ImproveDx Newsletter
May 2020 - Volume 7 | Issue 3

COVID-19 Gives Telemedicine a Larger Role in Diagnosis

By Susan Carr

Telemedicine has long been poised to play a larger role in healthcare delivery.[1-3] For years it was held back by a logjam of entrenched habits and interests that has now been freed by COVID-19. Communicating remotely protects clinicians and patients from transmission of the SARS-CoV-2 virus, an advantage that few of telemedicine's advocates saw coming. Writing in April, U.S. health care system was contending with COVID-19, physicians at Stanford observed that our analog, face-to-face system is not only "ill equipped to cope with this swiftly emerging epidemic,"[3(p1)] it also contributes to its spread.

The immediate problem posed by the new coronavirus—how to care for patients and keep everyone safe—was so acute and the solution so obvious that the federal government, as well as some states and health insurers, quickly suspended regulations that limit telemedicine's reach.[4,5] Rates of adoption have been dramatic, with providers and patients both adjusting on the fly to a new way of doing things.

In addition to offering protection from infection, telemedicine can be used to provide some of the most urgent functions needed during the outbreak, especially triage for patients experiencing symptoms possibly related to COVID-19—whether at home or in the emergency department—and virtual office visits. At a time of increasing demand for clinicians, telemedicine also allows physicians or nurses to see patients while observing quarantine, either because they know they've been exposed to the virus or are infected but well enough to work.[6,7]

Other ways that telemedicine has been used in recent years—to provide care and specialty consults for patients in remote or underserved areas and to manage intensive care units remotely—are also now in demand. Some applications of telemedicine are less obviously tied to the COVID-19 outbreak, such as monitoring patients with chronic disease, but will be an important way to ensure that those patients receive routine care as the need for social distancing continues.

Under normal circumstances, telemedicine allows patients and providers to act more quickly than they might if they had to meet in person. In guidance for measuring the cost, quality, and outcomes of telemedicine, the National Quality Forum notes that telemedicine "…may provide a quicker diagnosis, which leads to faster delivery of interventions and better outcomes."[8(p12)]

Using Telemedicine to Answer Calls and Aid in Triage

As the pandemic took hold in the United States and people began to have questions or experience symptoms, physician practices and hospitals revised their systems to accommodate the increased volume of calls and patients. Many organizations use telemedicine to field inquiries and handle patients presenting to the emergency department.

Jefferson Health's Teletriage Service

Philadelphia-based Jefferson Health expanded an existing "teletriage" service for patients arriving at its emergency departments (ED).[9,10] ED triage nurses connect incoming patients to Jefferson's physicians by video. Physicians can order tests immediately as they enter notes in the electronic record. Patients can then be moved to an appropriate location for testing, further evaluation or treatment more quickly than in the traditional ED triage system. Jefferson Health also uses teletriage to see patients at a COVID-19 testing site outside of the ED, which helps preserve supplies of personal protective equipment.[9]

Atrius Health's Revamped Call Center

Atrius Health, a large physician practice based in Boston, Massachusetts, revamped its call center to deal with an increase in the number of patient calls and requests for information about COVID-19. Pressure to identify symptoms as quickly as possible and to avoid sending patients unnecessarily to hospital emergency departments created the need for a new, more targeted teletriage system.

Thomas Isaac, MD, MBA, MPH, senior medical director of quality, safety, and patient experience at Atrius Health, says that developing a cohort of staff members—medical secretaries and nurses—to handle COVID-related calls involved developing detailed protocols and algorithms and lots of training. Because COVID-19 is new, protocols and algorithms frequently change as more is learned every day. Atrius Health devised a system for evaluating feedback and questions from staff members in real time, consulting with clinical experts, revising algorithms in Epic overnight and being prepared to do it all over again the following day—with virtually all staff members working from home.[11] In addition to moving most regularly scheduled office visits to telemedicine, Atrius Health aims to treat patients suspected of having COVID-19 at home whenever possible. Those patients, too, are monitored closely by telemedicine, primarily by telephone at this point (personal communication, April 2020).

Emory Healthcare's Online Symptom Checker

Online symptom-checking tools offer a different approach to screening calls from the public. A reporter for *STAT News* found that dozens of such tools are available. He examined one offered by Emory Healthcare, which reported having completed more than 300,000 screenings in just under three weeks following the tool's launch on March 20, 2020.[12] Emory was able to build the COVID-19 symptom checker on the framework of one it created in 2009 to screen patients for H1N1 flu. Similar to Atrius Health's rapid-cycle revisions, Emory is constantly updating its symptom checker. While Emory's offering has huge reach—available in 18 languages, it is used worldwide—and quickly delivers advice about what level of care to seek, its recommendations do not account for local conditions, such as overcrowded emergency departments. Responding to feedback from emergency physicians, Emory has added a wider range of resources and care options to take some pressure off emergency departments.

Providence St. Joseph Health's Chatbot

During a webinar hosted by the American Telemedicine Association, Todd Czartoski, MD, chief medical technology officer at Providence St. Joseph Health in Washington State, described how Providence is using a chatbot (a software application used to simulate conversation) to triage patients for symptoms possibly related to COVID-19.[13] Czartoski noted that Providence St. Joseph, which treated the first patient with COVID-19 in the U.S.,[14] found it had to revise the first version of the chatbot questions, which asked patients if they had recently traveled to China, Italy, Iran or other hotspots overseas. Once it became clear that the virus was being transmitted within the community, they focused instead on symptoms and potential exposures. Frequent updates are ongoing.

Based on how they respond to the chatbot's questions, callers may be sent to an on-demand virtual visit with a physician, referred to primary care or to the emergency department. Providence was in a good position to offer and adapt telemedicine resources because they had established programs in place prior to COVID-19. Among those programs is a live call center focused on patient engagement, which channels people to appropriate care. Dr. Czartoski notes whimsically, "As great as your chatbot might be, some folks want to talk to a real person."[13]

Performing Physical Examinations Remotely

As was true pre-COVID-19, patients with urgent problems are likely to be seen by a physician for history-taking, physical examination and treatment. But now, during the pandemic, patients who do not need to be seen immediately, including those with signs of COVID-19, will most likely be seen remotely, by phone or video, as will existing patients who need follow-up care or monitoring for chronic conditions.

Some advocates and experts say that telemedicine is a tool, not a whole new way to practice medicine.[15] Others point out that digital medicine—a broad definition that includes telemedicine—gives patients new options for more active roles and will transform healthcare

delivery.[3] In either case, telemedicine includes tools that can be used across a wide range of circumstances, including physical examinations. Because this makes a tactile and personal experience virtual and because the physical exam holds special meaning for some physicians,[16,17] the adjustment is challenging.

Joseph Kvedar, MD, vice president of Connected Health at Partners HealthCare and professor of dermatology at Harvard Medical School, acknowledges that evaluating a patient by phone or video is not the same as seeing them in person. He says, however, that doesn't mean that it can't work. Kvedar participated in a Twitter chat held by the Society to Improve Diagnosis in Medicine on April 24, 2020, focused on diagnosis in telemedicine (with the hashtag #teledx). Kvedar observed that telemedicine's effectiveness for diagnosis varies depending on the "use case" or condition. To improve the quality of interactions and information exchange during telemedicine encounters, he had the following tips:

- Video, when available, provides more nuanced communication than phone.
- Higher resolution is better.
- Providers should actively engage with patients (eg, make good eye contact) and try to make it as easy as possible for them to understand and participate.

Numerous organizations and individuals have published guides to help physicians successfully perform telemedicine visits. In "Covid-19: a remote assessment in primary care," physicians in the United Kingdom and Singapore address many immediate, practical issues, including the remote physical exam, where they acknowledge, "you will have to make compromises….note what you can and cannot see."[18(p3)]

Jefferson Health has had a telemedicine program called JeffConnect for years and offers guidance for organizations that have needed to figure out how to do telemedicine almost overnight. In addition to an online course called "Telemedicine: Conducting an Effective Physical Exam," clinicians from Jefferson Health offer advice in a recent article addressing commonly held "myths" about telemedicine.[19] They describe how to perform physical exams by video, looking for signs of various diseases and conditions, including COVID-19. Using methods such as the Ottawa Ankle Rules and the Roth Score, they have been able to assist patients who might otherwise have gone to the emergency room now that most physician offices are closed.

Stanford Medicine's Presence 5 team, which focuses on fostering meaningful connections between patients and clinicians to improve clinical encounters, has issued guidance in a video, poster and for applying those strategies to virtual, telemedicine visits.

Gathering information by video often involves asking the patient and available family members or caregivers to help. They may be enlisted to perform specific maneuvers, to observe changes in condition or to report weight, blood pressure and other data. Ongoing patients, including those monitoring COVID-19 symptoms, may be supplied with at-home devices, such as pulse

oximeters and blood pressure cuffs, which should be calibrated by physicians before at-home use.

The Jefferson Health clinicians observe that it can take more than one visit to arrive at a diagnosis, whether the exam is performed in a traditional office or by telemedicine. In either case, laboratory testing, imaging or specialty consultation may be required. To evaluate the effectiveness of the telemedicine visit for diagnosis, they recommend focusing on whether the clinician has been able to gather "sufficient information to determine the correct next step, and whether the visit meets the needs of the patient given their realistic alternatives."[19(p4)]

Future Opportunities for Improvement

Some studies have shown that remote diagnosis is not significantly more or less accurate than traditional office visits.[20] More research is needed, and the rapid increase in telemedicine will offer new opportunities for study.

In August 2017, the National Quality Forum (NQF) published guidance for measuring the cost, quality, and outcomes of care delivered by telemedicine.[8] In describing telemedicine's ability to support a wide range of clinical activities, NQF did not anticipate the leading role it now plays in this period of purposeful, nationwide social distancing. The ability to offer care to those who lack access to services because they are in physically remote locations has always been a unique advantage of telemedicine but not usually envisioned to be deployed at the current scale.

As with any other change in healthcare delivery, it is important to continuously monitor, study, and assess the effects of telemedicine on patients and providers. New regulations and oversight will be required if recent changes are to be made permanent.[21] And, although organizations, providers and patients quickly shifted gears to begin working together by phone and video, it will take time to fully adapt.

Rujuta Saksena, MD, a hematologist in New Jersey, offers a balanced view of recent changes as he appreciates the personal details that telemedicine can add.[22] He says he has enjoyed meeting some of the pets and grandchildren in his patients' lives and confesses that he sometimes works in his pajamas. Dr. Saksena muses that "…healthcare providers have been forced into an overnight arranged marriage with telemedicine. For some of us, there is the potential for true love."[22(np)]

References

1. Agboola S, Kvedar J. Telemedicine and patient safety [Perspectives on Safety]. Agency for Healthcare Research and Quality website. September 1, 2016. Accessed April 27, 2020. https://psnet.ahrq.gov/perspective/telemedicine-and-patient-safety

2. American Medical Association. *Telehealth Implementation Playbook.* 2020. https://www.ama-assn.org/system/files/2020-04/ama-telehealth-playbook.pdf

3. Keesara S, Jonas A, Schulman K. Covid-19 and health care's digital revolution [published online ahead of print April 3, 2020]. *N Engl J Med.* doi:10.1056/NEJMp2005835

4. Medicare telemedicine health care provider fact sheet. News release. Centers for Medicare & Medicaid Services. March 17, 2020. Accessed April 27, 2020. https://www.cms.gov/newsroom/fact-sheets/medicare-telemedicine-health-care-provider-fact-sheet

5. LaRosa J. The benefits of telehealth during a pandemic—and beyond [To the Point]. The Commonwealth Fund blog. April 8, 2020. Accessed April 27, 2020. https://www.commonwealthfund.org/blog/2020/benefits-telehealth-during-pandemic-and-beyond

6. Hollander JE, Carr BG. Virtually perfect? Telemedicine for Covid-19. *N Engl J Med.* 2020;382:1679-1681. doi:10.1056/NEJMp2003539

7. Roth M. 4 ways you haven't thought about using telehealth during the COVID-19 pandemic. *HealthLeaders*. March 24, 2020. Accessed April 27, 2020. https://www.healthleadersmedia.com/innovation/4-ways-you-havent-thought-about-using-telehealth-during-covid-19-pandemic

8. National Quality Forum. *Creating a Framework to Support Measure Development for Telehealth.* August 31, 2017. https://www.qualityforum.org/Publications/2017/08/Creating_a_Framework_to_Support_Measure_Development_for_Telehealth.aspx

9. Hagland M. At Jefferson Health, a success story around ED teletriage that offers hope in the emerging COVID-19 Pandemic. *Healthcare Innovation*. March 21, 2020. Accessed April 27, 2020. https://www.hcinnovationgroup.com/covid-19/article/21130678/at-jefferson-health-a-success-story-around-ed-teletriage-that-offers-hope-in-the-emerging-covid19-pandemic

10. Barthell E. Jefferson Health combats crowding with teletriage. EmOpti website. June 3, 2019. Accessed April 27, 2020. https://www.emopti.com/commandhealth-blog/2019/5/8/video-jefferson-health-combats-crowding-with-teletriage

11. Betsy Lehman Center. Atrius Health rapidly deploys COVID-19 call center. *COVID-19 Safety News Briefs.* April 18, 2020. Accessed April 25, 2020. https://betsylehmancenterma.gov/news/atrius-health-rapidly-deploys-covid-19-call-center

12. Ross C. How a coronavirus symptom checker came to steer patients to care from Texas to Estonia. *STAT News.* April 21, 2020. Accessed April 27, 2020. https://www.statnews.com/2020/04/21/coronavirus-symptom-checker-steers-patients-to-care-far-away/

13. Kvedar J, Romm S, Czartoski. Reports from the COVID-19 front line. American Telemedicine Association webinar. April 1, 2020. Accessed April 27, 2020. https://www.americantelemed.org/resources/reports-from-the-covid-19-front-line/

14. Holshue ML, DeBolt C, Lindquist S, et al. First case of 2019 novel coronavirus in the United States. *N Engl J Med.* 2020;382(10):929-936. doi:10.1056/NEJMoa2001191

15. Telemedicine tips for internists. *ACP Internist Weekly*. April 14, 2020. Accessed April 27, 2020. https://acpinternist.org/weekly/archives/2020/04/14/2.htm

16. Carr S. Reexamining the physical exam. *ImproveDx, 7(1).* January 2020. Accessed April 27, 2020. https://www.improvediagnosis.org/improvedx-january-2020/reexamining-the-physical-exam/

17. Verghese A, Horwitz RI. In praise of the physical examination. *BMJ.* 2009;339:b5448. doi.org/10.1136/bmj.b5448

18. Greenhalgh T, Koh GCH, Car J. Covid-19: a remote assessment in primary care. *BMJ.* 2020;368:m1182. doi.org/10.1136/bmj.m1182

19. Hollander JE, Sites FD. The transition from reimagining to recreating health care is now. *NEJM Catalyst Innovations in Care Delivery*. April 8, 2020. https://catalyst.nejm.org/doi/full/10.1056/CAT.20.0093

20. Hertzog R, Johnson J, Smith J, et al. Diagnostic accuracy in primary care e-visits: evaluation of a large integrated health care delivery system's experience. *Mayo Clin Proc.* 2019;94(6):976-984. doi:10.1016/j.mayocp.2019.02.011

21. Schulte F. Coronavirus fuels explosive growth In telehealth — and concern about fraud. *Kaiser Health News.* April 22, 2020. Accessed April 27, 2020. https://khn.org/news/coronavirus-fuels-explosive-growth-in-telehealth-—-and-concern-about-fraud

22. Saksena R. Doctors discover telehealth's silver lining in the Covid-19 crisis. *Stat* News. April 19, 2020. Accessed April 27, 2020. https://www.statnews.com/2020/04/19/telehealth-silver-lining-discovered-covid-19-crisis/

Patient Safety Leader Gordon Schiff, MD receives John M. Eisenberg Award

We are proud to announce that Gordon Schiff, MD is the recipient of the 2019 John M. Eisenberg Patient Safety and Quality Award for Individual Achievement from The Joint Commission and the National Quality Forum.

Dr Schiff is associate director of Brigham and Women's Center for Patient Safety Research and Practice, Quality; safety director for the Harvard Medical School Center for Primary Care; and associate professor of medicine at Harvard Medical School. He is a founding member of the Society to Improve Diagnosis in Medicine (SIDM), co-chaired two of SIDM's early Diagnostic Error in Medicine Conferences, and received the Mark L. Graber Diagnostic Quality Award from SIDM in 2019.

The Eisenberg Award recognizes his "extraordinarily diverse and meaningful impact on patient safety throughout his 40-year career." Dr Schiff's research established a critical foundation for the entire field of inquiry into categories and causes of diagnostic error. His landmark 2009 paper analyzed reports of diagnostic error from 583 physicians, and in the DEER taxonomy he mapped out where along the diagnostic process these errors occurred. This approach has become a standard in diagnostic error research; the 2009 study has been cited over 400 times and is required reading for all newcomers to the field of diagnostic quality and safety.

In *The Joint Commission Journal on Quality and Patient Safety,* Mark L. Graber, MD, chief medical officer and founder of SIDM interviews Dr Schiff about his quest to improve patient safety and address diagnostic error. A highlight of the interview is Dr Schiff's list of 21 suggestions to improve diagnosis. A sampling showcases his depth of experience and thinking on the importance of reducing harms from diagnostic errors:

- The assessment component of clinical notes (SOAP) is the most tangible representation of diagnostic activity/thinking. We currently lack measures for evaluating, measuring, and improving the quality of the diagnostic assessment in EMR documentation.
- Decision support to assist clinicians in ordering the correct and most appropriate diagnostic and imaging tests.
- Design, reinforce, operationalize, and reward a culture of speaking up when there are diagnostic uncertainties.
- Leverage the power of patients and families to review clinician notes and diagnostic assessments to better understand their diagnosis, clinicians' thinking, the plan for follow-up, and any contingencies.
- Provide individual clinicians who initially saw and assessed patients systematically with feedback from "downstream" encounters, especially related to any missed or revised diagnoses.
- Create awareness of diagnosis-specific "pitfalls," the recurring patterns of, or vulnerabilities leading to wrong or delayed diagnosis.
- Ensure that efforts to "not miss" diagnoses do not lead to unnecessary, harmful testing and overdiagnosis.

In nominating him for the Eisenberg honor, retired Harvard professor and patient safety leader Lucian Leape, MD, noted, "No one is more committed, more passionate about, nor more fully dedicated to improving patient safety than Gordy Schiff. Many fine people have made contributions to patient safety as part of their professional work. For Gordy, it is his work. He is about patient safety every minute of every day - in his practice, in his teaching, in his research, and in his many contributions to the medical community and the world at large. His passion is infectious, exciting and motivating students, mentees, and co-workers at every level. He is truly a force for safety."

From the Field: Coalition Member AHRQ Calls for Focus on Diagnostic Safety Measurement

The Agency for Healthcare Research and Quality (AHRQ) recently released a new issue brief entitled "*Operational Measurement of Diagnostic Safety: State of the Science*" to advance diagnostic safety measurement and improve patient safety. Recent research has produced guidance for healthcare organizations to improve diagnostic safety through measurement, and the issue brief calls for healthcare organizations to utilize these resources to learn from past diagnostic safety events and proactively monitor for high-risk conditions.

According to researchers, diagnostic errors affect approximately 1 in 20 U.S. adults each year, and these errors occur in all medical care settings, contributing to about 10% of patient deaths. The 2015 National Academies of Sciences, Engineering, and Medicine (NASEM) report *Improving Diagnosis in Health Care* determines that diagnostic errors are the primary reason for medical liability claims and a significant and under-recognized threat to patient safety.

AHRQ is the lead federal agency investing in research to improve diagnostic safety, and reducing the incidence of diagnostic errors is a priority of the Agency. Few healthcare organizations have implemented systematic measurement of diagnostic errors, but all healthcare organizations would benefit from strategically monitoring diagnostic safety events for learning and improvement.

"We have the opportunity to focus our efforts on advancing diagnostic safety measurement," said Jeff Brady, MD, MPH, director of the Center for Quality Improvement and Patient Safety at AHRQ. "While we all still have much to learn about how and why diagnostic errors occur, some innovative pioneers have already developed new strategies that could transform the healthcare system's ability to improve diagnosis."

Several stakeholders, including AHRQ, the National Quality Forum, the Centers for Medicare & Medicaid Services, the Society to Improve Diagnosis in Medicine, and the Gordon and Betty Moore Foundation, have launched initiatives and research projects to advance development and implementation of diagnostic safety measurement. With these new initiatives in place, healthcare organizations are facing increasing expectations to measure and improve diagnostic safety as part of their quality and safety programs.

According to the brief, substantial effort is still needed to identify research priorities, including how to measure and reduce diagnostic errors, and ensure this information is integrated into practice, where it can translate into benefits for patients.

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