

<b>Project Title:</b>	INTEGRIS Telewoundcare Network
<b>Principal Investigator:</b>	Bryant, Charles A., M.D.
<b>Organization:</b>	Integrus Health, Inc.
<b>Mechanism:</b>	RFA: HS04-011: Transforming Health Care Quality through Information Technology (THQIT)
<b>Grant Number:</b>	UC1 HS 015359
<b>Project Period:</b>	09/04 – 09/08, Including No-Cost Extension
<b>AHRQ Funding Amount:</b>	\$1,063,213
<b>Summary Status as of:</b>	September 2008, Conclusion of Grant

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**Strategic Goal:** Develop and disseminate health IT evidence and evidence-based tools to improve health care decisionmaking through the use of integrated data and knowledge management.

**Business Goal:** Knowledge Creation

**Summary:** Chronic wounds, defined as wounds not healed in 30 days, are a national health problem. Chronic wounds have a high rate of occurrence and have significant clinical, cost, and social implications. It is estimated that five million patients in the United States have chronic wounds, and that one to two million people develop new pressure ulcers each year. Costs to treat chronic wounds are high. Wound care constitutes 48 percent of home health services provided in the Nation according to the Centers for Medicare and Medicaid Services (CMS) Case Mix Report. A major, but often overlooked, contributing co-morbidity to chronic and non-healing wounds is diabetes. If blood sugars are too high, healing will not occur; thus, controlling blood sugars should be addressed as part of the wound treatment plan. Oklahoma has the second highest diabetes rate in the Nation and the second lowest in expenditure for diabetes services. Many Oklahomans with diabetes remain undiagnosed since the disease is generally asymptomatic until complications develop.

The study design was a controlled trial to evaluate outcomes utilizing a telehealth strategy incorporating evidence-based practice guidelines as compared with outcomes using the current standard of care in the community. Most physicians were willing to refer to the telewound intervention group but never referred to the standard care group. They voiced concern over referring to the standard group because it was extra work for their staff without immediate benefit to the patient. As a result, although a total of 56 individuals participated in this study, only two individuals were allocated to the comparison group. Because the comparison sample's small size prohibits between-group comparison, analysis had to be made within the telewound group for outcomes.

### Specific Aims

- Add to the network pioneered during prior grants by increasing physician and case manager awareness of telemedicine services, linking with additional sites, expanding coverage to new care settings, and demonstrating evidence-based practice. **(Achieved)**
- Improve the quality of wound care by collecting wound care and diabetes documentation, improving diabetes management using videoconferencing and vital sign monitoring, and conducting more timely interventions. **(Achieved)**
- Develop business strategies for sustainability. **(Achieved)**

**2008 Activities:** Data collection for the study of wound care outcomes continued into 2008 and concluded during the year so that analyses could be conducted. Educational presentations about chronic wounds, diabetes, and home health services continued.

**Impact and Findings:** The study investigated whether patients with longstanding wounds healed relatively quickly; however, the results were mixed. Certain patients with longstanding wounds healed quickly once enrolled in the program, but overall only about half of all wounds were healed by the end of the study. Underscoring the relationship between diabetes and wound care, 73 percent of the patients had characteristics of diabetes or other metabolic syndromes at enrollment, and about half of those metabolic conditions were uncontrolled or undiagnosed. Due to incomplete data collection for blood glucose and hemoglobin A1C, as well as the small sample size, no specific conclusions could be drawn from longitudinal tracking of the clinical outcomes data. Data suggest that early identification and intervention resulted in significant decreases in healing time; however, this has not reached statistical significance, and so the question of whether using an evidence-based telewound approach leads to superior healing times remains open. It can be speculated, however, that the improved access to specialized evidence-based wound care provided via telemedicine led to more timely referral and intervention.

Providers involved in the study cited the educational component as a major benefit to them. Group education was offered quarterly on diabetes care over broadband videoconferencing to rural sites, while metro participants attended onsite. Educational materials were sent to the attending sites in advance. The class was conducted by a certified diabetes educator, with time at the end of the session for questions and answers. Wound care group education was offered twice over videoconferencing, and a few home health inservices were provided locally.

The project team reported several issues that impacted use including unfamiliarity with digital cameras, a lack of time or expertise in sending the pictures to the central data administrator, fear pictures would be accidentally erased, or a general lack of computer skills. One change from the original protocol implemented as an alternative was to save photos of wounds onto a memory card, then to send the memory card in a self-addressed, stamped envelope weekly to the project manager. This slowed the availability of the pictures to the system, but it did increase participation at three sites. Another technical issue was use of the online vital signs monitoring in conjunction with an electronic health record. In some sites, computers were old or did not have the required operating capabilities to use the ASP-based database. In addition, broadband, required for the Web site, was not always available at the care sites. Limitations inherent in real world settings, including lack of incentive for control group participation, resistance to adding to staff workloads, competitive concerns, medical liability concerns, and technical issues, make more traditional research models difficult to implement. The results this project was able to produce reflect these realities. Although a statistically valid comparison of telewound care to standard practices was not feasible, it is hoped that this study will contribute to the understanding of care for chronic conditions, co-morbidities, and home monitoring.

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### **Selected Outputs**

This project has no outputs to date.

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**Grantee's Most Recent Self-Reported Quarterly Status (as of September 2008):** The project is completed. Although the initial goal of implementing a controlled trial was not achieved due to referral problems, some patient outcomes improved dramatically, and the dissemination of information about telehealth programs and health information technology will be beneficial to the community.

**Milestones:** Progress is mostly on track.

**Budget:** Significantly underspent, more than 20 percent.