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14. ABSTRACT

The Community Hospital Telehealth Consortium (CHTC) is a unique, forward-thinking, community-based healthcare service project organized around 6 not-for-profit community hospitals located throughout Louisiana and Mississippi. The central tenet of the CHTC project is the utilization of TeleHealth technology to improve and expand the opportunity for rural and urban underserved populations to receive quality, affordable health care.

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FINAL TECHNICAL REPORT

GRANT #: N00014-02-1-1017

PRINCIPAL INVESTIGATOR: Elton L. Williams, CPA, FACHE

INSTITUTION: Lake Charles Memorial Hospital

GRANT TITLE: Community Hospital Telehealth Consortium (CHTC)

AWARD PERIOD: 09 Sep 2002 - 30 Sep 2003

OBJECTIVE: The central goal of the CHTC project is to measure and increase the utilization of TeleHealth technology to improve and expand the opportunity for rural and urban underserved populations to receive quality, affordable health care.

APPROACH: The multi-hospital structure of the CHTC gives it a unique diversity. Each hospital is a designated hub site, and has its own spoke sites. The CHTC combines resources and can readily share the specialty and education resources from each of these hospital networks. Each hospital is able to focus on the specific needs of its region while still being able to offer the resources of each of the others to its patients and healthcare workers. This is especially meaningful in the area of continuing education, where greater resources and networking can draw a wider range of top quality educators.

The CHTC provides clinical and educational resources to a rather large number of parishes/counties in Louisiana and Mississippi. Telemedicine Specialty Clinics and Distance-Learning spoke sites are developed in the following manner: Members of the proposed site's administrative staff and/or its community leaders complete Needs Assessments. Once needs are identified, the hub site determines its ability to meet the needs, which may include looking for interested specialists as providers for telemedicine clinics. At the point that the hub site feels it can meet the needs, or some of the needs, of the proposed spoke site, contracting and equipment purchase processes are initiated. Training of spoke site personnel in the use of the technology and in the CHTC protocols is done by equipment vendors and hub site coordinators, once equipment is in place. Finally, services are initiated to the spoke site once all of the above are complete to the satisfaction of all parties.

Recently, the CHTC has upgraded its T-1 network to include ISDN connectivity, and IP capability. While the initial investment is significant, the move to IP will significantly lower our costs in the future. The multi-conferencing unit (MCU) is managed at the Lake Charles Hub Site, and places the entire CHTC on the cutting edge of video-conferencing technology. This MCU allows for simultaneous multiple point-to-point connections and point-to-point connections from any one site to any of the other sites in the network. The home health equipment runs on POTS (Plain Old Telephone Service) lines, negating the need for costly line installations in patient homes and enabling maximum portability of the equipment.

The adequacy and inequality of health care services for rural and urban underserved populations are well documented. The CHTC's commitment to use its combined medical expertise and

technology to improve access to and quality of cost-effective health care for these populations is clear. The CHTC project has provided and will continue to expand to provide a yet larger working model of an integrated healthcare delivery system that uses TeleHealth technology to increase healthcare service capacity and education to rural and underserved communities.

ACCOMPLISHMENTS (throughout award period): The Community Hospital Telehealth Consortium (CHTC) has seen significant growth in our network during the funding term.

Lake Charles Memorial Hospital (LCMH) has added 8 rural parish libraries and a rural hospital as spoke sites. The addition of these sites has increased our capacity/audience as far as community education and professional continuing education are concerned. New interest has been noted, especially in our community education.

In the summer of 2003, LCMH hosted a Summer Youth Clinic, which was a community health education outreach focused on school age children, using telehealth video-conferencing technology, and integrated with each rural library system's own weekly outreach projects. Each week during a 2-hour session, one of the rural libraries spoke sites provided a storybook reading time (using a document camera), while another library spoke site followed with a craft demonstration with all sites participating. LCMH provided a Registered Dietician to give a demonstration of how to assemble a quick and easy, healthy snack each week. Next, a Lake Charles Memorial Hospital professional employee from a specific discipline was chosen for each session to give a quick synopsis about the type of work/ care they provided. This was done to stimulate interest in youth about healthcare careers, where shortages are present, or are forecasted to evolve. Finally, a video tour of a specific department of the hospital was provided for the participants, usually a department directly related to the discipline spotlighted during that week's session.

LCMH conducts remote TelePsychiatry clinics for two regional developmental centers. A local psychiatrist conducts the patient evaluations via telehealth technology on a monthly or bi-monthly basis.

LCMH conducts local ocular plastics clinics, with an ocular plastics specialist in New Orleans as a remote consulting provider. A local ophthalmologist brings patients to our exam room, where they are examined via the use of telehealth technology. In addition, LCMH has found a need in the federal correctional system for ophthalmology services, and is actively seeking an ophthalmologist that will be willing to do a tele-ophthalmology clinic. A recent telemedicine journal article supports the success of ophthalmology in telemedicine, and a copy was forwarded to a local ophthalmologist for his review.[1] Dermatology opportunities are also opening at this time, and we are seeking providers.

A lesson learned by the CHTC in setting up clinics, is that the assessed needs far exceed the abilities of the CHTC. This is noted especially in terms of finding health care providers that are willing to forego a busy afternoon in a successful practice for a telehealth encounter. Reimbursement opportunities are not yet providing significant incentives for health care providers.

North Mississippi Health Services has added a wireless connection to a nursing home/retirement center, and digital wound assessment technology in the home health arena. This will enable them to provide professional services to the nursing home/ retirement center via video-conferencing technology. This will help meet a real need in the nursing homes of today—as healthcare providers

work harder and longer hours in order to grapple with the downward spiraling of reimbursement, there is less time available for in-person visits. Training for biomedical and clinical personnel is scheduled in January of the coming year. The digital wound assessment in the home project incorporates the use of digital cameras by nursing personnel in the home to capture images of various wounds, and transmit those images to wound care clinicians for assessment and management of the wounds.

Our Lady of Lourdes Regional Medical Center has added a new distance-learning site (a rural hospital), and has redesigned their distance-learning center. Using state-of-the-art technology, professional and community education is now reaching a number of remote rural locations via a mini-network that they have developed. Participants are realizing a significant cost-savings related to the lack of need for travel for education. Healthcare providers in rural areas are now able to access quality professional education via distance-learning technology.

Slidell Memorial Hospital has added a rural clinic in Picayune, Mississippi. They have also provided one of the most popular community-education and distance-learning programs of the entire CHTC, entitled "Girl Talk-Adolescent Gynecology". This program is hosted by a gynecologist on staff at Slidell Memorial and is specifically focused on addressing gynecological issues in adolescent girls. Many of our hub and spoke sites have participated in this monthly series throughout the year.

Our Lady of the Lake Regional Medical Center has added a neighborhood clinic in an at-risk neighborhood, which is connected via telehealth technology to their emergency room. They have also added a school-based clinic at St. Joseph's School. They are in negotiations with a rural health-care facility in pursuing a telemedicine specialty clinic and/or distance-learning site.

CONCLUSIONS: Surveys are given to all participants, both clinical and distance learning, and requested to be completed at the time of the telehealth encounter. The site coordinator collects these surveys and data are aggregated accordingly. Of course, challenges here are to obtain the completed survey at the time of the encounter, and to assuring an understanding of the survey questions, but we have been remarkably successful.

About 90% of remote participants in either community education or continuing education stated consistently that subject material presented via distance learning technology was understood as easily as if they had attended in person. 92% of participants at remote sites agreed that attending a program in person would have incurred significant expense. 83% of remote site participants stated that they would not have attended the event in person if it had not been available via the distance learning technology network.

With only 7% of patients surveyed having a previous telehealth experience, 100% of patients in telehealth clinic encounters stated that overall they were satisfied with the session. Zero percent of patients without hearing or visual deficits had difficulty hearing or seeing the remote clinician during the encounter. While only 17% felt self-conscious during the session, or felt that something was missing, 85% felt that they could talk with the remote clinician as well as in person and would rather see a telemedicine consultant than have to travel to see him/her. While 92% of patients stated that they understood the consultant as well as in person, 100% felt the consultant understood their

problem as well as if the visit had been in person, and stated they would like to use the telemedicine system again.

The average round-trip mileage that a patient would have had to travel in the absence of the telemedicine network was 412 miles, involving an average of 6 hours travel time. If there were no telemedicine network, patients or caregivers estimated they would have had to take off an average of 8 hours work, resulting in an average of $114 in lost wages (based on estimates requested on the survey form). Other patient or caregiver estimated travel-related expenses saved (child care, meals, motels, etc.) were $116 on average.

SIGNIFICANCE: Telemedicine brings quality, affordable healthcare and distance learning opportunities to the rural underserved populations through the use of cutting-edge video-conferencing technologies. The Community Hospital Telehealth Consortium provides a network of sharing and support for community hospitals to foster the growth of Telemedicine through combined technology acquisition, yet is loosely bound in order to provide for individuality in service.

PATENT INFORMATION: Not applicable.

AWARD INFORMATION: Not applicable.

REFEREED PUBLICATIONS (for total award period):

1. Kawasaki, Satsuki, et.al., (2003) Use of Telemedicine in Periodic Screening of Diabetic Retinopathy. Telemedicine Journal and e-Health 9: 235-239.

BOOK CHAPTERS, SUBMISSIONS, ABSTRACTS AND OTHER PUBLICATIONS (for total award period)

Not applicable.