

# BACKGROUND

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## Telemedicine: The Promise and the Performance

*Stephanie J. Zawada*

### Abstract

*The cost of an in-person physician visit has steadily increased while access to care has progressively narrowed. The result: Patients and payers are looking to invest in less expensive and more flexible health care delivery options. Telemedicine enables patients from any location to connect directly and conveniently with doctors and other medical professionals for a fraction of the cost of an in-person visit without sacrificing the in-person standard of care. By removing onerous state and federal statutory and regulatory barriers, policymakers can liberate telemedicine and usher in a cutting-edge, cost-effective phase of health care delivery.*

Telemedicine, the delivery of primary and specialty medical care enabled by telecommunication devices, offers less costly, more personalized health care options than conventional in-person visits. Telemedicine allows patients to connect with physicians and other health professionals at any time, from many locations, to receive a diagnosis or treatment.<sup>1</sup> Harnessing the power of innovative technologies, telemedicine also can maintain or improve the quality of established medical services.<sup>2</sup>

Given the vast challenges facing American health care, the rapidly growing interest in telemedicine is timely. Patients and private payers, especially employers, are looking for a highest-value health care system that generates better patient outcomes at a lower cost over time than current options.<sup>3</sup> Doctors, health systems, and other providers are also exploring ways to integrate telemedicine into their care delivery models. The potential benefits of using telemedicine to decrease America's health care spending—which consumed around 18 percent of the nation's gross domestic product in 2017<sup>4</sup>—can amplify access to broader

### KEY POINTS

- Today, the average patient spends over 100 minutes commuting, waiting, and filling out paperwork for every 20 minutes of face time with a doctor.
- Telemedicine offers significant relief from this burden: Patients from many locations, urban and rural, can receive quality care for a fraction of the cost of an in-person visit.
- Telemedicine has the potential to offer cutting-edge health care delivery with the patient at its center. Growing interest among patients, providers, and payers—most notably, employers—has positioned telemedicine for widespread adoption.
- Each year, more patients in both rural and urban areas are turning to telemedicine for health consultations. While nationwide use of telemedicine increased by 643 percent from 2011 to 2016, state and federal policymakers should remove more barriers to telemedicine.

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**The Heritage Foundation**  
214 Massachusetts Avenue, NE  
Washington, DC 20002  
(202) 546-4400 | [heritage.org](http://heritage.org)

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physician networks, improve care coordination, and offer more reasonable costs for payers and patients.

While policymakers have made some efforts to clear the way for telemedicine, these efforts have been predominantly isolated and sporadic. Policymakers should undertake further statutory and regulatory reforms with the vision of patient-centered health care as their compass. Eliminating artificial obstacles that restrict the adoption of telemedicine will maximize the fiscal, individual, and social benefits of telemedicine. Specifically, policymakers should review statutory definitions as well as reimbursement, licensure, and tax policies to better accommodate the growth of telemedicine.

### What Is Telemedicine?

As defined by the Federation of State Medical Boards (FSMB), telemedicine is “the practice of medicine using electronic communication, information technology or other means between a physician in one location and a patient in another location with or without an intervening health care provider.”<sup>5</sup> An intervening health care provider, also known as a telepresenter, is a health professional, such as a physician, nurse practitioner, or physician assistant, who is at the same location as a patient to assist with physical examinations, such as evaluating flu symptoms,<sup>6</sup> during a telemedicine consultation.

**Scope of Services.** Telemedicine is not a medical specialty itself<sup>7</sup> but rather a mode of care delivery, by which Internet-enabled tools are used to administer traditional or enhanced medical care without geographic constraint.<sup>8</sup> The scope of telemedicine services can include nearly every medical specialty, from allergy and immunology to urology. While the term “telemedicine” is used to refer to the delivery of medical care enabled by telecommunications technology, “telehealth” is more frequently used to describe the wider range of ancillary health-related services and less-than-comprehensive virtual health options, such as telepharmacies, telebehavioral health services, and the diverse digital technologies that have materialized with the development of low-cost mobile devices. One of the newest classes of telehealth is digital therapeutics, which are software programs that can use patient data to “prevent, manage, or treat a broad spectrum of physical, mental, and behavioral conditions.”<sup>9</sup>

Contemporary telemedicine can be divided into four modalities: (1) store-and-forward, (2) synchronous, (3) remote patient monitoring (RPM), and (4) autonomous. Store-and-forward telemedicine can be patient-to-provider or provider-to-provider with the transmission of patient images or recorded data to a physician for assessment.<sup>10</sup> Synchronous telemedicine involves live communication between a

1. “Is Telemedicine the Future of Care?” *Mercy Virtual*, February 12, 2018, <http://www.mercyvirtual.net/telemedicine-future-care/> (accessed December 9, 2018).
2. Susan E. Volkert, “Telemedicine: Rx for the Future of Health Care,” *Michigan Telecommunications and Technology Law Review*, Vol. 147, No. 153 (2000), p. 155, <https://repository.law.umich.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1153&context=mttlr> (accessed November 1, 2018).
3. William B. Rouse and Denis A. Cortese, eds., *Engineering the System of Healthcare Delivery* (Clifton, VA: IOS Press, 2010), p. 10.
4. Committee for a Responsible Federal Budget, “American Health Care: Health Spending and the Federal Budget,” May 16, 2018, <http://www.crfb.org/papers/american-health-care-health-spending-and-federal-budget> (accessed December 4, 2018).
5. The Federation of State Medical Boards, “Public Policy Compendium 2018-19,” April 28, 2018, p. 19, <http://www.fsmb.org/siteassets/advocacy/policies/2017-18-public-policy-compendium.pdf> (accessed October 5, 2018).
6. “In Midst of Flu Epidemic, Teladoc Provides Relief for Overburdened Health System,” February 20, 2018, <https://teladochealth.com/en/newsroom/press/release/providing-relief-for-overburdened-health-system/> (accessed December 8, 2018).
7. Denis A. Cortese, Donald A. Graf, Natalie Landman, and Bob Smoldt, “Tipping Telemedicine Adoption—Barrier Mitigation White Paper,” March 18, 2014, Arizona State University Healthcare Delivery and Policy Program, p. 1, [http://healthcare.asu.edu/sites/default/files/Tipping%20Telemedicine%20Adoption\\_031814.pdf](http://healthcare.asu.edu/sites/default/files/Tipping%20Telemedicine%20Adoption_031814.pdf) (accessed December 6, 2018).
8. Center for Connected Health Policy, “Fall 2018 State Telehealth Laws & Reimbursement Policies,” October 1, 2018, p. 4, [https://www.cchpc.org/sites/default/files/2018-10/CCHP\\_50\\_State\\_Report\\_Fall\\_2018.pdf](https://www.cchpc.org/sites/default/files/2018-10/CCHP_50_State_Report_Fall_2018.pdf) (accessed October 5, 2018).
9. Digital Therapeutics Alliance, “What Are Digital Therapeutics?” 2018, <https://www.dtxalliance.org/dtx-solutions/> (accessed October 29, 2018).
10. As of September 2018, 11 states (Alaska, Arizona, California, Connecticut, Georgia, Maryland, Minnesota, New Mexico, Nevada, Virginia, and Washington) offer Medicaid reimbursement for store-and-forward telemedicine. Some states restrict store-and-forward telemedicine reimbursement to specific specialties. Hawaii, Mississippi, New Jersey, and New York have laws requiring Medicaid reimbursement for store-and-forward telemedicine but lack official state policies to support these laws. Center for Connected Health Policy, “Fall 2018 State Telehealth Laws & Reimbursement Policies,” pp. 2 and 6.

patient and provider or a teleconference of physicians.<sup>11</sup> Remote patient monitoring is the real-time streaming of patient data from an approved site, such as a hospital or patient home, for professional analysis.<sup>12</sup> Autonomous telemedicine is the actual delivery of medical care using or integrating stand-alone technology, ranging from artificial intelligence to robotic drones.<sup>13</sup> To date, live video is the modality most frequently reimbursed by health insurance companies.

### Growing Interest in Telemedicine

Telemedicine can provide affordable, high-quality medical care. Subsequently, there is a burgeoning interest in telemedicine among payers, patients, and health professionals alike.

Employer interest in telemedicine is at an all-time high. In 2014, 90 percent of health care executives surveyed in a Foley & Lardner telemedicine report stated that their care provider organizations had “already begun developing or implementing a telemedicine program.”<sup>14</sup> Today, 74 percent of large firms offering health coverage include plans with at

least one telemedicine service, a sharp increase from just 63 percent in 2017<sup>15</sup> and a major increase from the mere 27 percent in 2015.<sup>16</sup> By 2019, 96 percent of the largest U.S. employers will include telemedicine coverage in their benefits packages.<sup>17</sup>

Many health systems and hospitals are equally as interested in offering telemedicine care. Kaiser Permanente of Northern California, for instance, reported in 2016 that “its virtual (e-mail, telephone, and video) communications exceeded in-person visits” for the first time.<sup>18</sup> The first virtual hospital, Mercy Health of St. Louis, which opened its bed-less facility in 2015, is home to telestroke capabilities, an electronic intensive care unit (eICU), and a remote care program that monitors patients in their homes across multiple states.<sup>19</sup> CareMore, a care system with integrated health plans for Medicare and Medicaid enrollees, focuses on improved outcomes for chronic patients through support strategies that integrate remote patient monitoring. The results: 42 percent lower hospital admission rates for seniors, 60 percent fewer amputations for diabetic patients, lower per member per month (PMPM) spending, and 40-hour

11. As of September 2018, 49 states and the District of Columbia offer Medicaid reimbursement for at least one form of live telemedicine. Only Massachusetts does not; Massachusetts offers managed-care plans that may reimburse for telemedicine. Center for Connected Health Policy, “Fall 2018 State Telehealth Laws & Reimbursement Policies,” pp. 2 and 5, and Kristi Kung and Matthew Shatzkes, “Telehealth in 2017: What Changed and What’s Ahead,” SheppardMullin, December 28, 2017, [https://www.sheppardhealthlaw.com/2017/12/articles/healthcare-information-technology/2017-telehealth-telemedicine-services/#\\_edn24](https://www.sheppardhealthlaw.com/2017/12/articles/healthcare-information-technology/2017-telehealth-telemedicine-services/#_edn24) (accessed December 12, 2018).
12. As of September 2018, 20 states offer Medicaid reimbursement for RPM (Alabama, Alaska, Arizona, Colorado, Illinois, Indiana, Kansas, Louisiana, Maine, Maryland, Minnesota, Mississippi, Missouri, Nebraska, South Carolina, Texas, Utah, Vermont, Virginia, and Washington). Hawaii, New Jersey, and New York have laws requiring Medicaid reimbursement for RPM but lack official state policies to support these laws. Center for Connected Health Policy, “Fall 2018 State Telehealth Laws & Reimbursement Policies,” p. 2.
13. Artificial intelligence in telemedicine is the application of computer-based systems that collect data from patient sources to identify relevant patterns. These systems typically perform techniques on those patterns that generate knowledge and insights for providers while communicating with patients. Robotics in telemedicine is the utilization of robots to diagnose or treat a patient via software programs or live telemedicine consultations.
14. Foley & Lardner LLP, “2014 Telemedicine Survey,” Executive Summary, November 2014, p. 1, <https://www.foley.com/files/Publication/0585f5b1-1205-4be7-be5a-4e14602a4fac/Presentation/PublicationAttachment/39c25a9b-5ff1-4ee8-b861-4ea2d71718ae/2014%20Telemedicine%20Survey%20Executive%20Summary.pdf> (accessed October 5, 2018).
15. The Kaiser Family Foundation, “Employer Health Benefits 2018 Annual Survey,” 2018, p. 219, <http://files.kff.org/attachment/Report-Employer-Health-Benefits-Annual-Survey-2018> (accessed October 5, 2018).
16. “Health Affairs Ahead of Print: 2018 Costs for Employee-Sponsored Family Health Coverage,” *Health Affairs* blog, October 3, 2018, <https://www.healthaffairs.org/doi/10.1377/hblog20181002.517938/full/> (accessed October 3, 2018).
17. Coalition to Transform Advanced Care and American Health Insurance Plans, “Leveraging Telehealth to Support Aging Americans,” October 2018, p. 1, [https://www.ahip.org/wp-content/uploads/2018/10/AHIP-CTAC\\_Report.pdf](https://www.ahip.org/wp-content/uploads/2018/10/AHIP-CTAC_Report.pdf) (accessed November 1, 2018).
18. Reed V. Tuckson, Margo Edmunds, and Michael L. Hodgkins, “Telehealth,” *The New England Journal of Medicine*, Vol. 377, No. 16 (October 2017), p. 1585, <https://www.nejm.org/doi/pdf/10.1056/NEJMs1503323> (accessed October 29, 2018).
19. Arthur Allen, “A Hospital without Patients,” *Politico*, November 8, 2017, <https://www.politico.com/agenda/story/2017/11/08/virtual-hospital-mercy-st-louis-000573> (accessed October 29, 2018), and Julianne Pepitone, “The \$54 Million Hospital Without Any Beds,” *CNN Business*, September 13, 2016, <https://money.cnn.com/2016/09/12/technology/mercy-hospital-virtual-care/index.html> (accessed December 12, 2018).

work weeks for physicians with the majority of time spent on patient interaction.<sup>20</sup>

Patients are also warming to telemedicine. In 2013, 350,000 patients used telemedicine services; by 2017, there were 3.84 million.<sup>21</sup> One reason for this trend is that telemedicine encounters are increasing patient satisfaction. For example, a Massachusetts General Hospital study reported that 90 percent of patients receiving virtual consults noted that “the encounters significantly improved their healthcare experience.”<sup>22</sup>

Today, the average patient spends over 100 minutes commuting, waiting, and filling out paperwork for every 20 minutes of face-to-face time with a doctor.<sup>23</sup> While rural patients struggle with long-distance commutes, patients in major metropolitan areas face difficulties with scheduling in-person physician visits, waiting an average of 21.7 days for an initial face-to-face consultation with a primary care physician, and up to 44.8 days to visit in-demand specialists, such as rheumatologists.<sup>24</sup> Since virtual physician visits minimize appointment-related logistics and transportation burdens,<sup>25</sup> it is unsurprising that urban telemedicine use increased by 629 percent

between 2011 and 2016.<sup>26</sup> Demographic trends suggest that demand for telemedicine will continue to rise; 40 percent of millennials, according to a 2018 Employer Benefit Research Institute survey, report that telemedicine is “extremely or very important” to them.<sup>27</sup>

Beyond payers and patients, medical professionals are also taking serious steps to improve and advance telemedicine. For example, state medical boards in New York, North Carolina, Oklahoma, and Pennsylvania adopted the American Telemedicine Association standardized telemedicine practice guidelines in their rules. These efforts are to ensure that the practice of telemedicine upholds an “in-person” standard of care nationwide.<sup>28</sup>

Medical educators have also advocated for formal telemedicine training curriculums for students and residents. In the October 2018 issue of *Annals of Emergency Medicine*, for instance, researchers at New York-Presbyterian Weill Cornell Medical Center piloted a standardized simulation-based telemedicine curriculum that assessed four telemedicine competencies<sup>29</sup> with physicians, nurses, and physician assistants from various specialties.<sup>30</sup>

20. Christine A. Sinsky and Thomas A. Sinsky, “Lessons from CareMore: A Stepping Stone to Stronger Primary Care of Frail Elderly Patients,” *The American Journal of Managed Care*, Vol. 3, No. 2 (June 2015), p. 47, <https://www.ajmc.com/journals/ajac/2015/2015-vol3-n2/lessons-from-caremore-a-stepping-stone-to-stronger-primary-care-of-frail-elderly-patients> (accessed November 4, 2018).
21. Statista, “Projected Number of Telehealth Patients Worldwide from 2013 to 2018 (in Millions),” September 2015, <https://www.statista.com/statistics/302641/global-telehealth-market-patients/> (accessed November 1, 2018).
22. Chris Togneri, “Case Study: Virtually Connected,” American College of Radiology *Imaging 3.0*, October 2018, p. 1, [https://www.acr.org/-/media/ACR/Files/Case-Studies/Patient-Engagement/Imaging3\\_VirtuallyConnected\\_October2018-\(1\).pdf](https://www.acr.org/-/media/ACR/Files/Case-Studies/Patient-Engagement/Imaging3_VirtuallyConnected_October2018-(1).pdf) (accessed November 1, 2018).
23. Kristin N. Ray, Amalavoyal V. Chari, John Engberg, Marnie Bertolet, and Ateev Mehrotra, “Opportunity Costs of Ambulatory Medical Care in the United States,” *American Journal of Managed Care*, Vol. 22, No. 8 (August 2015), p. 569, <https://www.ajmc.com/journals/issue/2015/2015-vol21-n8/opportunity-costs-of-ambulatory-medical-care-in-the-united-states?p=1> (accessed October 29, 2018).
24. Chris Hayhurst, “The Doctor Will See You...Sometime,” *AthenaInsight*, December 11, 2017, pp. 1 and 2, <https://www.athenahealth.com/insight/sites/insight/files/12.11%20The%20doctor%20will%20see%20you%20...%20sometime.pdf> (accessed October 14, 2018).
25. Ana Hincapie, Terri L. Warholak, and Edward P. Armstrong, “Socioeconomic Impact of Mandated Health Coverage for Telemedicine in the State of Arizona,” Arizona Center for Rural Health, November 2011, p. 6, <https://crh.arizona.edu/sites/default/files/Telemedicine%20Report%20V12Ana-1.pdf> (accessed November 1, 2018).
26. FAIR Health, “FH Healthcare Indicators and FH Medical Price Index,” *White Paper*, March 2018, p. 21, <https://s3.amazonaws.com/media2.fairhealth.org/whitepaper/asset/FH%20Medical%20Price%20Index%20and%20FH%20Healthcare%20Indicators--whitepaper.pdf> (accessed December 7, 2018).
27. Paul Fronstin, “Consumer Engagement in Health Care Among Millennials, Baby Boomers, and Generation X: Findings from the 2017 Consumer Engagement in Health Care Survey,” Employee Benefit Research Institute *Issue Brief* No. 444, March 5, 2018, p. 9, [https://www.ebri.org/docs/default-source/ebri-issue-brief/ebri\\_ib\\_444\\_millennialhealthcare-5mar18.pdf?sfvrsn=3f35342f\\_2](https://www.ebri.org/docs/default-source/ebri-issue-brief/ebri_ib_444_millennialhealthcare-5mar18.pdf?sfvrsn=3f35342f_2) (accessed November 26, 2018).
28. Elizabeth A. Krupinski and Jordana Bernard, “Standards and Guidelines in Telemedicine and Telehealth,” *Healthcare*, Vol. 2, No. 1 (February 2014), p. 88, <https://www.mdpi.com/2227-9032/2/1/74> (accessed October 5, 2018).
29. These competencies include: “1) Basics: technology use, staging considerations, medico-legal environment; 2) ‘Web-side manner’: self-presentation skills and medical history taking; 3) patient examination: skills necessary for remote video exam; and 4) facilitated examination dynamics: skills for when another provider is physically present.”
30. N. K. Naik, P. Greenwald, H. Hsu, B. Hafeez, and R. Sharma, “265 ‘Web-Side Manner’: Creation of One-Day Simulation-Based Curriculum for Enterprise-Wide Standardization of Telemedicine Practice,” *Annals of Emergency Medicine*, Vol. 72, No. 45 (October 2018), p. S105, [https://www.annemergmed.com/article/S0196-0644\(18\)31006-0/abstract](https://www.annemergmed.com/article/S0196-0644(18)31006-0/abstract) (accessed November 1, 2018).

## Existing and Potential Benefits of Telemedicine

A literature review of telemedicine offers a glimpse of its potential.

**Increased Access for Rural and Underserved Patients.** Rural America faces serious health care access problems. In 2015, the American Hospital Association reported that roughly 20 percent of Americans were living in rural areas with restricted access to either primary or specialty care,<sup>31</sup> while the National Rural Health Association stated that 673 rural hospitals—one-third—are at risk of closing due to financial challenges.<sup>32</sup> In addition to fewer care locations, rural areas are also limited by having only 39.8 physicians per 100,000 people compared to 53.3 physicians per 100,000 people for urban patients.<sup>33</sup> As the availability of health care resources in rural areas diminishes, telemedicine holds the potential to equalize—or at least improve—access to care for patients in rural and other underserved communities. It is no wonder that the use of telehealth services in rural areas increased by 960 percent from 2011 to 2016.<sup>34</sup>

In 2017, a *JAMA Surgery* study found that roughly one in 10 rural patients waits nearly 30 minutes for emergency personnel to arrive at his home.<sup>35</sup> In Mississippi, researchers have developed a solution to this problem: an aerial telemedicine ambulance. This ambulance, the Healthcare Integrated Rescue Operations (HiRO) drone, is equipped with “smartglasses”<sup>36</sup>

for live telemedicine consultations, a holographic electronic health record (EHR) display, and a medical kit with supplies. This approach has resulted in faster emergency response times, as demonstrated during participation in federal disaster exercises.<sup>37</sup>

Telemedicine also offers rural patients and those in underserved communities access to world-class care at institutions like the Mayo Clinic as well as enhanced flexibility in time and location for physicians and patients alike.<sup>38</sup> Remote patients can even participate in virtual clinical trials enabled by telemedicine devices.<sup>39</sup> For those who face limited one-on-one time with physicians, as well as delayed scheduling for appointments, some telemedicine options offer immediate consultations with physicians. Direct-to-consumer (DTC) telemedicine options are numerous and affordable, allowing patients to choose individual consultations when they need care most or to augment their current insurance plans while paying minimal out-of-pocket costs for services.

**Improved Care Coordination and Patient Outcomes.** Telemedicine is an effective tool for managing chronic conditions in real time and reducing the frequency of emergencies rooted in chronic diseases.<sup>40</sup> In a September 2014 literature analysis published in *Telemedicine and e-Health*, reviewers found that the telemonitoring of chronic heart failure (CHF) patients for disease management resulted in a substantial decrease in mortality, between 15 per-

31. American Hospital Association, “Trendwatch: The Promise of Telehealth for Hospitals, Health Systems, and Their Communities,” 2015, p. 1, <https://www.aha.org/system/files/research/reports/tw/15jan-tw-telehealth.pdf> (accessed October 6, 2018).
32. John Herath, “A Third of Rural Hospitals in Danger of Closing,” AgWeb, September 22, 2017, <https://www.agweb.com/article/a-third-of-rural-hospitals-in-danger-of-closing-naa-john-herath/> (accessed December 6, 2018).
33. Esther Hing and Chun-Ju Hsiao, “State Variability in Supply of Office-Based Primary Care Providers: United States 2012,” National Center for Health Statistics *Data Brief* No. 151, May 2014, p. 3, <https://www.cdc.gov/nchs/data/databriefs/db151.pdf> (accessed October 7, 2018).
34. FAIR Health, “FH Healthcare Indicators and FH Medical Price Index,” p. 21.
35. Howard K. Mell, Shannon N. Mumma, and Brian Hiestand, “Emergency Medical Services Response Times in Rural, Suburban, and Urban Areas,” *JAMA Surgery*, Vol. 152, No. 10 (October 2017), p. 984, <https://jamanetwork.com/journals/jamasurgery/fullarticle/2643992> (accessed November 7, 2018).
36. Smartglasses are eyeglasses that display computer-generated information on the inside of glass lenses for the wearer to see along with objects in the line of sight.
37. Jeanette Beebe, “Drone Ambulances to the Rescue,” *Forbes*, October 16, 2018, <https://www.forbes.com/sites/nextavenue/2018/10/16/drone-ambulances-to-the-rescue/#549ce09d5309> (accessed November 4, 2018).
38. Jeremy Olson, “Study: Minnesota Telemedicine Visits Up 40 Percentage Points,” *Government Technology*, December 6, 2018, <http://www.govtech.com/analytics/Study-Minnesota-Telemedicine-Visits-Up-40-Percentage-Points.html> (accessed December 12, 2018).
39. Ray Dorsey, “Telemedicine: The Future of Clinical Trials,” lecture, Georgetown University CERSI, Washington, DC, January 19, 2017, <https://www.fda.gov/ScienceResearch/SpecialTopics/RegulatoryScience/ucm535768.htm> (accessed December 13, 2018).
40. Eric Wicklund, “Making Telehealth a Valuable Part of Preventative Care Programs,” *mHealth Intelligence*, January 10, 2018, <https://mhealthintelligence.com/news/making-telehealth-a-valuable-part-of-preventive-care-programs> (accessed November 4, 2018).

cent and 56 percent, compared to CHF patients who received traditional care.<sup>41</sup>

In a 2016 study published in the *American Journal of Respiratory and Critical Care Medicine*, researchers found that the implementation of a telemedicine disease management program for chronic obstructive pulmonary disease (COPD) patients, which engaged patients to report their daily respiratory symptoms in their smartphones, reduced emergency room (ER) visits by 53 percent.<sup>42</sup>

A 2013 review of 755 studies on telemedicine for mental health revealed that telemental health services are “effective for diagnosis and assessment across many populations (adult, child, geriatric, and ethnic) and for disorders in many settings (emergency, home health) and [appear] to be comparable to in-person care.”<sup>43</sup>

Telemedicine can also reduce lengths of stay and hospital readmission rates. A five-year study assessing the outcomes of Mississippi trauma patients showed that patients treated via telemedicine had shorter lengths of stay at local community hospitals by 45.5 hours and shorter transfer times from these hospitals to trauma centers by 11.3 hours. The coordinated care communication between on-site responders and in-hospital professionals resulted in decreased hospital costs by \$6,505,941 based on a comparison of the net costs of trauma cases before and after telemedicine services were implemented.<sup>44</sup>

The Boston-based Partners HealthCare telemedicine program reduced readmissions by 51 percent for heart failure patients and 44 percent for those with non-heart failure illnesses.<sup>45</sup>

In June 2016, researchers writing for *Diabetes Research and Clinical Practice* reviewed the outcomes of 9,258 diabetic patients, 4,607 of whom received telemedicine-enhanced care while the remainder received only conventional care. The result: Patients who received telemedicine care reported more successful diabetes management and had lower blood sugar levels than their counterparts who received only in-person care.<sup>46</sup>

In April 2018, researchers writing in *Critical Care Medicine* published a study reviewing the outcomes for high-risk progressive care unit (PCU) patients, those who need more monitoring than is provided in general hospital wards but not as intensive as provided in ICUs. Eight thousand ninety-one patients received telemedicine interventions while 8,000 received only in-person care, and researchers found that patients who received telemedicine care showed decreased mortality rates and lengths of stay.<sup>47</sup>

Patients receiving at-home care through New Mexico’s Hospital at Home program at Presbyterian Healthcare Services—which offers some acute care patients the option to receive monitoring at home via telemedicine instead of in the hospital—generated equal or better measurements for each clini-

41. Rashid L. Bashshur, Gary W. Shannon, and Brian R. Smith, “The Empirical Foundations of Telemedicine Interventions for Chronic Disease Management,” *Telemedicine and e-Health*, Vol. 20, No. 9 (September 2014), p. 795, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4148063/pdf/tmj.2014.9981.pdf> (accessed October 4, 2018).
42. Rachel N. Criner, Michael R. Jacobs, Andrew J. Criner, Abhinav Rastogi, Stephanie S. Strasburger, Steven S. Cheng, Michael J. Markus, and Gerard Criner, “A Telemedicine-Based Disease Management Program for Daily COPD Symptom Reporting Reduces Hospitalizations, Hospital Length of Stay, and Emergency Room Visits,” *American Journal of Respiratory and Critical Care Medicine*, Vol. 193, p. A1525, [https://www.atsjournals.org/doi/abs/10.1164/ajrccm-conference.2016.193.1\\_MeetingAbstracts.A1525](https://www.atsjournals.org/doi/abs/10.1164/ajrccm-conference.2016.193.1_MeetingAbstracts.A1525) (accessed October 4, 2018).
43. Donald M. Hilty, Daphne C. Ferrer, Michelle Burke Parish, Barb Johnston, Edward J. Callahan, and Peter M. Yellowlees, “The Effectiveness of Telemental Health: A 2013 Review,” *Telemedicine and e-Health*, Vol. 19, No. 6 (June 2013), p. 444, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3662387/> (accessed November 4, 2018).
44. Juan C. Duchesne, Amber Kyle, Jon Simmons, Saleem Islam, Robert E. Schmiege, Jake Oliver, and Norman E. McSwain, “Impact of Telemedicine Upon Rural Trauma Care,” *The Journal of Trauma: Injury, Infection, and Critical Care*, Vol. 64, No. 1 (January 2008), p. 92, [https://journals.lww.com/jtrauma/Fulltext/2008/01000/Impact\\_of\\_Telemedicine\\_Upon\\_Rural\\_Trauma\\_Care.14.aspx](https://journals.lww.com/jtrauma/Fulltext/2008/01000/Impact_of_Telemedicine_Upon_Rural_Trauma_Care.14.aspx) (accessed November 4, 2018).
45. Andrew Broderick and David Lindeman, “Scaling Telehealth Programs: Lessons from Early Adopters,” *Case Studies in Telehealth Adoption*, January 2013, p. 6, [https://www.integration.samhsa.gov/operations-administration/Telehealth\\_Commonwealth\\_fund\\_Report\\_1654\\_Broderick\\_telehealth\\_adoption\\_synthesis.pdf](https://www.integration.samhsa.gov/operations-administration/Telehealth_Commonwealth_fund_Report_1654_Broderick_telehealth_adoption_synthesis.pdf) (accessed October 14, 2018).
46. D. Su, J. Zhou, M. S. Kelley, T. L. Michaud, M. Siahpush, J. Kim, F. Wilson, J. P. Simpson, and J. A. Pagan, “Does Telemedicine Improve Treatment Outcomes for Diabetes? A Meta-Analysis of Results from 55 Randomized Controlled Trials,” *Diabetes Research and Clinical Practice*, Vol. 116 (June 2016), pp. 136 and 143, <https://www.ncbi.nlm.nih.gov/pubmed/27321329> (accessed November 4, 2018).
47. Donna Lee Armaignac, Anshul Saxena, Muni Rubens, Carlos A. Valle, Lisa-Mae S. Williams, Emir Veledar, and Louis T. Gidel, “Impact of Telemedicine on Mortality, Length of Stay, and Cost Among Patients in Progressive Care Units: Experience from a Large Healthcare System,” *Critical Care Medicine*, Vol. 46, No. 5 (May 2018), p. 728, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5908255/> (accessed November 4, 2018).

ical outcome compared to patients residing at hospital facilities. Patients in the program also reported higher satisfaction compared to those who received in-person care.<sup>48</sup>

Telemedicine also improves coordinated care by using patient data to generate information for physicians in real time. For example, at Beaumont Hospital in Michigan, a new telemedicine tool uses data from EHRs to display updated information about ICU patients on monitors outside their rooms. Using this tool, medical staff can make quick decisions based on direct visualizations without wasting time searching through records to find critical patient data.<sup>49</sup>

**Expanded Provider Networks.** The educational, professional, and research isolation characteristic of rural medical practice no longer has to be a barrier for today's physicians because of telemedicine's collaborative and educational opportunities.<sup>50</sup> By allowing remote access to continuing education, physicians can stay current on cutting-edge case studies and discoveries.

Potentially, telemedicine also offers physicians an off-ramp from today's overregulated, hospital-dominated health care marketplace. Doctors can form and lead Internet-based health care companies,<sup>51</sup> exchange their skills and knowledge to generate more economic opportunities, and foster a greater number of patient-physician relationships online.<sup>52</sup>

Government regulatory pressures to use more health information technology, coupled with Obam-

acare's reporting and billing rules, have driven many independent physicians out of business. According to the Physicians Foundation, only 33 percent of surveyed physicians identified as "independent practice owners or partners" in 2016, compared to 48.5 percent in 2012.<sup>53</sup> A recent RAND Corporation study found that individual physician practices are "merging with other physician practices or aligning with or becoming owned by hospitals...to enhance practices' ability to make the capital investments required to succeed in certain alternative payment models (especially investments in computers and data infrastructure), to negotiate contracts with health plans (including which performance measures and targets would be included), and to gain a sense of 'safety in numbers.'"<sup>54</sup>

With today's greater hospital consolidation and a high level of merger and acquisition activity, including hospital buyouts of physician groups, fewer independent medical practices exist today than in previous decades. Meanwhile, insurance companies have been able to cherry-pick physicians for inclusion in their networks "based on the cost of the care that was ordered for their patients...not quality of care, not outcomes, not patient wellbeing or satisfaction."<sup>55</sup>

Telemedicine platforms can offer a lifeboat to individual physicians and groups of physicians squeezed out of health care by provider networks. In fact, telemedicine may enable "small physician practices [to] be better prepared to participate and succeed in new payment and delivery models" by facilitating flexible

48. Vida Foubister, "Hospital at Home Program in New Mexico Improves Care Quality and Patient Satisfaction While Reducing Costs," The Commonwealth Fund, November 15, 2018, <https://www.commonwealthfund.org/publications/newsletter-article/hospital-home-program-new-mexico-improves-care-quality-and-patient> (accessed November 15, 2018).
49. Jay Greene, "Beaumont, Henry Ford Rethink the ICU," *Crain's Detroit Business*, April 22, 2018, <https://www.crainsdetroit.com/article/20180422/news/658771/beamont-henry-ford-rethink-the-icu> (accessed November 4, 2018).
50. Rural Health Information Hub, "Telehealth Use in Rural Healthcare," August 2017, <https://www.ruralhealthinfo.org/topics/telehealth> (accessed October 4, 2018).
51. "Corporate Practice of Medicine," American Medical Association *Issue Brief*, 2015, [https://www.ama-assn.org/sites/ama-assn.org/files/corp-media-browser/premium/arc/corporate-practice-of-medicine-issue-brief\\_1.pdf](https://www.ama-assn.org/sites/ama-assn.org/files/corp-media-browser/premium/arc/corporate-practice-of-medicine-issue-brief_1.pdf) (accessed November 4, 2018).
52. Bethany Bump, "Telemedicine Movement to Benefit Schenectady Homeless, Disabled," *TimesUnion.com*, September 11, 2018, <https://www.timesunion.com/news/article/Telemedicine-movement-to-benefit-Schenectady-13221394.php> (accessed October 4, 2018).
53. The Physicians Foundation, "2016 Survey of America's Physician's Practice Patterns & Perspectives," 2017, p. 8, [https://physiciansfoundation.org/wp-content/uploads/2018/01/Biennial\\_Physician\\_Survey\\_2016.pdf](https://physiciansfoundation.org/wp-content/uploads/2018/01/Biennial_Physician_Survey_2016.pdf) (accessed September 29, 2018).
54. Mark W. Friedberg, Peggy G. Chen, Chapin White, Olivia Jung, Laura Raaen, Samuel Hirshman, Emily Hoch, Clare Stevens, Paul B. Ginsburg, Lawrence P. Casalino, Michael Tutty, Carol Vargo, and Lisa Lipinski, "Effects of Health Care Payment Models on Physician Practice in the United States," RAND Corporation, 2015, p. xii, [https://www.rand.org/pubs/research\\_reports/RR869.html](https://www.rand.org/pubs/research_reports/RR869.html) (accessed October 24, 2018).
55. Gary Price and Tim Norbeck, "Health Insurance Mergers Prioritize Profits, Posing a Threat to Physicians and Patients," *Forbes*, August 16, 2016, <https://www.forbes.com/sites/physiciansfoundation/2016/08/16/health-insurance-mergers-prioritize-profits-posing-a-threat-to-physicians-and-patients/#53bbad035b9e> (accessed October 24, 2018).

staffing models.<sup>56</sup> One such success story is a 16-physician group in Columbia, Maryland, that expanded its practice beginning in 2015 by offering telemedicine services to students in Howard County schools.<sup>57</sup>

Finally, telemedicine also allows U.S. physicians to export their skills to other countries. For example, UCLA Health System's Center for Telepathology and Digital Pathology collaborates with six hospitals throughout China to assess the biopsies of Chinese patients.<sup>58</sup>

**Reduced Costs for Payers and Patients.** In 2018, a study found that the average in-person physician office visit costs \$125 while a standard telemedicine visit costs around \$45.<sup>59</sup>

One clinical advantage of telemedicine is its application for pre-operative and post-operative consultations, eliminating the hassle of transportation for patients.<sup>60</sup> It can also streamline in-person visits by allowing patients to complete pre-visit paperwork and evaluations online.<sup>61</sup>

Telemedicine can reduce unnecessary ER visits. The average ER visit costs roughly \$1,200.<sup>62</sup> Analyzing the insurance claims of 6.5 million ER visits, Truven Health Analytics found that a stunning 71 percent of these visits

were unnecessary and avoidable.<sup>63</sup> A recent study conducted in Houston showed that pre-hospital telemedicine consultations reduced ER visits by 6.7 percent.<sup>64</sup> Thus, telemedicine has the potential to reduce avoidable ER visits, provide more appropriate care, and free intensive resources for the patients who need them most.

Telemedicine can reduce employee and student absenteeism. Writing in the journal *Pediatrics*, researchers found that school-based telemedicine utilizing both live and store-and-forward modalities could reduce student absences by 63 percent, while 91 percent of consultations enabled participating children's parents to stay at work.<sup>65</sup>

Appointment cancellations and "no-shows" cost an estimated \$150 billion each year.<sup>66</sup> Telemedicine can reverse that dynamic. For pediatric telemedicine consultations, for example, the no-show rate of rural patients is nearly zero percent, compared to the 30 percent reported for in-person consultations that require patient travel.<sup>67</sup>

The Congressional Budget Office (CBO) noted that if telemedicine is implemented to prevent the use of more expensive services, it has the potential to reduce federal

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56. Megan McHugh, "Telemedicine and Small Physician Practices," testimony before the Subcommittee on Health and Technology, Committee on Small Business, U.S. House of Representatives, July 31, 2014, p. 2 [https://smallbusiness.house.gov/uploadedfiles/7-31-2014\\_mchugh\\_testimony.pdf](https://smallbusiness.house.gov/uploadedfiles/7-31-2014_mchugh_testimony.pdf) (accessed October 24, 2018).
  57. Annette Boyle, "Maryland Pediatric Practices Feel the Ripple Effect of School Telemedicine Program," *FierceHealthcare*, July 2017, <https://www.fiercehealthcare.com/mobile/pediatric-practices-feel-ripple-effect-school-telemedicine-programs> (accessed October 15, 2018).
  58. UCLA Health, "Center for Telepathology and Digital Pathology," <http://pathology.ucla.edu/telepathology> (accessed November 14, 2018).
  59. Terena Bell, "Can Telemedicine Be Both Cost Efficient and High Quality?," *U.S. News & World Report*, February 27, 2018, <https://www.usnews.com/news/healthcare-of-tomorrow/articles/2018-02-27/can-telemedicine-be-both-cost-efficient-and-high-quality> (accessed October 31, 2018).
  60. Aaron M. William, Umar F. Bhatti, Hasan B. Alam, and Vahagn C. Nikolian, "The Role of Telemedicine in Postoperative Care," *mHealth*, Vol. 4 (May 2, 2018), p. 5, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5994447/> (accessed October 14, 2018).
  61. Siu Tang and Daiga Helmeste, "Digital Psychiatry," *Psychiatry and Clinical Neurosciences*, 2000, pp. 5 and 6, <https://onlinelibrary.wiley.com/doi/epdf/10.1046/j.1440-1819.2000.00628.x> (accessed September 29, 2018).
  62. Sarah Kliff, "An Average ER Visit Costs More Than an Average Month's Rent," *The Washington Post*, March 2, 2013, [https://www.washingtonpost.com/news/wonk/wp/2013/03/02/an-average-er-visit-costs-more-than-an-average-months-rent/?noredirect=on&utm\\_term=.d221fddfb435](https://www.washingtonpost.com/news/wonk/wp/2013/03/02/an-average-er-visit-costs-more-than-an-average-months-rent/?noredirect=on&utm_term=.d221fddfb435) (accessed September 29, 2018).
  63. "Study: 71% of ED [Emergency Department] Visits Unnecessary, Avoidable," *Becker's Hospital Review*, April 25, 2013, <https://www.beckershospitalreview.com/patient-flow/study-71-of-ed-visits-unnecessary-avoidable.html> (accessed September 29, 2018).
  64. James R Langabeer II, Tiffany Champagne-Langebeer, and Diaa Alqusairi, "Cost-Benefit Analysis of Telehealth in Pre-Hospital Care," *Journal of Telemedicine and Telecare*, Vol. 23, No. 8 (December 5, 2016), p. 747, <http://journals.sagepub.com/doi/abs/10.1177/1357633X16680541> (accessed October 15, 2018).
  65. K. M. McConnochie, N. E. Wood, H. J. Kitzman, N. E. Herendeen, J. Roy, and K. J. Roghmann, "Telemedicine Reduces Absence Resulting from Illness in Urban Child Care: Evaluation of an Innovation," *Pediatrics*, Vol. 115, No. 5 (May 2005), p. 1273, <https://www.ncbi.nlm.nih.gov/pubmed/15867035> (accessed October 7, 2018).
  66. CrossChx, "The Cost of No Shows," p. 1, <https://static1.squarespace.com/static/570fc4338a65e27bed147ea1/t/57ed18f38419c2255ba70de5/1475156211779/The-Cost-of-No-Shows.pdf> (accessed November 5, 2018).
  67. Jennifer J. Tieman, "Monitoring a Good Opportunity. Telemedicine Grows as Method to Reach Poorly Served Regions," *Modern Healthcare*, Vol. 30, No. 43 (October 2000), <https://www.ncbi.nlm.nih.gov/pubmed/11155266> (accessed October 14, 2018).

health care spending; however, the CBO also noted that if telemedicine is used in addition to traditional care services, it will likely increase spending.<sup>68</sup> Therefore, the implementation of telemedicine must strategically balance cost and coverage to realize its benefits.

### Key Policy Actions in Telemedicine

Congress originally supported telemedicine as a delivery model to expand health care access for rural Americans. In 1994, Congress established the federal Office of Rural Health Policy's Rural Telemedicine Grant program to allocate funding for the creation of pilot projects in remote communities.<sup>69</sup> By August 1996, Congress enacted privacy provisions governing the transmission of patient data, necessitating its encryption, in the Health Insurance Portability and Accountability Act (HIPAA).<sup>70</sup> The Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 incentivized providers to use certified EHRs in managing patient data.<sup>71</sup>

In 2014, the Federation of State Medical Boards finalized the Interstate Medical Licensure Compact to offer a streamlined pathway for physicians to obtain out-of-state licensure. The compact enables doctors to practice and transmit patient data across state lines. Today, 24 states and Guam have adopted the compact.<sup>72</sup> Additionally, each U.S. state, minus Connecticut and Massachusetts, updated its telemed-

icine laws in 2017 to reflect new regulatory strategies for the thriving phenomenon, with a handful removing geographic restrictions on the expansion of telemedicine for home-based care.<sup>73</sup>

Meanwhile, Congress enacted the Medicare Access & CHIP Reauthorization Act of 2015 (MACRA), which established the Medicare Quality Payment Program (QPP). After MACRA was enacted, the Centers for Medicare and Medicaid Services (CMS) proposed a rule that "include[d] telehealth services in the definition of patient-facing encounters" for Medicare billing purposes and that included telemedicine in the list of clinical activities that could increase a physician's score under the newly proposed Merit-Based Incentive Payment System (MIPS).<sup>74</sup> Under the 2018 QPP Final Rule, which updates the QPP outlined in MACRA, the CMS proposed new telemedicine Current Procedural Terminology (CPT) codes and RPM reimbursement.<sup>75</sup>

Enacting the 21st Century Cures Act in 2016, Congress ordered the Medicare Payment Advisory Commission (MedPAC) to report on telehealth reimbursement from both Medicare and private insurers, and to show how Medicare could match private insurers in telehealth offerings.<sup>76</sup> The 2018 MedPAC report urged the CMS to cautiously expand telehealth services, focusing on those that reduce costs, increase access, and deliver high-quality care.<sup>77</sup>

68. Lori Housman, "Telemedicine," Congressional Budget Office, July 29, 2015, <https://www.cbo.gov/publication/50680> (accessed November 4, 2018).

69. Hearing, *Departments of Labor, Health and Human Services, Education, and Related Agencies Appropriations for 1997: Hearings before a Subcommittee of the Committee on Appropriations*, U.S. House of Representatives, 104th Congress, 2nd session, 1997, p. 425, [https://archive.org/details/departmentsoflab00unit\\_4/page/424](https://archive.org/details/departmentsoflab00unit_4/page/424) (accessed December 11, 2018).

70. Health Insurance Portability and Accountability Act of 1996, Public Law 104-191.

71. Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009, Public Law 111-115.

72. The 24 states are Alabama, Arizona, Colorado, Idaho, Illinois, Iowa, Kansas, Maine, Maryland, Minnesota, Mississippi, Montana, Nebraska, Nevada, New Hampshire, Pennsylvania, South Dakota, Tennessee, Utah, Vermont, Washington, West Virginia, Wisconsin, and Wyoming. Interstate Medical Licensure Compact, "The IMLC," 2018, <https://imlcc.org/> (accessed September 29, 2018).

73. Epstein Becker Green, "50-State Survey of Telemental/Telebehavioral Health," 2017, p. 3, <https://www.ebgllaw.com/content/uploads/2017/10/EPSTEIN-BECKER-GREEN-2017-APPENDIX-50-STATE-TELEMENTAL-HEALTH-SURVEY.pdf> (accessed October 4, 2018).

74. U.S. Department of Health and Human Services, "Medicare Program; Merit-Based Incentive Payment System (MIPS) and Alternative Payment Model (APM) Incentive Under the Physician Fee Schedule, and Criteria for Physician-Focused Payment Models," *Federal Register*, Vol. 81, No. 214 (November 4, 2016), p. 77042, <https://www.federalregister.gov/documents/2017/11/16/2017-24067/medicare-program-cy-2018-updates-to-the-quality-payment-program-and-quality-payment-program-extreme> (accessed December 7, 2018).

75. Jodi G. Daniel and Maya Uppaluru, "New Reimbursement for Remote Patient Monitoring and Telemedicine," *Crowell & Moring Health Law*, November 3, 2017, <https://www.cmhealthlaw.com/2017/11/new-reimbursement-for-remote-patient-monitoring-and-telemedicine/> (accessed November 8, 2018).

76. The 21st Century Cures Act, H.R. 34, 114th Cong., 2nd Sess., § 4012.

77. Medicare Payment Advisory Commission, "Medicare Payment Policy," *Report to the Congress*, March 2018, p. 474, [http://www.medpac.gov/docs/default-source/reports/mar18\\_medpac\\_entirereport\\_sec.pdf?sfvrsn=0](http://www.medpac.gov/docs/default-source/reports/mar18_medpac_entirereport_sec.pdf?sfvrsn=0) (accessed November 4, 2018).

On October 31, 2018, the CMS released a separate Final Rule for the 2019 Home Health Prospective Payment (HPPS) System that allows home health agencies to bill Medicare for remote patient monitoring.<sup>78</sup> The CMS subsequently issued the Final Rule for the 2019 Medicare Physician Fee Schedule and QPP, outlining three new CPT codes that will be available for telemedicine billing in January 2019.<sup>79</sup>

In response to the Bipartisan Budget Act (BBA) of 2018, which promotes the expansion of “additional telehealth benefits” in Medicare Advantage (MA) plans in 2020,<sup>80</sup> the CMS proposed that MA patients should be able to access telehealth services with the touch of a screen, outside of previously designated locations.<sup>81</sup>

**Telemedicine and the Opioid Crisis.** Telemedicine has also emerged as a tool in combatting the opioid crisis. In September 2017, the Health Resources and Services Administration awarded nearly \$3.3 million to the Rural Health Opioid Program and the Substance Abuse Treatment Telehealth Network Grant Program to “improve access to substance abuse treatment in rural, frontier, and underserved communities.”<sup>82</sup> In 2018, the Health and Human Services Department’s Substance Abuse and Mental Health Services Administration allocated more

than \$50 million in grants, partly to implement telemedicine systems to reach remote patients, for tribal reservation areas.<sup>83</sup>

The SUPPORT for Patients and Communities Act, passed by the House in October 2018, expedites Medicare reimbursement for telemedicine services rendered to patients with opioid-addiction-related afflictions. It also creates a telemedicine training program on substance-abuse-related care for rural and remote providers and eliminates the “remote location” requirement<sup>84</sup> for reimbursement of telemedicine services for Medicare beneficiaries being treated for substance abuse.<sup>85</sup>

### Removing Other Barriers to Telemedicine

Although telemedicine is becoming popular, it is still a small part of American health care. In recent years, federal and state telemedicine policy changes have surfaced with greater frequency; however, many existing policies remain barriers to patient access to telemedicine.

As a guiding principle, federal and state government efforts should focus on leveling the playing field to allow a competitive marketplace to emerge between health care services delivered in person and

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78. U.S. Department of Health and Human Services, “Medicare and Medicaid Programs; CY 2019 Home Health Prospective Payment System Rate Update and CY 2020 Case-Mix Adjustment Methodology Refinements; Home Health Value-Based Purchasing Model; Home Health Quality Reporting Requirements; Home Infusion Therapy Requirements; and Training Requirements for Surveyors of National Accrediting Organizations,” *Federal Register*, Vol. 83, No. 219 (November 13, 2018), <https://www.federalregister.gov/documents/2018/11/13/2018-24145/medicare-and-medicare-programs-cy-2019-home-health-prospective-payment-system-rate-update-and-cy> (accessed December 7, 2018).
79. U.S. Department of Health and Human Services, “Medicare Program; Revisions to Payment Policies under the Physician Fee Schedule and Other Revisions to Part B for CY 2019; Medicare Shared Savings Program Requirements; Quality Payment Program; Medicaid Promoting Interoperability Program; Quality Payment Program--Extreme and Uncontrollable Circumstance Policy for the 2019 MIPS Payment Year; Provisions from the Medicare Shared Savings Program--Accountable Care Organizations--Pathways to Success; and Expanding the Use of Telehealth Services for the Treatment of Opioid Use Disorder under the Substance Use-Disorder Prevention that Promotes Opioid Recovery and Treatment (SUPPORT) for Patients and Communities Act,” *Federal Register*, Vol. 83, No. 226 (November 23, 2018), <https://www.federalregister.gov/documents/2018/11/23/2018-24170/medicare-program-revisions-to-payment-policies-under-the-physician-fee-schedule-and-other-revisions> (accessed December 7, 2018).
80. Balanced Budget Act of 2018, Public Law 115-123.
81. U.S. Department of Health and Human Services, “Medicare and Medicaid Programs; Policy and Technical Changes to the Medicare Advantage, Medicare Prescription Drug Benefit, Program of All-Inclusive Care for the Elderly (PACE), Medicaid Fee-for-Service, and Medicaid Managed Care Programs for Years 2020 and 2021,” *Federal Register*, Vol. 83, No. 212 (November 1, 2018), <https://www.federalregister.gov/documents/2018/11/01/2018-23599/medicare-and-medicare-programs-policy-and-technical-changes-to-the-medicare-advantage-medicare> (accessed November 1, 2018).
82. “HRSA Awards \$200 Million to Health Centers Nationwide to Tackle Mental Health and Fight the Opioid Overdose Crisis,” Health Resources and Services Administration, September 14, 2017, <https://www.hhs.gov/about/news/2017/09/14/hrsa-awards-200-million-to-health-centers-nationwide.html> (accessed September 29, 2018).
83. Eric Wicklund, “HHS Grants to Help Native Americans Expand Telehealth Resources,” mHealth Intelligence, September 27, 2018, <https://mhealthintelligence.com/news/hhs-grants-to-help-native-americans-expand-telehealth-resources> (accessed November 25, 2018).
84. The remote location requirement mandates that patients who receive telemedicine care must be located at an approved telemedicine facility site.
85. The SUPPORT for Patients and Communities Act, Public Law 115-271.

services delivered through telemedicine. The state of Missouri is one example of progress in this area. Missouri's telemedicine law "instructs the Department of Social Services to reimburse health care providers for telehealth services rendered under the same standard of care as in-person services."<sup>86</sup>

Policymakers can improve current policies and promote competition in health care by assessing potential policy barriers in the following areas:

- **Statutory definitions.** The definition of telemedicine varies widely from state to state and from licensure board to licensure board. In Wyoming, for example, each professional board can create its own definition for the term "telehealth."<sup>87</sup> This is not only a problem for in-state practitioners and patients, it also imposes limitations on out-of-state practitioners who can provide telemedicine for the state's rural citizens. States should ensure that the definitions surrounding telemedicine are current and broad enough to facilitate innovation while simultaneously protecting patients from unsafe or inadequate services.<sup>88</sup>
- **Reimbursement policy.** Medicare and Medicaid reimbursement policies continue to present barriers to telemedicine. At the state level, Medicaid reimbursement policies vary across specialties and modalities and are often location-specific. Although Medicare has recently expanded its telemedicine benefits, its offerings are limited. Furthermore, patchwork reimbursement policies have hindered

physician adoption of telemedicine because its reimbursement has historically been limited to select groups of Medicare enrollees, thereby complicating day-to-day operations for physicians who see both telemedicine-eligible and ineligible patients.

To address these issues, policymakers could support bundling telemedicine activities in current CPT codes instead of proposing additional codes.<sup>89</sup> This would reduce billing and coding burdens and give doctors the flexibility to determine which telemedicine options are appropriate for an individual patient throughout the duration of treatment.

- **Licensure policies.** The limitation on licensing across state lines is often a barrier for physicians and other providers. State policymakers should consider ways to ease licensure rules to facilitate and accommodate telemedicine providers from other states. One solution is for states to accept the laws of a given physician's state for governing that physician's practice of telemedicine.<sup>90</sup> This would eliminate the need for a physician to obtain a second license to offer the same form of telemedicine practiced in state to a patient located out of state.<sup>91</sup>

State officials also need to reduce or eliminate the impact of restrictive licensure practices. Such licensure restrictions aggravate the shortage of physicians and specialists, particularly in rural areas.<sup>92</sup> While only 9 percent of physicians practice on site in rural

86. Missouri H.B. 1617 (2018), and Geoff Conn, "Expanding Access to Telehealth Coverage—State Senator Dan Hegeman," Nodaway Broadcasting, October 15, 2018, <https://nodawaybroadcasting.com/2018/10/15/expanding-access-to-telehealth-coverage-state-senator-dan-hegeman/> (accessed November 1, 2018).

87. Center for Connected Health Policy, "Fall 2018 State Telehealth Laws & Reimbursement Policies," pp. 4 and 407-413.

88. The Special Registration for Telemedicine Clarification Act of 2018 requires the U.S. Drug Enforcement Administration (DEA) to release a special registration that allows physicians and nurse practitioners to prescribe controlled substances online without an in-person visit. Although the Ryan Haight Act included a provision for the DEA to develop this registration in 2008, the DEA has yet to activate "practice of telemedicine" exceptions that could exclude telehealth offerings that do not constitute health care services identical in scope and quality to in-person services. "Expect New DEA Regulations: Special Registration for Telemedicine," *JD Supra*, November 7, 2018, <https://www.jdsupra.com/legalnews/expect-new-dea-regulations-special-48337/> (accessed November 7, 2018).

89. Marc Miller, "The New Medicare Physician Payment Regulation: What Does It Mean for Physicians and Patients?" panel discussion, American Enterprise Institute, Washington, DC, November 27, 2018.

90. Shirley Svorney, "Liberating Telemedicine: Options to Eliminate the State-Licensing Roadblock," Cato Institute, November 15, 2017, <https://www.cato.org/publications/policy-analysis/liberating-telemedicine-options-eliminate-state-licensing-roadblock> (accessed October 15, 2018).

91. Such a reform would allow centers like UCLA's Remote Second Opinion Program for neurosurgery, which currently charges \$850 for a virtual or written remote second opinion, to provide patients with the immediate option of soliciting a second opinion from an out-of-state doctor of their choice without requiring the physician to go through the lengthy and costly state-licensure process.

communities, the number of nurse practitioners who provide on-site care services for rural populations increased from 17.6 percent in 2008 to 25.2 percent in 2016.<sup>93</sup> State officials need to examine their scope of laws to tap into this cohort of professional talent that can facilitate telemedicine care as telepresenters at a patient's location.

- **Tax policy.** Some federal tax rules hinder the adoption and use of telemedicine services. High deductible health plans (HDHP) and health savings accounts (HSAs) are two specific areas where tax policy is not reconcilable with telemedicine expansion. For example, “preventive care” benefits are typically excluded from deductibles for HSA plans; yet, telemedicine services that “provide free or reduced-cost medical benefits before the HDHP deductible is satisfied” are typically not considered preventative care and may also be considered “disqualifying coverage.”<sup>94</sup> Likewise, if an employer partially covers a telemedicine visit before meeting the HDHP deductible, the coverage is also disqualified.<sup>95</sup>

Federal tax law does not include in its definition of a “patient” a remote person receiving medical care via telecommunications tools.<sup>96</sup> This definition excludes telemedicine patients from tax rules governing medical expenses. As such, nonprofit hospitals and health systems could be liable for unrelated business taxable income when providing telemedicine services.<sup>97</sup>

Congress could revise tax rules to enable telemedicine to qualify for these tax benefits. One solution could be to revise HSA requirements by using a flex-

ible standard, such as one based on actuarial value. This innovative approach can grant insurance carriers the freedom to design more patient-centered plans based on targeted demographic needs and market demands.<sup>98</sup>

## Conclusion

Telemedicine has the potential to construct cutting-edge health care delivery with the patient at its center. Growing interest among patients, providers, and payers—most notably, employers—has positioned telemedicine for widespread adoption. Today, hospitals are using telemedicine in their delivery models, and medical professionals are integrating its practice into their curriculums and standards. Each year, more patients in both rural and urban areas are turning to telemedicine for health consultations.

An increasing number of telemedicine programs has demonstrated the capacity for expanded access for rural and underserved areas, as well as offering those in urban settings more convenient care options. Telemedicine also provides a framework to better coordinate care between providers and more competently manage chronic conditions. Moreover, it can expand networks of providers, not only for patients but also for medical professionals. When implemented in a cost-effective manner, telemedicine has the added benefit of reducing health care expenses.

Policymakers have made progress in removing regulatory and statutory barriers to allow telemedicine to flourish in a competitive system; however, policymakers at the federal and state levels should review policies around telemedicine definitions, health care

92. Kevin Pham, “America’s Looming Doctor Shortage: What Policymakers Should Do,” Heritage Foundation *Backgrounder* No. 3343, September 5, 2018, [https://www.heritage.org/sites/default/files/2018-09/BG3343\\_1.pdf](https://www.heritage.org/sites/default/files/2018-09/BG3343_1.pdf).

93. National Rural Health Association, “Recruitment and Retention of a Quality Health Workforce in Rural Areas,” *Issue Paper* No. 6, November 2006, <https://www.ruralhealthweb.org/getattachment/Advocate/Policy-Documents/RR6publicHlth.pdf.aspx?lang=en-US> (accessed December 7, 2018).

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reimbursement, physician licensure, and tax.<sup>99</sup> By freeing the health care system to adapt to patient choices and needs through telemedicine, policymakers can advance less-expensive, more sustainable health care delivery with access for all Americans.

—*Stephanie J. Zawada is the fall 2018 Graduate Fellow in Health Policy in Domestic Policy Studies, of the Institute for Family, Community, and Opportunity, at The Heritage Foundation.*

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99. For example, in the December 2018 report “Reforming America’s Healthcare System Through Choice and Competition,” the Trump Administration proffered policy recommendations broadly similar to those in this *Backgrounder*. “Reforming America’s Healthcare System Through Choice and Competition,” U.S. Department of Health and Human Services, December 3, 2018, pp. 36 and 42, <https://www.hhs.gov/sites/default/files/Reforming-Americas-Healthcare-System-Through-Choice-and-Competition.pdf> (accessed December 11, 2018).