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Creating a global network: Hopkins, Lucent reach out and treat someone

Data, images, and voice travel the globe

Look to a recent agreement between Johns Hopkins Medicine and Lucent Technologies for a stellar example of what may be on the horizon for the blooming field of telemedicine.

“Anytime you help medical experts expand their capabilities and reach new people, it makes them extraordinarily happy,” says **Gary Stephenson**, spokesman for Johns Hopkins Medicine. “Our partnership with Lucent Technologies will help them do both by giving physicians here and internationally new capabilities to treat their patients and do an even better job.”

Think globally, treat locally

Once completed, the arrangement will allow Hopkins to develop international offerings in the areas of health care consulting, patient services, education, and training. “The new medical information management delivery network will position Hopkins to extend its medical expertise to the far corners of the world,” states **Steven Thompson**, CEO of Johns Hopkins International, the corporate arm of Johns Hopkins Medicine that enters into international agreements.

The service should enhance a physician's ability to maintain and treat a patient locally since all requests to the service will come through a regional physician, suggests Thompson. It will offer a local physician the ability to deliver treatment and may often eliminate the need for a patient to travel to

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The Pandora's box of new technology: Avoid liability with thorough credentialing

The liability risks of new technology can be met head on. Education and credentialing are key to avoiding a liability catastrophe in the adoption of new techniques and equipment. Use rational, defensible methods to choose new technology, say the experts, particularly if it is to be used for "off-label" purposes. Once it's in place, new technology sometimes requires a change in informed consent procedures. 44

Infection guidelines reach beyond the hospital

In what may signal a landmark expansion of infection control beyond the hospital, a consensus panel has issued a report on the essential infection control requirements for out-of-hospital settings. The panel suggests looking for expertise outside the hospital. Trained infection control professionals can be of particular help in evaluating the benefits and costs associated with a new program. 46

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COMING IN FUTURE ISSUES

Clinical pastoral education is gaining momentum in hospitals

Training for the special aspects of ministering to people in a medical crisis is stepping to the forefront in many hospitals. We will look at what it takes to minister in a hospital setting.

Molding the patient's overall hospital experience

Creating a top-notch customer service attitude has become the battle cry for institutions as they vie for patients. This article will take a closer look at specific ways some hospitals are recreating themselves to make customer service a top priority.

Bedside computers: Who uses them, and do they really help?

We will explore the reality behind the numbers of bedside computers. Do the nurses use them? Do the patients like them? Do they really enhance interaction between the patient and nurse?

receive a second opinion or specialty care. Should, however, a decision be made to send a patient to Johns Hopkins Medicine, the medical record and diagnostic studies can be forwarded electronically between Johns Hopkins and the referring physician throughout the treatment course.

"The cost to the provider, country, or family to send patients to the USA for consultation and treatment can be minimized by providing expertise to the physicians at the local level," explains **Elizabeth Von Kessler**, program administrator for the partnership. The system allows patient history (personal data), including video and audio clips within the patient record, as well as images such as CTs, MRIs, and sonograms to be instantly transmitted. The emphasis on local providers lessens the concern that the network will create competition for patients in other countries, say program officials.

The network will also offer the option of quality second opinions, mentoring, and surgical and clinical assistance to participants. International physicians in the network will have available to them the resources and expertise to verify diagnoses, recommend or collaborate on treatment plans, and offer alternative treatment options. As the treatment progresses, follow-up consultations will be provided via video conferencing.

Nurses are key to telemedicine

Von Kessler says that nurses will retain their indispensable role in the patient-care process. "Nurses will have the same role as caretakers and be able to use their nursing judgment in the telemedicine project as they do now. In fact, they are key to the process."

Von Kessler adds that triage will be vital to the success of the telemedicine interaction. "Nurses will perform many of the same activities as they do in a traditional setting. They will somewhat manage the consult from the time that it arrives to when it is sent to the requesting physician." Nurses will review the medical records, check for correctness and completeness, ask questions when necessary, help choose the appropriate physician or specialty for the patient, and then return the consult to the referring physician.

As telemedicine becomes more widely practiced, it will open other avenues of career opportunity for nurses, notes Von Kessler. "Nurses love technology and want to go the extra mile. Telemedicine will give us even more tools in our nursing toolbox."

Several positive patient care results are

expected from the project:

- It provides access to Johns Hopkins physicians, many of whom are acknowledged as leaders in their field.
- It keeps patients at home when at all possible, saving money and the distress of traveling abroad.
- It offers an efficient, single point of access to a wide range of expert medical consultation.
- It allows a wide spectrum of sites to be supported from a single acquisition workstation.
- It creates user-friendly electronic medical records for the requesting parties and Johns Hopkins physicians.
- It provides fast turnaround due to automated case management and tracking.
- It fosters real-time relationships between physicians.
- It ensures reliable connectivity through a virtual, private network.
- It expands easily to accommodate additional voice and videoconferencing capabilities.
- It enhances continuing medical education for health care professionals in the user's country.

Not an overnight success

Telemedicine is broadly defined by the Telemedicine Research Center as “the transfer of electronic medical data (i.e., high-resolution images, sounds, live video, and patient records) from one location to another.” (See story, above right.)

Despite what may seem to be the overnight success of telemedicine, notes the center, the field has existed for more than 30 years — longer if you consider telephone consultations between physicians since the telephone was invented.

The field took a giant step forward a few decades ago due in part to the efforts of the National Aeronautics and Space Administration's (NASA). While NASA pioneered placing humans into space, they simultaneously pioneered monitoring and treating those humans while they were in orbit. Other telemedicine early endeavors include a program to provide health care to a rural Indian reservation in Arizona from 1972 to 1975; a partnership between Massachusetts General Hospital and Logan International Airport to provide occupational health services to airport employees and to deliver emergency medical care to travelers in 1967; and a satellite used in 1971 to communicate with 26 sites in Alaska to see if reliable communication could improve village health care.

The wave of the future

Telemedicine is becoming a fixture in American medicine, says the Telemedicine Research Center, which observes the following trends:

- The use of telemedicine in correctional facilities and home health care settings can significantly reduce the time and costs by reducing the need for patient transportation.
- There will be a fine-tuning of the management and allocation of rural health care emergency services by transmitting images to key medical centers for long-distance evaluation/triage by medical specialists.
- Telemedicine allows physicians who are doing critical research to be linked together to overcome geographical separation and share patient records and diagnostic images.
- It will improve the medical education for rural health care professionals by making rotation possible by linking several community hospitals with the sponsoring medical school. ■

Although still breaking new ground, both Lucent and Johns Hopkins are renowned for their particular areas of expertise, and in fact, Johns Hopkins has been involved in telemedicine for years. “We recognized long ago that there was a huge need for high-level medical expertise in other countries. It was economically untenable for the people from those countries to physically come to us or us go to them, so telemedicine allows that to happen,” explains Stephenson. “We were the first academic institution to do anything of this sort. In 1998, we reached an agreement with the government of Singapore that resulted in Hopkins-led collaborative research, medical education, and clinical trials there. This venture, called Johns Hopkins Singapore, is now our presence in Asia.”

Making it easy to phone home

There are several reasons it was the right time for such an ambitious project, says Von Kessler. “This is an opportunity for us to improve the standards of health care globally as per our mission: research, patient care, and education. The advancements in technology and growth in the

use of technology and the Internet globally allows for imaging, [networking], and transmission of a variety of information.”

She says that there has been an increasing number of requests for opinions and consults from physicians worldwide due to Johns Hopkins’ expertise.

“Crucial to our view of a global health care enterprise is a communications network that unites our distant centers and home base,” says **Edward D. Miller**, MD, CEO of Johns Hopkins Medicine and dean of its medical faculty. “Lucent’s technology permits real-time, interactive communications that not only help provide better health care at the local level, but also enhance the continuing education and training of physicians throughout the world.”

“There is a growing demand in many parts of the world for the innovative medical services for which Hopkins is known,” he says. “We want to meet that demand in a way that never existed before. This issue is no longer distance, it’s time, and working with Lucent, we can tailor a sophisticated network that serves customers from the USA to Hong Kong.”

Among the countries that may be considered to participate in the network are health care organizations in the Middle East, Asia, Eastern Europe, and Africa.

How it works

Lucent Technologies builds and delivers a wide range of public and private networks, communications systems and software, and data networking systems. There are four phases of the project and the initial phase is planned to be installed this spring. Under the agreement, Lucent will provide:

- A customer relationship management (CRM) system based on Lucent’s CRM products and services, including a comprehensive suite of software to assist Johns Hopkins with customer contact information and management.
- The Lucent Managed Firewall to ensure the confidentiality of patient records.
- Hardware and software to support patient assessment and continuing education through video, e-mail, diagnostic image and record transfer; and an archived video library for publications and video versions of Hopkins’ grand rounds, as well as third-party products to permit real-time telerobotic-assisted surgery.
- State-of-the-art telephony, data, video, and

wireless products and the network systems required by the medical facilities to implement telemedicine programs.

- Development of local-area communications networks within Johns Hopkins in East Baltimore, as well as a wide-area virtual private network linking Johns Hopkins international sites with the institution’s facilities in the United States. They will be converged networks supporting integrated voice, video, and data transmission.

- Integration of quality assurance and billing software.

Tapping the global pocketbook

“We estimate that there is a multibillion-dollar market for global health care. In the international arena, these are typically government initiatives,” says **Jim O’Neill**, president of Lucent’s Government Solutions business. Feedback Research Services, a market research firm that specializes in high-tech health care delivery systems, projects that by 2001, the cumulative expenditure on telemedicine in Europe and the Pacific Rim will be \$1.4 billion. ■

Hospitals get kudos for patient satisfaction

Press, Ganey Associates names contest winners

Teamwork and commitment transform hospitals from good to stellar patient care providers. That’s the message from the 1999 winners of the Press, Ganey Associates’ Annual Success Story Contest.

Press, Ganey Associates specializes in producing and satisfaction surveys, comprehensive management reports, and national comparative databases to monitor patient satisfaction in health care delivery systems. Each winner shows creativity, improvement, and ongoing dedication to providing exemplary health care. How those attributes are exhibited within each organization, however, is what makes the facilities even more special.

The winners, chosen from the company’s clients, were Bristol Hospital (Bristol, CT); Miami Valley Hospital (Dayton, OH); Union (NJ) Hospital; Hackensack (NJ) University Medical Center; Southwestern Vermont Medical Center

(Burlington, VT); and Thunderbird Samaritan Medical Center (Glendale, AZ). Here are some highlights of the winning facilities' efforts:

Boosting morale

Thunderbird Samaritan Medical Center set out to create sweeping change in response to poor patient and staff satisfaction scores and high employee turnover. By addressing staff attitudes and perceptions, the facility's scores have shown dramatic improvement. The guiding principles they used as a foundation for positive change are:

- place people before profit;
- respect loyalty;
- have fun;
- be creative;
- create and promote leadership and personal development;
- measure success;
- communicate.

Improving ED care

Southwestern Vermont Medical Center focused on improving its level of care in its emergency department. The problems were accounts of poor patient satisfaction, poor communication between nurses and physicians, and a lack of sensitivity toward patients, their families, and staff members. The department's design did not provide for patient or staff privacy, created congested traffic flow, and lacked a triage area. The department also had to contend with outdated equipment. The medical center turned the situation around by instituting several initiatives, including:

- developing a triage system supported by appropriate staffing levels;
- physical renovation of the emergency department;
- recruiting a motivated, improvement-focused medical director;
- performing ED and lab time studies to set benchmarks;
- addressing physician behavior regarding delays;
- initiating team-building meetings;
- constructing a system for staff to provide food and beverage tokens to patients;
- adding a clinical nurse specialist to focus on practice issues and a case manager to review the appropriateness of ED usage by patients;
- changing staffing patterns during peak service times and adding mid-level providers;

- improving communications among staff members by using the Myers-Briggs assessment;
- commitment training, conflict resolution workshops, and staff support groups.

Double-teaming

Miami Valley Hospital (MVH) wanted to improve its ability to communicate the results of its ongoing patient satisfaction to all of its 5,000 employees, simplify the process for managers to track performance in their areas, and monitor trends for the hospital and individual nursing units. It accomplished those goals by adopting the following initiatives:

- instituting several teams to identify and implement the patient satisfaction initiatives;
- having a measurement team and the nursing team codesign an information delivery system;
- assigning the quality management department to work with the measurement team to design insightful and easily interpreted formats for the data;
- converting performance data to HTML format for use on the MVH home page. Users log onto the home page and can view the data and trends

Ambulatory care in the next decade

The Hackensack University Medical Center's goal was to create a premier ambulatory care center that combined sophisticated technology and an environment conducive to improving patient satisfaction. A new facility was constructed to accommodate the medical advances expected within the next 10 years, taking into account the concepts of privacy, aesthetics, and service. Issues include patient parking, registration processes, pre-op phone calls, room temperature monitoring, and a playroom for children. Additionally, monthly staff meetings are used to discuss issues and brainstorm for better ways to improve the facility.

Making the ED a window to the community

Union Hospital set out to expand services, build market share, and improve the overall level of care. Because the hospital admits 80% of its patients through its emergency department, the process began there. A performance improvement committee was instituted. The facility was then redesigned and several innovative strategies were implemented:

- putting weatherproof storage sheds in the ambulance driveway to provide quick and convenient access to backboards, collars, blankets, etc.;
- mandatory customer service and conflict resolution training for staff members and the creation of internal rewards and incentives;
- standing orders for common ailments to implement X-rays, blood work, and IV protocols;
- diagnostic test results are available when the physician arrives;
- a special pediatric supply cart to speed processing;
- treatment room for fast-tracking certain diagnoses and injuries;
- radiology technicians carry wireless telephones to reduce patient wait times;
- an operations manager responsible for coordinating the key activities of admissions process.

Shooting for the top in patient satisfaction

Bristol Hospital's goal was to rank within the top 5% nationwide for inpatient satisfaction. To achieve that goal, the hospital created a set of values that are the mainstay of all of its patient satisfaction initiatives and made several changes:

- The hospital began a process of removing or decreasing patient irritants, such as paid television services, overhead paging, and conversational noise. Valet parking was instituted.
- A manager of patient satisfaction position was created to oversee the process of surveys and reports and provide management with appropriate policies and programs.
- Three patient partner positions were created to meet with patients shortly after admission, visit the patient daily, and tend to patients' special needs.
- A series of rewards, recognition, and internal communication programs was instituted to keep patient satisfaction at the forefront of every employee's mind. ■

Training employees for retention and promotion

Baltimore coalition educates for the future

If a hospital believes that its employees are its most valuable asset, then it surely understands the negative economic ramifications of losing experienced employees to other facilities. The

solution to the problem is to retain and promote the best employees within a facility.

That was the problem experienced in the Baltimore area, and the solution was to create the Baltimore Regional Healthcare Training Partnership. (See article, p. 43.)

"Changes in the health care system are forcing hospitals in the Baltimore metropolitan region to reorganize and downsize," explains **Laura Chenven**, project director of Community Services, Baltimore Regional Healthcare Training Partnership. While jobs that are increasing in complexity remain vacant for lack of trained personnel, experienced health care workers are at risk for dislocation because there are insufficient funds for incumbent worker training and education programs, Chenven says. "Ironically, just as the need for training has increased, hospital funds previously available for training have decreased."

The problem is multifaceted, according to Chenven. "Workers who have received training at a particular health care institution face another difficulty."

One size does not fit all hospitals

Skills acquired at one hospital are not necessarily recognized by other institutions, leaving workers unable to transfer from one facility to another. Chenven says that the transfer problem could be solved by creating a mutually recognized training system and set of skill standards.

The shift in health services from acute care to other settings poses additional problems. "As jobs shift from acute care to outpatient and long-term facilities, incumbent workers need to be better able to make the needed transition to new health care delivery systems and thereby improve their chances of remaining employed, Chenven says. There simply was not a lot of money available for training the incumbent worker," she says. "We have a pool of people who are at risk, who need their skills upgraded, and who need to learn new skills to better fit in the newly re-engineered health care field."

It did not make sense to only wait until people are unemployed to do something to help them, as there are several programs available to assist the unemployed health care worker, Chenven says. "Many workers within a hospital are already invested in that hospital. They have benefits, longevity, and pensions at stake."

She also notes that it is important to give incumbent workers the support and services

The crux of the Maryland staffing problem

The following is an excerpt from the grant proposal to the U.S. Department of Labor. It clearly defines the problem in Maryland, as well as other health care facilities across the nation.

Fueled by new technology and managed care, the health care industry is changing. Across the country, community hospital beds decreased in the period from 1990-1996. Adult occupancy rates declined from 64% to slightly more than 58%. Hospital admissions, along with the length of stay, also declined. According to research, the last six months of 1997 saw a \$55.9 million fall of Maryland hospital profits — a full 37% fall — compared to the comparable period in 1996.

Declining profitability has resulted in major reorganization and reductions in staff.

Mergers and acquisitions, affiliations, and closures are reshaping the health care delivery system. Many hospital workers, particularly those at the lowest skill level, have already become dislocated or are at risk. In Baltimore, Liberty Hospital, recently acquired by Bon Secours Medical Center, is about to become a long-term care facility. Children's Hospital is slated for closure this spring. Furthermore, lawmakers in Maryland are considering establishing a blue-ribbon commission to examine the region's bed capacity with a view toward cutting underutilized inpatient services. A reduction of hospital reimbursement rates is imminent.

These past and planned changes in the health care system are having a profound impact on the local economy. Health care is the largest employer in the state of Maryland, accounting for one out of 10 private sector jobs. In Baltimore City, one out of five private sector jobs is in health care, and two of the three largest employers are health care institutions. Cutbacks and layoffs in this sector will leave many incumbent workers facing layoff,

unemployment, and wage reduction.

The outlook, however, is not all bleak. While inpatient services declined, outpatient visits increased by approximately 50% nationwide in the period from 1990 to 1996. In Maryland, from 1990 to 1997, total health services grew by 9%, with the nonhospital sector growing faster than the hospital sector. In 1990, just under half of the employment in the health care industry was in hospitals. By 1997, that percentage had dropped to 42%. Jobs in health care exist, but they are shifting to ambulatory care settings. Furthermore, reorganization within hospitals has created new, more skilled jobs that remain unfilled for lack of trained, qualified workers. Incumbent workers are experienced and understand just what it takes to work in a hospital. Training them is also cost-effective in the long run due to greater turnover among new workers. The average cost of locating, hiring, and training new employees is many times the cost of retraining incumbent ones.

Ironically, while the industry's training requirements are increasing, decreased profitability is shrinking funds previously available in each hospital for training. Without public support, many incumbent workers will have to go through the experience of dislocation before they can avail themselves of the training they need to stay employed.

There are other obstacles preventing health care workers' successful transition to new positions or transfer between institutions. They include: 1) lack of mutually recognized skill standards; 2) lack of coordinated and mutually recognized training; 3) differences in job responsibilities within similar job classifications at each hospital that heretofore have made multi-employer training difficult; 4) inability of a substantial number of workers to pass academic gatekeeper exams; 5) workers' lack of a high school diploma, which has disqualified them from training and upgrading; and 6) insufficient career and educational counseling. ■

they need to succeed. Workers included in the target group for the training project are nursing aides, dietary workers, laundry workers, house-keeping workers, and some clerical personnel. Although many of those targeted workers understand that changes in the hospitals could threaten their job security, they do not know

what they can do about it, says Chenven.

Using existing funds in combination with a Department of Labor grant, a coalition of labor, hospital management, and state and local governments comprised the partnership that would develop training that was mutually recognized by all participating hospitals. The partnership consists

of four hospitals (Johns Hopkins Medical Center, Sinai Medical Center, Greater Baltimore Medical Center, and Maryland General Hospital), the Service Employees International Union District 1199E-DC, Community Services of the Baltimore Metropolitan Council of the AFL-CIO, the City of Baltimore's Office of Employment Development's One Stop Career Center, and the Maryland State Department of Labor Licensing and Regulation.

Through coordination with new worker training provided by the region's One Stop Centers, the partnership will be able to develop cost-effective training and avoid duplication of services, Chenven says. The dissemination of the experiences generated by the project could help spark innovation and collaboration among stakeholders in other economic sectors within the state.

Partnership criteria

A strict and binding set of criteria was used to determine the eligibility for participation by an institution in the partnership:

- Each employer must have more than 500 employees.
- A portion of incumbent employees are at risk for layoff or demotion because of changes in the industry, low skills, and/or projected changes in jobs and skill sets.
- Eligible employers must have identified jobs at their institution or at their satellite clinics that could be filled by workers who are currently at risk, if the proper training and education programs were available.
- They must have made a commitment to fill available jobs with workers who have obtained the needed skills through the partnership.
- They must have demonstrated their long-term commitment to training and education through negotiated joint labor/management training funds, which supply some of the matching funds.
- They must have committed personnel and in-kind contributions to support the success of the program and partnership.

The partnership also recognizes that although the program provides the training, the institutions need to provide support services for the participants. Participating employers need to encourage workers, schedule release time, and understand the new skills the workers are learning.

Equally stringent are the criteria to determine which employee candidates will be chosen to participate in the program. Chenven says that they must meet the following criteria:

- Eligible employees are nonmanagerial, nonprofessional staff who are likely to be affected by hospital reorganization, downsizing, or layoff.
- Eligible employees need training and education to access available jobs in outpatient facilities or in new or upgraded positions.
- After the outreach, recruitment, and orientation portions of the program, eligible employees express an interest in training and education for continued employment in the health care industry.

"One of the major goals is to train workers for portable skills and to provide employers with well-trained, experienced personnel," says Chenven. The training model includes both basic skills and occupational training. The occupational track includes a core curriculum, specific occupation training, and customized modules to address the particular needs of each institution. "The basic skills training is integrated into the occupational training to improve the success rate."

Workers who meet the criteria undergo a series of confidential assessments in reading, math, and writing. Based on the results, workers are eligible for various training tracks. Those who score above benchmark (determined by the provider of the occupational skill training) are eligible for occupational skills training. All participation is voluntary.

Workers who score at an intermediate level are eligible for job skill training with additional academic support. Those who score below the intermediate level have the opportunity to take a combination of basic skill classes, computer-assisted instruction, and individual and small group tutoring.

By retaining, retraining, and promoting incumbent employees, a hospital creates a win-win situation. The employee who has a history at a facility is further rewarded for loyalty while the facility avoids the hard and intangible costs of locating and training new personnel. ■

The Pandora's box of new technology

Avoid liability with thorough credentialing

On any given night, you can turn to one of the network news shows and be greeted with another horror story about surgery gone awry because someone somewhere performed a new procedure without adequate training:

“Well you see, Geraldo, it was like this . . .”

Such stories are becoming increasingly common as surgical procedures evolve with the help of technological advances, such as scopes.

“When a new technique is introduced, the complication rates clearly tend to go up,” says **David W. Kennedy**, MD, FACS, professor and chairman of the department of otorhinolaryngology/head and neck surgery at the University of Pennsylvania Medical Center in Philadelphia. Kennedy is a member of the American College of Surgeons Committee on Emerging Surgical Technology and Education.

In fact, complications can occur with new technology even when the surgeon has been adequately trained, surgery experts emphasize. “I think there is no doubt about the fact that the more cases a surgeon does of a particular type, the better the results tend to be,” Kennedy says.

Take these steps to avoid problems

Since the rush in technological advancement and the demand for those procedures from patients don't appear ready to wane, what steps can staff take to ensure they don't risk liability, not to mention negative media exposure?

Consider these suggestions from experts:

- **Determine whether informed consent needs to change.**

How informed consent should be handled for new technology depends on whether the procedure is a minor departure or a major deviation from the standard accepted technique, Kennedy says. “When I first introduced endoscopic sinus surgery here, our feeling in the U.S. was that it was a relatively minor deviation from what had previously been often done with a microscope.”

Because only the instrument was different, Kennedy says, he and other surgeons didn't think a different informed consent was required. “I believe it was an ethical and moral decision. But to take care of a cancer . . . with a minimally invasive technique that may not get the same margin, patients need to be carefully informed about what is standard therapy, what the advantages and disadvantages of the new technique will be, and what's known about results and outcomes.”

Consider a written addendum to the chart explaining that the risks, complications, and alternatives were discussed with the patient, some experts advise. Keep in mind that poorly educated patients might not be fully capable of understanding all of the issues, such as the

relative risk in the outcome, Kennedy warns.

Your state laws may address new technology, advises **Madelyn Quattrone**, Esq., senior risk management analyst at ECRI, a nonprofit health care research organization based in Plymouth Meeting, PA. However, some laws are vague and raise additional questions. In such cases, seek advice from your legal counsel, she suggests.

- **Use rational and medical evidence to select technology.**

One of the most frequently asked questions that ECRI receives is whether facilities are required to purchase the most highly rated (and often most expensive) technology.

Essentially, liability would be judged by reasonableness, she says. “As long as there is rational and medical evidence for the selection being made — for example, ECRI does publish its own evaluations of medical devices and equipment — certainly, there may be a range of choices that would be reasonable for the hospital or purchaser to choose from looking at those particular devices.”

Health care providers can avoid liability by making a “good faith argument,” which is making a good faith effort to select a safe and effective product that has been reviewed by some knowledgeable entity, she says.

- **Determine whether the new technology is being used in an approved matter.**

Frequently, it's good medical practice for a device to be used in an “off-label” manner, Quattrone says. However, if a patient is harmed due to complications from the technology, and use of the technology is construed to be experimental, the provider could be liable, she warns. Consider keeping a record of the device being used in an off-label manner, Quattrone advises.

- **Ensure training and education are thorough.**

When new equipment is introduced in a facility, sometimes staff, and even physicians, are not completely familiar with the equipment or how to deal with problems that might arise, Quattrone says.

Credentialing is an essential component

“It's really incumbent upon the hospital to provide written or video materials and perhaps even an inservice on a piece of new equipment that is significantly different from equipment used in the past,” she says.

- **Don't skimp on the credentialing process.**

For credentialing, consider the background of the surgeon and the differences in the new technology as compared to the previous technology,

SOURCES

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Kennedy suggests. “I think one of the difficult things that come out when a procedure is developed is determining: Is it a minor modification or dramatic departure requiring new skills?”

Often, the answer to that question depends on the surgeon, he says, citing endoscopic cholecystectomy as an example. There is a significant learning curve for those who haven’t worked with endoscopes. In contrast, a surgeon with a strong background in laser surgery might not need a significant amount of additional training to master a new laser technique. In that case, a hands-on course probably would be sufficient.

With the surgeon or the senior physician responsible for credentialing, determine how significant a departure the new technology is from the previous procedure, what skills are involved, and whether the surgeon has those skills, Kennedy advises. “If there’s a question, I recommend the surgeon be proctored for a certain number of cases by someone skilled in that area.”

Be sure to document that the certification and additional training have been reviewed before you grant privileges, experts advise. If the manufacturer of the new technology is providing the education and training, ensure the physician has completed that certification, Quattrone advises. “Having been a defense attorney mitigating these matters for about 20 years, I think I’ve heard about everything.

“Physicians may claim they’ve received training, but simply shown up at a course and not actually completed the training.” Such inadequate training can lead to nightmares, such as the liposuction deaths that occurred between 1992 and 1998, she says.

Some questions regarding new technology remain unanswered, Kennedy says. Can a surgeon’s capability with a particular technique be

evaluated during a continuing medical education course? Can organizers of those courses be objective evaluators? “I don’t think we know the answer to that fully.”

Eventually, surgical simulators will score a surgeon objectively, Kennedy and others point out, but this technology is in its infancy. “But they are starting to become another method of developing a particular subset of surgical skills,” he adds. ■

Infection guidelines reach beyond hospital

Panel suggests getting outside help

In what may signal a landmark expansion of infection control beyond the hospital, a consensus panel has issued a report on the essential infection control requirements for out-of-hospital settings.

With representation from infection control professionals, epidemiologists, public health officials, and quality accreditation experts, the panel has established the first consensus program standards in a rapidly expanding area of health care. The report calls for nonhospital settings to seek the oversight of hospital-based infection control professionals (ICPs) or infection control consultants in implementing the recommendations. **(See recommendations, inserted in this issue.)**

The panel concedes that some organizations will not be of the size or complexity to justify the resource commitment of a full-time, on-site ICP. However, the report emphasizes that an ICP should be consulted for oversight if the person charged with the responsibility for infection control in the health care organization is not specially trained or experienced in epidemiology.

“There may be a person designated, but the organization should still seek the wisdom and knowledge and experience of someone who is really trained in infection control and hospital epidemiology,” says panel member **Candace Friedman, MT (ASCP), MPH, CIC,** manager of infection control and epidemiology at the University of Michigan Hospitals and Health Centers in Ann Arbor.

Moreover, given the increasing emphasis on cost containment and the need to justify expenditures, a trained and experienced ICP can be especially helpful in evaluating the benefits and requirements

of the infection control program as outlined in the recommendations, the panel noted.

The panel was formed by the Association for Professionals in Infection Control and Epidemiology and the Society for Healthcare Epidemiology of America. It also included representation from the Centers for Disease Control and Prevention and the Joint Commission on Accreditation of Healthcare Organizations.

“It is the duty and responsibility of health care organizations to implement these recommendations,” emphasizes **William Scheckler**, MD, hospital epidemiologist at St. Marys Medical Center in Madison, WI, in a written introduction to the report.¹

ICP can evaluate recommendations

A key panel member in a similar consensus effort for acute care hospitals, Scheckler says the time has come to underscore the importance of infection control across the continuum.²

“Health care is no longer limited to the acute care hospital. It is a continuum from the home to the outpatient clinic, to the hospital, to nursing homes, to rehab facilities and [other] freestanding facilities,” he says. “For example, at least 50% of surgical procedures that used to be done in the hospital operating suite are now being done in day-care surgical centers and surgeon’s offices. We felt it was important to examine what modest amount of literature was available for these sites and extend the good principles and practices for both epidemiology and infection control to these sites.”

Indeed, the report notes that the last decade has seen much nationwide growth in managed care organizations, which has changed provider reimbursements and restructured the entire health care system.

As a result, diversification and integration strategies have blurred historical separations between hospitals, nursing homes, ambulatory care, physicians, and other providers. Accordingly, the degree and complexity of care provided in out-of-hospital settings has increased markedly in recent years.

“Infection prevention and control issues are important throughout this continuum of care,” the consensus panel concluded. “Infections in patients may lead to serious morbidity and mortality, readmission or admission to a hospital, increased use of antibiotics, and increased costs of care. Performing surgical procedures, invasive device insertions, and managing and providing

care for patients who are increasingly immunocompromised in these settings present new infection control challenges.

“Therefore, infection control practices must now encompass infections that patients may acquire as a result of their care or treatment outside the acute care hospital, as well as protect health care providers and caregivers in these settings.”

But the question inevitability arises about funding the recommendations, which call for surveillance, reporting, and interventions to prevent infectious complications in nonhospital settings. The consensus panel emphasized that health care organizations should provide the necessary resources and personnel to enact the recommendations.

“I think the resources will be there because the accreditation bodies are already looking at outpatient and other kinds of facilities, both at the state level, the Joint Commission level, and even the National Commission on Quality Assurance,” Scheckler says. “All of these [groups] will recognize soon, if they haven’t already, that prevention

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Editorial Questions

For questions or comments, call **Elizabeth Connor** at (404) 262-5457.

of infections — protection of the patient and the health care worker — is in everyone's best interest. So the resources will be there."

Panel discussions in forming the guidelines acknowledged that the level of response to the recommendations may vary considerably in different nonhospital settings, adds Friedman. "But part of what the document hopes to achieve is to help convince an organization that it really should support this kind of a program," she says. "I don't see it as a wish list."

In implementing the recommendations, nonhospital settings should focus on their best assessment of their high-risk areas, she says. "Those are the areas that should be followed in some manner. I don't think anyone on the consensus panel thought that surveillance in a home care setting would be identical to the type of surveillance in an acute care setting. It's not that they need to do the same kinds of things. It's that they need to evaluate what are their issues and then figure out the best way to [address them]."

Regardless of setting, ongoing communication across the continuum is one of the key recommendations to prevent infections as patients move to various points in the delivery system, she says.

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1. Friedman C, Barnette M, Buck AS, et al. Requirements for infrastructure and essential activities of infection control and epidemiology in out-of-hospital settings: A consensus panel report. *Infect Control Hosp Epidemiol* 1999; 20:695-705.

2. Scheckler WE, Brimhall D, Buck AS, et al. Requirements for infrastructure and essential activities of infection control and epidemiology in hospitals: A consensus panel report. *Infect Control Hosp Epidemiol* 1999; 19:114-126. ■

Patients can go on-line to learn what to expect

The Web is proving to be an effective way to communicate to patients preoperatively, particularly for same-day surgery patients. Program managers suggest:

- Make sure the logistics, such as times and locations relevant to the procedure, are included.
- Include information on what food and medications are allowed before surgery.
- Understand the security implications of wanting medical evaluations online and that such

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an advancement requires additional resources.

- Pain management is a useful topic, as is wound care. Pain management can encompass what a patient can expect from different anesthetics, as well as how to manage pain postoperatively.
- Consider providing information on some of the most common procedures, if the volume justifies it.
- Photographs and biographies of the staff patients are likely to encounter often are popular. Make sure to get waivers from those involved.
- Make sure to keep the Web information and printed materials consistent, particularly if you provide on-line versions of patient education material.
- The Web function may be administered as a marketing function, and thus not adding any costs to clinical units.
- Use your existing experience to respond to the most frequently asked questions about your most common procedures.
- Don't use the Web to replace crucial personal contact, such as the call to the person the day before surgery. ■

SOURCES

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Requirements for Infrastructure and Essential Activities of Infection Control and Epidemiology in Out-of-Hospital Settings (Supplement)

Managing Critical Data and Information, Including Surveillance for Infections

Recommendation 1: Infection control personnel should develop policies and procedures for ongoing communication with other health care organizations (HCOs) to identify, prevent, manage, and control infections as patients move between HCOs throughout the continuum of care. Category II

- Report infectious complications and adverse events associated with medical and surgical procedures (i.e., surgical site infections) to the HCO in which the procedure was performed or from which the patient was discharged.
- Report epidemiologically important infections to the HCO to which the patient will be transferred.

Recommendation 2: Surveillance of health care associated infections must be performed. Category I
Incorporate the following elements in the surveillance process:

- identification and description of the problem or event to be studied;
- standard case definitions appropriate for the setting;
- definition of the population at risk;
- selection of the appropriate methods of measurement, including statistical tools and risk stratification;
- identification and description of data sources and data collection;
- definition of numerators and denominators;
- preparation and distribution of reports to appropriate groups.

Recommendation 3: Surveillance data must be appropriately analyzed and used to monitor and improve infection control and health care outcomes. Category I

Recommendation 4: Clinical performance and assessment indicators used to support external comparative measurements should meet the criteria previously delineated by APIC and SHEA for hospitalized patients. Category II

Specifically, these indicators and their analyses must address:

- how the process is related to outcomes;
- how to measure variation and quality;
- that the numerators and denominators are defined;
- that data collection is feasible, and the collected data are collected completely and reliably;
- that the data are appropriately risk-adjusted when analyzed;
- that data be adjusted for the populations' severity of illness and case-mix differences when analyzed before external comparison;
- that personnel be trained regarding proper study and use of indicators;
- that benchmarks be developed and used to compare the indicators' performance.

Developing and Recommending Policies and Procedures

Recommendation 5: Written infection prevention and control policies and procedures must be established, implemented, maintained, and updated periodically. Both Categories II and III

- The policies and procedures should be scientifically sound.
- The policies and procedures should lead to improved prevention of infections and other adverse events or improved patient and employee outcomes.
- The policies and procedures should be reviewed regularly to assess their practicality and cost-effectiveness.

(Continued)

- The policies and procedures should incorporate compliance with regulatory issues.

Recommendation 6: Policies and procedures should be monitored periodically for effectiveness, both to ensure that staff are able to comply fully with and fulfill organizational requirements and that the policies have the desired result in preventing and controlling infections. Both Categories II and III

Compliance With Regulations, Guidelines, and Accreditation Requirements

Recommendation 7: HCOs should engage infection control personnel in maintaining compliance with relevant regulatory and accreditation requirements. Both Categories II and III

Recommendation 8: Infection control personnel should have appropriate access to medical or other relevant records, information in regard to the HCO's compliance with regulations, standards, etc., and to staff members who can provide information on the adequacy of the HCO's compliance with regard to regulations, standards, and guidelines. Both Categories II and III

Recommendation 9: The infection control program should collaborate with, and provide liaison to, appropriate local and state health departments for reporting of communicable diseases and related conditions and to assist with control of infectious diseases in the community. Both Categories II and III

Employee Health

Recommendation 10: The infection control program personnel should work collaboratively with the HCO's employee health program personnel. Category II

- The HCO should have access to consultation and direction from a physician (or designee) with expertise in infectious disease and health care epidemiology.
- Infection control personnel should review and approve all employee health policies and procedures that relate to the transmission of communicable diseases in the HCO.

Recommendation 11: At the time of employment, all HCO personnel should be evaluated for conditions relating to communicable diseases. Both Categories II and III

The employment record should include the following:

- medical history, including immunization status and assessment for conditions that may predispose personnel to acquiring or transmitting communicable diseases;
- tuberculosis screening;
- serologic screening for vaccine-preventable diseases, as deemed appropriate;
- such medical examinations as are indicated by the above.

Recommendation 12: The HCO evaluates employees and other health care workers (e.g., students, volunteers) for conditions related to infectious diseases that may have an impact on patient care, the employee, or other health care workers periodically. This evaluation should include a review of required immunizations and status of tuberculosis screening. Both Categories II and III

- Medical records of all health care workers must be kept confidential.
- The HCO should track employee immunization and tuberculosis screening status.

Recommendation 13: Employees must be offered immunizations based on regulatory requirements. HIC-PAC Personnel Guidelines and recommendations of the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices for health care workers should also be followed. Both Categories I and III

(Continued)

Recommendation 14: The HCO's employee health program should institute policies and procedures for the evaluation of exposed or infected health care workers. Category I

- Exposed health care workers should be evaluated for circumstances surrounding the exposure, evaluation of symptoms, need for postexposure prophylaxis, need for treatment, and work restrictions.
- Infected symptomatic and asymptomatic health care workers should be assessed for disease communicability, work restrictions, and treatment, as appropriate.

Intervening Directly to Prevent Infections

Recommendation 15: Infection control personnel in HCOs must have the capacity to identify and implement measures to control endemic and epidemic infections and adverse events. Category I

- HCOs must have an ongoing system to obtain pertinent microbiologic data.
- Ongoing communication and consultation with clinical staff throughout the organization must be maintained to identify infectious and adverse events, assist in maintenance and monitoring of infection control procedures, and provide consultation.
- When an outbreak occurs, infection control personnel must have adequate resources and authority to ensure a comprehensive and timely investigation and implement appropriate control measures.
- Institutional policies and procedures should be developed so that roles and responsibilities are outlined clearly.

Educating and Training Health Care Workers, Patients, and Nonmedical Caregivers

Recommendation 16: HCOs must provide ongoing educational programs in infection prevention and control to health care workers. Both Categories I and III

- Infection control personnel knowledgeable regarding epidemiology and infectious diseases should be active participants in the planning and implementation of the educational programs.

Recommendation 17: Educational programs should be evaluated periodically for effectiveness. Both Categories II and III

- Educational programs should meet the needs of the group or department for which they are given and must provide learning experiences for persons with a wide range of educational backgrounds and work responsibilities.
- Participation of health care workers at educational programs should be documented.

Recommendation 18: The health care organization must have a mechanism to ensure that patients and caregivers receive appropriate information regarding infection prevention and control. Category II

Resources — Personnel

Recommendation 19: The HCO must assure adequate personnel and supporting resources to fulfill the functions of the infection control program. Category II

Recommendation 20: All HCOs should have access to the ongoing services of a person who is trained in infection prevention and control (i.e., an infection control professional [ICP], who provides oversight for the infection control program). Category II

Recommendation 21: All HCOs should have access to continuing services of a physician trained in health care epidemiology. Category II

Recommendation 22: ICPs should be encouraged to obtain certification in infection control. Category II

(Continued)

Other Resources

Recommendation 23: Resources should be provided for continuing professional education of employees and infection control personnel who work directly for the organization. Category II

Source: Friedman C, Barnette M, Buck AS, et al. Requirements for infrastructure and essential activities of infection control and epidemiology in out-of-hospital settings: A consensus panel report. *Infect Control Hosp Epidemiol* 1999; 20:695-705.