

## AMIA '98 Prepares Attendees for Millennial Challenges in Health Care Information Systems

More than 1,700 physicians, nurses, clinical information specialists, medical librarians, and other health care and information technology professionals converged in Orlando, Florida, November 7–11, for the American Medical Informatics Association's 1998 Annual Symposium (AMIA '98). Following the tradition of educational excellence set by the previous twenty-one such meetings, the AMIA '98 program focused on "A Paradigm Shift in Health Care Information Systems: Clinical Infrastructures for the 21st Century." Program Chair Christopher G. Chute, MD, DrPH, explained that the meeting's theme reflected "a Renaissance of patient-centered systems" in health care, particularly the growing need for standardized patient descriptions for optimal care delivery, outcomes analysis, resource allocation, and continuous quality improvement.

### Tutorials and Workshops

AMIA '98 began with an outstanding array of application-oriented, skills-building tutorials and workshops, drawing more than 1,000 participants. Popular tutorials included "SGML/XML: Technical Overview and Application in Health Care," "Practical Issues in Knowledge Engineering for the Electronic Medical Record: From Vocabulary Term to Encounter Form to Report," "Introduction to Clinical Information Systems," and "Recording, Storing, and Retrieving Clinical Information Using SNOMED-RT." Evening workshops also pulled in large numbers of participants. "Nursing Classifications and Knowledge Representation in the Computer-based Patient Record," presented by AMIA's Nursing Informatics Working Group, drew more than 100 attendees. The equally well-attended "Unsolicited E-mails from Patients to Health Information Providers and Doctors on the WWW Asking for Medical Advice—How to Handle Them?" built on the strong response generated by the AMIA white paper, "Guidelines for the Clinical Use of Electronic Mail with Patients," that first addressed this issue, sparking national attention. Other well-attended workshops reflected attendees' concern regarding the impact of rapid changes in health information technologies, including "Designing and Defeating Internet Knowbots," "Tracking Outcome Measures and Quality Improvement Across an Enterprise: Web-Based Solutions," and "Enterprise Information Architectures and Clinical Process Redesign: Creating the Framework for Clinical Integration."

### Plenary Session

The AMIA '98 Plenary Session offered attendees the unique opportunity to hear from Tim Berners-Lee, the progenitor of a profound "paradigm-shifting" technology, the World Wide Web (Web). Berners-Lee addressed not only the birth of his stellar achievement, but its present and future. He explained the impulse behind his Web dream: to improve human communication via shared knowledge, creating a technology that would provide access to such knowledge for all. He also wanted to exploit computing power in real life, to

create machine-understandable data. He traced the timeline of the development of the Web, which began in 1989 as a concept in a paper, was introduced on the Internet in 1990, proliferated in the early '90s, and continues being refined today, sprouting such languages as HTML, SGML, and XML that further increase the Internet's ability to communicate ever-more-sophisticated concepts.

Berners-Lee discussed his ideas for leading the Web to its full potential, which included the establishment of the Web Consortium or W3C, an open, industrial consortium of organizations concerned with the technological, marketing, and political aspects of the Web. He enumerated his "technology wishlist" for the Web, which started with the development of architecture to create a single, universal space to replace stand-alone PCs, TVs, and other communication devices. Also on the list were hypertext, video order, real-time audio/video, and push-pull adaptive systemware. His main concern was increasing the flexibility of the technology to tap into the creativity of its users. "The Web is not as interactive as it could be; we ought to be able to design things together on the Web. Therefore, we need to make the technology not more complicated, but more simple."

In discussing the future of the Web and information technology in general, Berners-Lee broached such socioeconomic issues as access, privacy/security, intellectual property rights, and organizational structure of the data. He described the metadata framework W3C is developing called RDF that would help increase the legitimacy and accountability of information put on the Web as well as create the ability for interactive communication between authors and users. His vision for the future of the Web included verifiable quality information, "a Web of trust" that would boost global trade, increased collaboration among users, increased delegation to machines enabled by more sophisticated code agents, and less geographic polarization.

He stressed that many in the audience would be involved with the unfolding of the future of information technology and encouraged them to stay aware of the impact of their decisions as they write applications, which "form the cells of the global brain." He concluded by comparing the WWW to a blank canvas before painting, inspiring brainstorming, "a very important part of human expression." To charges that the WWW is full of useless information, making it difficult to structure logically and standardize, he emphasized that words, no matter how superfluous they may seem, are like paint and create associations in readers' minds—a certain lilt, grammar, or juxtaposition conveys feeling, and emotions are very powerful, influencing people's decisions without involving one mathematical jot. "There are two sides to the brain, represented by logic and poetry, and we need both. Surfers are dreaming, the Web is stimulating their intuitive, creative process, and that is very, very exciting. Don't be afraid to choose poetry." AMIA would like to thank IDX for sponsoring Tim Berners-Lee as keynote speaker for the Plenary Session.

### Colloquia and Other Educational Sessions

AMIA'98 offered an innovative category of presentation to this year's programming, a series of colloquia, each presented by a leading expert in medical informatics to provide a detailed overview on pertinent topics. These colloquia proved to be highly popular to the novice and expert alike, with standing-room only attendance at "The Next Generation Internet and Health Care: A Civics Lesson for the Informatics Community," "Interface Design for Health Care Environments: The Role of Cognitive Science," "Clinical Data Exchange Standards and Vocabularies for Messages," and "Modern Architectures for Intelligent Systems: Reusable Ontologies and Problem-Solving Methods."

Other session programming—scientific paper presentations, panels, theater-style demonstrations, and posters—delivered the high-caliber educational experience attendees have come to expect from AMIA's symposium. This year's program was organized into the following broad themes, which reflect the areas of greatest interest to those in the field: clinical information management; health information networks; training, education, and cognitive science; expert systems and algorithms; information retrieval and digital libraries; user interface issues; standards and policies; images and nontextual data; and bioinformatics and molecular applications. This last theme reflects an acknowledgment of the close ties and overlapping areas of interest between biological and medical informatics. Comments on attendee evaluation forms reflect high marks for AMIA'98 program sessions.

### Working Group Programming

AMIA's Working Group (WG) program offered additional educational opportunities for AMIA'98 attendees, as well as career and networking opportunities. The Family Practice/Primary Care WG once again hosted its mini-conference, which focused heavily on development of the electronic medical record this year. The Internet WG presented a session on "Practical Aspects of Internet System Development" to provide practical, hands-on instruction on developing and deploying Internet-based applications. Other WGs that presented or sponsored programming at AMIA'98 include Medical Imaging, Nursing Informatics, and Education. The Student WG organized the Career Expo, which brings together students interested in pursuing a career in medical informatics and professionals seeking a career change with representatives from academia, government, and industry to discuss available positions, necessary qualifications, and the outlook for future employment. All of the WGs joined together to host an open house, a social event designed to acquaint attendees with the roles, activities, and participants of AMIA's WGs.

### ACMI Presentations

The American College of Medical Informatics (ACMI) presented a unique option for attendees interested in learning more about a particular subject: the "Meet the Experts" session. Leaders of the field make

themselves available in a small group, casual setting to share their expertise in such areas as designing digital libraries, developing vocabulary standards, and implementing computer-based patient records as well as to discuss attendees' recent activities and answer their questions. This year's core of experts included AMIA Board Members Patricia Flatley Brennan, RN, PhD, James J. Cimino, MD, Sherrilynne Fuller, PhD, Suzanne B. Henry, RN, DNSc, Alexa T. McCray, PhD, and Mark A. Musen, MD, PhD.

ACMI alternately presents a debate or a distinguished lecture as part of the annual symposium. For AMIA '98, ACMI invited Larry Weed, MD, to present the Distinguished Lecture. Dr. Weed examined how physicians learn, retain, access, and use medical knowledge in his address, "New Premises and New Tools for Medical Care and Education: Letting Our Illusions Die." He put forward the idea that society idealizes the cognitive abilities of physicians to the detriment of the quality of care provided, often at high cost to the patient. Stating that physicians are "trying to do the impossible," he set out to prove his point with a number of anecdotes and statistics that illustrated the limits of the human mind to quickly, accurately, and thoroughly recall the vast and growing amount of knowledge required to perform even a routine examination.

Decrying the margin of error in the "world's best health care industry" as unacceptable, he critiqued the ways in which computer technology has been implemented in health care settings as falling short of its potential to fill in the gaps of human cognitive abilities. He called on the audience to "build systems that will keep people well and diagnose them as early as possible," adding that "any system without a feedback loop is running wild." He demonstrated one such system: the "Coupler Index," which assists health care workers as they take a history, conduct a physical examination, and analyze laboratory results. It then "couples" the findings to provide a list of possible diagnoses with references for further study. He explained that physicians need a tool that will think algorithmically, such as the Coupler Index. "The last place to save time in the clinical setting is in getting the facts straight," he concluded.

#### Awards

The AMIA Annual Symposium is the traditional event at which AMIA recognizes outstanding contributions to the field of medical informatics with a series of awards. In addition, AMIA President Paul D. Clayton, PhD, presented the President's Award to a special slate of recipients this year for their dedicated leadership and initiative on behalf of particular areas of AMIA's interests: Don Detmer, MD, for his work on security and confidentiality issues as co-chair of the Public Policy Committee; Paul C. Tang, MD, for his efforts in public policy as co-chair of the Public Policy Committee and for his aid in bringing AMIA to the Joint Healthcare Information Technology Alliance; Kathleen McCormick, PhD, for empowering the AMIA Working Groups; Daniel R. Masys, MD, for his work over the years with the AMIA database and for technological innovations such as the CD-ROM version of the 1997 and 1998

Proceedings; Beverly Kane, MD, and Daniel Z. Sands, MD, MPH, for their work on the Internet WG white paper, “Guidelines for the Clinical Use of Electronic Mail with Patients”; and Senator Robert Bennett (UT) for his introduction of medical confidentiality legislation that AMIA supports.

This year’s other honorees are as follows:

#### Best Theoretical Paper

Carol Friedman, George Hripcsak, and Irina Shablinsky, “An Evaluation of Natural Language Processing Methodologies” (p. 855 in the Proceedings)

#### Best Paper on an Application

Cornelia M. Ruland, PhD, RN, “Improving Patient Outcomes by Including Patient Preferences in Nursing Care” (p. 448 in the Proceedings)

#### Best Poster #1

P. Zweigenbaum, PhD, B. Habert, PhD, A. Nazarenko, PhD, and J. Bouaud, “Tuning an Existing Nomenclature for Specific Domain Corpora: A Syntax-Based Similarity Method” (p. 1110 in the Proceedings)

#### Best Poster #2

Stuart J. Nelson, MD, Thom Kuhn, Daniel Radzinski, PhD, David D. Sheretz, Mark S. Tuttle, Robert Spena, DSW, “Creating a Thesaurus From Text: A “Bottom-Up” Approach to Organizing Medical Knowledge” (p. 1046 in the Proceedings)

#### Harriet H. Werley Award

Patricia Flatley Brennan, RN, PhD, Barrett Caldwell, PhD, Shirley M. Moore, PhD, RN, N. Sreenath, PhD, Josette Jones, MS, “Designing HeartCare: Custom Computerized Home Care for Patients Recovering from CABG Surgery” (p. 381 in the Proceedings)

#### Homer Warner Award

P.L. Elkin, MD, K.R. Bailey, PhD, C.G. Chute, MD, DrPH, “A Randomized Controlled Trial of Automated Term Composition” (p. 765 in the Proceedings)

#### Morris F. Collen Award of Excellence

Robert S. Ledley, DDS

#### Student Paper Competition: First Place

Daniel J. Nigrin, "Data Mining by Clinicians" (p. 957 in the Proceedings)

Student Paper Competition: Second Place

Anil K. Dubey, "Using the Extensible Markup Language (XML) in Automated Clinical Practice Guidelines" (p.735 in the Proceedings)

Student Paper Competition: Third Place

Maria A. Tovar, "Vector-Field Classification in Magnetic-Resonance Angiography" (p. 926 in the Proceedings)

The 1998 Annual Symposium Scientific Program Committee

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