

The promise of telemedicine: Providing curbside consults for chronic care, urgent care, and pain

Videoconferencing can help improve outcomes in underserved areas. Project ECHO™ paves the way.

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With the increased availability of high-speed Internet connections in rural areas, the use of telemedicine to improve access to specialty care is growing. In rural areas, where a shortage of specialty care exists, telemedicine programs enable

primary care providers to reach out to urban academic specialists hundreds of miles away to obtain advice about challenging cases. Other programs allow urban specialists to virtually examine patients in remote settings and consult with the patients' local providers to establish a

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diagnosis and develop a plan of care. One example of this collaborative model is the University of New Mexico Hospital's (UNMH) Project ECHO™ (Extension for Community Healthcare Outcomes), where a multispecialty team hosts 20 telemedicine clinics to treat chronic and complex medical problems, including chronic pain [Figure].

Many studies show the benefits of telemedicine

Over the past several decades, telemedicine has been demonstrated to:

- > Improve access to healthcare for a wide range of conditions, including heart and cerebrovascular disease, diabetes, cancer, psychiatric disorders, and trauma
- > Improve access to services such as radiology, pathology, and rehabilitation
- > Promote patient-centered care at lower cost and in local environments
- > Enhance efficiency in clinical decision-making, prescription ordering, and mentoring
- > Increase effectiveness of chronic disease management in both long-term care facilities and in the home
- > Promote individual adoption of healthy lifestyles and self-care.¹

Telemedicine has been particularly effective in providing care for rural patients who might

find it difficult to travel farther than their local hospital. In Louisiana, for example, 28 rural hospitals are using video conferencing to bring patients together with specialists at the Louisiana State University Health Sciences Center (LSUHSC) in Shreveport. Without this option, some patients would face a 5-hour drive to see an LSUHSC specialist in person.

The ability to send large volumes of data such as high-definition video over the Internet enables specialists to “examine” patients and view diagnostic images remotely. In some programs, the patient’s electronic health records are transmitted over the Web to aid in diagnosis and treatment.²

Military and prison telemedicine programs

The Department of Defense and the Veterans Health Administration (VHA) have used telemedicine extensively in caring for combat veterans with traumatic brain injuries.³ Telemedicine is employed for neurological assessment, acute medical and neurosurgical treatment, psychiatric intervention, behavioral therapies, and occupational and physical rehabilitation.

According to one description of the VHA program:

“Veterans once at risk of being left untreated can now be monitored and cared

The ability to send large volumes of data over the Internet allows physicians to “examine” patients remotely.

■ **FIGURE:** The multidisciplinary team working with primary care physicians in the Project ECHO™ pain clinic.



A neurological exam conducted via videoconferencing can be as effective as a bedside exam for non-acute stroke patients.

for in their homes and communities. VHA home telehealth programs are reducing hospitalizations, emergency room visits, and length of hospital stays, while improving the quality of life for veterans."³

Some state prisons rely on telemedicine to reduce the travel and security expenses associated with inmate care. New Jersey, Georgia, and Texas have incorporated university-based care into their telemedicine programs for prisoners, and California will soon be adding similar telemedicine programs.⁴ Texas has saved \$215 million by using this approach, and telemedicine has been linked to improvements in inmates' blood glucose levels, cholesterol levels, and hypertension.⁴

Studies of telemedicine use in acute and chronic care

Telemedicine can play a role in acute care situations. A 2009 scientific statement from the American Heart Association/American Stroke Association recommends the use of telemedicine for stroke in the absence of specialist care. The consensus statement found that a neurological exam conducted via videoconferencing can be as effective as a bedside exam for nonacute stroke patients. Also recommended are specialist use of teleradiology for computed tomography brain scans in suspected stroke patients, and in thrombolysis and IV tissue plasminogen activator decision-making for stroke patients in collaboration with on-site medical care.⁵

In an prospective evaluation of pediatric patients in emergency departments in Vermont and upstate New York, telemedicine was used to provide specialist consultations and to support transport teams. Providers found it to be superior to telephone consultations and to improve patient care.⁶

A 2009 randomized study compared telemedicine case management with usual care in older, ethnically diverse, medically underserved patients who had diabetes mellitus. Over a 5-year follow-up period, the study group achieved net overall reductions in hemoglobin A1c, systolic and diastolic blood pressure, and low-density lipoprotein cholesterol. Despite these improvements, however, mortality rates were about the same in the interventional and usual-care groups.⁷

In the area of pain management, a 2010 randomized trial involving cancer patients with pain and depression saw positive results from

the use of case management by telephone and automated symptom monitoring. Of the 274 patients with pain, those in the intervention group had greater improvements in pain severity over the 12 months of the trial than did those in the usual-care group.⁸

An 18-month cost analysis study comparing the use of telemedicine versus in-person consultation for patients with chronic pain found that direct costs were lower in the telemedicine group than the in-person group (median cost \$133 vs \$433, respectively). In addition, more chronic pain patients reported they were highly satisfied with telemedicine consultations (56%) compared with those who were highly satisfied with in-person consultations (24%).⁹

A rural telemedicine success

A recent study shows the significant impact a rural telemedicine program can have on clinical outcomes. Researchers looked at outcomes of patients with hepatitis C whose providers participated in the UNMH's Project ECHO™. In ECHO, academic specialists offer long-distance training and support for rural primary care providers. Among hepatitis C patients of these providers, 58% had a sustained viral response as a result of treatment. That was nearly identical to the percentage of sustained viral response in patients seen in person at the academic medical center in Albuquerque.¹⁰ The ECHO study involved 16 community sites and 5 prisons. Today, the ECHO program encompasses 255 sites, the majority of them in New Mexico. The Universities of Washington and Nevada have adopted the ECHO strategy in rural areas of their states, and the University of Chicago is using it to help underserved urban patients.

Since its beginning in 2002, Project ECHO™ has grown to include separate hepatitis C virtual "clinics" for communities and prisons, as well as clinics for a range of conditions from addiction to asthma, dementia, diabetes, high-risk pregnancy, and palliative care. Because Project ECHO™ also includes a pain management clinic, this program holds some valuable lessons for pain specialists.

ECHO's chronic pain and headache management clinic includes a neurologist, a psychiatrist and addiction specialist, an internist, a family physician, a physiatrist, an interventional pain specialist, and a clinical psychologist. All members of the team attend most of the video teleconferences.

Weekly pain clinics attract an average of 35 primary care providers, including physicians, nurse practitioners, and physician assistants. While some are located in the Albuquerque area, the majority come from rural parts of New Mexico and Oklahoma, with some coming from army hospitals and locations overseas.

Many providers use videoconferencing equipment, including TV sets, speakers, and a high-speed Internet connection to participate in the clinics from their own offices. Some join the clinics via webcam or telephone. If a practice or community health center wants to use videoconferencing and doesn't have the equipment, UNMH technicians will travel to their offices and install it.

Videoconferencing gear for a clinic such as Project ECHO™ is expensive, costing \$20,000 to \$30,000 to set up. Project ECHO™ is able to cover the costs of its services through grants from the state of New Mexico and the Robert Wood Johnson Foundation.

Case-based weekly presentations on pain

Project ECHO™ offers one 2-hour pain clinic per week that provides a mix of didactic and hands-on instruction using case-based learning. In addition, providers can present their own challenging cases and receive guidance from the multidisciplinary specialty team. Providers who plan to participate in a pain clinic fill out questionnaires about their patients beforehand, and everyone who wants to present is given an opportunity to do so. Providers are also encouraged to contact ECHO's academic specialists between clinics if they have specific questions about a case.

The purpose behind Project ECHO™ is to meet the needs of patients who have difficulty obtaining appointments at the medical center or who may have to travel a long distance to get there. However, the main goal of ECHO's pain clinic is to educate rural providers about how to provide comprehensive pain management themselves, to enable a greater degree of confidence and comfort in prescribing pain medications, and to support providers in striking a balance between prescription analgesics and other pain therapies.

Marlene Baska, a PA in Lordsburg, NM, agrees that her participation in ECHO has been very beneficial in treating patients with chronic pain. "The multidisciplinary panel has given

me education, suggestions, and guidance on specific cases. It has helped me develop some effective plans of care for my patients. When I see patients with chronic pain, I make them aware of my participation in Project ECHO™ and they're very appreciative."

Baska, who works for Hidalgo Medical Services, a multisite community health center that covers 2 counties, says she has learned to use an integrative approach that combines the appropriate use of opiates with adjunctive medications and referrals to professionals who offer behavioral therapy, massage therapy, acupuncture, physical therapy, occupational therapy, and dietetics.

Measuring outcomes

Measuring outcomes is an important component of the Project ECHO™ design. Providers participating in the pain clinic are trained to use functional status assessments, including the Brief Pain Inventory and the Pain Outcomes Profile of the American Academy of Pain Management. The provider outcomes data show that as a result of training self-efficacy has grown among participants.

The program itself has been assessed and honored. In 2010, Project ECHO™ was a recipient of the American Pain Society's Clinical Centers of Excellence in Pain Management Award.

Only 12 states require insurers to cover telemedicine: California, Colorado, Georgia, Hawaii, Kentucky, Louisiana, Maine, New Hampshire, Oklahoma, Oregon, Texas, and Virginia. To date only one insurance company—Molina, a Medicaid plan—has agreed to pay providers who participate in Project ECHO's™ pain clinics.

What providers who work with Project Echo™ do receive is CME credit, a newfound collegial relationship that reduces professional isolation, and greater confidence in their ability to manage even complex cases thanks to the use of remote technology.

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The UNMH's Project ECHO™ has 20 telemedicine clinics, including ones for hepatitis C and chronic pain.

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