Plan Ahead for Telemedicine After Disaster Strikes

Satellite phones, ham radios, training can help save patients and practices; NASA might help in a pinch.

BY SHERRY BOSCHERT
San Francisco Bureau

Imagine losing access to telephones, the Internet, and fax lines during a disaster, and trying to treat patients with nothing but a scratchy two-way radio to connect you with people and institutions outside your office.

It's so last century and so avoidable—yet that's what happens after natural or man-made disasters, said Dr. Ronald C. Merrell. Physicians should plan ahead to maintain telecommunications so they can practice medicine independently of emergency operation centers, he advised.

After terrorists destroyed the World Trade Center in New York in 2001, the dust was so thick that it interfered with satellite communications and cell phones. After a tsunami decimated parts of Southeast Asia in 2004 and after Hurricane Katrina hit the U.S. Gulf Coast in 2005, many physicians lost phone lines and were stuck with more primitive modes of communication, like ham radios.

"That's technology we've had since the Second World War. It's fine, but we need to find a way to access the Internet. It's hard to practice medicine over a radio," said Dr. Merrell, director of the Medical Informatics and Technology Applications Consortium (MITAC) at Virginia Commonwealth University, in Richmond. MITAC is a research center sponsored by NASA.

The medical needs of refugees from a disaster aren't necessarily what you might expect. Dr. Merrell and colleagues from MITAC responded to a call from NASA after Hurricane Katrina to help an occupational medicine office at a NASA facility about 34 miles from the Mississippi coast. The office and its one physician had lost most communication with the outside world. Hundreds of people needed medical care, and within days the numbers grew to 4,000.

Many patients were on complex regimens of medicine, but their pills had washed away in the storm. One group of mentally ill patients from an assisted living facility had lost antipsychotic medication. Others had lost refrigeration and no longer had insulin.

Telemedicine teams in other parts of the country were eager to help, but the Mississippi facility had no good way to let them know what to send. Dr. Merrell and his team set up a satellite telephone, a computer satellite dish, and other equipment that gave them 65 kilobytes of transmission speed. Phone calls were transmitted via a French satellite to Paris and back to the United States. The team even brought solar panels to provide power if needed, but they were able to use electricity from the NASA facility. The system allowed them to order medications, connect with other medical facilities, and coordinate transfers of patients to more stable environments.

Because telemedicine isn't part of the usual disaster preparedness infrastructure, deploying the specialized equipment and then training people to practice telemedicine is time consuming, which limits the help it can provide, Dr. Merrell noted.

Physicians would be wise to assess the disaster plans and advocate for redundant telecommunications capabilities. "Medicine has to have a fairly independent and broadband interface" separate from acute emergency response efforts to serve patients well in a crisis, he said.

Having equipment and trained personnel in place made a huge difference when a devastating earthquake struck Pakistan in October 2005, Dr. Merrell said, noting that it may have been the first time that telemedicine formed the core of a successful medical response to a tragedy.

COURTESY DR. RONALD C. MERRELL

Dr. Merrell (left) and associates at the Shahol Najaf Clinic about 20 kilometers from the epicenter.

Under a grant from the U.S. Agency for International Development, Dr. Merrell and Dr Azhar Rafiq of Virginia Commonwealth University had traveled to Pakistan about a month before the earthquake to help establish two telemedicine training facilities in Rawalpindi, just outside the capital, Islamabad. The telemedicine facilities were to enable communications with two primary care clinics in the rural Punjab area for a more integrated health system.

When the earthquake hit, "We were in touch with them within 12 hours" thanks to the telemedicine programs, he said. The Rawalpindi medical facility was the first fully intact medical site encountered by people fleeing the mountainous areas, where the earthquake had leveled brick hospitals and killed almost all of the medical workers. Soon Rawalpindi's 1,500 beds were in demand for 6,000 patients.

Telecommunications kept the facility from being overwhelmed. Medical students volunteered for brief training in telemedicine and hiked into the mountains with backpacks containing satellite phones, digital cameras, laptop computers, and mobile power sources. From the mountains they informed the hospital at Rawalpindi and other facilities about which patients were headed their way and what would be needed. The students also transmitted medical records and photographs.

After reconstructive surgery at the Rawalpindi medical facility, patients were sent back to tent facilities in the mountains to recover. Surgeons were even able to send patients with complex orthopedic repairs to the mountains, knowing that staff would be able to telecommunicate about the patients' status and any postsurgical problems that arose. "They never did overwhelm the hospital," Dr. Merrell said. "They were able to use telecommunications to move patients down out of the mountains for definitive care and get them out and back to the mountains in a fraction of the usual time—in about 48 hours." ■

Workflow Redesigns Can Save Time, Pad the Bottom Line

BY CHRISTINA CHASE
Associate Editor

PHILADELPHIA — Office-based physicians who maximize efficiency can see more patients per day without any loss of quality—in fact, smoother workflow can actually boost patient satisfaction, Dr. Mary S. Applegate said at the annual meeting of the American College of Physicians.

Improved efficiency can have "huge financial implications." By saving 2 minutes per patient, physicians can see two more patients daily. At $50 per patient, this amounts to $10,000 more per year. Alternatively, doctors can choose to work a shorter day, going home about 45 minutes earlier instead of seeing those two extra patients, added Dr. Applegate, a family physician in a small group practice in rural Ohio.

Dr. Applegate and her colleagues—two other physicians and two nurse practitioners—looked critically at workflow and practice design to identify these strategies for enhancing time management:

► **Delegate all "nondoctoring" tasks.** Physicians should not spend their time on simple activities such as taking blood pressure, administering vaccinations, handling prescription refills, and filling out forms. Midlevel providers—nurse practitioners and physician assistants—can do a lot of these tasks. Designate a "queen of forms," typically a nurse, who can fill in codes and dates; the physician may only need to sign. Save your time for diagnostic dilemmas and treatment failures, she suggested.

► **Give staff clear instructions on handling common situations.** Flowcharts work well and can empower paraprofessionals to manage various problems and tasks without consulting physicians.

► **Cross-train your staff.** Avoid situations where only one person knows how to do a certain task; when that person is out, workflow is disrupted. Staff members may be happier with more variety once they are comfortable with the new responsibilities, but "the transition sometimes can be difficult," Dr. Applegate noted. To ease the transition, offer incentives to staff members willing to learn new things.

► **Organize work space logically.** Look at how the exam rooms, equipment, and inner offices are arranged and consider whether simple changes could streamline tasks that physicians and staff perform repeatedly. Simply moving a patient scale, or buying an extra one, might save snippets of time that can really add up. All exam rooms should be stocked with the same supplies and should be set up identically if possible.

► **Listen to your patients.** The patient interview will actually go faster if you do not interrupt. Patients talk for only about 60 seconds if they are not interrupted, she said. The patient feels heard, and clearer communications can lead to greater patient satisfaction. Make eye contact, sit down with the patient, and briefly touch the patient reassuringly or shake hands.

► **Avoid batching of unpleasant or difficult tasks.** Putting off work until later in the day when you're probably tired—and have forgotten some details about a patient encounter—can become "an unhealthy addiction," Dr. Applegate said. One task that physicians often batch is writing notes in patient charts. The inefficiencies can add up when errors are made and patients are dissatisfied with their care down the line. This is the most important take-home message. Get it done in real time. "It really does work!," she said.

► **Work in real time and get the job done.** This is the opposite of batching: Stay focused and complete the entire patient encounter before that patient leaves. It is fine to look up information and even dictate in the exam room with the patient present. When some tasks unavoidably accumulate, set a rule that you will stop at regular intervals to catch up before taking the next patient.

► **Be a team player.** Huddle with your staff for a few minutes every morning and afternoon to set a game plan and take control of the day before it controls you. This can help prevent glitches that would eat up valuable time.

► **Take care of yourself.** Balance work demands against personal time to avoid burnout. Physicians who neglect their needs for downtime and recreation are less productive and efficient. In extreme cases, this can lead to financial losses and even bankruptcy, she said.

► **Embrace and use new technology.** Use the available tools for billing, coding, and communications. Electronic medical records are not perfect and the transition can be painful—"It's like 3 months of pure hell"—but they are becoming a necessity. The need to log lab results for pay for performance is "the single best argument for an EMR," Dr. Applegate added. ■