

June 2018 Update from the Field: Telehealth/medicine

Rural Family Physicians Are Twice as Likely to Use Telehealth as Urban Family Physicians. Jetty A, Moore MA, Coffman M, Petterson S, Bazemore A. *Telemedicine and e-Health*. Apr 2018;24(4):268-276. **Background:** Telehealth has the potential to reduce health inequities and improve health outcomes among rural populations through increased access to physicians, specialists, and reduced travel time for patients. **Introduction:** Although rural telehealth services have expanded in several specialized areas, little is known about the attitudes, beliefs, and uptake of telehealth use in rural American primary care. This study characterizes the differences between rural and urban family physicians (FPs), their perceptions of telehealth use, and barriers to further adoption. **Materials and Methods:** Nationally representative randomly sampled survey of 5,000 FPs. **Results:** Among the 31.3% of survey recipients who completed the survey, 83% practiced in urban areas and 17% in rural locations. Rural FPs were twice as likely to use telehealth as urban FPs (22% vs. 10%). Logistic regressions showed rural FPs had greater odds of reporting telehealth use to connect their patients to specialists and to care for their patients. Rural FPs were less likely to identify liability concerns as a barrier to using telehealth. **Discussion:** Telemedicine allows rural patients to see specialists without leaving their communities and permits rural FPs to take advantage of specialist expertise, expand their scope of practice, and reduce the feeling of isolation experienced by rural physicians. **Conclusion:** Efforts to raise awareness of current payment policies for telehealth services, addressing the limitations of current reimbursement policies and state regulations, and creating new avenues for telehealth reimbursement and technological investments are critical to increasing primary care physician use of telehealth services.

Telemedicine Use Decreases Rural Emergency Department Length of Stay for Transferred North Dakota Trauma Patients. Mohr NM, Vakkalanka JP, Harland KK, Bell A, Skow B, Shane D, Ward MM. *Telemedicine and e-Health*. Mar 2018;24(3):194-202.

Background: Telemedicine has been proposed as one strategy to improve local trauma care and decrease disparities between rural and urban trauma outcomes. **Objectives:** This study was conducted to describe the effect of telemedicine on management and clinical outcomes for trauma patients in North Dakota. **Methods:** Cohort study of adult (age ≥ 18 years) trauma patients treated in North Dakota Critical Access Hospital (CAH) Emergency Departments (EDs) from 2008 to 2014. Records were linked to a telemedicine network's call records, indicating whether telemedicine was available and/or used at the institution at the time of the care. Multivariable generalized estimating equations were developed to identify associations between telemedicine consultation and availability and outcomes such as transfer, timeliness of care, trauma imaging, and mortality. **Results:** Of the 7,500 North Dakota trauma patients seen in CAH, telemedicine was consulted for 11% of patients in telemedicine-capable EDs and 4% of total trauma patients. Telemedicine utilization was independently associated with decreased initial ED length of stay (LOS) (30 min, 95% confidence interval [CI] 14–45min) for transferred patients. Telemedicine availability was associated with an increase in the probability of interhospital transfer (adjusted odds ratio [aOR] 1.2, 95% CI 1.1–1.4). Telemedicine availability was associated with increased total ED LOS (15 min, 95% CI 10–21 min), and computed tomography scans (aOR 1.6, 95% CI 1.3–1.9). **Conclusions:** ED-based telemedicine consultation is requested for the most severely injured rural trauma patients. Telemedicine consultation was associated with more rapid interhospital transfer, and telemedicine availability is associated with increased radiography use and transfer. Future work should evaluate how telemedicine could target patients likely to benefit from telemedicine consultation.

Emergency Department Telemedicine Shortens Rural Time-to-Provider and Emergency Department Transfer Times. Mohr NM, Young T, Harland KK, Skow B, Wittrock A, Bell A, Ward MM. *Telemedicine and e-Health*. Sept 2018;24(9):1-12.

Background: Emergency department (ED)-based telemedicine has been implemented in many rural hospitals to provide specialty care and expertise to patients with critical time-sensitive conditions. **Introduction:** The purpose of this study was to measure the impact of ED-based telemedicine on

timeliness of care in participating rural hospitals. **Materials and Methods:** Matched cohort study of patients seen in 1 of 14 rural hospitals in a large Midwestern telemedicine network. Telemedicine cases were matched 2:1 with controls based on age, diagnosis, and hospital. The primary outcome was door-to-provider time, and secondary outcomes included ED length-of-stay (LOS) and time-to-transfer in those transferred to other hospitals. **Results:** Of 127,928 qualifying ED encounters, 2,857 consulted telemedicine and were matched with nontelemedicine controls. Door-to-provider time was shorter in telemedicine patients by 6.0min (95% confidence interval [CI] 4.3–7.8 min). The first provider seeing the patient was a telemedicine provider in 41.7% of telemedicine encounters, and in these cases, telemedicine was 14.7min earlier than local providers. ED LOS was 22.1 min shorter (95% CI 3.1–41.2) among transferred patients, but total ED LOS was longer (40.2min, 95% CI 30.8–49.6 min) for all telemedicine patients. **Conclusions:** Telemedicine decreases ED door-to-provider time, most commonly because the telemedicine provider was the first provider seeing a patient. Among transferred patients, ED LOS at the first hospital was shorter in patients who had telemedicine consulted. Future work will focus on the clinical impact of more timely rural ED care.