

## 9) Burn Tele-medicine Program

### Spaulding Rehabilitation Hospital

*Joseph Castellana, M.B.A., Ph.D., Vice President, Medical Administration, Partners Continuing Care Network; jcastellana@partners.org*

#### PROJECT DESCRIPTION

Telemedicine, successfully utilized in many areas of medicine, is yet to be evaluated during the rehabilitation phase of care. This initiative linked the burn center in an academic medical center with a rehabilitation facility. The goal was to evaluate the use of telemedicine and its effects on patients, providers, and cost in the transition and quality of care.

The rehabilitative phase of burn care can be as intensive and highly specialized as the acute phase, requiring a continuation of the multidisciplinary efforts of the burn surgeon, occupational and/or physical therapist, nursing/wound care, nutritionist, psychologist/psychiatrist, social worker, and others. This prolonged care necessitates numerous clinic visits for evaluation of wounds with respect to healing, contractures, pigmentation, and psychosocial factors that include return to work, school, and the community. For patients with large burns, this can last several months to years. Missed outpatient sessions can create a domino effect wherein a worrisome wound could require skin grafting, subsequent immobilization, and thereby prolong the rehabilitation phase of therapy, scar treatment, and ultimately reintegration into society.

At this burn center, the majority of large burn survivors requiring inpatient rehabilitation are discharged to a nearby comprehensive, rehabilitation hospital, which compelled a collaborative program between them. Initially, the burn surgeon traveled to the rehabilitation hospital for weekly rounds. Soon thereafter, to improve practitioner efficiency, virtual real-time patient rounds via synchronous video replaced in-person physician rounding. Goals remained unchanged: facilitate a seamless transition between acute and rehabilitative phases of burn care, improve the overall quality of care and patient experience, reduce unplanned readmissions, and lower global costs. Our telemedicine session brings together more than the patient and the burn surgeon, as is typical in the clinic setting. The patient's nurse and therapist are also present, and each session includes the entire team (burn clinic practice manager, surgical administrator, telehealth engineer, telemedicine nurse, and occupational therapist) with the patient playing an active role in the evaluation.

This telehealth program included all patients who were transferred to the rehabilitation hospital. Weekly, structured consultations were established, including a pre-round huddle, patient evaluation, debriefing, and quality evaluation with a patient satisfaction questionnaire. The huddle was used to identify scheduling, staffing, or equipment issues prior to starting the telemedicine sessions.

An IRB-approved retrospective review was performed on all patients enrolled in the telemedicine/rehabilitation program between March 2013 and March 2014. Data collected included total number of encounters, visits, type of visit, physician time, and readmissions. Transportation costs were based on local ambulance rates between the facilities. The impact of telemedicine was evaluated based on the time saved for the physician, burn center, burn clinic, and rehabilitative days saved. A patient satisfaction survey was also administered.

#### OUTCOMES ACHIEVED

- 146 ambulance transports averted, totaling \$101,110.
- 6.8 outpatient burn clinic days saved, or 73 clinic appointments of 30 minutes duration.
- 80 inpatient bed days saved at the burn hospital due to ability to perform more outpatient surgery
- 2-3 patient days saved at the rehabilitation hospital by avoiding unnecessary travel.
- Demonstrated patient satisfaction with the encounters, primarily related to time saved. The decrease in patient travel time between clinical sites improved adherence to the rehabilitation care plan, and increased throughput at the rehabilitation facility by 87 bed days.
- Zero unplanned acute transfers to the emergency department; zero unplanned readmissions to the burn hospital.

#### LESSONS LEARNED

- Videoconferencing between a burn center and rehabilitation hospital streamlined patient care and reduced costs, while maintaining quality of care and patient satisfaction. Inpatient burn rehabilitation was improved by maximizing time spent in therapy and avoiding unnecessary patient travel to offsite appointments.
- Surveys demonstrated patients to be satisfied with the encounters.
- A feature of the telemedicine software lets providers share their screen with the patient, allowing patients to view their own wounds/grafts/scars close up and in high definition, regardless of location. Patients comment: "Now I'm able to look at my injury and talk to the doctor at the same time;" and, "for the first time, I wasn't a bystander in my care and I was actually able to see my wounds."