



## **Dramatic Consultations Using Telemedicine** Dec. 2000

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*These stories were written and submitted to the Office for the Advancement in Telehealth by our grantees in December 2000. Names and identifying characteristics have been changed to protect the confidentiality of the patients and health care providers mentioned in the stories. For more information on any project, please see the OAT Grantee Directory online at <http://telehealth.hrsa.gov/grantee.htm>*

### **Hampden Hampshire Franklin Telemedicine Network Baystate Health System Massachusetts**

We're working with an 80-year old man with Parkinsons, COPD, and ischemic heart disease. His home care is definitely enhanced by the frequent contact with the VNA via American Telecare Aviva equipment. For a person 'of an age' who grew up with radio, he has had a great reaction to telemedicine. He says, "This is like something out of Flash Gordon or Dick Tracy. It's an amazing thing."

I think the positive reaction to this technology from both the patient and his nurse can be summed up something my grandfather used to say: "In my lifetime, I have seen man get down off horseback and stand on the moon. If you see as much change in your lifetime as I have in mine, you can't even begin to understand the changes you will see by the time you are my age."

### **St. Alexius TeleCare Network Northland Health Care/St. Alexius Medical Center Bismarck, ND**

#### Case 1 – Burn Care

We have used telemedicine several times for burn care. Our most recent was a farmer who was burned extensively on his hands, chest and back. He was treated initially in our rural hospital and after stabilization, transferred to Regions Burn Center where he was a patient for approximately one week. His follow-up visits were done over the TeleCare Network. We are 450 miles from Regions Burn Center, Rochester, Minnesota. This trip would have necessitated 2 days of travel and expense for the patient, with no one left on his farm to guide the hired help. Since it was harvest-time, this trip would have been a double hardship for him.

Instead, he was seen over telemedicine. He had three visits, each lasting about 30 minutes. If he needs to see his physician at Regions Burn Center, we would be happy to provide that service to him again via telemedicine.

### Case 2 - To trach or not to trach...

A young man had been living in a facility in small, rural community in North Dakota for many years after an accident left him quadriplegic with an altered mental status. Since the accident, the patient had a tracheostomy tube to assist him with breathing and removing secretions from his lungs. Because of the patient's inability to communicate, the family and care givers wanted the tracheostomy tube removed to increase the patient's comfort and chronic care needs. The primary care physician had concerns about this and requested a telemedicine consult with a pulmonologist. Prior to the consult, the pulmonologist requested a chest x-ray, blood gases, and breathing tests by a respiratory therapist.

By conducting the consultation over telemedicine, the patient, family members, care givers, social worker, and primary physician were all able to be involved in the discussion with the pulmonologist. Family members and care givers discussed why they would like to have the tracheostomy removed, and the primary physician voiced his concerns about removing it. After a lengthy discussion and a review of all the tests, the pulmonologist recommended leaving the tracheostomy tube in. He said it was hard to assess the patient's current comfort level since the patient does not communicate, but removing the tracheostomy tube would necessitate occasional suctioning through the nose and throat, which would cause even more discomfort. The pulmonologist summed up his recommendation by stating that in his opinion, the tracheostomy remained the most comfortable, effective and safest way to provide respiratory care for the patient. Everyone involved was very satisfied with the telemedicine consultation.

### Case 3 The "Long-Term" Potential of Telemedicine

The St. Alexius Telemedicine program has been a great benefit to us at Marian Manor. We are a long term care facility located 50 miles from the nearest hospital and specialty physicians. For many years, one of our residents has had a severe coccyx wound after a car accident resulted in a leg amputation and permanent stay in a wheelchair. This wound has been extremely difficult to manage because of the severity and slow healing process, and has required a number of reconstructive surgeries. Because visiting his surgeon in Bismarck takes 3-4 hours for the resident, we utilize the telemedicine program so the surgeon can see the progress of the treatments.

At one point during the recovery, the surgeon felt it was necessary to have the resident remain in a prone position, with no sitting or laying on the wound, 24 hours/day for a number of weeks. During these weeks, it was ideal for the resident to have the follow-up visits done via the TeleCare Network. Without this service, the resident would have required an ambulance transfer in order for him to remain in a prone position.

In addition, telemedicine improves the communication between the surgeon and Marian Manor nursing staff. The nurse is present during a telemedicine visit, so the surgeon can give orders, ask the nurse questions, and make changes as necessary. In contrast, no nursing staff accompany a resident on a traditional in-person appointment. Using telemedicine has enabled the medical and nursing staff to try many different types of treatments, which have gradually improved the wound.

**Midwest Rural Telemedicine Consortium  
Mercy Hospital  
Des Moines, IA**

Our most dramatic sessions in the past year have been related to the use of POTS-based systems to enhance the lives of our patients and physicians. There are three applications that we have developed: 1) Seeing Is Believing (SIB), a service we provide for patients in Neonatal Intensive Care 2) telefunerals and 3) SARAS (Seclusion And Restraint Assessment Service).

1.) Seeing is Believing (SIB) began as a way to allow new parents with long-stay infants in the Neonatal Intensive Care unit to bond with their newborns when circumstances made it difficult for one or more of the parents or siblings to be with the infant. We provide bedside units and take-home units at no charge to the families. The only cost to the family may be the long distance phone bill. This service has been very successful and has found other uses. We recently helped a 10 year-old patient attend some of her 5<sup>th</sup> grade classes. One of the bedside units was set up in her hospital room and we provided the school with a system that could be moved to various rooms as needed. Being able to see her classmates really raised the little girl's spirits.

2.) Providing telefunerals is not a service we expected to provide, but when a patient is so ill that they cannot leave the hospital for the funeral of a spouse or one of their children, it can be a godsend. So much healing can take place if the system is set up 45 minutes to an hour before the service to provide time for friends and relatives to visit over video with the patient. Video presence at the funeral service adds closure for the patient.

We have experienced wonderfully cooperative people who will do just about anything to assure the success of the telefuneral. Examples of cooperation include: members of the local phone company installing and testing phone line extensions into the church specifically for our use and running 750 feet of phone line from a rural phone terminal to the graveside then borrowing a portable power generator from the local fire station to support the patient's attendance at the graveside service. The pastor delayed the procession to the graveside so our equipment could be taken down and moved to the graveside ahead of the funeral traffic.

3.) Seclusion And Restraint Assessment Service (SARAS) is a new service we have just developed and are beginning to support. New rules require a patient either placed in seclusion or restraint to be seen by a mental health practitioner within one hour. For a practitioner seeing a waiting room full of patients or getting a call at 3:00 a.m., this can cause difficulties. We developed a POTS based cart to view patients in seclusion. The physicians received portable POTS units to install in their office or home. Nurses facilitate the interaction between the physician and patient, thus assuring the patient timely access to the physician.

**Northern California Telemedicine Network (NCTN)  
Santa Rosa Memorial Hospital (SRMH)  
Santa Rosa, CA**

Case 1 – Emergency Medicine

This spring, a patient with a 5-6 cm laceration and crush injury to the forearm and hand was seen by a Family Nurse Practitioner (FNP) at a clinic in Gualala, CA. The patient worked at the local lumber mill and had caught his hand and forearm in the chain that moved wood through the mill. The FNP assessed the laceration and injury, and determined that the patient had a possible fracture and compartment syndrome. The FNP contacted SRMH Emergency Department (ED) for a telemedicine consult with an ED Physician and Radiologist.

Based on the images that were transmitted with the general exam camera, it was determined that the patient did not need to be transported and the FNP would be able to clean, suture, and splint the wound on-site. The patient was saved a 5 hour roundtrip transport to SRMH and the expense of an ED visit. The patient, FNP, ED physician, and Radiologist rated the telemedicine consult as good (highest possible ranking). The FNP stated that the help from the Radiologist was “quick” and the service from the ED physician was “excellent.”

Case 2 - Audiology

From December 1 through March 29, 2000, four telemedicine Audiology clinics were held at a clinic in Gualala, CA. A total of sixteen patients were tested, evaluated, and given recommendations for appropriate follow-up care by a licensed Clinical Audiologist. During each clinic, an Audiology Technician conducted a hearing test on each patient and faxed the results to a licensed Clinical Audiologist in Santa Rosa, CA. Each patient was then scheduled for a follow-up telemedicine videoconference consult with the Clinical Audiologist.

Fifteen out of the sixteen patients were identified as having significant hearing loss and communication difficulties. One patient, who had significant hearing loss, was a child. Early detection and appropriate follow-up care was crucial for the child because of the potential affect on his/her ability to learn in school.

The Clinical Audiologist stated that he sees “tremendous potential for telemedicine in audiology” and considers telemedicine “a very valuable asset to the north coast and surrounding areas.” In addition, the Clinical Audiologist hopes to implement an infant hearing assessment program in the future.

**Northwest TeleHealth  
Spokane, Washington**

TeleHealth in The Neonatal Intensive Care Unit

One of the network’s most rewarding telehealth experiences started with an inquiry from the administrator of one our grant sites. “The family can’t come! Can they see the babies through our telehealth system?” Twins has been born prematurely and in distress the night before and were immediately transported by helicopter to our large urban medical center 140 miles away. The mother had not even been able to see her infants before they were flown out

and since she was a single mother with three other children at home, it was difficult or impossible for her to come to Spokane to see the infants.

Northwest TeleHealth arranged a connection between the mom and babies. This was the first telehealth attempt in the NICU and the telehealth staff was received with some skepticism from the NICU nurses as they rolled their equipment into the crowded unit. Once the staff saw the tearful mom and realized the depth of the bonding that transpired when she saw her babies, all of the skepticism and reluctance disappeared.

Through a period of six weeks, the mom saw the babies five times. The telehealth cameras brought the 1 pound babies so close to her that she could see every little finger and their cute little eyes. She was able to watch them nipple their feedings, hear them burp and enjoy their first “smiles”. Primary care nurses, case managers, social workers, the physical therapist and the neonatologist were able to talk and plan face-to-face with the mom and the local care providers. When the mom arrived to take the first twin home, she was much less intimidated because she knew the baby’s care givers and had seen the NICU environment.

## **INTEGRIS Health Oklahoma**

### Case 1- The Human Side of Telemedicine

A recent case used telemedicine to successfully connect family members receiving care at two of our sites. A man was transferred to INTEGRIS Baptist Medical Center to await a heart transplant, while his mother was bedfast at INTEGRIS Jim Thorpe Rehabilitation Hospital. She was unable to see her son before the surgery, and unable to be with other family members for support. Mother and son were both experiencing frustration and anxiety, and the mother felt she couldn’t be “there for her son.”

A caring occupational therapist knew about the mother’s situation and contacted the director of the telemedicine project to see if there was a way to help this family. The Rural Telemedicine Department had just received new videophone units that could be used with any standard telephone line. Helping this family became an ideal way to test the new units.

The mother and son were united with the use of the video units in their own hospital rooms. They cried with joy as they saw each other for the first time in weeks. This was not a health care application in the traditional sense of the word, but it did contribute to the happiness of two of our patients coping with a very stressful situation.

### Case 2 – Physical Therapy

A 25-year-old woman suffered an acquired brain injury and was in a rehabilitation center. Insurance ran out and she was to be discharged and receive outpatient services. The family felt unable to care for her without help. They were introduced to teletherapy as a way to help the caregiver work in the home setting with the patient. The family agreed and brought the patient home for outpatient services, plus the physical teletherapy in the home. Even after insurance no longer paid for outpatient services, the physical teletherapist worked with the family over telemedicine on a weekly basis, providing the only healthcare intervention the family had. At the

beginning of teletherapy/outpatient services, the patient couldn't sit without assistance in a wheelchair. At the end of twelve weeks, she was walking around the home with little assistance. Without the telemedicine interventions, the family would not have had the courage to bring her home and accomplish so much.

**University of New Mexico Health Sciences Center  
Center for Telehealth  
New Mexico Telemedicine Network  
Albuquerque, New Mexico**

Triplets are born in Las Cruces, New Mexico. Two of them are healthy, but one is in need of critical respiratory care and a ventilator at the University of New Mexico School of Medicine Children's Hospital in Albuquerque, 225 miles away. The mother, who delivered the babies via Caesarian section and is still hospitalized, cannot leave the two healthy babies to travel with the sick baby to Albuquerque for treatment. The family has two other older children, and the father is also needed at home.

Once the baby is transported to the Newborn Intensive Care Unit at University Hospital in Albuquerque, Dr. Dale Alverson sets up a videophone connection to the mother's room at Memorial Medical Center in Las Cruces. The mother, father, and two older children can view the infant in Albuquerque and talk to the doctor in charge to monitor the baby's progress.

According to Dr. Alverson, "Imagine how you would feel if you had to see your newborn infant transported miles away for critically needed medical care with no one in the family to watch over her. The experience of viewing the baby via videophone helped alleviate the stress the parents experienced to a large degree. They could both see and hear her and talk to medical caregivers as needed until the crisis passed."

Videophones are used to provide a two-way live video system using the standard plain old telephone service (POTS) via analog phone lines, a touch-pad phone, standard TV set and a set top videophone. They are relatively inexpensive, easy to install, and allow family visits with children and treating staff at UNM Children's Hospital of New Mexico.

Through funding raised by the Children's Miracle Network of New Mexico, videophones have been installed in four hospitals in New Mexico. Hospitals include Memorial Medical Center in Las Cruces, Eastern New Mexico Medical Center in Roswell, San Juan Regional Medical Center in Farmington, and in four sites at the University of New Mexico Health Sciences Center. Plans are made to add twenty-one new sites across the state during the coming year. While videophone picture quality is not adequate for most clinical diagnostic purposes, it affords patients and their families an opportunity to "visit" when they cannot be together in person.

**Avera McKennan  
Avera McKennan TeleHealth Network  
Sioux Falls, South Dakota**

Case 1 - Dementia

The following session was successful not only because of the positive outcome for the patient, but also because of the potential "ripple effect" had the patient not received care. We have a

geriatric psychiatrist that consults via telemedicine with a nursing home 185 miles away. A consultation was obtained when a male patient with multiple medical problems and dementia had become combative and was behaving sexually inappropriate. Staff was unable to work with the patient, and the wife was embarrassed by her husband's inappropriate behavior.

On the first consultation, the psychiatrist ordered medication to treat the dementia. Upon the second the visit, approximately 2 weeks later, the patient had become less alert, making him rely totally on the staff for his care. After reviewing the medications again, it was noted that the patient was started on a medication by the attending physician that added to the effects of the medication ordered by the psychiatrist causing the patient to be sedated. After medication changes were made, at the third visit, the patient was pleasant, appropriate, and staff had been able to assist the patient as needed.

Without this consultation via telemedicine, the patient would not have received the specialized care with its positive effect on the patient, his wife, and the nursing home staff. The patient's quality of life was increased due to treatment of his dementia and a possible hospitalization was averted when the drug interaction was recognized by the specialist. The specialists, patient, nursing home staff and wife were able to meet together to discuss the patient's plan for care. The wife now "has her husband back" and is not embarrassed by the patient's inappropriateness.

Staff can now care for the patient without fear of being hit. Because the patient is alert, he can assist with transfers, putting the staff at less risk for a back injury. Did this consult possibly prevent loss of work time and income for an employee, and workman comp payments or higher premiums for the facility?

### Case 2 - Perinatology

We are fortunate to have a group of perinatologists who are very supportive of telemedicine and use it for ultrasounds and to provide consultations. One site that they provide services to is an Indian reservation 267 miles away. During a routine ultrasound, it was noted that the fetus had an abdominal wall defect and the infant would need surgery shortly following the delivery. The mother continued her care locally with routine ultrasounds and visits made to the specialist via telemedicine until it was time to deliver. When she arrived at the medical center, she had already established a relationship with the specialist and did not have to be treated by a "stranger." Due to the ability to provide ultrasound and the perinatology specialty, there were not any "surprises" at birth that could have caused death or disability for the infant or mother.

## **University of Arkansas for Medical Sciences' (UAMS) The Rural Arkansas Delta Integrated Telehealth System Little Rock, AR**

### Case 1 – Mental Health

A female in a small Arkansas Delta town was participating in an asthma education program via interactive video. After the session, she confided in the nurse facilitator that she was distraught and depressed over some personal matters. She was contemplating alternatives to her situation. She did not have transportation to travel to an area that might have a psychologist or psychiatrist. The nurse telehealth facilitator was able to arrange an appointment the next day with a UAMS psychologist over interactive video. Weekly sessions followed until both the patient and the

psychologist felt that the crisis was over. Monthly sessions were then established. The patient has stated many times that this technology and the access to the appropriate specialist, at the time she needed the care, saved her life.

### Case 2- Physical Therapy

Our site in Clarendon, a small remote Arkansas Delta town, recently saw an 8-year-old male with a diagnosis of cerebral palsy. The parents had difficulties getting transportation 45 minutes down the road to the Community Health Center (which is equipped with interactive video, thanks to an OAT grant.) A 2-hour trip to Little Rock to see a physical therapist was out of the question. A physical therapist at Arkansas Children's Hospital was able to consult with the child via interactive video with his parents present. During the consultation, the therapist was able to assess the patient, his condition, and review the current treatment plan. The therapist demonstrated and instructed the family in new exercises for the patient while a nurse in Clarendon was present to assist. In addition, she recommended new equipment to assist the boy. Tears were in the parent's eyes as they thanked the therapist and the Community Health Center for access to this consultation. Their son could not have had this treatment, if the technology was not available. All of this occurred while the physical therapist stayed in her work environment and the young patient and his family stayed in their community.

### Case 3 – Mental Health

A rural, destitute lady, whose husband recently left her with children to support, felt everything was hopeless. The local physician and nurse at the Clarendon Community Health Center contacted the telehealth program to set up a consultation with the UAMS psychologist. Because of very limited income, no phone or transportation, the local police would go to the patient's house on the scheduled appointment date, pick her up, and transport her to the clinic with the interactive video equipment was located. She was able to receive telehealth consultations with the psychologist at UAMS until the crisis was resolved. The clinic personnel believe that this woman's life was saved because of the availability of telehealth and access to the appropriate specialty care at the appropriate time.

## **Community Development Commission/ Charles R. Drew University of Medicine and Science Bridging the Gap: The Use of Telemedicine in the Inner-City Los Angeles, California**

During the past 18 months, we have had the opportunity to render care to individuals with a wide range of ophthalmologic conditions at our telemedicine center located at the Nueva Maravilla housing development in East Los Angeles. Our patients have included parents bringing their children in due to noted visual difficulties at school, elderly patients who have experienced progressive vision loss due to conditions such as cataract formation, and individuals affected with systemic diseases such as diabetes that previously been unable to receive yearly ophthalmology examinations.

### Case 1

Recently, a 30-year-old man who relied heavily on his vision for his work as a driver was referred to our clinic due to a recent visual change. Eight days earlier, he had noted a significant change of central vision in his left eye. Upon examination, significant changes were observed to

his central area of vision (the fovea). A telemedicine consult with Dr. Flowers, made accessible via computer, allowed for examination of the photos taken of his eyes. This was instrumental in identifying the pathology that was taking place. A timely referral was then made to allow for continued evaluation and further testing. The access to specialty care made available through our telemedicine center was vital in order to avert further progression of visual changes, thus allowing him to effectively continue in his occupation.

### Case 2

A middle-aged woman came to our clinic for her first eye evaluation in many years. She had been diagnosed with diabetes ten years ago, and was taking medication purchased regularly in Mexico, because it was more affordable for her. She had very minimal medical follow-up at the time, yet consistently took the medication. The telemedicine exam revealed disease processes taking place in her eyes due to the diabetes. As a result, she was quickly referred to the ophthalmologist for treatment, thereby preventing further development of diabetic retinopathy.

### Case 3

A middle-aged man came to our clinic several months ago complaining of progressive vision loss over the past year. These changes were greatly affecting his life, as he could no longer read or see others clearly, thus affecting his regular activities and independence. Through the telemedicine consultation, it was discovered that his vision loss was due to the growth of tissue known as pterygium, which slowly covers the field of vision. The patient was referred to a specialist and made aware of the surgical options for this very treatable condition. This access to treatment was instrumental in enabling the patient to continue his active, independent life.

## **Eastern Montana Telemedicine Network Deaconess Billings Hospital**

Last summer, Dr. Sheri Rolf, a Deaconess Billings Clinic ENT and Navy Reservist, traveled to Lemoore Naval Base in California for her two weeks active duty. Lemoore is a base of several thousand with only limited ENT services, leading staff at Lemoore to inquire about Dr. Rolf's ability to connect to the base via telemedicine technology. Beginning October 2000, Dr. Rolf began conducting ENT clinics with the base 3-4 times a month.

## **Rural Eastern Carolina Health Network (REACH-TV) Brody School of Medicine at East Carolina University/ University Health Systems of Eastern Carolina Greenville, NC**

### Case 1 – Pediatric Cardiology

Kevin was a 3-year-old with a big smile and a sick heart. During a routine examination at Goshen Medical Center, a federally-funded rural health clinic in Faison, NC, his doctor heard what he perceived to be more than a suspicious heart murmur and recommended that Kevin be evaluated by a pediatric heart specialist. The nearest specialist was at The East Carolina University Brody School of Medicine's Telemedicine Center located 70 miles away in Greenville, NC.

By using video-conferencing technology, Kevin and his family did not have to travel any further than Goshen Medical Center to receive specialty care. A pediatric cardiologist in Greenville examined Kevin during an interactive video consultation. Using telemedicine technology, the cardiology determined that there was indeed a serious problem with the small child's heart. Dr. McConnell immediately scheduled Kevin for further evaluation and possible surgery at the University Medical Center. Within a week, Kevin was recovering at home from a successful surgical procedure performed at Pitt County Memorial Hospital in Greenville.

This is telemedicine: interactive voice, data and video networking that can help save time, money, and, most importantly, lives.

### Case Two – Pediatric Reconstructive Surgery

Milena was a 6-year-old Hispanic girl with Moebs Syndrome, a congenital neurological disorder which paralyzes the facial muscles. The little girl was referred from a plastic/reconstructive surgeon in Greenville, NC to a surgeon in Toronto who specializes in performing surgeries on children with maladies similar to Milena's.

It was financially impossible for Milena and her parents (who speak very little English) to travel to Toronto for a preliminary surgical consult. Therefore, arrangements were made for the little girl to receive a consult via telemedicine. Milena, her parents, and a Spanish interpreter came to ECU's Telemedicine Center for a surgical consult with the surgeon in Toronto. This was a unique situation for The Telemedicine Center because the patient was at the hub site and the consultant was at the remote site.

After an in-depth consult with the surgeon in Toronto via telemedicine, Milena was one of a handful of children chosen to receive the surgery pro-bono. The Children's Miracle Network covered travel and lodging expenses for the trip to Toronto. Shortly after her surgery, Milena returned home to Greenville and began her recovery.

### **Center for Telemedicine and Telehealth University of Kansas Medical Center**

One morning, a nurse from Horton Health Systems in Horton, Kansas contacted the Center for Telemedicine and Telehealth to investigate conducting a telemedicine consult with a Pediatric Pulmonologist at KU Medical Center. The case involved an 8-year-old child who had been in the hospital for several days suffering from pneumonia. The patient's health history revealed scarring on old x-rays, as well as critically low oxygen levels. The general practitioner in Horton had placed the child on IV antibiotics, oxygen treatments, increased fluids, and bed-rest; however, it was apparent that the child's health was not improving and he needed to see a pulmonary specialist immediately. The closest specialist was in Kansas City or Topeka, but the family did not have the means to travel to either community. Furthermore, travel for the child in this condition was not advisable. At this point, the nurse and the general practitioner considered telemedicine as a means of accessing a pulmonologist at KUMC.

That day, KUMC's only Child Pulmonologist was in clinic and did not have time allotted for an additional patient consult. However, given the demands of the child in Horton, the pulmonologist explained that she would see the patient, only if the consultation could be coordinated to occur during a "lapse" in her clinic schedule. *If* and *when* this lapse would occur could not be anticipated, and therefore, the telemedicine consult would have to occur with little or no prior warning. Early in the afternoon, the pulmonologist contacted the Center for Telemedicine and Telehealth explaining that she would be available for the telemedicine consultation within the next 5 minutes. The ITV connection between Horton and KUMC was made immediately and a technician met Dr. Perry at the telemedicine suite to facilitate the consult. During the consultation, Dr. Perry made a diagnosis over the system and recommended several further treatments, enabling the child to receive quality specialty care not attainable in the current environment without telemedicine.

Notably, the pulmonologist had never conducted a telemedicine consultation before, and in fact, there had never been a telemedicine Pediatric Pulmonology consultation conducted at KUMC.

The pulmonologist was satisfied with the technology and the process by which she was able to access the system. The nurse and family in Horton were so grateful for the consults that they personally called the Center for Telemedicine & Telehealth to show their appreciation. The nurse and hospital administrator echoed similar sentiments in stating how truly beneficial the technology was for Horton and how the consult highlighted KU Medical Center's commitment to outreach for rural Kansans.

**Allina Health  
Tri-County Hospital  
Wadena, MN**

Patient No. 1 is an 84-year old male who was in the telehomecare project because of CHF problems. He had been admitted through the clinic with acute problems. After beginning the study, he received a Via TV videophone in the home without any monitoring equipment. Fourteen days into the study, the patient saw his nurse on a Monday virtual visit and complained of not feeling well all weekend. In questioning him further, the nurse discovered he had a fever, cough, and increasing weakness. He was sent to the clinic to see his doctor that day and was diagnosed with early pneumonia. Had he waited for the nurse to do an actual visit, it would have been three days later and his condition would have required him to be admitted to the hospital. Instead, he was treated on an outpatient basis and recovered fully. The results of his virtual visit saved him a hospitalization.

**UC Davis Telemedicine  
Davis, California  
(More Stories on Page 13)**

Case 1 - ENT

A forest worker was seen at the Western Sierra Medical Clinic in Downieville, California, for a complaint of having the sensation of something always being in her throat. Although visual examination showed no obstruction, a telemedicine consultation was scheduled with ENT, and a

nasopharyngoscopy was done. The ENT specialist found a mass in her throat and referred her to a surgeon for removal of a possibly cancerous mass. Had it not been for telemedicine, as well as the training provided to the local doctor to perform the nasopharyngoscopy, the mass in the patient's throat would have never been found. She would not have pursued a second opinion after the local physician examined her.

#### Case 2 – Obstetrics

On August 23, a pregnant 33-year-old patient presented to Plumas District Hospital at 38 weeks for a scheduled nonstress test. The woman, who had had four previous pregnancies and two live births, had a number of prenatal risk factors, including alcohol use during pregnancy, history of smoking, borderline anemia, and intrauterine growth retardation as documented by ultrasound. During the procedure, the patient experienced brief, irregular uterine contractions. The physician on duty, performed an artificial rupture of the membranes. Over the next six hours, the fetal heart rate became less steady, with variable decelerations appearing more pronounced. The physician on duty requested that the monitoring strip be transmitted to UCD via modem using their remote fetal/maternal monitor. At UC Davis, the receiving nurse contacted a perinatologist to review the monitoring strip on the base station located in the labor and delivery unit. The perinatologist reviewed the strip with the rural physician, and the consultation was both reassuring and educational. The patient subsequently progressed rapidly and delivered a healthy baby boy later than night.



# Telemedicine Success Stories

## UC Davis Health System

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*Names of persons described in these stories have been changed to protect patient confidentiality.*

### Weight Management Cases

Children referred to the telemedicine Weight Management Program by the Oroville pediatricians have been those who have utilized our community's available resources without success. Almost all have been morbidly obese for years. These children all have a family history of hypertension, diabetes, and/or hyperlipidemia. The majority of these children have been placed on diets, which resulted in eventual weight gain, battered self-image, and increased family strife. Most have been referred to dietary counseling, which, if the only intervention, has shown very limited success. Parents, frequently obese themselves, voice a feeling of hopelessness, and an inability to change their child's future. Telemedicine consultation provides a much-needed avenue to expert, specialized care.

Dr. Warden's telemedicine clinic provides information and advice that covers all aspects of obesity. Her goals are attainable. Her program instructs parents and children how to recognize and change behaviors that encourage obesity.

Dr. Warden places emphasis on improved nutrition rather than weight loss. The food pyramid is used as a guide to illustrate a balanced diet, which includes all of the food groups in the appropriate number of daily servings.

In addition to nutritional counseling, Dr. Warden addresses the family's life style that may contribute to the child's obesity. She advocates reducing the amount of time spent watching television; increasing the number of meals the family eats together without the television set on; and increasing outdoor activity. Depression, which often accompanies obesity in children, is evaluated and treated if indicated.

#### Paul

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At 260.2 pounds, this nine-year-old child was almost three times the high normal weight limit of 88 pounds for his age. Overweight since the age of two, Paul weighed 219 pounds as a six year-old. His medical record documents appointments for dietary referrals that were never kept, and a long list of "no shows" for doctor's visits and scheduled physicals.

His family has no phone at the residence. The phone contact is a grandmother whose home is over ten miles from his. The family has no personal transportation and must rely on a severely limited public transit system.

Child Protective Services (CPS) intervened this year when school personnel observed that Paul was unable to climb three steps to board a school bus. Children stood behind him and pushed him up onto the first step.

Paul was subsequently referred to the Telemedicine Weight Management program. On his first telemedicine appointment Paul was extremely short of breath after slowly walking twenty feet across the doctor's office to be weighed. He has borderline hypertension and hyperlipidemia.

Paul is showing slow, but continued weight loss and increased exercise tolerance. The program designed for Paul with the aid of Dr. Warden over telemedicine emphasizes improved nutrition with specific family instruction based on the food pyramid. The effectiveness of this family approach is evidenced by a noticeable weight loss for both his mother and teenage sister.

Very much a work in progress, this family needs a great deal of assistance to integrate medical care with community support services. As a Telemedicine Case Manager, I have the unique opportunity to provide this coordination of services.

#### Kim

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Morbidly obese for years, this 11-year-old girl weighed 209.5 pounds and stood five feet tall when she was referred to the telemedicine Weight Management program. Prior to her referral, Kim was gaining an average of three pounds a month. Her mother was concerned not only by the weight gain but by frequent emotional outbursts of anger or

tears. Kim had been enrolled in a weight loss program in a nearby town. Injections of vitamin B12 had been started and she had been placed on a very restrictive diet. The child became increasingly angry, uncooperative with the dietary restrictions and gained an additional twenty pounds.

Following her first telemedicine appointment and implementation of the program of improved nutrition designed by Dr. Warden, Kim had an 11-pound weight loss. More importantly, she began to assist her mother with the grocery shopping, and plan her meals around the food pyramid. Kim now lectures other family members on the importance of good nutrition, exercise, and limiting television time.

## Pain Management Cases

Berry Creek patients who have been treated through our Pain Management telemedicine program have all failed more traditional attempts at pain control. All have experienced chronic pain so intense that their ability to provide basic self-care was severely limited. Prescribed medication had done little to reduce their pain. All expressed feelings of depression. Most admitted considering suicide.

Each patient seen over telemedicine has experienced dramatically improved functionality. When one patient was asked how his life had changed, he answered, “ Now I *have* a life.”

“Increased functionality” is the accepted measurement of success for Dr. Wilsey’s Pain Management Clinic. His extensive questionnaires identify limitations of a person’s ability to provide for his or her own activities of daily living, degree and description of pain, and precipitating factors that cause increased pain.

His use of long acting opioids provide a constant degree of pain relief without the “kick” associated with many frequently prescribed pain medications. Dr. Wilsey tailors dosage to the amount it takes to allow each patient to function in daily life. As part of routine care, Dr. Wilsey evaluates and addresses depression which is frequently caused by chronic pain.

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### A m a n d a

Unable to sit in a chair during her telemedicine consult, this 39-year old woman lay on the exam table curled into a fetal position and crying with pain. Even the five-minute trip to Berry Creek Clinic had exceeded the time she could comfortably sit in a car. Injured in a water slide accident some three years earlier, back pain severely limited her ability to perform household chores or participate in her family’s activities.

Previously prescribed pain medication had been largely ineffective. Frequent visits to the clinic were interspersed with almost weekly trips to the Emergency Room for treatment of her unbearable back pain. She was able to stand or sit only minutes at a time. She admitted sleep disturbance, fatigue, inability to concentrate, mood disturbances and suicidal ideations.

Since Amanda’s telemedicine consult her only doctor’s visits have been her routine monthly checkups for prescription renewals.

She is now able to perform household chores and participate in her family’s activities. This summer Amanda happily reports that she has even been able to work in her yard.

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### D a v i d

David slowly walked into the clinic waiting room leaning heavily on his cane, head bent forward, shoulders rounded. He was over thirty minutes early for his appointment with Dr. Wilsey for a telemedicine Pain Management consult.

An automobile accident two years earlier had left him with frequent headaches and incapacitating neck, back, and shoulder pain. Limited neck movement secondary to pain caused his slouched, almost humpbacked appearance.

Although only 47-years old, his day-to-day life was dictated by the intensity of his pain. He could only stand or sit for minutes at a time. Even limited activity brought on the ache that turned into throbbing pain. Unable to stand for any significant period of time, he could not provide for his own activities of daily living.

The unrelenting pain contributed to a self-admitted and easily diagnosed depression. Previously prescribed pain and anti-inflammatory medication brought little relief. Pain woke him from sleep and robbed him of his appetite.

During the course of the consult David admitted his “life wasn’t worth living. What I have now is not a life.” He said, “I can’t take care of myself. I can’t even wash my own dishes.” When instructed to raise his head, a slight elevation of his chin elicited a facial grimace announcing increased pain.

Based on Dr. Wilsey’s evaluation and recommendations, Robert’s medication regimen was completely changed. He was started on a long acting opioid. Because of Dr. Wilsey’s expertise, the Primary Care Physician felt comfortable with this prescription.

Two weeks later this man again walked into the clinic, but this time David was carrying his cane. Smiling, chin high, neck arched, he approached the staff. Arms extended over his head he happily announced, “I can wash my dishes now!”

Additional Berry Creek patients have benefited from telemedicine without actually being seen. Using strategy gained from these Pain Management consults, the clinic’s physicians have been able to effectively treat other chronic pain patients.

## Behavioral Health Cases

Steve

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This 16 year-old male honor student described feelings of “overwhelming stress and pressure.”

Steve’s parents and primary medical doctor had been unable to find a psychiatrist willing to see a depressed, potentially suicidal teen on an outpatient basis. There was a strong family history of both clinical and bipolar depression. Since the suicide of a school friend, his parents had noticed increasing depression in spite of prescribed antidepressants and counseling.

Steve’s primary care physician needed a specialty consult to assist in developing a definitive diagnosis and recommending an appropriate medication regimen. In a consult that lasted 2.5 hours, he and his mother were seen on an emergency basis over telemedicine.

The psychiatrist was able to provide a diagnosis and direct an appropriate medication regimen. Follow up psychiatric counseling was found within the community once the crisis was defused.