SNM Computer Council Considers Formulating Software Guidelines

Nuclear Medicine Community Explores Problems of Computer/Equipment Market

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The Society of Nuclear Medicine's (SNM) Computer Council laid the groundwork last March for bridging the chasm between the expectations of instrumentation users and the offerings of manufacturers when it arranged for members of both groups to discuss these differences in West Palm Beach, FL, during the SNM Winter Meeting.

At a round-table meeting of Computer Council members and representatives from nine companies, the misplaced emphasis on flashy hardware emerged as one of the major problems in the nuclear medicine instrumentation market. Although the manufacturers agreed with Council members on the primary importance of software capabilities, they noted that customers focus on hardware.

Michael L. Goris, MD, PhD, professor of radiology in the Division of Nuclear Medicine at Stanford University, said, "Most users think in terms of what they want in hardware, which they are not really qualified to specify; most companies dictate the software (by default, because the users don't), which they are equally unqualified to specify. The clinical and academic nuclear medicine community should begin by specifying *functions,* and then let the manufacturers completely determine how those functions are to be implemented in hardware and software."

Dr. Goris also raised the issue of the clinical efficacy of computer systems, pointing out that instrumentation manufacturers should evaluate their products in terms of medical criteria—with clinical trials—just as drug manufacturers do with their products.

Barbara Y. Croft, PhD, of the Department of Radiology at the University of Virginia Medical Center, argued that diagnostic as opposed to therapeutic efficacy is a difficult concept to verify. "Software is also not easily evaluated. The correct software for one practitioner or laboratory might not work in another setting at all," said Dr. Croft.

Unclear Market Requirements

One of the problems with hardware configurations of nuclear medicine computer systems, noted Gary Enos, nuclear medicine product line manager for Raytheon, is that they're designed by people who perceive nuclear medicine as an imaging modality in competition with X-ray, ultrasound, and nuclear magnetic resonance imaging (NMRI), "whereas nuclear medicine is really functional, driven by applications software more than hardware."

Most of the participants agreed that no agreement exists in the nuclear medicine community on the optimal methods for many clinical procedures. "It is very difficult to tailor products to the needs of the entire nuclear medicine community if a common need cannot be agreed upon by its leaders," said Mark Lamp, nuclear medicine product manager at ADAC.

Michael L. Graham, PhD, MD, of the Nuclear Medicine Department at University Hospital in Seattle, WA, pointed out that the academic users involved in research may create a skewed view of market need. "Community hospitals, on the other hand, need a diagnostic answer—pure and simple," said Dr. Graham, who is also president of the Computer Council.

"There should be a method for users and manufacturers to specify—in the same terms—what the computer system can and should do," said Jonathan M. Links, PhD, assistant professor of environmental health sciences and radiology at the Johns Hopkins Medical Institutions.

Peter D. Esser, PhD, of the Nuclear Medicine Department at the Columbia-Presbyterian Medical Center in

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COMMENTARY

TOWARD A "WIN-WIN" RELATIONSHIP

I have long believed that the clinical and academic nuclear medicine community and the equipment industry do not understand each other's thought processes, goals, or problems—and are therefore in no position to help each other. As an equipment user in nuclear medicine, I am frustrated by the seemingly arbitrary hardware and software limitations which manufacturers frequently impose. As a consultant to industry, I am sympathetic to the difficulties that manufacturers face in responding to users' needs, and the lack of patience and understanding sometimes exhibited by clinicians and investigators in nuclear medicine.

I view the development of new products with a model of three intersecting circles: (a) what the market wants, (b) what the market should want, and (c) what the market can get. In this model, the goal of new product development is to maximize the circles' overlap. "What the market wants" can only be assessed through widespread surveys of the entire spectrum of users. "What the market should want" is dictated by combining the views of leading institutions, and by synthesizing new techniques presented at scientific meetings such as The Society of Nuclear Medicine's Annual Meeting. "What the market can get" is determined

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New York, recommended that the SNM work to establish protocols to define guidelines for the evaluation of computer systems for clinical use.

Educating the Marketplace

Educating users came up as another priority, and Mr. Enos said that industry needs a vehicle for educating the marketplace.

Dr. Croft concurred, adding that "we must be attempting to reach radiology residents because they are the likely practitioners of the near future. These residents will also have increasing prior experience with computers, and as their expectations rise, manufacturers must be prepared to furnish software to a more sophisticated customer base."

Dr. Links, who organized the discussion, also arranged the users group meetings that took place in West Palm Beach, where 60 attendees met with research and development people and product managers from ADAC, Elscint, General Electric (GE) Medical Systems, Medical Imaging Processing Specialists (MIPS), Picker International, Siemens, and Technicare. Instead of covering clinical applications as in past users group meetings, the sessions provided a forum to discuss technologic issues.

Clayton Larsen, product line manager for Picker International, said that his group talked about new software that allows for simultaneous acquisition and processing, as well as networking capabilities.

Three engineers from GE shared information on protocol development, software for single-photon emission computed tomography (SPECT), and developing local area networks for nuclear medicine departments.

Reflecting on the recent past, Dr. Graham observed that "initially, nuclear medicine computers were an instrument looking for a market. Then heart work came along and the computer became a necessity. We don't know where future developments will lead, but we need to work together with industry to move forward."

Caution Against Industrial Ties

Cautioning against exclusive agreements with industry, A. Bertrand Brill, MD, PhD, of Brookhaven National Laboratory, said, "We started out years ago with the forlorn hope that one could develop computer-independent software and exchange it between institutions. Right now, we're moving in quite the opposite direction.

"I think it's important for users to work with the manufacturers to improve the utility of their systems, but at the same time we must strive to retain the right to share the essential ideas with colleagues. I would encourage people to develop within the SNM a means of sharing among users within classes of systems, and we should be careful about allowing our progress in this area to be dominated by industry."

Linda E. Ketchum