

## **Telemedicine for Complex Cancer Care in the COVID era: the impact of distance on care delivery.**

Nicholas Manguso, MD; Lindsey Johnson, BS; Jason B. Fleming, MD, FACS; Pamela Hodul, MD, FACS

**Background:** The implementation of telemedicine during the COVID-19 pandemic has been a tool that many institutions have incorporated into patient care. The value and effectiveness of telemedicine in the initial evaluation of complex gastrointestinal cancer patients has not been studied. After the onset of the COVID-19 pandemic, the Department of Gastrointestinal Oncology at an NCI-designated comprehensive cancer center developed novel workflows for new patient evaluation using telemedicine. As a quaternary referral center, many evaluated patients reside a significant distance from the center. We sought to determine the relative impact of distance from the cancer center and geographic region within Florida by measuring the patient's decision to receive care at our center.

**Methods:** Patients receiving telemedicine visits as their initial visits during the time period from March 2020 to November 2020 were retrospectively identified. Patients were broken in to 6 different geographic regions across the state of the Florida (Northwest (NW), Northeast (NE), Central west (CW), Central east (CE), Southwest (SW), southeast (SE)) with the cancer center located in the CW region. Data regarding consulting specialty, referrals and treatment were collected. Retention was determined to have occurred if follow up institutional service was provided after initial telemedicine evaluation. Multidisciplinary care was defined as 2 or more consults (medical oncology (MO), surgical oncology (SO), gastroenterology (GE)). Retention rates and multidisciplinary care rates were compared between regions.

**Results:** One hundred eighty-seven new visits occurred during the study period, mean age was 64.4 years and 48.6% were female. Overall, 145 (77.5%) patients lived at least 60 miles away from the cancer center with most residing in the central and southern regions (3.7% NW, 3.4% NE, 22.4% CW, 25.7% CE, 27.2% SW, 17.6% SE). The overall retention rate for the entire cohort was 42.8% (80 patients) with retention rates being significantly higher in the region containing the cancer center (CW) compared to the other 5 regions (66.7% CW vs 35.9% all others,  $p < 0.001$ ). With respect to specialty retention rates, within the CW region there was no difference between MO and the procedural specialties (SO and GE,  $p = 0.07$ ). However, the combined retention rate in regions away from the cancer center (NE, NW, CE, SE, SW) was significantly higher in the procedural specialties compared to MO (53.9% SO, 42.9% GE, 20.0% MO,  $p < 0.001$ ). Overall, 46 (24.6%) patients received multidisciplinary consultation with no difference amongst the regions ( $p = 0.51$ ). The retention rate of those receiving multidisciplinary care overall was 73.9%, with higher retention rates seen in those receiving multidisciplinary care in the CW ( $p = 0.01$ ), CE ( $p = 0.04$ ) and SE ( $p = 0.04$ ) regions compared to those having only a single specialty visit.

**Conclusions:** While telemedicine can effectively be used to broaden patient outreach, barriers of geographic location and physical distance can affect the ability to provide comprehensive care. Multidisciplinary care and expertise in specialty disciplines such radiation, surgical oncology, and complex endoscopy appear to be the driving force in the retention of non-regional patients.