

2021

Trial By Fire: Impact of Rapid Expansion of Telemedicine in a Large Community Health System

Scott Stratton-Smith
Rochester Regional Health, scott.stratton-smith@rochesterregional.org

Cole Nardi
Rochester Regional Health, Cole.Nardi@rochesterregional.org

Benjamin Snyder
Rochester Regional Health, benjamin.snyder@rochesterregional.org

Follow this and additional works at: <https://scholar.rochesterregional.org/advances>



Part of the [Educational Technology Commons](#), [Health and Medical Administration Commons](#), and the [Medical Specialties Commons](#)



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](#)

Recommended Citation

Stratton-Smith S, Nardi C, Snyder B. Trial By Fire: Impact of Rapid Expansion of Telemedicine in a Large Community Health System. *Advances in Clinical Medical Research and Healthcare Delivery*. 2021; 1(1). doi: 10.53785/2769-2779.1002.

ISSN: 2769-2779

This Article is brought to you for free and open access by RocScholar. It has been accepted for inclusion in *Advances in Clinical Medical Research and Healthcare Delivery* by an authorized editor of RocScholar. For more information, please contact Advances@rochesterregional.org.

Trial By Fire: Impact of Rapid Expansion of Telemedicine in a Large Community Health System

Abstract

Background: Our community-based health system transitioned to a largely telehealth-based approach under the pressure of the COVID-19 pandemic. Limited implementation of telehealth had begun in 2018, but provider and patient reluctance and inadequate reimbursement prevented widespread adoption at the time. The pandemic accelerated our system's telehealth efforts.

Results: In February 2020, video technology was rarely utilized, with the organization averaging fewer than 10 video visits per month. In April 2020, our providers used it for over 30% of all visits in our system, accounting for over 30,000 visits. Before COVID-19, fewer than 20 of our providers had performed a direct-to-patient video visit. As of February 2021, we have had 1375 providers perform at least one visit, 522 providers have conducted 100 or more video visits and 48 RRH providers have become super-users, conducting more than 1000 video visits each. Patient satisfaction was very high and quality of care was preserved.

Conclusion:

In a significantly compressed timeframe, providers and information technology (IT) staff were forced to move from theoretical discussions about telemedicine to the majority of appointments being done as virtual house calls. As short-term adjustments turned into long-term adaptations, we streamlined the number of video options for video-capable patients to decrease staff confusion and stress. If the patient lacked access to these options, a telephone visit would suffice. Despite the rapid change in healthcare delivery to our patients, high quality care with high levels of patient satisfaction was provided

Keywords

telemedicine, video visit, technology

Creative Commons License



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/)

Cover Page Footnote

Editing assistance greatly appreciated from Amelia Stratton-Smith.

With the emergence of the COVID-19 pandemic in March, 2020, the nature of patient encounters with health care providers underwent a seismic shift. Cost of implementation, provider mistrust, technological illiteracy and other previously identified logistical and operational obstacles to harnessing the advantages of telemedicine became secondary to the urgent need to create new care models, particularly for triaging for COVID-19 symptoms, when ambulatory offices were closed and elective surgeries halted.¹⁻⁴ To maintain financial viability, there became no choice but to rapidly expand telemedicine capabilities, despite the fear that, “What is lost in a video telemedicine visit is the co-created shared space in which we join with a patient and become something more than our discrete selves.”⁵ Quite suddenly, medical providers found themselves struggling with checking in patients, reviewing medications and allergies, capturing the history of the present illness, performing very limited physical exams, and making medical decisions with much less consistent and tangible information than in the past. Telemedicine meant that providers were now required to make medical decisions even if the sound or video feed on the screens was of poor quality. This exacerbated pre-existing frustration with electronic health records and the stress related to the pandemic.^{6,7,8}

Due to the rapid the shift to telemedicine, there is limited knowledge about primary care providers’ perceptions of this new type of patient encounters. So far, sources note the positive changes to include the increased accessibility for those with smartphones or other video capable technology, the option for more frequent follow up visits, decreased no-show rates and with less time spent on the physical exam, providers report more time for discussion with the patient.⁹⁻¹¹ In addition, providers found that they were able to interact with a patient’s family members who they otherwise may have never met.⁹⁻¹² Telemedicine visits were often shorter than traditional visits and providers found that it was easier to bring the visit to a close.⁹⁻¹¹ Challenges include provider burnout as providers are potentially available to do visits even late into the evening and scheduling struggles occur as providers shift between telemedicine and face to face encounters throughout their extended work days.^{8,11} Significantly, a shift to telemedicine exacerbates the digital divide that denies access to our most senior patients and those with low socioeconomic status often including African-American or Hispanic patients.

A year into the pandemic and the rapid shift to telemedicine, patients and providers have learned how to better manage these challenges. Patients became more adept at using their smartphones, such as locating the cameras and microphones and employing them effectively. Providers and staff, accustomed to the challenges of an electronic record system, became more proficient with the expanded integration of patients into the system, e.g., significantly heavier patient portal utilization. The purpose of this paper is to describe our outcomes to assist those struggling with the telemedicine transition during the ongoing pandemic.

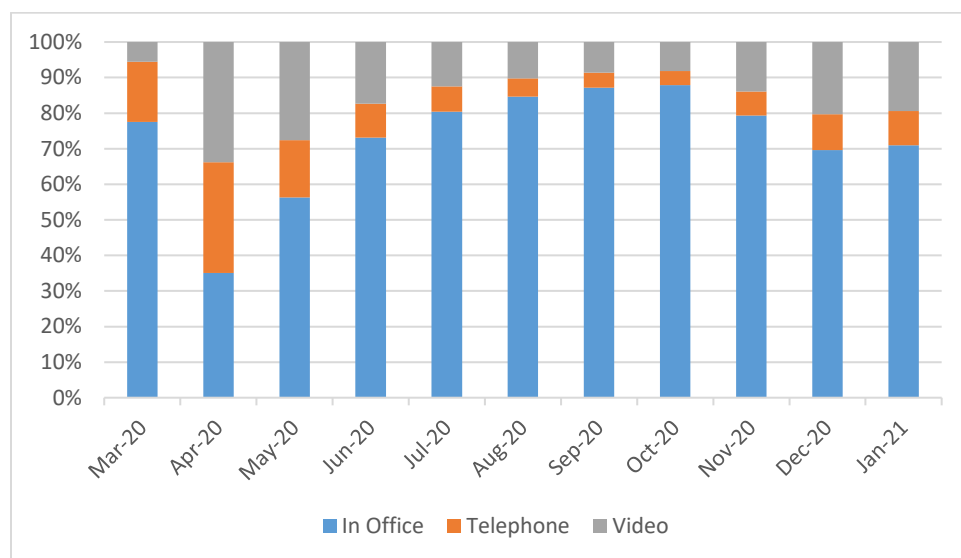
Telemedicine: Barriers pre-COVID

There were many reasons for organizational reluctance concerning telemedicine prior to COVID-19. Financial planning was a top challenge as New York State offered no payment parity between telemedicine and in-office visits. With chaotic reimbursement models and likely revenue loss, it proved difficult to answer how an organization can make large capital investments, institute a massive overhaul of workflows, and invest in time-consuming change-management efforts for front office staff, providers, and patients.^{13,14} Despite the roadblocks, Rochester Regional Health (RRH) has performed telemedicine consults between our sites for over 10 years. In 2018, RRH started its first direct-to-patient video visit pilot. Limited to one insurance provider and a few chronic conditions, this pilot project demonstrated its potential with positive patient feedback but also highlighted difficulties with low volume due to an incomplete value proposition for patient and provider buy-in. In 2018, RRH had a combined 239 video

visits (47 direct-to-patient, 192 point-to-point within RRH system), while in 2020 RRH had just over 205,000 video visits. With the onset of the pandemic locally in the spring of 2020, the necessity for providers and patients to be able to safely see one another greatly increased telemedicine’s value proposition. Centers for Medicare & Medicaid Services (CMS) also responded with major changes to increase accessibility and reimbursement.¹²

New flexibility allowed organizations to lean on commercially available video conferencing products while scaling up their ability to build up their HIPAA-compliant solutions. In February 2020, video technology was rarely utilized, with the organization averaging fewer than 10 video visits per month. In April 2020, our providers used it for over 30% of all visits in our system, accounting for over 30,000 visits. Before COVID-19, fewer than 20 of our providers had performed a direct-to-patient video visit. However as of February 2021, we have had 1375 providers perform at least one visit, 522 providers have conducted 100 or more video visits and 48 RRH providers have become super-users, conducting more than 1000 video visits each. Over 130,000 unique patients served by RRH had at least one video visit in 2020 with more than 55,000 patients completing 2 or more visits via video. Figure 1 demonstrates the shifting nature of telemedicine visits with in person visits over time. (Figure 1)

Figure 1: Variation in Office Visit Type Over Time

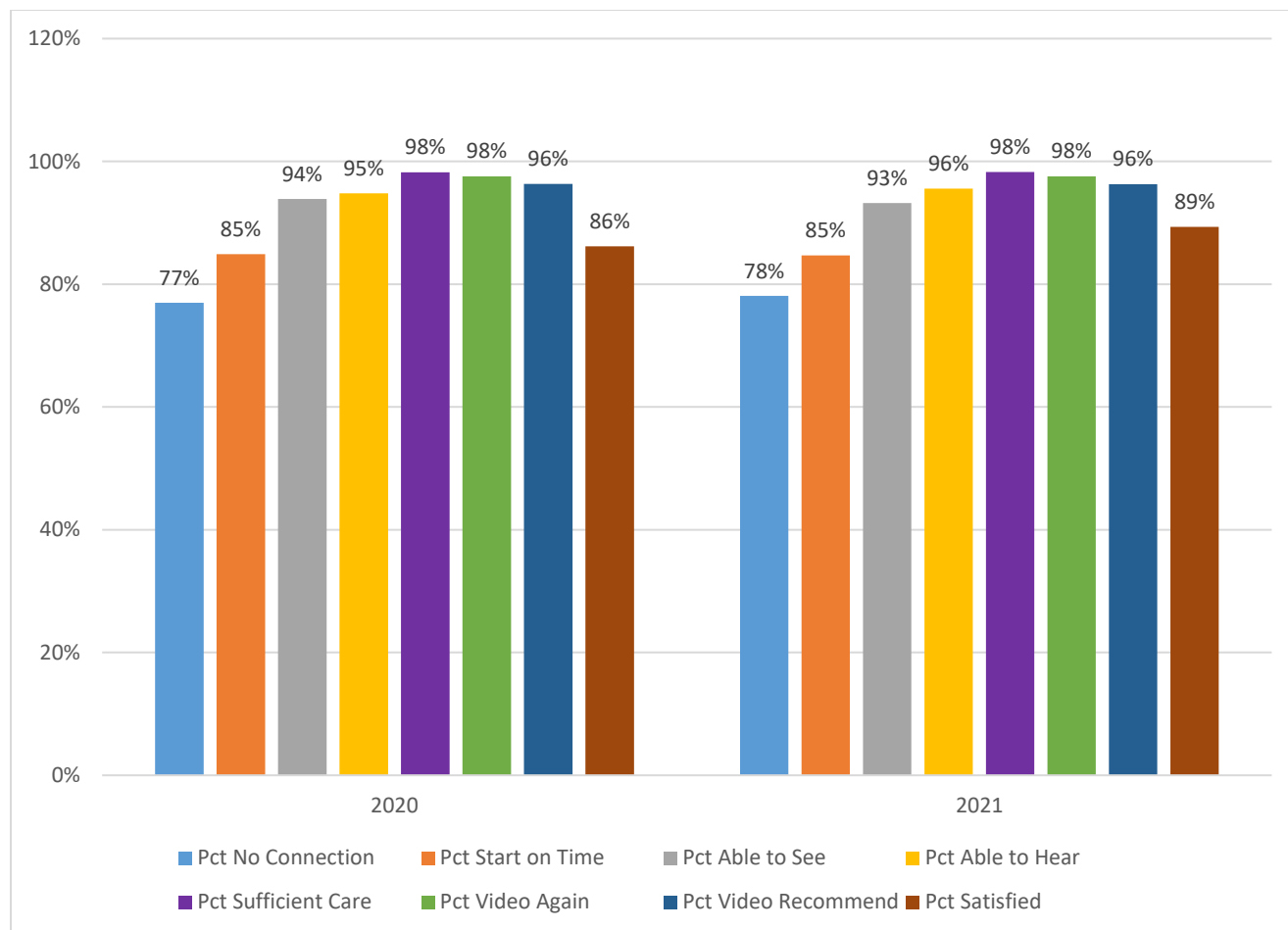


Patient Adoption and Feedback

RRH’s Epic-embedded video visit solution (Epic Systems Corporation, Verona, Wisconsin) came with an after-visit survey. In 2020 we had more than 10,000 survey responses from the greater than 58,000 video visits performed on that platform. In the first quarter of 2020, 25% of respondents said they had some form of connection issue, which has become a key performance indicator for the telemedicine team. Increasing the ease of use of our telemedicine visits for all providers and patients will remain a priority by enhancing the user experience and the reliability of our platform. In the early stages of the pandemic, we utilized multiple video visit platforms, but learned quickly that the more a system can focus on a singular platform, the higher the likelihood that front office staff, providers, and patients become experts on the electronic platform.

Despite these technological issues, we found significant willingness from our patients to embrace the change. Patient satisfaction with these telemedicine encounters was high, at greater than 90%, with patients reporting sufficient care received by these visits at close to 100%. While some of this feedback was anticipated due to the realities of the ongoing pandemic and fear of leaving the home, particularly prior to the availability of vaccines, the sheer volume of visits provides validation that patients felt they received adequate care and were highly satisfied with video visits when compared to in-office visits. (Figure 2)

Figure 2: After Video Visit Survey Results



One of the success stories of telemedicine adoption comes from Behavioral Health (BH) and the patients they serve. Like all areas of healthcare during the initial COVID surge, BH made a pivot offering different modalities to connect with patients. BH saw a sustained decrease in patient “no-shows” while seeing a large increase in the percentage of visits with patients via video. The benefits to seeing patients in their home are many: it eliminates the challenge of physically getting to an appointment and the anxiety that may accompany that, it allows providers a glimpse into the home environment of the patient, and it allows for a ‘safe space’ for the behavioral health professional and patient to interact.¹⁵

As the pandemic progressed, a dramatic shift in the make-up of visits occurred (Figure 3). Over time there was a leveling off between the different modalities for delivering care across in-person, telephone, and video with remote video visits increasing from just 2% of all visit types to 40% of all visits

over a five month period. No-show rate for each visit type indicate that with video visits consistently had 5-9% fewer missed appointments than other modalities (Figure 4).

Figure 3: Behavioral Health Visit Type Breakdown

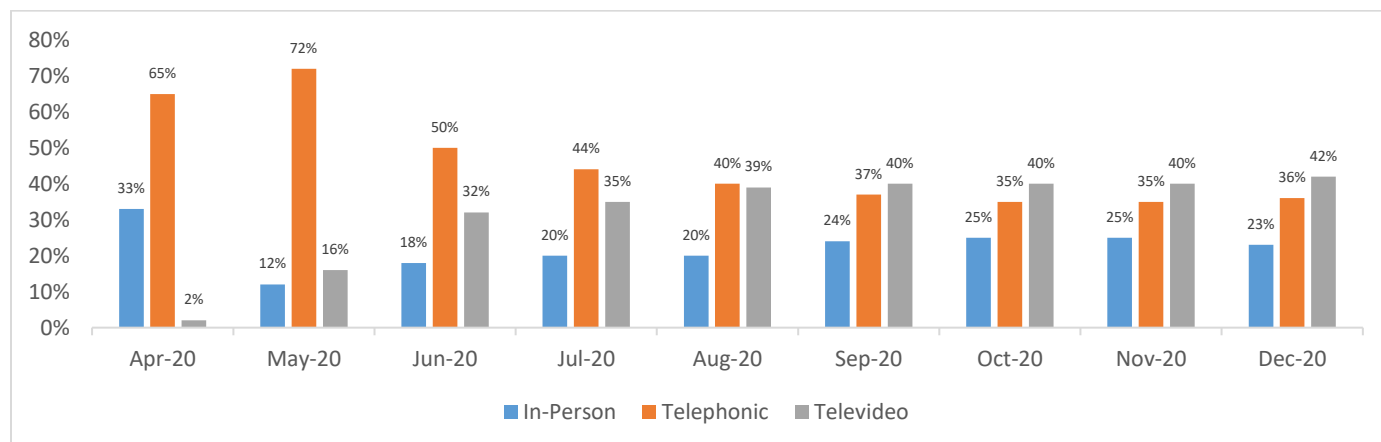
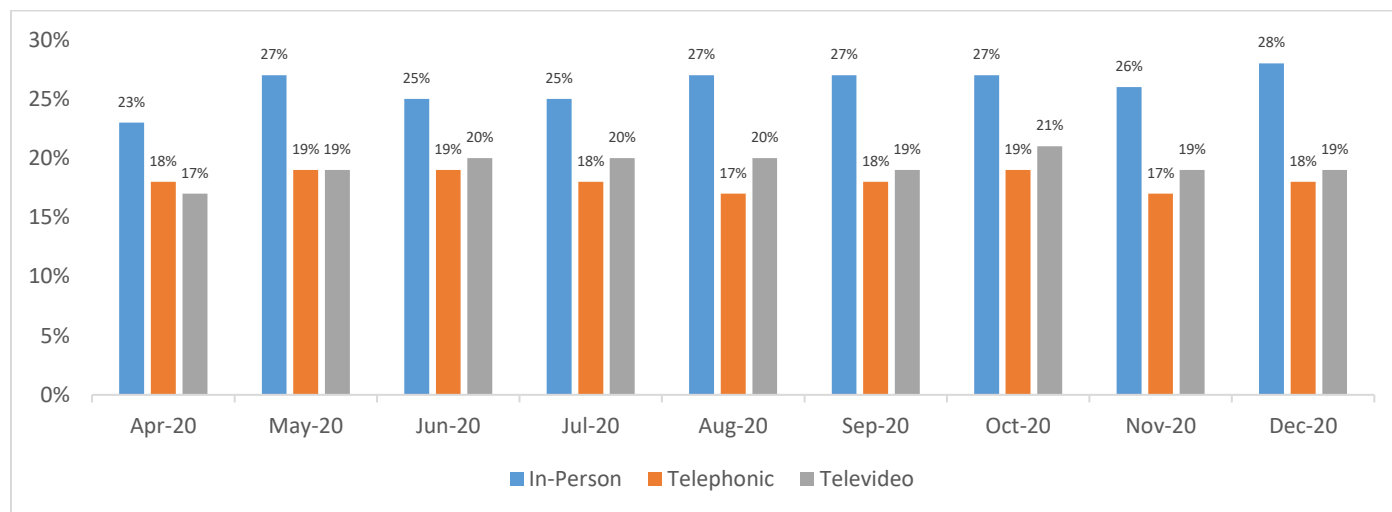


Figure 4: No Show Rate by Visit Type



Provider and Staff Communication Strategies

With the rapidly changing clinical situation, finances, and governmental actions, maintaining communication with providers and staff was vital, and multiple modalities to disseminate information were created. Operational leaders partnered with IT experts and the billing and coding teams to create new workflows, electronic medical record templates for documentation requirements, and new coding

tools for providers and staff to assist with all the telemedicine changes. We held multiple lunchtime huddles per week to disseminate changes, sent daily emails summarizing the changes, and offered socially-distanced training and support sessions. These became aggregated in a curated toolkit that included the many COVID protocols for treating patients, new workflows, and safety recommendations for patients and staff in a centralized location available on the system intranet.

Conclusion

In a significantly compressed timeframe, providers and information technology (IT) staff were forced to move from theoretical discussions about telemedicine to the majority of appointments being done as virtual house calls. As short-term adjustments turned into long-term adaptations, we streamlined the number of video options for video-capable patients to decrease staff confusion and stress. If the patient lacked access to these options, a telephone visit would suffice. Despite the rapid change in healthcare delivery to our patients, high quality care with high levels of patient satisfaction was provided.

Telemedicine is an opportunity to reach people whom we may have been unable to engage with in the past by requiring all in-person services. Ongoing work is needed to understand whether telehealth will better align with patient preferences in the post-pandemic period and how this can be best integrated into an overall suite of services for the delivery of care.

References:

1. Bullock DR, Vehe RK, Zhang L, Correll CK. Telemedicine and other care models in pediatric rheumatology: an exploratory study of parents' perceptions of barriers to care and care preferences. *Pediatr Rheumatol Online J.* (2017) 15:55. doi: 10.1186/s12969-017-0184-y
2. Fang JL, Asiedu GB, Harris AM, Carroll K, Colby CE. A mixed-methods study on the barriers and facilitators of telemedicine for newborn resuscitation. *Telemed J E-health.* (2018) 24:811–7. doi: 10.1089/tmj.2017.0182
3. Haimi M, Brammli-Greenberg S, Waisman Y, Baron-Epel O. Physicians' experiences, attitudes and challenges in a pediatric telemedicine service. *Pediatr Res.* (2018) 84:650–6. doi: 10.1038/s41390-018-0117-6
4. Uscher-Pines L, Kahn JM. Barriers and facilitators to pediatric emergency telemedicine in the United States. *Telemed J E-health.* (2014) 20:990–6. doi: 10.1089/tmj.2014.0015
5. Edgoose, JYC. Exploring the Face-to-Face: Revisiting Patient-Doctor Relationships in a Time of Expanding Telemedicine. *J Am Board Fam Med.* 2021 Feb;34(Suppl):S252-S254.
6. Sequeira L, Almilaji K, Strudwick G, Jankowicz D, Tajirian T. EHR "SWAT" teams: a physician engagement initiative to improve Electronic Health Record (EHR) experiences and mitigate possible causes of EHR-related burnout. *JAMIA Open.* 2021 Apr 19;4(2):ooab018.
7. Eschenroeder HC, Manzione LC, Adler-Milstein J, Bice C, Cash R, Duda C, Joseph C, Lee JS, Maneker A, Poterack KA, Rahman SB, Jeppson J, Longhurst C. Associations of physician burnout with organizational electronic health record support and after-hours charting. *J Am Med Inform Assoc.* 2021 Apr 23;28(5):960-966.
8. McPeek-Hinz E, Boazak M, Sexton JB, Adair KC, West V, Goldstein BA, Alphin RS, Idris S, Hammond WE, Hwang SE, Bae J. Clinician Burnout Associated With Sex, Clinician Type, Work Culture, and Use of Electronic Health Records. *JAMA Netw Open.* 2021 Apr 1;4(4):e215686.
9. Gold KJ, Laurie AR, Kinney DR, Harmes KM, Serlin DC. Video Visits: Family Physician Experiences With Uptake During the COVID-19 Pandemic. *Fam Med.* 2021 Mar;53(3):207-210.
10. Knierim K, Palmer C, Kramer ES, Rodriguez RS, VanWyk J, Shmerling A, Smith P, Holmstrom H, Bacak BS, Brown Levey SM, Staton EW, Holtrop JS. Lessons Learned During COVID-19 That Can Move Telehealth in Primary Care Forward. *J Am Board Fam Med.* 2021 Feb;34(Suppl):S196-S202.
11. Gomez T, Anaya YB, et al. A Qualitative Study of Primary Care Physicians' Experiences With Telemedicine During COVID-19. *J Am Board Fam Med.* 2021 Feb;34(Suppl):S61-S70.
12. Zarefsky, M. 5 huge ways the pandemic has changed telemedicine (2020). <https://www.ama-assn.org/practice-management/digital/5-huge-ways-pandemic-has-changed-telemedicine/> (Accessed 4-21-21).
13. Bajowala SS, Milosch J, Bansal C. Telemedicine Pays: Billing and Coding Update. *Curr Allergy Asthma Rep.* 2020 Jul 27;20(10):60.
14. Weinstein RS, Lopez AM, Joseph BA, Erps KA, Holcomb M, Barker GP, Krupinski EA. Telemedicine, telehealth, and mobile health applications that work: opportunities and barriers. *Am J Med.* 2014 Mar;127(3):183-7.
15. Saunders KE, Bilderbeck AC, Panchal P, Atkinson LZ, Geddes JR, Goodwin GM. Experiences of remote mood and activity monitoring in bipolar disorder: A qualitative study. *Eur Psychiatry.* 2017 Mar;41:115-121.