



BRIEF REPORT

Redeploying gastroenterologists during the COVID-19 pandemic: early experience with telehealth including clinical access and financial implications

Nauroz Syed *, Meeta Desai, Deborah Bethards, Sanam Razeghi and Kofi Clarke

Division of Gastroenterology and Hepatology, Penn State Milton S. Hershey Medical Center, Hershey, PA, USA

*Corresponding author. Division of Gastroenterology and Hepatology, Penn State Milton S. Hershey Medical Center, 500 University Drive, Hershey, PA 17033, USA. Tel: +717-531-8741; Email: nsyed@pennstatehealth.psu.edu

Introduction

The global healthcare community has been confronted with challenges in providing patient care in a manner that limits the risk of patient and provider exposure during the COVID-19 pandemic. This has resulted in significant strain on much of the healthcare infrastructure and care-delivery models that we have come to rely upon. It has also provided the impetus for many centers to rapidly and efficiently implement novel protocols to accommodate clinical demands while incorporating measures to limit the spread of the virus. For many, this has resulted in an increased reliance on telehealth—a resource that, up to this point, had been slow to be implemented, resulting in a fragmented integration into our healthcare system [1]. Consumer survey data from the pre-pandemic era showed that, whereas 66% of surveyed individuals are interested in telehealth, only 8% reported actual experience with virtual visits [2].

The Gastroenterology and Hepatology division at our tertiary healthcare system provides care for a unique patient cohort, including patients with inflammatory bowel disease on immunosuppressive therapy, patients with decompensated liver disease, as well as post-liver-transplant patients, amongst others. As such, ensuring access to timely care for these medically complex patients in the midst of this unprecedented situation was of utmost priority. We describe our model of resource reallocation and the implementation of telemedicine in our outpatient clinics, as well as the beneficial impact that our

approach has had on improving patient access and decreasing patient waiting lists. In addition, we demonstrate the positive aspects that these measures can have on revenue stream as well as patient satisfaction.

Methods

The Division of Gastroenterology and Hepatology at Penn State Milton S. Hershey Medical Center consists of 19 physicians across several subspecialty sections. The outpatient clinics provide services to a large referral base (15,000 patients per year) from an expansive and relatively rural catchment area within Central Pennsylvania. At the onset of the pandemic in March 2020, our division implemented a policy to reschedule all elective and non-urgent endoscopic procedures in keeping with professional society guidelines [3]. Procedures were limited to clinically urgent or life-threatening emergencies. This resulted in a significantly reduced procedural caseload on individual physician providers. Provider schedules were then adjusted to allow an increased number of clinic sessions.

To implement this, a nurse navigator and staff, under physician guidance, identified and prioritized patients waiting for clinic appointments. An attempt was then made to utilize synchronous, real-time telephone or audiovisual videoconferencing software to conduct visits, where it was felt to be appropriate by the provider. For patients who required in-

Submitted: 7 November 2020; Revised: 5 February 2021; Accepted: 24 February 2021

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person visits, appointments were scheduled in a manner to limit the number of patients in clinic at any one time, in accordance with social-distancing guidelines. The physicians were then deployed on a voluntary basis to provide increased outpatient-clinic care. Data from these changes including patient waiting lists, number of sessions per provider and number of patients seen were shared weekly after unanimous agreement from faculty. Financial data obtained from billing codes and collections were also recorded, as were patient-satisfaction scores.

Results

Between 20 April 2020 and 20 May 2020, a total of 1,456 outpatient visits were conducted by physicians and advanced-practice providers across all subspecialty sections, compared to 1,276 patients seen during April–May 2019 (Table 1). This reflects a 14.1% increase in the total number of visits. The number of visits performed by physicians in particular increased from 622 during April–May 2019 to 856 in April–May 2020. This is reflective of a 37.6% increase in the number of visits conducted by physicians. Because of state licensing restrictions, all telehealth encounters were limited to in-state patients only.

Of the 1,456 outpatient visits completed during the time period in 2020, 93.2% of them were conducted via audiovisual technology. This is in contrast with the same time period in the year prior, during which there were no virtual visits completed. Table 1 shows that the gross professional revenue of \$286,731 earned between April and May 2019 increased to an estimated gross professional revenue of \$293,924 for the 4-week period in 2020.

The number of patients on each subspecialty clinic waiting list was recorded and is detailed in Figure 1. There was an overall trend of decreased waiting-list numbers across a 4-week period. Specifically, the total number of patients on the waiting list decreased from 288 to 97. Interestingly, patient-satisfaction scores were notably higher for each week in the 4-week period in 2020 compared with 2019 (Supplementary Figures 1 and 2).

Discussion

The rapid implementation of telemedicine at our center served not only as a means to mitigate the spread of COVID-19, but

additionally birthed a novel way to repurpose procedurally focused providers facing postponement of elective endoscopic procedures. Redesignation of providers within our division to the outpatient-clinic setting resulted in multiple beneficial effects. This is reflected by a nearly 14.1% increase in the total number of visits and a 93.2% increase in the number of visits conducted by physicians between 20 April 2020 and 20 May 2020 in comparison to the same calendar period in 2019. Consequently, we observed a significant reduction in the number of patients on our waiting lists, as well as an increase in clinic professional revenue. In addition to this, we saw an unexpected improvement in patient-satisfaction scores each week during the time period of interest in 2020 compared with 2019.

The COVID-19 pandemic has served as a catalyst for healthcare innovation in many ways. The expedited adoption of telemedicine has played a central role in the remodeling of our healthcare-delivery models. Telemedicine offers a convenient and cost-effective method of providing healthcare in a manner that prioritizes patient and provider safety, and limits exposure to the novel coronavirus [4]. Herein, we have reported our experience with the application of telemedicine as an example for those desiring to augment their current clinical-care models amidst an evolving pandemic.

As we accrue more experience with telemedicine, it has become apparent that there are many features of this method of care delivery that make it an attractive option [5]. Our data demonstrate that reassigning the non-utilized procedure time of faculty members and increased use of telemedicine, during a time of significant financial strain on healthcare systems, resulted in clinical as well as financial benefits. This occurred without compromising patient satisfaction and, to the contrary, satisfaction scores improved during the time period that telemedicine was employed.

There were a few challenges with our model. These included technological challenges encountered with the use of our institution's designated audiovisual platform leading to a large number of visit conversions to telephone calls. In addition, there was uncertainty regarding patient billing in the initial phases of telehealth deployment. Ultimately, Center for Medicare & Medicaid Services (CMS) implemented measures to allow billing for telehealth services as if they were provided in person. However, several patient encounters were billed incorrectly or not billed at all. For this reason, we relied on estimated

Table 1. Number of outpatient visits and accompanying revenue

Visit	Count	Physician	APP	Gross professional revenue (\$)
20 April 2019–20 May 2019				
New in person	324	185	139	111,237
Return in person	949	435	514	174,078
Consult in person	3	2	1	1,416
New virtual	–	–	–	–
Return virtual	–	–	–	–
Consult virtual	–	–	–	–
Total	1,276	622	654	286,731
20 April 2020–20 May 2020				
New in person	25	15	10	8,807
Return in person	74	39	35	14,782
Consult in person	0	0	0	0
New virtual	127	125	2	43,599
Return virtual	1,226	673	553	224,848
Consult virtual	4	4	0	1,888
Total	1,456	856	600	293,924

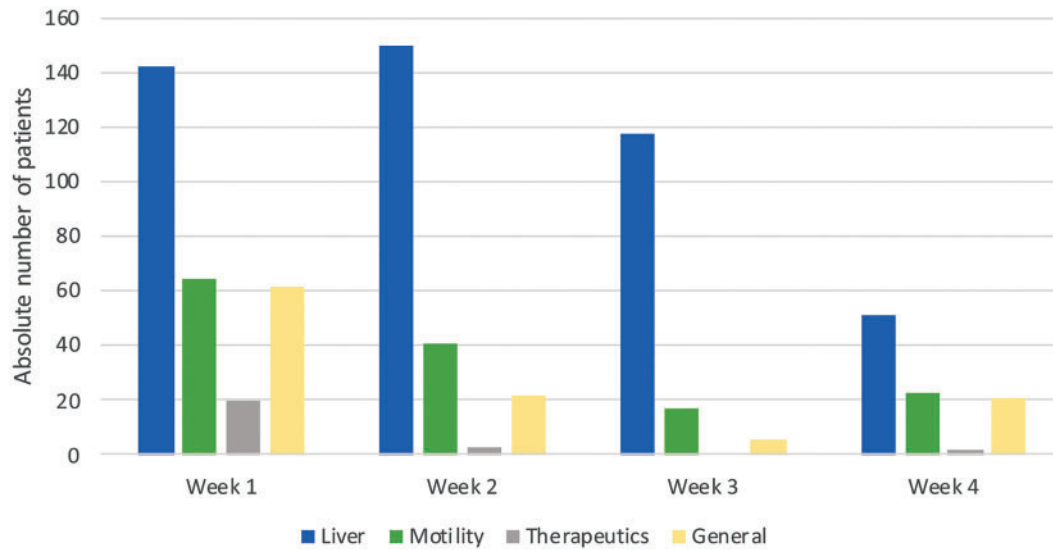


Figure 1. Weekly trends in waiting lists.

professional revenue in our assessments. We additionally recognize the limitations in assessing patients because of the inability to obtain vital signs and conduct a physical exam. Furthermore, our experience is from a single center and our results may not be generalizable. Additional reports of similar experiences from other centers are needed to draw definitive conclusions.

Supplementary Data

Supplementary data is available at *Gastroenterology Report* online.

Authors' Contributions

N.S.: writing, creation of tables, putting together final manuscript.
 M.D.: writing, creating of figures, data gathering, review of references.
 D.B.: review of manuscript, editing.
 S.R.: writing, editing.
 K.C.: originator of project, writing, editing, review of final manuscript.

Funding

None.

Acknowledgements

None.

Conflict of Interest

Dr Clarke is on the Speaker's Bureau of Pfizer, ABBVie, Takeda, and Janssen. He is an external research grant reviewer for Pfizer.

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