5   7   In Brief

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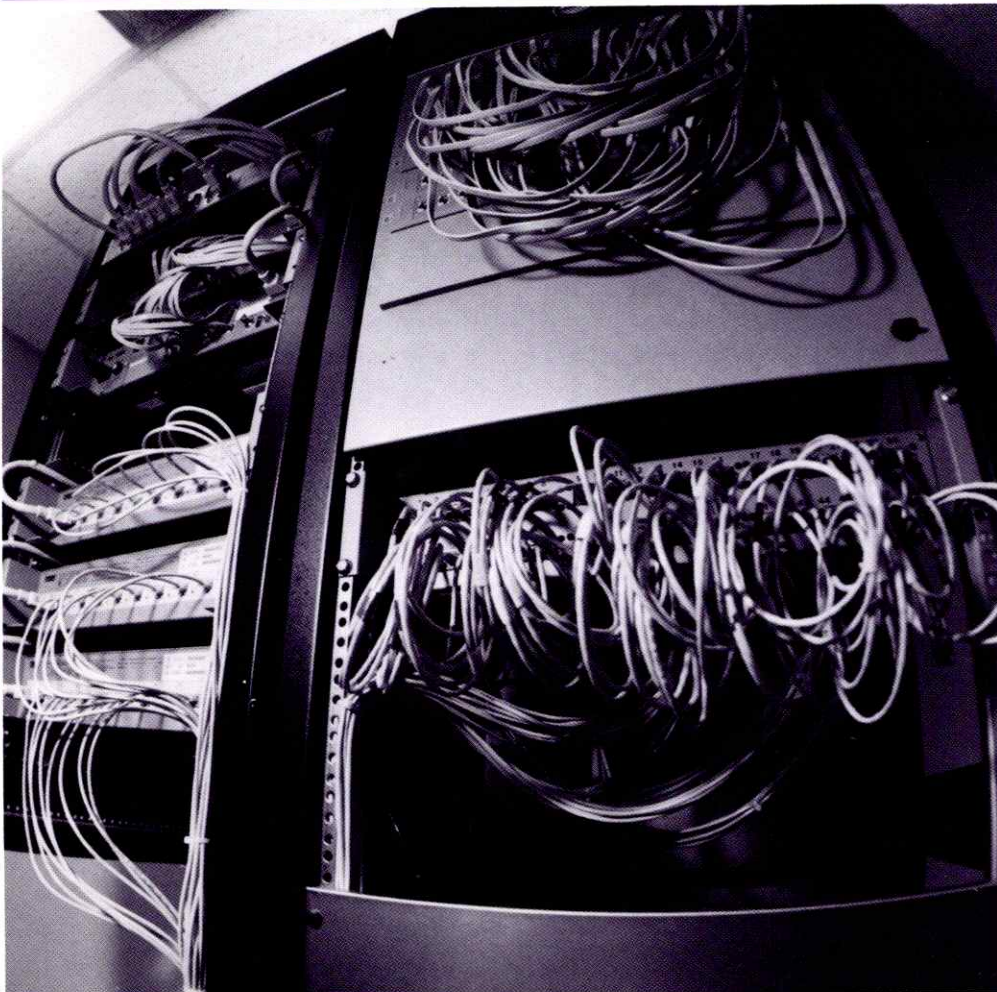
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Information Systems Brings UMMS Together with State-of-the-Art Computer Network

This "grapevine," part of an "information distribution system," is made up of fiber optic cables that link each separate group of computers together and carry messages between them.

All over the University of Maryland Medical System, departments are gaining new computer capabilities. New systems are in place now—or scheduled to go on line very soon—everywhere from Medical Records to Pharmacy, and from Radiology to Purchasing.

And that's an important step forward.

But even more important is a change that's coming further down the line: a giant step that will bring all the departmental systems together in an interactive network geared to the way information technology will work in the 21st century. According to UMMS Director of Information Systems **George Bowers**, the network concept also marks a shift in thinking within the Information Systems Department, which is becoming more flexible and responsive in serving the people who use the Medical System's computers.

The old way of thinking, like the old way of computing, was "monolithic," to use Bowers' word for it. It relied on a single, huge mainframe computer. All departments had to use software programs that would run on the mainframe, and had to conform to the mainframe's way of doing things. That might or might not suit the department's needs and methods; if it didn't, the department—meaning the people who used the computer—had to change.

"UMMS committed to this system back in the mid-1980s," Bowers says. "It looked like the best choice at the time. We were living in a mainframe world. Nobody took PCs (personal computers) seriously, and nobody thought

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much about linkages between computers. The mainframe was a closed universe that didn't acknowledge anything outside itself. Ours, for example, ignored Shock Trauma and the Cancer Center, not to mention the rest of the campus."

The planning and implementation for the mainframe strategy were as overweight and clunky as the huge computer itself. The preliminary work took years. In the meantime, technology was changing. And people, as they always have, were finding ways to get around a system that was too restrictive for their needs.

All over UMMS, PCs began to appear on desks. Then cables began to snake between the minicomputers, linking them to each other and to printers, modems, and the like. Soon individual PCs joined to become LANs (local area networks) within departments, and the LANs put out tentative electronic tendrils in an effort to communicate with each other. All, as it were, behind the mainframe's back.

Today there are over two dozen LANs within the Medical System, each responsive to the information needs of a single department or unit. There are several major departmental computer programs that run from the mainframe. And there may be other software applications out there, living in a single PC, that serve specialized purposes for research or for patient care. The task of Information Systems is to bring them together in a way that will make them more efficient without sacrificing their ability to do the jobs for which they were originally intended.

Primarily, that means enabling them to share information. "For example," says Bowers, "the Department of Obstetrics and Gynecology has a research database on its own computers that uses information from the Admitting Department. The employees in OB/GYN have to get that information and enter it manually, because their computers aren't hooked in to the rest of the system. It would be so much simpler if the data were available with just a few commands to the Admitting computers.

"We're looking at an 'open system' approach that lets the UMMS mainframe and all the LANs talk to each other and to the rest of the institutions on campus. Our approach will let doctors in the Professional Building use

their own office computers to get lab results from the Hospital, literature abstracts from the medical library, and data from the drug index to help them treat just one patient—while the patient is there."

What Bowers describes is known as an "information distribution system," and its design bears an uncanny resemblance to the oldest information distribution system of all, the grapevine. The vine itself will be made up of fiber optic cables that link each separate group of computers together and carry messages between them; the individual computers in a group, linked together in a LAN, will hang from the vine like a cluster of grapes. Within each cluster will be one computer that is specially programmed to handle communications

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with other clusters, enabling the doctors in Bowers' example to call up information from many computer sources to treat their patients.

As computing at UMMS changes, so will the Information Systems Department. "We're moving to a consulting role," Bowers says. "We will help a department select or upgrade a computer system, help them install it, train them in its use, and fix it if something goes wrong. What we will not do is pick a system ourselves and force it on them. People hate that, and they respond by sabotaging the system in subtle ways. Computers are tools. The people who use them have to feel comfortable with them.

"There's a strong sense of ownership about the departmental systems that have grown up spontaneously, and one of the best things about our information distribution strategy is that it enables people to keep using the tools they know and like. We don't own the systems; they do. We are a service organization."

The first step in developing the information distribution system is to get all of the major departmental systems up and running. Information Systems has been working on this massive task since Bowers came to UMMS two years ago. Here is what he and his staff—including Associate Director **Jim Herbert** and Assistant Director **Julie Monaco** have accomplished so far.

Registration, Billing, and Patient Scheduling System (PMAS)
This system, which runs from the mainframe computer, went live in July 1989 after a three-year start-up period. It makes registration and billing easier and provides a better appointment scheduling system for outpatients. A recent enhancement gives up-to-the-minute information on the Hospital's patient census.

DECRad Radiology System
The system is a joint effort with Shock Trauma that was implemented last December. It schedules and tracks patients and their radiology reports, using bar code identification.

Enterprise Operating Room Scheduling System
Since last February this system has been scheduling surgical procedures in the Hospital and Shock Trauma. It also generates reports on OR utilization, and it will soon be able to keep track of OR supplies.

Megasource Pharmacy System
This PC-based system, which went live in April, provides better management of drugs. Information Systems is currently working with Pharmacy to link the system to microbiology equipment that identifies organisms quickly, enabling pharmacists to find the most effective antibiotics.

Online Requisitioning and Approval System
This system, which is installed on the mainframe, uses the CA/Cullinet family of financial management software to give UMMS the only paperless purchasing program at any Maryland hospital. The system was phased in beginning last fall, and now nearly all departments at University and Montebello Hospitals use it.

Medical Records Chart Tracking System

Installed in June, this system makes it easier to find and retrieve patient records by using bar code labels. Medical Records will soon gain another computer enhancement, a database management system, for the statistical information abstracted from patient records.

Clinical Laboratory System

The present system is 10 years old and no longer meets the needs of its users. Information Systems upgraded the minicomputer hardware last year, which improved the speed of computing and allowed more online access. But the new computers are still running outdated software programs that need replacement—which is scheduled for March 1992.

Anatomical Pathology System

This department still files its specimens and writes its reports by hand. Information Systems has been working with the department since last year to find and install a suitable computer system. One has been selected, and it should go live this fall.

General Ledger System

The CA/Cullinet financial management software includes a general ledger program that is a significant improvement over the one in use now. The Finance Department will begin to use the new program this fall, after a series of focus group meetings with department managers.

Materials Management/Inventory System

Another component of the CA/Cullinet software, this program follows supplies from the time they are received at the loading dock until they are distributed to the Hospital employees who use them. It also tracks the supplies through the financial process to the accounts payable stage. Conversion to the system is planned for the late fall.

Within a few years, all of these systems and many others will be linked together through the electronic grapevine. The new approach is designed to carry UMMS into the next century. But could it be overtaken by technological

"Computers are tools. The people who use them have to feel comfortable with them."

advances, as the mainframe was?

"I don't think so," George Bowers says. "We're installing an open system that can accommodate new technology with little trouble. For example, people here and at the VA Hospital are trying to find ways to store radiology images on computers, so that you eliminate the old X-ray films entirely. We will be able to handle that within the framework of the existing information distribution sys-

tem. The doctor in the Professional Building will be able to call up the X-ray pictures along with the lab reports and the drug index information."

There are even more intriguing possibilities. The fiber optic cables that form the "vine" of the new computer network are very much like the cables that carry voice communications. The two will be installed side by side. They will plug in from the same wall plate. Eventually, telephone and computer could share a single cable. At some point, the two technologies could merge. Eventually, computers in the network could do more than talk to each other—they could talk to you, too. And when you say you heard it on the grapevine, it will be literally true—because the system planned for UMMS today should still be working then.

Members of the International Brotherhood of Magicians gathered in Baltimore recently for a week-long convention, and stopped by the Pediatric areas at UMMS to entertain the patients. About 50 children, their families, and staff were treated to an hour of magic. Dr. Larry Kettlehake (right); and his wife, Marion (left); took time out to try some sleight-of-hand tricks on the children.

Department/Employee of the Month

Radiation Oncology Plays Key Role in Today's Health Care

"People don't know who we are or what we do until someone close to them is stricken with cancer," says **Dr. Omar M. Salazar**, chairman of the Department of Radiation Oncology.

But one in four Americans does develop cancer, and 60 to 70 percent of all cancer patients receive radiation treatments. Radiation can relieve pain, and it can cure by itself or when used in combination with other therapies. The medical specialty of radiation oncology plays a major part in today's health care, and Dr. Salazar is determined that his department will be one of the leading players.

"On the one hand," he says, "we are expanding our network of community satellites, so we can offer routine services to more people close to home. On the other hand, we're adding important new technology to the department's main location here at the Hospital, which will help expand our research programs and our ability to treat rare or difficult cases."

Radiation Oncology considers its location in the Medical Center's Professional Building as a "free-standing" downtown satellite. It will add two more within the next year or so. A final agreement is very close on placing a branch of Radiation Oncology at Harbor Hospital Center's professional practice building. Next to come will be a joint venture with UMMS that will establish a satellite service in a new, $20 million building planned for the Howard County General Hospital campus.

"It is very important to increase Radiation Oncology's presence in the community because of the great proliferation of free-standing radiation practices in the past few years," says Dr. Salazar. "This is a competitive situation we cannot ignore. We feel our status as part of a major academic medical institution means we have more to offer to the patient in terms of experience and updated advances. New community satellites should make access to our services more convenient and easier. We're pleased to do this in conjunction

V. Delle Miller

with Harbor and Howard County General. We have extremely good relations with these two hospitals."

Back at UMMS, Radiation Oncology is working in advanced areas of treatment and technology. New program initiatives include:

- A new way to treat prostate cancer by the placement of catheters with radiation seeds under ultrasound guidance. The program, which is offered in connection with genito-urinary surgery, is one of only five or six in the United States.
- Starting in the fall, we will have the ability to perform bone marrow transplants, a service now offered by only one other Maryland hospital. The procedure involves many medical specialties; Radiation Oncology's part is giving total body irradiation to the patients. The department is now training staff and assembling equipment for it.
- The acquisition of a remote high-dose rate afterloader that will allow doctors to treat some cancers with intense, short bursts of radiation repeated every two or three weeks, instead of milder doses that are now given continuously for several days. As a result, many patients could be treated on an outpatient basis. The department is working with the manufacturer, the Maryland-based Nucleotron Corporation, to test and do research with the afterloader, and Radiation Oncology

will sponsor a symposium on the subject in October; the University of Maryland Medical School will sponsor an international meeting in Baltimore in 1992.

- Another acquisition: a gamma knife, which fires a tiny, highly focused burst of radiation through 201 apertures, will be used to treat arterio-venous malformations and small tumors without risky surgery. UMMS will be only one of seven or eight American hospitals with this equipment; because of its unique position as an academic center, it intends to become a prime research center into possible new uses, for such conditions as epilepsy that doesn't respond to other therapies and involuntary movements in the final stages of multiple sclerosis. The gamma knife program, in conjunction with the Department of Surgery, will become operational in early 1992.

In spite of sophisticated technology, new treatment capabilities, and exciting research possibilities, Radiation Oncology doesn't forget the purpose behind it all. "We don't treat cancer," Dr. Salazar says. "We treat people with cancer. Our patients have the same needs and expectations as everyone else. We work with that personal side too."

He adds, "I believe in treating employees the same way—as people first. They're not just my staff, they're my friends. In the ten years I've been at UMMS, we've solidified our friendships. And we've had very little personnel turnover, because we encourage advancement and promote from within."

The department has approximately 70 employees: 15 faculty members, including physicists, radiation biologists, and oncology nurses as well as physicians; seven medical residents, rising to eight next year; 13–15 radiation technologists; 10–12 clinical employees, including nurses and technicians; and 14–15 administrative and clerical employees. From them, Dr. Salazar selected **V. Delle Miller**, secretary, as UMMS Employee of the Month.

Miller has no trouble remembering exactly how long she's held her job. "I had been working as a temporary employee in the Dean's Office," she says, "and I came to Dr. Salazar as a permanent full-time secretary on February 15, 1982—Lincoln's Birthday. My first day at work was a day off."