

## VIEWPOINT

**Kurt R. Herzer, MD, PhD, MSc**

Johns Hopkins School of Medicine, Baltimore, Maryland.

**Peter J. Pronovost, MD, PhD**

University Hospitals, Case Western Reserve University School of Medicine, Cleveland, Ohio.



Viewpoint page 431 and Editorial page 437



Multimedia

## Ensuring Quality in the Era of Virtual Care

**The coronavirus disease 2019** (COVID-19) pandemic, aided by a relaxation in federal telemedicine regulations, has ushered in a new era of virtual care. Physicians and patients have substantially increased their adoption and use of virtual care. According to one report, an estimated 1.6 million telemedicine visits were conducted early in the pandemic, between January and March 2020, representing approximately 50% more telemedicine visits than occurred in the same period in 2019.<sup>1</sup> Based on aggregated payer data covering 150 million privately insured individuals in the US, by April 2020 telemedicine visits accounted for 13% of all medical claims compared with 0.15% in April 2019, an 86-fold increase.<sup>2</sup>

Virtual care refers to patient-physician interactions related to diagnosis, evaluation, and management conducted remotely using some combination of text, audio, and video either synchronously or asynchronously. Until recently, virtual care has largely supplemented traditional office or urgent care visits. The COVID-19 pandemic has catalyzed a new form of virtual care that instead seeks to supplant traditional care, such as with virtual-first primary care complemented by office or home visits when needed. For some disciplines, like mental health, virtual care could become the dominant form of encounters. Despite the growing enthusiasm and use of virtual care, there has been limited discussion of its quality and the principles that should inform its development and assimilation into the US health care system.

**Health systems, health plans, and health technology companies should ultimately demonstrate that virtual care represents an effective, efficient, and equitable contribution to the US health care system.**

In 2001, the Institute of Medicine described high-quality care as being safe, effective, efficient, timely, patient centered, and equitable.<sup>3</sup> This Viewpoint uses this framework to assess the current state and challenges of virtual care and suggests 3 principles to guide the development of virtual care going forward.

### Safe and Effective

The highest priorities of medicine are to avoid patient harm and deliver evidence-based care.<sup>3</sup> Current virtual encounters, such as for refilling prescriptions, treating low-severity symptoms, and counseling for mental health, are broadly accepted. In the future, virtual care may enable joint visits among patients, primary care physicians, and specialists, potentially improving care coordination and effective treatment.

However, there is limited high-quality evidence that virtual primary care does not harm patients, such as through misdiagnosis, and achieves the same or better clinical outcomes as traditional care.<sup>4</sup> Clinical practice guidelines, which presuppose a conventional in-office visit—supported by a physical examination, objective measurement of clinical data, equipment, and teamwork common to the office setting, may not generalize to the virtual setting. Early evidence from the COVID-19 pandemic based on an analysis of 125.8 million primary care visits suggests that assessment of blood pressure declined by 37% (from 74.4% of all primary care visits in April-June 2018/2019 to 47.2% in April-June 2020) and cholesterol levels by 20% (from 23.2% to 18.5%), in part because of the significant increase in virtual visits during which such assessment was less likely.<sup>5</sup> For example, in the second quarter of 2020, 69.7% of primary care office-based visits had recorded blood pressure assessment compared with 9.6% of telemedicine visits.<sup>5</sup> Given the failure of the US health care system to detect, diagnosis, and treat patients with hypertension, these data are concerning.<sup>6</sup>

### Efficient and Timely

High-quality care avoids wasted effort and harmful delays.<sup>3</sup> How virtual care affects efficiency may be mixed. Visits that do not require in-person assessment could be completed more quickly, avoiding the costs of transit and lost productivity for patients. Office visits could then be prioritized for more complex patients. Virtual care could also reduce delays through "on-demand" virtual appointments and more flexible hours or clinical staffing.

However, the convenience of virtual care could lead to more unnecessary visits. Separately, the need to frequently supplement a virtual visit with an office or home visit to investigate a patient's concerns or clinical issues would have an additive effect on utilization and require extra effort by patients. Physicians could also order incrementally more tests than they otherwise would to compensate for the absence of a physical examination or to mitigate liability concerns around misdiagnosis given the lack of established practice norms and standards of care in the virtual setting. Taken together, these sources of inefficiency could needlessly add to the total cost of care within a population, particularly if telemedicine continues to be reimbursed at similar rates as in-person care.

### Patient Centered and Equitable

All forms of care should be respectful of patient preferences and values and not vary in quality because of personal characteristics, such as sex/gender, race, and socioeconomic status.<sup>3</sup> Shared decision-making that incorporates patients' preferences relies on a foundation of rapport

### Corresponding

**Author:** Peter J. Pronovost, MD, PhD, Case Western Reserve University, University Hospitals Health System, Cleveland, OH 44106-1716 (peter.pronovost@uhhospitals.org).

and trust with physicians. Whether the virtual setting facilitates this rapport and engages patients as active participants in longitudinal care remains to be seen. As virtual care subsumes primary care, effectively counseling patients through new diagnoses, difficult treatment decisions, or sensitive topics will be increasingly necessary.

Health care disparities exist when receipt of care varies on the basis of personal characteristics, such as sex/gender, race, and socioeconomic status, and is not explained by differences in individual preferences or health needs.<sup>3</sup> Virtual care could increase access to care for individuals who have mobility limitations, work multiple jobs or irregular hours, have complex child care needs, or cannot find specialists where they live. But accessing virtual care requires internet access, a smartphone or computer, digital literacy, and some form of health insurance, which may disadvantage some US residents who are older, have lower income, or live in rural places.<sup>7</sup>

### Potential Guiding Principles

As health systems, health plans, and health technology companies expand their virtual care offerings, several principles could be helpful to guide this pursuit.

First, virtual care should achieve comparable safety and effectiveness as traditional care. Comparative effectiveness research across clinical disciplines is needed to gauge the performance of virtual care on process and outcome measures of quality. Retrospective analyses of claims data estimating the share of visits that could be “virtualized” do not substitute for high-quality randomized trials and prospective studies. To reduce unwarranted variation in practice, medical professional societies could adapt clinical practice guidelines to the virtual setting, with a focus on addressing the absence of objective clinical data and enumerating when diversion from virtual to traditional care is warranted. Regulators could likewise adapt quality reporting systems to assess virtual care, hold myriad organizations delivering virtual care accountable, and share relevant data with the public.

Second, virtual care should achieve a net increase in efficiency within the health care system and not add to the total cost of care. Integrated health systems that have the full spectrum of care delivery assets, such as acute care hospitals, skilled nursing facilities, and outpatient practices, may be best positioned to deploy virtual care services as part of a comprehensive population health strategy. In contrast, venture capital-backed virtual primary care companies could further fragment patient care and silo the data gathered in vir-

tual visits from other clinicians and health care organizations. Given the multitude of these emerging virtual care offerings, it is unclear how patients and physicians will incorporate them into a coherent longitudinal care experience. To mitigate the risk that an inefficient mix of virtual care and in-person care increases total costs of care, payers could promote efficiency through alternative payment models like global payments or bundling that encourage clinicians to identify the highest-value applications of virtual care for their patients. Payers also could selectively cover virtual care for certain patient populations, types of clinicians, or conditions in which the clinical rationale is sound and costs are likely substitutive rather than additive. With their comprehensive data on utilization, payers are well suited to generate evidence about how patients use virtual care and influence the effects of virtual care on cost and quality.

Third, virtual care should be respectful of patient preferences and values and not exacerbate health care disparities within a population. Lower-income and minority populations, who already experience significant disparities in health care quality,<sup>8</sup> could be induced into using virtual care products or systems with unclear effectiveness. For example, some health insurers are selling plans in 2021 offering lower premiums and minimal or no cost sharing for virtual primary care compared with traditional care. Early adopters to these plans have no opportunity to evaluate quality of care and may opt in solely on the basis of low out-of-pocket cost. Alternatively, if virtual primary care proves effective, it may disproportionately cater to younger populations at the expense of older, less educated, and minority populations who are less likely to possess the necessary digital literacy and technology.<sup>7</sup> Scrutiny of such disparities is needed as virtual care evolves.

### Conclusions

Proponents of virtual care imagine a future in which a substantial proportion of patient care may be delivered and received virtually, abetted by an increasing number and variety of wearables, remote medical devices, and mobile apps that integrate with electronic health records. In the near term, virtual care more accurately presents trade-offs among the domains of quality (increasing timeliness at the expense of effectiveness). Still, physicians' fundamental duty to patients remains unchanged. Health systems, health plans, and health technology companies should ultimately demonstrate that virtual care represents an effective, efficient, and equitable contribution to the US health care system.

#### ARTICLE INFORMATION

**Conflict of Interest Disclosures:** Dr Herzer reported having equity holdings in Oscar Health. Dr Pronovost reported being a strategic advisor for Talis Clinical, ShareSafe Solutions, and Stand Together and a director at Cantel Medical.

#### REFERENCES

1. Koonin LM, Hoots B, Tsang CA, et al. Trends in the use of telehealth during the emergence of the COVID-19 pandemic—United States, January–March 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69(43):1595-1599. doi:10.15585/mmwr.mm6943a3
2. FAIR Health. *Monthly Telehealth Regional Tracker, April 2020*. Accessed November 30, 2020. <https://s3.amazonaws.com/media2.fairhealth.org/infographic/telehealth/apr-2020-national-telehealth.pdf>
3. Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. National Academy Press; 2001.
4. Bashshur RL, Howell JD, Krupinski EA, Harms KM, Bashshur N, Doarn CR. The empirical foundations of telemedicine interventions in primary care. *Telemed J E Health*. 2016;22(5):342-375. doi:10.1089/tmj.2016.0045
5. Alexander GC, Tajanlangit M, Heyward J, Mansour O, Qato DM, Stafford RS. Use and content of primary care office-based vs telemedicine care visits during the COVID-19 pandemic in the US. *JAMA Netw Open*. 2020;3(10):e2021476. doi:10.1001/jamanetworkopen.2020.21476
6. Muntner P, Hardy ST, Fine LJ, et al. Trends in blood pressure control among US adults with hypertension, 1999-2000 to 2017-2018. *JAMA*. 2020;324(12):1190-1200. doi:10.1001/jama.2020.14545
7. Velasquez D, Mehrotra A. Ensuring the growth of telehealth during COVID-19 does not exacerbate disparities in care. *Health Affairs* blog. Published May 8, 2020. Accessed October 31, 2020. <https://www.healthaffairs.org/doi/10.1377/hblog20200505.591306/full/>
8. 2018 National Healthcare Quality and Disparities Report. Agency for Healthcare Research and Quality; 2019.