The COVID-19 Impact on Telehealth Utilization:

by

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ABSTRACT

The coronavirus disease-19 (COVID-19) outbreak is a public health concern that impacted healthcare delivery both in the United States and abroad. The COVID-19 pandemic accelerated the transformation of healthcare, fast-tracking the adoption and utilization of telehealth services in health systems. The aim of this systematic review and supporting case study is to analyze the telehealth landscape prior to COVID-19, highlight the acceleration of telehealth as a result of the pandemic, and discuss the steps that health systems took to implement, grow, and support telehealth services for their patients.

Literature, survey data, and studies from public health organizations, government resources, health systems, and telehealth platforms will be reviewed and analyzed. Emanate Health, a 3-hospital health system in Los Angeles County, will be the subject of a case study aimed to support and highlight key findings of the literature review. Emanate Health's current telehealth offerings will be reviewed in addition to the business case supporting the expansion of the health systems' telehealth services. Sources of information for this essay will include various studies, white papers, vendor analyses, and webinar discussions. Data collected from several Emanate Health resources will also be utilized to support key findings.

Prior to the COVID-19 pandemic, telehealth services were used minimally across the US. Patients, payers, and providers were seemingly concerned with the quality of care associated with virtual visits. During the COVID-19 pandemic, patient volumes dropped drastically, negatively impacting health system revenues. As a result, health systems rapidly adopted, enhanced, or

expanded telehealth services. In addition, payers began expanding coverage for telehealth services, governments loosened telehealth regulations and guidelines, and patients began exploring virtual care options.

The public health relevance of telehealth is that the tool is expected to reduce costs and improve access to care by supporting rural patients in medically underserved areas, improving the patient-provider relationship, and reducing healthcare expenditures. Many patients either delay or avoid seeing providers for various reasons, including the fear of COVID-19 exposure, which can negatively impact public health. Telehealth offers an alternative to in-person visits that can benefit a variety of patients, especially those impacted by social determinants of health.

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PREFACE

My sincerest thank you to the executive leadership, clinical staff, and employees at Emanate Health for their time and support. I would like to thank my incredible mentor Rob Curry, the Chief Executive Officer of Emanate Health, and former Executive-In-Residence for the Master's in Healthcare Administration Program at the Graduate School of Public Health, for the support he has continued to show me over the past two years. I devote much of my success as a MHA student to the leadership skills he has taught me. My administrative residency under Rob's leadership instilled in me the impact that an incredible leader can have on the culture of an organization. I hope to apply his teachings to my future career in healthcare.

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1.0 INTRODUCTION

On March 11, 2020, the World Health Organization (WHO) declared coronavirus disease 2019 (COVID-19) a pandemic (McElroy et al 2020). During this time, patients who exhibited severe COVID-19 symptoms were encouraged to seek immediate care, a significant challenge for 20 percent of the US population that live in rural areas (McElroy et al 2020). In general, rural populations face barriers to accessing health care services. As a result, individuals that live in rural communities have higher rates of chronic disease, delayed diagnoses for cancers, and poorer health outcomes than individuals that live in urban neighborhoods (McElroy et al 2020; Leight 2003; Garcia et al 2017; Zahnd et al 2018). Additionally, rural communities tend to have older populations, less access to physicians and specialists, increased socioeconomic needs, and higher rates of comorbidities (McElroy et al 2020; Spoont et al 2011). As the number of COVID-19 cases increased exponentially across the US, many health systems worried most about the impact on the vulnerable, chronically ill, rural patients (McElroy et al 2020). Although access to care was already a challenge for rural populations prior to the pandemic, the pandemic heightened the existing barriers.

Rural populations were not the only ones impacted by COVID-19. Many US residents of varying demographics feared that going to hospital and clinics would expose them to COVID-19, which resulted in patients postponing care as they shelter in place (*American Hospital Association* 2020). Additionally, many hospitals cancelled elective procedures to decrease the spread of the virus (*American Hospital Association* 2020). As a result of the many precautions taken during the COVID-19 pandemic, there was a significant decline in health care utilization (*Health Affairs* 2020). The reduced patient volumes had serious clinical ramifications for patients in addition to

driving dramatic revenue loses for hospitals (*Health Affairs* 2020). During the pandemic, physician practices reported that patient volumes fell over 50 percent (*Health Affairs* 2020). Similar to physician practices, hospital volumes saw a sharp decline as a result of the pandemic. Total hospital admissions decreased more than 30 percent during the week of April 11, 2020, one week after COVID-19 was declared a public health emergency. Furthermore, non-COVID-19 admissions for individuals 64 years of age and older fell roughly 50 percent, indicating that many older Americans were less willing to seek non-COVID-19 related care during the pandemic (Schwartz et al 2021).

The unanticipated reductions in patient volumes resulted in drastic declines in revenue for health systems. Although the financial strength of hospitals varies widely, the revenue reductions greatly impacted health systems as a whole. One study found that prior to the pandemic (in 2018), the median hospital had enough cash on hand to cover operating expenses for 53 days, while the 25^{th} percentile hospital could only cover operating expenses for 8 days (Khullar et al 2020). The financial impact was especially burdensome for smaller hospitals, which tend to be in rural communities. As a result of the pandemic-related revenue declines, smaller and rural hospitals are more at risk of closing or merging with larger hospitals post-pandemic. While merging with a larger health system would still allow a small hospital to operate in the rural community, some hospitals may not have the opportunity to merge with a larger system. As a result, many rural hospitals are at risk of closing their doors to the community. As discussed, individuals in rural communities already struggle to gain access to healthcare. If rural hospitals and health systems are unable to sustain themselves financially, it may have a detrimental impact on the communities these hospitals serve.

In addition to revenue losses, health systems experienced an increase in expenses, as they worked to create COVID-19-related accommodations. As COIVD-19 outbreaks spiked, hospitals responded quickly by expanding inpatient bed capacity, developing isolation areas, establishing testing centers and tents, and purchasing personal protective equipment to protect hospital staff and patients (*American Hospital Association* 2020). This drastic spike in expenses added to the revenue burden of the pandemic, resulting in historic financial pressures for health systems and hospitals across the US (*American Hospital Association* 2020). The American Hospital Association estimates a total impact of $202.6 billion in losses for hospitals and health systems in the US from March 1, 2020 to June 30, 2020. This equates to roughly $50.7 billion in losses per month during the first four months of the pandemic (*American Hospital Association* 2020). Furthermore, many hospitals already faced significant financial pressures as a result of decreased payment rates from Medicaid and Medicare. In fact, prior to the pandemic, the Congressional Budget Office projected that reductions in payment rates, and increased expenses, could cause roughly 40 to 50 percent of hospitals to realize negative margins by 2025 (*Moody's Investor Service* 2019; *AHA* 2020; *Congressional Budget Office* 2016). The federal government issued relief funds to hospitals with the intention of helping healthcare providers stay open during the pandemic; however, this funding would not be enough to restore the financial strength of most health system post-pandemic (*American Hospital Association* 2020). Ultimately, hospitals and health systems need to do whatever they can to reduce costs and drive revenue during the pandemic. While hospitals do not have control over various financial pressures, they can create ways to service their patients remotely through telehealth utilization, which has the opportunity to drive revenue for the hospitals while increasing access to healthcare for patients.

The objective of this essay is to inform the reader of the impact that COVID-19 had on telehealth utilization, while highlighting the benefits of effective telehealth utilization during the pandemic. The literature review will discuss telehealth utilization in more detail. Following the literature review, there will be a case study to support and supplement key literature findings. Emanate Health, a 3-hospital health system located in Los Angeles county, will serve as the target organization for the case study. Telehealth, in this essay, is used as a general term to reference all virtual health-related services, including telemedicine services. Telemedicine refers specifically to virtual medical care. In this essay, two types of virtual care will be discussed: virtual video care and audio-only care.

2.0 LITERATURE REVIEW

2.1 TELEHEALTH OPPORTUNITIES AND BENEFITS

Many hospitals and health systems have begun utilizing telehealth as a means to service their patient populations. Prior to the pandemic, many health systems and hospitals had identified value in offering telehealth services. Telemedicine technology allows providers to efficiently and effectively provide virtual care to their patients, regardless of the patient's location (*Avizia* 2018). Telehealth also has the potential to reduce the cost of care, increase preventive and proactive care, and improve the patient-provider relationships (*Avizia* 2018). As consumerization of healthcare grows, patients highly value quick and easy access to health services; therefore, telehealth has the opportunity to improve both patient satisfaction and compliance (*Avizia* 2018). Various studies have concluded that telehealth has the potential to increase access to care, lower healthcare costs, increase patient satisfaction, and reduce hospitalizations (*Avizia* 2018). As telehealth expands, studies show that patients, providers, and health systems are identifying opportunities for and realizing the benefits of telehealth.

2.1.1 PATIENTS

There are many benefits of telehealth for patients, including reductions in healthcare costs, transportation time, wait-room time, time off work, issues associated with child or elder care, and risk of catching illness from other patients. Many individuals in rural communities spend time and money traveling to physician offices and hospitals. With the use of telemedicine, patients have the

opportunity to speak with physicians from their homes, saving them both time and money. For example, by implementing a telemedicine program, an Oregon-based health system significantly reduced patient travel costs, saving patients $6.4 million annually (Abassi 2016). Additionally, roughly 40 percent of patients who received virtual care at the University of Pittsburgh Medical Center (UPMC) stated they would have foregone treatment due to the burden of traveling to a UPMC facility (Abassi 2016). Delaying or avoiding care can result in poorer outcomes for patients; therefore, some patients may have improved outcome from utilizing telehealth services. Additionally, telehealth provides patients with on-demand care, increases access to specialists, allows for more preventive and proactive care, and has the potential to increase individual heath (*Chiron Health* 2021). On-demand care refers to connecting patients with healthcare providers in real time. As a result, there have been increases in the number of patients who seek virtual care. In fact, whether or not a provider offers telehealth services might impact a patient's choice of provider. In 2019, roughly 25 percent of Americans, equating to 64 million consumers, would switch their primary care provider to a provider that offered telehealth, a 20 percent increase from 2017 (*AmWell* Consumer Survey 2019). As patients continue to recognize the value of telemedicine, their healthcare decisions may change to favor providers that offer telehealth services.

2.1.2 PHYSICIANS

Similar to patients, physicians also recognize the benefits and opportunities for telehealth. As stated above, the number of patients who are willing to switch to a physician who offers virtual visits is increasing; therefore, physicians are increasingly interested in telehealth to retain their current patients and capture additional patients (*AmWell* Consumer Survey 2019). The number of

physicians who have started to adopt telehealth has increased drastically from 2010 to 2019 (*AmWell* Consumer Survey 2019). The willingness of physicians to utilize telehealth is driven by several factors, including the opportunity to enhance access to patients, increased flexibility of a work-life balance to counteract physician burnout, increased patient attraction and retention, improved patient outcomes, and adequately respond to technological advancements. Of the physicians who have experience using telehealth, 93 percent stated that it improves access to care (*AmWell* Physician Survey 2019). A physician at Children's Omaha saw a 50 percent reduction in no-show rates one year after launching a telepsychiatry program, largely due to the ease of access for patients (*AmWell & Children's Omaha* 2018). Similarly, 77 percent of physicians who have used telehealth consider telehealth to be a more efficient use of time for both the doctor and the patient (*AmWell* Physician Survey 2019). Convenience for physicians is particularly important as the rate or physician burnout increases. Telehealth can help combat physician burnout by bridging the gap between physician shortages and patient demand, reducing unproductive wait times, increasing care coordination, improving provider productivity and flexibility, and providing physicians the opportunity to work from home (*AmWell* Physician Survey 2019). Finally, of the physicians who have used telehealth, 71 percent stated that telehealth allows for high-quality communication with patients, and 60 percent stated it improves the doctor-patient relationship. Satisfaction rates are increasingly important for physicians and research shows that patients typically have high satisfaction with virtual care (*AmWell* Physician Survey 2019). For example, survey data from Nemours Children's Health System showed that 97 percent of patients who utilized their telehealth program were "highly satisfied" with the rendered service (Knowles 2018). One important component of patient satisfaction and retention is the strength of the provider-patient relationship. Many physicians have found that connecting with patients through telehealth

enhances this provider-patient relationship. In fact, a study from the Southwest Medical Associates (SMA) found that virtual visits for upper respiratory tract infections had a 10 percent higher patient satisfaction score than in-person care for the same health issue (*AmWell* Physician Survey 2019). Ultimately, providers are realizing many benefits of implementing and utilizing telehealth services.

2.1.3 HOSPITALS AND HEALTH SYSTEMS

Health systems are also identifying opportunities for and benefits of providing telehealth services. As health systems continue to struggle to improve their bottom line as a result of decreased reimbursement rates from government payers and increased costs, many look to telehealth to drive revenue and decrease costs. For example, after implementing a telehealth program, BayCare Health System increased the number of wound care patients seen per week by 500 percent, resulting in significant revenue for the health system (*AmWell* & *BayCare* 2018). In addition to increased revenues, many health systems are realizing the expense reductions associated with virtual care. The University of Pittsburgh Medical Center (UPMC), on average, saves roughly $87 each time a patient receives urgent or primary care virtually rather than going to a brick-and-mortar urgent care clinic (Abassi 2016). Another study further highlights the potential benefits of telehealth for health systems. From a volume standpoint, 16 percent of the patients who utilized telemedicine services for their health issue would have “done nothing” if they did not have the option for the telemedicine visit, representing opportunities for higher utilization for health systems (Nord et al 2018). Additionally, the study concluded that telemedicine visits result in a net cost savings of $19 to $121 per visit for the health system (Nord et al 2018). Health systems continue to utilize telehealth to divert patients from more expensive care settings, resulting in cost savings for the health system.

Hospitals and health systems also realize improved patient outcomes by utilizing telehealth services. For example, after introducing its Care Coordination/Home Telehealth (CCHT) program in 2003, the Veterans Affairs (VA) was able to increase its primary care outreach. As a result, the VA saw a 56 percent decrease in patients seeking inpatient services for depression, a 40 percent reduction in hospitalization for mental health issues, and a 20 percent reduction in patients seeking hospital services for diabetes-related issues (Bresnick 2013). Similarly, Partners HealthCare, the leading academic health care system in the United States, has seen outcome improvements after beginning a telehealth program to assist cardiac patients (Bresnick 2013). After implementing the telehealth program, Partners HealthCare reported a 51 percent decrease in hospital readmissions for heart failure and improved overall patient understanding of heart conditions (Bresnick 2013). As the healthcare reimbursement landscape switches from volume to value, the importance of reducing readmissions for hospitals is critical and many health systems look to telehealth to prevent readmissions. For example, Centura Health, a leading healthcare system in Colorado and Kansas, launched a telehealth intervention program to increase patient adherence after discharge in the hopes of reducing hospital readmissions. The Centura Health telehealth intervention program resulted in 10 percent fewer admissions for chronic obstructive pulmonary disease (COPD) and congestive heart failure (CHF) (Bresnick 2013). Furthermore, Centura Health was able to reduce its diabetes readmissions from 12 percent to almost 0 percent (Bresnick 2013). In conclusion, telehealth has the opportunity to benefit health systems in many ways, such as expanding service lines, enhancing value-based care metrics, reaching additional populations, improving clinical outcomes, reducing costs, and increasing revenue (*Avizia* 2018).

2.2 TELEHEALTH MARKET OVERVIEW: PRE-COVID-19

2.2.1 CONSUMER DEMAND FOR TELEHEALTH

Prior to the COVID-19 pandemic, telehealth had already gained significant recognition and the utilization of telehealth continued to grow across various consumer categories, including patients, providers, and payers (*AmWell* Consumer Survey 2019). AmWell, a telehealth vendor, conducted a 2019 Consumer Survey to gain insights on the utilization and growth of telehealth platforms across the entire healthcare landscape (*AmWell* Consumer Survey 2019). A common misconception concerning telehealth adoption is that patients are unwilling to use telehealth services (*AmWell* Consumer Survey 2019). Consumer insights reveal that patients are accepting of telehealth platforms and open to using telehealth services. In fact, 66 percent of consumers stated they would be willing to use telehealth services and two-thirds of consumers already use personal health monitoring devices (*AmWell* Consumer Survey 2019). Consumers are willing to try telehealth for two keys reasons: convenience and faster service (61 percent of consumers) and cost savings associated with virtual visits (54 percent of consumers). Additionally, consumer willingness to have an online video visit varied only slightly across demographic categories, including household income (range = 13 percent), education (range = 8 percent), and employment status (range = 15 percent) (*AmWell* Consumer Survey 2019) (Appendix A). Consumers of all ages were interested in utilizing telehealth; however, consumer preference for telehealth use varied by age category (*AmWell* Consumer Survey 2019). Millennials are more likely to utilize telehealth platforms for mental health services, middle-aged consumers are more likely to use telehealth services for urgent care, and older populations are more likely to utilize telehealth for prescription renewals and chronic care management (*AmWell* Consumer Survey 2019). While preference for

utilization does vary, it is clear that prior to COVID-19, there was already a consumer demand for telehealth services.

2.2.2 TELEHEALTH UTILIZATION

Prior to COVID-19, as providers and consumers began learning more about virtual care, telehealth utilization grew significantly, with the total number of global telehealth patients increasing from 0.35 million in 2013 to roughly 7 million in 2018 (*Statista* 2014). In advance of COVID-19, published evidence of digital health was projected to increase 500 percent through 2022 (*IQVIA* 2018) (Appendix B). Overall, the forecast prior to COVID-19 showed linear upward growth of telehealth utilization (*IQVIA* 2018) (Appendix C). In 2017, there were roughly 30 million telehealth visits conducted in the US (*Statista* 2014). Prior to COVID-19, the forecasted number of visits in 2022 was expected to be anywhere from 46 million to 81 million, exhibiting the expectation that telehealth would continue to expand as providers adopted virtual care technologies (*Statista* 2014) (Appendix D). Hospitals fully or partially adopting telehealth systems follow a similar pre-pandemic upward trend, increasing from 35 percent in 2010 to 76 percent in 2017 (*American Hospital Association* 2019). Although telehealth utilization was rising and expected to increase over time, overall usage did not meet consumer demand.

2.2.3 TELEHEALTH GAP

Prior to the COVID-19 pandemic, there was a significant telehealth gap—consumers and physician willingness to use telehealth services did not match the actual usage of telehealth. In 2018, 66 percent of patients were willing to use telehealth but only 8 percent recorded having a

video visit (*AmWell* Consumer Survey 2019). Similarly, in 2018, 69 percent of physicians stated they are willing to use telehealth while only 22 percent of physicians had utilized telehealth to see patients (*AmWell* Consumer Survey 2019). The physician telehealth gap varies by specialty (*AmWell* Physician Survey 2019). According to a 2019 Amwell Physician Survey, specialties that require physical examinations, such as Urology, Obstetrics & Gynecology, Emergency Medicine, and Cardiology, had large gaps between physician willingness and actual use of telehealth (*AmWell* Physician Survey 2019) (Appendix E). In contrast, specialties, such as psychiatry, that do not require a hands-on evaluation exhibited virtually no gap between physician willingness and actual use of telehealth (*AmWell* Physician Survey 2019) (Appendix E). Prior to the pandemic, there were many obstacles and barriers to telehealth usage, which resulted in this significant telehealth gap.

2.2.4 BARRIERS TO TELEHEALTH UTILIZATION

There are many barriers to telehealth utilization that led to the pre-pandemic telehealth gap, including upfront investment for technology, reimbursement limitations, geography/setting requirements, acceptable technology regulations, and privacy/security laws (*Avizia* 2018). In addition, convincing healthcare leadership that there will be a return on investment, encouraging patients to utilize the technology, educating providers and staff, and general change management concerns also served as barriers to telehealth utilization prior to the pandemic (Scott Kruse et al 2018). Many studies reveal insights into each telehealth obstacle, highlighting that these barriers contribute to the lack of telehealth adoption (Scott Kruse et al 2018; Almathami et al 2020).

Prior to COVID-19, many laws and regulations prevented reimbursement for telehealth services (*Avizia* 2018). For covered telehealth services, the requirements were often complicated

and difficult for providers to follow (*Avizia* 2018). One study concluded that 48 percent of providers who utilize telehealth services note reimbursement issues as a significant barrier to telehealth implementation and utilization (*Avizia* 2018). Furthermore, 34 percent of providers chose reimbursement issues as the primary barrier they would like to eliminate (*Avizia* 2018). Ultimately, there was a lack of parity in terms of reimbursement for telehealth services. As a result, hospitals were slow to adopt the technology and physicians were less willing to utilize telehealth services. As expenses continued to increase for hospitals, technology investments needed to offer a significant return. The limited revenue potential for telehealth services was the primary barrier to telehealth implementation and utilization for providers in the US. In addition to reimbursement limitations, many other regulations led to barriers to telehealth adoption for providers (*AmWell* Consumer Survey 2019). In particular, geographic/setting requirements, strict technology guidelines, and privacy and security regulations prevented many providers from implementing and adopting telehealth services (*AmWell* Consumer Survey 2019).

While reimbursement limitations resulted in the greatest barrier for physicians, consumers cited a preference for in-person care as the greatest barrier to telehealth prior to the pandemic (*AmWell* Consumer Survey 2019). The Amwell 2019 Consumer Survey identified the preference for in-person care as the greatest barrier to telehealth adoption for consumers across all age demographics. In particular, older populations were more likely to site that they preferred in person care. Interestingly, the reasoning behind older populations favoring in-person care was to maintain a relationship with the provider rather than technological concerns. Only 16 percent of seniors felt that technology was a concern for telehealth adoption (*AmWell* Consumer Survey 2019). Similarly, 16 percent of millennials cited technology as a barrier for telehealth adoption, which suggests that seniors are becoming more tech-savvy (*AmWell* Consumer Survey 2019). Ultimately, while

consumers face several barriers to telehealth utilization, their preference for in-person care drove their unwillingness to adopt telehealth.

2.3 TELEHEALTH MARKET: COVID-19 IMPACT

2.3.1 COVID-19 IMPACT ON PATIENT ACCESS

The primary goal during the start of the pandemic was to avoid exposure to COVID-19. As a result, more than 70 percent of in-person visits were cancelled, according to an April 2020 COVID-19 consumer survey by McKinsey (Bestsennyy et al 2020). While many hospitals and providers responded by canceling non-emergent visits, non-COVID-19 patients had concerns about seeking emergent care. According to a survey from the American College of Emergency Physicians, 80 percent of adults were concerned about being exposed to COVID-19 from other patients or visitors if they entered an emergency room (*American College of Emergency Physicians* 2020). As a result, almost 29 percent of adults stated they have actively avoided or delayed medical care due to fears of COVID-19 exposure (*American College of Emergency Physicians* 2020). Furthermore, Americans feared overstressing hospitals. Roughly 73 percent of adults had concerns that a trip to the emergency department might overstress the health care system (*American College of Emergency Physicians* 2020). Fear of contracting COVID-19 had the largest impact on decreases in the number of patients seeking health care services; however, many patients were unable to seek care due to financial restraints.

Many consumers lost their jobs, and therefore their employer-sponsored health insurance, as a result of the pandemic. The social distancing and shelter in place orders, while limiting the

spread of COVID-19, also led to a significant number of businesses closing their doors, causing increases in unemployment rates. As a result, the number of US unemployment claims surged drastically. In early March 2020, more than 3.28 million Americans filed for unemployment benefits in a week, a record number of unemployment claims over a one-week period (Mutikani 2020). Subsequently, many Americans lost employer-sponsored health insurance. After February 2020, record-high layoffs results in 5.6 million workers losing employer-sponsored health insurance (ESI) each month (Bivens and Zipperer 2020). Due to financial restraints, many Americans were unable to afford monthly premiums on the private health insurance market, lacked the financial means to pay for medications, and turned to coverage under managed care and state Medicaid programs (*Xcenda* 2020). Public health insurance, especially Medicaid, expanded rapidly to support Americans losing coverage. Medicaid enrollments grew by more than 4 million from March 2020 to August 2020 (*Xcenda* 2020). While many Americans were able to transition to Medicaid, others were not. A government survey analyzing the economic impact of COVID-19 found that "for every 100 workers who were covered by ESI before losing their job, about 85 retained access to some form of health insurance in the week after they lost their job" (*Xcenda* 2020). Therefore, roughly 15 percent of Americans were unable to obtain new health insurance coverage after losing their jobs (*Xcenda* 2020).

Whether due to fear of contracting COVID-19 or loss of health insurance coverage, may Americans delayed or were prevented from seeking medical care for non-COVID related care. In general, preventive screenings and routine disease management sharply declined in the subsequent weeks after the shelter-in-place guidelines were put into place (*Komodo Health* 2020). The number of cancer screenings and tests, including tests that monitor markers for ovarian cancer, multiple myeloma, chronic myeloid leukemia, and breast cancer, also decreased during the pandemic

(*Komodo Health* 2020). In addition to drops in preventive screenings and routine disease management, there were also significant declines in the rates of acute, non-elective hospitalizations (*Advisory Board* 2020). Compared with pre-COVID levels, hospitalizations reduced 35 percent for atrial fibrillation, 31 percent for transient ischemic attack, 28 percent for epilepsy and seizures, 24 percent for gastrointestinal bleeds, and 13 percent for acute appendicitis (Cigna 2020). To prevent continued delays in care, federal and state governments waived telemedicine restrictions to allow health systems to utilize telehealth to improve the patient access barriers that resulted from the COVID-19 pandemic.

2.3.2 GOVERNMENT INTERVENTION TO OVERCOME TELEHEALTH BARRIERS

As a result of the significant patient access barriers to medical care during the COVID-19 pandemic, the Centers for Medicaid and Medicare Services (CMS) implemented numerous telehealth waivers to expand telehealth utilization for health systems. CMS announced that its regulatory flexibilities will help "to ensure that all Americans—particularly those at high-risk of complications from the virus that causes the disease COVID-19—are aware of easy-to-use, accessible benefits that can help keep them healthy while helping to contain the community spread of [COVID-19]" (*CMS* 2020). CMS identified that there was a need to use technology to help vulnerable patients obtain quality and timely health care. Effective March 6th, 2020, the waivers, which would be effective through the end of the public health emergency (PHE), adjusted regulations to increase patient access to virtual care and approved over 80 new telehealth services (*CMS* 2020). CMS lifted geographic restrictions and acceptable technology requirements, temporarily allowed for non-HIPPA compliant modes of communication, and increased the number and type of providers that could offer telehealth services. CMS also offered temporary

reimbursement parity for video-audio telemedicine visits, which significantly reduce the financial burden on health systems for offering such services. CMS also allowed for audio-only visits, reimbursing roughly 50 percent less than the reimbursement for video-audio telehealth visit (*CMS* 2020). As CMS lifted its telehealth restrictions and offered reimbursement for various telemedicine services, other payers followed, resulting in a significant increase in telehealth utilization across the US. Payers drastically reduced the financial burden on health systems, allowing them to justify significant investments in telehealth. They also gave patients increased access to providers for various services during the pandemic.

2.3.3 IMPACT ON TELEHEALTH UTILIZATION

In 2019, prior to COVID-19, roughly 11 percent of consumers had used telehealth services. By May 2020, due to the fear of contracting COVID-19 and the initiation of telehealth waivers, 46 percent of consumers were using telehealth to replace their cancelled in-person healthcare visits during COVID-19 (Bestsennyy et al 2020). Similarly, 76 percent of consumers were interested in using telehealth moving forward (Bestsennyy et al 2020). The opportunity to have virtual visits and increase utilization also increased consumer satisfaction rates with telehealth. In April 2020, 74 percent of telehealth users reported that they were high satisfied with their virtual visits (Bestsennyy et al 2020). There was also a spike in the number of consumers that were using telehealth for the first time. A PricewaterhouseCoopers (PwC) Health Research Institute (HRI) survey concluded that roughly 5 percent, or 16.5 million, of American consumers stated either they or a family member utilized telehealth services for the first time during the COVID-19 pandemic (*PwC* 2020). Roughly 88 percent of new telehealth users stated they would use the service again for additional care (*PwC* 2020). As consumers continue to utilize telehealth services, preferences

will begin to shift to virtual care as it expands across the care delivery system (Bestsennyy et al 2020).

To meet increases in patient demand and recapture revenue, health systems, hospitals, and other providers expanded its services to offer virtual care. Telehealth utilization increased drastically as providers quickly implemented telemedicine to ensure continuity of patient care and increase care access during the pandemic. Health systems and other providers reported 50-175 times the number of telehealth visits pre-pandemic, as they work to recapture cancelled appointments (Bestsennyy et al 2020). Similarly, providers became much more willing to utilize telehealth services than they were prior to COVID-19. In May 2020, 64 percent of providers were more comfortable utilizing telehealth than they were before the pandemic (Bestsennyy et al 2020). Additionally, 57 percent of providers regarded telehealth more favorably than they did prior to COVID-19 (Bestsennyy et al 2020). The number of physicians providing services via telemedicine increased from 18 percent in 2018 to more than 48 percent in April 2020, as healthcare providers see the value in offering virtual care during the pandemic (*Merritt Hawkins* 2020; Betancourt et al 2020).

2.4 TELEHEALTH POTENTIAL AND OPPORTUNITY

As a result of the pandemic, there was an immediate need for providers to transform the healthcare delivery model. Government action allowed for financially feasible implementation and expansion of telehealth services, drastically increasing utilization of telehealth services. Prior to COVID-19, the total annual revenues for US telehealth was approximately $3 billion, and was most focused on virtual, on-demand urgent care (Bestsennyy et al 2020). As both consumers and

providers adapt to telehealth during the pandemic, applications of telehealth will expand beyond that of virtual care. According to McKinsey, roughly $250 billion of current US healthcare spend, which equates to 20 percent of all outpatient, office, and home health spend, could be fully or partially virtual (Bestsennyy et al 2020).

According to the study, roughly 20 percent of emergency department visits could be diverted to virtual urgent care (Bestsennyy et al 2020). Many common emergency department visits are for non-emergent conditions such as skin rashes, insect bites, conjunctivitis, and the common flu, most of which can be treated through telemedicine. Similarly, 24 percent and 9 percent of all outpatient and office visits could be conducted virtually or near-virtually, respectively (Bestsennyy et al 2020).Many providers utilize virtual care for appointments that do not require a hands-on evaluation, including pre-op appointments, behavioral health therapy, cold and flu evaluations, and appointments to review radiology and imaging results. Near-virtual care refers to visits that involve both a remote component and an in-person component. For example, for COVID-19 care, many patients can discuss symptoms with a provider remotely, and then go to an in-person testing site to receive diagnostic testing. Many patients can discuss symptomology with physicians and then go to near-home sites for testing, immunizations, and radiology. Additionally, roughly 35 percent of all home health services could be delivered through virtual care (Bestsennyy et al 2020). Such home health services include patient and caregiver education, remote patient monitoring, and gait training. Furthermore, virtual care could eliminate 2 percent of office visits and outpatient encounters through technology-enabled home medication administration (Bestsennyy et al 2020) (Appendix F). Tech-enabled home medication administration can include remote patient monitoring, patient education for self-administration, and chemotherapy administration with telehealth oversight. As providers and patients become

more comfortable utilizing telehealth services, the applications for virtual care technology will continue to expand for both inpatient and outpatient services.

Health System utilization varied across different care categories and departments including, COVID-19 care, urgent care, emergency care, outpatient care, inpatient care, and surgical care. COVID-19-related telehealth care included consumer outreach, patient education, tele-triage, and COVID-19-related care instructions. Urgent cares facilities were utilizing telehealth for pre-screenings, virtual check-ins, tele-triage, and care for non-emergent COVID-19 patients. Emergency departments also realized many benefits of utilizing telehealth, including tele-triage and patient screenings. Telehealth allowed many urgent care sites to divert non-emergent cases to urgent cares, making more room for high-risk COVID-19 patients in emergency departments. Outpatient care included virtual check-ins and had highest utilization potential for Primary Care, Behavioral Health, Pediatrics, Obstetrics and Gynecology, and Cardiology. Similarly, many hospitals and health systems were utilizing telehealth to protect both patients and staff. Intensive Care Unit (ICUs) staff utilized telemedicine for rounding to minimize COVID-19 exposure, many physicians utilized virtual visit technology for consults, and imaging results were reviewed with providers and patients remotely. Furthermore, many hospitals utilized telehealth for inpatient behavioral health services to limit exposure to patients and staff. Finally, some discharge planning and education were done remotely. Both outpatient surgery centers and inpatient surgical units also utilized telehealth for various services, including pre-operative readiness and counseling, pre-operative appointments, pre-operative forms and consent document completion, and post-operative visits. Telehealth was also being utilized outside of hospitals and clinics. Skilled Nursing Facilities (SNFs) employed telehealth to promote health and wellness and manage chronic patients with remote patient monitoring. Home Health facilities also utilized telemedicine to educate

patients, conduct gait and balance trainings, and offer therapies, including physician therapy, occupational therapy, and speech therapy.

As telehealth expanded, and providers worked with one another to realize new virtual opportunities, the number of applications of telehealth continued to grow across the entire healthcare system. As a result, many health systems conducted internal reviews of their own telehealth offerings, implemented new telehealth systems, or expanded their telehealth programs. The following case study will discuss the steps that a 3-hospital, community health system took to conduct a thorough review of its current telehealth program and develop a business case to enhance its telehealth offerings.

3.0 EMANATE HEALTH CASE STUDY

3.1 INTRODUCTION OF CASE STUDY

3.1.1 EMANATE HEALTH OVERVIEW

Emanate Health is the largest, not-for-profit health care system in San Gabriel Valley, located in Los Angeles County. Emanate Health is a three-hospital health system with sixteen ambulatory sites, two ambulatory surgery centers, and hospice and home health services that offer leading, comprehensive healthcare to the community. Emanate Health Inter-Community Hospital in Covina, CA is a 193-bed facility that offers a range of inpatient and outpatient medical, specialty, and surgical services including Behavioral Health, Cancer Care, Cardiology, Emergency Services, Gastroenterology, Mammograms, Occupational Therapy, Palliative Care, Pulmonary Rehabilitation, General Rehabilitation and Wound Care. Emanate Health Queen of the Valley Hospital in West Covina, CA is a 325-bed fully accredited health care facility with one of the busiest emergency rooms in Los Angeles County. Services offered at Queen of the Valley Hospital include Diabetes Education, Emergency Services, Gastroenterology, Imaging, Maternity, Neurology, Neuroscience, Obstetrics & Gynecology (OB/GYN), Occupational Therapy, Palliative Care, Pediatrics, General Rehabilitation, Robotic Surgery, Surgical Services, and Women's Health. While services range, Queen of the Valley has become most known for their family-centered critical newborn care and maternity services. Emanate Health Foothill Presbyterian Hospital is a 105-bed, fully accredited healthcare facility in Glendora, CA that also offers a wide range of services including Cardiology, Emergency Services, Family Medicine, Gastroenterology,

Gynecology, Mammograms, Occupational Therapy, Palliative Care, and Women's Health. Foothill Presbyterian has been recognized by the American Diabetes Association as a Center of Excellence for its Outpatient Diabetes Education Program. Across the entire health system, Emanate Health offers technologically-advanced, high quality, and comprehensive health care services to more than one million people.

3.1.2 MISSION, VISION, AND VALUES

Emanate Health's mission is to exist to help people keep well in body, mind and spirit by providing quality health care services in a safe, compassionate environment (Emanate Health 2020). The health system's vision it to be an integral partner in elevating the health of its communities. With a patient and family-centric culture, Emanate Health strives to provide both patients and families with exceptional care through teamwork, high quality of services, and a commitment to their values of respect, excellence, compassion, integrity, and stewardship.

3.1.3 EMANATE HEALTH TELEHEALTH LANDSCAPE

At the time of this case study, Emanate Health, as part of their mission to provide quality health services to patients in a safe environment, had already implemented telehealth and virtual care services. Emanate Health uses its current Electronic Health Record (EHR) partner MEDITECH to implement virtual visit software for ambulatory clinics and has made the software available for all outpatient specialties. Additionally, Emanate Health is also working to implement the MEDITECH virtual visit software for all ancillary services. Emanate Health uses a second vendor, Vituity, for inpatient neurological and stroke care.

MEDITECH is a comprehensive EHR solution that responded quickly to the COVID-19 pandemic by implementing a virtual care tool to help healthcare providers treat patients in a safe and healthy way (MEDITECH 2020). MEDITECH's Virtual Care solution offers quick and convenient video visits through the EHR. Emanate Health, already having implemented MEDITECH's EHR across the health system was able to quickly capitalize on the MEIDTECH Virtual Care solution to service patients remotely during the COVID-19 pandemic. Vituity is a physician-led organization that partners with providers to execute strategies, focusing on patient satisfaction and operational efficiency impacts (Vituity 2020). Emanate Health utilizes Vituity's comprehensive Neurology solution to provide Telestroke and Teleneurology services in their hospitals (Appendix H3). Unlike the MEDITECH Virtual Care solution, the Vituity virtual consultative tool was implemented prior to the COVID-19 pandemic.

Emanate Health, similar to other health systems, was drastically impacted by the COVID-19 pandemic. As discussed in the literature review, health systems shifted resources to focus on virtual care offerings to ensure they could service their patients safely and effectively. In alignment with their mission and vision, Emanate Health rapidly deployed a team to conduct a thorough review of their current telehealth offerings, identify gaps that are impacting the effectiveness of offering virtual care to patients, and recommend solutions to improve their telehealth program.

3.2 HYPOTHESIS AND EXPECTED OUTCOMES

As discussed in the literature review, the implementation of telehealth services across health systems scaled quickly as a result of the COVID-19 pandemic. While large-scale technological integrations typically require a great deal of planning prior to implementation, the

COVID-19 pandemic forced health systems to rapidly implement or expand their virtual care offerings to service patients. After conducting a thorough literature review and market analysis, it is expected that the review of Emanate Health's current telehealth offerings will identify gaps. The hypothesized outcome is that the recommendations will support changes and/or updates to Emanate Health's current telehealth strategy.

3.3 DESIGN, METHODOLOGY, AND DATA

This case study is designed to analyze the evaluation and review of Emanate Health's current telehealth offerings. In this review, quantitative and qualitative information was used to make an informed recommendation. The basic study design involves collecting information and data primarily through interviews and shadowing with key Emanate Health employees. Open-ended interviews allows the leadership team to get a detailed process and thoroughly review each component of Emanate Health's telehealth offerings. Shadowing allows the team to cross-reference the interviews with what occurs during the shadowing process. Shadowing also allows the observers to confirm the data gathered from interviews, improving the validity of the data.

Key sources of data in this case study come from interviews, shadowing, vendor discussions, consulting firm reports, white papers, and publicly available research. Final telehealth strategy recommendations rely on the analysis of both the qualitative and quantitative data. The interviews and shadowing occurred across various departments and teams to get a comprehensive overview of the use and challenges of telehealth across the Emanate Health system.

3.4 FINDINGS AND RESULTS

3.4.1 COMPETITOR ANALYSIS

Prior to analyzing Emanate Health's current platform, it is imperative to have an understanding of the telehealth capabilities of their major geographic competitors. Additionally, analyzing each competitor's strategy for launching or expanding their telehealth platforms can give Emanate Health insight into the importance of matching a telehealth expansion strategy to the needs of the community. Overall, the hospitals in the San Gabriel Valley responded quickly to COVID-19 and rapidly implemented various virtual strategies to provide the community the care they needed during the pandemic. The four competitors chosen for the analysis are health systems of various sizes that have locations near the Emanate Health System in San Gabriel Valley. Similar to Emanate Health, these hospitals understand and prioritize servicing the community and their patients.

Providence is a large health system that offers social and health services in seven states including California (Providence, 2020). In Southern California, Providence services patients in Los Angeles, Orange, and San Bernardino counties. Providence utilizes Microsoft and a custom-developed software to offer various telehealth services including a COVID-19 screening chatbot, virtual express care, and various telehealth programs including Telepsychiatry, TeleStroke, and TeleHospitalists. To market their product, Providence uses Google advertisements. Additionally, they offer patient education and online appointment bookings. Providence also has a smartphone application, the Providence Health Connect App, that helps patients utilize their telehealth services (Providence, 2020).

Kaiser Permanente is an integrated delivery system that services patients throughout the US, including Southern California (Kaiser Permanente 2020). Kaiser Permanente invested $10 million dollars into their telehealth partner Vidyo. Kaiser utilizes their telehealth platform for various purposes, including COVID-19 patient check-ins and monitoring. Kaiser Permanente allows for video visits, phone calls, and text-style messaging. In response to the pandemic, Kaiser Permanente also updated its COVID-19 workflow to initiate virtual visits prior to in-person visits when appropriate. Kaiser also allows patients to schedule video visits online and effectively markets their telehealth platform on their website. Kaiser also provides patients with various resources including a list of medical concerns that can be serviced through their telehealth solution, instructional videos and educational materials in both English and Spanish, explaining how their virtual visits work (Kaiser Permanente 2020).

Pomona Valley Hospital Medical Center (PVHMC) is a 412-bed community medical center in Los Angeles and San Bernardino counties (PVHMC 2020). PVHMC offers video and phone visits for ancillary services with a focus on rehabilitation services, including physical therapy, occupational therapy, and speech therapy. Patients connect to their telehealth platform through links and access codes, making the consumer experience quite easy. PVHMC advertises that their telehealth platform can be used to address almost all pediatric and adult therapy services (PVHMC 2020).

Huntington Hospital, located in Pasadena, CA, is a 619-bed community, not-for-profit regional medical center (Huntington Hospital 2020). Huntington Hospital partnered with Doxy.Me, a telehealth vendor, to offer virtual visits for certain services during the COVID-19 pandemic. Similar to PVHMC, patients access the telehealth platform easily through a link.

Huntington Hospital's workflow for their telehealth services begins with patients calling in to determine if a virtual visit is appropriate (Huntington Hospital 2020).

While there are other geographical competitors in the San Gabriel Valley region, the analysis of four of the top competitors clearly indicates that other health systems and medical centers are identifying a need in the community and quickly acting to provide patients an opportunity to connect with providers virtually during the pandemic. Each hospital in the competitor analysis successfully expanded their telehealth offerings to provide services that their patients needed most during the COVID-19 pandemic. The competitors all employed their individual strategies to service their patients, which highlights the fact that telehealth services are not a one size fits all technological implementation. Similar to their competitors, Emanate Health must determine the needs of their providers, staff, and patients and match their telehealth strategy to those needs.

3.4.2 FINANCIAL CONSIDERATIONS

3.4.2.1 REIMBURSEMENT

Prior to reviewing the current telehealth platform, it was important for Emanate Health to gain a better understanding of the financial feasibility and opportunities associated with adjusting their telehealth offerings. As discussed in the literature report, there was minimal reimbursement and financial upside for hospitals to prioritize telehealth initiatives prior to the COVID-19 pandemic. As a result of the pandemic and stay-at-home orders, CMS and private payers rapidly expanded reimbursement. While many payers were slower to announce changes to coverage, CMS was quickest and clearest on their approach to reimbursement during the pandemic. During the time of this analysis, CMS was the only payer that clearly announced reimbursement rate

implications during the pandemic. For the purposes of this case study, publicly available CMS Medicare rates are utilized to analyze the financial revenue opportunities of telehealth services offered at Emanate Health.

Effective March 6th, 2020, and lasting through the duration of the COVID-19 public health emergency, the CMS waivers state that Medicare telehealth visits (audio and visual visits) will be paid at the same rate as the corresponding in-person service (*CMS* 2020). For example, as of July 30, 2020, according to the published CMS Medicare Fee Schedule, the reimbursement rate for an in-person 30-44 minute outpatient office visit was roughly $120.00 (HCPCS Code: 99203) and $84.00 (HCPCS Code: 99213) for a new patient and existing patient, respectively (*CMS* "Fee Schedule" 2020). As a result of the waivers, the Medicare reimbursement for a corresponding video virtual visit for HCPCS 99203 and 99213 would be identical, $120.00 for a new-patient and $84.00 for an existing patient. The temporary parity of video virtual telehealth visit reimbursement for corresponding in-person services provides hospitals with an additional incentive to launch or expand telehealth programs. The CMS waivers also allow for temporary coverage of audio-only virtual visits for existing patients; however, reimbursement for these visits is roughly 50 percent of the corresponding in-person or virtual video telehealth service. For example, according to the CMS Medicare Fee Schedule, the audio-only visit for the corresponding existing patient service (HCPCS Code 99443) has a reimbursement rate of roughly $44.00. Based on this waiver fee schedule announced my CMS, it is clear that CMS is incentivizing hospitals and health systems to conduct virtual visits with video. Audio-only visits, while temporarily covered, are only reimbursed at 50 percent of the rate for the corresponding in-person or virtual video telehealth visit, and are only covered for existing patients. Therefore, it is imperative that hospitals and health systems offer telehealth services that utilize both audio and video functionality. Actual rates for

the services listed above as of July 30, 2020 can be viewed in Table 1. These rates vary based on locality (*CMS* "Fee Schedule" 2020).

Table 1: Reimbursement Landscape

CATEGORIES	CMS DATA
TELEHEALTH ELIGIBILITY	Reimbursed at **same rate** as corresponding in-person service
IN-PERSON REIMBURSEMENT	HCPCS Code 99203: $119.87 HCPCS Code 99213: $83.73
VIRTUAL VIDEO VISIT REIMBURSEMENT	HCPCS Code 99203: $119.87 HCPCS Code 99213: $83.73 **Temporary Parity**
AUDIO-ONLY VISIT REIMBURSEMENT	HCPCS Code 99443: $43.91 **Temporary Coverage**

Reimbursement rates are depicted based on the CMS Medicare Fee Schedule **(***CMS* "Fee Schedule" 2020) *for corresponding services. Reimbursement rates are susceptible to change based on the locality structure. For the purposes of this case study, corresponding localities were chosen to compare the differences in reimbursement rates for similar, corresponding services at a specific location (CMS "Fee Schedule" 2020). The CMS waivers have allowed for temporary parity for telehealth reimbursement, meaning the reimbursement rate for virtual video telehealth visits will be the same as the reimbursement rate for the corresponding in-person service. The reimbursement rates for audio-only visits, while temporarily covered through the waivers, are significantly less, roughly half of the reimbursement rate for the corresponding in-person or virtual video visit.*

3.4.2.2 PATIENT CAPTURE

In addition to improvements in reimbursement rates for telehealth services, there is also a financial benefit and opportunity of offering telehealth services for capturing new patients and increasing volumes during the pandemic. Capturing additional commercial patients would be particularly beneficial given commercial insurers paid providers an average of 126% of the rate that Medicare paid providers (Johnson et al 2020). Expanding telehealth services would potentially allow Emanate Health to attract a higher commercial payer mix. The opportunity for capturing

commercial patients would be in business-to-business (B2B) employer opportunities. As of 2014, only 22 percent of employers with 1,000+ employees offered telehealth programs for their employees; however, this percentage was expected to increase as telehealth services began expanding (Towers Watson 2014). After the pandemic hit, as of August 2020, roughly 76 percent of employers planned to expand virtual care offerings to their employees and 71 percent are accelerating the implementation of telehealth offerings for their employees (Towers Watson 2014). An Emanate Health analysis was conducted to determine the potential B2B employer opportunity in the San Gabriel Valley (Appendix G). There are roughly 5,600 employers in the San Gabriel Valley of varying sizes that could be targeted for a B2B arrangement. This type of partnership has the potential to increase Emanate Health's private commercial mix. As there is clearly a need for employers to provide their employees access to remote healthcare and COVID-19 resources during the pandemic, there is an additional financial incentive for Emanate Health to prioritize the optimization of their telehealth offerings.

Additionally, patients highly value face-to-face time with physicians and are willing to pay for that additional face time (Beck 2016). In general, studies show that telehealth visits allow for more face time with providers because of the workflow adjustments. It is estimated that traditional visits offer roughly 20 percent of face-to-face time with doctors, while telehealth visits offer 95 percent of face-to-face time with doctors (Beck 2016). The differences in these numbers is accounted for mostly by the lack of transportation associated with telehealth visits (Beck 2016).

Finally, Emanate Health reviewed the likelihood of capturing patients by type of service needed. The likelihood of capture is put into three categories: low, medium, and high and the review included four types of facilities/providers that patients go to including specialty care provider, primary care provider, emergency department, and urgent care center. Figure 1 reviews

the four opportunities for patient capture if offering equivalent telehealth services. The likelihood of capture is based on patient behaviors associated with seeking each type of care. The highest opportunity for capture is for patients seeking urgent care services, followed by patients seeking primary care or emergency services.

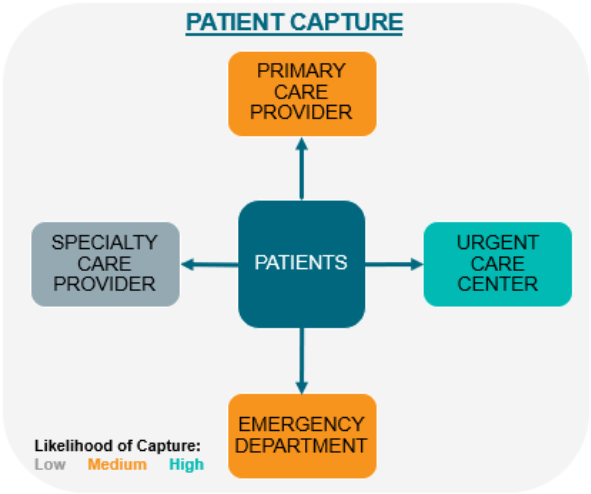


Figure 1: Likelihood of Patient Capture by Health Need

Figure 1 depicts the likelihood of capture based on care needs. Patients often prefer in-person visits for specialty services; therefore, there is a low likelihood of capture for specialty care services. There is a medium likelihood of capture for patients seeking primary care and emergency services. Patients are likely to seek telehealth for primary care services if they do not have primary care providers. Patients are likely to use virtual care for emergencies prior to going to a costly emergency department. There is a high likelihood of capture for urgent care needs. Patients will choose telehealth offerings for urgent care needs due to the convenience and time savings associated with virtual care.

3.4.2.3 COST SAVINGS

In addition to providing additional revenues and volumes, telehealth also has the potential to reduce costs for Emanate Health. While many studies are still reviewing the benefits of telehealth in cost reductions for health systems, some studies have begun seeing opportunities for telehealth in decreasing costs. For example, the average cost for non-emergent visits is roughly $2K when the patient is seen in the Emergency Department (Beck 2016; Ivey 2020). If the patient

is seen in an urgent care center or a doctor's office for the same non-emergent service, the cost is roughly $160 and $100, respectively (Beck 2016; Ivey 2020). Finally, for the same type of non-emergent visit, the average cost of care is only $45 for a telehealth visit (Beck 2016; Ivey 2020). Additionally, in California, it has been estimated that the annual hospital cost savings for offering virtual services is roughly $105K per facility (Fera & Matthews 2019). In order to support the business case for telehealth, Emanate Health conducted a cost-benefit analysis.

3.4.3 COST-BENEFIT ANALYSIS

Figure 2 depicts a summary of the cost-benefit analysis conducted by Emanate Health. There are considerable costs associated with implementing or expanding telehealth services including the cost of the telehealth tool itself, implementing the tool across the system, marketing and patient engagement, and training and educating staff and patients on the telehealth platform. Furthermore, there is a cost associated with support for the telehealth platform, including technology support, operational support, and any supplemental technology associated with the platform, such as video or audio equipment.

While there is significant cost, there are many benefits of prioritizing telehealth utilization across a health system, including the financial opportunity, an improved customer experience, more efficient operations, and improved patient quality. Additionally, as telehealth continues to expand and consumerism of healthcare remains prevalent, healthcare consumers will begin to expect more convenient opportunities for care. As COVID-19 has shown that the opportunity for telehealth and convenient care can be realized, patients begin to expect some of these virtual care experiences.

There are risks associated with telehealth, especially when it comes to reimbursement rates. While CMS announced waivers to continue through the public health emergency, it is unclear whether or not telehealth services will be covered at parity or at all once the pandemic is over. Telehealth also has risks associated with the reliance on a technology platform or vendor to service patients remotely. Additionally, there are limitations to the physical assessment component of care visits and privacy/security concerns with telehealth. While there are considerable risks and costs associated with telehealth, the benefits to patients and providers outweigh the potential risks and costs. Figure 2 depicts the cost-benefit analysis conducted by the Emanate Health team when reviewing telehealth opportunities.

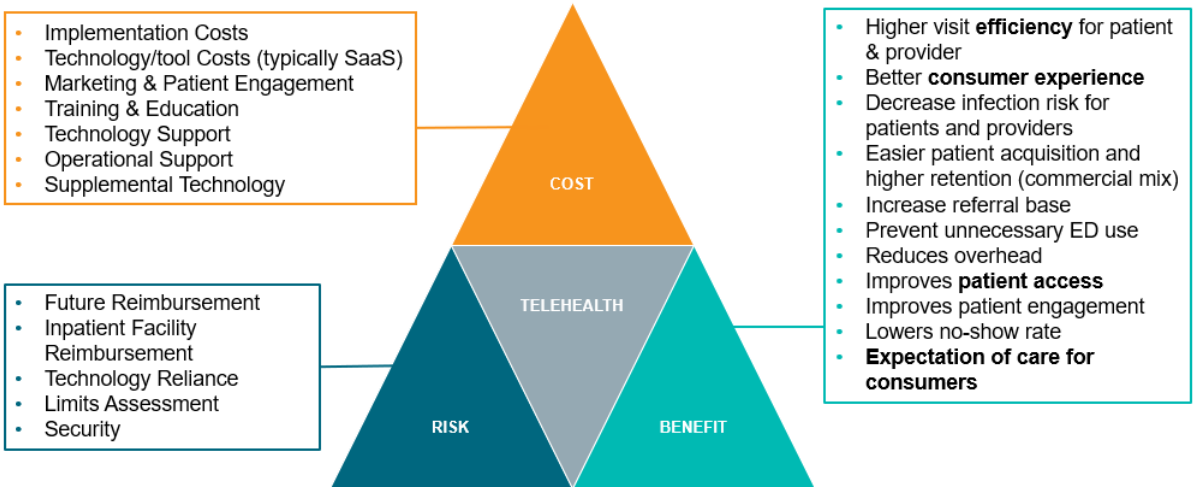


Figure 2: Cost, Benefit, and Risk Analysis of Telehealth

Figure 2 highlights various costs, benefits, and risks associated with implementing telehealth. Costs fall into several categories including technology, operations, marketing, and clinical support. Identified risks include reimbursement complexity, technology concerns, and security/privacy regulations. Many benefits of telehealth have been identified, including higher operational efficiency, improved patient satisfaction, and increased patient access.

3.4.4 EMANATE HEALTH'S TELEHEALTH USES AND OPPORTUNITIES

After reviewing the telehealth landscape as it relates to Emanate Health, interviews and shadowing were conducted across various Emanate Health departments to determine the provider and staff needs, patient needs, current telehealth capabilities, and any gaps and challenges associated with the telehealth platform. Interviews were conducted with physicians and clinical staff, practice managers, managing directors, technology staff, and telehealth vendors. The current telehealth utilization was reviewed on both inpatient and outpatient levels and across various specialties. Additionally, interviews were conducted across specialties that do not currently utilize telehealth services, such as Behavioral Health and Home Health and Hospice. Each department provided insights into current telehealth uses, opportunities for use, and challenges with the current telehealth platform.

3.4.4.1 CURRENT TELEHEALTH USES

As previously stated, outpatient and ambulatory facilities utilize MEDITECH's Virtual Care solution. General telehealth workflows were created for all ambulatory services, including outpatient primary and specialty care (Appendix H1) and pediatric care (Appendix H2). While the workflows may be adjusted for specific specialty services, the general workflow is followed utilizing MEDITECH's Virtual Care solution through the EHR. Virtual visits are offered across all Emanate Health ambulatory practices; however, the vast majority of virtual visits are conducted for primary care (76 percent of all virtual visits) and pediatric services (14 percent of all virtual visits) (Table 2). Specialist providers utilize telehealth services less frequently than primary care and pediatric providers. Orthopedic visits account for roughly 9 percent of all virtual visits, OB/GYN visits account for 2 percent of all virtual visits, and Neurology visits account for 0.5%

of all virtual visits. While all ambulatory specialists were given access to the MEIDTECH Virtual Care platform, some specialists, such as Cardiology, are not conducting any virtual visits. Finally, roughly 10 percent of all virtual visits are conducted with video functionality. In contrast, 90 percent of all virtual visits are conducted telephonically, without video functionality. Reviewing the strengths and weaknesses of the telehealth platform gives insight into why some providers are not taking advantage of the technology solution, which will be discussed in future sections of this case study. Additionally, details as to why many providers are conducting audio-only visits as opposed to the virtual video visits, which have higher reimbursement, will be discussed in the strengths and weaknesses section of this report. Table 2 depicts all Emanate Health virtual visits by location over a four month period, from March 2020 to June 2020.

Emanate Health is in the process of expanding the MEDITECH Virtual Care Solution platform to accommodate ancillary services, including physical therapy, occupational therapy, speech therapy, and wound care. The operations are expected to follow a similar workflow to that of the outpatient practices and will increase the number of virtual visits conducted using the MEDITECH Virtual Care platform.

In addition to the outpatient telehealth uses, Emanate Health also utilizes the Vituity virtual care platform for inpatient Stroke Care. Vituity connects Emanate Health Emergency Department providers with board certified neurologists to evaluate and treat stroke and neurology patients. Appendix H3 depicts the efficient workflow for the Vituity-assisted Tele-Stroke program at Emanate Health.

3.4.4.2 TELEHEALTH USE OPPORTUNITIES

Table 2: Emanate Health Virtual Visits by Location

LOCATION	VIRTUAL VIDEO VISITS	AUDIO-ONLY VIRTUAL VISITS	TOTALS	PERCENTAGE
Emanate Health Family Practice	172	1,410	1,582	75%
Emanate Health Pediatrics	31	262	293	14%
Emanate Health Ortho West Covina	8	60	68	3%
Emanate Health Ortho Covina	1	63	64	3%
Emanate Health OB/GYN	3	45	48	2%
Emanate Health Family Medicine	0	13	13	1%
Emanate Health Ortho Glendora	0	16	16	1%
Emanate Health Neurology	0	10	10	<1%
Emanate Health Ortho Chino	0	7	7	<1%
TOTALS	**215**	**1,886**	**2,101**	**100%**

**Data is from March 2020 to June 2020*

Emanate Health conducted roughly 2,101 virtual visits from March 1, 2020 to June 30, 2020. Primary care and pediatric offices were much more likely to conduct virtual visits. 76 percent of visits were conducted for primary care services (Emanate Health Family Practice and Emanate Health Family Medicine). The second highest utilization of virtual visits by specialty was pediatrics (14 percent). Orthopedic visits account for roughly 7.5 percent of all telehealth visits, while OB/GYN and Neurology account for the smallest percentage of virtual visits, at 2 percent and 0.5 percent, respectively.

Interviews across various inpatient departments, outpatient departments, and differing service lines indicate several areas of potential for telehealth at Emanate Health. These opportunities represent departments, specialties, or services that do not currently utilize telehealth but could benefit from a virtual care platform. Data was collected from interviews and shadowing of providers, clinical staff, service line managers, and directors. Opportunities for additional expansion efforts include continued support for outpatient specialists (specifically Cardiology), Psychiatric Admissions, Home Health and Hospice, Perioperative Services, and COVID-19-related services.

As depicted in Table 2, specialists are less likely than pediatricians and primary care providers to conduct virtual care visits. While some outpatient facilities, including Emanate Health Orthopedics, OB/GYN, and Neurology, are using the MEDITECH Virtual Care platform, they are using the technology infrequently. Other specialties, such as Cardiology, have yet to utilize the virtual care technology. Emanate Health offers a wide range of specialty care and services and it is important that all outpatient providers are able to utilize the virtual care technology to care for patients during the COVID-19 pandemic.

Another opportunity for telehealth expansion identified in the Emanate Health telehealth use analysis is on the emergency department and inpatient levels for psychiatric admissions. The current workflow for patients being admitted to the Inpatient Psychiatric Unit from the Emergency Department (ED) is completely in-person. Before admitting a patient to the psychiatric unit, the ED staff must wait for a psychiatric consult to obtain medical clearance for a psychiatric admission. Currently, a nurse from the psychiatric department must go to the emergency room to evaluate the patient (Appendix I1). Once the patient has been cleared for admission to the psychiatric unit, the patient is then transported and admitted to the unit. The Emergency Department often waits considerable time for a psychiatric consult. With the utilization of telehealth, the Emergency Department could request a virtual visit for a psychiatric evaluation. This consultation would allow the Emergency Department to admit the patient quicker, eliminate the need for a psychiatric nurse to physically go to the emergency department, and improve the flow of patients from the Emergency Department to the Inpatient Psychiatric Unit. The second case for expanding telehealth in the Emergency Department for virtual psychiatric consults is for intoxicated patients. Prior to being discharged from the Emergency Department, intoxicated patients must gain a medical and psychiatric clearance. An intoxicated patient cannot be discharged until any psychiatric concerns

have been addressed. At Emanate Health, this psychiatric consult is performed by a nurse from the psychiatric unit. Due to the often nonemergent need for the psychiatric consult, it can take many hours to get the patient a consult, which is inefficient for the Emergency Department. Additionally, the intoxicated patient utilizes an emergency room bed that could otherwise be occupied by a patient with more emergent needs. Emanate Health would greatly benefit from using a telehealth platform for psychiatric consults for intoxicated-patient discharge clearance.

Furthermore, Emanate Health Home Care could also utilize telehealth services. In order for a nurse to care for a patient at home, the patient must first receive a face-to-face evaluation from a physician (Appendix I2). Currently, this type of visit is only reimbursable if the visit occurs in-person; however, there is an exception for patients who are unable to go to an office for such an evaluation. For example, bedridden patients are unable to meet with a physician in-person. Telehealth would be an effective resource for physicians to conduct the initial encounter to sign-off on home health orders. This visit would also be reimbursable for patients who are unable to go to the office for the evaluation. Per CMS Regulations, the provider must complete an evaluation with the patient within 90 days prior to the start of care, or within 30 days after the start of care (CMS & DHS n.d.). If this visit does not occur, any home health visits for the patient will not be reimbursed by Medicare, which is detrimental to Emanate Health Home Care and the patient. In addition to the initial physician interaction, Emanate Health Home Care has also identified an opportunity to utilize telehealth for nurse-patient interactions. Emanate Health Home Care nurses often make home visits when patients are experiencing issues with medication adherence, technology, or medical devices. Over the phone, it is often difficult to understand the issues that patients are facing, which is why the nurse will report to the patients' homes. A telehealth platform with video and audio capabilities would allow nurses to communicate with patients and answer

some simple questions that may not require a site visit. While these types of remote visits are non-billable, it would be a more efficient use of time for the nurses, would improve patient care, and also has the potential to reduce costs. Cost reductions may include a reduction in driving mileage for nurses, costs associated with at-home visits, and a reduction in readmissions. Additionally, there would be significant time savings for nurses, a quicker resolution of technology-related issues, and improved quality of care.

There is also an opportunity for telehealth utilization for perioperative and surgical services. Currently, all pre-operative and post-operative care conducted at Emanate Health is in-person (Appendix I3). Prior to surgery, all patients must complete a pre-operative appointment with both the surgeon and a nurse from the surgical unit. At this time, patients are educated on the procedure and required to complete paperwork and surgical consents. Before surgery, patients must be cleared for surgery by an anesthesiologist. After surgery, patients receive follow-up care instructions and are discharged. Soon after, patients return to the surgeon's office for a post-operative appointment. There are several opportunities for virtual care delivery in this perioperative workflow. First, the surgeon's teams and nurses from the surgical unit could utilize telehealth for pre-operative care. Patients could speak with the care team and sign paperwork and consents remotely, which would be efficient for both care teams and patients. Second, post-operative care instructions and follow-up could be delivered to patients remotely utilizing telehealth. For some surgeries, there is minimal need for physical evaluations after surgery and therefore, remote post-operative telehealth appointments would be effective. While this may not be an opportunity for all surgical patients, there are certainly instances where the care team and patients would benefit from remote follow-up care. Finally, there is an opportunity to utilize telehealth for anesthesiology clearances, which would improve workflow operations.

The final key opportunity for telehealth utilization at Emanate Health is in the Emergency Department for COVID-19-related workflows. Currently all COVID-19 patients are triaged in-person at the door of the Emergency Department, where they complete questionnaires and registration (Appendix I4). The patient then goes through the COVID-19 workflow based on symptomology. Since patients need to be tested for COVID-19, it is critical for patients to be physically at the location; however, there is opportunity for telehealth utilization prior to a patient arriving at the Emergency Department. Emergency Department providers and staff could benefit from utilizing telehealth for virtual screenings, questionnaires, and registration. Patients would be able to use the platform to review symptomology with a physician prior to going to the Emergency Department. This would allow the Emergency Department to refer patients with non-emergent needs to a separate testing facility and would allow for a smoother, more efficient process for patients who need to be admitted to the hospital for COVID-19. By completing screenings, questionnaires, and registration before a patient enters the doors of the Emergency Department, the care team would be able to treat patients sooner and improve the efficiency of the COVID-19 workflow in the Emergency Department. Additionally, Emanate Health could utilize a similar telehealth platform for any test results, instructions, and follow-up care, which would benefit both the Emanate Health care teams and patients.

As stated, Emanate Health has quickly implemented telehealth and is utilizing platforms for primary care, pediatric care, specialty care, and inpatient neurology and stroke care. Emanate Health has also identified additional needs and opportunities for telehealth across various departments, including additional specialties, emergency department psychiatric care, home health, perioperative/surgical services, and COVID-19 care. It is clear that Emanate Health has already realized the benefit of utilizing telehealth during the pandemic and has identified a

continued need for the use of virtual visit software. Now that this need has been evaluated and a case has been made for telehealth expansion, it is imperative that Emanate Health reviews their current telehealth platforms to ensure they are effective for care teams currently and will be effective as Emanate Health looks to expand their virtual reach.

3.4.5 EMANATE HEALTH'S TELEHEALTH STRENGTHS AND WEAKNESSES

After interviewing Emanate Health teams, shadowing and developing clinical workflows, strengths and weaknesses were identified for both Vituity and MEDITECH Expanse telehealth platforms. For Vituity, minimal weaknesses, which arise from the third-party nature of the platform, were identified. While the platform is integrated with the Electronic Health Record, it is still a third-party application that the nurses launch prior to use. As such, there are additional steps, such as logging into Vituity, that nurses must take in order to utilize the telehealth platform. Additionally, nurses must be trained on the Vituity platform. Both the added steps and additional training impact have time tradeoffs for nurses. While the Vituity platform has these weaknesses, the platform runs smoothly and has been heavily adopted for neurological patients. Emanate Health works closely with Vituity on adapting the platform to be more user-friendly for nurses. Vituity has successfully increased the overall efficiency in the Emergency Departments for neurological consults and improve care for stroke patients. When evaluating the MEDITECH Expanse platform, many weaknesses were identified that make the platform difficult to utilize for both providers and patients. While the platform has some strengths, the limitations are preventing Emanate Health on capitalizing on their telehealth offerings. The weaknesses of the platform are creating obstacles for the adoption of telehealth for some providers. As such, the following section

reviewing the strengths and weaknesses of the Emanate Health telehealth platform will focus specifically on the MEDITECH Expanse telehealth platform.

3.4.5.1 STRENGTHS OF MEDITECH VIRTUAL CARE PLATFORM AT EMANATE HEALTH

Emanate Health successfully and swiftly implemented the MEDITECH Virtual Care platform to respond to the COVID-19 impact and treat patients safely and effectively. The teams worked quickly to roll out the platform for all primary care, pediatric, and specialty providers. The implementation of the new virtual care technology was relatively quick due to the current relationship between Emanate Health and MEDITECH, and the fact that the MEDITECH EHR software had already been implemented across the health system. The MEDITECH Virtual Care platform allows for virtual video visits through the telehealth platform. The video visit with the patient appears as a separate window and allows providers to document the encounter in the EHR simultaneously during the visit. The Emanate Health technology teams have created effective and clear instructions on how to get patients set up for telehealth appointments and how to access the virtual care platform. The implementation of the platform and execution of the educational resources for providers was effective given the immediate need for telehealth access as a result of the COVID-19 pandemic. While the Emanate Health implementation of the MEDITECH Virtual Care platform was effective in providing providers and patients quick access to telehealth services, several weaknesses were identified once the platform was functioning across different clinics.

3.4.5.2 WEAKNESSES OF MEDITECH VIRTUAL CARE PLATFORM AT EMENATE HEALTH

As previously discussed, roughly 90 percent of all Emanate Health outpatient telehealth visits were conducted telephonically, as opposed to being done as virtual video visits. From March 2020 – April 2020, Emanate Health conducted roughly 525 visits per month (Table 2). In table 1, we identified that the average visit reimburses roughly 50 percent higher when conducted with video as opposed to audio only. Utilizing the reimbursement data in table 1 and the visit counts in table 2, a revenue impact analysis based on the ratio of virtual video visits to total telehealth visits was conducted (Table 3; Figure 3). In general, Emanate Health identified a significant revenue reduction as a result of having a low 10 percent rate of virtual video visits to total telehealth visits.

Table 3: Emanate Health Outpatient Reimbursement Analysis

Monthly Visit Count	Percentage of Virtual Video Visits	Percentage of Audio-Only Visits	Total Monthly Reimbursement	Percent Increase in Reimbusement from Current State
525	10%	90%	$ 25,143.30	0%
525	25%	75%	$ 28,279.13	12%
525	50%	50%	$ 33,505.50	33%
525	75%	25%	$ 38,731.88	54%
525	90%	10%	$ 41,867.70	67%

Monthly visit count is based on Emanate Health data on outpatient telehealth visits from March 2020 - June 2020. Reimbursement amounts were pulled from Table 1 ($83.73 for Virtual Video visits and $42.91 for Audio-Only visits). Currently, the percentage of Emanate Health virtual visits that are conducted with video capabilities is only 10 percent. As a result, Emanate Health is losing a significant amount of reimbursement revenues. If Emanate Health is able to increase their ratio of virtual video visits to all telehealth visits, they would be able to significantly increase monthly reimbursement. This data shows an analysis at various ratios of visits and the impact on reimbursement.

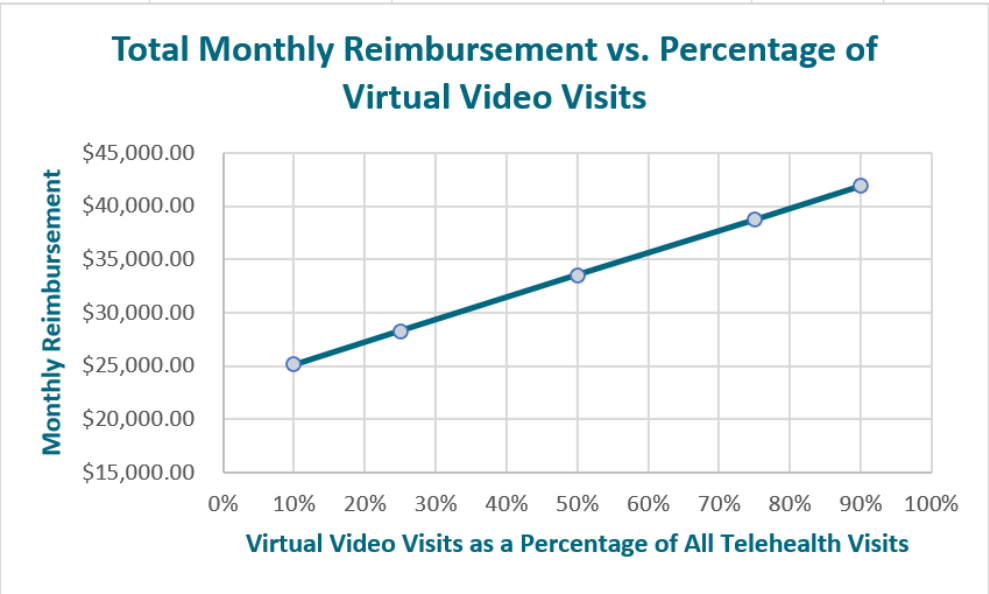


Figure 3: Emanate Health Outpatient Reimbursement Sensitivity Analysis

Figure 3 is a visual representation of the data in Table 3. As the proportion of virtual video visits as a percentage of all telehealth visits at Emanate Health increases, the monthly reimbursement for telehealth services increases. At 50% of telehealth visits conducted via video, the monthly reimbursement would be $33,505 (a 33% increase in revenue from Emanate Health's current state).

After reviewing the data and impact on revenue, it is imperative for Emanate Health to gain a better understanding of why 90 percent of all telehealth visits are being conducted telephonically (audio-only) as opposed to virtual video visits. Shadowing and interviews determine that both patients and providers are willing to use virtual video visits; however, there are barriers to utilizing the MEDITECH Expanse Virtual Care platform, causing both patients and providers to opt into audio-only visits. Two key obstacles were identified: patient access obstacles and technology challenges.

1. **Patient Access Obstacles**

Patient access is a key barrier to audio-video telehealth utilization at Emanate Health. In order for a patient to access the MEDITECH Virtual Care platform, the patient must be signed into the EHR portal. The percentage of patients who activate their online portal for healthcare is

significantly low. While portal activation is increasing, two-thirds of hospitals reported having less than 25 percent of patients with activated portals (Garrity 2019). Additionally, 40 percent of hospitals reported having as little as 0 to 9 percent of patients with activated patient portals (Garrity 2019). While the Emanate Health marketing and information technology (IT) teams work diligently to support patients registering for the portal, the Emanate Health population is at a particular high risk for lack of portal engagement. Data shows that limited English proficient (LEP) patients are significantly less likely to use a patient portal due to technology barriers, language barriers, and poor health literacy (Casillas et al 2018). Only 37 percent of community members in the Emanate Health service area identify English as the primary language spoken in the home, which is significantly lower than Los Angeles County and California (Appendix J). As a result, it is likely that many Emanate Health patients will face challenges and obstacles associated with patient portals. In addition to patients not being able to access patient portals, many patients simply do not want to access the portal. US patients choose not to use online patient portals for several reasons, including internet connectivity issues (25 percent), preference for speaking directly to providers (70 percent), and privacy concerns (22 percent) (Crist 2019). Additionally, 32 percent of patients stated they do not have an online medical record and therefore do not see the purpose of signing up for the portal (Crist 2019).

At Emanate Health, several barriers to portal adoption were identified. First, the initial portal setup is difficult for patients. Emanate Health patients identified lack of instructions, high password requirements, and poor functionality as barriers to registering for the portal. Additionally, patients prefer to utilize the portal via the MEDITECH MHealth phone app, which has overall poor functionality. The app requires constant updates, often shows error messages, and lacks any troubleshooting options. As a result, patients are opting out of utilizing the MEDITECH

MHealth app to access the portal. Second, it is difficult for Emanate Health schedulers to motivate patients to sign up for the portal. Emanate Health works to overcome these obstacles by providing scripts and instructions for staff to sign patients up for the portal; however, as discussed, many patients choose to opt out of activating their patient portals. Additionally, while schedulers and clinical staff at Emanate Health have resources for signing up patients for the portal, many have identified that the process for signing a patient up for the portal is too timely and therefore they decide to schedule audio-only visits. Third, interviews and shadowing takeaways reveal that many providers and staff decide to schedule audio-only visits as opposed to virtual video visits because they are concerned about the functionality of the video visit platform. Additionally, providers at Emanate Health identified several issues with the patient portal and therefore have low trust that communications with patients via the patient portal will be effective. As a result, Emanate Health providers are less likely to help patients gain access if providers themselves do not utilize the portal. Overall, it is difficult for patients and providers to engage with the portal and therefore providers are unable to utilize the MEDITECH Virtual Care platform to conduct a virtual video visit. As a result, providers call patients to conduct the virtual care visit (audio-only), which decreases the quality of the visit and does not capitalize on additional reimbursement opportunities.

2. Technology Problems

The second key barrier is with the MEDITECH Virtual Care technology itself. After interviewing and shadowing several clinics, it is clear that providers and patients are having trouble with the MEDITECH Virtual Care platform. Providers and staff indicate that more often than not, either the audio or the video functionality of the MEDITECH Virtual Care platform malfunctions. Providers and patients both have identified not being able to hear or see one other. Emanate Health staff stated that they are often unable to troubleshoot these technology issues when they occur and

therefore convert the video visit to an audio-only visit, and call the patient telephonically instead. Additionally, providers state that patients will often call in with technology barriers. While Emanate Health staff are able to assist patients at times, most staff members stated they would either not know how to fix the issue or not have time to troubleshoot the issue. In both instances, the staff opt to convert the visit to audio-only in order to remain on schedule. Finally, some problems arise due to connectivity issues, typically on the patient's end; however, most Emanate Health providers and technology teams identify malfunctions in the newly-developed MEDITECH Virtual Care platform as the primary reason for technology-related barriers.

While there are some strengths of the MEDITECH Virtual Care platform, the portal registration requirement and technology issue are weaknesses that patients and staff are unable to overcome. As a result, only 10 percent of all telehealth visits at Emanate Health are conducted utilizing the MEDITECH Virtual Care video platform. Instead, 90 percent of all visits are being done as audio-only, decreasing the value of the visit and reimbursement revenues.

3.4.6 SUMMARY OF FINDINGS

Emanate Health, similar to other hospitals in the literature review, has identified a community need for telehealth services and quickly implemented a telehealth platform to service patients during the pandemic. Emanate Health's competitors in the San Gabriel Valley have also implemented and expanded telehealth offerings to the community. By effectively utilizing telehealth, Emanate Health has the potential to increase revenues, capture new patients, and reduce costs. The increase in revenues is dependent on the types of telehealth services offered. While audio-only visits are temporarily covered, the reimbursement rate is roughly 50 percent of the reimbursement rate of virtual video visits. Emanate Health uses telehealth platforms across several

areas including primary care, pediatric care, specialty care, and inpatient neurological care. Emanate Health has also identified several opportunities to expand telehealth offerings to different service lines and departments, including ancillary services, emergency department, home health, and perioperative care. While Emanate Health has clearly identified a need for telehealth and already implemented it across practices, only 10 percent of all outpatient telehealth visits are being conducted with video via the MEDITECH Virtual Care platform. The low adoption of the video platform is due to the requirement that patients must register for the portal to access the video capabilities and technology issues on both provider and patient ends. If Emanate Health can convert audio-only visits to virtual video visits, they can increase monthly revenues up to 67%, from $25K to $42K. During the duration of the pandemic, these revenue opportunities should be capitalized on.

3.5 ANALYSIS

While Emanate Health's rapid deployment of telehealth services through the MEDITECH Virtual Care platform increased volumes by allowing for safe, high quality remote visits, Emanate Health is unable to capture all revenue opportunities due to the barriers of their telehealth platform. While providers and patients are willing to use various telehealth services, it is more financially beneficial for hospitals to conduct virtual video visits. Additionally, the video component improves patient engagement and satisfaction. The thorough analysis of the current telehealth offerings at Emanate Health identifies many key issues that the organization can focus on for expanding and improving their telehealth offerings, which is aligned with the hypothesis that this review would

identify several telehealth-related gaps for Emanate Health. Ultimately, it is clear that there is room for improvement for Emanate Health to enhance their telehealth offerings.

There are some limitations of this study that affect the generalizability of the findings. First, most hospitals utilize telehealth vendors for offering telehealth solutions. Emanate Health, on the other hand, is currently utilizing the video capabilities of their EHR. As a result, many of the technology errors are specific to the MEDITECH platform and may be less relevant for vendors with a strategic focus and core competency of telehealth utilization. Second, reimbursement rates used in this study are from the online reimbursement tool from CMS. Actual reimbursement rates for all payers and self-pay vary across health systems. Third, data on the long-term impact that telehealth utilization has on quality of care and social determinants of health is minimal. While many studies are tracking this information, the future impact of telehealth is unclear until additional data is made available. Finally, this essay is specific to the COVID-19 environment. While CMS has announced several waivers for telehealth, it is unclear what the future holds for regulations and policies associated with telehealth. While telehealth implementation is a clear need and financial benefit currently, the reimbursement landscape may change to decrease the value of telehealth offerings. That being said, it is clear that providers and patients are benefitting from telehealth and there is much support from providers and patients to extend the CMS waivers permanently.

3.6 DISCUSSION AND NEXT STEPS

While this case study provides Emanate Health with a comprehensive, high level view of their current telehealth landscape, there are several next steps that will allow Emanate Health to

further evaluate their telehealth offerings. First, Emanate Health should complete a full reimbursement landscape model, including reimbursement for all telehealth services across all lines of business, including commercial, Medicaid, Medicare, and self-pay patients. This reimbursement analysis will be able to better predict the true financial impact of the current telehealth offerings and quantify the return on future telehealth investments. Second, Emanate Health should complete a time study and productivity model for physicians utilizing telehealth services. This data would provide Emanate Health a clearer picture of the time and productivity benefits or concerns with telehealth visits. Third, Emanate Health should finalize and develop a strategy for telehealth utilization and prioritize telehealth initiatives across the health system. This use analysis will allow Emanate Health to choose a telehealth expansion strategy that best aligns with the needs of the organization. Finally, Emanate Health should create a steering committee to drive the telehealth expansion strategy. This steering committee will be responsible for analyzing various telehealth vendors and platforms, including the currently used MEDITECH Virtual Care platform, determining which platform is most aligned with Emanate Health's strategic telehealth goals, and creating a request for proposal based on their findings.

There are several conceptual and practical issues and concerns associated with the expansion of telehealth and the next steps listed above. First, there are provider and patient engagement challenges that are difficult to overcome. Per the literature review, both providers and patients are becoming more willing to utilize telehealth services; however, it is Emanate Health's responsibility to provide patients and providers with a functioning telehealth platform. Second, as previously discussed, the future telehealth reimbursement landscape is uncertain; therefore, determining return on investment of telehealth initiatives is difficult. Third, there are cost challenges associated with implementing a telehealth platform including the platform itself, patient

engagement and education, provider and staff training, among many others. While telehealth initiatives are especially important during the pandemic, the pandemic is reducing cash flows for hospitals, which is a potential barrier to investing additional financial resources in telehealth. Fourth, there are technology, security, and privacy regulations that impact telehealth services. Finally, there continue to be issues with patient access to technology. Social determinants of health also play a major role in patient access. While concerns exist, there is a clear benefit to offering telehealth services to improve patient access, increase reimbursement, and reduce costs that motivate Emanate Health and other health systems to prioritize the improvement of their telehealth offerings.

3.7 CONCLUSIONS, RECOMMENDATIONS, AND PUBLIC HEALTH IMPLICATIONS

3.7.1 CONCLUSIONS

As a result of the COVID-19 pandemic, the subsequent stay-at-home orders, and the fear of contracting COVID-19 at hospitals and clinics, health system patient volumes dropped dramatically. Additionally, health systems had to respond and adapt to the new environment, spending money on testing centers, PPE, and staff support. Volume reductions decreased revenue while costs increased, resulting in a major negative bottom line impact for health systems. Patient access also dwindled as patients cancelled appointments and elective surgeries and visits were postponed. To respond to the need for continued healthcare services during the pandemic, CMS announced several waivers to promote telehealth adoption across health systems. The utilization

of telehealth expanded rapidly as health systems and payers adapted to virtually care for patients during the pandemic. Similar to other hospitals, Emanate Health rapidly deployed telehealth to provide quality, remote care to their patients during the pandemic. Emanate Health's strategy to quickly implement telehealth was to utilize the virtual video telecommunications platform created by their EHR MEDITECH Expanse. The MEDITECH Virtual Care platform allows providers to treat patients virtually. While Emanate Health conducts more than 500 virtual visits every month, 90 percent of all visits are conducted telephonically as opposed to utilizing the virtual video platform through the EHR. The low video visit utilization is a result of portal access issues and malfunctioning technology. As a result of the high utilization of audio-only visits, Emanate Health is losing significant reimbursement revenues. By converting audio only visits to video visits, Emanate Health can capture additional revenue. Emanate Health has identified a clear need to improve their current outpatient telehealth offerings and expand their offerings to other service lines and businesses. As such, Emanate Health must determine the best strategy for moving forward with their telehealth offerings. Several strategies have been identified including continuing with the current MEDITECH Virtual Care platform or partnering with a different telehealth vendor for services.

3.7.2 RECOMMENDATIONS

In order to make the strategic decision to continue use of the MEDITECH platform or to partner with a separate telehealth vendor, Emanate Health should continue to analyze their telehealth landscape, determine their need, strategize their telehealth implementation, and partner with a vendor that best aligns with their platform. Emanate Health should begin by completing a full reimbursement pro forma for telehealth services by line of business and location. Emanate

Health should also complete a time study and productivity model to provide additional support for telehealth operations. This data will also allow Emanate Health to see the operational and workflow impact of their telehealth offerings. Emanate Health should also finalize their telehealth strategies by line of business and identify key metrics that they would like to prioritize for their telehealth strategy. Finally, Emanate Health must analyze vendors and choose a vendor that is most aligned with their strategic goals. Vendor considerations should include patient alignment, physician and staff alignment, product licensing, data integration, billing ease, implementation complexity, post-COVID-19 landscape, technology, accessibility, and financial impact, among other needs. In order to accomplish these recommendations, it is recommended that Emanate Health create a telehealth steering committee with representatives from impacted departments and services lines, including providers, clinical staff, IT, strategy, finance, marketing, operations, and other relevant departments. The steering committee will ultimately be responsible for determining the best strategy for telehealth expansion efforts. While there is opportunity with the current telehealth platform, the steering committee should conduct a comprehensive vendor analysis to determine the vendor that best aligns with Emanate Health's strategic initiatives. The steering committee should also conduct a focus group with patients and families to ensure the Emanate Health telehealth strategies align with the community and patient needs.

3.7.3 PUBLIC HEALHT IMPLICATIONS

During the pandemic, telehealth utilization has given patients access to healthcare services that they otherwise would not be able to receive. Telehealth improves the continuity of care for patients during a time where in-person patient-physician interactions may increase the spread of COVID-19. Additionally, looking during and beyond the pandemic, telehealth has the opportunity

to address social determinants of health, a key area of focus for public health initiatives (Brown 2020; *PwC* 2020). Telehealth decreases transportation needs, allowing patients to access care from their homes. This eliminates transportation costs and barriers for patients. Furthermore, because patients are able to receive care from home, they do not need to seek child or elderly care during their visit. Many patients cannot afford care for their loved ones while they go to an in-person visit and therefore postpone or cancel appointments. Telehealth allows patients to continue to care for their children or elderly relatives while being able to access their care simultaneously. Another financial benefit to patients of telehealth is that they are able to spend less time away from work. Removing time for transportation gives patients more time to work. Additionally, social isolation is another key area that telehealth addresses. Remote contact with providers and staff allows patients to feel more socially involved and connected, in addition to increasing overall care. Finally, telehealth allows for improved continuity of care through chronic disease management. Telehealth gives patients more accessibility to providers and allows providers to better track patients with chronic conditions, especially during the pandemic (Brown 2020; *PwC* 2020).

APPENDIX A: CONSUMER WILLIGNESS TO HAVE AN ONLINE VIDEO VISIT

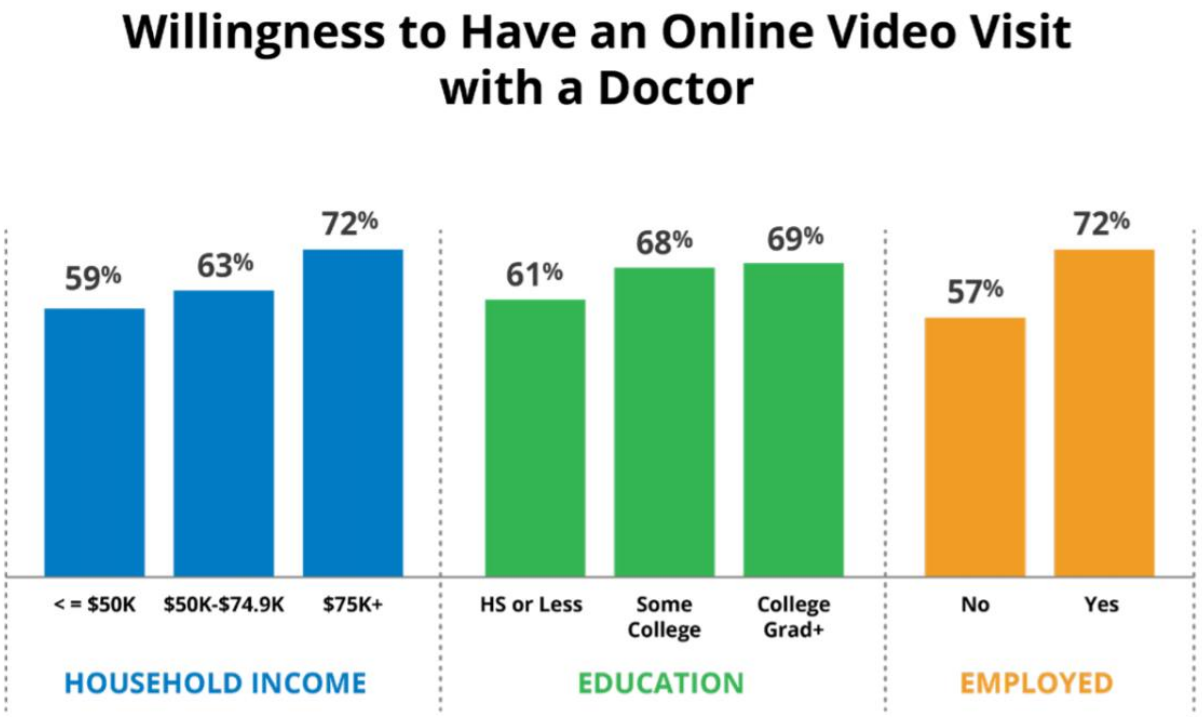


Figure 4: Consumer Willingness to Have an Online Video Visit with a Doctor

Figure 4 depicts consumer willingness to have an online video visit with a doctor by consumer type. As household income increases, consumers become more willing to have an online video visit with a doctor, although the range is small at 13 percent. As education level rise, so does willingness to have an online video visit; however, there is little difference across education categories. Employed consumers are more willing (72 percent) than unemployed consumers (57 percent) to have an online video visit with a doctor.

Source: *AmWell* Consumer Survey 2019

APPENDIX B: PUBLISHED EVIDENCE OF DIGITAL HEALTH FORECASTS

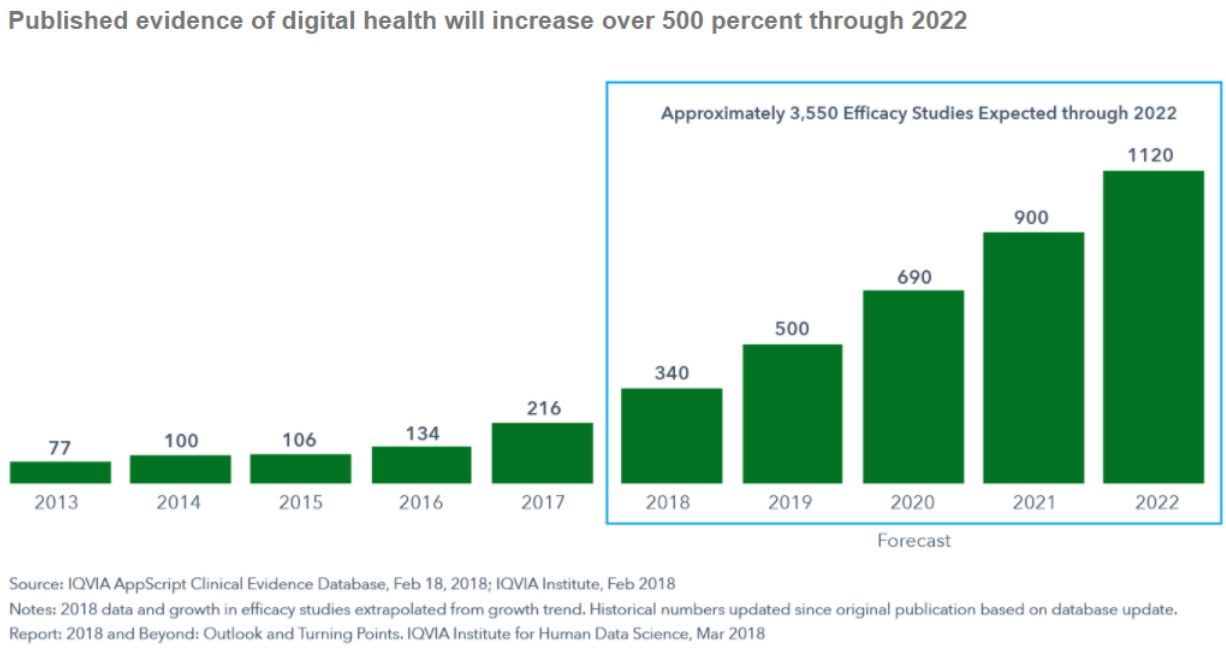
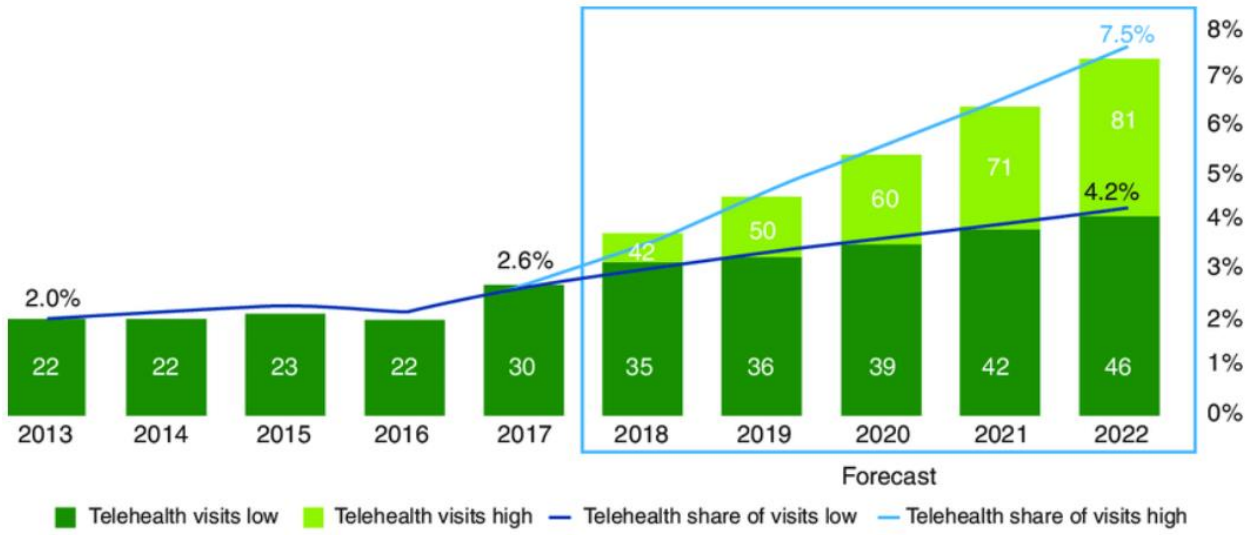


Figure 5: Published Evidence of Digital Health Over Time

Figure 5 depicts that the amount of published evidence of digital health prior to 2017 was minimal. From 2013 to 2017, there was a 180 percent increase in published evidence of digital health. The forecast of published evidence of digital health indicates that there will be a 500 percent increase through 2022. Through 2022, there are approximately 3,550 efficacy studies expected. Published studies of digital health will help support the business case for telehealth.

Source: *IQVIA* 2018

APPENDIX C: FORECASTED TELEHEALTH VISITS



3 US telehealth visits 2013-2022. (Source: IQVIA National Disease and Therapeutic Index, Jan 2018; IQVIA Institute, Feb 2018. Used with permission)

Figure 6: Forecasted Telehealth Visits

Figure 6 shows that telehealth visits have remained relatively steady from 2013 to 2017. Prior to COVID-19, the forecast for telehealth visits was expected to increase substantially after 2018. Figure 6 shows a sensitivity analysis for forecasted telehealth visits, showing both conservative and aggressive forecasts.
Source: *IQVIA* 2018

APPENDIX D: NUMBER OF TELEHEALTH VISITS IN THE US (2013 – 2022)

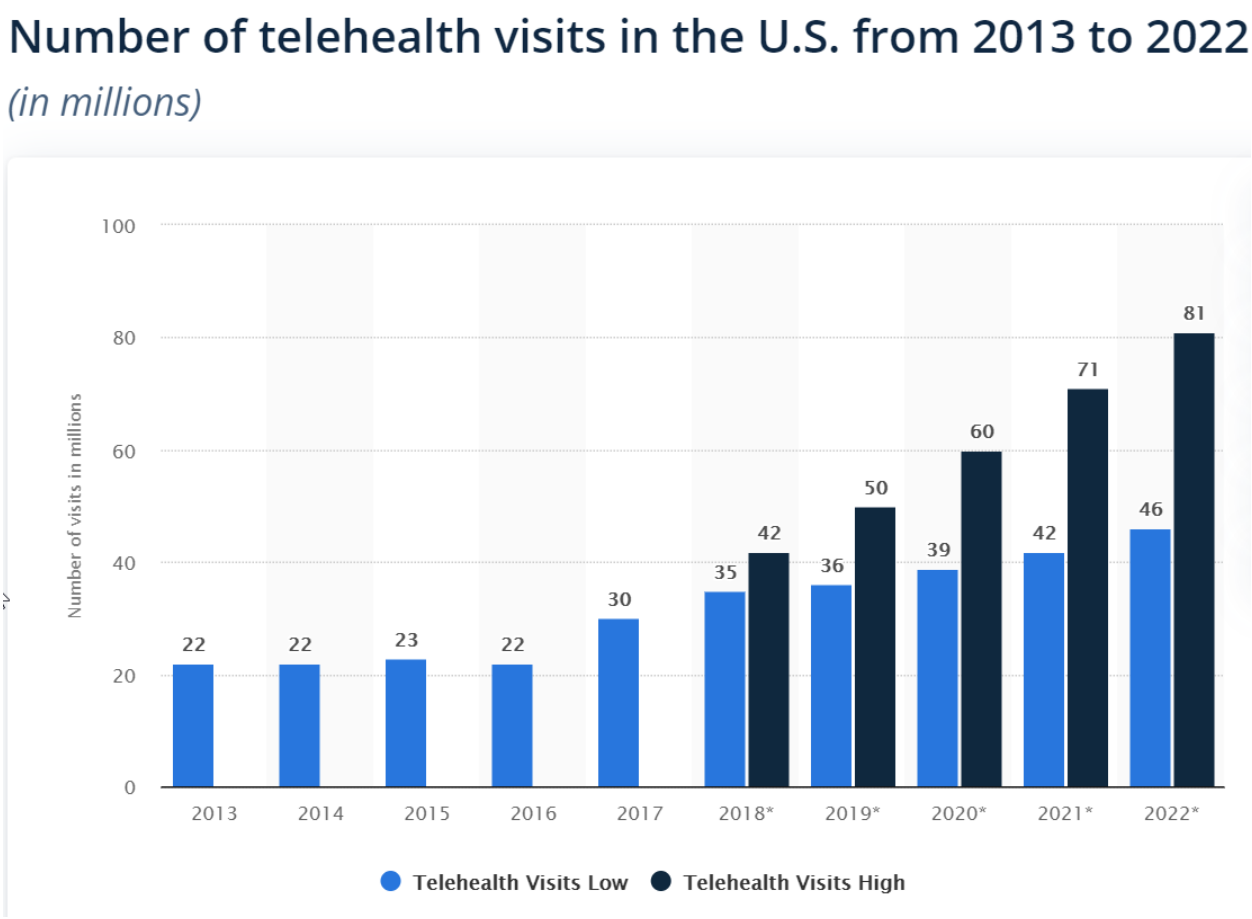


Figure 7: Number of Telehealth Visits in the US from 2013 to 2022

**Forecasted*

Figure 7 depicts the number of telehealth visits from 2013 to 2017 and the forecasted number of telehealth visits after 2018. The graph shows a sensitivity analysis, predicting both high and low future numbers of telehealth visits. Prior to COVID-19, it was already expected for the number of telehealth visits to increase due to the increase in demand.

Source: *Statista* 2014

APPENDIX E: WILLIGNESS AND USE OF TELEHEALTH BY SPECIALTY

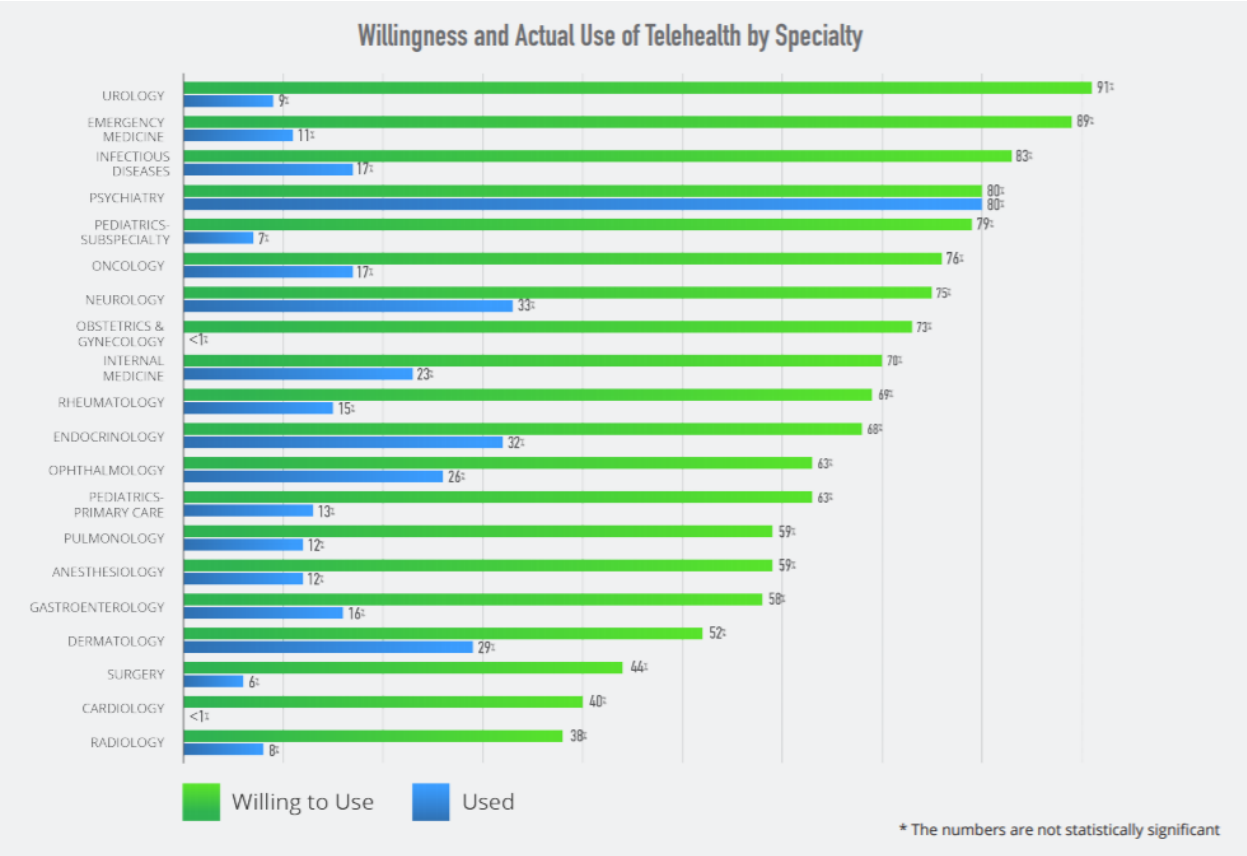


Figure 8: Willingness and Use of Telehealth by Specialty

Figure 8 depicts the willingness of providers to use telehealth services by specialty. It also shows the actual use of telehealth by specialty. This graph indicated that there is a gap between willingness to use telehealth and actual use by specialty. This gap varies by specialty.

Source: *AmWell* Physician Survey 2019

APPENDIX F: OUTPATIENT AND OFFICE VISITS THAT COULD BE VIRTUALIZED

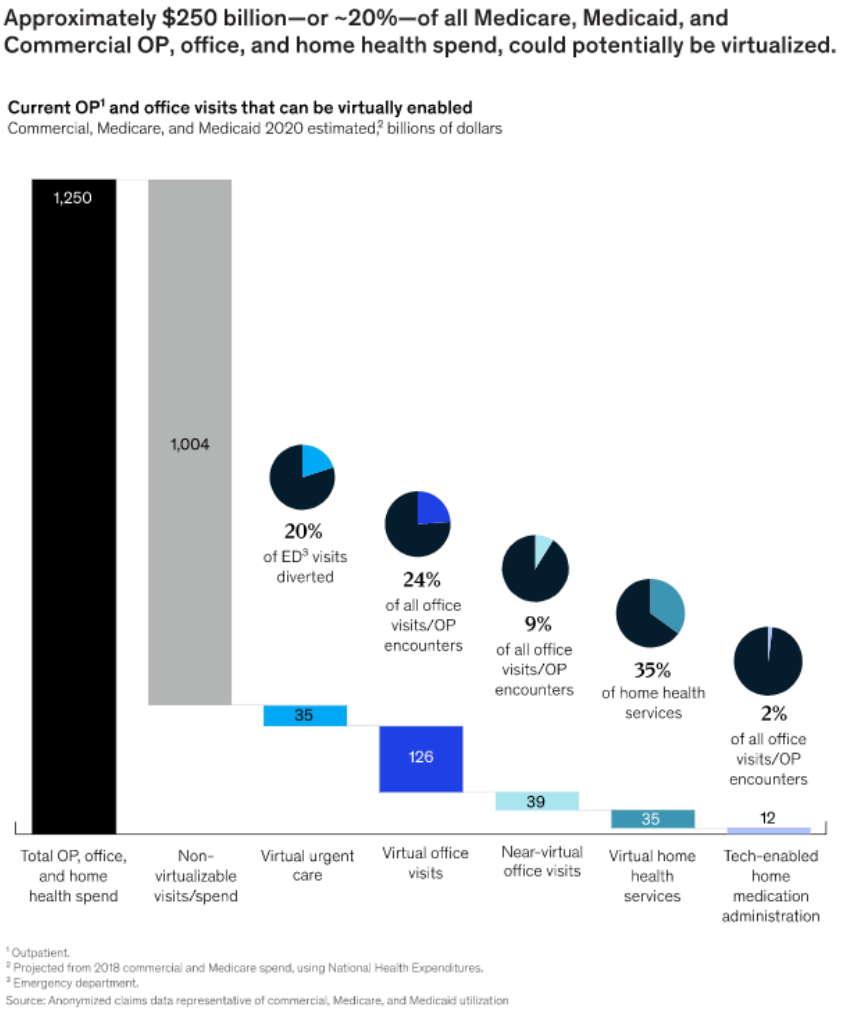


Figure 9: Current Outpatient and Office Visits than can be Virtualized

Figure 9 from *McKinsey & Company* shows the percentage of outpatient and office visits that can be virtualized. *McKinsey* estimated that roughly 20% of all outpatient and office visits can be virtualized.

Source: Bestsennyy et al 2020

APPENDIX G: SAN GABRIEL VALLEY (SGV) EMPLOYERS

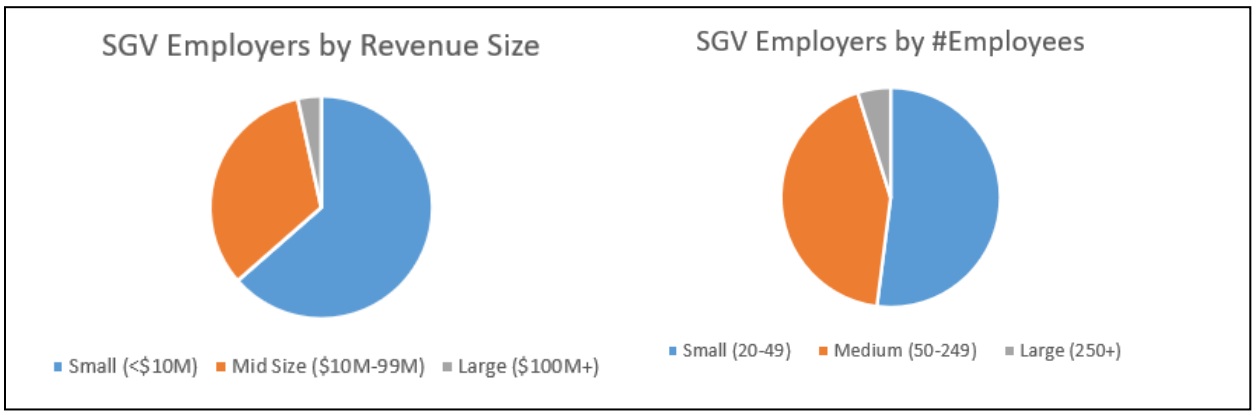


Figure 10: San Gabriel Valley (SGV) Employers by Revenue Size and Number of Employees

Figure 10 depicts the pie chart for SGV employer data. In SGV, the majority of providers are considered small based on this analysis. Mid-size employers also account for a significant portion of employers in the SGV. There are few larger employers in the SGV.

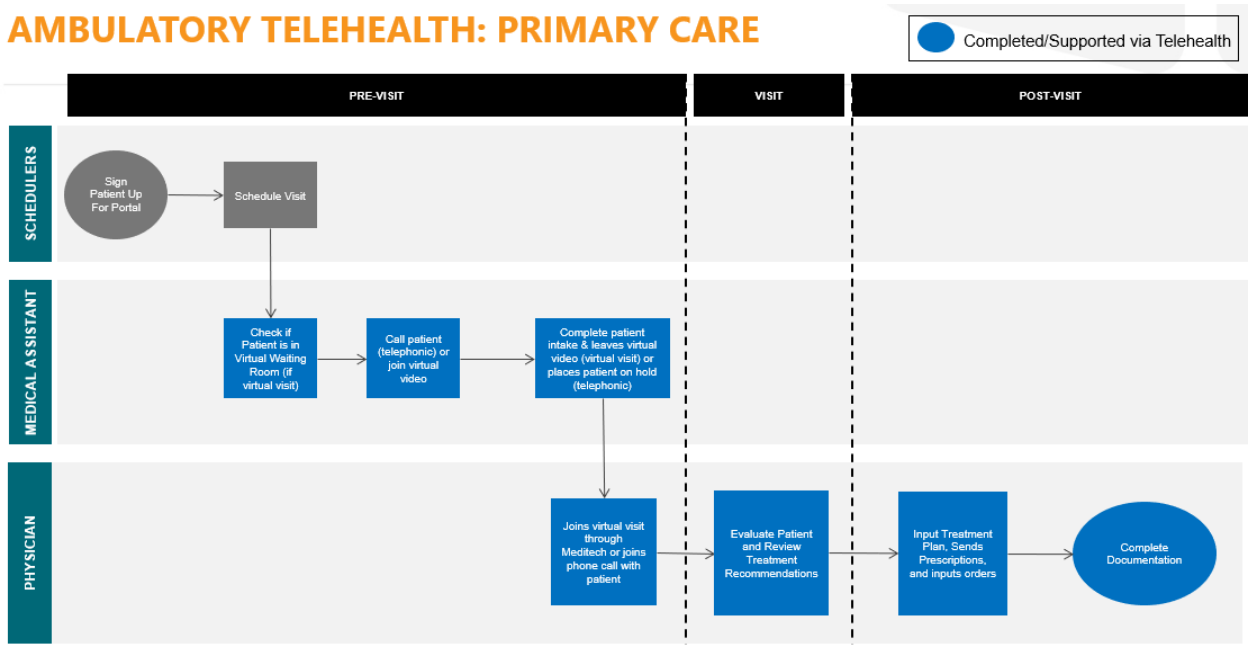
Table 4: San Gabriel Valley (SGV) Employer Data

Sales Revenue	Employer Count
Small (<$10M)	2679
Mid Size ($10M-99M)	1392
Large ($100M+)	144
Revenue Unknown	1430
Grant Total	5645
Number of Employees	**Employer Count**
Small (20-49)	2936
Medium (50-249)	2435
Large (250+)	274
Grand Total	5645

Table 4 shows the number of employers in the SGV by revenue size and number of employees. This data supports opportunities in B2B arrangements with Emanate Health and SGV employers.

APPENDIX H1: EMANATE HEALTH TELEHEALTH WORKFLOWS: CURRENT USES: PRIMARY AND SPECIALTY CARE

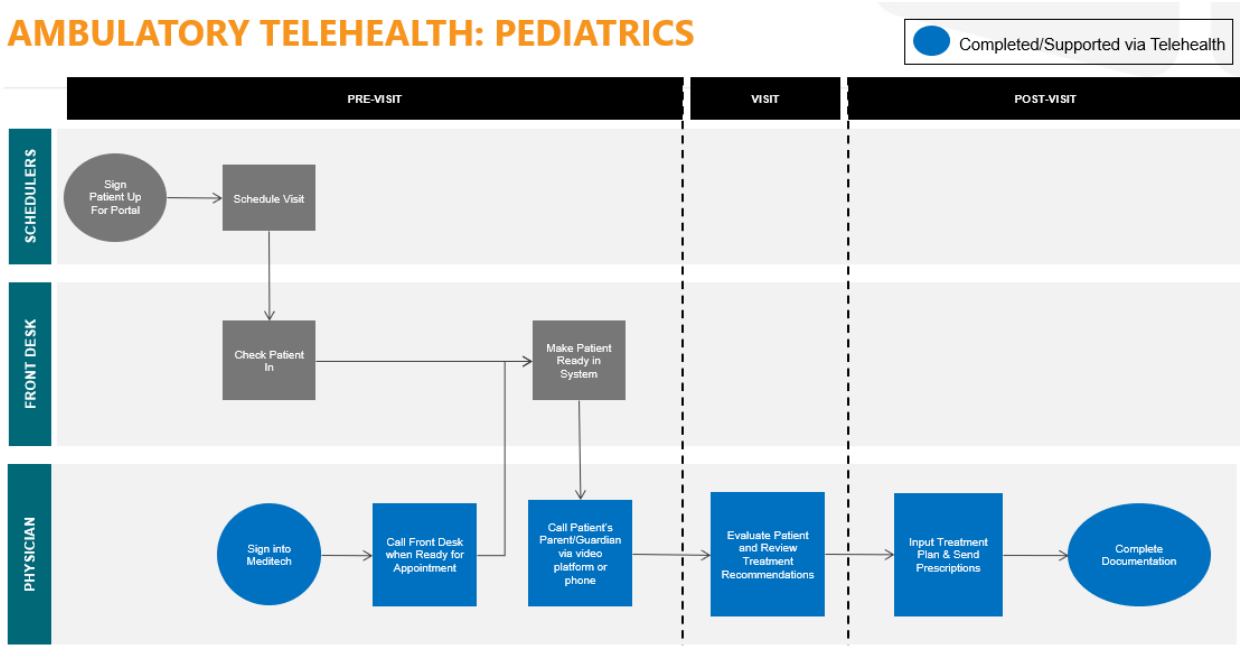
Ambulatory Telehealth Workflow: Primary Care and Specialty Care (Vendor: MEDITECH)



Appendix H1 depicts the workflow for primary care patients for telehealth appointments. A similar workflow is followed for specialty care.

APPENDIX H2: EMANATE HEALTH TELEHEALTH WORKFLOWS: CURRENT USES: PEDIATRIC CARE

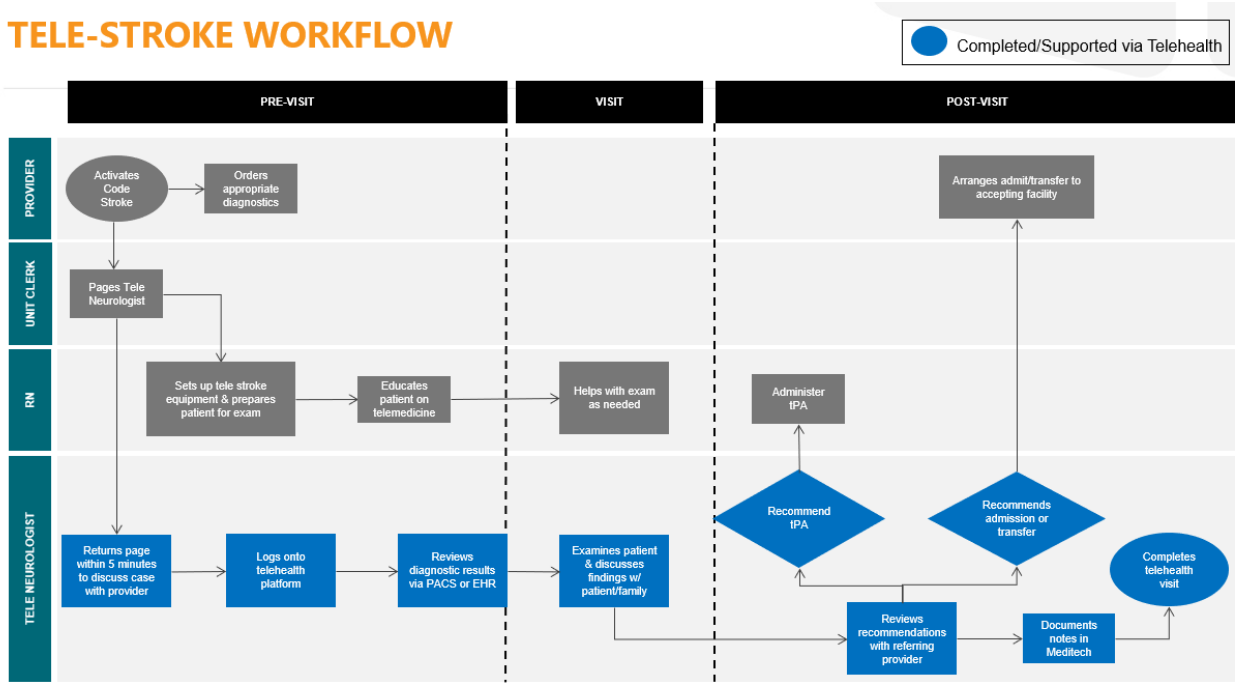
Ambulatory Telehealth Workflow: Pediatric Care (Vendor: MEDITECH)



Appendix H2 depicts the workflow for pediatric care patients for telehealth appointments.

APPENDIX H3: EMANATE HEALTH TELEHEALTH WORKFLOWS: CURRENT USES: TELE-STROKE

Inpatient Telehealth Workflow: Tele-Stroke (Vendor: Vituity)

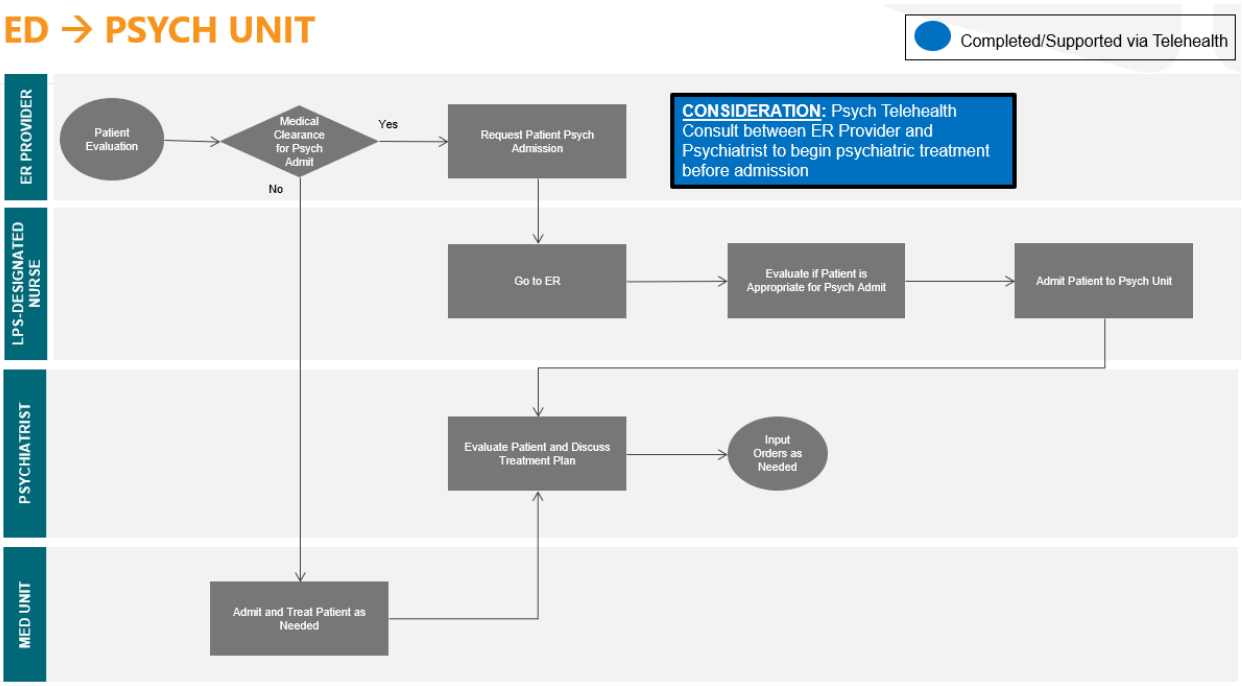


Appendix H3 depicts the workflow for tele-stroke care utilizing telehealth for neurological consults.

APPENDIX I1: EMANATE HEALTH TELEHEALTH USE OPPORTUNIY

WORKFLOWS: EMERGENCY DEPARTMENT

Workflows without Telehealth Utilization: Emergency Department to Psychiatric Unit Admission

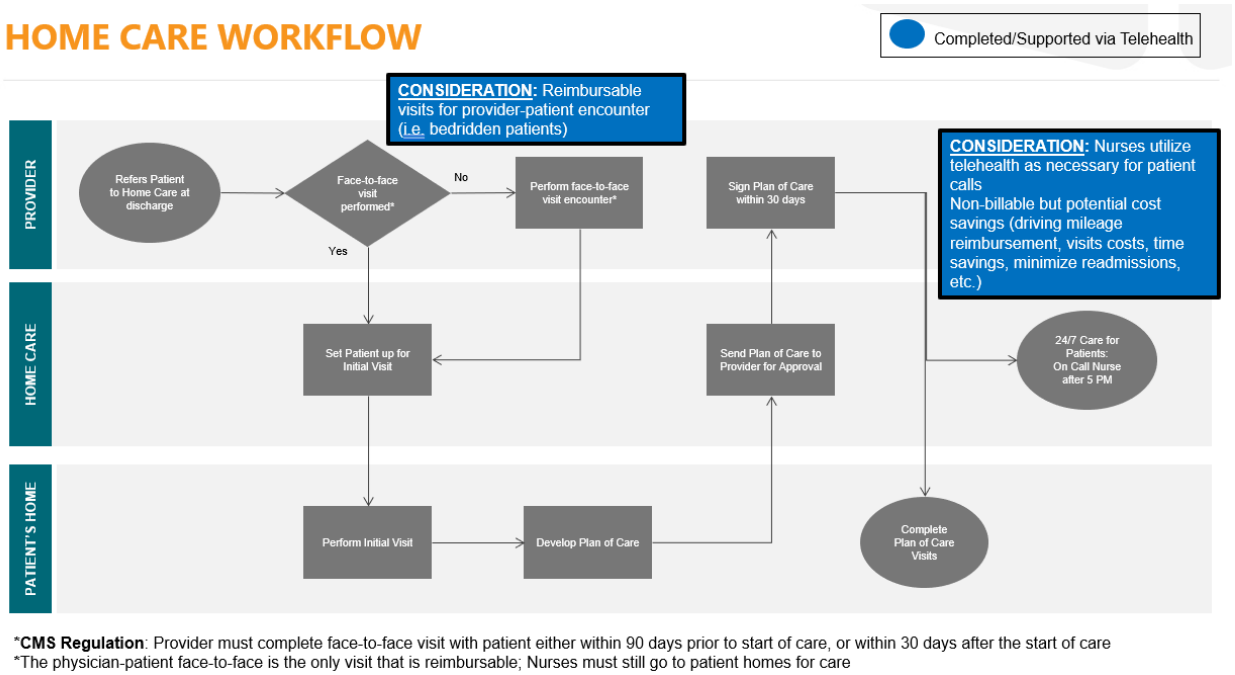


Appendix I1 depicts the workflow for Emergency Department patients that need psychiatric and/or behavioral health care. Telehealth opportunities for this workflow have been identified as considerations.

APPENDIX I2: EMANATE HEALTH TELEHEALTH USE OPPORTUNIY

WORKFLOWS: HOME CARE

Workflows without Telehealth Utilization: Home Care Workflow

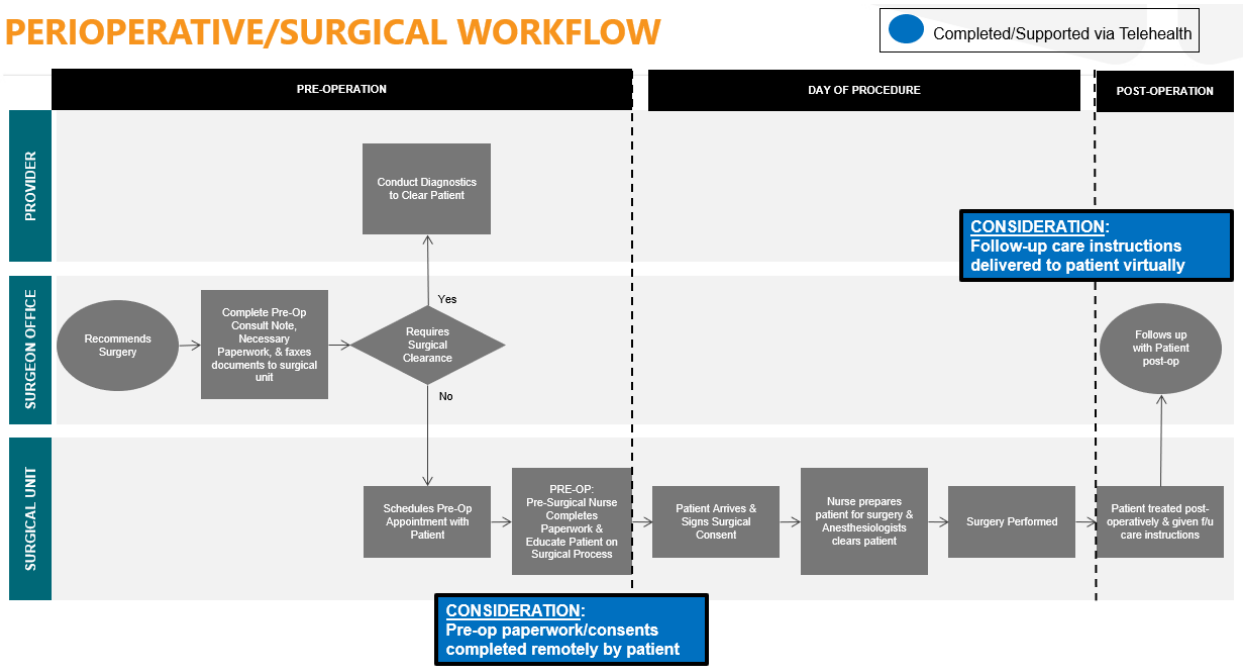


Appendix I2 depicts the workflow for Home Care patients. Telehealth opportunities for this workflow have been identified as considerations.

APPENDIX I3: EMANATE HEALTH TELEHEALTH USE OPPORTUNIY

WORKFLOWS: SURGICAL CARE

Workflows Without Telehealth Utilization: Perioperative and Surgical Services

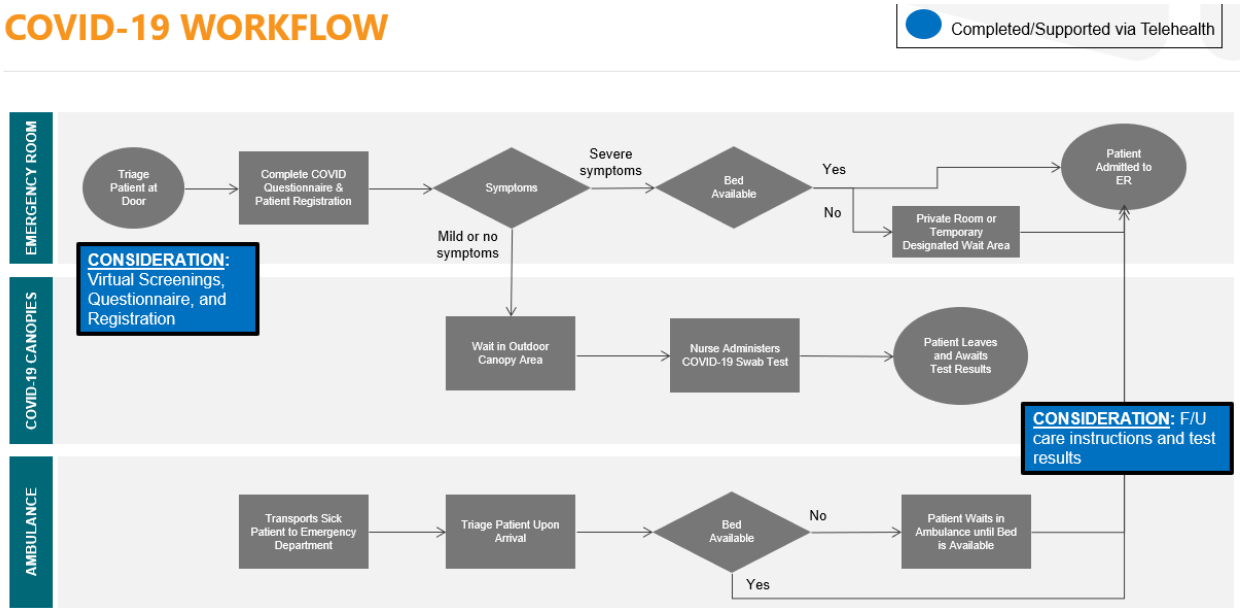


Appendix I3 depicts the workflow for perioperative and surgical care. Telehealth opportunities for this workflow have been identified as considerations.

APPENDIX I4: EMANATE HEALTH TELEHEALTH USE OPPORTUNIY

WORKFLOWS: COVID-19 CARE

Workflows Without Telehealth Utilization: COVID-19 Workflow



Appendix I4 depicts the workflow for COVID-19 patients in the Emergency Department. Telehealth opportunities for this workflow have been identified as considerations.

APPENDIX J: EMANATE HEALTH SERVICE AREA LANGUAGES

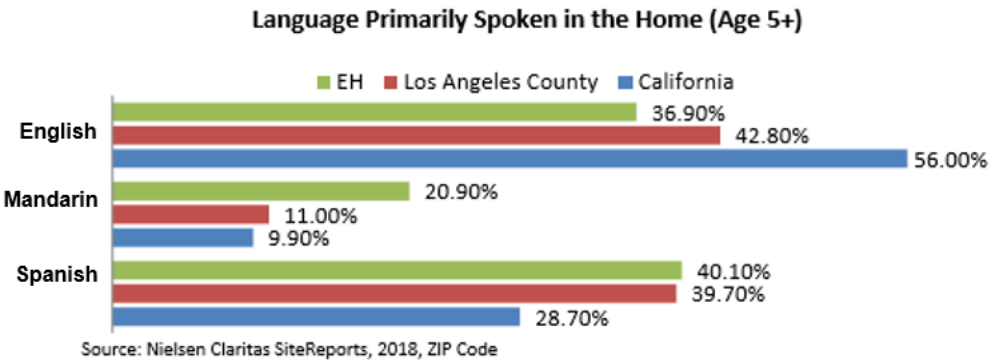


Figure 11: Emanate Health Service Area Languages

Figure 11 depicts the language primarily spoken in the home for individuals in the Emanate Health service area who are 5 years old and older. Overall, Emanate Health has a lower percentage of individuals who speak English as primary language in the home compared to Los Angeles County and California. Emanate Health has a higher percentage of individuals who speak Mandarin and Spanish as the primary language in the home compared to Los Angeles County and California.

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