair: William Tierney

The One Laptop per Child (OLPC) Computer for Health Clinics in Developing Countries

P. Fontelo, F. Liu, K. Zhang, M. Ackerman, National Library of Medicine; T. Herman, Centers for Disease Control and Prevention

The Usefulness of Information and Communication Technologies in Crisis Response

S. Paul, M. Reddy, J. Abraham, Pennsylvania State University; C. deFlicht, Penn State Hershey Medical Center

"What's the Story?" Information Needs of Trauma Teams

A. Sarcevic, Rutgers University; R. Burd, Robert Wood Johnson Medical School

The Effects of Hands Free Communication Devices on Clinical Communication: Balancing Communication Access Needs with User Control

J. Richardson, J. Ash, OHSU

S89 - Papers: Concept Extraction from Clinical Text
Theme: Data Mining, NLP, and Information Extraction

Jefferson West

Session Chair: Henk Harkema

Structuring a Clinical Summary Through Discourse Analysis

T. Van Vleck, N. Elhadad, A. Wilcox, P. Stetson, S. Johnson, Columbia University

Block-Suffix Shifting: Fast, Simultaneous Medical Concept Set Identification in Large Medical Record Corpora

Y. Liu, College of Information Sciences and Technology

TN-TIES: A System for Extracting Temporal Information from Emergency Department Triage Notes

A. Irvine, S. Haas, T. Sullivan, University of North Carolina at Chapel Hill

Unsupervised Method for Automatic Construction of a Disease Dictionary from a Large Free Text Collection

R. Xu, K. Supekar, A. Morgan, A. Das, A. Garber, Stanford University

S90 - Papers: Issues in Education
Theme: Education

Lincoln West

Session Chair: Paul Gorman

Evaluating the AMIA-OHSU 10x10 Program to Train Healthcare Professionals in Medical Informatics

S. Feldman, Claremont Graduate University; W. Hersh, OHSU

Informatics Competencies for Nursing and Healthcare Leaders

B. Westra, C. Delaney, University of Minnesota

Modeling and Using a Web-based and Tutored Portfolio to Support a Certification Process of Professional Competences in Transfusion Medicine

P. Staccini, UFR Médecine Nice; P. Rouger, Institut National de la Transfusion Sanguine

The Transition from Paper to Digital: Lessons for Medical Specialty Societies

D. Miller Jr, eNATAL, LLC

S91 - Papers: Interacting with Terminology Services

Theme: Terminology and Standards

Lincoln East

Session Chair: Samson Tu

UMLS-Query: A Perl Module for Querying the UMLS

N. Shah, M. Musen, Stanford University

LexValueSets: An Approach for Context-Driven Value Sets Extraction

J. Pathak, G. Jiang, S. Dwarkanath, J. Buntrock, C. Chute, Mayo Clinic College of Medicine

Emerging Trend Prediction in Biomedical Literature

F. Moerchen, D. Fradkin, M. Dejori, B. Wachmann, Siemens Corporate Research

The MedDRA Paradox

G. Merrill, GlaxoSmithKline

LB4 - Late Breaking Session

Theme: EHR and CPOE Systems

Thoroughbred

Towards Patient-centeredness—The Medical Home Movement

Melinda K. Abrams, The Commonwealth Fund; David W. Bates, Brigham and Women's Hospital; L. Gregory Pawlson, National Committee for Quality Assurance

In 2007, four leading US-based primary care medical societies released a report that could signal a fundamental shift toward patient-centeredness—a shift that will have an impact on the electronic health record. The medical home movement is one of the most exciting efforts going on in healthcare and could dramatically alter the relationship between the patient and physicians involved in primary care. This session will involve three individuals who work for organizations that have done some of the best work in this area describing their projects and implications for the profession of biomedical and health informatics.

10:00 AM-10:30 AM COFFEE BREAK

Crystal Corridor

10:30 AM-12:00 PM SCIENTIFIC SESSIONS

S92 - Panel

Theme: Clinical Decision Support, Outcomes, and Patient Safety

International Ballroom East

Harnessing Mass Collaboration to Synthesize and Disseminate Successful CDS Implementation Practices

J. Osheroff, Thomson Reuters

Clinical decision support (CDS) offers great promise for helping address critical challenges in the quality, safety, and cost-effectiveness of health care delivery. However, many provider organizations struggle to deploy CDS in a manner that fully realizes this promise. This panel will outline the status and implications of a 'mass collaboration' initiative to synthesize and disseminate best practices for leveraging CDS to improve outcomes related to medication use. The effort involves scores of individuals and organizations from around the globe, and leverages Web 2.0 technologies to facilitate collaboration. A book presenting the CDS best practices is being co-published in the Summer of 2008 by 6 leading informatics- and medication-related societies, and the project leadership is exploring ways to expand the initiative to include a Wikipedia-like global resource and community, and address related topics. Panelists representing the effort's editorial and project lead, and several co-publishing organizations (AMIA, HIMSS, Scottsdale Institute, and AMDIS) will outline their institution's involvement and potential implications for them going forward. The second half of the panel will consist of conversation with attendees about the role of societies, care delivery organizations, vendors, researchers, individuals, and others in building on this process for generating, disseminating and implementing best CDS practices.

S93 - Panel

WG

Theme: Clinical Research Informatics

International Ballroom West

The Challenges of Bridging HIS/EMRs and Research Information Systems

U. Tachinardi, University of Chicago; J. Cimino, NIH; J. Starren, Marshfield Clinic; R. Sideli, Columbia University

A number of local and national efforts are underway to unify the data collected in the course of patient care with those collected in research, in order to bring the coordinated whole to bear on both tasks. While desirable in theory, many issues arise in practice that impede the ideal of unified data repositories. These issues include cultural, technical, and policy aspects. Cultural aspects include the need to change the predominant independent work into a true teamwork. Technical issues include the lack of integration between the different systems, the ability to adhere to HIPAA and IRB requirements for data reuse, the terminology and data modeling needed to bridge the conceptual gap between the data as they are collected and the mode in which they will be reused, and the ability to address data completeness. Policy issues relate to the hurdles that need to be overcome in order to achieve cooperation and data sharing, as well as cultural differences between clinical and research

domains. The members of this panel each deal with the challenges of creating hybrid clinical-research data repositories and will report on their approaches to addressing the myriad issues that are common to all of their efforts.

S94 - Panel

WG

Theme: Education

Georgetown

Careers in Medical Informatics: Marketing Yourself to Prospective Employers

M. Grasso, University of Maryland; M. Dente, GE Healthcare IITS; C. McDonald, National Library of Medicine; L. Hodges, Witt/Kieffer; D. Rorison, Cerner Corporation; J. Tu, Beaumont Hospitals; M. Wilson, University of Maryland School of Nursing

Each year, hundreds of graduates from informatics training programs face a challenging job search. Experienced informatics professionals, as well, seek to advance their careers. This panel on Careers in Medical Informatics is designed to assist students, recent graduates, and established professionals with valuable advice on marketing themselves to prospective employers. A panel of five individuals with hiring authority will offer career advice from the perspective of potential employers. They will discuss desirable training and skills, jobs in high demand at their respective organizations, and effective approaches for job hunting.

S95 - Papers: Qualitative Studies

Theme: Clinical Workflow and Human Factors

Jefferson West

Session Chair: Cynthia S. Gadd

Searching Electronic Health Records for Temporal Patterns in Patient Histories: A Case Study with Microsoft Amalga

C. Plaisant, S. Lam, B. Shneiderman, University of Maryland; M. Smith, D. Roseman, G. Marchand, Washington Hospital Center; M. Gillam, C. Feied, J. Handler, H. Rappaport, Microsoft

An Electronic Encounter Log's Failure to Scale

W. Sumner, Washington University School of Medicine; P. Asaro, Washington University

Assessing Usage Patterns of Electronic Clinical Documentation Templates

D. Vawdrey, Columbia University

Understanding Interdisciplinary Health Sciences Collaborations: A Campus-Wide Survey of Obesity Experts

C. Weng, D. Gallagher, M. Bales, S. Bakken, H. Ginsberg, Columbia University

S96 - Papers: PHRs

Theme: Consumer Informatics and PHRs

Lincoln East

Session Chair: Jonathan Wald

A Cost Model for Personal Health Records (PHRs)

S. Shah, Center for IT Leadership; D. Kaelber, Partners Healthcare; A. Vincent, Center for Information Technology Leadership; E. Pan,

Partners HealthCare System; D. Johnston, Center for Information Technology Leadership; B. Middleton, Partners HealthCare

The Value of Personal Health Record (PHR) Systems

D. Kaelber, E. Pan, Partners Healthcare

The CHICA Smoking Cessation System

S. Downs, Indiana University School of Medicine; V. Zhu, Regenstrief Institute; V. Anand, Indiana University School of Medicine; P. Biondich, Regenstrief Institute; A. Carroll, Indiana University School of Medicine

Barriers to Organizing Information during Cancer Care: "I Don't Know How People do it"

K. Unruh, W. Pratt, University of Washington

S97 - Papers: Quality of Information Retrieval Theme: Data Mining, NLP, and Information Extraction

Jefferson East

Session Chair: Hong Yu



Toward Automatic Recognition of High Quality Clinical Evidence

H. Kilicoglu, Concordia University; D. Demner-Fushman, T. Rindflesch, National Library of Medicine; N. Wilczynski, R. Haynes, McMaster University

Optimizing Feature Representation for Automated Systematic Review Work Prioritization

A. Cohen, Oregon Health & Science University

Biological Entity Recognition with Conditional Random Fields

Y. He, QuantWorks, LLC; M. Kayaalp, U.S. National Library of Medicine

SYRIAC: The Systematic Review Information Automated Collection System A Data Warehouse for Facilitating Biomedical Text Mining

J. Yang, Portland VA; A. Cohen, M. McDonagh, OHSU

S98 - Papers: Clusters of Biomedical Literature Theme: Data Mining, NLP, and Information Extraction

Lincoln West

Session Chair: Philip Payne

Identifying Data Sharing in Biomedical Literature

H. Piwowar, W. Chapman, University of Pittsburgh

Models for Predicting and Explaining Citation Count of Biomedical Articles

L. Fu, C. Aliferis, Vanderbilt University

Discovering Synergistic Qualities of Published Authors to Enhance Translational Research

N. Bahr, A. Cohen, Oregon Health & Science University

Concept Similarity in Publications Precedes Cross-disciplinary Collaboration

A. Post, J. Harrison, University of Virginia

S99 - Papers: Ontologies

Theme: Terminology and Standards

Thoroughbred

Session Chair: Olivier Bodenreider

Combination of Endogenous Clues for Profiling Inferred Semantic Relations: Experiments with Gene Ontology

N. Grabar, Université Pierre et Marie Curie, HEGP AP-HP; M. Jaulent, INSERM, Université Pierre et Marie Curie, T. Hamon, LIPN UMR CNRS 7030, Université Paris

Supporting Ontology-based Keyword Search over Medical Databases

A. Kementsietsidis, T. J. Watson; L. Lim, M. Wang, IBM

Using an Integrated Ontology and Information Model for Querying and Reasoning about Phenotypes: The Case of Autism

S. Tu, L. Tennakoon, A. Das, Stanford University

Annotating Breast Cancer Microarray Samples Using Ontologies

H. Liu, X. Li, Georgetown University; V. Yoon, University of Maryland - Baltimore County; R. Clarke, Georgetown University

S100 - Demonstration: Tools and Systems for Infection Control

Theme: Public Health Informatics and Biosurveillance

Military

Session Chair: Matthew Scotch

An Operational Citywide Electronic Infection Control Network: Results from the First Year

A. Kho, Northwestern University; L. Lemmon, Regenstrief Institute, Inc.; P. Dexter; B. Doebbeling, Regenstrief Institute, Inc. and Department of Medicine

The prevalence of drug resistant bacteria such as Methicillin-resistant Staphylococcus aureus (MRSA) continues to increase nationwide. Infection control is a regional problem, particularly in urban settings, requiring a coordinated effort. To enable coordinated infection control efforts, we created a citywide electronic notification system to prospectively track and share information regarding all known patients with MRSA. We currently track almost 17,000 patients with a history of MRSA infection or colonization across the Indianapolis region. Since May 2007, we have delivered 2698 admission alerts on patients with a history of MRSA, one-fifth of which (19%) were based on data from another institution. Our system delivers alerts to 20 infection control providers (ICPs) spanning 16 hospital in five different systems across Indianapolis. Electronic coordination of regional infection control information appears to be a critical step to reduce infection rates across an urban population.

A Comprehensive Decision Support System for the Identification, Monitoring and Management of Patients with Multi-drug Resistant Organisms (MDRO)

M. Behta, B. Ross, NewYork-Presbyterian; R. Chaudhry, Columbia University

While much progress has been made to prevent health care-associated infections (HAI), they remain a major cause of patient morbidity and mortality. Many traditional treatments are no longer effective due to the fast-growing antimicrobial resistance seen in health care and community settings. Up to 47% resistance has been seen in 78% of the most common microorganisms causing HAI. The global problems have experts urging the government to take this growing threat as seriously as those associated with bioterrorism. An equal challenge is for hospital administrators to provide dedicated resources to monitor these activities. Since the 1970s, active surveillance has been recognized as an essential component of every effective infection prevention/control program. A large portion of the Infection Control Professionals (ICP) time is spent gathering information (from rounds, microbiology, pharmacy and health records), documenting (comments, data entry, trend analysis, report generation), and answering questions. A 2-day pre-implementation survey from all sites reported ICPs spending 12 hrs-35 mins answering 114 questions related to MDROs; 51% of which may have been prevented with access to the surveillance system. In this session we will present the work done to evaluate ICP workflows, standardizing the identification, management and documentation of surveillance activities, system architecture, and demo the current system/reports.

S101/LB5 - Late Breaking Session
Theme: Policy and Ethical Issues

Monroe

Policy on Evidence-based Care in Informatics

Edward H. Shortliffe, University of Arizona; William Stead, Vanderbilt University; Doug Fridsma, Arizona State University; Other speakers TBD

This session feature discussion of three important national efforts focusing on evidence-based care and the relationship and implications this work will have for biomedical and health informatics. Panelists will discuss the need to: get health status data into the electronic health record; move knowledge representation forward; look at developing standard language for informed consent of EHR/PHR data for research purposes; start looking at what informatics techniques and tools can be brought to the study of disparities and social determinants of disease; and develop a visible national biomedical and health informatics research strategy.

12:15 pm-1:00 pm Plenary Session

Closing Session

International Ballroom East



2009 AMIA
Summit on
Translational
Bioinformatics

March 15-17, 2009
San Francisco, CA

