

# Northern Sierra Rural Health Network:

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Every day in rural northeastern California, patients and rural health care providers use telemedicine and telehealth technology to receive health services, gain new knowledge, and work more efficiently.

- A patient diagnosed with acute depression talks with a psychiatrist via a video conferencing unit located in his primary care provider's office to receive an adjustment in his psychotropic medication. Since there are no psychiatrists practicing in his small rural county, this is the only way that he will receive this type of specialty care
- A Certified Nursing Assistant working on receiving her Registered Nurse degree uses video conferencing to take a Medical Terminology course after work in the conference room of the local rural hospital. If this service was not available, she would have to drive 3 hours, twice per week, to take this course.
- Board members of Mountain Valleys Health Centers, a multi-site federally qualified health center servicing an area of over 1,000 square miles, hold their monthly board meetings by video conferencing. This makes it possible for all of the board members to participate in these meetings without driving up to 250 miles each way.

These activities are part of the telemedicine/telehealth services supported by our organization, Northern Sierra Rural Health Network (NSRHN), a non-profit

## Connecting People to Care

# California

organization working to improve health and health services in one of California's most remote and isolated regions. NSRHN serves a nine-county region that stretches 30,000 square miles northeast of Sacramento up to Oregon and over to Nevada. This region includes five mountain ranges — the Klamath Mountains, the Sierra Nevada, the Trinity Alps, the Cascade Range and the Warner Mountains. The region contains six national forests — Klamath, Lassen, Modoc, Plumas, Shasta-Trinity, and part of Six Rivers, plus a geographically defined desert in uppermost Modoc County. Eighty percent of the 435,000 residents of this region live in rural or frontier communities, separated by hundreds of miles of two-lane highways. Winter travel can be hazardous, with road closures due to snow a common occurrence.

As is true in rural communities throughout America, the residents of this region are, on average, older and less affluent than their urban counterparts. Many residents are uninsured or underinsured. In addition, there is a profound shortage of all types of health care providers.

In 1995, 12 rural health administrators working in clinics, hospitals,



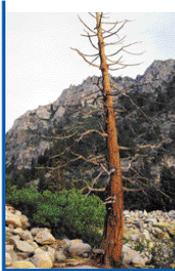
and public health departments met together to discuss our common challenges. We determined that by working together in a collaborative fashion, we could acquire more resources and more expertise than we could on our own. We were also concerned about managed care and its potential to disrupt the already fragile rural health safety net. NSRHN incorporated in 1996 and today, we have over 40 rural health provider members consisting of almost all of the safety-net providers in the region. NSRHN has grown to six staff in two regional offices and a budget of over \$1.5 million. While NSRHN works on a number of projects, telemedicine has become our most successful and visible contribution to the health of the community.

Telemedicine, which uses a desk top video conferencing system, and high-speed phone lines to connect a patient in one location with a clinician in another location,

seemed an ideal solution to the problem of specialty care access. UC Davis Health System, a major regional tertiary care center located in Sacramento, was already developing what would become one of the nation's leading telemedicine centers. All we had to do was find funds for start-up equipment, overcome the lack of necessary telecommunications infrastructure, train clinicians in rural health sites to use a new (and sometimes disruptive) technology, and work with specialty providers throughout the state to develop a functioning telemedicine network!

If we had known in 1996 how difficult some of these challenges would be, we may never have started! For example, ISDN phone lines are the most flexible and affordable transmission method available to conduct full-motion video conferencing. However, much of the NSRHN region did not have ISDN service available, requiring the installation of miles of expensive T1 lines across mountainous terrain. To provide the equivalent of ISDN to 11 rural health providers, we installed a video conferencing bridge and connected the T-1 lines to bundled ISDN lines that allow

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the rural non-ISDN sites to connect to the rest of the world. As an added benefit, the bridge allows NSRHN and our members to hold multi-site meetings and educational events.

Today, the NSRHN Rural Telemedicine Network is one of the most successful telemedicine networks in the state. We work with 29 rural health sites that have made specialty care available to over 2,000 patients since 1999. The number one specialty service used by patients is psychiatry, followed closely by neuro-psychiatry. We have conducted over 350 educational events, ranging from Medical Billing 101 for front-office clerks to Advanced Diseases of the Brain for physicians. We used our bridge to provide group training to help our members get ready for HIPAA. Our new projects include linking the region's veterans to VA services located hundreds of miles away and connecting women with breast cancer in "video support groups" so they can benefit from the emotional support these types of groups can offer.

Over the years, we have experienced a number of challenges in growing and maintaining our telemedicine network. Here are some of the lessons we have learned:

- **Find strong partners.** Early in the development of our telemedicine network, we began working

with the UC Davis Health System, which was in the beginning stages of developing its telemedicine specialty network. Part of UC Davis' mission is to support the more rural regions of California. In addition to making their specialty providers available to our rural patients, UC Davis also provided technical expertise and funding to help us address the telecommunications challenges we faced. One of our other key partners is the Far Northern Regional Center, a non-profit organization that coordinates services to clients with developmental disabilities such as autism and Downs syndrome. The Regional Center provided key start-up funding for our telemedicine network so that their clients could receive needed services not available locally. Today, we coordinate telemedicine services for regional center clients throughout our nine-county region.

- **Develop clinical champions.** Committed clinicians are the key element in any successful telemedicine program. We have found that when clinicians are involved in the planning and the start-up of a new program, it is more likely to succeed. We also learned that a personal connection, even if by phone, between a referring primary care physician and a new specialist, can be help-

ful in developing a successful telemedicine referral relationship.

- **Pamper your "telemedicine site coordinators."** Site coordinators are the nurses, medical assistants, and other staff that work behind the scenes to schedule a telemedicine consultation, set-up the equipment, and be available if there are any problems. We provide our site coordinators with training, regular support group meetings via video, and, when we can, we offer financial stipends to their employers to help offset the cost of these services.
- **Use creative financing.** The lack of reimbursement for key elements of the telemedicine process is one of the main reasons that many telemedicine projects fail. While it is true that the medical specialists will receive reimbursement, there is often no reimbursement for the costs experienced by the rural provider site. These expenses range from the service contracts needed on the equipment to cover repair, telephone charges, the time it takes for a Telemedicine Site Coordinator to schedule the visit and prepare for the visit, and even the cost of the provider himself, if he/she is required to participate in the visit. All of these costs are the responsibility of the rural site. One of the key functions of NSRHN is to find funding to cover at least some

of these costs to help keep telemedicine affordable for our members. For example, we coordinate all of the activities associated with receiving federal Universal Service funding to help reduce the costs of the expensive T-1 lines. Over the years, we have acquired funding from organizations such as Blue Cross of California, the California Telemedicine and E-Health Center, and even a regional air quality management district, to help offset the costs of telemedicine.

Despite the challenges and the expense, telemedicine continues to be how we do business here in rural northeastern California. Our success with linking patients and providers via video has encouraged us to continue to explore other ways to use technology to improve care. With the new national focus on developing regional health information infrastructures, we are well-positioned to support our rural health providers as they move into a new era of electronic medical records, patient data exchange, and remote patient monitoring. All of the lessons we have learned in telemedicine will apply to these new areas as well: strong partnerships, clinical champions, support for local coordinators, and creative financing.

## TELEMEDICINE CONNECTS LIVES. IT CAN ALSO TOUCH HEARTS.

When Delroy Bezell collapsed at Indian Valley Hospital while visiting his wife Maxine, doctors quickly determined that he needed medical transport to Redding Medical Center. Suffering from a heart attack and in immediate need of surgery, Delroy asked the staff not to tell his wife. Maxine was battling the final stages of metastatic bone cancer, and he did not want to worry her.

Staff witnessing this silent crisis of a couple married for more than 50 years wanted to help. They made an unusual request to use the telemedicine equipment located at each facility to put the couple together for what they feared might be their last conversation. Delroy's progress was slower than he hoped, so it was almost a week before he was strong enough to make the video call.

Husband and wife sat in wheelchairs in front of the cameras, with one of their two sons standing by with his mother. Tremendous emotion moved through the rooms as the couple first caught sight of one another.

"I was overwhelmed and overjoyed to see her and talk in person," said Delroy. "I was just amazed that they could do this."

The couple talked for several minutes, catching up on the details of their lives. As the couple exchanged a closing "I love you," staff who were on hand for medical support smiled through their own tears.

This unusual use of telemedicine equipment demonstrates its ability to link people across the distance. Every day across northern California, in areas where medical specialists may be hours away, NSRHN makes this remarkable technology available so that patients can receive medical diagnosis and treatment for conditions related to psychiatry, dermatology, cardiology, allergic reactions, ear nose and throat, oncology, and more.