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An Emergent Research and Policy Framework for Telehealth

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Abstract

Context: Telehealth is a fast-growing sector in healthcare, using a variety of technologies to exchange - information across locations and improve access, quality, and outcomes across the continuum of care. Thousands of studies and hundreds of systematic reviews have been done, but their variability leaves many questions about effectiveness, implementation priorities, and return on investment.

Objectives: There is an urgent need for a systematic, policy-relevant framework to integrate regulatory, operational, and clinical factors and guide future investments in telehealth research and practice.

Methods: An invited multidisciplinary group of 21 experts from AcademyHealth, the American Telemedicine Association (ATA), Kaiser Permanente Institute for Health Policy (KP), and the Physician Insurers Association of America (PIAA) met to review and discuss the components of a draft framework for policy-relevant telehealth research. The framework was revised and presented in a challenge workshop at Concordium 2016, and some additional refinements were made. The current framework encompasses the regulatory and payment policy context for telehealth; delivery system factors; and outcomes of telehealth interventions.

Findings: Based on the feedback at Concordium 2016, the framework seems to have potential to help educate policy-makers, payers, and health systems about the value of telehealth and to frame discussions about implementation barriers, including risk management concerns, technology costs, and organizational culture. However, questions remain about how to disseminate and use the framework to help coordinate policy, research, and implementation efforts in the delivery system.

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Keywords

delivery of health care, telehealth, telemedicine, framework, model, evidence-based policymaking, health care reform, risk management

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An Emergent Research and Policy Framework for Telehealth

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ABSTRACT

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Introduction and Background

Telehealth is one of the fastest-growing sectors in health care. According to a recent report to Congress by the Department of Health and Human Services,¹ the telehealth market generated \$9.6 billion in revenue in 2013, representing a 60 percent increase in growth over the previous year. An estimated 60 percent of all health institutions and 40–50 percent of all hospitals are already using some form of telehealth,² and the device market for remote monitoring of patients with chronic conditions is predicted to reach \$46 billion in 2017.³

The terms “telemedicine” and “telehealth” are often used interchangeably. Historically, telemedicine has referred to two-way communications—such as videoconferencing and consultations with specialists—between clinicians at different locations. More recently, the term telehealth has started being used to refer to the broader array of provider-to-provider and provider-to-patient communications, and has been defined as using telecommunications and information technologies and devices to share information, and to provide training and clinical, population health, and administrative services at a distance.⁴

It is estimated that in the private sector all large employers will provide some telehealth coverage for employees by 2020.⁵ As of August 2016, 31 states and the District of Columbia had already enacted parity laws that require telehealth services to be reimbursed the same as in-person services are.⁶ Recent legislative and regulatory changes have begun to disrupt some of the longstanding Medicare payment restrictions for telehealth, largely to improve access to care, but reimbursement policies and practice standards for Medicaid programs still vary state by state.⁷ Another longstanding regulatory barrier is conflicting state provider licensure requirements, which can prevent telehealth services from being provided across state lines.⁸

As of January 2016, more than 15,000 peer-reviewed articles and 400 systematic reviews had been categorized as telemedicine or telehealth by the National Library of Medicine.⁹ A congressionally requested evidence map of systematic reviews found a sufficient evidence base to support the effectiveness of telehealth for remote patient monitoring (RPM)—also known as “remote monitoring”—for patients with several chronic conditions, such as cardiovascular and respiratory disease, and also for telemental health.

The Agency for Healthcare Research and Quality (AHRQ) review’s authors recommended further research on how to promote broader implementation of those modalities and suggested including telehealth in studies of new delivery and payment models. While the review is a landmark report for the field, there are many interventions and patient populations for which the evidence base was found to be mixed or missing. In addition, it was beyond the scope of the review to provide clinical guidance or implementation assistance.

In sum, the wide variability of clinical conditions, patient populations, methodological approaches, technologies, and quality of evidence in the available studies makes it difficult to draw firm conclusions about what uses of telehealth are effective and compelling enough to overcome existing payment and regulatory restrictions and expand its use. With this in mind, we sought to use a consensus-based, multidisciplinary approach to develop a framework to help guide future research and practice in telehealth.

Development of a Policy-Relevant Research Framework

In February 2016, in partnership with the Kaiser Permanente Institute for Health Policy (KP), leaders from AcademyHealth, the American Telemedicine Association (ATA), and Physician



Insurers Association of America (PIAA) convened a small, invited group of experts with the purpose of developing an overarching research and policy agenda for telehealth. The experts included health services and policy researchers; physicians, nurses, care managers, and other health professionals with direct contact with patients; attorneys; insurance industry executives; and other legislative experts. Patient and vendor perspectives were also represented both directly and indirectly through previous professional positions and personal experiences.

There was broad agreement among the experts that the terms “risk management,” “patient safety,” and “quality” address similar concerns from different perspectives (i.e., legal, clinical, research), and that there is value in finding common ground across the different fields they represented in order to act in the best interests of patients. There was also broad agreement that telehealth research and practice continue to face legal and regulatory restrictions that have had a dampening effect on telehealth implementation and expansion.

There was a lengthy discussion about cost barriers in two major arenas: what services are allowable, from a regulatory and legal perspective; and what services are paid for, based on payment policies in both the public and private sectors. The complexity and inconsistencies in payment were seen as one of the more vexing implementation issues for the field, with tremendous variability by geography, system, and setting.

In general, participants agreed that existing evidence shows that telehealth can improve access to care, and they offered many examples from their own programs. Quality improvements and cost savings were found by reducing wait time to see specialists, preventing unnecessary hospital readmissions, closer and more accurate monitoring of patients with

chronic conditions, and reducing the patient travel burden in both costs and time. In sum, participants agreed that telehealth, appropriately used, can lead to better quality, better consumer experiences, and cost effectiveness of care.

The group recognized that a significant amount of additional research would be needed to fill gaps in their experiences about quality of care and clinical outcomes. They felt that the shortage of traditional funding for telehealth research and the existing implementation barriers would make it difficult to build the evidence base unless some of the newer telehealth programs being funded through alternative payment models also conducted systematic research and shared findings through conference presentations, reports, and journal publications.

Participants also acknowledged the concerns about the risk of malpractice claims for care provided at a distance, but asserted there have been very few lawsuits, with most existing cases settled out of court.¹⁰ Some observed that their programs are experiencing an increase in consumer demand for virtual visits, and they could imagine cases where the failure to provide telehealth services could become grounds for complaints.

In September 2016, the framework was presented in a challenge workshop at Concordium 2016. The presenters engaged in an interactive discussion with the audience about myths and misperceptions about telehealth, such as perceived difficulties in establishing provider-patient relationships and monitoring quality of care, that the technology is too expensive and complex, that it is primarily about consumer convenience and will never be as effective as face-to-face care, and that it is too easy to submit fraudulent claims.

The Concordium discussion led to further insights about how to promote culture change within

provider organizations to support telehealth investments, training, and workflow changes. Workshop participants generally supported increased adoption of telehealth as an extension and enhancement of current health care delivery that improves access and quality, increases patient satisfaction, and can improve efficiencies and reduce costs.

The discussion also covered the role of evidence—through either internal quality improvement activities or externally funded demonstration projects and studies—in encouraging medical and nurse executives to make informed business and clinical decisions about establishing and expanding telehealth services. For health systems that do not provide incentives or support for research and peer-reviewed publications, conferences such as Concordium were seen as a valuable way to exchange operational and clinical information about telehealth.

Major Components in the Proposed Framework

Our framework (Figure 1) is an adaptation of the classic Donabedian (1988) framework for assessing health services and quality of health care.¹¹ The three major components of the Donabedian framework are the following: (1) structure (policy context), (2) process (delivery), and (3) outcomes along the continuum of care.

Within the policy context and structural section of the framework, there are two major components: Regulatory and Payment.

Regulatory

Technology-enabled modalities for delivering care have been available for some time, but have not reached their full potential because of a variety of legal and regulatory factors.

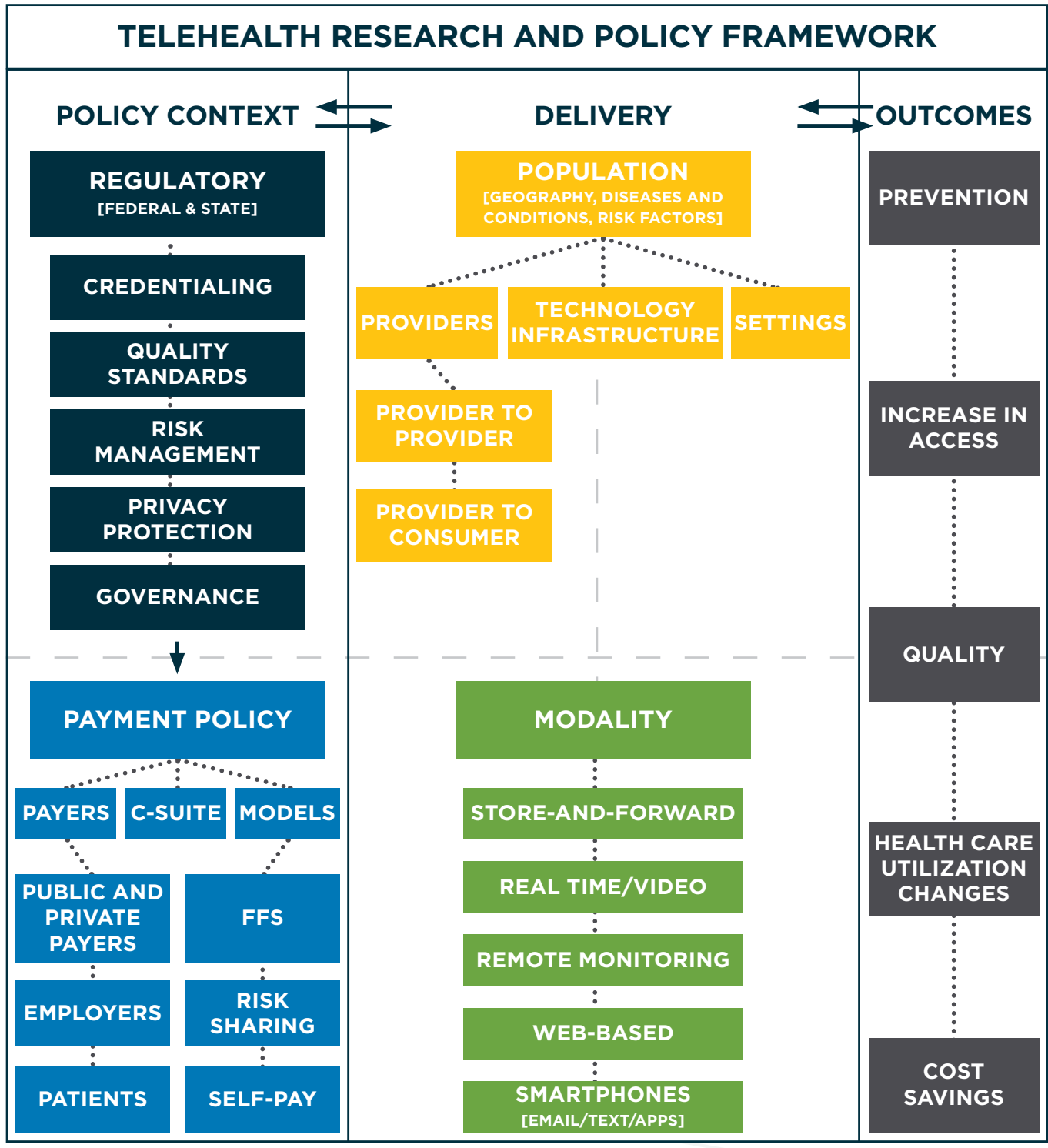
Credentialing. The policy landscape for providing telehealth services includes licensure and practice standards, which are set and overseen at the state level. Thus, there are 50 sets of often conflicting requirements regarding professional licensure and who can provide telehealth services and submit insurance claims. Currently, approximately 4 out of 5 states require out-of-state clinicians to be licensed in the state where their telehealth patients reside.¹² This complexity and the lack of universality create one of the most daunting barriers to those who would like to provide telehealth services.¹³ As of October 2016, 18 states have enacted legislation to allow expedited licensure for physicians who want to practice in multiple states.¹⁴

Quality Standards. Clinical guidelines are typically developed by professional medical specialty organizations, but may also be developed by payers and quality standards organizations such as the National Institute for Clinical Excellence (NICE), which is part of the National Health Service in the United Kingdom. ATA has released several practice guidelines and technical guidance for practitioners.¹⁵ However, many telehealth services still lack evidence-based guidelines, due in part to the lack of published studies and systematic reviews in several important areas.

Risk Management. A significant barrier to telehealth adoption is the concern on the part of some administrators and payers that services provided at a distance cannot be monitored as easily as they are in face-to-face visits. These fears seem to be unwarranted and were actively disputed by our Concordium panelists. According to our PIAA colleagues, no malpractice judgments have been made for telehealth services, although there have been a few complaints that have been mediated and settled.



Figure 1. Telehealth Framework



Privacy Protections. While there are some federal and state guidelines to protect patient privacy and the security of the telehealth ecosystem, many gaps remain. In order to promote and maintain provider and patient trust in telehealth, some experts have proposed that a comprehensive federal privacy and security regulatory framework under a single regulatory agency is needed for telehealth.¹⁶

Governance. Telehealth services allow sharing of tasks and health information across teams in different locations, which may promote efficiencies and allow clinicians to practice at the full extent of their skills and training.¹⁷ Given the state-to-state differences in licensure and credentialing, the need for quality assurance and risk management, and the need for coordinating workflow to improve efficiencies, governance frameworks are essential to specify roles and responsibilities for all providers at every point along the continuum of care.¹⁸

Payment Policy

There are three components to the model in the payment category: (1) payers, who make decisions about coverage for telehealth services; (2) the health care executives who make business decisions about services provided, including CEOs, CIOs, CMOs, CFOs (also known as “C-suite”); and (3) the various payment models, including the traditional fee-for-service payment model along with some of the newer alternative payment models (APMs) that are developing as a result of recent legislative and regulatory changes.

Payers. Medicare fee-for-service payment for telehealth was originally authorized under the Balanced Budget Act of 1997 as a way to improve access to care for rural beneficiaries. Reimbursement for services goes primarily to the consulting clinician, with a small fee going to the facility to cover administrative costs. In 2015, total Medicare spending on telehealth was less than .01 percent of total

spending on health care services.¹⁹ Public payment for telehealth is quite different under Medicaid, with 48 state Medicaid programs currently covering some form of telehealth services.²⁰ In the private sector, there is tremendous variability in coverage, but most large employers are expected to cover at least some telehealth services within a few years.²¹

C-suite. Decisions to invest in technology and build communications infrastructure are made by health care executives who have varying levels of understanding of technology and are often advised by consultants and technology vendors who may or may not give unbiased advice. As an industry, health care has been slow to adopt new technologies, as is illustrated by the length of time and degree of financial incentives required to achieve adoption of electronic health records (EHRs). Even though telehealth is not new, the EHR implementation process is not complete and may make some decision makers reluctant to invest further in technology.

Payment Models. Within the past year, federal coverage for telehealth has expanded under provisions of the Next Generation Accountable Care Organization (ACO) Demonstration program, which was announced by the Centers for Medicare and Medicaid Innovation (CMMI) in January 2016. The program allows for increased availability of telehealth and care coordination services, and 21 ACOs are participating. Certain provisions of the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) will increase the number of locations where telehealth will be reimbursed.²²

These legislative changes to help expand telehealth reimbursement are encouraging, but there is a long way to go, and further payment reform is critical to expanding access to care for millions of Americans. The changing demographics of the U.S. population, with an increasing proportion of older adults with



rising rates of chronic diseases, is one of the more compelling reasons to expand telehealth coverage. A more robust evidence base demonstrating which telehealth technologies work for which populations would ideally help to encourage further adoption, but combined with the current regulatory and payment barriers, we expect that changes will continue to be incremental until those barriers are removed.

Delivery System

Providers. As mentioned earlier, four out of five states require clinicians from out of state to be licensed in the state where the patient resides. These restrictions were originally intended to protect geographic markets, but the realities of provider shortages and consumer demand are among the factors in state decisions to participate in the Interstate Medical Licensure Compact.²³ The Compact, developed by the Federation of State Medical Boards, standardizes licensing requirements and makes it easier for physicians to be licensed in multiple states, which in turn makes it easier for telehealth services to be provided. Other eligible providers for telehealth reimbursement under the Medicare Chronic Care Management Program include nurse practitioners, clinical nurse specialists, certified nurse midwives, and physician assistants.²⁴

Settings. Until very recently, Medicare fee-for-service telehealth regulations applied only to patients who reside in Health Professional Shortage Areas (HPSAs), predominantly in rural areas, and the patients had to be receiving services in outpatient offices or clinics, hospitals, Federally Qualified Health Centers (FQHCs), or skilled nursing facilities (SNFs). Fortunately, under MACRA, the Next Generation ACO telehealth provisions ease geographic and setting restrictions for the Chronic Care Management Program.²⁵ Beginning in 2017, eligible providers may offer telehealth services using several modalities

in several locations, and home encounters can be supported by apps such as Skype, FaceTime, or Google Hangouts.²⁶

Technology Infrastructure. The United States lags behind many other countries in access to fast, high-quality broadband services. The lag is particularly pronounced in rural areas.²⁷ There is tremendous geographic variation in technology infrastructure investments in communities and within community institutions, such as hospitals and clinics. For example, some communities provide free Wi-Fi as a public utility, but the notion of “net neutrality,” in which telecommunications providers must provide equal access to high-speed broadband for all customers, remains highly controversial and may discourage investments in telehealth.²⁸ Health care settings also vary significantly along several dimensions that affect information flow. Among the key infrastructure issues are their choices and level of implementation of EHRs, policies about sharing information with other health systems and with patients and caregivers, and technical capacity to integrate remotely generated information from clinical telehealth encounters into EHRs.

Modalities

The technology landscape is changing rapidly. Our experts grouped the array of provider-to-provider and provider-to-patient technologies as follows:

Store-and-Forward (asynchronous). Videos and digital images—such as X-rays, CT scans, and photos—can be captured at the patient’s care site and transmitted through a secure electronic communications system to specialists in another location. Thus, if radiologists are not available on site, an expert may be available elsewhere to provide a more timely diagnosis. This technique has been used for decades.

Real-Time Video. Another modality that has been used for some time is live videoconferencing, also known as “synchronous telehealth” because it occurs in real time. Some of the original uses of videoconferencing were for virtual grand rounds for medical schools in rural states. As the technology has become more widely available, it has become used for provider-to-provider consultations as well as provider-to-consumer encounters.

Remote Monitoring. Also called RPM, remote monitoring is one of the most promising modalities for managing chronic medical conditions.²⁹ This very broad category originally used modems in patients’ homes to record and transmit personal health information (e.g., blood pressure, blood glucose, heart rate) to providers. It now includes a variety of consumer devices, including phones, laptops, and smartphone apps that capture and transmit information, send reminders for medication management, and otherwise assist in self-care and chronic care management.

Web-Based Tools. Many consumers and patients appreciate being able to schedule appointments, refill prescriptions, and exchange basic information with their providers online via email, a secure web portal at a kiosk, or another modality. KP was one of the first health systems to develop a consumer portal that is integrated with the EHR. The performance of other health systems and group practices in using web-based tools to date has been mixed.

Smartphones and Mobile Devices. According to the Pew Research Center, 9 out of 10 Americans now use the Internet occasionally or own a smartphone.³⁰ Consumer fitness apps are designed to help individuals track their performance (e.g., heart rate during a workout, steps taken per day); they have been used by elite athletes for some time and are becoming more popular with consumers. There has been tremendous growth in the wearable device

market because of changing consumer preferences and technology trends,³¹ and mobile devices are being used by healthy consumers as well as by patients monitoring chronic conditions. Thus, data may be transmitted by phone, text, attached images, and other ways that are not typically secure or readable by clinicians. There is tremendous interest in interoperability and in improving the flow of information across the technology ecosystem.

Outcomes

Prevention. Telehealth services are being used for a variety of prevention programs, such as diabetes prevention, in which consumers are engaged in self-care that helps them to maintain healthy behaviors such as physical activity and good nutrition. For older adults, telehealth monitoring can help them maintain their independence by staying in their homes and “aging in place.”³²

Increase in Access. Telehealth is an umbrella term for a variety of technologies that are not interventions themselves, but are a delivery mechanism that expands access to clinical services. Given the shortages of clinical providers in many parts of the country and the changing demographics leading to increasing numbers of older adults with chronic conditions, turning to telehealth solutions is a natural way to reduce wait times and increase the timeliness of clinical encounters for a broader range of populations.³³

Quality. There are many ways to define and measure quality, but there is broad agreement that reducing the wait time to see a specialist and monitoring chronic conditions can prevent costly visits to emergency rooms and unnecessary rehospitalizations.³⁴ As mentioned, there have been thousands of individual studies and hundreds of systematic reviews on telehealth—and there is strong evidence for the effectiveness of telehealth for RPM for several chronic conditions,



including communication and counseling, and for psychotherapy at a distance, also called “telemental health.”³⁵

Health Care Utilization Changes. Ongoing remote monitoring has been shown to prevent unnecessary visits to clinicians and emergency rooms, to reduce unnecessary hospitalizations, to increase medication adherence, and to provide clinicians with more information that allows them to tailor their treatments to provide more personalized treatment plans.³⁶

Cost Savings. There are many anecdotal examples of cost savings from telehealth. For example, a critical access hospital in a remote area of Colorado uses telehealth for specialty consultations with a cardiologist at a major medical center when a patient has a heart attack, rather than losing time and incurring a significant cost by calling for a medevac helicopter (air ambulance).³⁷ In general, however, most studies of telehealth cost and utilization are small, and results are inconsistent.³⁸ Much more work remains to be done.

Conclusion and Next Steps

For many decision makers based in health systems, it makes intuitive sense to use technology to connect patients and providers in different locations to improve access to care, improve timeliness and quality of care, reduce travel costs and stress for patients and families, and improve patient satisfaction. Consumer technology is a rapidly growing market, and more clinicians are becoming technology savvy.

Based on the feedback at the Concordium challenge workshop, the framework presented here seems to have potential to help educate policymakers, payers, and health systems about the value of telehealth and to frame discussions about implementation barriers, including risk management, technology

costs, and organizational culture. By standardizing language for telehealth modalities and services, the framework could help to increase familiarity with the field among purchasers, leading to increased adoption and information sharing about promising practices. However, questions remain about how to disseminate and use the framework to help coordinate policy, research, and implementation efforts in the field.

Our experience thus far suggests that the combined research and policy framework could help to accelerate evidence-based decision-making about telehealth by public and private payers, regulators, and provider groups, and could help to encourage future research to address gaps in the evidence base. However, there is no roadmap yet for aligning stakeholders to adopt the framework and take advantage of emerging opportunities for new telehealth applications. We intend to continue to present the framework to different audiences, and we hope to engage more researchers, clinicians, and policymakers in explorations of new ways to build evidence that supports a business case for telehealth expansion.

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