

# Telehealth

**WHITE PAPER**

Telemental Health and the  
COVID-19 Behavioral Health Crisis

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## DEFINITIONS

This document uses the terms telehealth, telepsychiatry, telemental health, and telemedicine. The distinction between these terms has yet to be universally defined and agreed upon. Emerging terms, such as telehealth do not yet have commonly accepted clinical definitions. For the purposes of this white paper, we defined the terms in the following way.

### **TELEHEALTH**

The exchange of medical information from one site to another through electronic communication to improve a patient's health, including both clinical and non-clinical services.

### **TELEMEDICINE**

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 remote clinical services to a patient at a distant site.

### **TELEMENTAL HEALTH**

The provision of mental and behavioral health care at a distance. A subset of telehealth providing a range of services including psychiatric evaluations, therapy (individual therapy, group therapy, family therapy), patient education and medication management.

### **TELEPSYCHIATRY**

A process that uses a telecommunications device to provide psychiatric services to people who are separated from a psychiatrist by a distance.

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## INTRODUCTION

The COVID-19 pandemic and the subsequent economic downturn has adversely affected the mental health of the nation and has created new barriers for people already suffering from mental illness and substance use disorders. Stress, loneliness, depression, and fear have plagued the globe, and the trauma experienced from isolation, uncertainty, fear and loss is evident in the general population. This phenomenon has resulted in a second curve that needs flattening—a global behavioral health crisis—creating another public health emergency in conjunction with COVID-19<sup>1</sup>. Beginning March 2020, we continue to see an increase in mental health issues among the general population while organizations begin to plan ahead as demands begin to elevate. What is being done to help meet this coming surge? A significant emphasis has been placed on telehealth as a means to deliver care during and after this pandemic. Telemental services enable psychiatrists and psychologists to not only provide treatment digitally but also mitigate the increase of psychiatric capacity across entire systems. The use of this service also allows for increased access to specialists, improved safety, decreased liability and reduced readmissions, hospital admissions, transport costs and emergency department (ED) boarding.

This analysis/investigation looks at telehealth as a protective measure during this pandemic and as a resource for therapy and crisis treatment during the COVID-19 behavioral health crisis and beyond—this form of treatment delivery can have a significantly positive outcome in advancing the treatment of an underserved patient population. We will also provide an up-close examination of the possible spatial implications of the mass adoption of this platform as it relates to the continuum of care.

## THE BEHAVIORAL HEALTH CRISIS

### PRE-COVID-19

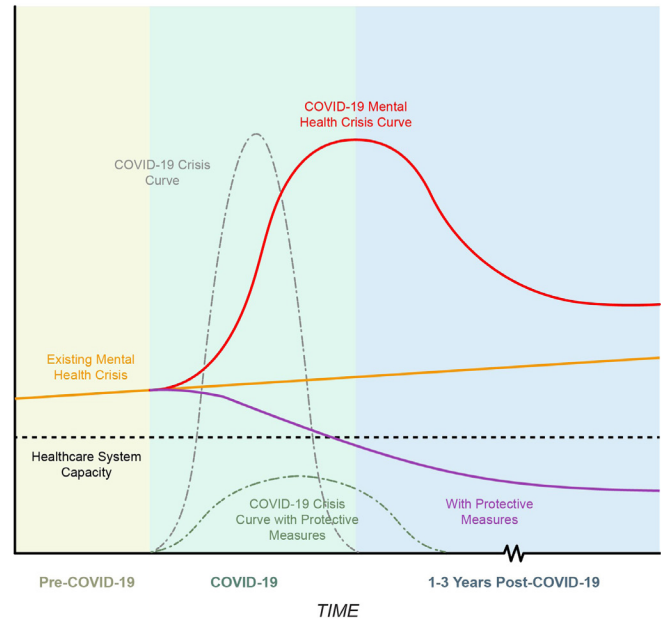
The COVID-19 pandemic is occurring against the backdrop of increased prevalence of mental health issues that preceded the virus, impacting well-being and overall public safety. Preceding the pandemic, approximately one in five U.S. adults—which equates to approximately 47 million people—reported having a mental illness in the previous year, and above 11 million experiencing a serious mental illness resulting in impaired functioning and disruptions in activities of daily living<sup>2</sup>. In 2017-2018, the occurrence of depression and anxiety was also high with nearly 17 million adults and three million adolescents having had a major depressive episode<sup>2</sup>.

111M

111 MILLION PEOPLE LIVE IN AREAS OF THE COUNTRY WITH A SHORTAGE OF BEHAVIORAL HEALTH PROFESSIONALS.

Rates of suicides and drug overdoses have also been climbing in recent years. In 2018, over 48,000 Americans died by suicide, and in 2017-2018, over ten million adults (4.3%) reported having serious thoughts of suicide during that year<sup>2</sup>. Furthermore, deaths due to drug overdose have increased more than threefold over the past 19 years (from 6.1 deaths per 100,000 people in 1999 to 20.7 deaths per 100,000 people in 2018)<sup>2</sup>. During this time, the demands placed upon the behavioral health system's day to day efforts pushed to capacity. With the national shortage of behavioral health providers, particularly prescribers, individuals often had to wait weeks or even months for in-person appointments<sup>3</sup>. For individuals living in underserved areas, these hard-to-get appointments were often prohibitively miles away or inconveniently accessed<sup>3</sup>.

COVID-19 MENTAL HEALTH CRISIS



Approximately 111 million people live in areas of the country with a shortage of behavioral health professionals, according to the Department of Health and Human Services; while more than 50% of the country did not have the necessary amount of behavioral health practitioners to meet the needs of their area<sup>4</sup>. Nearly every county in the U.S. (96%) has an unmet need for behavioral health providers with 60% of U.S. counties not having access to psychiatric prescribers<sup>5</sup>.

Psychiatry providers are also sparsely distributed. The U.S. has approximately 12.4 psychiatrists per 100,000 individuals, with psychiatrists being concentrated around urban centers and medical schools<sup>6</sup>. 80% of rural counties do not have access to a psychiatrist compared to 27% of metropolitan counties<sup>7</sup>. Furthermore, child & adolescent psychiatrists are scarce, there are approximately 8,300 child and adolescent psychiatrists in the U.S. and over 15 million youth are in need of the special expertise of a child and adolescent psychiatrist. That equates to one child and adolescent psychiatrist for every 7,600 kids in need<sup>3</sup>.

## COVID-19 & BEYOND

COVID-19 and its effects on the general population (quarantine/isolation, unemployment etc.), and the trauma experienced by frontline workers, victims of COVID-19 and their families create new challenges for healthcare providers. **During this unprecedented time of uncertainty and fear, it is likely that mental health and substance use disorder issues among the general population will increase and the mental health of individuals suffering from preexisting mental health and substance use disorder issues will be exacerbated.** A survey conducted by the CDC has shown that as of late June 2020, 40% (adults aged ≥18 years) of Americans reported struggling with mental health or substance abuse issues<sup>8</sup>. More specifically, the study found that 40.9% of respondents reported at least one mental health issue, this included 30.9% reporting symptoms of anxiety or depressive disorder, 26.3% reporting experiencing symptoms of trauma- and stressor-related disorder (TSRD) related to COVID-19, 13.3% reporting having started or increased substance use to cope with stress or emotions related to COVID-19, and alarmingly 10.7% reporting having seriously considered suicide in the last 30 days<sup>8</sup>.

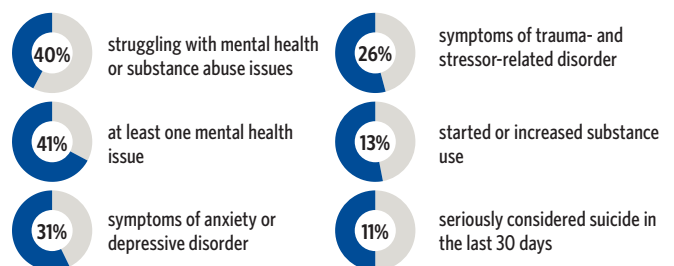
When breaking this down by age, 74.9% of respondents between ages 18–24 and 51% of respondents aged 25–44 years reported at least one adverse mental health symptom. Additionally, the survey showed that 66.2% of those who held less than a high school diploma, 54% of essential workers, 66.6% of unpaid caregivers and 66.6% of unpaid caregivers for adults reported at least one adverse mental health symptom<sup>8</sup>. When looking at individuals receiving treatment for previously diagnosed condition, 72.7% diagnosed anxiety, 68.8% diagnosed with depression and 88% previously diagnosed with PTSD reported at least one adverse mental health symptom<sup>8</sup>. Furthermore, when comparing the prevalence of the symptoms of anxiety disorder, it was found that it was approximately three times those reported in the second quarter of 2019 (25.5% vs. 8.1%), and prevalence of depressive disorder was approximately four times that reported in the 2nd quarter of 2019 (24.3% versus 6.5%)<sup>8</sup>.

Relatedly, as of February 2020, there has been an increase in anxiety and depression medication prescribing rates. A report released by Express Scripts found that the use of prescription drugs to treat mental health conditions increased more than 20% between mid-February and mid-March, peaking the week of March 15, when the World Health Organization declared COVID-19 a pandemic<sup>9</sup>. During that same time frame, prescriptions for antianxiety medications rose 34%, while prescriptions for antidepressants increased by 18% — of the prescriptions filled during that time, more than three-quarters were new prescriptions<sup>9-10</sup>.

As new behavioral health intakes at the outpatient clinic level had been limited to ED and inpatient referrals during the pandemic, we should expect that in the ED we will see demand return to pre-COVID-19 levels. However, an increase has been seen in integrating medication in addiction treatment (IMAT) and in trauma, anxiety, depression and Substance use disorder (SUD) presentation at primary care and clinical settings as well as an increase in suicide risk at all levels of care<sup>11</sup>.

Research shows that when we deal with a pandemic or life threatening disease (SARS, Ebola, etc.), these symptoms in the general population last for 1-3 years post-disease outbreak<sup>12</sup>. People will continue to live in anxiety and will have symptoms very similar to post traumatic stress disorder. Unfortunately, with the mental strain COVID-19 will place on the nation, the additional increase in demand will far exceed the capacity to treat; therefore, viable solutions to expand this capacity are being explored.

### Studies have shown as of June 2020, people report:



## TELEHEALTH AS A PROTECTIVE MEASURE

Flattening the behavioral health crisis curve means not only preventing a surge of mental disorders from developing but also avoiding increased difficulties in people previously living with behavioral health challenges. Ultimately, it includes an emphasis on reducing new cases of mental disorders and increasing the capacity of our behavioral healthcare system to handle the influx. The government has started taking steps to increase the capacity of our mental healthcare system. These include introducing Medicare items for telehealth behavioral health consultations, boosting existing phone and online support services for the public and frontline health workers, and extending access to some psychosocial support services for behavioral health clients in the community. Additionally, in March 2020, the government passed a \$2 trillion stimulus package which included \$425 million for the substance abuse and mental health services administration (SAMHSA) which comprised of the funding of \$250 million to Certified Community Behavioral Health Clinics (CCBHCs), \$50 million for suicide prevention programs, \$100 million for emergency-response spending that can target support where it is most needed such as outreach to those experiencing homelessness. \$19.6 billion was also dedicated to the Department of Veterans Affairs, which included funding to expand behavioral health services delivered via telehealth<sup>13</sup>. Furthermore, \$200 million was dedicated to support telehealth—grants to healthcare organizations investing in telehealth technologies, including broadband and devices, will be administered by the Federal Communications Commission<sup>14</sup>.

Telepsychiatry has played and will continue to serve a major role in expanding psychiatric practice during the COVID-19 pandemic and beyond, and it has been found to be as effective as in-person care<sup>3</sup>. **Telepsychiatry also potentially harmonizes the geographical distribution of psychiatrists and psychiatric patients in both inpatient and outpatient settings which is extremely beneficial during and post pandemic shortage of providers.** Telehealth is part of the correct solution to deliver behavioral healthcare in today's crisis and has been used across the continuum of care to deliver and enhance behavioral health services. Telemental health services enable psychiatrists and psychologists to not only

provide treatment digitally but also to edit patient charts, prescribe medications and fill prescriptions allowing easy and consistent care. This can be especially important for patients experiencing increased levels of stress and anxiety during this time and who need psychiatric management to prevent suicide attempts, ED visits, and psychiatric hospitalization in the face of this pandemic and beyond. It is estimated that the number of U.S. telehealth visits in 2020 will be around one Billion—80 million visits

85%

OF BEHAVIORAL HEALTH VISITS ARE NOW CONDUCTED VIA SECURE VIDEO OR TELEPHONE CALLS VERSUS 48% ONE YEAR AGO<sup>1</sup>.

related to mental health needs<sup>15</sup>.

Telehealth has also been shown to significantly reduce no-show rates as patients don't have to work travel time into their appointment — patients are able to meet with their provider in the comfort of their own home<sup>16</sup>. Typically, patients are more open and willing to share with the provider when they are receiving care in a setting that they are most comfortable; therefore, depending on the patient, the home maybe an ideal place to receive care. For providers using telehealth, seeing patients in their natural setting is beneficial, as it allows providers to understand their home environment and potentially identify sources of stress or anxiety. Relatedly, it has been shown that shame and stigma keep about 80% of people out of treatment<sup>17</sup>; therefore, for people concerned about the stigma of seeking behavioral health services, telemental health allows them to access care in a comfortable, private environment. **Telehealth's direct-to-consumer model allows people who had not sought treatment before to suddenly have choices<sup>3</sup>.** It is also an efficient use of time for the existing psychiatric work force who can seamlessly transition between appointments at different locations without having to physically travel.

As of April 2020, 85% of behavioral health visits are now conducted via secure video or telephone calls versus 48%

one year ago<sup>11</sup>. There was a 3,500% increase in telehealth claims between February and March 2020 for Blue Cross Blue Shield of Massachusetts and 4,345% growth in non-urgent telehealth visits from early March to mid-April 2020 for NYU Langone Health<sup>18-19-20</sup>. It is projected that this will continue to play a big part in delivering behavioral health care by the end of the year due to social distancing. The American Telemedicine Association (ATA) projects that 50% of healthcare services in the U.S. will be conducted virtually by 2030. Globally, telehealth was a \$45.5 billion market in 2019, according to data from Global Market Insights, that figure is estimated to rise to \$175.5 billion by 2026<sup>21</sup>. Investors are enthusiastic about telehealth even in a weak market with telehealth funds raised in 2020 being \$788 million (total Q1) up 1,818% from 2019 with potentially \$250 billion in U.S. healthcare spending that could be virtualized<sup>20-22-23-24-25</sup>. Between February and March 2020 the number of U.S. adults who reported intent to use telehealth rose from 18% to 30%, per CivicScience data and, in February, about one in 10 said they had tried telehealth, growing to 17% in March<sup>21</sup>. This rise in telehealth use leads to the creation of a lot of data. This brings another consideration forward, where will all of this data be stored? On March 31, 2020, the Data Center Support Infrastructure market worldwide is projected to grow by U.S. \$38.1 Billion, driven by a compounded growth of 9.4%<sup>26</sup>. Therefore, as telehealth grows in use, the need for more data centers follows.

During the COVID-19 pandemic many actions were taken to expand telehealth availability. These actions comprised of relaxing telehealth restrictions which include loosening privacy regulations, allowing phone visits to qualify as telehealth, allowing clinicians to practice across state lines and waiving the need for a pre-existing relationship which allowed patients to access these services from their homes. Action for widespread coverage was taken through coverage and reimbursement for telehealth services across

states and insurers with low to no cost sharing for patients. There was also effort made to expand telecommunication infrastructure by establishing telehealth platforms and ensuring patients have internet access. How many of these changes will remain in perpetuity and how many policies will be reverted? Most anticipate the majority of these changes will remain in place as organizations incorporate and expand virtual health capabilities as a core aspect of care delivery. Medicare and Medicaid beneficiaries are recognizing its value<sup>27</sup>. At the state level, several states have waived or relaxed state licensure requirements to allow clinicians to practice across state lines. The ability to hire clinicians and allow them to practice remotely without requiring relocation may bolster clinical capacity and improve access to certain specialties and primary care. It is however likely that reimbursement parity may not remain. The concept of parity which is defined as paying the same rate for virtual visits as an in person visit will most likely be put under further analysis. Furthermore, it is likely that the use of a secure telehealth platform will be implemented by most organizations and waivers permitting the use of FaceTime and Skype will likely be rolled back due to security concerns.

Both patients and organizations are now faced with another dilemma, what are some ways that people can get access to telehealth if they don't have internet access, technology or are homeless? The FCC's 2019 Broadband Deployment Report states that 21.3 million Americans (6.5% of the population) are lacking access to high-speed internet and 162 million Americans not using broadband speed<sup>28-29-30</sup>. Many that do not have access have been heavily relying on telephonic visits, especially in rural and frontier communities where broadband is often not widely available—telephone therapy is better than no therapy at all. Unfortunately, being able to visually see a patient to observe body language and affect is incredibly important in some behavioral health assessments and treatments. It

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THE FCC'S 2019 BROADBAND DEPLOYMENT REPORT STATES THAT 21.3 MILLION AMERICANS (6.5% OF THE POPULATION) ARE LACKING ACCESS TO HIGH-SPEED INTERNET AND 162 MILLION AMERICANS NOT USING BROADBAND SPEED<sup>44-45-46</sup>.

is thus necessary to reach out to underserved communities in proactive ways to promote change at the city, state and federal levels and support building the necessary infrastructure, access and connectivity for those in need. To address this, organizations are forming innovative partnerships with local community services, homeless shelters, local libraries and schools to give individuals who lack access to telehealth the ability receive treatment through this platform. Therefore, ways to improve access include helping patients obtain devices, notifying patients of subsidized broadband access and finding creative alternatives as discussed above.

In extremely rural areas, a majority of the time, it is a broadband issue as opposed to lack of access to technology—they don't have the internet available or are not able to access a secure connection. This is a much more challenging situation and more of an infrastructure discussion. The Federal Communications Commission (FCC) has discussed putting money towards this and many different organizations are trying to push the ball forward, creating legislation and activities that improve the overall broadband network across the country in communities where it is an issue. Until this broadband issue is addressed, there will be an increased demand for in-person care in areas that lack access to telehealth. Other options for individuals who lack access to care—particularly those living in rural area—would be modular and drive-through units, mobile hotspots or telehealth kiosks (kiosks are discussed in detail in a later section). Drive-through telehealth outposts are comparable in concept to a bank drive-through<sup>31</sup>. They are shelter from the elements (weather) and equipped with private monitors—providing a practical option to care. Modular units, on the other hand, can be readily made, transported, and assembled onsite. This allows for additional access to telehealth in regions that do not have access as well as limiting in-person patient care which can be vital during times of social distancing. To provide security and a sense of individualized care, these units can be equipped with partitions or rolling privacy screens or panels<sup>31</sup>. Alternatively, in areas where broadband is an issue, buses or other fleet vehicles can be converted into mobile hot spots and parked in neighborhoods, providing connectivity and care to individualizes who lack a secure internet connection.

Digital literacy for both providers and users is also very important to the success of telehealth. Providing tutorials and setting up walk-through training is vital. It is also important to develop standard operating procedures for virtual visits and to take the time to optimize scheduling. This includes integrating, standardizing and templating scheduling for telehealth. It is additionally important to support patients who use telehealth through patient portals and outreach and to consider the deployment of staff to virtually room a patient like they would in a clinic setting<sup>27</sup>.

Telehealth and virtual care are part of a larger set of solutions, especially in behavioral health. There is no singular solution to meet the needs of the present and coming surge. However, **to truly meet the demand, we have to find a way for providers to take on more patients—telehealth helps with this part of the solution as it enables providers to see more patients in a shorter period of time.** This, combined with a model where patients are more engaged in their own treatment, promoting mental health at the population level, and initiatives that try to benefit everyone rather than focusing exclusively on those who seek treatment as well as enhanced peer-delivered or peer-supported interventions — like peer-led mental health support groups — will likely help address the coming surge<sup>32</sup>. Some tools that are being used during this pandemic in addition to telemental health include online therapy tools and self-help apps, which bring forth significant opportunities. Available options include web-based courses on the science of happiness, open-source web-based tools and podcasts<sup>1</sup>. There are also self-paced, web-based interventions — such as mindfulness-based cognitive therapy — which are accessible for free or at reduced rates<sup>32</sup>. These programs can help counteract the risk factors for mental illness that have escalated during the pandemic, such as social isolation, parenting stress, workplace stress, grief and loss, and family violence and can be useful post-pandemic in lessening the burden on the behavioral health system. Although telemental health can not build hospital beds, it is an effective way to provide psychological services where it is not easily accessible or readily available. telemental health can also reduce the time individuals spend awaiting evaluation and treatment that ultimately has a significant impact on care, individual experience and the general healthcare system.



## DESIGNING A SPACE FOR TELEHEALTH

As the adoption of telehealth becomes more prevalent, it is important to understand the optimal environment for providing such intervention. When designing a facility for telehealth, there are several things to consider from both a human factor and practicality perspective. Telehealth spaces need to be carefully considered so that they evoke a feeling of ease and comfort for the patient but also subtly reinforce the branding of the provider/organization without compromising functionality and efficacy. Most telehealth clinics will not be newly built—it is likely that they will be existing rooms converted to telehealth rooms or rooms with such capabilities. Facilities dedicated to telemedicine are a new development and best practices for their design have not yet been established<sup>33</sup>. The design of these spaces are often a challenge, but there are several principles that can be implemented to construct a workable clinical space.



### Understand the range of telehealth interaction types and modalities.

Telehealth can facilitate a wide range of interaction and can accommodate a variety of devices and modalities. Telehealth-supporting devices include smartphones, computers/tablets and monitoring applications. Telehealth can be provided in numerous ways including video conferencing, remote patient monitoring, telephone and secure messaging — which is not considered telehealth by many definitions<sup>34</sup>. Telehealth carts have become more widespread as they provide the ability to bring telehealth services to any room yet, while carts may be preferable in some cases, other telehealth applications may be better served with fixed hardware. The wide variety of telehealth approaches have similarly diverse infrastructure requirements<sup>33</sup>. These requirements impact room location and size, flooring, lighting, power, data and conduit pathways. However, the effect goes beyond a single room and involves an examination of network infrastructure, building services, power distribution and more. Even Web-based technologies that use existing computers have impacts on the architecture and physical infrastructure of a facility.



### Plan for a quiet telemedicine space.

When planning dedicated telehealth spaces, they should be placed in a quiet location away from noisy mechanical equipment, foot traffic and sources of external noise. The Guidelines for Design and Construction of Hospitals and Outpatient Facilities, provided by the Facility Guidelines Institute, includes architectural criteria for acceptable noise levels, sound absorption coefficients, sound isolation between rooms and privacy of speech, all of which must be considered when designing telehealth spaces<sup>33</sup>.



### Select the right space and location.

Telehealth equipment should be stored in a place where it can be easily deployed and transported, and avoiding crowded rooms with wires hanging loose or running along the floor. The room will need to accommodate necessary equipment as well as one or two people. The space must therefore be large enough to place the cart-mounted camera with a proper view of the patient and provider. Additionally, in a behavioral health setting, the room should include durable, tamper-resistant, and ligature-resistant finishes, fixtures and equipment.



### Minimizing audio disruptions.

Speaker and microphone placement and capabilities will need to accommodate all types of users. Additionally, carpet is excellent for sound control, but sees minimal application clinical environments due to infection control concerns. Many facilities employing rubber flooring for both cleanability and acoustic protection.



### Avoid distracting backgrounds.

We must also avoid clutter within the backdrop of the video as it may be distracting. Even some simple wall decorations can potentially have a significant impact on the interaction between patient and provider. Therefore, it must be ensured that the camera is facing an uncluttered background. It may be beneficial to place a sign with the name of the facility or health system for telehealth consultations to help orient patients.



#### **Use powder blue paint for walls.**

The choice of the right paint color is also vital as it may impact visibility. In general, white and/or dark walls should be avoided with a light/neutral color as more preferable. Powder blue is commonly the recommended color as it provides contrast with flesh tones. To reduce glare, a flat or matte paint is preferable over glossy paint. In a behavioral health setting, providers may need to observe a patient's body language and affect; therefore, clearly being able to view the patients is vital.



#### **Use diffuse light to provide even illumination.**

The way lighting impacts telehealth video conferencing cannot be overlooked as it can cause harsh shadows. When the patient and provider is present, bright lights may be necessary so that everyone can see one another clearly, giving respects to the variety that exists in skin tone. Fluorescent overhead lights alone are often inadequate and require additional lighting. The best lighting is diffuse light to provide even illumination without heavy shadows. Particularly behind the patient or provider, windows should be avoided as bright sunlight can wash out the video image or produce intense shadows. Telehealth devices, such as otoscopes, can be used with a light source<sup>33</sup>.



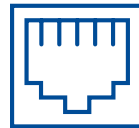
#### **Select the right microphone type and placement for clear sound.**

The selection and placement of the microphone is very important—it ensures clear speech and communication. In an office setting, a headset microphone is advisable as it guarantees a consistent and clear sound level with minimal echo and noise. When looking at telehealth acoustics for conference rooms, table-mounted microphones will evenly pick up voices around the table, although they may require holes drilled into the table, wiring and a floor box with conduit pathway<sup>33</sup>. To reduce infrastructure impact, ceiling-mounted microphones may be a better option. Again, maintaining privacy so people cannot overhear clinical discussions is important and must be considered in placement of equipment and the design of telehealth spaces.



#### **Place camera at eye level.**

Camera placement is also crucial—the camera should be located at eye level and a few feet from the patient or provider to simulate a face-to-face interaction.



#### **Take into consideration the facilities infrastructure to support telehealth.**

Equipment used for telehealth, include computers, monitors, VTC equipment and carts which are to be powered by an uninterruptible power supply (UPS) connected to critical power if possible<sup>33</sup>. For good connectivity, the network connections need to be wired as opposed to wireless. Even though typically a wireless network can accommodate a telehealth session, the traffic caused by other devices trying to connect to the surrounding wireless network will negatively impact connectivity of all the other devices connected. Consequently, if a facility is to use telehealth and are to utilize the hospital's local area network (LAN), the network must have high availability<sup>33</sup>. Additionally, the network equipment must be powered by a UPS connected to critical power. The bandwidth needed for a video teleconference depends on the resolution, frame rate and video encoding. The American Telemedicine Association (ATA) guidelines suggest a minimum of 384 kilobits per second (kbps) bidirectional with high-definition video teleconferencing typically requiring between 768 kbps and 1024 kbps<sup>33</sup>. Since most LAN ports are 100 megabits per second or 1 gigabit per second, the most likely bottleneck is data rates from the service provider, not the LAN itself<sup>33</sup>. This is particularly true if several video teleconferences take place at the same facility simultaneously.

## DESIGNING FOR TELEHEALTH ON THE CONTINUUM OF CARE

Now that we have an understanding of how to design a space or room for telehealth, it is important to recognize how telehealth impacts different facility types and the design of such facilities. Telepsychiatry has been used across the continuum of care (ED, inpatient, outpatient, primary care, substance abuse, nursing facilities, correctional settings, etc.) to provide treatment, prescribe medication, and conduct medication management in addition to streamlining treatment team meetings. Even though the treatment provided may be different, there are many overlaps and differences in the use and possible spatial need for telemental health spaces.

More generally, **Telehealth will likely have a long-term impact on the design of healthcare facilities including behavioral health facilities, which involves changing the use of different types of spaces.** This includes revisiting collaborative spaces as more of a digital practice due to social distancing. This could mean that instead of having large spaces for big meetings, digital technology could be used to have virtual meetings in places such as an exam room where providers can remotely discuss patient care. It could also mean having consultation rooms with the capability of attending to a number of different specialties located in the same area or building. Another trend we may see is the inclusion of dedicated telehealth rooms with the ability to transform existing spaces into ones that support the appropriate technology for such virtual interactions.

### PROVIDING TELEHEALTH IN OUTPATIENT CLINICS & PRIMARY CARE

Mandated social distancing and quarantine have brought forth challenges in providing outpatient psychiatric and primary care for those suffering from mental illnesses within the community during the COVID-19 pandemic. These patients are typically clinically stable, but suffer from major psychiatric disorders requiring regular visits to outpatient or primary clinics to obtain treatment and medications. To address this, many health systems are holding outpatient and primary care consultations and appointments over video or telephone<sup>35</sup>. As patients, physicians and mental health professionals become accustomed to technological advancements related to

this area, the more realistic this type of remote therapy becomes, which can aid in expanding access to behavioral health care nationally. For perspective, 64% of providers are more comfortable using telehealth now than they were before COVID-19, while 57% of providers also view telehealth more favorably than they did pre-COVID-19<sup>21</sup>.

64%

OF PROVIDERS ARE MORE COMFORTABLE USING TELEHEALTH NOW THAN THEY WERE BEFORE COVID-19, WHILE 57% OF PROVIDERS ALSO VIEW TELEHEALTH MORE FAVORABLY THAN THEY DID PRE-COVID-19<sup>21</sup>

With telemental health, providers can conduct assessments, offer medication management, participate in treatment team meetings, provide supervision or act as medical leadership<sup>3</sup>. Outpatient clinics, particularly those who struggle to recruit and maintain staff/providers can rely on telehealth to improve their services and care. Additionally, through the development of secure online behavioral health platforms, individuals are able to connect to behavioral health providers online from the comfort of their home<sup>3</sup>. Ideal for individuals with limited mobility due to social distancing or busy schedules, This type of care assists in providing more access to mental health treatment.

In a primary care setting, telepsychiatry providers can collaborate with primary care providers to ensure continuity of care. Another trend to close the gap in behavioral health care is the shift to identify needs at the point of primary care. This model of care is highly integrated, holistic and proactive, responding to needs early in the care continuum<sup>34</sup>. Primary care has been a setting where 70% of patients are diagnosed and treated for the most common conditions, including anxiety, depression, mood and substance abuse disorders<sup>34</sup>. Integration is key as many acute and chronic disorders such as obesity, COPD, diabetes and chronic pain involve health behaviors or psychosocial issues, making primary care the optimal medical home<sup>34</sup>.

As primary care continues to recognize and treat mental health proactively, this can help reduce the stigma and lessen the severity of illness. In a recent paper on integrated physical and behavioral health (PH/BH) care, the SAMHSA-HRSA Center for Integrated Health Solutions (CIHS) outlined a continuum of collaboration/integration, with the understanding that fully-integrated care manifests when behavioral and primary healthcare providers and other providers function as a true team in a shared practice and with a shared vision, and both providers and patients experience the operation as a single system treating the whole person<sup>36</sup>. As telemental health expands, it is important to understand the necessity of system integration and approach mental health holistically. While telehealth can reach a larger audience, we have to ensure that physical health is addressed and mental health is not carved out separately.

**Design considerations:** It is important to consider design solutions for providing telehealth in an outpatient and primary care setting as telehealth has very specific needs to be delivered affectively. This includes the use of a modular design model where exam/consultation rooms can be converted to meeting/work rooms with telehealth capabilities. Elements can also be borrowed from office design, including the use of phone pods or mobile meeting rooms which can specifically be used for telehealth visits<sup>31</sup>. Other possibilities include creating universal rooms and layouts in which most spaces have telehealth capabilities or can be used for such function if needed. Additionally, program space for telehealth facilities can feature collaborative spaces that contain a combination of space types such as conference rooms, huddle areas, in addition to more private areas where the virtual consultations and patient monitoring can occur. Another consideration is to look at how kiosks and virtual check-ins may expedite the waiting process. This may mean reducing the waiting room size and reducing seat counts. Furthermore, the utilization of exam rooms may decrease as patients and providers get more accustomed to virtual care and providers conduct telehealth visits from their

70%

PRIMARY CARE HAS BEEN A SETTING WHERE 70% OF PATIENTS ARE DIAGNOSED AND TREATED FOR THE MOST COMMON CONDITIONS, INCLUDING ANXIETY, DEPRESSION, MOOD AND SUBSTANCE ABUSE DISORDERS<sup>34</sup>.

home. With the ability to rotate between regular visits and telehealth visits throughout the day, providers may need fewer exam rooms. Much of this also depends on infection control measures moving forward.

### PROVIDING TELEHEALTH IN INPATIENT UNITS, CORRECTIONAL FACILITIES AND NURSING FACILITIES

The development of inpatient telepsychiatry programs has lagged behind that of outpatient programs due to the inadequacy of reimbursement structures for this service<sup>37</sup>. However, now that a lot of these limitations have been lifted due to COVID-19 and will most likely continue, it may become more common practice. **Most patients find telepsychiatry in an inpatient setting to be equal or superior to in-person care, although, some acutely psychotic patients may find the video teleconferencing less satisfactory<sup>37</sup>.** At minimum, real opportunities exist for the use of telepsychiatry in situations where short-term coverage is needed in rural inpatient psychiatric units such as when local clinicians are unavailable due to shortage, location or illness. The psychiatrist's effectiveness in an inpatient setting is enhanced by the instantaneous connections now possible from hospitals, offices or homes. The wide adoption of readily accessible electronic medical records also removes obstacles in bringing care provided at a distance to the inpatient settings. It is only a matter of time until the shortage we are facing in staffing needs leads to more widespread adoption of this method of care.

A telepsychiatry provider's role in inpatient programs, correctional settings and nursing facilities works much in the same fashion as in any other mental and behavioral health setting. A telepsychiatry provider in an inpatient setting makes diagnoses, implements treatment plans and collaborates with an onsite team throughout a shift to discuss treatment, co-occurring medical needs and commitment or discharge plans<sup>38</sup>. Additionally, it has been shown that 60% of incarcerated individuals also suffer from mental health issues, which makes access to behavioral healthcare vital for this population. Telepsychiatry is well suited to address the needs of correctional facilities for scheduled care, medication management and immediate responses in times of psychiatric crisis<sup>3</sup>. Correctional institutions seek ways to increase efficiency and lower costs while still providing high quality care, and telepsychiatry reduces transportation and supervision costs by providing timely psychiatric care and evaluation onsite. Moreover, there is a growing need for psychiatric assessments (due to the prevalence of dementia and Alzheimer's disease) in nursing facilities and, with telepsychiatry, residents can connect with a provider for routine evaluation and care or emergency crisis intervention<sup>3</sup>. With telepsychiatry, residents can also avoid a trip to the ED or the challenges of being transported to outpatient care appointments. For all intents and purposes, "inpatient" will be used to refer to all three types of care setting due to the patient populations typically needing to live in the facility to receive treatment.

The way that telepsychiatry works in these types of settings is that all inpatient units include in-person psychiatry providers as well as a consistent team of telepsychiatry providers who collaborate and help deliver psychiatric coverage to the unit. Throughout a shift, telepsychiatry providers can work closely with an in-person facilitator who manages the flow of patients into a dedicated space with televideo and acts as the remote provider's onsite eyes, ears and nose when needed<sup>38</sup>. A computer or tablet can also be brought into rooms of patients who are acute or not able or able to leave their

rooms in order to meet with their psychiatry provider. The benefit is that telepsychiatry can be less threatening for patients with paranoia than in-person care as it removes the risk of physical violence and allows a patient to walk out of the room or turn off the screen if they feel confined or threatened, rather than resort to aggression and violence<sup>38</sup>. During the COVID-19 pandemic, to limit the number of people on the unit, many facilities considered implementing inpatient telepsychiatry and applied the above mentioned protocols—some facilities left a "skeleton crew" to serve patients while therapists, physicians and most other staff were taken out of the unit and met with inpatients via video/telehealth<sup>35</sup>.

*Design considerations:* **To reduce chaos and stress within the inpatient unit, it may be advisable to create dedicated spaces within the unit to access remote care to provide a calm and consistent environment for both patients and staff to conduct telehealth visits.**

The environment established to provide such care can also be used by patients to video chat with their family, friends and loved one to limit in-person visits into the unit. In remote areas where it may be difficult for family to visit the patient in the facility and during times of social distancing, organizations have started using similar infrastructure to provide such service to their patients so that they can not only speak to providers but also to their families remotely.

## TELEHEALTH KIOSKS

Delivering healthcare and behavioral health services in places where access is limited has been a challenge even prior to the pandemic. A solution to the shortage of behavioral health providers and lack of access to care, especially in rural areas, is the use of Telehealth Kiosks—a small cabin which can be placed anywhere, where patients can consult their health and mental health concerns, get a prescription or conduct a self-performed check-up. Telehealth kiosks are expected to become an essential part of healthcare delivery in the future<sup>39</sup>. The growing digitalization in the healthcare sector has led to an increase in demand for telehealth health kiosks<sup>40</sup>. The major driving factors of the telehealth kiosk market include the increasing demand for telehealth services in rural and urban areas, advancements in medical data transfer through telehealth systems and increasing partnership with manufacturers, hospitals and pharmacies. In 2015, the healthcare consultancy IHS Technology predicted that healthcare kiosks will increase from roughly 10,000 to more than 36,000 by 2020, with a lot of that growth driven by large businesses and manufacturers seeking onsite healthcare services as well as the growing demand for virtual visits and remote patient monitoring<sup>41</sup>. Due to the rapid mass adoption of telehealth throughout the pandemic and issues that have arisen, such as need for social distancing and lack of technology and broadband access for people living in low income or rural areas (which telehealth kiosks can provide a solution), this number may continue to grow.

Telehealth kiosks allow healthcare professionals to treat patients at distance using telecommunication technology and give patients quick access to a healthcare provider or service in places where access is limited. These kiosks can be used in a variety of ways including vital sign monitoring, teleconsultation and as a digital pharmacy. Telehealth kiosks are typically outfitted with telehealth capabilities such as audio and video conferencing capabilities and have tools to track vital signs and other health data. Some telehealth kiosks include medical devices for clinical examination such as the stethoscope, Spo2 sensors, and blood pressure monitors, and are equipped with special features such as ADA assistance devices for deaf, blind and limited-mobility

patients<sup>39</sup>. Telehealth kiosks also have capabilities to store and forward diagnostic data and reports—this capability allows for quick access to specialists (including psychiatry) from anywhere. This capability also allows providers to collect data regarding a patient, which typically takes place in doctors' offices, clinics and hospitals, automating tasks that take up valuable time in a healthcare setting.

Healthcare kiosks come in several sizes and forms, these include fully-enclosed spaces to semi-enclosed booths which are sometimes found in pharmacies to office cubicle-like enclosures. Telehealth kiosks are sometimes paired with a pharmacy distribution kiosk and are around 77" x 53" x 91" (Exterior) and 71" x 47" x 78" (Interior). They come with a large touchscreen interface, integrated HD camera, and an option for seating. Depending on the type of kiosk, some devices included in these environments are scale, digital blood pressure cuff, thermometer, and stethoscope which is stored in cabinet drawers with UV light cleansing process. Additionally, these kiosks may include a credit card reader, handset for private audio, sanitation features, and customizable external kiosk branding.

**Telehealth kiosks can be located in a wide range of public settings including hospitals, community centers, schools, retail stores, malls, office, airports, hotels, colleges, community clinics, and pharmacies to help patients access care.** Outside the healthcare setting, the kiosk's main function is to replicate the visit to a doctor's office, offering quick consults in a public setting. Inside a healthcare setting such as a pharmacy, hospital or clinic, they most often act as registration stations or patient education terminals<sup>41</sup>. They can even be used as triage stations in an ED. In a busy ED, small kiosks can enable staff to gather patient data — symptoms, personal information, payment options — before dispatching a nurse or doctor. In some cases, the kiosk can connect the patient to a healthcare provider in another location, potentially screening out non-emergency cases that clog up an ER, keep more urgent cases waiting and waste clinicians' time. A patient can also use a kiosk to arrange payment or schedule future appointments<sup>41</sup>. Due to social

distancing requirements, organizations are thinking about how to limit face-to-face visits including how to approach waiting spaces in facilities—how do you pre-register for an appointment so you don't have to see a receptionist? Kiosks may have the answer—telehealth kiosks can reduce visit and wait time. Telehealth kiosks are also beneficial for emergency and critical care situations, providing access to healthcare services and reducing the cost of patient transfer, which is helpful in reducing transportation cost and providing early diagnosis<sup>42</sup>.

**Telehealth kiosks are a great alternative to traditional doctor/psychiatric visits due to their accessibility and affordability.** Allowing patients to walk in to a telehealth kiosk to communicate with a mental healthcare provider and get almost instantaneous feedback. Telehealth kiosks are also a very affordable alternative. According to Dennis Peacock, Chief Technology Officer at TelaCare, kiosks consultations cost a bit less than what a typical visit to an office would cost<sup>43</sup>. They are three times cheaper than an urgent care visit and vastly less expensive than a trip to the ED<sup>43</sup>. One reason for this is that they take up space in buildings that already need to be heated, cooled and lit. Care providers don't have the upkeep of an office or the need for expensive staff. Insurance companies have started to see the benefits of telehealth kiosks as well<sup>43</sup>. Health insurers like Anthem, Anthem Blue Cross/Blue Shield, and United Healthcare are offering coverage for telemedicine services.

# TELEHEALTH CASE STUDIES

## CASE STUDY #1

**Northwell Health, NSUH – 9th Floor Tower,  
Design for a TeleHealth Center**  
Manhasset, NY

The 9th Floor of North Shore University Hospital includes a design for a Telehealth center that is situated in the existing hospital to provide treatment, patient support, and evaluations to existing patients that receive recent medical care by Northwell Health. This is a 4,500-square-foot call-in center, and is designed to support 21 providers. Providers are clinical practitioners that receive patient calls (via video and audio) on a Patient Care Program (24 hour service).

The program space provides an ITS room and backbone, an independent uninterruptible power supply (UPS) system, individual computers with one large monitor for observation and one regular monitor for charting. Workstations with 60" high acoustical panels permit HIPA protocol.

The center shares the floor plate with a practicing unit. The practicing unit supports the call-in center. The existing floor plate additionally provides a pantry, breakout area, clinician offices, a conference room for team training and consultation rooms for internal dialog where cases of high-risk level can be discussed.



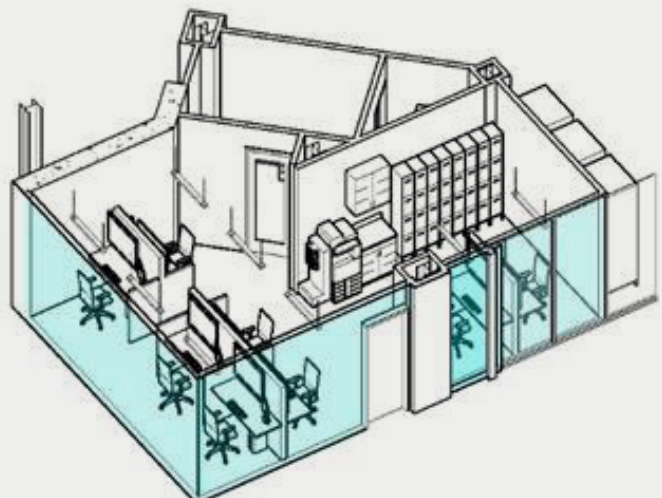
## CASE STUDY #2

**Penn Medicine, Telehealth Sitter Room**  
Philadelphia, PA

This project provides a design for a telehealth center to be situated in the existing hospital for monitoring the inpatient room care population who are being treated in the existing hospital. This 1,000-square-foot center is limited to monitoring a small clinical service line, and supports six sitters and two providers. Sitters are staff members who observe (via video and audio) high-risk patients throughout the various campuses of Penn Medicine. Providers are nurse practitioners who receive patient calls from Penn Medicine's First Call Urgent Care Program (24 hour service).

The program space provides for computer backbone, UPS system, and individual computers with one large monitor for observation and one regular monitor for charting. Additionally, there are provisions for a pantry, seating / break out area, 32 purse lockers, office equipment (fax, copier, and scanner), and secure door entry.

Penn Medicine utilizes AvaSure software where they observe 10 patients on one large monitor at each seated position. When there is an emergency or incident on an observing Sitter's monitor, the monitor will go from viewing 10 patients to that one patient in need. The video feeds from the other nine patients will be forwarded or observed by an adjacent Sitter. The AvaSure Telesitter technology can transfer the video feeds of the other nine patients to any of the other five Sitters' monitors at any time.



*Bird's eye view into proposed unit*



**CASE STUDY #3**

**Kaiser Permanente Health Hub,**

*Chino and Manhattan Beach, California; Lakewood, Colorado*

Kaiser Permanente selected HDR to lead them in an intensive two-year exploration aimed at “Re-imagining Ambulatory Care Design” (RAD). Project RAD’s underlying premise is Life Integration—the conviction that healthcare interwoven into people’s lives will enhance outcomes.

The facility was developed as a “Next Generation Medical Office” for members and the community, serving as a local resource for healthy living, emphasizing innovative care with patient/physician collaboration, educational opportunities and healthy choices.

The Public Square serves as the express check-in location and engages the community and its members with educational opportunities about wellness and health-related issues.

The private exam rooms have “healthcare seats” rather than exam tables and are fresh and modern with cutting-edge technology features, such as teleconferencing capabilities for physicians, patients and nursing staff.



**CONCLUDING REMARKS**

The recent pandemic has spotlighted both new and existing barriers to accessing mental health and substance use disorder services on a national level, including the shortage of providers. Telemental health has served and will continue to serve an important role in expanding psychiatric care nationally and can help meet demand in the coming surge post COVID-19. Telehealth is part of the correct solution to deliver behavioral healthcare in today’s crisis and has been used across the continuum of care to deliver and enhance behavioral health services. It is also important to continue, with better connectivity from the government, local communities and providers, to provide better access for all Americans and refine the telehealth system with adequate training for patients and providers for more streamlined service. As the need for telehealth continues to grow, it is important to consider the spatial implications of such interventions, which includes infrastructure requirements, room location and size, design, flooring, lighting, power, data and conduit pathways. It is also important to look at how telehealth differs in inpatient and outpatient environments and how space and planning for future and current facilities can facilitate such interventions. These can include modular design models, borrowing lessons from workplace design and creating universal room layouts with telehealth capabilities so that it can be practiced in any room. Taking these factors into consideration when planning for the implementation of telehealth into your organization will help create a pleasant and efficient environment for both users and practitioners.

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