Session Introduction ∎

Representing Knowledge:
Introduction to the Cornerstone I Session
at the 1999 AMIA Annual Symposium

The representation of data, information, and knowledge in computer-based systems is essential to achieving the goals of improving the processes and outcomes of health care and building health care knowledge. The papers by Cimino[1] and Chute[2] in this issue focus on a specific and very significant area of knowledge representation in health care, i.e., terminological knowledge.

From the perspective of a decade's experience in development and use, Cimino utilizes the case of the Medical Entities Dictionary (MED) to illustrate the impact on a clinical enterprise of the application of knowledge-based approaches to terminology development and management. Proof of concepts are provided in five areas: merging data and application knowledge; smarter retrievals from the record; "just-in-time" education; expert systems; and data mining. He then generalizes from the MED experience in a discussion of the manner in which the knowledge in terminologies supports the transformation of coded patient data into new knowledge.

Chute provides a brief historical overview of terminology development and highlights significant milestones. From his perspective as a participant in the "history in the making," he notes significant trends related to cooperation and collaboration and conveys an optimistic view of the solution to the "vocabulary problem."

At the 1999 AMIA Annual Symposium, the seven panels and ten sessions of scientific papers included in Cornerstone I complemented the plenary addresses by Cimino and Chute. Panels focused on such topical issues as emerging national and international health care standards for knowledge representation and electronic messaging and on practical lessons related to knowledge representation in clinical systems. The scientific papers covered a broad array of knowledge representation topics, including coding and analysis of clinical records, natural language processing, and representation formalisms across application domain areas.

Medical informatics pioneer Marsden Scott Blois,[3] in his writings about the nature of information and medicine, noted that:

> The discontinuity in formalization between a manual (human) medical information process and the machine code necessary to accomplish comparable ends begins at a very high descriptive level and is not itself a concern of computer science. If this concern is given a name at all, it must be regarded as concerning medical applications, and it is increasingly being referred to as "medical information science" in the United States and as "medical informatics" in Europe. It will be the task of this new discipline to better understand and define the medical information processes . . . in order that appropriate activities will be chosen for computerization, and to improve the man-machine system.

The papers by Cimino and Chute included in this issue and the other Cornerstone I papers that appear in the 1999 AMIA Annual Symposium Supplement[4] demonstrate the progress of the new discipline toward meeting the challenging task posed by Blois.—SUZANNE BAKKEN, RN, DNSc

Affiliation of the author: University of California–San Francisco, San Francisco, California.

Correspondence and reprints: Suzanne Bakken, RN, DNSc, Box 0608, University of California–San Francisco, San Francisco, CA 94143; e-mail: ⟨Suzanne.bakken@nursing.ucsf.edu⟩.

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3. Blois MS. Information and Medicine: The Nature of Medical Descriptions. Berkeley, Calif: University of California Press, 1984:234.
4. Cornerstone 1: Representing Knowledge. Proc AMIA Annu Symp. 1999:2–181.