



AMERICAN MEDICAL INFORMATICS ASSOCIATION

1995 SPRING CONGRESS
JUNE 25-28, 1995



CAPTURING THE CLINICAL ENCOUNTER



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WELCOME TO THE 1995 AMIA SPRING CONGRESS!

Capturing the clinical encounter is a key theme in medical informatics. Years of work with computers in health care have demonstrated their potential to improve quality and reduce cost. Nevertheless, computers still have little presence in clinical practice. One of the primary hurdles blocking their use has been the difficulty in acquiring clinical data.

This conference approaches the issue from several perspectives:

- Technical approaches to capturing data, including pen, speech, natural language, and image input;
- Applying the technical approaches to capturing encounter data from patients and providers;
- The vocabulary and conceptual models necessary to organize the interface and store the captured data; and
- Integrating data capture into daily practice and exploiting the data for practice guidelines.

The program offers a variety of formats—tutorials, scientific sessions, panels, invited talks, and tours—designed to accommodate novices and experts alike. The number of sessions with “evaluation” or “experience” in the title illustrates the practical focus of this conference; the cumulative experience of the speakers is enormous.

The conference takes place in a beautiful spot on the Charles River in Cambridge, and June is a gorgeous time of year to visit the Boston area. We on the Program Committee hope that you will come and join in the discussion.

George Hripcsak, M.D.
1995 AMIA Spring Congress
Program Chair
Columbia-Presbyterian Medical Center
New York, NY

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Department of Information Systems
Brigham & Women's Hospital
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Kent A. Spackman, M.D., Ph.D.
BICC
Oregon Health Sciences University
Portland, OR

CME Credits Available

1 995 AMIA Spring Congress attendees may earn valuable Continuing Medical Education (CME) credits by attending presentations and tutorials. The College of Physicians and Surgeons of Columbia University is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to sponsor continuing medical education for physicians. The College of Physicians and Surgeons designates this continuing medical education activity as meeting the criteria for 22 credit hours in Category 1 of the Physician's Recognition Award of the American Medical Association.

Objectives

The objectives of the 1995 AMIA Spring Congress are to increase awareness of the importance and benefits of capturing data; to provide a forum to present new research in methods of data capture and storage; to promote collaboration among attendees; and to educate attendees about the capture, storage, and use of clinical data. The conference is intended for people who are interested in gathering clinical data in electronic form for use in clinical care, research, quality assurance, and management. The format is designed to accommodate participants with a range of experience, from novice to expert.

Disclosure

Before the program, all faculty will disclose the existence of any financial interest and/or other relationships they might have with the manufacturer or manufacturers of any commercial product or products to be discussed during their presentation (honoraria/expenses; grants; consultant role; speaker's bureau membership, stock ownership, or any other special relationships).

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TUTORIALS - SUNDAY

The Program Committee has designed the Spring Congress tutorial program to help you learn more about the Congress theme before the program begins. We urge individuals who are interested in new concepts or who want to brush up on their knowledge of current theories to participate. A separate fee is charged for each tutorial. Fees are listed on the Advance Registration Form (page 27). Tutorial fees include any hand-outs or textbooks. Tutorial participation is limited, so register early to ensure that you are able to attend the tutorial(s) of your choice. You may register for one of each of the two time slots, morning and afternoon. A maximum of two tutorials is allowed. Please remember, tutorials are filled on a first-come, first-served basis. They are often filled to capacity before the Congress begins. We recommend pre-registration for tutorials; we cannot guarantee on-site registration.

Tutorial T1
Adams Ballroom
Sunday, June 25
8:30 A.M. - noon
(This tutorial is limited to 225 participants)

Encounter-Based Systems

This presentation will acquaint the attendee with requisite features of design and function for automated clinical information systems. The instructor will give a brief history of systems development and the relationship of computerized records to other types of clinical systems, with emphasis on integrated and ambulatory products. Based on his experiences with a successful ambulatory clinical system and a literature review, the author will present features important to system success. He will discuss the Institute of Medicine paper on computerized record systems relative to system selection and will use graphical

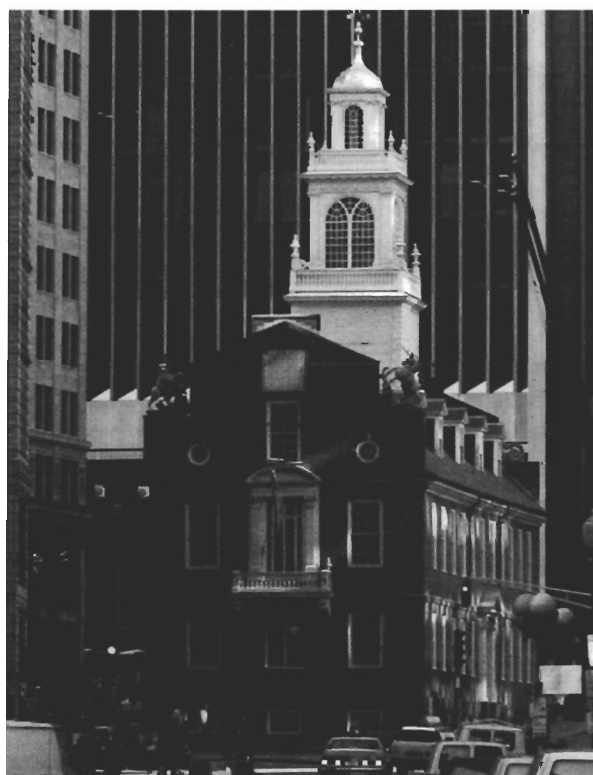
examples taken from his home system to aid understanding. A focused review of the market will emphasize broad principles of system selection in ambulatory and hospital systems. The instructor will review the impact of such systems on the organization as part of an integrated planning process for systems acquisition and implementation. Finally, he will present a structured approach to evaluate and select software packages in an effort to allow the attendee to become a more informed and effective buyer.

At the completion of this presentation, the attendee will be able to

- recount the history of ambulatory systems development and be cognizant of major offerings in the current software market;
- list features of system function that are critical to administrative success;
- understand and describe sample terms (e.g., data dictionary, report generator, query language, decision support technology, expert system, and computerized reminder);
- list the major impacts of computerized clinical information systems on care delivery and management in an ambulatory environment; and
- describe a structured approach for the evaluation and selection of automated systems for clinical care.

Instructor: **James R. Campbell, M.D.**, Associate Professor of Internal Medicine, Department of Internal Medicine and Associate Director of Clinical Information Science, Information Technology Services, University of Nebraska Medical Center, Omaha, NE

Who should attend: Physicians, nurses, hospital administrators, clinic managers, and others interested in the computerized patient record who may be facing the difficult choice of choosing and purchasing a clinical information system.



Old State House, Boston

TUTORIALS - SUNDAY

Tutorial T2

John F. Kennedy Ballroom

Sunday, June 25

8:30 A.M. - noon

(This tutorial is limited to 225 participants)

Pen- and Speech-Based Systems for Clinical Use

Both speech- and pen-based interfaces have been presented as a method to provide a new degree of naturalness for clinical data access. This argument is based on the fact that caregivers have used speaking and writing for most of their lives. Unfortunately, limitations in the current state of the hardware and software systems for these interface modalities require significant design modifications to the applications. The focus of the tutorial will be on how to adjust the interface design for clinical systems in response to these limitations.

In this tutorial the instructors will

- present demonstrations of typical pen and speech applications,
- describe fundamental issues in using these technologies, and
- review lessons learned from building applications with both modalities.

The major emphasis will be on pen computing.

Instructors: **Lawrence M. Fagan, M.D., Ph.D.** and **Alex Poon**, Medical Information Sciences, Stanford University, Stanford, CA, **David Wormuth, M.D., M.P.H.**, and **Steven Labkoff, M.D.**, Decision Systems Group, Brigham and Women's Hospital, Boston, MA

Who should attend: This tutorial will present material at an introductory level. It is designed to cover the basic concepts for health care practitioners and designers of medical systems.

Tutorial T3

Adams Ballroom

Sunday, June 25

2:00 - 5:30 P.M.

(This tutorial is limited to 225 participants)

Clinical Data Modeling

This tutorial will present techniques for data modeling and demonstrate how to apply them to clinical data. The instructor will address the following questions:

- What is a data model?
- Why do I need one?
- How do I build one?
- What standards are there for data models in health care?

Attendees will learn the principles of data modeling and how to work with formal notations for representing data models. In particular, the instructor will explain Entity Relationship diagrams, Data Flow diagrams, and Object-Oriented Analysis. He will present the methods of mapping an Entity Relationship diagram to a relational database design. Each attendee will gain hands-on experience with these techniques by developing a small data model during the tutorial. Examples will be based on modeling the clinical encounter.

Instructor: **Stephen B. Johnson, Ph.D.**, Assistant Professor, Department of Medical Informatics, Columbia-Presbyterian Medical Center, New York, NY

Who should attend: Programmers, analysts, and consultants involved in developing software for health care; administrators interested in having a deeper understanding of data for meeting institutional needs; and physicians, nurses, and other health care providers interested in conveying their knowledge of medical data to technical personnel.

Tutorial T4

John F. Kennedy Ballroom

Sunday, June 25

2:00 - 5:30 P.M.

(This tutorial is limited to 225 participants)

Implementing Practice Guidelines and Computer- Stored Records

Incorporating practice guidelines into clinical care has proven to be a difficult task—one that can be accomplished by linking guidelines to an electronic patient record system. In this tutorial the instructors will address the practical issues relevant to creating, implementing, running, and evaluating automated practice guidelines using an electronic patient record system. Automated practice guidelines represent a critical component in realizing the full benefit of capturing clinical data and integrating data capture into routine practice. The instructors will use examples to illustrate problems that arise from guideline content, complexity, data availability, and development of specific recommendations. They will review existing methods for representing guidelines in electronic patient records, including procedural languages and frame-based systems; present factors that influence physician behavior, learned from many years of experience; and outline methods for testing and validating the completed implementation. Participants in the tutorial will apply the principles presented to operationalize a simple practice guideline.

Instructors: **Clement J. McDonald, M.D.**, **J. Marc Overhage, M.D., Ph.D.**, and **William Tierney, M.D.**, Regenstrief Institute, Indiana University School of Medicine, Indianapolis, IN

Who should attend: Individuals (practitioners, administrators, systems integrators, and programmers) involved in developing clinical guidelines, interested in standardizing clinical care, or charged with monitoring patient outcomes.

SPECIAL EVENTS SCHEDULE



U.S. Customs House Tower



Paul Revere Statue/Old North Church Steeple

▲ Saturday, June 24

1:00 - 11:00 P.M. AMIA Board of Directors Meeting

Sunday, June 25

1:00 - 4:00 P.M. Cheers! and Welcome to Boston Tour (fee)

2:00 - 5:30 P.M. ACMI Executive Committee Meeting

6:00 - 9:00 P.M. ACMI Fellows Reception and Dinner (Cornucopia Restaurant; by invitation only)

Monday, June 26

1:00 - 4:00 P.M. John F. Kennedy Library/Harvard University Tour (fee)

Tuesday, June 27

8:00 - 10:00 P.M. AMIA Dessert Reception

Wednesday, June 28

1:30 - 4:00 P.M. Boston Medical Informatics Site Visit Tours (fee)

Committee/Working Group (WG) Meetings Schedule

Most AMIA Standing Committees will meet during the Spring Congress. Before the Congress, committee members will receive an agenda with meeting time and place.

Sunday, June 25

9:00 A.M. - 6:00 P.M. Internet WG Meeting

Monday, June 26

7:00 - 8:15 A.M. Nursing Informatics WG Breakfast Meeting
Professional Relations Committee Breakfast Meeting
Publications Committee Breakfast Meeting

Noon - 2:00 P.M. Anesthesiology/Critical Care and Emergency Medicine WG Luncheon Meeting
Finance and Audit Committee Luncheon Meeting
Meetings Committee Luncheon Meeting
Specialty Program (WG Chair) Committee Luncheon Meeting

7:00 - 9:00 P.M. Automated Encoding/Electronic Patient Records WG Meeting and Reception
Hospital/Medical Information Systems WG Meeting and Reception
Telecommunications and Networking Committee Meeting

Tuesday, June 27

7:00 - 8:15 A.M. Ethics Committee Breakfast Meeting
Medical Imaging Systems WG Breakfast Meeting
Nominating Committee Breakfast Meeting
Public Policy Committee Breakfast Meeting

Noon - 2:00 P.M. Clinical Computing WG Luncheon Meeting
Computerized Medical Records WG Luncheon Meeting
Family Practice/Primary Care WG Luncheon Meeting
International Affairs Committee Luncheon Meeting
Membership Committee Luncheon Meeting

Wednesday, June 28

7:00 - 8:15 A.M. Education Committee Breakfast Meeting

1995 AMIA SPRING CONGRESS PRELIMINARY PROGRAM OVERVIEW

Times	Abstracts, Tutorials, and Other Sessions		Panels and Talks
Sunday, June 25, 1995: Tutorials			
8:30 A.M. - noon	T1 Encounter-Based Systems	T2 Pen- and Speech-Based Systems for Clinical Use	
2:00 - 5:30 P.M.	T3 Clinical Data Modeling	T4 Implementing Practice Guidelines and Computer-Stored Records	
Monday, June 26, 1995: Plenary Session, Abstracts, Panels, and Other Activities			
7:00 - 8:15 A.M.	Working Group and Committee Meetings		
8:30 - 10:00 A.M.	Plenary Session: "Health Care Information Systems: Attraction-Avoidance"		
10:30 A.M. - noon	1 Experience with Provider Data Entry	2 Pen-Based Systems	3 Panel: Creating Patient Data That Are Useful for Research and Public Health Assessment
Noon - 2:00 P.M.	Working Group and Committee Meetings		
2:00 - 3:30 P.M.	4 Techniques for Provider Data Entry	5 Speech and Natural Language Processing	6 Panel: Issues in Confidentiality and Security of the Patient Record
4:00 - 5:30 P.M.	7 Evaluating Provider Data Entry	8 Evaluating Natural Language Processing	9 Panel: Toward a U.S. Standard Health Vocabulary
7:00 - 9:00 P.M.	Working Group and Committee Meetings		
Tuesday, June 27, 1995: Abstracts, Panels, Invited Talk, and Other Activities			
7:00 - 8:15 A.M.	Working Group and Committee Meetings		
8:30 - 10:00 A.M.	10 Evaluating Patient Data Entry	11 Evaluating Controlled Clinical Vocabularies	12 Panel: Engineering Clinical Systems for Encounter Access
10:30 A.M. - noon	13 Techniques and Caveats for Patient Data Entry	14 Evaluating the On-Line Patient Record	15 Invited Talk: Natural Language Processing in the Clinical Domain
Noon - 2:00 P.M.	Working Group and Committee Meetings		
2:00 - 3:30 P.M.	16 Building User Interfaces	17 Tools for Vocabularies and Conceptual Models	18 Panel: Mobile Pen-Based Computing: A Current Status Report
4:00 - 5:30 P.M.	19 Practice Guidelines and Decision Support	20 Modeling the Encounter	21 Panel: OTA Assessment of Emerging Computer Interface Technologies
8:00 - 10:00 P.M.	AMIA Dessert Reception		
Wednesday, June 28, 1995: Abstracts, Panels, and Other Activities			
7:00 - 8:15 A.M.	Working Group and Committee Meetings		
8:30 - 10:00 A.M.	22 Exploiting the World Wide Web for the Clinical Encounter	23 Capturing and Storing Images	24 Panel: Accurate Data Quality with Access
10:30 A.M. - noon	25 Using the Data and Keeping It Secure	26 Capturing Disparate Data	
1:30 - 4:00 P.M.	Boston Informatics Site Visits		

PLENARY SESSION - MONDAY MORNING

Tracks and Corresponding Sessions

Techniques for Capturing Data:

Tutorial T2 and Sessions 2, 5, 8, 15, 18, 21, 23, and 26

Applying Data Capture Techniques to Encounter Data:

Tutorial T1 and Sessions 1, 4, 7, 10, 13, 16, and 24

Vocabulary and Conceptual Models for Capturing Data:

Tutorial T3 and Sessions 9, 11, 14, 17, and 20

Integrating Data Capture into Practice:

Tutorial T4 and Sessions 3, 6, 12, 19, 22, and 25



Samuel O. Thier, M.D.

President's Ballroom
Monday, June 26, 1995
8:30 - 10:00 A.M.

HEALTH CARE INFORMATION SYSTEMS: ATTRACTION-AVOIDANCE

Speaker: Samuel O. Thier, M.D.

President, The Massachusetts General Hospital
President, Partners HealthCare System, Inc.

Information systems have the potential to improve the quality and reduce the cost of health care, as evidenced by a growing body of evaluation literature. Nevertheless, clinicians in practices and hospitals around the country are resisting the use of clinical encounter systems. Year after year, information technology improves, far outpacing our ability to capitalize on it. What are the impediments to exploiting this technology? If we do not overcome the resistance, be it medical, technical, political, sociological, or monetary, we will never reap the benefits.

Samuel O. Thier, M.D., will address these issues from a unique perspective, having served in clinical, administrative, research, and policy-making roles. Dr. Thier is president of the Massachusetts General Hospital (MGH) and Professor of Medicine at Harvard Medical School. He came to the MGH in May 1994 after serving three years as the sixth president of Brandeis University. Prior to that he served six years as president of the Institute of Medicine, National Academy of Sciences. During Dr. Thier's tenure, the Institute of Medicine published the report, "The Computer-based Patient Record: An Essential Technology for Health Care," which has had profound influence on the medical informatics community and which led to formation of the Computer-based Patient Record Institute (CPRI). He also served eleven years as chairman of the Department of Internal Medicine at Yale University School of Medicine, where he was Sterling Professor.

Dr. Thier is a nationally known and widely published authority on internal medicine and kidney disease. He is equally well known for his expertise in the areas of national health policy, medical education, and biomedical research.

A native of New York, Dr. Thier attended Cornell University and received his medical degree from the State University of New York at Syracuse. After medical school, he served on the medical staff of the MGH, first as an intern and resident and later as chief resident in medicine and chief of the Renal Unit, and in the U.S. Public Health Service, National Institutes of Health. Prior to joining the faculty of Yale in 1975, he held faculty appointments in the medical schools at Harvard University and the University of Pennsylvania.

He holds honorary doctorates from the State University of New York, Tufts University, the George Washington University, Rush University, Mount Sinai School of Medicine of the City University of New York, Hahnemann University, the Medical College of Pennsylvania, Virginia Commonwealth University, the University of Pennsylvania, and Brandeis University. He is also the recipient of the UCSF Medal of the University of California, San Francisco.

Dr. Thier has served as president of the American Federation of Clinical Research and chairman of the American Board of Internal Medicine. He is a Master of the American College of Physicians and a Fellow of the American Academy of Arts and Sciences.

PROGRAM - MONDAY MORNING

► Session 1

Experience with Provider Data Entry

John F. Kennedy Ballroom

Monday, June 26

10:30 A.M. - noon

Session Chair: J.R. Campbell, M.D.,
Department of Internal Medicine,
University of Nebraska Medical Center,
Omaha, NE

Capturing Medication Changes in an Outpatient Electronic Medical Record

Authors: M.M. Wagner, M.D., M.S.,
Section of Medical Informatics, and
W.R. Hogan, Department of Medicine,
University of Pittsburgh School of
Medicine, Pittsburgh, PA

A Clinical Workstation for Obstetrics Replaces the Paper Record at MGH

Authors: H.C. Chueh, M.D., M.S.,
M.F. Greene, M.D., J.L. Piggins, H.M.
Dupont, R.N., and G.O. Barnett, M.D.,
Laboratory of Computer Science,
Massachusetts General Hospital, Boston,
MA

Information Systems Support of Emergency Department Encounters

Authors: J.M. Teich, M.D., Ph.D., and
R. Lee, Brigham and Women's Hospital,
Boston, MA

On-Line Nursing Assessment

Authors: P.Q. Bourie, R.N., M.S., H.
Bleich, M.D., R.H. Chapman, R.N.,
M.S., S. Dai, M.S., and P. Reiley, R.N.,
M.S., Beth Israel Hospital, Boston, MA

► Session 2

Pen-Based Systems

William Dawes

Monday June 26

10:30 A.M. - noon

Session Chair: K.A. Spackman, M.D.,
Ph.D., Oregon Health Sciences
University, Portland, OR

Patterns of Information Resource Access in Patient Care: A Study of the Use of Portable Computers to Support the Clinical Encounter

Authors: S.E. Labkoff, M.D., Harvard
Medical School and Brigham and
Women's Hospital, Boston, MA, S.
Shah, K2 Consultants, Nashua, NH, and
R.A. Greenes, M.D., Ph.D., Harvard
Medical School and Brigham and
Women's Hospital, Boston, MA

UMTrauma: A Pen-Based Physician Evaluation of the Acute Trauma Patient

Authors: E.R. Worth, M.D., Medical
Informatics Group, T.B. Patrick, Ph.D.,
Medical Informatics Group, M.H.
Metzler, M.D., Department of Surgery,
and J.A. Mitchell, Ph.D., Medical
Informatics Group, University of
Missouri-Columbia Hospital and
Clinics, Columbia, MO

AsthMonitor: Clinical Guidelines, Decision Support, and Data Capture Integrated into Workflow

Authors: D.W. Miller, Jr., M.D., and
R.N. Shiffman, M.D., MCIS, Yale
Center for Medical Informatics, Yale
University, New Haven, CT

Knowledge-Based Structuring of Clinical Data Capture Using a Pen-Based Computer

Authors: A. Poljak, M.D., S.
Silverstein, M.D., Center for Medical
Informatics, S. Powsner, M.D.,
Department of Psychiatry, and P. Miller,
M.D., Ph.D., Center for Medical
Informatics, Yale University School of
Medicine, New Haven, CT

► Session 3

Panel: Encounters That Add Up: Creating Patient Data That Are Useful for Research and Public Health Assessment

Adams Ballroom

Monday, June 26

10:30 A.M. - noon

Session Chair: R.D. Lasker, M.D.,
Deputy Assistant Secretary for Health
Policy Development, U.S. Department
of Health and Human Services,
Washington, DC

Speakers: R.D. Lasker, M.D., Deputy
Assistant Secretary for Health Policy
Development, U.S. Department of
Health and Human Services,
Washington, DC, D.E. Detmer, M.D.,
Health Sciences, University of Virginia,
Charlottesville, VA, L. Iezzoni, M.D.,
Harvard Medical School and Beth Israel
Hospital, Boston, MA, and M.G. Kahn,
M.D., Ph.D., Washington University
School of Medicine, St. Louis, MO

An important potential benefit of more accurate and complete automated patient data is the ability to aggregate and reuse these data in hospital epidemiology, clinical research, health services research, and assessment of the health of whole communities. This benefit is unlikely to be achieved by communities. The participants will discuss issues and challenges involved in creating patient data that can be used by researchers and those responsible for public health.

PROGRAM - MONDAY AFTERNOON

► Session 4

Techniques for Provider Data Entry

John F. Kennedy Ballroom

Monday, June 26

2:00 - 3:30 P.M.

Session Chair: R.A. Jenders, M.D., M.S., Department of Medical Informatics, Columbia-Presbyterian Medical Center, New York, NY

Capturing Coded Clinical Data Regarding Assessment, Diagnosis, Prevention, and Treatment of Pressure Ulcers

Authors: R.D. Zielstorff, M.S., R.N., G.O. Barnett, M.D., J.B. Fitzmaurice, G. Estey, G. Hamilton, M. Martin, R.A. Jenders, M. Barnes, and C. Shahzad, Laboratory of Computer Science, Massachusetts General Hospital, Boston, MA

A Computerized Substance Abuse Assessment

Author: H. Kushner, Ph.D., Division of Biometrics and Computing, Hahnemann University School of Medicine, Philadelphia, PA

The Development of a Physician-Friendly Interface for Order Entry and Clinical Decision Support Tools: WizOrder

Authors: A. Geissbuhler, M.D., R.A. Miller, M.D., Division of Biomedical Informatics, and J.A. Byrd, Information Management, Vanderbilt University Medical Center, Nashville, TN

Clinical Multiple Choice Questionnaires and Some Implications on Clinical Encounter and Quality of Data in Patient Record

Authors: J.F. Guillod, M.D., J. Silberstein, Centre Electronique de Gestion, Neuchatel, W. Hanhart, Fondation Neuchateloise d'Informatique Sante, Cernier, and B. Ruedi, Department of Internal Medicine, U.H.N., Neuchatel, Switzerland

► Session 5

Speech and Natural Language Processing

William Dawes

Monday, June 26

2:00 - 3:30 P.M.

Session Chair: L. Fagan, M.D., Ph.D., Section on Medical Informatics, Stanford University School of Medicine, Stanford, CA

Evaluation of a Voice-Activated Computer System for Data Collection in Clinical Trials of Antihypertensives

Authors: M.K. Floor, M.D., M.P.H., J.B. Hatef, M.B.A., M.P.H., and J.K. Jones, M.D., Ph.D., The Degge Group, Ltd., Arlington, VA

Simulated Patient Records Written by Medical Students Improve after Training on a Voice Recognition System

Authors: T.O. Stair, M.D., J.M. Howell, M.D., and N.C. Broering, M.L.S., Georgetown University Medical Center, Washington, DC

Design and Development of the Columbia Integrated Speech Interpretation System (CISIS)

Authors: J. Starren, M.A., M.D., C. Friedman, and S.B. Johnson, Department of Medical Informatics, Columbia University, New York, NY

Classification of Medical Data Using Natural Language Expert Systems

Authors: J.K. Hart, G.A. Bradburn, and S.C. Adams, The Orkand Corporation, Research Triangle Park, NC

► Session 6

Panel: Issues in Confidentiality and Security of the Patient Record

Adams Ballroom

Monday, June 26

2:00 - 3:30 P.M.

Session Chair: J.M. Teich, M.D., Ph.D., Center for Applied Medical Information Systems, Brigham and Women's Hospital, Boston, MA

Speakers: J.M. Teich, M.D., Ph.D., Center for Applied Medical Information Systems, Brigham and Women's Hospital, Boston, MA, R.M. Gardner, Ph.D., Medical Informatics, LDS Hospital/University of Utah, Salt Lake City, UT, P.D. Clayton, Ph.D., Department of Medical Informatics, Columbia-Presbyterian Medical Center, New York, NY, and K.A. Frawley, J.D., M.S., RRA, American Health Information Management Association, Washington, DC

The greater availability of patient data made possible by health care information systems brings with it the specter of wider unauthorized access to records. There are also growing concerns about protecting sensitive areas of data, such as HIV and mental health records, protecting institutional rights in health care networks, and protecting the information systems themselves. Where should the lines be drawn in balancing access and security? How do these lines change when information is shared among multiple institutions, or passed over the Internet? What level of security management is feasible for an institution? What are the strengths and weaknesses of such concepts as need-to-know, audit trails, remote access, patient access? The participants have addressed the question of information security from a variety of vantage points. They will share their experiences and ideas with each other and with the audience.

PROGRAM - MONDAY AFTERNOON

► Session 7

Evaluating Provider Data Entry

John F. Kennedy Ballroom

Monday, June 26

4:00 - 5:30 P.M.

Session Chair: T.A. Cortes, Ph.D., R.N.,
Rockefeller University, New York, NY

Improving the Online Documentation of Ambulatory Medication Lists at the Time of Discharge

Authors: D.Z. Sands, M.D., and C. Safran, M.D., M.S., Beth Israel Hospital, Harvard Medical School, Boston, MA

Development and Deployment of Codified Charting in a Home Health Setting

Author: F. Kay Hollers, B.S.N., M.P.H., Outreach Health Services, Austin, TX

Capturing the Clinical Encounter: The Benefits

Authors: J.G. Williams, M.A., MSc., J.M. Morgan, H. Dickinson, S.C. Greenway, and W.Y. Cheung, School of Postgraduate Studies in Medical and Health Care, Morriston Hospital, Swansea, West Glamorgan, South Wales, UK

Development and Evaluation of a Model for Diagnostic Surveillance in Private Veterinary Practice

Authors: E.M. Lund, D.V.M., M.P.H., J. Klausner, W. Marsh, R. Robinson, J. Whitney, and T. Fletcher, College of Veterinary Medicine, University of Minnesota, St. Paul, MN

► Session 8

Evaluating Natural Language Processing

William Dawes

Monday, June 26

4:00 - 5:30 P.M.

Session Chair: E.P. Hoffer, M.D.,
Laboratory of Computer Science,
Massachusetts General Hospital, Boston, MA

Converting Narrative Text Outpatient Problems to Coded Problems

Authors: G.J. Kuperman, M.D., Ph.D., H.A. Leibner, M.D., P. Jen, M.D., and J.M. Teich, M.D., Ph.D., Brigham and Women's Hospital, Boston, MA

Extracting Physical Findings from Free-Text Patient Records

Authors: C. Sneiderman, M.D., Ph.D., T.C. Rindfleisch, A.R. Aronson, and A.C. Browne, National Library of Medicine, Bethesda, MD

Capturing and Coding Medical Concepts Using a Computerized Database Browsing and Encoding Tool: Positive Efficiency Findings Using the PADS Encoder

Authors: J.H. Hohnloser, M.D., F. Puerner, University of Munich, Munich, Germany

Methodology for Evaluating How Well Structured Data Models Represent Information Extracted from Narrative Reports

Authors: R.A. Rocha, M.D., S.M. Huff, P.J. Haug, Ph.D., University of Utah, Salt Lake City, UT, and D.A. Evans, Carnegie Mellon University, Pittsburgh, PA

► Session 9

Panel: Toward a U.S. Standard Health Vocabulary: Large-Scale Testing of Existing Vocabularies Within the UMLS Context

Adams Ballroom

Monday, June 26

4:00 - 5:30 P.M.

Session Chair: J.M. Fitzmaurice, Ph.D.,
Office of Science and Data
Development, Agency for Health Care
Policy and Research, Rockville, MD

Speakers: J.M. Fitzmaurice, Ph.D.,
Office of Science and Data
Development, Agency for Health Care
Policy and Research, Rockville, MD,
B.L. Humphreys, M.L.S., Health
Services Research Information, W.T.
Hole, M.D., Lister Hill Center,
National Library of Medicine, Bethesda,
MD, and J.J. Cimino, M.D., Center for
Medical Informatics, Columbia-
Presbyterian Medical Center, New York,
NY

In conjunction with the Electronic Medical Record test-bed sites, the National Library of Medicine and the Agency for Health Care Policy and Research are sponsoring large-scale testing of a set of existing health vocabularies. The purpose of the test is to determine the extent to which these vocabularies, taken together, cover concepts and terms needed for a range of health-related applications, including patient record and public health systems. The panelists will describe the test parameters, e.g., vocabularies, testers, and general procedures. They will also discuss some of the issues the test raises.

PROGRAM - TUESDAY MORNING

► Session 10

Evaluating Patient Data Entry

John F. Kennedy Ballroom
Tuesday, June 27
8:30 - 10:00 A.M.

Session Chair: G.J. Kuperman, M.D., Ph.D., Department of Information Systems, Brigham and Women's Hospital, Boston, MA

Patient-Administered, Computerized Questionnaire to Support Hormone Replacement Therapy Decision Making

Authors: J.R. Horsman, R.S.A. Hayward, M.D., A. Gafni, Ph.D., and J.W. Feightner, M.D., Health Sciences Centre, McMaster University, Hamilton, Ontario, Canada

Assessing Patient Satisfaction and Health Status Using a Touch-Screen

Author: L. M. Lau, M.D., Ph.D., S.O. Wright, T.J. Garlick-Longhurst, C.S. Graybill, and H.R. Warner, University of Utah Health Sciences Center, Salt Lake City, UT

Patient Entry of Information into the Electronic Medical Record: Enriching Clinical Documentation and Care

Authors: J.S. Wald, M.D., H. Kowaloff, C. Safran, D. Rind, and W.V. Slack, Center for Clinical Computing, Beth Israel Hospital, Harvard Medical School, Boston, MA

Increasing Hypertensive Medication Compliance Using a Patient Informatics Intervention

Authors: J.G. Anderson, Ph.D., L. Casebeer, Ph.D., S. Jay, M.D., and R. Bausch, Ph.D., Purdue University, Indiana University Medical Center, Methodist Hospital, West Lafayette, IN

► Session 11

Evaluating Controlled Clinical Vocabularies

William Dawes
Tuesday, June 27
8:30 - 10:00 A.M.

Session Chair: C.G. Chute, M.D., Dr.P.H., Department of Health Sciences Research, Mayo Clinic, Rochester, MN

A Comprehensive Analysis of SNOMED International Encoding of Symptoms, Signs, and the Patient Record Structure

Authors: Y.A. Lussier, M.D., and R.A. Cote, Faculty of Medicine, Université de Sherbrooke, Sherbrooke, Quebec, Canada

Building a Standard Terminology for Heart Failure: How Much Is Covered by SNOMED III and the UMLS Metathesaurus 1.4?

Authors: A. Margolis, M.D., R.A. Rocha, B.F. Bray, E.M. Gilbert, and H.R. Warner, M.D., Ph.D., Medical Informatics, University of Utah, Salt Lake City, UT

Comparing Vocabularies for Coding Clinical Problems in Veterinary Medicine

Authors: J.C. Klimczak, D.V.M., Medical Informatics Group, A.W. Hahn, D.V.M., Ph.D., College of Veterinary Medicine, M.E. Sievert, Ph.D., Library and Information Science, J.A. Mitchell, Ph.D., G. Petroski, M.S., and J. Hewett, Ph.D., Medical Informatics Group, University of Missouri-Columbia, Columbia, MO

User Agreement on Vocabulary Selection for Decision Support Systems

Authors: E.S. Berner, Ed.D., R.J. Kiel, M.D., S.J. Nelson, M.D., and J.I. Kennedy, Jr., M.D., University of Alabama School of Medicine, Birmingham, AL

► Session 12

Panel: Engineering Clinical Systems for Encounter Access: Problems and Directions

Adams Ballroom
Tuesday, June 27
8:30 - 10:00 A.M.

Session Chair: J.R. Campbell, M.D., Department of Internal Medicine, University of Nebraska Medical Center, Omaha, NE

Speakers: J.R. Campbell, M.D., Department of Internal Medicine, University of Nebraska Medical Center, Omaha, NE, C. Curtis, M.D., Ph.D., Clinical Applications Requirements Group, Department of Veterans Affairs, Boston VA Medical Center, Boston, MA, M. Gleser, M.D., Ph.D., Business Development, PHAMIS Corporation, Seattle, WA, S.B. Johnson, Ph.D., Department of Medical Informatics, Columbia-Presbyterian Medical Center, New York, NY, and D. Margulies, M.D., Cerner Corporation, Kansas City, MO

Implementation of the clinical encounter within patient information systems requires proper structuring and organization of the database, exploration of novel data capture approaches, and development of presentation software. Owners of existing systems may have to make extensive modifications, while developers of new systems are challenged to keep the encounter as one focus within a competing mix of design issues. This panel will bring together leaders from both settings to discuss their approaches to these issues.

PROGRAM - TUESDAY MORNING

► Session 13

Techniques and Caveats for Patient Data Entry

John F. Kennedy Ballroom

Tuesday, June 27

10:30 A.M. - noon

Session Chair: B.L. Humphreys, M.L.S., Health Services Research Information, National Library of Medicine, Bethesda, MD

Collection of Health-Related Quality of Life Information from Patients Using a Pen-Based Computer

Authors: P.P. Le, Laboratory for Computer Science, Massachusetts Institute of Technology, Cambridge, MA, I.S. Kohane, Division of Endocrinology, Children's Hospital, Harvard Medical School, and J.C. Weeks, Dana-Farber Cancer Institute, Harvard Medical School, Boston, MA

Creating a Smart "Electronic" Form for Capturing the Patient Encounter

Authors: N.W. Sanders, M.S., N.H. Mann III, Ph.D., D.M. Spengler, M.D., and M.J. McNamara, M.D., Department of Orthopaedics and Rehabilitation, Vanderbilt University Medical Center, Nashville, TN

Integrating Patient Reported Data with Medical Center Information System Data

Authors: J. Leeman, M.P.H., C. Beauchamp, M.D., Ph.D., and C. Levy, M.S., Durham Department of Veterans Affairs Medical Center, Durham, NC

Mal de l'Ordinateur: Computer-Induced Nausea and Vomiting in Cancer Patients

Authors: L.S. Elting, Dr.P.H., A.J. Blight, D. Kurtin, M.P.H., and E.B. Rubenstein, M.D., University of Texas M.D. Anderson Cancer Center, Houston, TX

► Session 14

Evaluating the On-Line Patient Record

William Dawes

Tuesday, June 27

10:30 A.M. - noon

Session Chair: S.M. Huff, M.D., Department of Medical Informatics, Primary Children's Medical Center, Salt Lake City, UT

Features of the Clinical Encounter in a Problem-Oriented Computerized Outpatient Record

Author: J.R. Campbell, M.D., Department of Internal Medicine, University of Nebraska Medical Center, Omaha, NE

The Problem of Problems: Can an Empiric Approach Be Applied?

Authors: S.H. Brown, M.D., H.K. Walker, M.D., H.N. Camp, Emory University School of Medicine, Atlanta, GA, R. A. Miller, M.D., Vanderbilt University School of Medicine, Nashville, TN, and K.F. Liliestedt, Medical Systems Development Corporation, Atlanta, GA

The Impact of a Controlled Vocabulary on an Electronic Medical Record System

Authors: D.J. Essin, M.D., Los Angeles County + USC Medical Center, Monrovia, CA, and T.L. Lincoln, M.D., Rand Corporation, Los Angeles, CA

Shared On-Line Medical Records

Authors: C. Safran, M.D., D.M. Rind, D.Z. Sands, J.S. Wald, J. Einbinder, J. Zelingher, E. Carraballo, C. Rury, W.V. Slack, and H.L. Bleich, Beth Israel Hospital, Harvard Medical School, Boston, MA

► Session 15

Invited Talk: Natural Language Processing in the Clinical Domain

Adams Ballroom

Tuesday, June 27

10:30 A.M. - noon

Session Chair: C. Friedman, Ph.D., Department of Computer Science, Queens College, The City University of New York, Flushing, NY

Speaker: C. Friedman, Ph.D., Department of Computer Science, Queens College, The City University of New York, Flushing, NY

The speaker will define natural language processing and its relevance to health care, survey systems that have been implemented and evaluated, and describe her experience integrating a natural language processing system with an operational clinical information system. She will also discuss future opportunities for natural language processing.

PROGRAM - TUESDAY AFTERNOON

► Session 16

Building User Interfaces

John F. Kennedy Ballroom
Tuesday, June 27
2:00 - 3:30 P.M.

Session Chair: P.J. Haug, M.D.,
Department of Medical Informatics,
LDS Hospital, University of Utah, Salt
Lake City, UT

Profiler: A Tool for Developing User-Specific Clinical Input Screens

Authors: S.P. Narus, M.S.E.E., Medical
Informatics, University of Utah, and
T.A. Pryor, Information Systems,
Intermountain Health Care, Salt Lake
City, UT

A GUI to a Controlled Medical Vocabulary to Support Coded Data Capture During Ambulatory Patient Encounters

Authors: R.C. Barrows, Jr., M.D., B.
Allen, Ph.D., P. Clayton, Ph.D., J.J.
Cimino, M.D., E. Sherman, M.D., and
R. Jenders, M.D., Department of
Medical Informatics, Columbia
University, New York, NY

Optimizing Interface Menus

Author: C. Cimino, M.D., Neurology
and Computer-Based Education, Albert
Einstein College of Medicine, Bronx,
NY

Comparing Free-Text Reporting to Structured Data Entry

Authors: P.W. Moorman M.D.,
Department of Medical Informatics,
P.D. Siersema, Department of Internal
Medicine, and A.M. Ginneken,
Department of Medical Informatics,
Erasmus University, Rotterdam, The
Netherlands

► Session 17

Tools for Vocabularies and Conceptual Models

William Dawes
Tuesday, June 27
2:00 - 3:30 P.M.

Session Chair: S.B. Johnson, Ph.D.,
Department of Medical Informatics,
Columbia-Presbyterian Medical Center,
New York, NY

Controlled Vocabularies for Capturing Clinical Encounters

Author: J.J. Cimino, M.D.,
Department of Medical Informatics,
Columbia University, New York, NY

Defining the Requirements for a Health Care Vocabulary Server on the Internet: A Survey

Authors: D.E. Oliver, M.D., and M.A.
Musen, Stanford University Medical
Center, Stanford, CA

Creation of Complete Clinical Encounter Data Objects: From Data Model to Production

Authors: D.L. Myers, M.D., K.S. Culp,
Scott and White Hospital/Foundation,
Temple, TX, and R.D. Woods,
Synthesys Technologies, Inc., Austin,
TX

Extracting and Reusing Embedded Institutional Knowledge

Author: D.A. Giuse, Division of
Biomedical Informatics, Vanderbilt
University Medical Center, Nashville,
TN

► Session 18

Panel: Mobile Pen-Based Computing: A Current Status Report

Adams Ballroom
Tuesday, June 27
2:00 - 3:30 P.M.

Session Chair: S.E. Labkoff, M.D.,
Harvard Medical School and Brigham
and Women's Hospital, Boston, MA

Speakers: S.E. Labkoff, M.D., Harvard
Medical School and Brigham and
Women's Hospital, Boston, MA, L.M.
Fagan, M.D., Ph.D., Stanford
University School of Medicine,
Stanford, CA, V.W. Huang, M.D.,
Medical Microsystems, Snohomish, WA,
C.N. Mead, M.D., M.S., Care Centric
Solutions, St. Louis, MO, and S. Shah,
K2 Consulting, Nashua, NH

This panel is composed of academic and
industrial developers of clinically
oriented software for pen-based
computers. Each panel member will
focus on a case study of a pen-based
application. The presentations will con-
centrate on methods used to resolve (1)
limitations of the technology and (2)
problems encountered while fielding
mobile computers in medical settings.

PROGRAM - TUESDAY AFTERNOON

► Session 19

Practice Guidelines and Decision Support

John F. Kennedy Ballroom

Tuesday, June 27

4:00 - 5:30 P.M.

Session Chair: R.N. Shiffman, M.D.,
Center for Medical Informatics, Yale
University School of Medicine, New
Haven, CT

Computing System for Population-based Care in a Health

Maintenance Organization:

Evaluation After 18 Months

Authors: T.H. Payne, M.D., M. Galvin,
S.H. Taplin, J. Savarino, B. Austin, and
E.H. Wagner, Group Health
Cooperative of Puget Sound, Seattle,
WA

Expert Systems Decrease the Cost While Increasing the Quality of Outpatient Clinical Encounters

Authors: H.J. Doller, Ph.D., W.
Hostetler, M.D., Department of
Veterans Affairs Medical Center, Dallas,
and L. Peterson, Ph.D., University of
Texas, Arlington, TX

Integrating Practice Guidelines with the Clinical Encounter: Knowledge-Based Access Using the World Wide Web

Authors: M. Barnes, M.D., Laboratory
of Computer Science, Massachusetts
General Hospital, Boston, MA, R.
Friedman, M.D., Department of
Medicine, University of Wisconsin
Medical School, Madison, WI, and G.O.
Barnett, M.D., Laboratory of Computer
Science, Massachusetts General
Hospital, Boston, MA

CAPDA: A Software Tool to Assist Speech Therapists with Their Clinical Work

Authors: P. Rosso, Computer Science
Department, Trinity College, J. Wright,
CTS Technology Ltd., and M. Smith,
Faculty of Health, TCD, Dublin,
Ireland

► Session 20

Modeling the Encounter

William Dawes

Tuesday, June 27

4:00 - 5:30 P.M.

Session Chair: D.E. Oliver, M.D.,
Section of Medical Informatics, Stanford
University, Stanford, CA

Modeling the Clinical Encounter

Authors: S.B. Johnson, Ph.D., and R.
Barrows, M.D., Department of Medical
Informatics, Columbia University, New
York, NY

A State-Transition Method of Modeling Clinical Encounters

Authors: P.E. Stoufflet, M.D., S.R.A.
Deibel, J.H. Traum, and R.A. Greenes,
M.D., Ph.D., Harvard Medical School
and Brigham and Women's Hospital,
Boston, MA

Defining Encounters in a Logical Data Model

Authors: M. Peterson, L. Cohen, and
K. Dietz, New England Deaconess
Hospital, Boston, MA

A Multi-Strategy Approach as a Prerequisite for Efficient Data Capture

Authors: A.M. van Ginneken, M.D.,
Ph.D., P.W. Moorman, Department of
Medical Informatics, and H. Stam,
Erasmus University, Rotterdam, The
Netherlands

► Session 21

Panel: OTA Assessment of Emerging Computer Interface Technologies

Adams Ballroom

Tuesday, June 27

4:00 - 5:30 P.M.

Session Chair: R.W. Switalski, M.A.,
Orkand Corporation, Silver Spring, MD

Speakers: R.W. Switalski, M.A.,
Orkand Corporation, Silver Spring,
MD, K. Bandy, M.S., Office of
Technology Assessment, Washington,
DC, L. Frisch, M.D., Humbolt State
University, Arcata, CA, M.E. Frisse,
M.D., Washington University, St.
Louis, MO, and D.J. Essin, M.D., USC
Medical Center, Monrovia, CA

The U.S. Congress, through the Office
of Technology Assessment (OTA), is
examining the health care and informa-
tion technology infrastructures to identi-
fy ways in which computer and telecom-
munications technologies can be applied
to monitor, control, or reduce costs and
improve quality and accessibility of
health care. The panelists will (1) review
the OTA mission and related activities,
(2) present selected findings from the
study of computer interface technolo-
gies, (3) consider the adoption of these
technologies by various segments of the
health services community, (4) review
the financial incentives and their effect
on related research initiatives, and (5)
consider the optimal systems architec-
tures needed to provide the infrastruc-
ture for adoption of these technologies.

PROGRAM - WEDNESDAY MORNING

► Session 22

Exploiting the World Wide Web for the Clinical Encounter

John F. Kennedy Ballroom

Wednesday, June 28

8:30 - 10:00 A.M.

Session Chair: M.G. Kahn, M.D., Ph.D.,
Division of Medical Informatics,
Washington University School of
Medicine, St. Louis, MO

Improving the Clinical Encounter: Incorporating Guideline-Based Templates and World Wide Web Information Services

Authors: J.I. Bormel, M.D., J. Piggins,
and G.O. Barnett, M.D., Laboratory of
Computer Science, Massachusetts
General Hospital, Boston, MA

Access to the Clinical Encounter via the World Wide Web

Authors: S.A. Socratous, J.J. Cimino,
M.D., and P.D. Clayton, Ph.D.,
Department of Medical Informatics,
Columbia University, New York, NY

W3-EMRS: Access to Multi- Institutional Electronic Medical Records via the World Wide Web

Authors: I. Kohane, M.D., Ph.D.,
Harvard Medical School, Children's
Hospital, Boston, MA, P. Greenspun,
Laboratory of Computer Science,
Massachusetts Institute of Technology,
Cambridge, MA, J. Fackler, Children's
Hospital and Harvard Medical School,
Boston, MA, C. Cimino, Albert Einstein
College of Medicine, Bronx, NY, and P.
Szolovits, Laboratory of Computer
Science, Massachusetts Institute of
Technology, Cambridge, MA

WebSTAR: Platform-Independent Structured Reporting using World Wide Web Technology

Authors: C.E. Kahn, Jr., M.D.,
Department of Radiology, Medical
College of Wisconsin, Milwaukee, WI,
and D.S. Bell, M.D., Department of
Internal Medicine, Stanford University
Hospital, Stanford, CA

► Session 23

Capturing and Storing Images

Adams Ballroom

Wednesday, June 28

8:30 - 10:00 A.M.

Session Chair: C.A. Bean, Ph.D., Center
for Medical Informatics, Columbia
University, New York, NY

An Image Markup Editor for Entering Trauma Data

Authors: T.B. Patrick, Ph.D., S.
Davison, E. Worth, M.D., M.H.
Metzler, M.D., and G.K. Springer,
Ph.D., University of Missouri-
Columbia, Columbia, MO

Capturing Arthroscopy Data Using Scanned Joint Diagrams

Authors: P.R. Norris, Department of
Biomedical Engineering, K.P. Spindler,
M.D., and N.H. Mann III, Ph.D.,
Department of Orthopaedics and
Rehabilitation, Vanderbilt University,
Nashville, TN

Image Systems to Capture the Clinical Encounter

Author: R.E. Dayhoff, M.D.,
Department of Veterans Affairs, Silver
Spring, MD

Using an Object-Oriented Multimedia Database System to Capture and Integrate Clinical Encounters

Authors: H.J. Lowe, M.D., J. Vries,
M.D., G. Cooper, M.D., Ph.D., and B.
Buchanan, Ph.D., University of
Pittsburgh, Pittsburgh, PA

► Session 24

Panel: Capturing the Clinical Encounter: Accurate Data Quality- Real-Time with Access-Real-Time

William Dawes

Wednesday, June 28

8:30 - 10:00 A.M.

Session Chair: P.K. Wear, M.B.A.,
Innovative Health Systems, Sacramento,
CA

Speakers: P.K. Wear, M.B.A.,
Innovative Health Systems, Sacramento,
CA, V. Weston, RRA, St. Jude Medical
Center, Fullerton, CA, B. French,
RRA, Indiana Health Group,
Indianapolis, IN, and M. Skeens, RRA,
Lakeland Regional Medical Center,
Lakeland, FL

Clinical data at the point of collection
need to be accurate and timely the first
time because they are used immediately
for clinical decision making. The objec-
tives of this panel are (1) to demonstrate
the value of caregiver review, revision,
and authentication prior to release for
clinical decision making; (2) to demon-
strate that physicians are motivated to
input directly and be "hands on" because
they and other caregivers derive direct
benefit from new technological tools;
and (3) to demonstrate how the pan-
elists' facilities are using new technolog-
ical tools to resolve access issues, as mul-
timedia access to captured clinical data is
extremely important for patient care.

PROGRAM - WEDNESDAY MORNING

► Session 25

Using the Data and Keeping It Secure

John F. Kennedy Ballroom

Wednesday, June 28

10:30 A.M. - noon

Session Chair: S.N. Luxenberg, M.D.,
Columbia University, New York, NY

An Experimental Network of General Practitioners for Purposes of Epidemiologic Surveillance in Italy

Authors: S. Mariotti, M.D.,
Epidemiology and Biostatistics
Laboratory, Istituto Superiore di Sanita,
E. Buonomo, Department of Public
Health, Epidemiology Laboratory, Tor
Vergata University, G. Lucchetti,
Informedica, Janssen Pharmaceuticals, L.
Palombi, Department of Public Health,
Epidemiology Laboratory, Tor Vergata
University, and M. Panfilò, Informedica,
Janssen Pharmaceuticals, Rome, Italy

Promise and Problems of Using the Electronic Patient Record to Analyze Anticoagulation Practice Patterns

Authors: J. Einbinder, M.D., D. Archer,
C. Rury, and C. Safran, Center for
Clinical Computing, Beth Israel
Hospital, Harvard Medical School,
Boston, MA

Outpatient Corticosteroid Prescribing Patterns in a Teaching Hospital

Authors: J.B. Karlinsky, M.D., C.M.
Barrera, M.D., D.M. Goodman, Ph.D.,
M.H. Abramson, M.S., and J.S.
Kaufman, M.D., Boston Veterans Affairs
Medical Center, Boston, MA

Evaluating the Confidentiality of a Hospital Clinical Information System

Authors: D.M. Rind, M.D., M. Citroen,
and C. Safran, Center for Clinical
Computing, Beth Israel Hospital,
Harvard Medical School, Boston, MA

► Session 26

Capturing Disparate Data

Adams Ballroom

Wednesday, June 28

10:30 A.M. - noon

Session Chair: M.M. Morgan,
Laboratory of Computer Science,
Massachusetts General Hospital, Boston,
MA

Implementation of a Flowsheet-Based Clinical Information System Leads to Workload Reduction in the P.A.C.U.

Authors: D. Furlong, R.N., B.S.N., M.
Manning, R.N., B.S.N., M.S., Linda
Stankard, R.N., B.S.N., and L.
Lexander, R.N., B.S.N., M.S.N., West
Roxbury Veterans Affairs Medical
Center, West Roxbury, MA

Wireless Biotelemetry for Implantable Devices and Biosensors

Authors: T. Mussivand, Ph.D.,
D.Eng., K. Holmes, A. Hum, and W.J.
Keon, University of Ottawa Heart
Institute, Ottawa, Ontario, Canada

Capturing and Measuring Home Blood Glucose Variability Using the One Touch II® Blood Glucose Reflectance Meter

Authors: R.A. Gensinger, Jr., M.D., M.
Pfeifer, M.D., M. Schumer, M.S., and B.
Dawson, Ph.D., Southern Illinois
University School of Medicine,
Springfield, IL

Capturing Heart Sounds to Document the Electronic Health Care Record

Authors: A.W. Hahn, D.V.M., Ph.D.,
College of Veterinary Medicine, J.C.
Klimczak, D.V.M., Medical Informatics
Group, M.J. Knowles, M.S., Computer
Science Department, University of
Missouri-Columbia, Columbia, MO,
and K. Johnson, Cardionics, Inc.,
Houston, TX

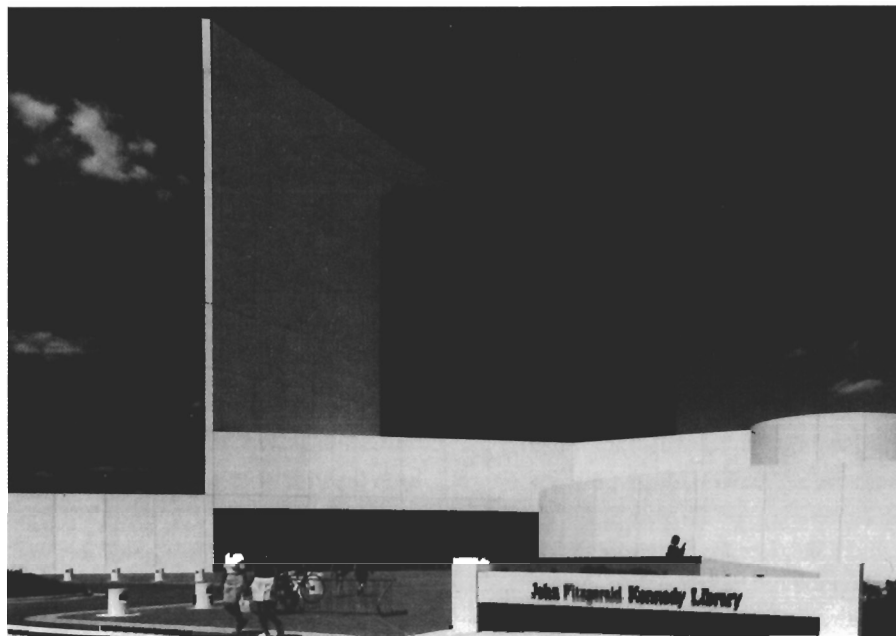


TOURS

Boston City Tours

Two city tours are available at the Spring Congress. There is a fee of \$25 per person for each tour. You may preregister for these tours on the Advance Registration Form. On site, more tour information will be available from the tour desk near the AMIA registration area. Tours will leave promptly from the front entrance of the Hyatt Regency Cambridge Hotel. Additional space may be available on a first-come, first-served basis at an additional \$3 surcharge. Sign up early and save money!

On Sunday, June 25, from 1:00 to 4:00 P.M., **Cheers! and Welcome to Boston** will take you by coach through the Victorian Back Bay, elegant Beacon Hill, and the Italian North End. See where the Boston Tea Party and the Boston Massacre took place. Follow the famous Freedom Trail past the sites of the Boston Tea Party and the Boston Massacre to Paul Revere's house and the Old North Church, where the two



lanterns that sparked the American Revolution were hung. Visit "Old Ironsides" and Bunker Hill. Get some tips about shopping on Newbury Street, as well as Quincy Market and Filene's Basement. Art buffs, see the Museum of Fine Arts and the Isabelle Gardner

Museum. Sports fans, check out Fenway Park and the Boston Garden. And, of course, you'll see the "Cheers" bar that inspired the TV series!

On Monday, June 26, from 1:00 to 4:00 P.M., with our **Kennedy and Harvard** tour you'll visit the spectacular John F. Kennedy Library and Museum overlooking Dorchester Bay. After an introductory film, the exhibits trace Kennedy's presidency from the 1960 nominating convention in Los Angeles to the drum rolls at Arlington. From the library, the tour takes you to Harvard University, the nation's oldest university and alma mater to six presidents. Here you'll take a guided walk through "Hahvahd Yahd," with time at the end of the tour for browsing in Harvard Square.



Skyline from the Boston Harbor

TOURS

Bo[ston] Knows Informatics Tours

Boston is the site of many groups doing groundbreaking research and development in diverse areas of medical informatics. Seven of these groups have agreed to host site visits for interested Spring Congress participants. The site visits will take place on Wednesday, June 28, from 1:30 to 4:00 P.M.

Transportation will be provided. There will be a \$10 fee. Space at each site is limited, so attendees may register for one visit only and must preregister, indicating first and second choices, on the Advance Registration Form (page 27). If you have specific questions about these visits, contact Gil Kuperman, M.D., Ph.D., at gkuperman@bics.bwh.harvard.edu (e-mail) or 617-278-0549 (phone).

Informatics at Children's Hospital

(Maximum: 50)

Members of the Informatics Research Group at Children's Hospital will demonstrate their contributions to the Children's Hospital electronic medical records system (EMRS) and other research projects.

Specifics include a demonstration and discussion of the Clinician's Workstation (CWS), an EMRS for ambulatory pediatrics that has been in multi-clinic operation for four years; the World Wide Web EMRS Project, a demonstration of collaborative work with MIT to provide WWW access to the EMRS and in particular to the CWS (an architecture for accessing multiple heterogeneous EMRSs will be reviewed); simulations (studies of the hypothalamic-pituitary axis using simulation techniques); and closed-loop, computer-controlled ventilation of children with ARDS, and open-loop control of FI02 in neonates (demonstration and review of experience).

The Center for Clinical Computing

(Maximum: 25)

The visit to the Center for Clinical Computing (CCC) will demonstrate the clinical computing system at Beth Israel Hospital, which has been in evolution for over two decades and is among the systems most heavily used by clinicians (it contains records of over 1,000,000 patients). The CCC system has all the functionality of a traditional hospital information system (HIS) supporting the departmental needs of a large teaching hospital. In addition to reporting all diagnostic test results, this system provides a variety of online decision support, including searching the bibliographic literature via PaperChase[®], searching the clinical data repository via ClinQuery, clinical calculation, and alerts and reminders. The CCC system now supports a completely electronic patient record in the general medical clinic called the Online Medical Record.

Clinical Decision Making Group of the MIT Laboratory for Computer Science

(Maximum: 20)

The Clinical Decision Making Group at MIT has been conducting research on medical reasoning and knowledge representation for the past twenty years. Its members have built experimental programs for diagnosis, therapy management, and monitoring in a wide range of medical specialties, including renal diseases, acid-base and electrolyte disorders, heart disease, cancer, growth disorders, and other areas. Current projects include reasoning about heart failure,

computational support for genetic counseling, modeling of preferences, and the creation of "guardian angels," agents that collect life-long medical data about a patient, help to interpret those data, and educate and advise the patient about his or her care. Visitors will learn about the Heart Failure Program and Geninfer, a prototype clinical geneticist's workstation.

Information Systems at the Deaconess Hospital

(Maximum: 25)

The Information Systems group at the Deaconess Hospital has developed a 1200+ node multi-protocol distributed computing environment. Previously, all IS services were provided via a main-frame-based IBM Patient Care System. Members of the group will demonstrate applications that utilize the initial components of the evolving architecture and contrast them with the existing applications. They will discuss the hardware migration plan and will offer a tour of the new clinical facility with state-of-the-art IS and communications technologies, including a critical care bedside data entry application. Live demonstrations will include the Sybase clinical repository with ad hoc query capabilities for internal research and quality assessment; Windows 3.1 as a platform for reporting laboratory and radiology findings using a PowerBuilder application; a resident procedure tracking database using Lotus Notes; and extending on-campus services to community-affiliated organizations.

TOURS

Decision Systems Group

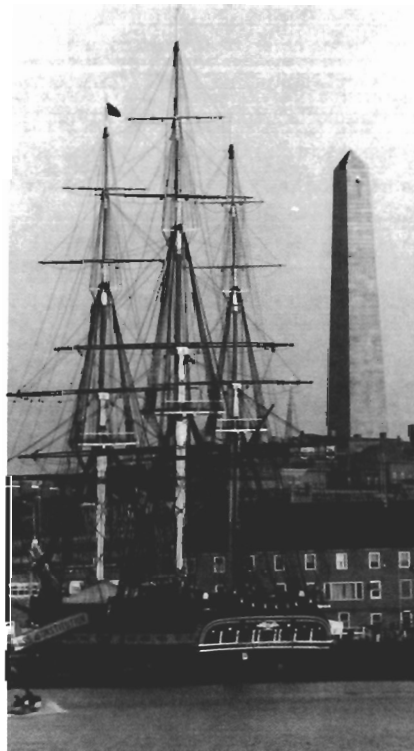
(Maximum: 15)

The Decision Systems Group (DSG) at Brigham and Women's Hospital and Harvard Medical School focuses on the development of software environments, tools, user interfaces, and applications that support the work of health care professionals as well as on their education and training. The DSG focuses on network-based, distributed software architectures that can support multiple, problem-specific, interactions. Demonstrations will include multimedia-based computer-aided instruction (case-based problem-solving, clinical competency evaluation, WWW-based teaching file development in radiology); clinical workstation emphasizing integration of distributed resources (image access and manipulation, decision aids, and so forth); software engineering environment (Arachne) to support distributed object management; computer-based approaches to structured reporting; the GEODE project (use of clinical guidelines as a framework for organizing clinical data access and collection); use of hand-held devices (Apple Newton and others) for information access by medical residents; and applications of WWW for electronic publishing, decision support, and telemedicine services.

Laboratory for Computer Science

(Maximum: 20)

The Laboratory for Computer Science at Massachusetts General Hospital has been involved in research and applied medical informatics projects for over twenty-five years. Demonstrations will include the clinical workstation; clinical consultation using graphical indexing (management of pulmonary artery line, pressure ulcers, and so forth); Internet access to knowledge-based resources (guidelines and so forth); assessment of clinical problem-solving skills using patient simulations; and access to IIS resources by wrapping resources in generic server application.



U.S.S. Constitution/Bunker Hill Monument

Information Systems at Brigham and Women's Hospital

(Maximum: 35)

The Brigham Integrated Computing System (BICS) is a very large PC network of over 4,000 workstations. It provides data resources to nearly every department at Brigham and Women's Hospital. A variety of applications supports clinical, administrative, research, and financial information needs. The demonstration will concentrate on a number of advanced clinical systems developed and implemented in recent years. These include physician order entry, the ambulatory medical record, inpatient sign-out communication, automatic physician-patient linking (Coverage List), and patient discharge systems. The demonstration will also include some new developments in advanced decision support tools, centering on the BICS Event Engine. This system allows easy writing of logical rules, automatically alerts the patient's current primary physician to important conditions, and offers action items to deal with the alert condition.

GENERAL INFORMATION

Following, in alphabetical order, is general information about the 1995 AMIA Spring Congress.

Advance Registration

Send your Advance Registration Form (so that it arrives by June 10, 1995) to

American Medical Informatics Association

4915 St. Elmo Avenue, Suite 401
Bethesda, MD 20814

Air Travel Discount

▲ DELTA AIR LINES

Delta Airlines is the official carrier for the 1995 AMIA Spring Congress. Delta offers discounts to all attendees who are residents of the U.S., Canada, Bermuda, Nassau, San Juan, St. Croix, and St. Thomas. A 5 percent discount will be applied to most published round-trip promotion airfares in first class (restrictions may apply). A 10 percent discount will be applied to Delta coach (Y06/YR06) fares (restrictions may apply). Make reservations by calling Delta directly at 1-800-241-6760 daily from 8:00 A.M. to 11:00 P.M. (Eastern time); refer to file number H11010.

Food Donations

AMIA will donate excess food from the Spring Congress to "Second Helping," a project of the Greater Boston Foodbank to help feed the needy of eastern Massachusetts.



HIMSS Members

A reminder: AMIA's strategic partners for 1995, the members of the Healthcare Information and Management Systems Society (HIMSS), will receive a special discount when registering for the 1995 Symposium on Computer Applications in Medical Care (SCAMC). When you register at the Spring Congress, be sure to ask about the discount for SCAMC.

Hotels

Please make your hotel reservations no later than May 27, 1995. When making a reservation, you must mention that you are attending the American Medical Informatics Association Spring Congress. Hotel reservations must be accompanied by the first night's deposit to the hotel.

Sailing on the Charles River

The official Spring Congress hotel is Hyatt Regency Cambridge (\$135 single or double)
575 Memorial Drive
Cambridge, MA 02139
Phone: 1-800-233-1234 or 617-492-1234
Fax: 617-491-6906

Suites are available from the Hyatt Regency Cambridge on a limited basis. Please call Vernell Henry, AMIA Meetings Manager, at 301-657-1291 for information about suites.

One mile from the Hyatt Regency Cambridge, a small block of rooms is also available at DoubleTree Guest Suites (\$135 single/\$145 double)
400 Soldiers Field Road
Boston, MA 02134
Phone: 617-783-0090
Fax: 617-783-0897

At both hotels, check-in time is 4:00 P.M.; check-out time is noon.

GENERAL INFORMATION

Medical Emergencies

The nearest hospital is Mt. Auburn Hospital, 330 Mt. Auburn Street, Cambridge, MA, (617-) 492-3500.

For emergencies within the hotel, dial 0 or 55.

Recycling

AMIA will provide recycling bins for white paper in general meeting areas and recycling bins for badge holders in the registration area.

Registration Hours

Saturday, June 24
6:00 P.M. - 8:00 P.M.

Sunday, June 25
7:00 A.M. - 6:00 P.M.

Monday, June 26
7:00 A.M. - 6:00 P.M.

Tuesday, June 27
7:00 A.M. - 6:00 P.M.

Wednesday, June 28
7:00 A.M. - noon

Responsible Drinking Policy

AMIA will have a cash bar at the dessert reception on Tuesday night. Please use the bar responsibly.

Restaurants

There will be a restaurant reservation service near the AMIA registration area.

The Hyatt Regency Cambridge has two restaurants. Jonah's Seafood Cafe offers breakfast, lunch, and dinner. Spinnaker Italia offers Italian cuisine for dinner in a revolving rooftop overlooking the Charles River. A sports bar, the Pallysadoe, offers cocktails/appetizers with billiards, sports TV programming, and a CD jukebox.

The DoubleTree Guest Suites restaurant (for breakfast, lunch, or dinner) is Scullers Grill, which emphasizes New England seafood cuisine. In the evening, Scullers jazz club features entertainment and appetizers.

Student Volunteers

AMIA needs ten student volunteers to staff Spring Congress tutorials and sessions in exchange for a complimentary registration to the meeting (excluding hotel accommodations or travel). Responsibilities will include collecting tickets (where appropriate), distributing hand-out materials, changing slides and overheads for speakers, and working the lighting in each room. Individuals will be required to work at least two full days between Sunday, June 25 and Wednesday, June 28, from 7:30 A.M. to 6:00 P.M. each day.

To apply, contact Vernell Henry, AMIA Meetings Manager, by May 27. Send e-mail to vernell@amia2.amia.org or a fax to 301-657-1296. Include your name, telephone number, fax number, preferred schedule (days and dates), and a copy of your student I.D. AMIA will notify those assigned as volunteers by e-mail or fax.

Transportation

Daily shuttle service will be provided between the DoubleTree Guest Suites and the Hyatt Regency Cambridge. Morning shuttles will leave the DoubleTree for the Hyatt promptly at 7:15 and 7:45 A.M. Afternoon shuttles will leave the Hyatt for the DoubleTree promptly at 5:30 and 5:45 P.M. You may also take taxis between hotels.

Taxis are recommended for getting to and from the airport and around the city. The Hyatt Regency Cambridge is about twenty minutes from Logan International Airport by cab; the one-way fare is about \$18.

HOTEL RESERVATION FORM

1995 Spring Congress
June 24-28, 1995

Hyatt Regency Cambridge
Boston, MA



Arrival Date _____ Departure Date _____

Name _____

Company _____

Address _____

City _____

State/Zip/Country _____

Estimated time of arrival _____

Sharing room with _____

All sleeping room reservations must be accompanied by the first night's deposit.

As a deposit for first night's lodging, I have enclosed my check for \$ _____ (made payable to the Hyatt Regency Cambridge or DoubleTree Guest Suites) or give my credit card information:

☐ VISA ☐ MasterCard ☐ American Express

Credit Card Holder _____

Credit Card Number _____ Exp. Date _____

Signature _____

Type of room (check one):

- ☐ Single (one person/king-sized bed)
☐ Double (two people/one king-sized bed)
☐ Double (two people/two beds)

☐ If you have a disability that may require special accommodation, please check here and enclose a written description.

Send this hotel reservation form (so that it arrives no later than May 27, 1995) to one of the following:

Hyatt Regency Cambridge

575 Memorial Drive
Cambridge, MA 02139
Phone: 1-800-233-1234 ** or 617-492-1234 **
Fax: 617-491-6906
\$135 Single or Double

DoubleTree Guest Suites *

400 Soldiers Field Road
Boston, MA 02134
Phone: 617-783-0090 **
Fax: 617-783-0897
\$135 Single/\$145 Double

* A limited number of sleeping rooms is available at the Doubletree Guest Suites.

**** When calling in your reservation, refer to the American Medical Informatics Association's 1995 Spring Congress.**

To cancel your reservation, you must contact the hotel directly at least 48 hours prior to your scheduled arrival time.

YOUR EXCLUSIVE 1995 MEMBERSHIP SERVICES

Join AMIA now and save up to \$150 on your Spring Congress registration!

Membership in the American Medical Informatics Association is an excellent investment. The educational benefits, networking opportunities, and constant exposure obtained from AMIA's resources are virtually unlimited.

MEETINGS AND CONFERENCES

AMIA's meetings and conferences offer the best in panels, tutorials, research paper presentations, workshops, and exhibits. In addition to the 1995 Spring Congress, AMIA sponsors the annual Symposium on Computer Applications in Medical Care (SCAMC), which will be held October 28-November 1, 1995 in New Orleans, LA. The theme of the 19th SCAMC is "Toward Cost-Effective Clinical Computing." AMIA members save up to \$250 on Spring Congress and SCAMC registration fees.

PUBLICATIONS

AMIA News: We produce our own quarterly newsletter, letting you know about what's going on at your association's headquarters, new services on the horizon, messages from AMIA's leaders, and upcoming events.

AMIA Yearbook & Directory: This valuable networking tool provides complete address and e-mail information for each AMIA member. It also provides an overview of the current year, and lets you know what's in store for the following year.

Annual Buyer's Guide: This handy guide is incorporated into the SCAMC Final Program. It showcases the many fine products and services of SCAMC exhibitors and our Corporate members.

JAMIA: All Regular, Institutional, and Corporate members receive AMIA's exciting new journal, JAMIA, the Journal of the American Medical Informatics Association. Students may order JAMIA

at a special member rate. Contact the AMIA office to receive the Author's Guidelines.

Computers and Biomedical Research:

A refereed journal that provides researchers and clinicians with up-to-date information about the application of computers to health care. Regular, Corporate, Institutional, and Student members may purchase a subscription at a special member rate.

M.D. Computing: A magazine-format journal that covers the entire spectrum of computers in medicine, providing information about new products and services and in-depth hardware and software reviews. Regular, Corporate, Institutional, and Student members may purchase a subscription at a special member rate.

IMIA Yearbook of Medical

Informatics: Published by the International Medical Informatics Association, this annual publication includes the best papers from the international arena of medical informatics.

Proceedings: Members may obtain proceedings from SCAMC and abstract books from our Spring Congress.

Working Group Newsletters: You will receive newsletters from the Working Group(s) with which you are affiliated. These newsletters provide even more in-depth information about your particular field of interest.

MORE BENEFITS

AMIA Membership Card: Your exclusive AMIA membership card displays your commitment to continuing informatics education and training.

Continuing Education Credits: By attending SCAMC and the Spring Congress, members may earn valuable Continuing Medical Education credits and (for SCAMC) Nursing Contact Hours.

AMIA Job Exchange: Members can learn "who's looking" and "who's available" for various positions within the medical informatics field, both during SCAMC and after it's over.

MedSig: 1992 marked the tenth anniversary for the Medical Special Interest Group bulletin board system on CompuServe. MedSig is accessible from almost every city in the United States and contains many message sessions for discussing areas of interest, from computing to clinical, ethical, and social topics. Contact AMIA for a MedSig brochure.

President's Club: Get the recognition you deserve by participating in AMIA's popular "member-get-a-member" recruitment campaign. In addition to recognition awards, members are invited to exclusive receptions and receive prestigious plaques and valuable prizes.

Site Visit Program: Members can visit the finest institutions and see medical informaticians at work.

WORKING GROUP AFFILIATIONS

Thirteen Working Group (WG) affiliations are available and encouraged for all AMIA members. The WGs are

- Anesthesiology/Critical Care and Emergency Medicine
- Automated Encoding/Electronic Patient Records
- Clinical Computing
- Computerized Medical Records
- Dental Informatics
- Education
- Family Practice/Primary Care
- Hospital/Medical Information Systems
- Internet
- Medical Imaging Systems
- Nursing Informatics
- Prevention and Health Evaluation Informatics
- Student

This is just a partial list of services available to AMIA members. Many more are on the horizon. Join AMIA today!

1995-96 AMIA MEMBERSHIP APPLICATION / RENEWAL FORM

4915 St. Elmo Avenue, Suite 401, Bethesda, Maryland 20814 Phone: 301-657-1291 Fax: 301-657-1296 E-mail: (Internet) mail@amia2.amia.org

Membership Category

☐ **Regular Member - \$175** includes physicians, nurses, dentists, biomedical engineers, educators, medical librarians, researchers, and other health care professionals who have a strong interest in medical informatics. Regular Members receive JAMIA and newsletters at no additional fee. Discounts for AMIA Spring Congress and SCAMC apply.

☐ **Institutional Member - \$300** includes nonprofit organizations, nonprofit associations, nonprofit universities, nonprofit hospitals and libraries. All Regular Member benefits apply. Institutional Members are listed separately in the AMIA Yearbook and Directory. One individual is designated as AMIA contact person for mailing purposes and conference registration discounts. JAMIA and newsletters are included. Discounts for AMIA Spring Congress and SCAMC apply.

☐ **Corporate Member - \$1,500 - \$10,000** includes for-profit corporations that are vendors to the medical informatics community, such as hardware and software vendors, and consulting firms. Please contact AMIA for the special Corporate Membership Packet.

☐ **Student Member - \$30** includes persons currently enrolled full-time in a degree-granting program or in an academic program such as a medical residency or post-doctoral fellowship. A copy of the Student I.D. is required with membership application. Students may purchase journals. Discounts apply.

☐ **Associate Member - \$30** for one year only. Individuals may join one Working Group. No Regular Member benefits apply. No journals or newsletters, no AMIA Spring Congress or SCAMC discounts. At the end of the year, Associate Members are expected to renew at Regular Member rates and will then receive services.

Profile

Please indicate your occupation(s). Check all that apply.

- | | |
|---|--|
| <input type="checkbox"/> Physician | <input type="checkbox"/> Programmer |
| <input type="checkbox"/> Dietician | <input type="checkbox"/> Systems Analyst |
| <input type="checkbox"/> Pharmacist | <input type="checkbox"/> Computer Scientist |
| <input type="checkbox"/> Physical Therapist | <input type="checkbox"/> Business Administrator |
| <input type="checkbox"/> Educator | <input type="checkbox"/> Technologist |
| <input type="checkbox"/> Engineer | <input type="checkbox"/> Hospital Administrator |
| <input type="checkbox"/> Nurse | <input type="checkbox"/> Medical Librarian |
| <input type="checkbox"/> Dentist | <input type="checkbox"/> Health Info. Professional |
| <input type="checkbox"/> Undergrad. Student | <input type="checkbox"/> Vendor/Consultant |
| <input type="checkbox"/> Fellow | <input type="checkbox"/> Veterinary Medicine |
| <input type="checkbox"/> Graduate Student | <input type="checkbox"/> Scientist/Researcher |

Other (please specify): _____

PERSONAL INFORMATION, PLEASE...DO NOT USE THIS APPLICATION AFTER 9/30/95.

Name _____ Degree/Title _____

Institution/Organization _____

Address _____

City/State/Zip/Country _____

Business Phone _____ Fax _____

E-mail Address(s) _____ and _____

Sponsor's Name (who encouraged you to join AMIA?) _____

AMIA Publications

Regular, Institutional, and Corporate Members receive JAMIA, the Journal of the American Medical Informatics Association, automatically. These members may wish to purchase subscriptions to M.D. Computing and Computers and Biomedical Research at the specially discounted subscription rates below. Student members may purchase JAMIA or these journals at special AMIA member prices:

- ☐ JAMIA (\$60)
☐ M.D. Computing (\$32)
☐ Computers and Biomedical Research (\$42)

All members may purchase the following publications:

- ☐ 1994 SCAMC Proceedings
(\$65 + \$4 postage & handling = \$69)
☐ 1993 SCAMC Proceedings
(\$65 + \$4 postage & handling = \$69)
☐ 1991 SCAMC Proceedings
(\$65 + \$4 postage & handling = \$69)
☐ 1989 SCAMC Proceedings
(\$50 + \$4 postage & handling = \$54)
☐ 1995 Spring Congress Abstracts*
(\$50 + \$2 postage & handling = \$52)
☐ 1994 Spring Congress Abstracts
(\$50 + \$2 postage & handling = \$52)
☐ 1993 Spring Congress Abstracts
(\$50 + \$2 postage & handling = \$52)
☐ 1993 IMIA Yearbook of Medical Informatics
(\$35 + \$4 postage & handling = \$39)
☐ 1992 IMIA Yearbook of Medical Informatics
(\$35 + \$4 postage & handling = \$39)

NOTE: 1992 SCAMC Proceedings may be purchased by contacting the publisher, McGraw-Hill, directly at 1-800-262-4729.

* Available June 1995

- ☐ Please do not include my name on mailing lists given to other organizations.

Working Group Affiliations

Regular, Institutional, and Corporate Members may join one Working Group (WG) at no added charge. Each additional WG affiliation is \$30. Students may join WGs for \$15 per WG.

- ☐ Anesthesiology/Critical Care & Emergency Medicine
☐ Automated Encoding/Electronic Patient Records
☐ Clinical Computing
☐ Computerized Medical Records
☐ Dental Informatics
☐ Education
☐ Family Practice/Primary Care
☐ Hospital/Medical Information Systems
☐ Internet
☐ Medical Imaging Systems
☐ Nursing Informatics
☐ Prevention & Health Evaluation Informatics
☐ Student

Payment Method (U.S. Dollars)

AMIA Membership	\$ _____
JAMIA	\$ _____
M.D. Computing	\$ _____
Computers and Biomedical Research	\$ _____
Additional Working Groups	\$ _____
Proceedings/Publications	\$ _____
Foreign Postage ADD \$15	\$ _____
TOTAL (U.S. Dollars only)	\$ _____

I enclose my

- ☐ U.S. Check ☐ U.S. Money Order
☐ VISA ☐ MasterCard ☐ Am. Express
Card Number _____

Exp. Date _____ / _____

Signature _____

1995 AMIA SPRING CONGRESS REGISTRATION INSTRUCTIONS

Please use a separate form for each registration.

Advance Registration

Advance registration discounts apply to all registrations received by AMIA, and paid in full, by June 10, 1995.

Registrations not paid in full by June 10, 1995 will be charged the on-site registration rate, and attendees will be expected to register on site.

Any attendee with an outstanding balance must pay it before registration materials can be obtained.

Full Registration

The full registration fee includes all conference activities, including attendance at all educational sessions (except preconference tutorials), the Tuesday evening AMIA Dessert Reception, and a copy of the Congress abstract book.

Single-Day Registration

For attendees who are not able to attend the entire conference, a single-day registration is available. The single-day registration fee includes attendance at all educational sessions (except preconference tutorials) for the day or days registered and a copy of the Congress abstract book.

Single-day registration fees DO NOT include the Tuesday evening AMIA Dessert Reception. Attendees and their guests may attend this reception for an additional \$25 per person.

Pre-Professional Student, Student, Resident, and Fellow Registration

Pre-professional students, students, residents, and fellows are eligible for reduced Spring Congress registration rates. A pre-professional student is any student who has not yet earned a professional degree at the doctoral level.

Student registrations MUST BE ACCOMPANIED BY PROOF OF STUDENT STATUS (e.g., a copy of the Student I.D. or a letter from a school or departmental official verifying status). Full registration rates will be charged for registrations received without proof of student status.

The pre-professional student and student registration fees include all Spring Congress activities, including attendance at all educational sessions (except for preconference tutorials), the Tuesday evening AMIA Dessert Reception, and a copy of the Congress abstract book.

Payment

Payment must be in U.S. currency and payable through a U.S. bank. Accepted forms of payment include personal or company check, money order, VISA, MasterCard, or American Express. Other credit cards are not accepted. Your account will be charged on the date the registration is processed.

Registrations may be faxed to 301-657-1296 ONLY if you are paying by VISA, MasterCard, or American Express. DO NOT call the AMIA office to confirm receipt of your fax. You will receive confirmation of your registration by mail.

Discounted AMIA Member Rates

Congress registrants who are paid AMIA members for 1994-95, 1995, or 1995-96 qualify for the reduced member rate. (Associate Members do not qualify for the reduced member rate.)

Deferred Payment

In lieu of payment, proof of payment (authorization or purchase order) may be submitted with registrations. Attendees are responsible for payment of fees, including those billed to third parties. Deferred payment must be made within 30 days of billing, or a service fee of \$50 will be charged. Copies of purchase orders or authorizations MUST be provided along with a correct billing address. Registrations will not be processed without a copy of the authorization or purchase order. Purchase order numbers only are not acceptable.

Registration Cancellation

Registration fees, less a \$50 cancellation fee, are refundable if AMIA receives written notice no later than June 16, 1995. Refunds will be processed four to six weeks after the Spring Congress.

No refunds will be given after June 16, 1995. Registrants unable to attend the conference may transfer their registration; if the alternate is not an AMIA member, he or she will be charged the non-member rate. Transfer of registration must be in writing.

Tutorial Cancellation

Tutorial fees, less a \$25 cancellation fee, are refundable if AMIA receives written notice no later than June 16, 1995. Refunds will be processed four to six weeks after the conference.

No refunds will be given after June 16, 1995. Registrants may transfer their tutorials in writing only.

On-Site Registration

Registration is available on site during the conference; however, your choice of tutorials cannot be guaranteed. Reduced registration rates are not in effect on site.

1995 AMIA SPRING CONGRESS ADVANCE REGISTRATION FORM

Registration Information

AMIA Membership Number _____

Name (last, first) _____ Degree _____

Title/Position _____ Department _____

Organization _____

Address _____

City/State/Zip _____ Country _____

Phone _____ Fax _____ E-Mail _____

Social Security Number _____

Signature (required for CME Credit) _____

- ☐ I need special assistance. (If you require special accommodation to participate fully in the Congress, please check here and enclose a description of your needs.)
- ☐ Please do not include my name on mailing lists given to other organizations.

Badge Information

(This is how your badge will read. If information is the same as opposite, skip this section.)

Name/Degree _____

Organization _____

City/State/Country _____

Registration Fees

	Advance (by 6/10)	On-Site	
Full Registration			
AMIA Member	\$300	\$400	\$
Non-Member	\$450	\$550	\$
Student Registration			
AMIA Student Member	\$150	\$225	\$
Student Non-Member	\$200	\$275	\$
AMIA Pre-Professional Student Member	\$ 75	\$113	\$
Pre-Professional Student Non-Member	\$100	\$138	\$
Single-Day Registration (please check day/days)			
<input type="checkbox"/> Monday, June 26	<input type="checkbox"/> Tuesday, June 27		
<input type="checkbox"/> Wednesday, June 28			
AMIA Member	\$225/day	\$275/day	\$
Non-Member	\$225/day	\$275/day	\$
Tutorial Registration			
Sunday morning			
Tutorial T1	\$150	\$150	\$
Tutorial T2	\$150	\$150	\$
Sunday afternoon			
Tutorial T3	\$150	\$150	\$
Tutorial T4	\$150	\$150	\$
Working Group Meetings			
You must preregister for Working Group (WG) meetings, which are free to members of the WG. If you are not a member of the WG, add \$10 per meeting (except where indicated):			
<input type="checkbox"/> Anesthesiology/Critical Care			\$
<input type="checkbox"/> Automated Encoding/Electronic Patient Records			\$
<input type="checkbox"/> Clinical Computing			\$
<input type="checkbox"/> Computerized Medical Records			\$
<input type="checkbox"/> Family Practice/Primary Care (WG members and nonmembers required to pay at lunch)		N/A	
<input type="checkbox"/> Hospital/Medical Information Systems			\$
<input type="checkbox"/> Internet			\$
<input type="checkbox"/> Medical Imaging Systems			\$
<input type="checkbox"/> Nursing Informatics			\$

	Advance (by 6/10)	On-Site	
Boston City Tours			
Cheers! and Welcome to Boston	\$ 25	go to tour desk	\$
Kennedy Library and Harvard University	\$ 25	go to tour desk	\$
Site Tours (you must register in advance (one tour only); indicate first and second choices)			
Informatics at Children's Hospital	\$ 10	N/A	\$
Beth Israel Center for Clinical Computing	\$ 10	N/A	\$
MIT Clinical Decision Making Group	\$ 10	N/A	\$
Information Systems Deaconess Hospital	\$ 10	N/A	\$
Decision Systems Group	\$ 10	N/A	\$
MGH Laboratory for Computer Science	\$ 10	N/A	\$
Information Systems at Brigham & Women's	\$ 10	N/A	\$
Receptions/Publications			
AMIA Dessert Reception (additional tickets)	\$ 25	\$ 25	\$
Abstract book (additional copies)	\$ 50	\$ 50	\$
(Please add appropriate postage and handling if mailed: U.S., add \$2; Canada and Mexico, add \$4; all other countries, add \$8.)			
Subtotal (registration form)			\$
Subtotal (membership application)			\$
Total enclosed or to be charged			\$

Attendee Profile

(please check all that apply):

- ☐ Physician ☐ Programmer
- ☐ Dietician ☐ Systems Analyst
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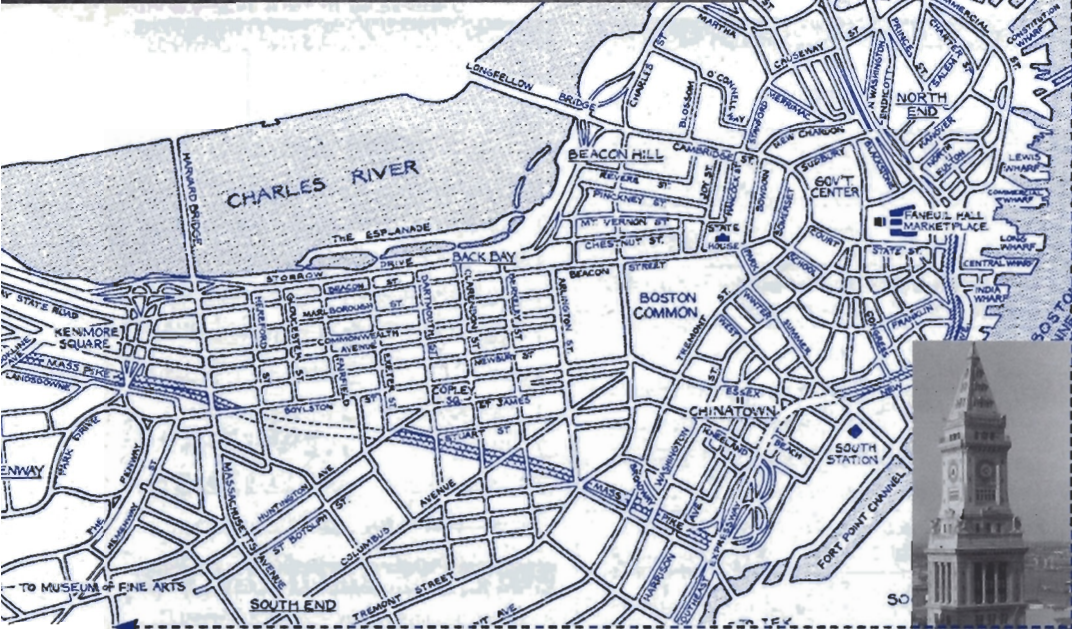
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