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Envisioning Telehealth Beyond the Pandemic: A Federally Qualified Health Center's Inquiry Toward Sustainable Telehealth Programs

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Abstract

There has been a growing interest in telehealth, as the practice has shown to alleviate barriers and improve healthcare access. Since the outbreak of COVID-19, organizations have deployed prompt integration of telehealth services to slow the spread of the virus. This spurred widespread adoption of telehealth. In addition, the pandemic evoked stable interest in telehealth among patients, healthcare professionals, and Federally Qualified Health Centers (FQHCs). Chestnut Health Systems, an FQHC operating in the Midwest, deployed an Illinois State University Stevenson Center Fellow to investigate how the organization may deploy larger-scale efforts and contingency plans into the care of patients during the pandemic and beyond. This preliminary study provides an overview of information in the form of a literature review that Chestnut Health Systems may consider in the lasting implementation of telehealth services. This research encompasses seven themes in the expansion and contingency of telehealth services, which the Stevenson Center Fellow identified following a workgroup meeting with Chestnut's executive leadership team: "legislation," "technology," "services," "vendors," "best practices," "mobile health units," and "direct-to-consumer healthcare." The Stevenson Center Fellow utilized several databases and resources published by major U.S. telehealth advocacy and research groups to explore the published literature. Based on input from Chestnut executive leaders and clinical directors, the Stevenson Center Fellow provides recommendations to guide the implementation of sustainable and far-reaching telehealth services during the pandemic and beyond.

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Envisioning Telehealth Beyond the Pandemic: A Federally Qualified Health Center's Inquiry Toward Sustainable Telehealth Programs

Telehealth technology has radically advanced since its first use in the late 1800s to transmit heart sounds over phone lines (Rincon, 2019). Now, technology has advanced so that patients can receive care from their health care providers when in-person visits are not feasible. In early 2020, the COVID-19 pandemic led to a series of lockdowns that government officials hoped would slow the spread the virus. Thus, hospitals and clinics across states faced the need to rapidly integrate telehealth into their healthcare practices.

Chestnut Health Systems has modest beginnings for what would become one of the significant forces undertaking substance abuse and addictions treatment. Established in 1973, Chestnut began offering addiction and mental health treatment services in Bloomington, Illinois. The original site was located in a Victorian house on West Chestnut Street and was referred to as "Lighthouse." There were a total of seven employees and a volunteer Board of Directors. The small setup could serve approximately eight residential or detox clients at a time.

Today, the organization is known by many in the Midwest as "Chestnut." The organization's beginning was funded by the Illinois Law Enforcement Commission and has grown into a major organization that employs over 650 full and part-time staff. In several locations across Illinois and one location in Missouri, Chestnut offers various services, including medically monitored detox, crisis stabilization, individual and family counseling, children and youth services, primary care for adult and pediatric patients, and credit counseling.

Chestnut currently operates in four core areas designated for behavioral health and human services organizations. This includes substance abuse treatment and prevention, mental health treatment and housing for persons with mental illness, applied behavioral research, training and publications, and primary care treatment and preventative services (Chestnut Health Systems, 2021). In Illinois, the organization has several locations: Belleville, Bloomington, Chicago, Granite City, Joliet,

Maryville, Normal, and Peoria. In addition, Chestnut has one location in Hillsboro, Missouri. The organization's programming includes primary care, mental health and counseling, school-based services related to mental health, rehabilitation and detox, crisis support, community prevention, senior outreach services, vocational services, domestic violence counseling, and court treatment services. All programming is varied depending on the service location.

Chestnut's mission is "making a difference" and "improving quality of life through excellence in service" with a vision to "be a leader in the development and delivery of superior health and human services" (Chestnut Health Systems, 2021). The organization currently has eleven Board of Directors and nineteen Executive Leaders. Chestnut is recognized as a Federally Qualified Health Center (FQHC) and serves underserved areas or populations. As such, the organization strives to serve those living at or below 200 percent of the poverty level. The organization offers services on a sliding scale for underserved populations, and while Chestnut health centers are open to anyone, their focus is for those who fall at or below the poverty line. About 92 percent of Chestnut's patients who receive assistance from the Chestnut Family Health Center in Bloomington, Illinois, are Medicaid or Medicare eligible, or are uninsured (Swiech, 2019). Along with many FQHCs across the U.S., Chestnut quickly deployed telehealth services to meet the needs of patients at the beginning of the pandemic.

As the COVID crisis continued throughout 2020 and 2021, Chestnut's executive leadership team reflected on the agency's commitment to advancing telehealth in primary care and behavioral health services. Chestnut deployed an Illinois State University graduate student, Krista Zampacorta, to investigate how Chestnut may deploy a contingency plan into the care of patients using telehealth. Zampacorta joined Chestnut as a Stevenson Center Applied Community and Economic Development Fellow and was assigned to create a literature review involving telehealth. In 2023, utilizing the research collected from this literature review, Chestnut leadership and stakeholders will collaborate on producing a telehealth needs assessment. The ultimate goal of a telehealth needs assessment is to outline

recommendations to be considered by the Chestnut executive leadership team for future implementation to meet the agency's goal of superior healthcare and human services in all dimensions.

Method

To fully anticipate the broad scope of the topic of "telehealth," the Stevenson Center Fellow developed nine research questions. She narrowed research questions based on themes that the Chestnut Health Systems executive leadership team addressed in an initial workgroup meeting in June 2021. The themes include: "legislation," "technology," "services," "vendors," "best practices," "mobile health units," and "direct-to-consumer healthcare." Each section within the review is followed by suggestions for future research, and offers recommendations for Chestnut's executive leadership team.

Research Questions

The following nine research questions guide the research in this report:

1. What is the current legislation regarding telehealth and telemedicine in Illinois and Missouri?
2. What technologies are used to conduct behavioral health and primary care visits?
3. What technology is necessary to conduct teledentistry visits?
4. What technologies are used along two-way audio-visual communications in behavioral health?
5. What vendors are involved in telehealth technology and implementation?
6. What are the best practices of behavioral health telehealth visits?
7. What are the capabilities of mobile health units for underserved populations?
8. What direct-to-consumer virtual behavioral health and primary care services are currently available to the public?
9. What factors influence low-income or uninsured individuals to choose commercial virtual behavioral health and primary care over community-based services?

The Fellow utilized the following databases: Westlaw, ProQuest Congressional, National Center for Biotechnology Information (NCBI), EBSCO, Healthsource Consumer Edition, PubMed, Science Direct, and Connected Papers in July and August 2021 pertaining to search queries involving "legislation," "technology," "mobile health units" and "direct-to-consumer healthcare." In addition, the Fellow reviewed and analyzed resources published by the American Telemedicine Association (ATA), the

American Psychiatric Association (APA), the Upper Midwest Telehealth Resource Center (UTRC), Center of Medicaid Services (CMS), KLAS Research, and the National Consortium of Telehealth Resource Centers pertaining to telehealth "best practices," "technology" "vendors," and "services."

Purpose

The objective of the review is to provide Chestnut Health System's executive leadership team an overview of the possibilities and developments in telehealth. The Chestnut executive leadership team anticipates future contingency planning and program improvements. Chestnut, as a leading FQHC in the Midwest, anticipates finding ways to implement sustained telehealth programs through the remainder of the pandemic and beyond. Additionally, the Chestnut executive leadership team foresees the need to expand the reach of telehealth services to support patient's and healthcare provider's needs and preferences.

Review

This section follows a series of literature reviews on the research questions developed by the Stevenson Fellow. Each subsection starts with a literature review in research areas involved in telehealth practice. Then, the Stevenson Fellow provides a series of suggestions for future research as related to the organization's telehealth practices, and offers the executive leadership team recommendations moving forward.

Telehealth Legislation

Missouri Telehealth Legislation

Telehealth is in a state of fluctuation as a result of COVID-19. According to Lacktman (2018, p.291), clinical leaders should consider "specific legal solutions and business structures designed to fully harness the promise of telehealth while remaining compliant with the complex universe of state and federal laws." Therefore, it is essential to understand current legislation to avoid disruption of services during a critical moment in public health history.

Brotman and Kotloff (2020, p.1548) highlight that telehealth is “broadly defined as the use of telecommunication technology to deliver healthcare, health education, public health, and health administration at a distance”. Telehealth and telemedicine are often used interchangeably. In Illinois and Missouri, telehealth services may include synchronous live videoconferencing, asynchronous (store and forward) technology, remote monitoring, and mobile health (Brotman and Kotloff, 2020). There is state variability in law and definitions and acceptance of technology that is not compliable with the Health Insurance Portability and Accountability Act (HIPAA). Currently, in Missouri, Governor Mike Parson has allowed physicians licensed out of state to provide care. These measures are temporary, as Parson’s executive orders will come to an end when the pandemic is no longer a public health emergency.

According to Becevic et al. (2020, p.228), Missouri is a national leader in telemedicine despite any new expansion bills, and Missouri has “a broad statutory definition of telehealth coverage and reimbursement parity.” This is due to previous bills that Missouri championed after advocating for rural residents to receive care, most recently with Missouri House Bill 1617 passed in 2018. The bill allowed patients to utilize telehealth in most settings and by any licensed health care provider.

Missouri law defines both telemedicine and telehealth as “the delivery of health care services by means of information and communication technologies which facilitate the assessment, diagnosis, consultation, treatment, education, care management, and self-management of a patient’s health care while such patient is at the originating site and the health care provider is at a distant site” (Becevic et al., 2020, p.229). There are a variety of telehealth services that can be made available at FQHCs to alleviate patient barriers to care.

Missouri Medicaid still has restrictions in reimbursement according to geographic location, except for acute stroke, substance use disorders, and co-occurring mental health disorders. For example, reimbursements are “limited to visits where the patient site is in a rural Health Professional

Shortage Area (HPSA) in a rural census tract, or in a county outside a Metropolitan Statistical Area (MSA)" (Becevic et al., 2020, p.236). As with many individuals who are underserved or unable to otherwise access care, this restriction presents barriers.

Missouri also provided restrictions and guidelines for the state Medicaid program, MO HealthNet. Reimbursement for services under MO HealthNet, just as Missouri Medicare, are granted to any licensed physician or other health care practitioner registered with the state's Medicaid program. However, a physician-patient relationship can only provide prescriptions and other treatments. According to Becevic et al. (2020), the relationship may be established via telehealth, but must consist of an interview. A phone or online questionnaire, for example, would not be sufficient for a physician to prescribe medications. Unlike Medicare, MO HealthNet eligible originating sites are not limited by HSPA or MSA requirements.

Illinois Telehealth Legislation

Illinois has been identified as one of the national leaders in expanding healthcare. As a result, the state has passed numerous laws over the years to support the expansion of services. For example, according to the Illinois Telehealth Act (2018, section 5):

> "Telehealth services means the evaluation, diagnosis, or interpretation of electronically transmitted patient-specific data between a remote location and a licensed health care professional that generates interaction or treatment recommendations. 'Telehealth services' includes telemedicine and the delivery of healthcare services, including mental health treatment and substance use disorder treatment to a patient, regardless of patient location, provided by way of an interactive telecommunications system, asynchronous store and forward system, remote patient monitoring technologies, e-visits, or virtual check-ins."

In addition, the Telehealth Act stipulates the use of telehealth services. According to the Illinois Telehealth Act (2018, section 15):

> "A health care professional may engage in the practice of telehealth services in Illinois to the extent of his or her scope of practice as established in his or her respective licensing Act consistent with the standards of care for in-person services."

For the duration of the public health emergency, the Department of Human and Family Services (DHFS) stated that the agency would cover services provided by FQHCs, rural health clinics, and encounter rate clinics that do not ordinarily meet its definition of telehealth services (The Flynn Report, 2020). Illinois governor, JB Pritzker, has endorsed progressing telehealth legislation. Governor Pritzker signed Executive Order 2020-09 in March 2020, which required insurers to reimburse health care providers for telehealth with the same payment rates as in-person care (State of Illinois, 2021). Governor Pritzker signed House Bill 3308 (HB 3308) into law on July 22, 2021. The legislation, according to the Governor's press release, prevents insurance plans from requiring a patient to attend an in-person visit before a telehealth service, expands early intervention services, and bars insurers from requiring patients to provide a reason for choosing a telehealth visit over in-person care (State of Illinois, 2021). In addition, the bill limits patient cost-sharing. It expands the use of remote monitoring, asynchronous telehealth, and audio-only telehealth services, and expands the list of providers allowed to use telehealth to include substance abuse professionals and those providing early intervention to children (National Law Review, 2021). HB 3308 imparts that (Illinois General Assembly, p.8):

> "Health care providers shall determine the appropriateness of specific sites, technology platforms, and technology vendors for a telehealth service, as long as delivered services adhere to privacy laws, including, but not limited to, the Health Insurance Portability and Accountability Act of 1996 and the Mental Health and Developmental Disabilities Confidentiality Act."

Both Illinois and Missouri have committed to the expansion of telehealth services in the last few years. HB 3308, as a monumental alteration to Illinois healthcare legislation, expanded Illinoisians' right to choose telehealth, and alleviated restrictions on how health care providers can deliver services.

Suggestions for Future Research

I. Are current telehealth practices at Chestnut Health Systems aligned with legislation?
II. If current telehealth practices at Chestnut Health Systems are not aligned with current legislation, what should be implemented or changed to support the law?

III. Have Medicare-eligible residents utilizing Chestnut services been impacted by telehealth restrictions set by current legislation?

IV. How can Chestnut reach populations of individuals that legislative restrictions may impact?

Recommendations

Federal and state legislative guidelines for physician licensure and reimbursement have been in a continual state of revision since the onset of the COVID-19 pandemic. Each licensure area in telehealth practice requires different legislative considerations and limitations depending on the state in which the provider is delivering services. Additionally, reimbursement for services has been expanding and is in a state of continuous revision. The Stevenson Fellow thus recommends that clinical directors, as well as Information Technology (IT) Department leaders, review legislation and licensure updates through the remainder of the pandemic.

A "telehealth calendar" would anticipate any legislative updates as the pandemic continues to affect policy decisions at the state and federal levels. The first step to a seamless transition into a sustainable telehealth program is one in which clinicians, clinical leaders, administration, and staff understand the importance of upholding the standards of federal and state laws.

Bearing in mind the Illinois Effective Date of Laws Act (Illinois General Assembly, 1994), along with the legislative process in Missouri (Missouri House of Representatives, n.d.), the Stevenson Fellow suggests that Chestnut clinical directors review telehealth legislative activities every 90 days and consult with the Upper Midwest Telehealth Resource Center (UMTRC) for updates in Illinois, and the Heartland Telehealth Resource Center (HTRC) for updates in Missouri. The national public health emergency for the COVID-19 pandemic was renewed on January 14, 2022 (PHE, 2022). The Stevenson Fellow correspondingly recommends that clinical directors convene Chestnut's IT Department, in addition to the organization's Policy and Compliance leadership, to discuss any upcoming legislative changes that may affect the delivery of telehealth throughout the development of the pandemic.

According to the Federal Communications Commission (FCC), Missouri experiences incidences of chronic disease above the national average and has 4,172 licensed primary care physicians, 3,299 dental providers, and 9,734 mental health providers; while Illinois has 10,351 licensed primary care physicians, 9,336 dental providers, and 22,314 mental health providers (FCC, 2017). Clinical leaders are concerned about how access to care can be expanded in areas that endure from health care provider shortages.

A piece of legislation that would streamline the pathway for physicians who wish to practice in multiple states is the Interstate Licensure Compact. Currently, Illinois is part of the compact, whereas Missouri has introduced the compact in December 2021 as HB 2004 (Missouri House of Representatives, 2022). The Compact makes it possible for physicans to practice across state lines, improve access to medical specialists, and incorporate telemedicine. In addition, the Compact also allows states to share investigative and disciplinary information (Interstate Medical Licensure Compact, 2021).

The Stevenson Fellow thus recommends that policy efforts be focused in Missouri to expand the reach of telehealth in areas that report discrepancy in available healthcare services. Nathaniel Lacktman, a legal expert on Telehealth, predicts a continued expansion of telehealth reimbursement throughout the remainder of the pandemic and beyond (Lacktman, 2021). As telehealth programs at health systems grow beyond their pilot phase, FQHCs and Chestnut is behooved to continue to support telehealth programs to encourage service flexibility that was once not possible due to reimbursement restrictions.

Conducting Telehealth Visits

According to the Center for Medicaid Services (CMS), telehealth is appropriate for mental health counseling (2020). Chestnut currently offers telehealth services for behavioral health and primary care. As of August 2021, Chestnut conducts telehealth behavioral health and primary care telehealth visits utilizing Zoom; a synchronous, two-way, audio-visual platform. Alternatively, suppose patients do not have a computer or smartphone technology available to them to perform a Zoom meeting. In such a case, patients may conduct visits via a phone call in adherence to state and organizational guidelines.

According to the Substance Abuse and Mental Health Administration (SAMHSA), synchronous (e.g., videoconferencing) or asynchronous (e.g., mobile apps, texting, or messaging providers) modalities are commonly used and accepted in the behavioral health field (SAMHSA, 2021). According to Chestnut administrators and healthcare providers who the Fellow interviewed at the beginning of this research, many emphasized the need for more telehealth flexibility over mobile phones, since many individuals cannot access laptop or desktop computers. However, at the time of this writing, asynchronous (store-and-forward) text message-based counseling services are not recognized by Illinois Medicaid (The National Telehealth Policy Resource Center, 2020).

Chestnut has utilized Zoom since early 2020. Chestnut's Zoom system is HIPAA-compliant and is used to conduct primary care visits, one-on-one counseling, group counseling, and educational group meetings for court-ordered programs. As of August 2021, Chestnut has over 150 paid Zoom accounts that include proper security. According to Chestnut's Director of Management Information Systems, Chestnut currently allows staff to use Skype and FaceTime under relaxed federal and state guidelines due to the ongoing COVID-19 pandemic. The Department of Health and Human Services (2021) stipulated that covered health care providers could use popular video chat applications, including FaceTime, Facebook messenger video chat, Google Hangouts video, Zoom, or Skype to provide telehealth visits without penalty for HIPAA non-compliance during the COVID-19 public health emergency. At the writing of this report, Chestnut complies with these guidelines.

A critical oversight to the successful implementation of telehealth is stable WiFi since organizations cannot control where a patient is located. Still, they can support stable WiFi at a distant site. Jennifer Humbert, a representative of Oschner Health and a partner to the ATA, stresses the importance to keeping technology simple; that the right technology and equipment selection will make initial participation in telehealth appointments easier for both clinicians and patients (ATA, 2020). According to a survey conducted by the Behavioral Health Workforce Research Center at the University

of Michigan, of 153 organizations across the U.S. conducting behavioral health, 40% used direct video conferencing, 11% participated in visits via telephone, 8% of patients connected through mobile health, 6% used email, 1.5% were treated with a patient monitoring device, and 1% utilized store and forward technology (Mace, 2018).

In 2021, Chestnut received a grant that allowed the purchase of 375 computers, 75 of which are laptops. A fair number of employees have new computers, and employees who received authorization to work remotely were assigned a remote access gateway (DUO) account, which allows access to Chestnut's VPN server.

Suggestions for Future Research

I. Will Chestnut continue to use Google Voice and FaceTime until the public health emergency is suspended, or make plans as soon as possible?
II. Is there a need to expand upon the technical support the organization currently offers to patients for devices?
III. Is WiFi access consistent and stable across Chestnut locations that offer telehealth services?
IV. Who might champion including patient access to critical information to populations that may have barriers accessing the Internet? E.g., care managers, volunteers from clinical areas, emails to patients with information of services, a printed document at the beginning of care sessions
V. What is the initial access point to services for target populations who may benefit from telehealth? E.g., online inquiry form from the website, community referrals, phone call

Recommendations

As an FQHC, Chestnut provides services to those who may face significant barriers to accessing healthcare. According to Wibberly and Rheuban (2018), those without insurance or with inadequate health coverage are less likely to receive care. Despite the continuation of the pandemic and an accentuated interest in telehealth technologies, many are unaware of how telehealth services may benefit their healthcare outcomes, especially in relation to missed appointments due to lack of transportation and/or inclement weather. Therefore, the Stevenson Fellow recommends that Chestnut extend organized community outreach to urban and rural service areas of Illinois and Missouri that report unsatisfactory transit scores, as reported in the database compiled by All Transit (2019).

Furthermore, the Fellow recommends that Chestnut develop local partnerships to target service areas, including local food pantries, community colleges, workforce development centers, libraries, public schools, and community organizations. These partnerships could be utilized to relay information about services to community members, advertise the accessibility of telehealth, and allow for a space to hang information such as flyers, business cards, or even provide the opportunity for in-person contact information tables. This could be a split project between public health educators or volunteers. The program could measure the impact of an organized outreach program over a year-long basis to anticipate the future needs and changes in the legislation of telehealth technologies.

To anticipate needs during the public health emergency, federal agencies have introduced programs for individuals of financial need, including the Emergency Broadband Benefit (EBB) Program, re-branded in 2021 as the Affordable Connectivity Program. Individuals who would like to engage with telehealth services that may have otherwise been pushed away due to a lack of a reliable internet connection, a laptop, a desktop computer, or a smartphone; could recieve sheets on available benefits. This would include Internet providers such as Xfinity, and digital healthcare solution providers such as Sanohealth.

A resource toolkit may be given to patients entitled to Medicaid or Medicare, and those who report being 200 percent or below the poverty line (see Appendix A for an example resource toolkit created by the Fellow). In addition, clinicians and physicians may educate the patient about their options with telehealth and how services could remove barriers to appointments.

Lastly, to anticipate the changes that may come with the suspension of the public health emergency, Chestnut should consider a timeline for clinicians to retire the use of non-HIPAA compliant software for telehealth sessions. The timeline should consider the necessary time to inform patients and allow administrative staff to modify organization policy and procedures.

Teledentistry Technology

At the time of writing this paper, Chestnut anticipates offering dental services. Teledentistry, as a subunit of telehealth and telemedicine, is the remote facilitating of dental care, guidance, education or treatment via information technology rather than through direct face-to-face contact with any patient (Ghai, 2021). Teledentistry is not a new idea, and dental practitioners have noted its potential in rural areas. Over the years, some applications of teledentistry have included remote dental screening, diagnosis, providing consultation, and proposing treatment plans (Ghai, 2021). Currently, teleconsultation may occur through synchronous “real-time consultation”, or asynchronous store-and-forward methods. Dentists can share patient information, radiographs, lab results, tests, photographs and other information through multiple providers (Jampani et al., 2011). In addition, remote monitoring may be utilized in teledentistry; as well as the potential for “Near-Real-Time” consultations.

There are a few technological requirements for the application of teledentistry. Store-and-forward, asynchronous technology allows dentists to keep costs minimal and produce results just as effective as the in-person treatment process. Store-and-forward technologies may require a computer with substantial hard drive memory, adequate RAM, a swift processor; an intraoral video camera with a digital camera for capturing pictures; a modem, and an Internet connection (Jampani et al., 2011). Live videoconferencing may be conducted through a synchronous audio-visual platform, such as Zoom. A multipoint control unit that bridges three or more parties is required for a live group session. Clinicians would also need to consider a codec to accommodate audio and visual functions in a live setting (Jampani et al., 2011).

Studies have shown that dentists use teledentistry in oral medicine and diagnosis. Methods used have included transmission of digital images by e-mail and collaboration through synchronous audio-visual platforms. In pediatric and preventative dentistry, studies have supported the use of teledentistry. In these service areas, studies have included the use of photographs and intraoral cameras for screening

procedures (Jampani et al., 2011). Most dental practice setups have intraoral cameras, digital cameras, and computers with Internet access already available, allowing for an efficient integration of services.

Suggestions for Future Research

I. Do Chestnut's current electronic medical record (EMR) and electronic health records (EHR) systems support the integration of teledentistry?
II. What is the status of teledentistry licensure in Missouri and Illinois?
III. What is the scope of practice that Chestnut Health System would like to provide concerning teledentistry? E.g., oral medicine and diagnosis, orthodontics, pediatric, preventative dentistry?
IV. Which populations and anticipated scope of practice would most benefit by teledentistry if it became an available service at Chestnut?
V. How can Chestnut make teledentistry accessible to underserved populations? E.g., rural areas with a greater digital divide, reimbursement restrictions?

Recommendations

Because state and federal regulations around telehealth and teledentistry are varied, the Fellow recommends that legislation be reviewed quarterly by Chestnut's Dentistry Program Business Manager. She also suggests that Chestnut develop relationships with professional organizations, including the American Teledentistry Association, to better understand legislative changes concerning store and forward technology, live video examinations, and Medicaid as well as Medicare reimbursement policies.

Finally, the Fellow recommends that the scope of practice is defined, possibly running a pilot teledentistry program that requires minimal changes to processes and technology requirements for patients and clinicians. A pilot teledentistry program also would account for cases of limited electronic health record (EHR) and electronic health record (EMR) integration capabilities.

Mobile Phone Apps and Behavioral Health Online Platforms

Mobile Phone Apps

Many health care providers desire to look more fully into the capability of mobile health apps as a supplemental treatment method. According to Stephen Schueller, Ph.D., executive director of One Mind PsyberGuide, there are thousands of mental health self-help mobile phone apps (Clay, 2021). The prevalence and availability of self-help apps have prompted experts to explore how helpful they might

be in supplementation to talk therapy and/or medication intervention. Quality of behavioral health treatment must remain both high and consistent through a strong therapeutic relationship, defined as the working alliance between the patient and therapist that is composed of shared goals, agreement with tasks, and development of a bond (Henson et al., 2021). Chestnut's mission to deliver superior health care and human services has recognized the need to explore quality, evidence-based apps that may be considered part of individual treatment plans.

Recent studies, such as one conducted by Torous et al. (2018), explored how individuals with mental illness use their mobile phones for mental health apps. The study showed that downloads of mental health apps decreased in older age groups, and mobile phone ownership did not necessarily correlate to high mental health app use rates. In addition, it remains questionable as to how to quantify digital therapeutic alliance for smartphone apps and mobile devices.

A systematic review of mobile phone apps performed by Staiger et al. (2020) in the United States explored how app interventions were associated with reductions in substance abuse. The literature reviewed a total of twenty apps across a range of substances: "Health Call," "Crush the Crave," "Alcohol/Avoid," "SmartQuit," "Drink Less," "Smoke-Free," "Drinks Meter," "CampusGANDR," "PartyPlanner," "TeleCoach," "LMBI-A," "A-CHESS," "HealthCall," "mCM," "Ray's Night Out," "AR Training," "Coach2Quit", "S-Health," "Brief-MP," and "BASIC-Mobile." The study found varying degrees of effectiveness depending on the mobile app. In addition, in Australia, Colbert et al. (2020) systematically reviewed nineteen smartphone apps involving the management of alcohol consumption in both youth and adult populations. The study found that few apps that have been evaluated in the scientific literature are currently available for download in commercial app stores.

Studies that have focused on searching for evidence-based apps for anxiety and depression have continued along with apps aimed at treating substance abuse disorders. Marshall et al. (2019) reviewed major app marketplaces, the Apple App Store and Google Play store, to locate apps claiming to offer

therapeutic treatment for depression and/or anxiety, and have research evidence for their effectiveness, according to their app descriptions. Of the 293 apps found, only 3.41% had published research on their efficacy (Marshall et al., 2019). The ten apps in the review included “Destressify,” “Agoraphobia Free,” “Catch It,” “Mindsurf,” “PTSD Coach,” “MoodMission,” “SuperBetter,” “Thought Challenger,” “Smiling Mind,” and “Headspace.” Unfortunately, the apps were of varying quality without long-term follow-up data and the non-existence of any replication studies that might manipulate dosage or usage.

A multiple baseline across-individuals study design conducted by Marshall et al. (2020) reviewed the effectiveness of mental health mobile apps for reducing anxiety and depression in Australia. The apps selected were “Destressify,” “MoodMission,” “Smiling Mind,” “Mindshift,” and “Superbetter.” The apps were chosen due to their public availability and published evidence of efficacy (Marshall et al., 2020). In addition, the apps were available for free download. Results have yet to be published, but it is hypothesized that the apps are effective in treating anxiety and depression. Some apps reviewed in the study attracted interest because of their potential benefits. For example, Marshall et al. (2020) note that they can provide improved access to mental health services for those in rural areas, lower socioeconomic groups, children, and adolescents. In addition, some apps can be used to enhance face-to-face therapy through digital homework tasks that can be shared instantly with a therapist.

Evidence shows that many who download a mental health phone app may struggle on knowing how to use it in day-to-day life, and those who downloaded apps may not use the technology on more than two or three occasions (Torous et al., 2018). There are many considerations involving patient safety and protection when behavioral health practitioners consider deploying mobile-based apps for treatment.

Since 2017, the Food and Drug Administration (FDA) has approved mental health apps that aim to treat behavioral health conditions (Marschall, 2021): EndeavorRX, ReSET, ReSET-O, and Somryst.

Since August 7, 2020, a Chestnut workgroup with six executive leaders have explored ReSET and ReSET-O as an available prescription for treatment of substance abuse disorders.

The following are tools that clinicians may utilize to navigate mental health apps in the U.S. (Marshall, 2019): the APA mental health app evaluation model, FDA guidelines for regulations and definitions for mobile health tools, and PsyberGuide's evaluation of technology and scientific best practices for digital mental health tools. When evaluating mobile phone apps, it is necessary to ensure that they will not cause the user harm, and many psychiatric apps may fall outside federal privacy laws like HIPAA (Torous, 2021). It is crucial to consider the legal and ethical details when prescribing or recommending mental health applications in a clinical setting.

Behavioral Health Online Platforms

Chestnut's executive leadership team is currently deliberating other online behavioral health platforms. These include myStrength, Breaking Free, and SilverCloud. A parallel-arm, pilot, randomized controlled trial conducted by Hirsch et al. (2017) assessed the effectiveness of myStrength compared to a series of informational emails as the active control arm. The study found that myStrength users demonstrated a significantly steeper and more rapid reduction in depressive symptoms over time compared to the active control (Hirsch et al., 2017). This study purely looked into mental health and well-being in the workplace. Another study examined the impact of myStrength on chronic pain management, as well as depression, anxiety, insomnia, stress, and substance abuse disorders, and found that trial participants had reported significantly lower levels on the Global Pain Scale (GPS) compared to the control group (PR Web, 2018). My Strength has many large-scale adopters of the technology, including workplaces, insurance plans (including Kaiser Permanente), and universities.

A study conducted by Elison et al. (2015) studied 393 users of the computerized and recovery program, Breaking Free, and reported that users saw significant improvements in several areas of psychosocial functioning, including quality of life, the severity of alcohol and drug dependence,

depression and anxiety. The Breaking Free online platform includes a companion app and syncs with the main online program. The platform may be used by patients individually, and clinicians may conduct structured one-to-one or group interventions.

SilverCloud, another option being considered by Chestnut, is an online, self-guided, interactive mental health resource that is anonymous and helps users manage depression, anxiety, and stress. Many workplaces have deployed the platform to employees who cannot receive care due to employers' lack of benefits and heightened mental health challenges during COVID-19 (Business Wire, 2021). OSF Health in Illinois and Michigan currently utilize this program. The platform reports enhancing primary care capabilities, providing measureable clinical results, and reducing healthcare costs (SilverCloud, 2021). Clinical studies conducted by SilverCloud have studied the cost-effectiveness of the platform and the effectiveness of the platform in the management of patient depression and anxiety (Richards et al., 2018). The platform has been recognized in the possibility of intervention and has the potential to address access and provider shortages.

Suggestions for Future Research

I. What reporting capabilities does Chestnut require when considering the prescription or endorsement of digital mental health platforms and/or mobile apps?
II. Which populations might benefit from potential application options?
III. Is there a behavioral health provider shortage that may lead to the effective adoption of an online platform during waiting times for treatment?
IV. Would a "champion" in the behavioral health clinical team be necessary to manage the reporting and updates regarding digital health platforms and mobile apps?
V. Which population areas of behavioral health treatment at Chestnut may be most responsive to a digital platform?
VI. Does Chestnut have the capability of partnering with another agency to implement a digital solution?
VII. Would the digital health solution ideally operate across Chestnut's different service areas?
VIII. Would a digital health platform or mobile app ideally have the capability to integrate into the patient EMR and/or EHR?
IX. Which platform(s) would offer Chestnut the most comprehensive capability on the mental health spectrum? E.g., outpatient managed diagnoses or diagnoses that require more intervention
X. Do any current Chestnut clinicians have experience prescribing mobile applications for treatment?

Recommendations

According to the McLean County Health Department's Community Needs Assessment and Health Improvement Plan (2021), behavioral health conditions and access to care were identified as the top two health priorities from the years 2020 to 2022. Because reporting and documentation are critical to compliance with federal and state laws, it is suggested that Chestnut utilize HIPAA-compliant software that allow for the best physician workflows at the organization.

The Fellow also recommends that Chestnut consider sending a biannual survey to clinicians engaged in utilizing telehealth technology and software (see Appendix C for a potential clinician survey). Moreover, the Fellow suggests that Chestnut offers further training on prescribing applications approved by the FDA for use, as well as applications that may enhance services.

Telehealth Technology Vendors

Chestnut utilizes the EMR system known as TIER, an EHR system named eClinicalWorks, and a patient portal system called MyHealthPoint. Furthermore, Chestnut uses the service, CorePoint, to submit billing to external entities. The organization uses Cisco phone systems in various clinic and office locations. As of August 2021, Chestnut is undergoing a review process to select a vendor to permit patients and employees to sign consent forms remotely. As noted previously, Chestnut primarily utilizes Zoom to conduct telehealth visits.

Video Conferencing Software Vendors

The following list of software vendors providing telehealth video conferencing services, found by the Fellow using Google online search in August 2021. The vendors are compliant with HIPAA standards:

- Doximity
- Doxy.me
- Zoom
- Microsoft
- Vidyo
- Verizon BlueJeans

- Vsee
- GoToMeeting
- SimplePractice Telehealth
- Thera-LINK
- RingCentral for Healthcare
- TheraNest
- SimplePractice
- GoToMeeting
- Medici
- Mend
- Chiron Health
- VT Connect
- MegaMeeting
- eVisit

EMR and EHR Software Vendors

The National Alliance for Health Information Technology (NAHIT) defines the electronic medical record (EMR) as "an electronic record of health-related information on an individual that can be created, gathered, managed, and consulted by authorized clinicians and staff within one health care organization" (NAHIT, 2008. p.6). A patient's electronic health record (EHR) is defined as "an electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards that can be created, managed, and consulted by authorized clinicians and staff across more than one health care organization" (NAHIT, 2008, p.6). Meaningful use of an EHR, as described by CMS, has established core measures that healthcare providers must meet to determine the system is being adequately used. According to Segal et al. (2020), the integration of an EMR system has increased the ease of the providers' and the patient's ability to navigate health information.

The following providers offer EMR and EHR services to health systems and hospitals, found by the Fellow using Google online search in August 2021:

- Epic
- Praxis
- Cerner

- GE Healthcare
- Meditech
- eClinicalWorks
- NextGen
- Allscripts
- Practice Fusion
- Greenway Health
- Allscripts
- Athena Health
- DrChrono
- Kareo
- McKesson
- Meditech
- CareCloud
- CureMD

Suggestions for Future Research

I. Which video conferencing platform has the greatest usability for patients who do not have desktop computer access or a smartphone with limited capabilities?
II. What can be modified to improve the efficiency of the clinical workflow?
III. Is single sign-on a challenge and possible obstacle to integrating applications within the Chestnut EMR and EHR systems?

Recommendations

The Fellow recommends that Chestnut observes clinical workflows and survey clinicians who deliver telehealth in their practice (see Appendix C for an example potential clinician survey).

Behavioral Health Telehealth and Best Practices

Chestnut utilizes synchronous audio-visual videoconferencing to conduct behavioral health sessions. Alternatively, phone sessions are available to clients who are unable to participate in videoconferencing. The American Telemedicine Association (ATA) and American Psychiatric Association (APA) released the best practice guidlines for behavioral telehealth visits in April 2018. The ATA reviewed the material and concluded that the information contained in the document is still relevant and applies to the COVID-19 pandemic. The ATA's document highlights administrative concerns, standard operating procedures, technical and clinical considerations for behavioral health

videoconferencing sessions. At the beginning of the pandemic, 50% of care delivered to outpatient programs at Chestnut had been moved to videoconferencing or over the phone visits. Chestnut's court programs also provide educational and support groups via telehealth.

The ATA and APA recommend that organizations delivering mental health services conduct a telehealth needs assessment before initiating services. The needs assessment should include the following: program overview statement, services to be provided, proposed patient population, provider resources, technology needs, staffing needs, quality and safety protocols, business and regulatory processes, space requirements, training needs, evaluation plan, and sustainability (ATA and APA, 2018). The ATA and APA further endorse the use of Standard Operation Procedures (SOPs), or protocols. This includes procedures around emergency issues and patient-provider identification. While Chestnut provides most services at this time through Zoom, many also occur through the Google platform. Chestnut released a COVID-19 Plan of Action (updated in October 2020) that outlined the organizational guidelines for telehealth, including documentation (legal and regulatory), service provisions, crisis management, documentation of services, as well as setting and technology considerations.

One of the barriers of Chestnut patients who participate in behavioral telehealth sessions is device unavailability, or adequate phone plans with sufficient mobile data. Additionally, many patients may hesitate to use video capabilities from their devices. Behavioral health clinicians at Chestnut have reported that the sole use of audio for sessions is more challenging to conduct. Hawley et al. (2020) found that technological challenges during home telehealth visits will occur, but patients and clinicians can resolve technological challenges with individualized training and a telephone visit backup plan.

Other important considerations and best practices of behavioral health videoconferencing involve the effective use of telepsychiatry technologies, including framing and background. The ATA recommends that framing should be considered to empathize with patients; for the therapist to sit far back to create distance and space. Backgrounds in a behavioral health videoconferencing session should

be tailored to patient populations and environments, have the appropriate balance between overly busy and bland or neutral, provide lighting from the therapist's side and above, not behind or below. There is also the recommendation that therapists avoid silhouetting, especially from natural light from behind.

Adelman et al. (2020) outlines best practices for completing a successful telehealth visit. The author promotes the Four Habits Model developed by Frankel and Stein in 1990. The Four Habits Model includes groups of skills related to patient outcomes categorized into habits that help the clinician organize their workflow and act according to best telehealth practices. The Four Habits model can be broken up into four steps: invest in the beginning, elicit the patient's perspective, demonstrate empathy, and invest in the end. The author notes that, importantly, clinicians, to the best of their ability, should practice eye contact and be aware of their tone of voice and facial expressions.

When a provider is late, patients prefer that they apologize, admit their fault, and offer an explanation for the delay. Additionally, asking if there is "something else" instead of "anything else" elicits a greater response by patients. Adelman et al. (2020) stresses that empathy is much more effective at reducing patient anxiety than reassurance; connecting the patient's words with what the clinician says improves the likelihood of the patient following the provider's recommendations. Moreover, written information is critical to send home with the patient, if necessary.

Chestnut leads support groups for victims of domestic violence as a additional behavioral health service program. The main concern for providers in this service ara is that they ensuring safety and timely intervention. Munro-Kramer et al. (2021) aimed to develop practical guidance on the safe use of telehealth to support individuals affected by intimate partner violence (IPV). The authors utilize the Assessment, Decisions, Administration, Production, Topical Experts, Integration, and Testing, Training (ADAPT-TT) framework to support the affected population. In addition, Munro-Kramer et al. (2021) note resources for healthcare providers; including the MyPlan mobile app, and the WHO Lives Protocol. Healthcare providers are also encouraged to review the CUES (Confidentiality, Universal Education and

Empowerment, Support) model, developed by the National Health Resource Center on Domestic Violence (n.d.).

Suggestions for Future Research

I. Are all Chestnut health providers trained on telehealth best practices?
II. What are the most common patient-perceived barriers to videoconferencing among Chestnut patients?
III. Do all Chestnut clinicians possess the necessary technology to conduct a successful telehealth visit?
IV. How would Chestnut deploy a telehealth best practices training program to each service area?
V. Does clinician competency in telehealth best practices improve client satisfaction following videoconferencing sessions?

Recommendations

The Fellow recommends that Chestnut survey and interview current and past patients engaged in telehealth (see Appendix C for a potential example patient survey). Key points to consider are the patient-perceived barriers to telehealth, perception of clinician competency, and patient experiences with the technology and the setting in which they are engaged with services. The potential patients' responses could be used to inform an organizational telehealth needs assessment.

Mobile Health Clinics

Mobile health clinics (MHCs) have the ability to alleviate health disparities in vulnerable populations and individuals with chronic diseases (Yu et al., 2017). Chestnut owns a mobile van that is undergoing technological outfitting. Additionally, Chestnut utilizes a van service in case patients cannot make their appointments due to transportation barriers to encourage patients to attend their scheduled in-person appointments at the Chestnut Family Health Center in Bloomington, Illinois.

Target populations of MHCs include communities that usually have the greatest disparity in access to healthcare, including children, people without homes, uninsured or underinsured people, racial and ethnic minorities, and people with low income (Carmack et al., 2017). According to Mobile Health Map (2021), mobile clinics mainly serve the uninsured and generally operate in low-income

communities. Additionally, mobile health clinics provide accessible care at a more affordable cost than Emergency Department visits.

In 2017, an estimated 5.8 million people in the U.S. delayed medical care because of issues with transportation (Brotman et al., 2020). Of the services deployed by MHCs, primary care and prevention were the most common service models between 2007 and 2017 (Malone et al., 2020). MHCs may provide other services, such as mammography, pediatric care, mental health, asthma, maternal and infant health, disaster relief, and vision care. According to the Mobile Health Map database, Illinois has 25 MHCs, and Missouri has 15 MHCs in operation (Malone et al., 2020).

The available literature stresses that MHCs have the potential to break down barriers in transportation, diminish complexity in care access, and ameliorate trust between health care providers and community members. MHCs have the potential to bring people services directly, and Carmack et al. (2017) highlight that MHCs have the potential to let unheard voices be heard ane encourage inclusivity in communities. Since MHCs are often limited in the scope of care they can offer, health care providers may be limited to providing patients initial screenings or referrals, which may create fragmentation in services (Carmack et al., 2017). Another challenge of MHCs are privacy concerns due to their layout, which can create barriers for patients who might know eachother and utilize the same services.

Suggestions for Future Research

I. What are the perceptions of mobile health clinics for those who utilize Chestnut services?
II. What are the mobile health clinic program's target population(s)?
III. What are the target services for the mobile health clinic program?
IV. How will providers keep records and ensure patient visits are documented if the mobile health unit is deployed to rural areas without broadband access?
V. Suppose patients are referred to in-person services at Chestnut or other agencies from the mobile health clinic. How will providers ensure that these referrals are documented to know if the patient's health concerns are addressed?

Recommendations

The Fellow recommends that Chestnut encourage consistent physician workflows when engaging with telehealth on mobile health clinics to prevent billing and/or documentation errors. Additionally, she suggests that Chestnut understand the perceptions of mobile health clinics in target communities. Finally, the Fellow recommends that Chestnut interview potential patients about their perception of mobile health clinics, capabilities of service, and motivational and factors that patients perceive as a deterrent to accessing services.

DTC Telehealth

Direct-to-consumer (DTC) behavioral health and primary care services have made their way into the mainstream. Attention focused on DTC telehealth services has heightened since the COVID-19 pandemic. DTC telehealth refers to patient-initiated, on-demand health care with their physician, another physician within the same practice, or, more commonly, a physician with whom the patient has no existing relationship (Becevic et al., 2020). Many of the standard DTC telehealth service providers do not accept insurance plans. Furthermore, DTC telehealth is dominated by the for-profit private sector (Elliot and Shih, 2019). DTC is distinct from other forms of telehealth in that the patient initiates care; there is no intermediary clinician or facilitator present. Often, encounters are prompted from the patient's home or location of their choice (Elliot and Shih, 2019). What patients must complete online to receive care varies by DTC provider. Most of the services first require patients to fill out an online questionnaire, followed by a virtual visit with a provider.

With the expansion of eligible services through CMS, many DTC solutions are reimbursable by Medicare, Medicaid, and private insurance. More than 80 additional telehealth services, including some DTC services, are now reimbursable (Becevic et al., 2020). Private sector companies such as American Well, Teladoc, and Doctor on Demand, are offered through health plans or employers, though direct payment options are still available (Elliot and Shih, 2019). Additionally, both American Well and Teladoc

also white-label, customize, and integrate their software and provide backup physician coverage. This allows hospital systems, health plans, and physician practices the ability to offer a DTC option (Elliot and Shih, 2019). If a health system implements such a service, they can label the technology as their own and pay for integrations into their EMR (Elliot and Shih, 2019).

DTC spending on marketing and advertising has been on the rise. According to Bollmeier et al. (2020), marketing for DTC services increased from $2.1 billion (11.9% of total spending) in 1997 to $9.6 billion (32% of total overall prescription drug marketing spending) in 2016. Additionally, DTC marketing has expanded in the digital sphere by way of websites, online display advertising, search engine marketing, social media campaigns, and mobile advertising (Bollmeier et al., 2020). DTC marketing strategies usually focus on extensive consumer and digital marketing campaigns that are likely to use the services based on demographics and consumer purchasing behavior, available from marketing analytics companies (Elliot and Shih, 2019). The Fellow compiled a table of available DTC behavioral health telehealth services that are available to the general public.

DTC Telehealth Providers Available to the General Public

There are a plethora of DTC telehealth providers that market services to the general public (see Appendix B for a table of available DTC telehealth services in behavioral health and primar care). The Fellow populated information regarding the DTC provider, service(s) offered, cost, and insurance coverage, after conducting a general Google search for “DTC behavioral health telehealth” and “DTC primary care telehealth” in August 2021. These tables were created by the Fellow to inform Chestnut executive leaders on the breadth of DTC telehealth services offered to the public.

Advantages and Disadvantages of DTC Healthcare

DTC telehealth offers patients some advantages. Bollmeier et al. (2020) underline that DTC telehealth services improve patient access, efficiency, and convenience. Many companies also endorse prescriptions for treating conditions that some patients would prefer not to discuss. These conditions

include erectile dysfunction, hair loss, acne, and genital herpes. There may also be reductions in costs associated with healthcare visits. The DTC telehealth model allows for minimized overhead costs, including front-end staff, clinic space, and reduced utility bills (Bollmeier et al., 2020). For some patients, this may mean lower out-of-pocket costs (Sprecher, 2019). Some patients may view it as an advantage to not have a personal relationship with a primary care provider. This may be to avoid perceived stigma in a community-based setting.

Individuals in a rural area, or who face barriers to accessing in-person care, may find that DTC is a solution to their healthcare needs. Limited geographical access to trained professionals remains one of the most significant barriers to traditional face-to-face care (Lundgren and Tumuhimbise, 2019). Platforms that health insurers do not reimburse may be attractive to some, such as patients with subthreshold symptoms; or those who are contemplating entering long-term therapy (Abrams, 2020).

Although DTC telehealth may offer many advantages to patients, there are also potential drawbacks to these services as opposed to engaging with community-based primary care and behavioral health. Elliot and Shih (2019) note a lack of data evaluating the quality of care after evaluation of patients with telemedicine, particularly for urgent care conditions. There are some concerns regarding quality assurance and the rate of unnecessary antibiotic prescriptions for acute respiratory infections. Moreover, prescribers may be more likely to over-treat minor complaints during telehealth visits than during in-person visits.

There are many challenges that DTC telehealth services present in consideration of high-quality and holistic care. Many DTC services are aimed at diagnosis, risk assessment, and treatment, but offer limited follow-up services, including efficacy and safety evaluation of the therapies given (Bollmeier, 2020). Nevertheless, DTC services will almost certainly continue to grow. Studies that explore the effectiveness of DTC telehealth services, such as BetterHelp, have found that multimodal digital

psychotherapy is a potentially effective treatment for adult depression. However, more experimental trials are needed (Lundgren et al., 2019).

Clinicians delivering text-based care through programs such as TalkSpace and BetterHelp have very little information about a patient's surroundings, including where the person is located and who might be reading or influencing written exchanges; additionally, clinicians face challenges in conducting assessments, establishing informed consent, and fulfilling other professional obligations without visual and audio cues (Abrams, 2020). Robust research on DTC behavioral telehealth services is limited.

Suggestions for Future Research

I. Would a DTC established for health systems benefit patients and allow for more provider flexibility?
II. What can be learned from DTC telehealth services' marketing strategies to consumers? How can Chestnut reach more patients in rural areas or those who are uninsured or underinsured?
III. What can be learned about the DTC telehealth sign-up process to receiving care? What can be done to make services more accessible and/or transparent for those who are uninsured or underinsured?
IV. Could Chestnut utilize or partner with some DTC telehealth services to help patients receive specific prescriptions?

Recommendations

The Fellow recommends that Chestnut consider the patient perception of accessing telehealth services. She recommends surveying patients to understand which services would be of value in a DTC setting, and if DTC options would appeal to Chestnut's target populations. Included on the survey would be questions relating to the value of telehealth services, and prospective patients' willingness to pay for virtual video visits over in-person visits. The survey should also include questions regarding the familiarity and use of DTC services among target populations, perceived quality of time spent with providers over in-person services, and the need for services within certain population criteria (e.g., rural, uninsured, underinsured, Medicaid or Medicare eligible). Chestnut can use this data to inform its telehealth needs assessment and provide more context if implementing a DTC option at Chestnut would be a worthwhile investment for both patients and the organization.

Discussion

The purpose of this study was to gain a better understanding of telehealth. The review in this report provides Chestnut's executive leadership team ideas from which clinical directors should focus their attention to sustain and improve the organization's telehealth program. There are key highlights of this research. The report underlined that Chestnut's executive leadership team is encouraged to stay up-to-date on legislative guidelines moving forward to sustain services. The Fellow also noted the need to understand clinician and patient perceptions of Chestnut's telehealth services deployed throughout the pandemic, in order to draw upon the program's strengths and possible areas for improvement. Chestnut leaders are behooved to understand the reach of the DTC business model, and the importance of best practices in clinical workflows in the formulation of a formal telehealth needs assessment.

There are some limitations due to the broad scope of this topic, and time constraints due to the evolving nature of the COVID-19 pandemic. Future revisions should focus on a systematic approach to review available literature according to focused research questions as narrowed down by Chestnut workgroups. As a pilot study, this paper intends to lay the groundwork for a more complete research study. Chestnut's executive leadership may decide to address this study's shortcomings through future workgroup meetings, revision of research questions, and narrowing the focus of telehealth topics once the public health emergency is lifted. Major suggestions for future research include the development of an evaluation framework when considering the deployment of new technology or devices, and understanding current Chestnut patient and provider satisfaction of telehealth services. Despite these limitations, this research can be seen as the first step toward Chestnut's development of a permanent telehealth program.

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Appendix A

Figure A. Example Telehealth Resource Toolkit for Patients

CHESTNUT HEALTH SYSTEMS™

Chestnut Health Systems patients who are currently experiencing financial hardship may be qualified to enroll in various programs to help access to services. You are entitled to the Emergency Broadband Benefit if you or your family:

- Has an income that is at or below 135% of the Federal Poverty Guidelines or participates in certain assistance programs, such as SNAP, Medicaid, or Lifeline;
- Approved to receive benefits under the free and reduced-price school lunch program or the school breakfast program, including through the USDA Community Eligibility Provision, in the 2019-2020, 2020-2021, or 2021-2022 school year;
- Received a Federal Pell Grant during the current award year;
- Experienced a substantial loss of income due to job loss or furlough since February 29, 2020 and the household had a total income in 2020 at or below $99,000 for single filers and $198,000 for joint filers; or
- Meets the eligibility criteria for a participating provider's existing low-income or COVID-19 program.

SafeLink Wireless	EBB Qualified Unlimited talk, text and data 10 GB Hotspot Able to bring your own phone https://www.safelinkwireless.com
Xfinity Essentials	EBB Qualified $9.95 per month for Internet for qualified individuals Includes a router Decreased cost computer https://www.internetessentials.com/
ATT Internet	EBB Qualified Bills can be decreased up to $50 per month https://www.att.com/help/ebb/
Verizon	EBB Qualified Bills can be decreased up to $50 per month https://www.verizon.com/home/promo/emergency-broadband-benefit/
T-Mobile	EBB Qualified Bills can be decreased up to $50 per month https://www.t-mobile.com/customers/emergency-broadband-benefit
Cricket Wireless	EBB Qualified Bills can be decreased up to $50 per month 10/mo for unlimited, 15 GB Mobile Hotspot 5/mo for unlimited high-speed data 5/mo for 100GB only plan https://www.cricketwireless.com/emergency-broadband-benefit.html
Windstream	EBB Qualified $50 credit for Internet service $100 discount on a tablet https://www.windstream.com/covid-relief
Frontier Essentials Internet	EBB Qualified $50 credit for Internet service https://www.getfrontierfiber.com/ebb-offer

Appendix B

Table B1. Behavioral Health DTC Providers

DTC Provider	Service(s) Offered	Cost	Insurance Coverage
7 Cups of Tea	Individual therapy	$150 a month	Does not accept insurance
TalkSpace	Individual, couples, teen therapy, and psychiatry	Initial psychiatric evaluations are $199, and follow-up sessions cost $125	Some major insurance accepted, not Medicaid/Medicare eligible
BetterHelp	Individual, couples, teen therapy, and psychiatry	$60 to $90 a week	Insurance coverage variable
ReThink My Therapy	Individual therapy and psychiatry	$99 a month	Does not accept insurance
ReGain	Relationship counseling	$60 to $90 per week	Does not accept insurance
Pride Counseling	LGBTQ-focused psychotherapy	$60 to $90 per week	Insurance coverage variable
Ayana Therapy	Individual therapy	$60 per month	Available for use by health systems
Talkiatry	Online psychiatry and medication management, telehealth visits	Variable	Accepted by most major insurance
Wellnite	Online treatment and prescriptions for behavioral health	$75 a month	Does not accept insurance

Open Path Collective	Online psychotherapy collective	Variable	Accepts most major insurance
Lyra	Live video, live messaging, and self-led behavioral health interventions	Variable	Employer-sponsored benefit
Brightside	Medication and/or therapy treatments for behavioral health disorders	Variable	Accepts Cigna
Cerebral	Individual therapy, psychiatry, prescriptions for behavioral health	Variable	Accepts Cigna and Medicare in Illinois

Table B2. Primary Care DTC Telehealth Providers

DTC Provider	Service(s) Offered	Cost	Insurance Coverage
K Health	Urgent care, primary care, mental health, pediatrics	$12 a month subscription, $23 individual visits for subscribers	Not covered by insurance
HeyDoctor	Sexual health, medication refills, general health, and preventative care	Variable	Not covered by insurance
Teladoc	Primary care	$60 to $90 a week	Works with many Medicaid managed care plans and Medicare Advantage; without insurance general medical visit $75
Simple Health	Birth control	Variable	Accepts major insurance
Wisp	Sexual health consultations, prescriptions	One-time visit $39	Does not accept insurance
ForHis	Men's-focused primary care, prescriptions	Variable	Not covered by insurance, but some prescriptions may be covered
ForHers	Women's-focused primary care, prescriptions	Variable	Not covered by insurance, but some prescriptions may be covered
Wellnite	Online treatment and prescriptions for behavioral health	$75 a month	Not covered by insurance
CVS Minute Clinic	Non-urgent services, chronic condition management	Variable	Most private insurance accepted

Rory	Women's-focused primary care	$15 online visit, not including the cost of treatment	Not covered by insurance
Lemonaid Health	Primary care, prescriptions	$25 consultation fee, not including the cost of treatment	Not covered by insurance
Nurx	Birth control, sexual health for men and women	Variable	Accepts most forms of private health insurance
TwentyEight Health	Birth control and sexual health for women	One $20 fee per year for doctor evaluation and ongoing messaging with doctors	Medicaid and most forms of private insurance accepted
Alpha Medical	Primary care and urgent care, women's health, dermatology, and nutrition	Subscription costs are $120 to access online visits	Accepts most forms of insurance for most prescription medications
Pandia Health	Birth control	$20 fee for health form, $0 copay for most insurances; $15 per pill pack without insurance	Accepts most insurance plans

Appendix C

Survey C1. Potential Clinician Telehealth Survey

1. What is your area of practice?
    a. Behavioral health
    b. Primary care
    c. Other (please specify)

2. What title best describes you in your practice area?
    a. Registered Nurse
    b. Licensed Professional Counselor
    c. Licensed Clinical Social Worker
    d. Physician
    e. Nurse Practitioner
    f. Physician's Assistant
    g. Licensed Practical Nurse
    h. Certified Nursing Assistant
    i. Psychiatrist
    j. Pharmacist
    k. Physical Therapist
    l. Occupational Therapist
    m. Respiratory Therapist
    n. Other (please specify)

3. Which Chestnut location do you primarily serve?
    a. Bloomington (MLK)
    b. Bloomington (Chestnut Street)
    c. Belleville
    d. Chicago
    e. Granite City
    f. Joliet
    g. Maryville
    h. Normal
    i. Peoria
    j. Hillsboro

4. How long have you been using telehealth with your patients?
    a. A few weeks
    b. A few months
    c. For almost one year
    d. One year or longer
    e. I haven't used telehealth before

5. How are you conducting telehealth sessions? (choose all that apply)
    a. Zoom
    b. Audio-only telephone
    c. FaceTime
    d. Google Hangouts
    e. Other

6. Where have you conducted telehealth visits? (choose all that apply)
    a. Clinic
    b. My home
    c. Hospital
    d. Other

7. Which of the following types of telehealth are you using to apply clinical care? (choose all that apply)
    a. Live, interactive video visits for a patient at their home
    b. Telephone/audio-only calls with patients
    c. Live, interactive video visits for a patient in an outpatient clinic
    d. Asynchronous telehealth to provide clinical care to a patient
    e. Remote patient monitoring of a patient who is at home
    f. Live, interactive video visits for a hospitalized patient
    g. Asynchronous telehealth to provide advice to another clinician
    h. Remote patient monitoring of a patient who is at a health care facility
    i. Live, interactive video visits for a patient in the emergency department
    j. Live, interactive video visits for a patient at a school or childcare facility
    k. Other

8. If any, which of the following do you anticipate being barriers and/or challenges related to maintaining telehealth following the pandemic? (choose all that apply)
    a. Low or no reimbursement
    b. Technology challenges for patients
    c. Liability
    d. Incorporation with the EHR
    e. Incorporation of additional technologies
    f. Telehealth-specific workflows
    g. Lack of technical support
    h. Clinician dissatisfaction
    i. Cost of implementation
    j. Low patient engagement
    k. Licensure
    l. Other
    m. I don’t anticipate any barriers or challenges

9. If any, which of the following do you identify as barriers to your patients accessing telehealth? (choose all that apply)
    a. Lack of patient access to technology
    b. Lack of digital literacy for the patient
    c. Lack of patient access to broadband/Internet
    d. Patient preference to in-person visits
    e. Lack of patient access to data access
    f. Lack of patient awareness/understanding of telehealth offerings
    g. Lack of health insurance
    h. Lack of access to community-based resources
    i. All of the above
    j. I haven't indentified any barriers
    k. Other

10. Which of the types of visits would you like to continue offering to your patients via telehealth after COVID-19? (choose all that apply)
    a. Chronic disease management
    b. Preventative care
    c. Behavioral health
    d. Other

11. What, if any, remote technologies are helping you provide better care for your patients via telehealth? (choose all that apply)
    a. Smartphone camera (photos)
    b. Blood pressure cuff
    c. Bodyweight scale
    d. Pulse oximeter
    e. Smartphone microphone (audio)
    f. Thermometer
    g. Heart rate monitor
    h. Continuous glucose monitor
    i. Activity monitors
    j. Portable EKG
    k. Home spirometer
    l. Other, please specify
    m. Not currently using any, but would like to start
    n. None

12. Overall, do you feel that telehealth has led to more satisfaction in your work?
    a. Yes
    b. Somewhat
    c. Not really
    d. No

13. Overall, do you feel that telehealth was seamlessly integrated into your practice?
    a. Yes
    b. Somewhat
    c. Not really

d. No

14. What, if anything, do you think that Chestnut Health Systems should consider moving forward with telehealth programs?

Survey C2. Potential Patient Telehealth Survey

1. How long have you been using telehealth services at Chestnut?
    a. 3 or fewer months
    b. 4 to 6 months
    c. 7 to 12 months
    d. More than 12 months
    e. I haven't used telehealth before

2. What telehealth services have you used? (choose all that apply)
    a. Individual counseling
    b. Primary care visit
    c. Group counseling
    d. Credit counseling
    e. Psychiatric visit
    f. Other (please specify)

3. Which Chestnut location do you primarily use?
    a. Bloomington (Martin Luther King Street)
    b. Bloomington (Chestnut Street Clinic)
    c. Belleville
    d. Chicago
    e. Granite City
    f. Joliet
    g. Maryville
    h. Normal
    i. Peoria
    j. Hillsboro

4. Which of the following describes your location?
    a. Urban
    b. Suburban
    c. Rural

5. How are you accessing your telehealth visit? (choose all that apply)
    a. Desktop computer
    b. Laptop computer
    c. Tablet computer
    d. Smartphone
    e. Mobile phone (audio-only)
    f. Landline phone (audio-only)
    g. I don't know

6. Where have you completed a telehealth visit? (choose all that apply)
    a. From a Chestnut clinic
    b. My home
    c. From school
    d. Hospital

e. Other (please specify)

7. What type of insurance do you have? (choose all that apply)
    a. Medicaid
    b. Medicare
    c. Private insurance
    d. Student insurance
    e. Tricare
    f. I don't have insurance
    g. Other (please specify)

8. Which applications have you used to complete your telehealth visit with your care provider? (choose all that apply)
    a. Zoom
    b. Audio-only telephone
    c. FaceTime
    d. Google Hangouts
    e. Other
    f. I don't know

9. How do telehealth appointments help you access care? (choose all that apply)
    a. Reduce commute time
    b. Reduce gas and/or bus ticket costs
    c. Reduce child care costs
    d. Reduce time taken off of work
    e. More options for weekend and late appointments
    f. Easier to fit into a busy schedule
    g. Ability to be wherever is convenient for me
    h. Reduce risk for contacting COVID-19
    i. Other (please specify)

10. Which factors make it difficult for you to access telehealth appointments, if any? (choose all that apply)
    a. Lack of steady Internet connection
    b. Lack of personal computer with up-to-date capabilities
    c. Lack of a smartphone
    d. Lack of sufficient mobile data
    e. Lack of a mobile phone/landline
    f. No personal space
    g. Inexperience with technology
    h. Little free time
    i. Lack of adequate insurance
    j. Co-payments
    k. Other
    l. I don't have any challenges

11. Do you utilize the emergency broadband benefit (EBB), now known as the Affordable Connectivity Program?
    a. Yes
    b. No
    c. I don't know

12. Are you able to easily access your telehealth appointments?
    a. Yes
    b. Somewhat
    c. No

13. Was your telehealth appointment stable (no dropped call, good quality picture and audio)?
    a. Yes
    b. Somewhat
    c. No

14. Do you have access to a stable Internet connection?
    a. Yes
    b. Sometimes
    c. No

15. Did you feel your clinician was attentive and listened to your concerns during your telehealth visit?
    a. Yes
    b. Sometimes
    c. No

16. In comparison to an in-person visit, do you feel that a telehealth visit is as effective for your needs?
    a. Yes
    b. Sometimes
    c. No

17. Do you feel that telehealth appointments are equal in quality to in-person appointments?
    a. Yes
    b. Sometimes
    c. No

18. What would be a reasonable fee, in your opinion, for an out-of-pocket telehealth visit?
    a. $50
    b. $40
    c. $30
    d. $20 or less

19. Would you be interested in continuing to use telehealth when the pandemic has concluded?
    a. Yes
    b. Maybe
    c. No

20. Do you have any further feedback on Chestnut's telehealth services?