



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

# Implementing Telemedicine in Primary Care: Learning Lessons From Electronic Health Records



Christine A. Sinsky, MD

The common narrative is coronavirus disease 2019 happened, payment and policy barriers were quickly lowered and voila, telemedicine, a technology for which adoption had been slow over the past decade, is, within a matter of months, in widespread and successful use. *Fait accompli*. On to this narrative has been grafted the hopes that telemedicine will solve other persistent problems, particularly in primary care.<sup>1</sup>

As with any other technology, the divine is in the details.

## WHAT PROBLEMS IN PRIMARY CARE ARE IN NEED OF A FIX?

The challenges for primary care are deep and structural. Inequity in payment for cognitive versus procedural care<sup>2</sup>; conflating how primary care has been valued with its value; equating the payment allocated for primary care services with the difficulty in their mastery (contributing to the assumption that lesser training is of little consequence in primary care); and a shrinking scope of practice for physicians within the specialty are among the reasons our health system has not benefitted fully from what a well-supported, well-organized model of primary care has to offer.

## CAN TELEMEDICINE FIX WHAT AILS PRIMARY CARE?

Certainly, telemedicine cannot solve the structural causes above, but can it improve capacity and access while also reducing time pressure and burnout? If this is possible, what are physicians and their teams doing during now in-person visits that is not necessary and could be eliminated? Arguably, it should require even more time rather than less to accurately

read the fewer signals available from patients during a video visit and to be sure that the real reason for the visit, the third or fourth complaint, reaches the surface.

## LEARNING FROM ELECTRONIC HEALTH RECORD TRANSFORMATION

Twenty years ago, electronic health records (EHRs) were anticipated as a technology that would improve quality, efficiency, and professional mastery. All of our patients' information would be at our fingertips whether we were at the clinic, the hospital, or at home. Clinical decision support, pop-up reminders, and hard-stops during order entry would make us better physicians.

And yet the EHR was not the savior of primary care,<sup>3</sup> but instead, for all of its benefits, its burdens fell disproportionately to primary care physicians. Many tasks take more time when performed on the EHR.<sup>4</sup> In addition, with the mistaken beliefs that technology will allow the physician to do other role types, work and that this work can magically be accomplished in the interstitial time between other work, time pressure for physicians intensified after EHR implementations. Tasks previously managed by receptionists, transcriptionists, medical records clerks, et cetera, have been shifted to physicians; work has spilled over into home,<sup>5</sup> stealing time from family, friends, and personal well-being<sup>6</sup>; and the EHR provided vastly more opportunities for monitoring, measuring,<sup>7</sup> reprimanding, and penalizing physicians.

## GOING FORWARD

What are the lessons learned that could ensure that similar stumbles do not befall the promising technology of telemedicine?



For editorial comment, see page 1831

From the Professional Satisfaction and Practice Sustainability Division, American Medical Association, Chicago, IL.

### **Design, Implement, and Regulate With Teams in Mind**

In each encounter, whether in-person or video, there is too much to be done by just one person, and it is too important to leave to chance. The doctor cannot single-handedly do all the work of the visit and do it well; this mindset blinded many to the risks to patient safety, patient trust, and professional well-being associated with many EHR implementations. There is no need to repeat those mistakes with telemedicine.

### **Recognize That Multitasking is Hazardous**

Providing patients undivided attention is one of the most powerful tools in any physician's toolkit. Multitasking, which is really task switching,<sup>8</sup> is hazardous. During a remote visit, because there are fewer cues to read, the physician must be fully attentive to all available, rather than simultaneously transcribing the visit note, entering orders, sending medications to the pharmacy, ticking off performance measures, and composing the billing invoice. Humans have a finite cognitive bandwidth; the more time spent on clerical tasks, the less available for deep clinical work.

### **Prioritize Relationships**

Health care is not just a series of transactions for which anybody will do, but is built on relationships. Diagnostic accuracy and therapeutic adherence are greater, and waste reduced, in the context of a trusting ongoing relationship.<sup>9</sup> Telemedicine is not inherently transactional, and by bringing the physician and team closer into patients' lives it can support and enhance relationships. To realize this potential, however, a priority must be placed on continuity and relationships.

### **Practice Truth in Time Accounting**

It is important to avoid thinking that a physician can somehow do more in less time during video rather than in-person visits. Work that physicians and others perform outside of the encounter is still work and takes time. Likewise, work that occurs at home is work, and deserves to be counted. Some tasks are quicker when done with a technology assist and at other times work on a technology platform

can take more time. It all needs to be counted and understood.

### **Invest in the Science of Practice**

Teamwork, planning, and efficient workflows are essential. Not every problem is best suited to a technological fix. In fact, technology, such as artificial intelligence,<sup>1</sup> used to compensate for an underlying disorganized system of care<sup>1</sup> can be cumbersome and costly.

For example, appropriately scheduling patients from the outset saves time and improves patient experience. At the end of today's appointment, the team can set up the next appointment, with all associated tests for prevention and chronic illness monitoring, customized to this particular patient, accommodating the patient's preference for an in-person or virtual appointment.<sup>10</sup> No need then for a last-minute "schedule sweep"<sup>1</sup> to cancel the patient after an algorithm deemed their appointment unnecessary.

Likewise, centralizing population health as the primary vehicle for prevention and chronic illness care can be an unnecessary source of further fragmentation,<sup>9</sup> depersonalization, and waste within the health care system. Instead, using an organized system of care, all of the patient's annual needs for prevention and chronic illness monitoring can be arranged at a single, coordinated appointment rather than being fragmented, with the patient contacted 1 month for their mammogram, the next month for their pneumococcal vaccine, and at yet another time for their urine test for microalbumin. A registry, whether managed centrally or more personally at the local level by the patient's team, can catch those patients who fall through the cracks of an organized system, but to use it as the primary vehicle by which to manage populations is cumbersome and reduces customization at the level of the individual experience.

### **CONCLUSION**

During the storm that is coronavirus disease 2019, telemedicine arrived with a bang and is thankfully here to stay. It will take time to understand all of its risks and benefits,

the appropriate patients for in-person versus virtual care, and to develop the optimal models of teamwork for this platform. Let us not repeat the mistakes encountered when EHR implementations were anticipated through rose colored glasses, but rather look with clear eyes to the lessons from the past generation's technology challenges.

**Potential Conflicts of Interest:** The opinions expressed in this article are those of the author and should not be interpreted as American Medical Association policy.

**Correspondence:** Address to Christine A. Sinsky, MD, 330 N. Wabash Ave, Suite 39300, Chicago, IL 60611-5885 ([christine.sinsky@ama-assn.org](mailto:christine.sinsky@ama-assn.org); Twitter: [@ChristineSinsky](https://twitter.com/ChristineSinsky)).

#### ORCID

Christine A. Sinsky:  <https://orcid.org/0000-0003-1101-5761>

#### REFERENCES

1. Lin S, Sattler A, Smith M. Retooling Primary Care in the COVID-19 Era. *Mayo Clin Proc.* 2020;95(9):1831-1834.
2. Sinsky CA, Dugdale DC. Medicare payment for cognitive vs procedural care: minding the gap. *JAMA Intern Med.* 2013; 173(18):1733-1737.
3. Sinsky CA. E-nirvana: are we there yet? *Fam Pract Manag.* 2008; 15(3):6-8.
4. Amdt BG, Beasley JW, Watkinson MD, et al. Tethered to the EHR: primary care physician workload assessment using EHR event log data and time-motion observations. *Ann Fam Med.* 2017;15(5):419-426.
5. Sinsky C, Colligan L, Li L, et al. Allocation of physician time in ambulatory practice: a time and motion study in 4 specialties. *Ann Intern Med.* 2016;165(11):753-760.
6. Adler-Milstein J, Zhao W, Willard-Grace R, Knox M, Grumbach K. Electronic health records and burnout: Time spent on the electronic health record after hours and message volume associated with exhaustion but not with cynicism among primary care clinicians. *J Am Med Inform Assoc.* 2020;27(4):531-538.
7. Casalino LP, Gans D, Weber R, et al. US physician practices spend more than \$15.4 billion annually to report quality measures. *Health Affairs (Millwood).* 2016;35(3):401-406.
8. Zheng K, Haftel HM, Hirschl RB, O'Reilly M, Hanauer DA. Quantifying the impact of health IT implementations on clinical workflow: a new methodological perspective. *J Am Med Inform Assoc.* 2010;17(4):454-461.
9. Frandsen BR, Joynt KE, Rebitzer JB, Jha AK. Care fragmentation, quality, and costs among chronically ill patients. *Am J Manag Care.* 2015;21(5):355-362.
10. Sinsky CA, Sinsky TA, Rajcevic E. Putting pre-visit planning into practice. *Fam Pract Manag.* 2015;22(6):34-38.