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Innovative uses of telehealth and telemedicine is increasing. And now there is an urgency to expand the use of technology to help people who need routine care, and keep patients in their homes while maintaining access to the care they need.

TELEMEDICINE

The Past, Present, and Future

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Telemedicine

The Past, Present, and Future

The last two decades have seen words like "telehealth" and "telemedicine" being bandied about with increasing frequency. High-speed internet, increased computing power, and enhanced videoconferencing platforms have all contributed to this phenomenon. To state the obvious, 2020 and the COVID-19 pandemic have dramatically reduced in-office medical encounters among both primary providers and specialist caregivers up to 80%[1], yielding a neck-snapping increase in the utilization of virtual encounters. Given this acceleration in the movement toward the use of virtual platforms, and the high likelihood, if not certainty, that this transition will continue and even accelerate, this would seem to be a propitious time to establish a taxonomy of this important space, and its implications for the healthcare (pharmaceuticals, devices, and diagnostics) manufacturing industry.

Telemedicine is the practice of medicine using technology to deliver care at a distance.

Let's start out with a really basic question, i.e., are "telehealth" and "telemedicine" the same, or are they different? According to the American Academy of Family Physicians (AAFP), the two concepts are related but different. Telemedicine is "the practice of medicine using technology to deliver care at a distance. A physician in one location uses a telecommunications infrastructure to deliver care to a patient at a distant site." Telehealth, on the other hand, refers "broadly to electronic and telecommunications technologies and services used to provide care and services at-a-distance."[2] According to Dr. Michael Zuckerman, Director of Medical Affairs for InThought Research, "telehealth refers to the broader scope of remote healthcare services which includes provider training, administrative meetings, continuing medical education, in addition to clinical services. While telemedicine is more specifically related to the clinical services."

TELEMEDICINE

The history of telemedicine has been a fascinating one. While there were early incarnations of telemedicine to transfer radiology images, the formal and systematic investigation and development of telemedicine was actually initiated by the government in the 1950s and 1960s. During the "space race," NASA was concerned about what might happen if one of their astronauts developed a medical problem while on a mission. They, therefore, threw significant amounts of funding toward the development of telemedicine. As a result, much of the early work conducted in the field was carried

out at the Telemedicine and Advanced Technology Research Center, a branch of the Army. Round two of telemedicine's history lay in the hands of academia, with universities receiving large grants from the federal government to pursue issues surrounding the delivery of healthcare to Americans in rural areas using virtual platforms. University of Nebraska, for example, used interactive telemedicine to transmit neurological examinations, which is widely considered the first case of a real-time video telemedicine consultation.[3]

Round three was funded by entrepreneurs, who saw a significant opportunity to profit from an electronic version of the increasingly popular "Doc-In-A-Box" urgent care centers. One more recent iteration comes from Great Britain, where some pharmacies are introducing a service called MedicSpot[4]. This is a kiosk that holds a computer screen and basic measuring tools such as a blood pressure cuff, a thermometer, and a camera. The patient steps inside, do the tests, and lets the doctor virtually examine them through the camera. The patient may even walk out with a prescription. The whole experience takes about 10 to 15 minutes. Pioneers can often encounter significant difficulties, and that was very true in the initial days of commercial telemedicine. Challenges included archaic licensure laws that limited practitioners to consultations with patients in their own states, reimbursement issues, and insufficiently developed platforms.

Telemedicine has developed through adolescence and is now headed toward maturity.

But mercifully, times have changed. Telemedicine has developed through adolescence and is now headed toward maturity in the hands of such major players as Avizia, Inc. and American Well. These firms, based in Reston, Va., and Boston, respectively, have now merged to form a monolith that hospitals and other healthcare systems can depend upon to be around for the long haul. According to the company website, "Amwell and Avizia serve the largest network of U.S. healthcare partners — payers, providers, innovators, and consumer aggregators — creating an interconnected ecosystem on a common technology platform with extensive consumer engagement."

To date, 2020 has seen continued evolution in the telemedicine space. Hospitals and healthcare systems are increasingly relying upon telemedicine to lower costs and increase patient satisfaction, obviously two major metrics in the battle for solvency and profitability in these challenging times. As will be discussed below, the ability of telemedicine to provide the ultimate in personal protection equipment (PPE) for practitioners and safety for patients is now emerging as perhaps its biggest advantage and reason for the accelerated growth of the medium.

Not all medical specialties have moved in the direction of telemedicine at the same pace. Radiology, for several reasons, took the lead here. Historically, radiologists never had "high-touch" involvement with patients, typically doing their work in a remote corner of a hospital basement. Thus, when the field made its transition from film to digital, where the remote corner was actually located became irrelevant. The results of digital testing could be readily transferred virtually anywhere, with many radiologists taking this as a marvelous opportunity to simply work from home.

Several aspects of the practice of radiology, however, favor "teleradiology" being conducted by larger groups. Such groups, for example, have the resources to invest in the technological improvements in the field that were happening at an ever-quickening pace. Larger groups also have a wider mix of radiology subspecialties than do smaller groups.

One unintended consequence of teleradiology is the commoditization of the physicians involved. Since location of the physician no longer matters, a far greater number of radiology groups became free to bid against each other for a hospital or healthcare system's business. Companies such as NightHawk Radiology provide 24/7/365 coverage and cost effectively read studies for other practices overnight.

While a 2018 American Medical Association study found that radiology is the specialty furthest along in telemedicine, other specialties are likely to catch up quickly. At Kaiser Permanente, for example, primary care physicians, pediatricians, mental health providers, and emergency medicine physicians engage in video visits with patients, covering such matters as sore throats, the flu, cuts and wounds, medication questions, etc.

"Teledermatology" is taking off through several different approaches.

Other specialties such as dermatology, are ripe for convergence to telemedicine. "Teledermatology" is taking off through several different approaches. One approach is for a primary care physician to snap a digital photo and forward it for review by a remote dermatologist to determine if a dermatology visit is necessary. In the era of the COVID-19 pandemic, some dermatology practices are requiring that patients agree to an initial digital whole-body scan, which is carried out by a patient having a family member run an iPhone across the patient's body while the dermatologist observes remotely. Only if something suspicious is uncovered using this technique is the patient invited into that dermatologist's office for a personal scan.

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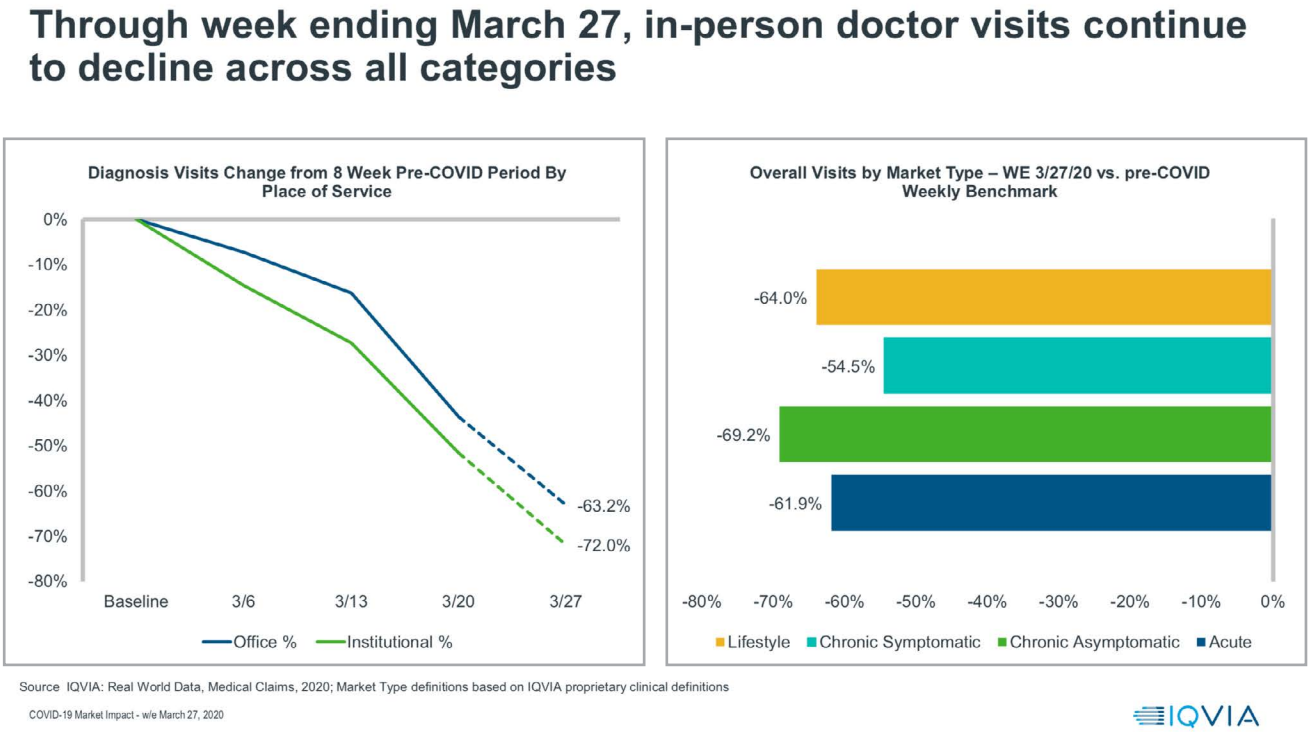
TELEHEALTH

Juxtapose the telemedicine activities described above with some of the activities that can be subsumed under the rubric of "telehealth."

Telepharmacy, for example, constitutes an interesting application of telehealth technology. In telepharmacy, one centrally located pharmacist supervises the activities of pharmacy techs in several remote locations. Moreover, patients picking up their prescriptions at one of these locations can ask for a consultation with the pharmacist, which then occurs via a video screen rather than in person.

Similarly, telehealth nursing is a rapidly emerging area. Here, according to a Nursing2019[5] article, we see that telehealth nursing is a "tool for delivering nursing care remotely to improve efficiency and patient access to health care." Using telehealth platforms, nurses can inform patients about self-care and at-home treatment plans, discuss treatment options, and schedule appropriate appointments.

Finally, the concept of "telecare," more popular in Europe but gaining traction here, is also providing an important service by allowing patients to remain safely in their homes while still being connected. Apps, sensors, and other technologies can be called upon here as appropriate. Simpler versions are also in play. Winona Health, for example, relies on volunteers making phone calls to check up on elderly patients living alone.



To further muddy the waters here, we can consider the term "virtual care," coined by AARP, the definition of which sounds quite similar to that usually used to describe telemedicine.

TELEMEDICINE PLAYERS

American Telemedicine Association

A thorough grounding in telemedicine and telehealth requires an understanding of what players are active in the space and what role each of them serves. Key here, for example, is the American Telemedicine Association (ATA). As the ATA describes its mission, "We are the largest network of academic medical centers, hospitals, delivery systems, health insurance organizations, employer organizations, researchers, and technology suppliers — each interested in transforming health care through enhanced, efficient delivery." Since the advent of telemedicine, the ATA has been active in promulgating virtual healthcare delivery and in gauging its penetration into American healthcare.

The selling proposition for telemedicine promulgated by the ATA is compelling. According to the organization, the benefits of telemedicine include:

- Creating value for payers, consumers, and providers
- Increasing consumer access
- Enhancing reach of healthcare services
- Reducing cost structure
- Providing 24/7 coverage
- Improving customer satisfaction

That having been said, a study conducted by the ATA in the summer of 2019 found that only one in 10 Americans uses telemedicine for his or her healthcare. The challenge is that 75% of respondents report a lack of awareness of telemedicine options with their insurance plans and/or are not aware that they have access. Utilization demographics are largely what might be anticipated, although there were some surprises resulting from the analysis of these survey data. As might be expected, patients in the 18-24 year age category have used telemedicine more than any other group (13.1%), while seniors (65+) have the lowest utilization rate (5.3%). Interestingly, females have a rate of utilization (10.4%) somewhat higher than their male counterparts (8.7%).

Given that a theoretical advantage of telemedicine is that it provides access to care for rural areas, it

is surprising to note that only 8.7% of people in rural areas report the use of telemedicine, compared with 11.7% for suburbanites and 11% of urban residents.

Quality of care provided in a telemedicine environment is a significant concern for many Americans. Nearly half of the 2019 ATA survey respondents believe that the care provided via telemedicine is inferior to in-person medicine, while only 6.2% believe the care is superior and 45.1% believe it is the same.

A white paper produced by the Huron Consulting Group sheds further light on the trajectory that telemedicine utilization is following. This paper, describing telemedicine programs as "popping up everywhere," rightfully categorizes these programs into those that are run by companies for their employees, those that are run by healthcare plans for their members, and national standalone telehealth programs.

Even before COVID-19, the rate of growth for telemedicine had been significant. Huron predicts that the number of telehealth consultations will reach 160 million in 2020, reflecting a 700% increase over 2015. There is a fairly strong argument to be made, however, that this growth in virtual consultations has not been as fast as it should have been. Fully 77% of consumers say they would be more likely to choose a physician that offered access through telemedicine over one that does not. But only a small percentage of these consumers (18% in the Huron survey) have actually tried a virtual portal.

In March 2020, Sykes Research conducted a survey of 2,000 adults across the U.S. to understand how Americans perceive telehealth today in the era of COVID-19[6]. Already, 73% said they would consider using a telehealth service to be screened for COVID-19. More than one in 10 respondents said they've already used a telehealth service for something related to COVID-19. And 60% said the COVID-19 pandemic has increased their willingness to try telehealth. An overwhelming the number of those who have tried telehealth services state that they were satisfied with the experience that they either already had or will consider scheduling another one in the future. However, while the majority of respondents note that they are aware of telehealth, far fewer have actually tried a telehealth visit, only about 19%. And of that group, fully one-quarter fell within the 25-34 age range.

Clearly, then, telemedicine programs need to be constructed to better meet patients' needs, and telemedicine companies need to do a better job of communicating the results of these efforts.

As viewed by Huron, one of the principles for telemedicine purveyors to follow in pursuit of becoming the go-to portal includes **using on-demand services as a launching point for**

continuous relationships. Here, it is important to note that telemedicine consultations are often viewed as once-and-done events. In order to truly meet consumer needs and to fully deliver on telemedicine's possibilities, providers will need to establish relationships with patients that last much longer than 30 minutes.

Another factor to consider is supporting adoption of the platform. Particularly in demographic groups that are less than comfortable with computers, companies with a telemedicine initiative need to set up an Apple computer-like customer support effort to help new patients learn to use the technology and answer questions as they may emerge over time. Customer service here will need to be readily and promptly available.

Telemedicine companies also need to build trust. Establishing trust with consumers entering into the world of telehealth is key. Consumers have several reasons to be skeptical as they take their first venture in telemedicine. First and foremost, they are about to put their health and well-being in the hands of a practitioner who, as noted above, many believe to be a representative of a substandard group of doctors. What kind of doctor, many people will ask, will be hustling to pick up $45 by sitting at a computer and giving quick consultations?

Add to that a general unfamiliarity with videoconferencing and a skepticism about anything having to do with a computer, establishing trust early on in the telemedicine process becomes pivotal.

A fourth consideration for adoption involves extending the brand online. Following up on the point made immediately above, a great way to get consumers to feel comfortable with telemedicine is to make it a logical extension of an already familiar healthcare brand. Philadelphia's Jefferson Hospital, for example, took the institution's well-known and respected name and extended it online with its brand of telehealth, JeffConnect.

▶ TELADOC

Among organizations providing telemedicine services, Teladoc is a well-recognized name. The company makes five predictions about Telemedicine for 2020.

1. Virtual care is a top priority beyond plan sponsors and care providers.

Here Teledoc maintains that consumer, clinical, and economic factors are all in alignment to make 2020 a year of rapid growth in the percentage of the population using telemedicine. Moreover, they see this growth in the population employing telehealth as being likely to bring a number of new

competitors into the space but go on to observe that most will not have the expertise and critical mass necessary to provide the full potential of virtual care. Relatedly, the company predicts that telemedicine will cease being seen as a "separate and isolated" form of healthcare delivery and pivot to being increasingly seen as the "front door to the healthcare system."

2. Consumers demand integrated, personalized care on their own terms.

Here, Teladoc notes that 70% of patients in the United States are potentially interested in telehealth. As this interest level converts into trial and eventual usage, Teladoc predicts that the marketplace will become increasingly expert and demanding in their requirements of telemedicine providers. This in turn will mandate a greater focus on usability of telemedicine systems, as well as the demand for a wider range of integrated services.

3. Virtual care closes the access gap for mental healthcare.

This prediction is an especially broad reaching one. Teladoc estimates that around the world, some 450 million adults live with a significant mental illness, but 60% never get treated. Several factors are important here. First is access. Telehealth can help to overcome the reality that access to mental health professionals is far from ubiquitous. In the United States, for example, almost half of non-metropolitan counties don't have a psychologist. Patient anonymity is another factor favoring telemedicine. Unlike in the personal setting, the use of a virtual therapist eliminates the possibility of running into a friend or neighbor in the doctor's waiting room.

4. As people live longer with chronic diseases, virtual care alleviates the burden of care.

This is an especially interesting prediction. Over the history of telemedicine, many have associated it with more acute conditions. However, as the population ages and develops more health problems, attention will increasingly be paid to the use of telehealth to provide patients and their caregivers with quality care delivered to their door.

5. Virtual care delivery is an essential skill for all physicians.

Over recent years, articles about physician shortages have become increasingly common. Globally, the World Health Organization estimates that the world is short approximately 4.3 million healthcare providers. By making the use of the HCP's time more efficient, telemedicine can go a long way toward alleviating that shortfall.

The company's original predictions for the year did not account for an inflection point related to the COVID-19 epidemic. On April 15, Teledoc announced that is now routinely providing 20,000 online consultations every day, up a whopping 100% over the first week in March.

Virtual care is playing a central role during this crisis when the traditional healthcare system is under intense pressure, Teladoc CEO Jaso Gorevic said, adding "I am confident that role will only continue to expand."

Relatedly, industry experts tend to agree that the anticipated impact of the pandemic will likely be long enough for this inflection point in the use of telehealth to result in permanent change. Venture capitalists think so. The first quarter of 2020 saw $788 million invested in telehealth companies, more than triple the $220 million invested in first-quarter 2019.

Several structural changes will need to be made in the environment to help to support this growth. One area where change is needed, and underway, is in the funding of telehealth care delivery. For example, the U.S. House of Representatives recently passed a $500 million bill to compensate HCPs for providing telehealth care to Medicare patients at home.

Also, in need of being retooled for the present times are laws, reasonable when written but challenging now, that forbid physicians from practicing medicine outside of their licensed state. In early April, the Federation of State Medical Boards (FSMB) offered its help in expediting the verification of licenses and credentials of physicians and other healthcare providers who wish to use telemedicine to practice across state lines.

Telemedicine in 2020 and the era of the COVID-19 pandemic can also be used to do forward triage, i.e. the sorting of patients before they show up for an in-person visit. In a March 2020 article in the *New England Journal of Medicine*, entitled "Virtually Perfect? Telemedicine for COVID-19," the authors point out that a significant reduction in exposure of medical personnel, and other patients, to infected patients can be accomplished by such screening. Once a patient is determined to require hospitalization and ICU admittance, an electronic intensive care unit (e-ICU), which allow doctors and nurses to monitor 60 to 100 patients in multiple hospitals, can be employed. Such services are already being offered by Mercy Virtual Care Center, Sutter Health, and Sentara Healthcare.

More generally, in a recent article in Lancet, Dr. Eric Topol referenced the noted 1991 book *Crossing the Chasm* by Geoffrey Moore. In this book, Moore describes the chasm crossing as the passing of the use of a product or service by only a few visionaries into more general use. Clearly, Dr. Topol notes, telemedicine has crossed the chasm. In the United States, at least 15% of physicians work in practices that offer telemedicine services. Meanwhile, the conservative UK's National Health Service Long Term Plan states "digitally enabled care will go mainstream."

Beyond the telemedicine goliath Teladoc, there are numerous telemedicine apps available, each with its own positioning and sales story in the marketplace. Medici, for example, reaches out to physicians who have seen their practices shrink with the following appeal: "If you've lost patients to telemedicine, urgent care, or the internet, it's time to get them back with Medici. Build strong relationships, increase your reach, and generate income — all while avoiding unnecessary office visits." Dr. Judd Hollander, associate dean for strategic health initiatives at Thomas Jefferson University agrees, and adds that while not all patients may prefer to do telemedicine there needs to be a shift to more widespread, efficient adoption of telemedicine among solo practitioners and small group practices. "They're going to need to figure out what's the right platform, where do they meet the legal and regulatory requirements, and where are they going to get the money to invest in a platform," Dr. Hollander says.

DEVICES FOR TELEMEDICINE

Clearly, the major limitation of a telemedicine consult is the inherent inability of the physician to use his or her hands, or any diagnostic device (stethoscope, sphygmomanometer, etc.) to help in the process of differential diagnosis. Just as clearly, many inventors are working feverishly to develop devices that will constitute workarounds to this limitation. As an analogue system, the US healthcare industry is structured on the historically necessary model of in-person interactions between patients and their clinicians. Clinical workflows and economic incentives have largely been developed to support and reinforce a face-to-face model of care. Consequently, a surge of development is attempting to scale-up our systems by unleashing the power of digital technologies[7]. Although some digital technologies, such as those used for telemedicine, have existed for decades, they have had poor penetration into the market because of heavy regulation and sparse supportive payment structures[8].

A surge of development is attempting to scale-up our systems by unleashing the power of digital technologies.

With the first emergency COVID-19 authorization, Congress lifted provisions that limited telemedicine services to rural areas, allowing the use of telemedicine services for all beneficiaries of fee-for-service Medicare[9]. To enhance the technology infrastructure available to clinicians to support these visits, the Office of Civil Rights (OCR) at the Department of Health and Human Services (HHS) has announced that it is using its enforcement discretion and will not impose penalties for using HIPAA-noncompliant private communications technologies to provide telehealth services during this public health emergency[10].

During the first phase of slowing COVID-19 spread, many healthcare organizations experienced rapid and extremely radical transformation from in-person care to telehealth. They had to embrace and expedite the adoption process, which normally takes months of project planning, pilots, implementing, and training. The majority of organizations worked on temporary solutions, while some utilized telephone consultations, FaceTime, and Skype, etc.

The menu of new remote service options that is available to health systems is rapidly evolving. Among them is Hippo Technologies whose Hippo Virtual Care platform bridges the gap between physical care and virtual care with wearable devices such as the RealWear Head Mounted Tablet (HMT). The virtual care platform was initially developed by the company's president Brian Hamilton with Dr. Wale Sulaiman in Nigeria as a way to close the gap of delivering quality care to sub-Saharan Africa. "You can have that expert 'there' and enable smarter clinical decision making with our virtual care platform," says Dr. Patrick Quinlan, CEO and co-founder of Hippo Technologies. The virtual care platform has been used by COVID-19 first responders in Wuhan, China, as a way of providing synchronous or asynchronous interactions with infectious disease specialists. This HIPAA-compliant technology is also being used at Suburban Hospital of Johns Hopkins Medicine in its ICU unit and in support of its COVID-19 care unit, as well. The Hippo Virtual Care platform devices are hands-

The Hippo Virtual Care Platform provides the mentor with a completely mobile "you are there" field of vision for easy collaboration.

It is voice controlled/hands-free for freedom to treat patients without delay, contamination, assistance, or inconvenience.

Photos provided by: Hippo Technologies

free, voice-activated, and offer real-time consulting allowing clinicians to collaborate with remote colleagues anywhere and reducing the exposure of healthcare workers to infection.

GENERAL BARRIERS TO LONG-TERM TELEHEALTH ADOPTION

COVID-19 has been a greater catalyst for the implementation of telecare in practice, as virtual care becomes the new normal. However, the acceleration and adoption of new technologies are happening at such an unprecedented pace that the regulatory system will need to keep up to ensure it becomes easier to navigate, and the approval process for new devices and therapies should become less time- and resource-intensive while also ensuring evidence-based solutions. As Matt Vogl, Executive Director of the National Mental Health Innovation Center at the Anschutz Medical Campus, says, "We don't want it to become the wild west. No rules is just as bad as too many rules."

The question remains, can we sustain the changes demanded by the current COVID-19 crisis? "The current environment, with everything shut down, has required shifting to virtual care across all diseases and categories," says Khawar Khokhar, Executive Director of SAKS Health. "A return to a new normal may result in certain visits, like wellness and nutrition, being more widely adopted on a telehealth type of platform."

Privacy Policies

Can we sustain the changes demanded by the current COVID-19 crisis?

Currently, US federal regulations have been relaxed to allow for innovation that will help contain and eliminate the spread of COVID-19. However, "that relaxation empowered a lot of people to use what I call non-traditional platforms," says Dr. Hollander of Jefferson University. "They are platforms you could do telemedicine through that don't meet state requirements. But at the end of the day, your medical license is based on your state requirements, not whether the Office of Inspector (General OIG) will prosecute you for using a noncompliant platform. The relaxed regulations have allowed companies to progress quickly to offer solutions in the current environment, while evolving those solutions on the back-end to operate within the regulated requirements that are anticipated downstream." In order to continue this telemedicine revolution into the new normal, adherence to privacy policies such as HIPAA for the US, or GDPR for the EU is required to ensure the right technologies are adopted for long-term use.

Reimbursement

Over the last few years, states have begun to pass legislation to encourage private payers to reimburse telehealth-delivered services.

Federal reimbursement policies are centered on Medicare. "And we see those policies driving coverage policies for the commercial books of business," Mr. Khokhar says. As a result, they are narrowly construed and have imposed limitations on where telehealth services may take place, both geographically and by facility, and what services are covered. Moreover, each state dictates separate Medicaid policies, creating a patchwork of telehealth laws and regulations across the nation. Over the last few years, states have begun to pass legislation to encourage private payers to reimburse telehealth-delivered services[11].

There is a continued uncertainty with reimbursement. While reimbursements have become less problematic since COVID-19 sparked concern at the beginning of the year, there is still delay in issuing reimbursements. "Frankly, in my neck of the woods in Pennsylvania, some major payers that agreed to pay for [telemedicine] are only paying for it in some date in June," says Jefferson's Dr. Hollander. For a practice that has been treating via telemedicine since March, this may feel like a long time. However, telehealth laws have been written in such a way where there may be a parity in coverage services, in payment, or both. "We see a lot of variations in reimbursement across the board from various payers and those variations in telehealth are very large," Mr. Khokar of SAKS Health says. "I think, in some ways, it is potentially differentiating between where the service provider might be located versus the patient or member."

While payment parity acts as a strong incentive for more physicians to adopt telemedicine platforms, enforcing equal payment could also undermine telemedicine's cost-effectiveness[12]. Legislative directives have long impacted the delivery of telehealth initiatives, largely because the meaningful adoption of telehealth often rests on statutory language.

Payment models that reward value in remote delivery of services, rather than paying providers at capped rates (regardless of the service) may encourage providers to utilize telehealth as a service, particularly in a redefined approach[13].

Licensure

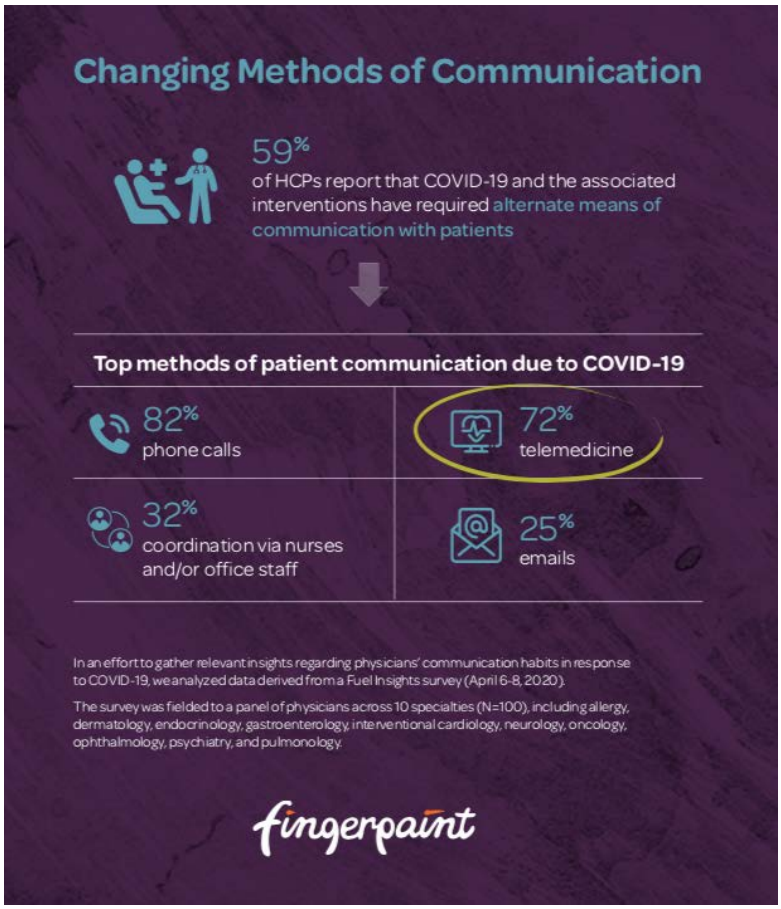
Federal and state licensing laws have inhibited the adoption of telehealth since its inception. Policies vary across states, and these often require providers to obtain some form of licensure in each state that they wish to practice in. One of telehealth's most impactful benefits is to connect patients and doctors at a distance. Licensure laws may limit the geographic footprints of physicians, while giving patients access only to doctors who have a current license in the state where they reside. "The biggest problems with licensing are that someone may be licensed in California, but do they have to be physically in California to practice medicine? Or can they have a California license but have a patient in Hawaii?" asks Dr. Zuckerman of InThought Research. Much of those restrictions have been suspended right now, but for how long? And once the restrictions are back in place, then what happens next? Some states have tried to knock down the artificial barriers erected at the state boundary lines by joining the Interstate Medical Licensure Compact. In 2019, the Florida legislature passed a new law to authorize out-of-state healthcare professionals to deliver telehealth services to local patients[14]. Streamlining the credentialing process with standard requirements would also allow physicians to apply for credentials at multiple hospitals at once.

Licensure laws may limit the geographic footprints of physicians, while giving patients access only to doctors who have a current license in the state where they reside.

Telehealth Education

Enhancing consumer education of telehealth platforms may play a role in reducing the distrust often associated with these modes of service. Patient or consumer education should go beyond the traditional, largely didactic instructions and instead create programs that educate on and create supportive interventions by healthcare staff to increase patients' skills and confidence in managing their health problems. According to a theory-based article written by Paula Sauter, RN[15], this type of education is called self-management. "Self-management encompasses problem-solving skills and patients' collaborative involvement in establishing goals to manage their disease," Ms. Sauter explains. "These competencies include having the confidence to deal with medical management, role management, and emotional management of their conditions."

These patient empowerment programs can be initiated by payers given that telehealth diverts patients from emergency departments and can save more than $1,500 per visit[16]. A 2018 study shows that the primary market opportunity for telemedicine visits is the value proposition that they can both expand access to patients while also reducing costs compared to alternative care settings. This study is based on data collected from 650 patients who used the JeffConnect telemedicine platform at Philadelphia-based Jefferson Health[17].



Source: Fingerpaint

A recent survey conducted by Fingerpaint Marketing, showed that HCPs have shifted 72% of their communications via telemedicine. "As we navigate this new landscape, pharmaceutical companies have a unique opportunity in front of them to support both physicians and consumers by educating them about telemedicine," says Michelle Petroff, head of Fingerpaint's Conshohocken, Pa., office. "By being nimble and responsive to their customers' needs, pharma can help ease concerns and instill confidence that telemedicine can deliver great care," she continues. It is vital that these patient empowerment programs are created for continued successful telehealth use post-COVID-19 era because while health centers can motivate providers to adopt telehealth by providing financial incentives, culture shifts are fundamental in embracing telehealth.

IMPLICATIONS OF TELEHEALTH ON THE PHARMACEUTICAL INDUSTRY

What will this proliferation of telemedicine/telehealth mean for the pharmaceutical industry, and what should the industry be doing to respond to this trend? While the specific answers to these important questions remain unclear, what is certain is that the increasing immersion into telemedicine by our physician customer base will likely have a significant impact on the pharmaceutical industry, and the industry will need to respond, and do so quickly, so as to avoid being left behind.

What is also clear is that companies will need to understand the impact of telemedicine on physicians' habits if they are to be able to adjust their strategies and tactics in optimal ways. How will increased reliance on telemedicine impact physician receptivity to, and consumption of, promotional efforts? Will physicians' prescribing become more conservative, or more liberal, with patients seen through "virtual visits?" How will doctors provide patients with the information usually conveyed through patient-aid materials?

While companies must await the results for studies of these and other issues to adjust their strategies and tactics, it is not unreasonable to assume that pharmaceutical companies will need to "integrate" the services usually delivered to physicians in person into the new virtual reality. Communications between physicians and pharmaceutical sales representatives, for example, might in the future be carried on the same platforms that physicians are using for telemedicine. Already, popular teleconference platforms such as Zoom are facilitating virtual conversations between physicians and their PSRs.

Relatedly, pharmaceutical companies may be able to purchase digital advertising space on these platforms, and marketing research projects might be carried there as well.

Additionally, pharmaceutical companies will need to understand patients' experiences with telemedicine and adjust direct-to-consumer promotional efforts accordingly.

In brief, telemedicine is rapidly becoming the "new normal," and physicians are having to adjust on the fly. Pharmaceutical companies will need to do the same!

CONCLUSION

Although, there is a lot of growth and activity in telehealth as a mode of service, there is still value to some in-person visits. "A physical exam is an important part of the evaluation and treatment of a patient," Dr. Zuckerman says. That being said, there is much that we have learned from the implementation of telemedicine thus far, and even more that we have yet to learn as it continues to evolve and create more innovate ways to treat patients. Physicians' voices, and those of other healthcare providers using telemedicine services, play an important role as use of telemedicine continues to grow.

But this doesn't come without a cost. From supply chain to technology innovations, healthcare will change in the long term as a result of the COVID-19 pandemic. For example, there may need to be new strategies for elective surgeries, which took a hard hit. "Hospital systems make a lot of money from elective procedures, diagnostic tests, and imaging they perform," Dr. Zuckerman says. "That's all changed now. There's virtually no elective procedures going on right now." Other implications may include localizing supply chain sources. The COVID-19 pandemic exposed critical flaws in hospital supply chains for vital equipment such as personal protection equipment (PPE). Many health systems struggled with shortages and often competed with each other for necessary supplies[18].

Telehealth will continue to grow and improve in areas where it has already been implemented, and it is likely to expand into areas that have not yet reaped its benefits. Digital health options will accelerate and we're also likely to expect innovations in drones and robotics in healthcare. It is important that the healthcare industry is committed to this growth and improvement. Implementing telemedicine into medical curriculum and offering extensive continuing education courses involving telemedicine, especially in rural communities, will improve the use and function of telemedicine in both urban and rural areas, and will help improve overall patient care and treatment.

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Telemedicine App

Remote Availability

Medical Record

Personal Health Records

Collaborative Medicine

Remote Access