

Summaries

Sixth annual conference on Computing in Critical Care

Sponsored by Cedars-Sinai Medical Center and the Society for Clinical Data Management Systems

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This conference held on January 29-31, 1986 on computing in the intensive care unit brought together over 180 nurses, physicians, and computer scientists. Its sponsors and organizers provided an outstanding array of invited speakers and society presenters. Dr. M Michael Shabot and Lorene S. Nolan-Avila, RN, both from Cedars-Sinai Medical Center, were co-chairpersons of the conference. The only flaw in the technical and social program resulted when William F. Fisher, MD an astronaut from the National Aeronautics and Space Administration was unable to be a guest speaker following the tragic Challenger space shuttle accident which occurred just a day before the conference on January 28th.

The Society for Clinical Data Management Systems has expanded dramatically from its beginning as a Hewlett-Packard Patient Data Management Systems (PDMS) users group. This conference had representatives from several different manufacturers of patient data systems as well as wide range of content presented. The outstanding concepts presented and observed at the conference were:

1. There was a feeling of *maturity* in the development of computerized medical data base systems in the Intensive Care Units. Such systems are becoming successful in other than the development sites and are being used by 'ordinary' people at 'ordinary' places
2. There is a need to fulfill the nurse-users of such systems. This aspect of the program was indicated by the fact that there were more nurse than physician registrants and the fact that a nurse, Kathleen Lyons RN is currently president of the Society.
3. The Medical Information Bus (MIB), a communications tool for allowing a standard interface between medical devices and patient care computer systems, was discussed from user, vendor, and standards development perspectives. When the standard for the MIB is developed it will allow infusion pumps, ventilators, bedside monitors, and other bedside instrumentation to communicate directly with a patient care computer.

4. The importance of *data integration and computer aided decision-making* in the patient care process. Discussions in this area covered a broad spectrum from enhanced data bases, innovative hospital computer to computer networks, the use of the computers as decision aids for administrative management functions and patient care augmentation.

Several abstracts from the conference are included in this issue of the Journal. These 12 abstracts were selected from the 49 available. Those selected were chosen because they represented a particular view and progress in the technology.

The MIB and other networking papers showed the importance of data communications and intergration of medical information and its applicability to care of the critically ill. Four abstracts representative of the information presented at the conference are reproduced here.

1. Progress towards a standard interface between medical devices and patient care computer system, Ron Norden-Paul.
2. Nursing perspectives for the MIB, Lorene S. Nolan-Avila.
3. The Medical Instrumentation Bus: Opportunities for vendors, Robert Anders.
4. Automation, communication and integration: Minis and micros in transition, Louis C. Sheppard.

The use of patient data bases in administrative and clinical decision making are illustrated by five papers presented at the conference.

1. Information systems to enhance decision-making, Roxane B. Spitzer.
2. Data management in operating room, Omar Prakash.
3. Improving patient care through integrated computing, Joseph F. Dyro, Paul J. Poppers.
4. Beyond HELP: New systems at LDS Hospital, Reed M. Gardner.
5. Challenges in implementation of clinically oriented patient care systems, Thomas L. Lincoln.

Three additional papers were representative of the broad spectrum of concepts and ideas presented at the conference.

1. Automatic generation of intensity-intervention scores from the computerized ICU flowsheet, M. Michael Shabot, Mark Lobue, Lorene S. Nolan-Avila.
2. A rule-based data base design for clinical environment, John A. Tilelli.
3. Laser-generated flowsheet reports, M. Michael Shabot, Mark Lobue.

The conference was well attended and elicited enthusiastic discussion and participation from all participants.

Progress towards a standard interface between medical devices and patient care computer systems

Ron Norden-Paul
Emtek Health Care Systems

Electronic data capture has been a key to enhancing labor effectiveness in manufacturing, commerce, banking and other industries. The same need is present in the health care industry where societal pressure

from the bedside are processed by the PDP computers operating the Siemens Sirecust 4000 PDMS software. The resulting information is then transferred via modem and broadband cable to Siemens Model 420 PDMS terminals located at each central station and at each bedside. Printers and video copiers permit report generation and screen image capture. Electronic rounds are conducted through the use of data management terminals located in staff conference rooms.

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Beyond HELP: New systems at LDS Hospital

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The HELP medical decision support system has been operational at the LDS Hospital in Salt Lake City for more than 10 years. During that time a multiplicity of clinical and administrative computer applications have been developed. These include extensive use of the computer to support Intensive Care, Surgical monitoring, drug prescribing, medical records automation, order entry-charge capture, X-ray ordering and reporting, integration of data from the laboratory and other ancillary services. Having access to the clinical and administrative data from these sources has given us the opportunity to use the computer in new and exciting ways to support clinical decision making. The computer operates on patient data taken from the integrated patient record and uses it to alert physicians and nurses about life threatening patient problems. Experience with the system has been positive and has had remarkable support from the medical, nursing, administrative, and technical staff. The HELP system's future looks bright. We have projects ongoing in the following areas:

1. **Communications:** Acquiring data we need from instruments at the bedside, especially in the ICU, continues to be a challenge. As a result we are working with a prototype of the Medical Information Bus (MIB). Another recent addition to the system has been the widespread use by physicians of 'phone-in' access to patient data from home or office.
2. **Integration of Data:** Since we already have much of the patient data in the computer record we are striving to improve the quality and quantity of data in the record by 'sharing' the data between groups. For example respiratory therapy data is also useful to the nursing and the medical staff.
3. **Evaluation:** We are intrigued by the opportunity we have of assessing the worth a medical computer system with decision support technology has at enhancing the quality and efficiency of the patient care. As a consequence we are conducting formal evaluations of user attitudes, quality of care and staff efficiency.
4. **Decentralizing Project Management:** In the past all projects developed on the system were conceived and developed by the computer group. Recently we have decentralized the project management so that 'ownership' of the project is retained by the department, e.g. nursing, pharmacy, infectious disease, respiratory therapy.
5. **System Enhancements:** To speed the operation of the system, simplify access to patient data, and facilitate the use of decision-making strategies we have dedicated considerable system programming efforts to making the system more 'user friendly'.

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