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**Virtual health:  
beyond the  
clinical walls**

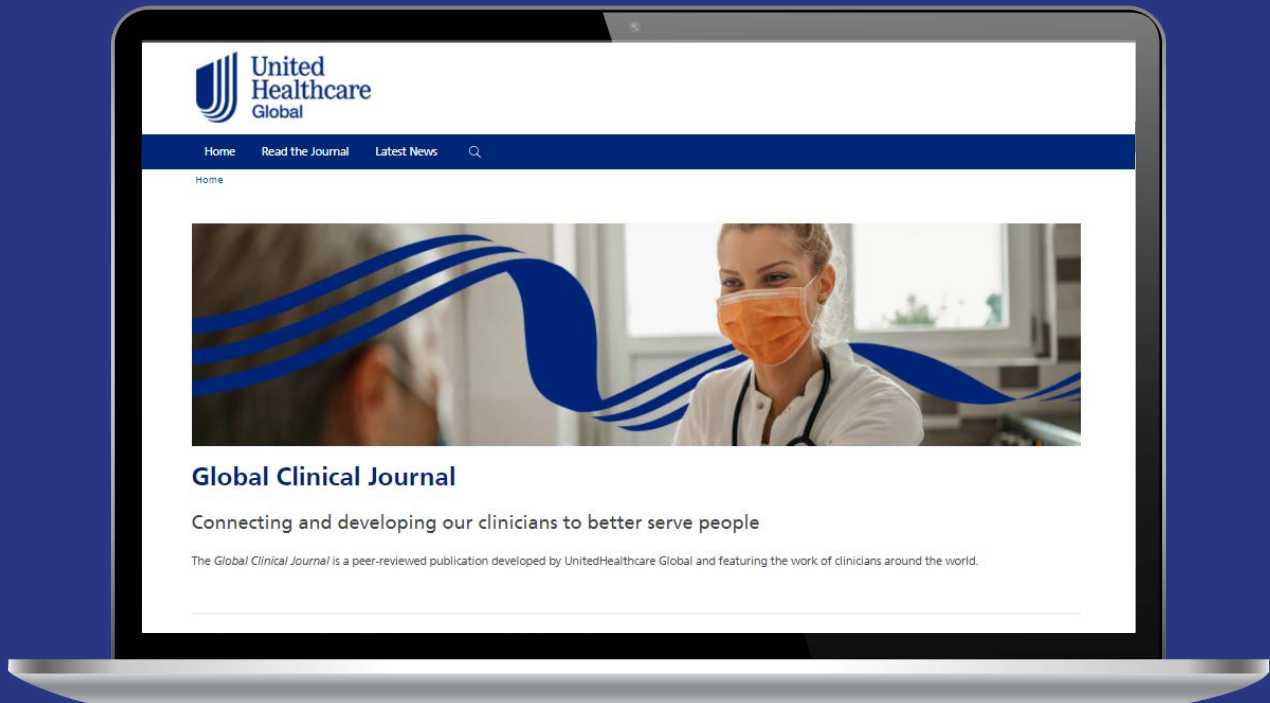
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# A message from the **Chief Medical Officer**

*Virtual Health: Beyond the Clinical Walls* contains articles showcasing the tremendous strides we are taking today to bring health care closer to the people we serve. But the journey does not end here. After reading this body of work, I challenge you to think, “Where do we go next?” If we really are going to transform health care, and truly put health at the forefront for the consumer, we must continue to push ourselves to think even more broadly. We must challenge the limits of what we think is possible: innovate and create outside the constraints of the clinic walls and beyond traditional models.

We have witnessed and experienced unprecedented challenges due to the COVID-19 pandemic. These challenges have not only tested our resolve, our focus, and our scientific knowledge, but they have tested the integrity and sustainability of the global health care model. Resources have been stretched to the limit with hospitals inundated with critically ill patients. Many people with acute or chronic illnesses avoided seeking in-person care or found it too difficult to gain access to care delivery facilities. Because of these challenges, we have been forced to rethink how we simplify efficient access to person-centered, quality-supported, and cost-effective care across the care continuum.

It is without surprise that we have seen tremendous growth in the virtual health offerings across our businesses, with markets expanding existing capabilities and implementing new, innovative approaches to the virtual delivery of care. The changes in care delivery that we have seen – forced by the pandemic – all culminate in a better experience for everyone. Many new age consumers prefer effortless and seamless access. Many providers prefer fewer physical constraints as well. Both audiences want to engage in a comfortable environment, and they want to seek and deliver care quickly.

If the COVID-19 pandemic has taught us one thing, it’s that we previously built health care models within geographic constraints. We allowed landscapes and borders to dictate who had access to care. Our care models must adapt to support the needs of globally mobile populations. Additionally, with the rise in virtual health options, care can no longer be reserved for the technologically savvy. Elderly, disabled, and vulnerable populations must be able to access care virtually.

We are on the verge of a transformative leap that will touch the core of the quadruple aim. We can build health care models that simplify access, enhance the patient and provider experience, decrease the total cost of care, and improve health outcomes. We can, we should, and we must.



**Bernie Elliott, M.D.**  
Chief Medical Officer  
UnitedHealthcare Global



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# Resumption of surgeries with pre-anesthetic assessment via telemedicine

## Introduction

After the first wave of the COVID-19 pandemic in Brazil, the Next Hospital Butantã, located in São Paulo, faced the challenge of resuming surgical activity while maintaining capabilities to support admission of patients with COVID-19. Processes had to be redesigned to create safe surgeries, using protocols that were appropriate to the new surgical epidemiological profile. Resumption of surgical procedures was limited to procedures with a low risk for aerosolization that did not require admission to an intensive care unit (ICU). After we mapped out the appropriate surgical procedures and related processes, we identified telemedicine as an opportunity to reduce travel and crowding related to in-person, pre-anesthetic assessments (PAA). Anesthesiologists with personal high-risk factors for COVID-19 transmission (such as age > 65 or pregnancy) were re-assigned to work on the telemedicine team, where they were trained to acquire the skills to work in a virtual health environment. These skills were fundamental to perform the PAAs using telemedicine rather than in-person assessments.

The digital interoperability and transformation platform called “Minerva,”<sup>1</sup> a digitization platform contracted by Americas Serviços Médicos, was used to coordinate this entire digital process. The platform holds International Organization for Standardization<sup>2</sup> (ISO) 13485 certification in requirements for quality control systems for medical devices and related services as well as ISO 27001 certification for data security. In addition, Minerva also complies with requirements for Health Information Portability and Accountability Act<sup>3</sup> (HIPAA), General Data Protection Regulation<sup>4</sup> (GDPR), and other global data protection laws, such as Brazilian General Data Protection Law (LGPD).<sup>4,5</sup> As part of the project’s implementation, doctors were trained in digital health care and received individual digital certificates (e-CPF) for issuing prescriptions, reports, and exam orders, as required by current law.

## Objectives

The main objectives of the project were to:

1. Resume surgical activity gradually, with the goal of performing 30% of the number of elective surgeries performed over the same period in the previous year, while preventing COVID-19 cross-infection of any patients.
2. Implement a telemedicine system for pre-anesthetic assessment that ensured information security and facilitated patient care.
3. As part of the pre-anesthetic assessment, proactively identify respiratory symptoms that might indicate possible infection

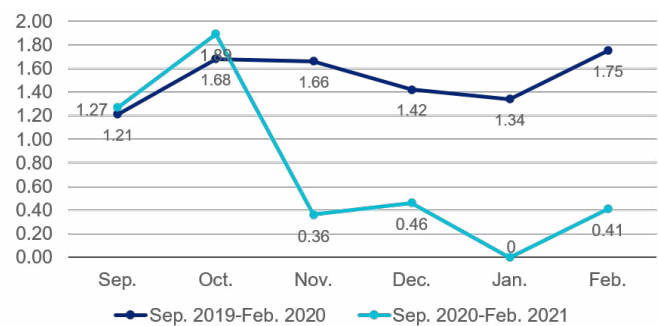
with the SARS-CoV-2 pathogen prior to the surgical procedure and refer the patient to receive appropriate medical care.

4. Avoid unnecessary travel and crowding during a pandemic.

## Results

In the implementation of the Virtual Pre-Anesthetic Assessment (PAA) from September 2020 to February 2021, we performed a total of 1,560 elective surgeries. During the same time, 1,608 PAAs were performed which 1,511 (94,0%) were performed using the Minerva telemedicine platform. Although 455 assessments (30,1%) were completed exclusively using the platform, the majority of PAAs (69,9%) also required the use of mobile phones and other communication channels. We expected to observe several benefits of the telemedicine model and one of the major impacts was seen in the surgical suspension rates. Surgical suspension is defined as cancellation of a planned surgical procedure after the patient has been admitted to hospital for the scheduled surgical procedure.

Figure 1: Surgical Suspension Rate (%)



Ninety-seven of the 1,608 total patients were not evaluated by telemedicine, predominantly due to patient difficulty in handling the tool. We also had 25 surgeries cancelled (before hospital admission and therefore not included in our total of 1,560) as a result of screening questionnaire responses, which focused on respiratory symptoms and measured vital signs. These processes were 100% effective in preventing SARS-CoV-2 cross-contamination.

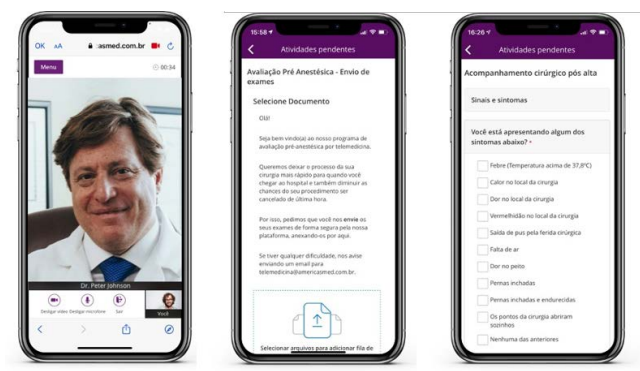
More than 1,500 patients underwent surgical procedures with the new and more efficient virtual pre-admission processes, which included teleconsultations and electronic exam orders.

Our virtual pre-admission assessment model resulted in improved communication flow, time savings for patients and physicians, fewer people transiting the hospital environment, and lower carbon dioxide emissions due to decreased travel.

Vulnerable anesthesiologists were also protected from unnecessary exposure to COVID-19.

Since implementation, our surgical virtual health model has been further enhanced. In addition to the pre-anesthetic assessment via telemedicine, the results of anatomopathological tests are sent directly to the patient by encrypted email, and routine surgical process mapping – part of the safe surgery process – is carried out via teleconference using the Microsoft Teams tool. Additionally, post-discharge surgical follow-up, previously conducted through a telephone call, is now automated through a questionnaire sent to the patient using the Minerva platform (Figure 2).

**Figure 2: Minerva Platform smartphone interface: teleconsultation, file attachment, and post-discharge surgical follow-up**



## Lessons Learned

The changes needed to resume surgical care during the first wave of the pandemic have taught us several lessons.

- We are better able to identify opportunities for improvement when we work as a team.
- We should be open to different and new ways of working in order to improve.
- Team commitment helps adapt to changes.
- Technology partners should be involved as allies in the development and revision of care processes/protocols.
- Protocols can be expanded and adapted for different activities.
- People should be encouraged and supported through the change management process, especially during a pandemic.
- The ability to make adjustments to the telemedicine platform in real time was critical to the maturation of processes and building trust among doctors and patients.

- There is opportunity for the business to replicate and scale the digital PAA model to further integrate the outpatient and inpatient surgical care models. This would support timely patient evaluation by other specialists during the PAA process and facilitate referrals and cross-referrals between the clinical and surgical teams.

## Conclusion

Pre-anesthetic assessments conducted by telemedicine proved to be efficient and effective. We have kept our vulnerable professionals in a safe environment, avoided travel and crowding of patients, and maintained control gateways to keep surgical processes safe.

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# Telephonic support program for SARS-CoV-2-positive mothers after newborn delivery and hospital discharge from Clínica Dávila, Chile

## Introduction

The COVID-19 pandemic in Chile<sup>1,2</sup> has been most deadly for the elderly population and patients with chronic disease.<sup>3</sup> As is broadly known today, symptoms and clinical presentation of COVID-19 vary widely. In some cases, the disease is very severe, causing death, while in other cases the patient may be asymptomatic.<sup>4</sup>

Pregnant women are also at risk of COVID-19 infection. Vertical or cross-placental disease transmission to the fetus is possible but not common, therefore most infected newborns contract the disease by horizontal transmission.<sup>5</sup>

Reports of infected newborns are rare;<sup>6</sup> however, clinical evolution of COVID-19 infection in newborns was unknown during the early stages of the pandemic. This area of uncertainty is the reason we considered it of paramount importance to determine the clinical status of our newborns at birth and monitor their progression after hospital discharge.

## Objective

Our objective was to report results of a telephonic support program designed for the ambulatory follow-up of newborns with positive reverse transcription polymerase chain reaction (RT-PCR) tests for SARS-CoV-2.

## Process

The newborn's parent or caregiver was contacted by phone every two to four days after hospital discharge by a neonatologist, nurse or kinesiologist until the newborn was at least 14 days old. Standardized questions were asked regarding the general health of the newborn and their nourishment. Answers were registered to provide guidance related to newborn care. Emergent cases were referred to the emergency department.

Between Mar. 19, 2020 and Feb. 28, 2021, a total of 4,429 newborns (NB) were registered as born in the hospital. Of this number, 128 had SARS-CoV-2-positive mothers. Only four of these mothers, or 3.1%, were symptomatic.

Newborns from SARS-CoV-2-positive mothers ranged from 32 to 41 weeks gestational age (GA), with an average of 39 weeks prior to delivery. In the SARS-CoV-2-positive group, there were only 12 newborns who were born at less than 37 weeks gestational age.

Birth weights ranged from 1,965 grams to 4,870 grams with a median of 3,327 grams and an average of 3,306 grams, +/- 473 grams. 50 of the newborns were female (39%).

Beginning April 7, 2020, clinical screening was performed using RT-PCR for SARS-CoV-2 at admission on all pregnant women. Prior to that date, RT-PCR was only performed on pregnant women with symptoms or records of close contact with individuals with positive SARS-CoV-2 tests or symptoms of COVID-19 disease.

All newborns from SARS-CoV-2-positive mothers received their first RT-PCR for SARS-CoV-2 within six hours of being born, and a second test 24 hours post-delivery. Only two newborns showed positive RT-PCR results from samples taken within the first 24 hours of life. Both newborns had an asymptomatic evolution.

The telephonic support program continued for at least the first 14 days of the newborn's life for 117 (91%) of the 128 newborns enrolled in the program. For 11 newborns, it was impossible to establish contact by telephone and therefore they could not participate further.

Three babies were hospitalized due to clinical conditions unrelated to COVID-19. Ninety-seven babies were discharged to the care of the mother, six to paternal care and 22 to the care of a healthy non-parental caregiver who had not been in close contact with an individual testing positive for COVID-19.

Nutrition modalities were as follows: 68 newborns were breastfed, 18 newborns were fed with formula only and 19 newborns were fed with formula and breastmilk. The nutritional modality was unknown in 12 newborn cases.

During the follow-up period, one baby was showing breathing abnormalities at 12 days old and was referred to emergency services where COVID-19 was confirmed. The baby's mother had an asymptomatic case of COVID-19 at birth and the baby was under care of a healthy caregiver upon referral to emergency services. All other newborns had an asymptomatic evolution.

## Lessons Learned

The pandemic made it difficult to provide in-person, post-hospital newborn care and advice to caregivers. The telephonic support program was very well received by caregivers of newborn babies. This program allowed early identification of an infected newborn and facilitated prompt referral.

Telephonic support strategies also turned out to be particularly useful in connecting newborns and their caregivers to timely medical attention during a period in which access to in-person care was limited and constrained.



Phone contact also allowed us to monitor and successfully reinforce appropriate COVID-19 transmission preventive measures to reduce cross-infection between mother and offspring.

## Conclusion

The telephonic support program for newborn babies of PCR (+) SARS-CoV-2 mothers offers a practical approach to monitoring, timely intervention and prompt referral of babies with symptoms consistent with COVID-19.

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*The pandemic made it difficult to provide in-person, post-hospital newborn care and advice to caregivers. The telephonic support program was very well received by caregivers of newborn babies. **This program allowed early identification of an infected newborn and facilitated prompt referral.***

# Telerehabilitation: Delivering rehab for patients during the COVID-19 pandemic

## Introduction

Patients in traditional outpatient rehabilitation programs must travel two or three times a week to the rehabilitation center. This frequency poses a major barrier to program adherence and is often the driving factor for patient non-compliance.

Technology is making it possible to overcome this obstacle through telemedicine. Rehabilitation services that do not require in-person visits afford greater accessibility for patients. Telehealth programs — already used with some frequency in many countries — were incorporated by necessity following the COVID-19 pandemic. Providers began to consider telerehabilitation as an alternative way to safely offer patients rehabilitation services in a contact-free format that would encourage adherence.

A meta-analysis published by Rawstorn, et.al. in 2016 demonstrated the effectiveness of telerehabilitation programs in increasing levels of physical activity, adherence to exercise, and protection against cardiovascular risk factors.<sup>1</sup> Systematic reviews published between 2010 and 2018 have also shown that telerehabilitation improves cardiovascular risk factors, enhances reported quality of life, and decreases adverse events.<sup>2,3,4,5,6</sup>

## Process

At UnitedHealth Group Hospital Samaritano Paulista in São Paulo, Brazil, the COVID-19 pandemic forced suspension of in-person cardiovascular rehabilitation in mid-March 2020. Soon after, we began offering telerehabilitation services for patients participating in the cardiovascular rehabilitation program. Patients were initially screened for eligibility to start the telerehabilitation program before hospital discharge by conducting medical and functional evaluations. The following were considered contraindications for early initiation of the program: extensive and complicated myocardial infarction, patients recovering from heart attacks, and patients with poorly healing or infected surgical scars.

Eligible patients received guidance and underwent pre-discharge in-person training sessions to familiarize them with the program so they could continue therapy at home through telerehabilitation.

## Goal

Our main goal was to provide continuity of rehabilitation for patients to improve or maintain their cardiovascular health. Additionally, we wanted to capture the experience of implementing a telerehabilitation program at our institution.

Each telerehabilitation session consisted of four steps:

1. Warm-up
2. Light to moderate intensity resistance and functional exercises
3. Cool-down
4. Stretching

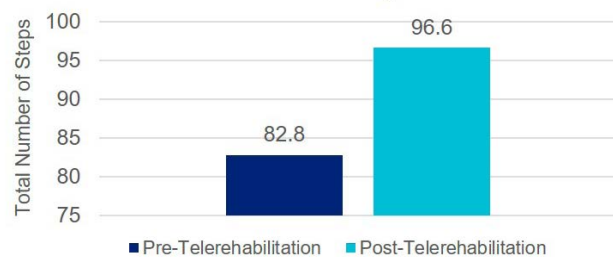
The program consisted of 40-minute therapy sessions twice a week, for approximately six weeks (12 sessions). All patients were monitored through a frequency or heart rate monitor, pulse oximeter, blood-pressure monitor, Borg Rating of Perceived Exertion (RPE) score, and speech test.

## Results

A total of 32 patients enrolled in the telerehabilitation program. Ninety-four percent of them completed their rehabilitation. Twenty-five (78.1%) patients were male, seven (21.9%) were female, and mean (standard-deviation) age of the group was 60.3 ( $\pm$ 10) years.

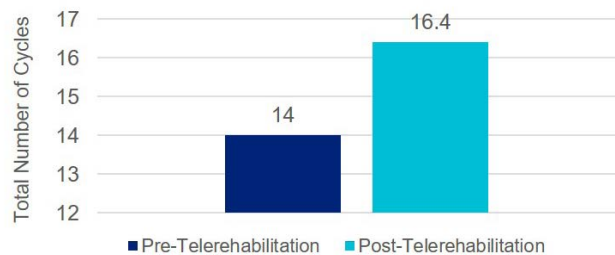
The patient cohort exhibited improvement in their performance results when comparing pre- and post-telerehabilitation scores. First, in the results of the “two-minute step test,” which requires that tested individuals march in place as fast as possible for two minutes while lifting the knees to a height midway between their patella and iliac crest when standing. Performance on the test is defined as the number of right-side steps of the criterion height completed in two minutes.<sup>7</sup> The performance in the “two-minute step test” increased from 82.8 to 96.6 total number of steps between pre- and post-telerehabilitation, respectively (Figure 1).

**Figure 1: Pre- and post-telerehabilitation performance of patients assessed by “two-minute step test”**



The “30-second sit-to-stand test” consists of manually counting the number of sit-stand-sit cycles completed during the 30 seconds of the test. The 30-second sit-to-stand test is one of the most important functional evaluation clinical tests because it measures lower body strength and relates it to the most demanding daily life activities (e.g., climbing stairs, getting out of a chair or bathtub or rising from a horizontal position).<sup>8</sup> In “sit-to-stand” patients also increased from 14.0 to 16.4 total number of cycles (Figure 2). In addition, patients also reported improvement in well-being.

**Figure 2: Pre- and post-tele-rehabilitation performance of patients assessed by “30-second sit-to-stand test”**



## Lessons Learned

Our main lesson was that it is essential to be creative and innovative in seeking novel solutions when faced with new challenges.

We faced two main challenges: Monitoring vital signs and exercise intensity during training sessions and inadequate technology resources in most patients’ homes.

We learned how to better recognize situations where in-person supervision was necessary. This made it possible to determine when it was appropriate to transition to a tele-rehabilitation safely.

This experience gave us greater insight into the potential and possibilities of tele-rehabilitation programs. This program should be incorporated into public health capabilities as a tool to provide accessibility for a larger number of participants to rehabilitation programs and improve compliance with therapy.

## Conclusions

Despite the initial difficulties in using a digital platform, we had good adherence from patients in the tele-rehabilitation program. We consider tele-rehabilitation an efficient alternative for patients who cannot attend rehabilitation centers in person.

The learning curve for using the digital resource showed rapid improvement in terms of patients’ self-monitoring and awareness of warning signs, and helped the participants include the exercises in their daily routines. The care delivery team, in turn, matured over time and leveraged their experience to offer the program to additional groups of patients including patients recovering from COVID-19 infection.

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# Agility and collaboration: Implementing Amil telemedicine

## Introduction

In January 2020, Amil's clinical team started anticipating possible challenges that the COVID-19 pandemic could bring. It became necessary to make decisions quickly and to communicate clearly and responsibly, ensuring quality and safety in the provision of medical care for clients and employees. Very early in this scenario it became evident that virtual care services would be crucial.

Amil already had some health solutions underway, but because of the importance of face-to-face relationships there was resistance to launching telemedicine in Brazil. Regulatory entities and society were unable to reach a consensus on how this form of care could be practiced with safety and quality.<sup>1,2</sup> The pandemic accelerated the lifting of restrictions as a way of reducing the surge impact on healthcare access driven by the pandemic.<sup>3</sup>

By March 2020, the challenges posed by the pandemic on healthcare systems access did not allow for the privilege of slowing down to explore and implement the ideal solution. The Amil team had to respond to the challenge with boldness and ingenuity. Within one week, in early April, a virtual urgent care service was organized, comprising a team of nurses, family physicians and psychologists. This was achieved by reformulating the existing "Amil Ligue Saúde," a toll-free, 24/7 telephone nurse assistance line. The virtual care telephone service became a gateway to access urgent, low-complexity remote care.

Employee health professionals and contracted primary care clinicians that were unable to see patients in-person because of the sanitary lock-down restrictions were trained from their homes. This solution contributed to mitigating waste of human and financial resources during a pandemic-driven humanitarian crisis.

In July, the Amil platform for virtual consultations with video capabilities was launched. Teleconsultations were initiated using this platform that was also integrated with Amil health services. The platform was accessed through the Amil client smartphone application, a digital hub for health plan information and utilities for Amil clients. It integrated providers' schedules, patients' electronic medical records and the company's operational systems, while preserving data security, process transparency and information exchange in real time.

Implementation of telemedicine capabilities by Amil has the potential to expand the possibilities for new products, and facilitate novel integrations between services, devices, networks and systems. This also enables optimization of the use of analytical tools to improve population health and increase care efficiency.

In the spirit of innovation, telemedicine can be a fundamental tool

for the digital transformation of an integrated healthcare model promoting responsible balance in the use of resources and contributing to a health system that is better for everyone.

## Goal

The short-term objective of the project was to offer a timely, accessible, safe and quality-supported alternative healthcare service via virtual consultations to Amil's more than 3.5 million clients. The medium-term goals were:

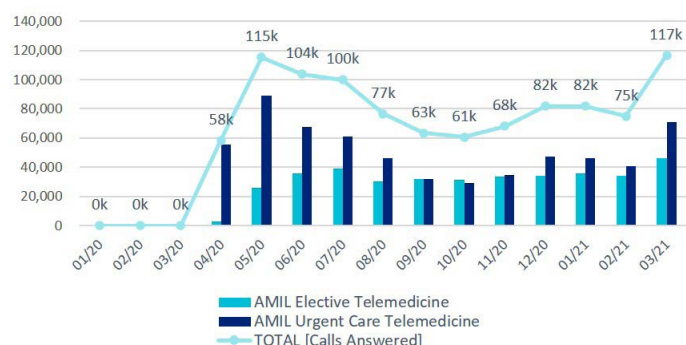
- to promote change in health seeking behaviors to reduce unnecessary and costly emergency room (ER) visits for low complexity health concerns and
- to leverage other digital health initiatives across Amil that enhance provider experience without jeopardizing patient safety.

## Results

A team of health professionals was trained to provide care and health education to patients about COVID-19 symptoms, transmission prevention, and best practice guidelines using telemedicine. When clinically indicated, the telephone triage nurses referred the patient for consultation with a physician via smartphone video call. The waiting time to consult with the physician varied from a few minutes to a few hours. Patients with acute mental health distress as a primary problem were also referred for consultation with a psychologist based on the nurse triage protocol. The volume of calls increased 20-fold after the first month, averaging 1,850 calls per day and escalating to an average of 2,877 calls per day by May.

By late April, Amil was offering both elective and urgent care virtual visits by phone. Elective virtual visits included most medical specialties and supported consultations with other allied healthcare providers and group therapies. This allowed for efficient continuity of care for patients with chronic diseases while continuing to maintain access for low complexity urgent care. Within the first year of operation, the Amil telemedicine service achieved 1 million consultations (Figure 1).

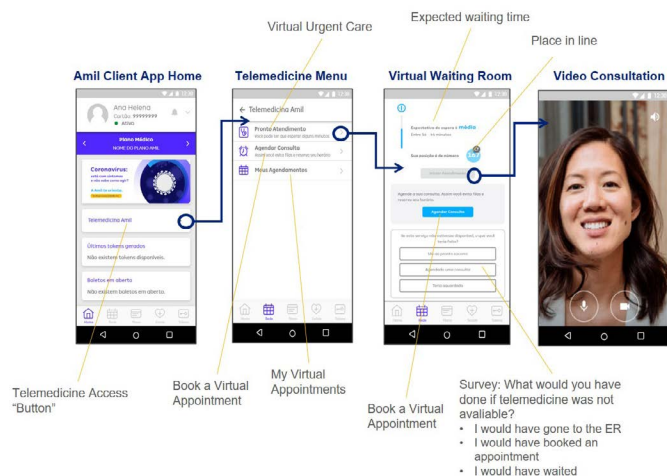
Figure 1: Amil Telemedicine Volumes



Client satisfaction measurement was implemented in October using the Net Promoter Score (NPS). Data indicates that urgent telemedicine NPS results were sensitive to longer physician waiting times (measured by the average speed for answering each call) and platform usability.<sup>4</sup>

Gradual implementation starting from existing resources and building on newer and more elaborate technology was an agile approach that enabled a quick start. Within four months, telemedicine access was available on the Amil client smartphone application (Figure 2).

**Figure 2: Amil Client App View**



Urgent care telemedicine has become a safe and efficient substitute for some low complexity ER visits without increasing utilization (Figure 3).

When compared, the total rate of ER visits plus urgent care virtual visits of 2020 (109 total urgent care visits per 1,000 members on average) or of 2021 (120 total urgent care visits per 1,000 members on average) has not surpassed the in person ER visit rate of pre-pandemic 2019 period (162 ER visits per 1,000 on average), suggesting that Amil's urgent care telemedicine may be a satisfactory replacement for some ER visits, contributing to the reduction of unnecessary and costly ER visits for low complexity health concerns.

### Lessons Learned

- Teamwork and intense collaboration between functional and business areas is pivotal.

**Figure 3: ER Visits per 1,000 Members**



- Technological development demands creativity, boldness, tenacity, resilience and patience.
- Digital illiteracy and connectivity issues may be a barrier for quality virtual care.
- Regulatory decisions about the boundaries of telemedicine must ensure patient safety, quality of care and simplified access to safe and convenient healthcare.

### Conclusion

Amil's telemedicine program was implemented using a progressive approach with ongoing technology development. In less than four months, it has become a unique platform for quality-supported, integrated medical care through video calls, accessed via smartphone, available 24/7 to all 3.6 million Amil clients.

This solution is driving digital transformation of our healthcare model. The advances obtained with this disruptive innovation include remote monitoring of chronic conditions and homecare patients, wellness promotion and leverage of new partnerships. The Amil telemedicine service is also helping to optimize the use of analytical tools to improve population health and increase the efficiency of care.

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# Case management of complex and high-risk patients through virtual health tools

## Introduction

Due to the growing chronic illness disease burden, long-term conditions management is a major sustainability challenge for healthcare systems. The situation is aggravated by complex and high-risk patient resource over-utilization that is frequently characterized by fragmented, uncoordinated and non-periodic care. Due to their increased medical needs, high risk and complex patients also generate more frequent emergency room visits and hospital admissions compared with lower risk and less complex patients. The result has been an increase in medical costs, without translation into improved patient care quality.<sup>1,2,3</sup>

Health care systems are developing strategies to provide high-complexity and patient-centered services aimed at increasing care quality and lowering medical costs. One strategy includes incorporating virtual health models to manage this population as part of the overall case management programs. Effective case management programs (CMPs) use an integrated care approach for complex patients and demonstrate positive impact: improving individuals' health, care coordination and clinical outcomes.<sup>1,2,3</sup> Effective case management programs also contribute to system sustainability with the potential to reduce emergency room visits, hospital admissions, and ultimately the cost of care. By including telehealth options to case management programs, we improve access to patients and overcome barriers to care.<sup>4</sup>

In 2019, 12% of Amil member hospitalizations were due to diagnoses compatible with the chronic health conditions mapped in Amil's database. This contributed to additional avoidable cost.<sup>5</sup>

Considering these quality and cost challenges, an opportunity to implement a program for managing complex cases while introducing virtual health options was identified. In partnership with an external provider, we trained a dedicated team of virtual health case management nurses to accompany and coordinate the enrolled patients' journeys, guiding them through Amil's network and offering comprehensive care according to the patients' complexity/risks.

The patient population included 5,000 members with a baseline profile of high utilization of health services, high medical cost, multiple chronic conditions and a lack of care coordination.

The program's main interventions included: periodic telenursing visits to monitor health conditions, home visits by doctors and nurses, hospital discharge visits by doctors and nurses to facilitate safe transitional care and safe discharge, 24-hour medical call center for patient assistance, and patients' scheduling and navigation guidance within Amil network.

## Goals

- Improve the quality of patient care
- Implement care coordination within a preferred network
- Ensure treatment continuity for conditions beyond COVID-19, considering lockdown and isolation concerns, especially for elderly
- Optimize patients' journey and health service access experience
- Provide appropriate care in appropriate settings
- Avoid unnecessary emergency room visits and hospital admissions
- Reduce medical cost

## Results

Case Management Patient Demographics: 75% are over 60 years old and 64% are female. Predominant geographic location is São Paulo State (70%), followed by Rio de Janeiro (14%). The five most prevalent chronic conditions are: systemic arterial hypertension (46%); oncology-related conditions (25%); diabetes mellitus (24%), mental health disorders (17%) and 15% dyslipidemia (15%) (Figure 1).

Avoided cost, bed days and per member per month (PMPM) reduction: A health care economics (HCE) comparative study analyzed 12 months of the program comparing prior and post-patient engagement. The program prior period was July 2018 to June 2019 and the post period was July 2019 to June 2020. Members with fewer than 100 days of engagement in the program and outliers were excluded from the study. Outliers were identified during data analysis, representing beneficiaries with very different costs, either very high or very low, when compared to the group.

Fifteen percent adjustment for COVID-19 was included in the amounts paid in April, May and June 2020 due to the cost reduction observed during the COVID-19 pandemic, in order to equalize costs. The study showed a reduction of 25.6% in total medical cost after program engagement. Reductions in inpatient admission indicated the greatest impact (- 47.9%).

Comparative data showed a bed days reduction of 2,06/K year to date (YTD) average with trend reduction of -32% YoY (Figure 2, October 2020). ER admits reduction was 817/K YTD average with trend reduction of -38% YoY (Figure 3, October 2020).

## Lessons Learned

- Teamwork and collaboration between areas is essential.
- Digital access to healthcare services has empowered our patients, expanded care access, and contributed to an increase in their health engagement, without jeopardizing quality and safety.
- Through specific telemedicine training, it is possible to integrate technical knowledge and humanized care.
- Integration with inpatient management teams was crucial for transitional care.
- Guiding patients to the right care delivery setting mitigates inappropriate Emergency Room (ER) and inpatient admissions indicators.
- Healthcare professionals gain additional data-driven insights about managing complex chronic patients.

Figure 1: Enrolled patients' chronic conditions prevalence

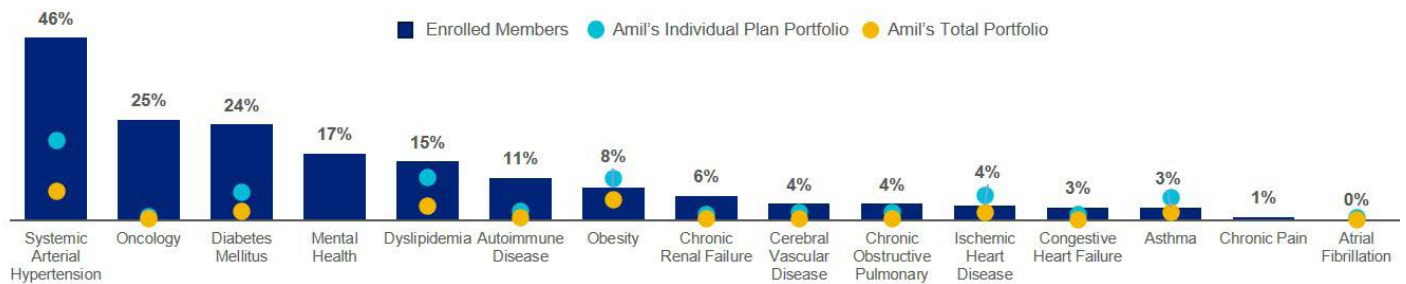


Figure 2: Bed days reduction

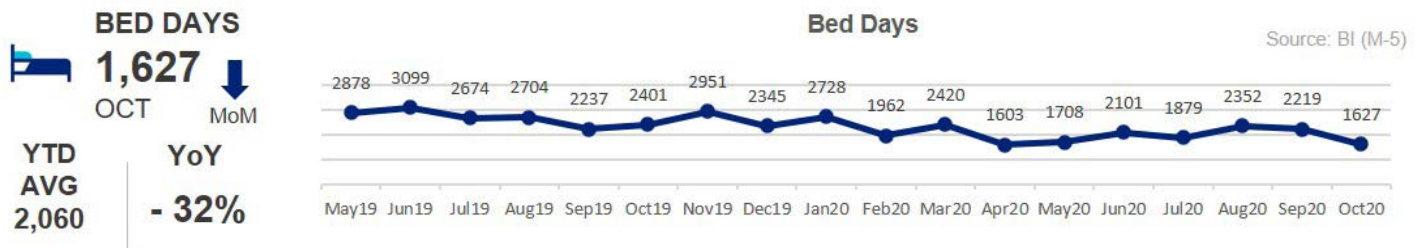
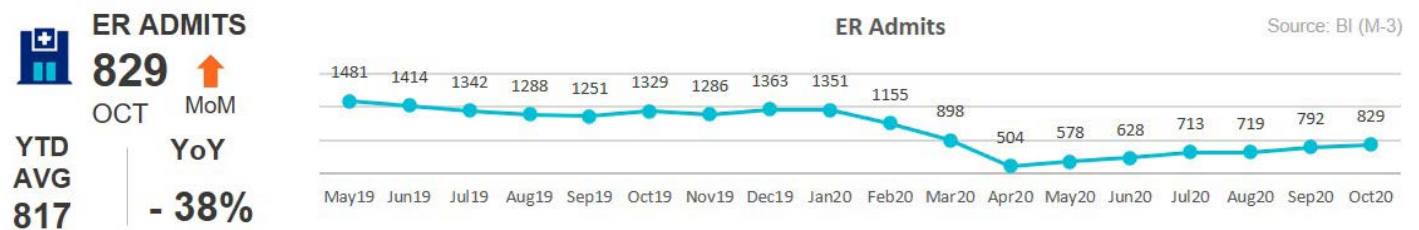


Figure 3: Emergency room (ER) visit reduction



# Case management of complex and high-risk patients through virtual health tools, *continued*

## Conclusion

A case management program for complex chronic patients with virtual health components is an innovative solution with the potential to have significant impact on Amil's health system. Introducing telemedicine enabled nurse and doctor teleconsultations, reduced geographic constraints, expanded care access and established diligent and supportive patient-provider relationships. Despite the difficulties of barriers to accessing technology and regulatory challenges, telemedicine adoption helped improve the care of complex patients with chronic diseases and overcome socioeconomic, geographic, and weather-related barriers.

It has allowed coordinated, continuous and personalized care for chronic condition patients, delivered by different care methods. While complete results and long-term feasibility are still being evaluated, telemedicine has thus far proved to be a promising technology tool. Results obtained thus far show that this transformation opens the door for new possibilities to better manage quality and cost of care.

Considering the positive program results and the virtual health tools available, Amil is currently expanding the number of target patients to be enrolled in our case management program. Utilizing the same profile criteria, an estimated 60,000 patients will be enrolled in 2021. This is an excellent opportunity to optimize Amil and Americas' hospitals and accredited network, addressing gaps in the continuity of care.

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## Select recent publications

The following articles are recommended for enhancing knowledge related to COVID-19 and other clinical developments.

1. [“Virtual health care in the era of COVID-19”](#) Webster, P., *The Lancet*, 2020 April 11.
2. [“Intubation Practices and Adverse Peri-intubation Events in Critically Ill Patients From 29 Countries”](#) Russotto, V., Myatra, S. N., Laffey, J. G., Tassistro, E., Antolini, L., Bauer, P., ... & INTUBE Study Investigators. *JAMA*, 2021 March 23.
3. [“Sequelae in Adults at 6 Months After COVID-19 Infection”](#) Logue, J. K., Franko, N. M., McCulloch, D. J., McDonald, D., Magedson, A., Wolf, C. R., & Chu, H. Y., *JAMA network open*, 2021 February 1.
4. [“Streaming from a Diagnostic and Therapeutic Endoscopy Room: It Is Possible at Low Cost”](#) Garcia, C. N., Arango, L., Valdivieso, E., Ponce, M., Castillo, C., Barrientos, C., ... & Ortiz, P., *Gastroenterology*. 2021 June.
5. [“Management of the Difficult Airway”](#) Heidegger, T., *The New England Journal of Medicine*. 2021 May 13.
6. [“Postinfectious Interstitial Pneumonia After COVID-19 Infection”](#) Salcedo, R. M., Flores, R. G., Medina, C. A., Mogollon, R. J., & Madariaga, M. G., *Infectious Diseases in Clinical Practice*, 2021 May 29.



# Rapid digital health transformation during the COVID-19 crisis and beyond

## Introduction

The COVID-19 response and subsequent pivot to a virtual care ecosystem has changed the fabric of health care delivery. Today, health care organizations are challenged to create a go-forward care delivery model that integrates digital health solutions into in-person services. The goal is to create a smarter delivery system that simultaneously drives value to patients, health care providers and the business.

In response to the pandemic and in consideration of post-COVID-19 needs, Optum took a holistic approach to deploying telehealth which accounted for the variable local care delivery needs yet would be scalable. The effort required cross-country and cross-enterprise strategic coordination to rapidly deploy digital health solutions so clinical operations could be maintained.

In partnership with Optum Advisory Services, Optum launched the Digital Response Team (DRT) to develop a telehealth strategy that integrated telehealth video offerings, app-based acute and chronic care management and digital nurse monitoring teams to meet the various clinical needs of each individual practice. These efforts set the standard for a best practice approach to digital health program execution: more than 10,000 providers live on video visit platforms within two months and an agile deployment infrastructure that set the foundation for continued rapid progress.

## Goal

The short-term goal of the digital response team was to maintain clinical operations to serve the needs of our patients during the pandemic. The longer-term goal was to take learnings from that response to reinvent how primary care is delivered. Optum digital strategy and implementation teams rapidly deployed telehealth services with an operating and organizational model that enabled expansion of remote access to millions of patients.

This work:

1. Defined best practices for coordinating across UnitedHealth Group nationally using multidisciplinary teams that allowed for rapid knowledge and expertise-sharing

2. Implemented an agile approach that used human-centered design in the product development process and sprint cycles of “test, deploy and iterate” to achieve optimal results in rapid succession
3. Designed a rigorous review process to evaluate progress against established goals and created a value framework to determine benefits of the digital health tools
4. Used service design to help operational teammates and physicians overcome a quick learning curve, accelerate implementation and drive adoption
5. Built a digital health operating model that serves as a foundation to efficiently operationalize health innovations, manages through ambiguity, and continues to drive rapid progress.

## Results

Optum includes a nationwide family of more than 56,000 dedicated physicians advancing high-quality, physician-led ambulatory care across three areas: primary care, specialty care and post-acute care, and its presence continues to grow across the United States (Figure 1).

Figure 1: Optum network across the United States

### 48K

Employed and contracted physicians

### 10.5K+

Physicians onboarded on telehealth platform in early 2020

### 1.3M

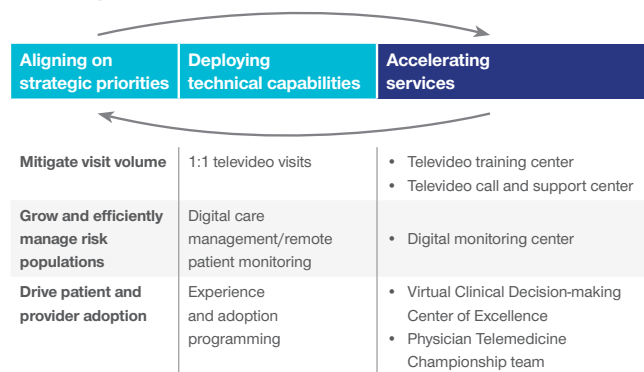
Additional virtual visits completed in 2020 as part of rapid response



# Rapid digital health transformation during the COVID-19 crisis and beyond, *continued*

Given existing expertise in digital readiness and deployment, Optum was poised and ready to accelerate digital initiatives in a rapid response to the COVID-19 crisis. In mid-March 2020, the Digital Response Team was formed, with a focus not only on the deployment of digital tools and services, but also the “accelerants” to drive rapid results (Figure 2).

**Figure 2: Accelerating services enable rapid deployment and adoption**

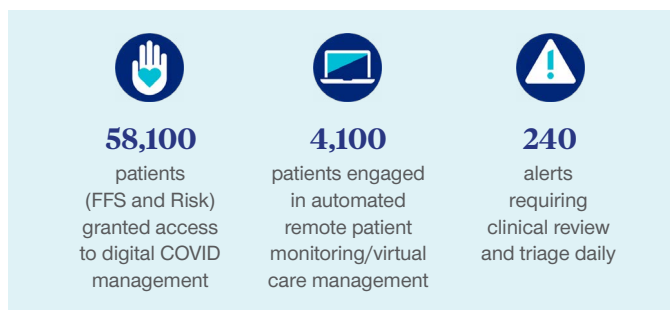


Investing in and creating intentional Accelerating Services, coupled with the operating model and design-based decision-making outlined in “Lessons Learned,” resulted in the following:

- In 12 weeks, more than 10,000 physicians were added to televideo visit platforms (fewer than 1,000 physicians were live on televideo visit platforms pre-COVID-19).
  - As a result, more than 1.3 million video visits were completed in 2020, with video visits comprising more than 25% of all visits from April to May 2020 (compared to <1% of all visits completed via video in 2019).
- In three weeks, an Optum Telemedicine Call and Support Center was built to manage the onboarding of 1,000 physicians per week onto video visit platforms (the same number of in-person visits conducted by Optum care delivery in the prior year).
  - Personalized trainings for five virtual visit platforms and app-based care management tools were accessed and viewed more than 5,000 times by Optum providers and teammates.
- In six weeks, an Optum Digital Nurse Monitoring Center was built to launch remote monitoring for COVID-19 patients. The Center is now live across all care delivery organizations in Washington.
  - Launched remote patient monitoring for COVID-19 symptoms for 58,000 patients, with 4,000 patients actively

remote monitored, and added chronic condition remote patient monitoring in addition to COVID-19 monitoring (Figure 3).

**Figure 3: Rapid scale and accelerating services in practice**

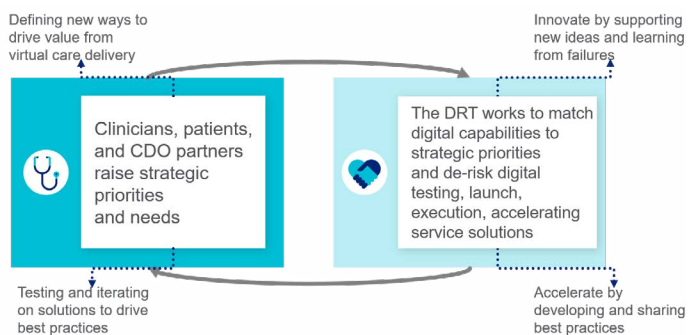


## Lessons Learned

Success was driven by an organizational operating model that explicitly facilitated both cross-enterprise and national-local coordination, resource-sharing, and design-thinking methodology for rapid decision-making. This enabled the diversity of ideas, rapid knowledge-sharing, and enterprise expertise to surface and deploy quickly. The leadership team intentionally created a design-thinking approach that was applied across digital modalities — an approach that resulted in differentiated outcomes and is now formalized as Optum’s Center for Digital Health.

First, the Digital Response Team developed intentional partnerships with local Optum Care Delivery Organizations (CDOs), focused on building a partnership for design-based progress – the ability to test, iterate, design and scale (Figure 4).

**Figure 4: The Digital Response Team Partnership Model**



This design-based operational approach included:

- Assessments of internal and external vendors on their abilities to meet business and strategic needs, along with speed to implementation

- Testing and implementation of different products and services in different markets simultaneously
- Developing, learning and iterating enabling services (the “accelerants”) and implementation strategies
- Narrowing to a preferred set of vendors and services based on rapid learnings
- Supercharging operations and adoption of the preferred set with Digital Response Team and Accelerating Services
- Selecting best practices and scaling quickly

Second, this approach used an organizational operating model that solved for common enterprise roadblocks, facilitated the collaboration of the right decision-makers to move decisions forward, and embraced diversity, enterprise knowledge and team resource-sharing across clinical, operations and technology (Figures 5 and 6).

Third, in order to sustain rapid progress and innovation, this structure served as the foundation for Optum’s new Center for Digital Health, a growing service accessible to UnitedHealth Group globally.

## Conclusion

Optum was able to create a foundation to enable rapid digital transformation and is now accelerating this progress by further investing in the Center for Digital Health. The Center for Digital Health focuses on applied innovation that delivers value through health care transformation enabled by technology. Our reliance on and newfound understanding of the value of digital health are fueling our cross-enterprise efforts to redesign our care delivery model to a blended model of virtual care with in-person care services. Virtual care and digital health tools are no longer a novelty, but a necessity to achieve an effective value-based care model that improves health, lowers the total cost of care, addresses clinical workforce shortages and aims to improve the overall patient experience.

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Figure 5: Operating Model for Rapid Design-Based Deployment

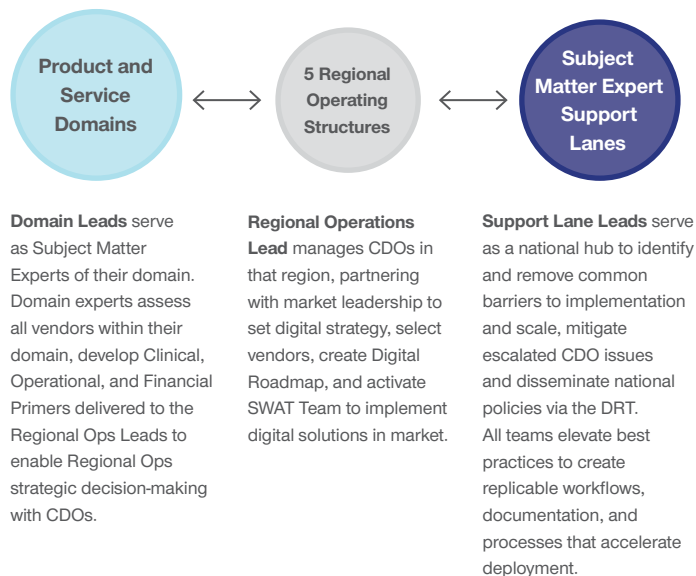
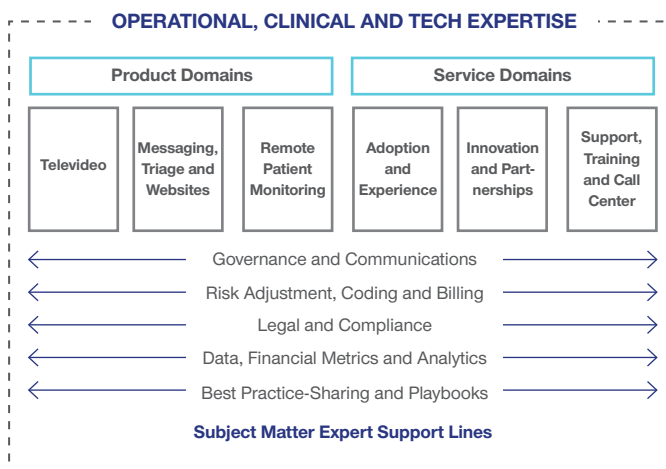


Figure 6: Organizational Structure and "Team of Teams" Model



## Todos Por Um app: Guiding patients to the right care to increase health system sustainability

**The Problem:** Providing health care at the right time and in the right setting is essential for care quality and health system sustainability. This has proven especially true during the COVID-19 pandemic, which has constrained health resources around the world. When clinically advisable, expanding patients' access to quality care in the comfort of their homes can help avoid unnecessary hospital visits. In turn, treating patients virtually when appropriate ensures that hospitals can provide timely inpatient care to the patients who need it most.

In the pandemic environment and beyond, health care providers need user-friendly digital tools to connect patients with the right services for their care needs. The new *Todos Por Um* (All for One) app from Lusíadas Saúde meets this need by providing remote symptom assessment and guidance to the appropriate care setting by highly qualified clinicians.

**The Program:** Lusíadas Saúde, a health care delivery company in Portugal, created the *Todos Por Um* COVID-19 symptom assessment app in just seven days, in partnership with app developer Outsystems. The app uses artificial intelligence and the latest evidence-based approach to make a first assessment of a user's symptoms, using the latest evidence-based approach.

By guiding the patient through a series of questions, the app gathers information and applies an algorithm, giving the user a risk score in one of three colors:

- Green informs the user to continue monitoring symptoms and take appropriate safety measures.
- Yellow advises the user to speak with one of the clinical professionals using the app's chat function.
- Red recommends that the user to go immediately to the hospital.

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*We can conclude there is an urgent need for care navigator tools that clarify health questions and direct patients to the right care option for their needs. Of the population who has used the app, we estimate that **more than 25% would not be able to receive adequate care from existing phone-based clinical contact centers.***

If the patient is assigned to the yellow category, all health professionals who are enrolled as providers in the app receive a notification. When a provider clicks "accept" on the notification, they assume responsibility for monitoring the patient's process and providing clinical recommendations.

Upon provider acceptance, a chat session with the patient automatically opens, and the provider can assess the patient's needs. This patient-provider matching process is similar to how rideshare apps connect rider requests with drivers.

The *Todos Por Um* app is free for both providers and patients. Any health professional in Portugal can volunteer to participate by submitting their license for validation by the National Medical and Nurse Councils. By using this app, providers have the opportunity to reach more patients and prevent unnecessary visits to hospitals and clinics. We are careful to emphasize to users that the app is a supplemental tool, rather than a substitute for regular health care or emergency medical care.

There were two critical factors that drove the success of this project: cross-disciplinary collaboration and updates with project members six times per day.

**Results:** The *Todos Por Um* app helps providers reach patients at home and, when clinically advisable, direct them to the correct site of care in a time of overcrowding and reduced resources. As of September 2020, more than 100,000 users from the Portuguese public have received guidance from the app. Since April 2021, more than 398,000 requests were answered by more than 3,800 health professionals. Of these, 1,900 cases were referred to a care delivery facility due to clinical need (source: internal application analytics).

Based on the high number of user inquiries, we can conclude there is an urgent need for care navigator tools that clarify health questions and direct patients to the right care option for their needs. Of the population who has used the app, we estimate that more than 25% would not be able to receive adequate care from existing phone-based clinical contact centers.<sup>1,2</sup> Patients unable to get answers from phone lines may have instead sought care in-person at a hospital or clinic, increasing costs, contributing to overcrowding and decreasing system efficiency and sustainability. In addition to straining the health system, unnecessary admissions also displace hospital-appropriate patients.

*Todos Por Um* was recognized in May 2020 by the Gulbenkian Foundation as one of the top Portuguese solutions to fight COVID-19 earning a national sustainability prize and receiving a grant from the organization. It also earned a National Honorable mention by Journal de Negócios as one of the most sustainable solutions from 2020.<sup>3</sup>

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# Brief Reports: Virtual Health

## Teletherapy: A more humane approach in the time of a pandemic

**The Problem:** The availability and accessibility of clinical services are central for timely and effective health care delivery, as well as the identification of barriers to access them.<sup>1</sup>

The COVID-19 pandemic imposed, in most countries, barriers in availability and accessibility to services. The measures to control transmission within health teams and in the population with existing conditions, as well as the reorganization of services to respond to coronavirus cases, have resulted in reduced access to patients, absence or restriction of care in non-COVID-19 pathologies, increased waiting lists, closure of services and treatment limitations.<sup>2</sup>

Restrictions have further depleted the provision of mental health services in the world. Every year one in five people develop a mental health problem,<sup>3</sup> and very few get treatment.<sup>4</sup> This group also has a higher risk of dying earlier than those with other illnesses.<sup>5</sup> During the COVID-19 pandemic, 93% of countries reported interruption in one or more mental health services, and almost 60% of all psychotherapy and counseling services were partially interrupted.<sup>6</sup>

Providing mental health care to groups at higher risk of illness or death in the context of a pandemic was a priority at Clínica Dávila in Santiago, Chile. A pilot program was created based on telemedicine to facilitate improved access.

### The Program:

#### Objectives

1. To provide mental health support to patients, their families and, secondarily, to the team involved in their treatment, since the team's mental health also plays a role in the patients' clinical outcomes.
2. To provide emotional support to the care team and patients' families in times of high stress, such as death.
3. To prevent pathologies and relapses in cases of previous diagnoses of psychiatric conditions.
4. To manage acute stress after prolonged hospitalizations.

#### Protocol

1. Needs assessment by respective units.
2. Immediate referral to the program.
3. Diagnosis and psychiatric intervention with patient and family.
4. Psychological intervention with patient and family.
5. Interventions on-site with care teams: Support in care, support in communication with families, joint identification of cases, and timely referral.
6. Timely and effective referral to the network.
7. Follow-up of cases upon discharge.
8. Evaluation of patients three and six months after program participation to assess the level of satisfaction.
9. Care is provided by one psychiatrist and one psychologist via phone or video call.

The protocol is applied in:

1. Intensive Care Unit (ICU)
2. Intensive Treatment Unit (ITU)\*
3. Transplant Unit
4. Palliative Care Unit

\* Patients requiring monitoring and surveillance at a lower level of complexity than ICUs, but much higher than traditional inpatient units. ITUs are defined by the type of care they provide, the level of specialization of the staff and the type of associated equipment.

**Participants:** Patients are eligible to participate in the program if they are assigned to one of the four units above, have oral communication skills (basic or complete) and, preferably, are recommended for family psychotherapeutic support. Hospitalized patients are referred by their treating physicians.

**Eligibility criteria:**

- Patients with auto-immune diseases
- Patients at risk for in-person care
- Hospitalized patients, depending on physical health conditions

**Results:** According to what has been observed in developed countries,<sup>7,8,9</sup> telemedicine was an important tool to provide mental health care in areas where this service is not usually available (such as intensive care units) or was not easily accessible due to restrictions during the pandemic, for example, the provision of psychological support in palliative care.

Behavioral health care was adapted to the patients' needs in the context of the pandemic, creating an approach where personal protective equipment was not needed, but that still allowed for the recognition of faces and gestures, which is essential for a therapeutic relationship. Furthermore, this approach also protects especially vulnerable groups.<sup>10</sup>

Of the more than 1,000 patients who have been treated in the last six months, approximately 30% have been treated via telemedicine through this support program.

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## Patient experience with the use of teleconsultation services at Clínica San Felipe

**The Problem:** In March 2020, the COVID-19 pandemic hampered economic activities in Peru and resulted in the complete cessation of all outpatient care within the public and private health care system. Clínica San Felipe has historically based its consumer and patient interaction on personalized face-to-face services and in-person care. Given this, the pandemic immersed the hospital in a situation that posed substantial challenges to its operations.

Even once the initial quarantine period was over, we knew there would be challenges and difficulties in maintaining the sustainability of the traditional face-to-face care model. It was necessary to change the paradigm of outpatient care. As a result, the team quickly implemented a teleconsultation service. This initiative was initially met with a lot of uncertainty. In Peru, both patients and doctors are used to personal interaction and lacked trust in digital channels. The uncertainty was compounded by constant changes in health regulations and the emerging regulations on telemedicine care in Peru, which constituted a complex challenge for our institution.

**The Program:** Implementation of the teleconsultation service included two critical requirements. First, it would be aimed at our insured patients through a policy contracted by their employers (EPS). The teleconsultation service would be available to approximately 60% of our outpatients. Second, virtual medical consultation could only be generated through the clinic's appointment application, with a minimum scheduling period of eight hours in advance.

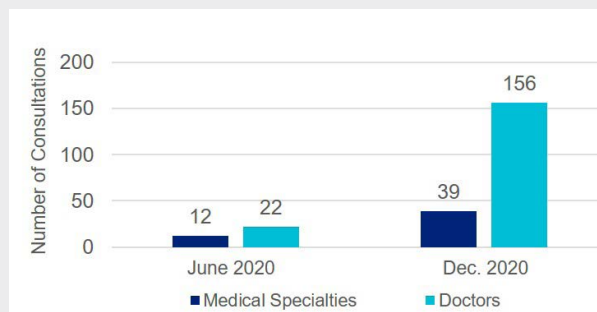
On June 22, 2020, after two and a half months of planning and development work, the first phase of the teleconsultation service was launched. This phase served to identify opportunities for improvement in the service, which were studied and implemented as of September 2020.

**Results:** On the first day of the program, we engaged with 117 patients and received positive feedback. The number of patients served increased over the eight days remaining in the month of June. From June to December 2020, we reached 6,436 patients through teleconsultation. The process of learning and continuous improvement had a positive impact on the reception of the service by both patients and medical staff. We currently offer 39 medical specialties and have a 76% patient satisfaction level, which is very close to the historical 83% satisfaction of face-to-face consultation (Figure 1).

The following components of our teleconsultation model had a positive impact on the patient experience with our service:

- Proactive scheduling of imaging appointments.
- Assignment of a pharmacy technician exclusively responsible for the filling and pickup scheduling for orders generated by teleconsultation.
- Implementation of an executive assistant to support the virtual care area by managing and responding to questions, observations and/or challenges reported by teleconsultation users.
- The modification of functionalities to support a user-friendly interface.
- Improvement in waiting times for drug delivery.
- Availability of web-based and app-based appointment scheduling options.
- Reduction of scheduling window from eight hours to four hours before consultation.

**Figure 1: Growth of specialties offered and number of physicians working in teleconsultation**





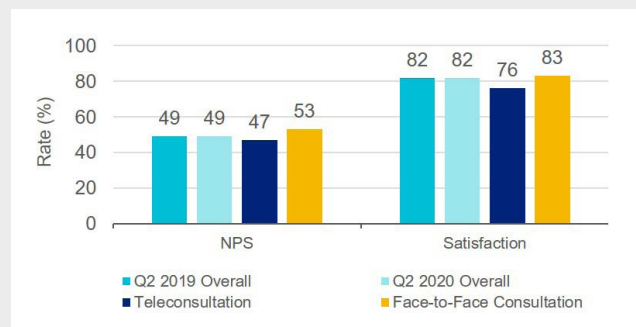
In conclusion, we can affirm that virtual consultations and in-person consultations offer the same quality of service, are accepted by patients and doctors and are sustainable over time. This is evidenced by comparable levels of satisfaction as defined by NPS and self-report of satisfaction (Figure 2) between face-to-face consultation and teleconsultation. Data also indicates that the teleconsultation service is growing in volume of teleconsultations and the number of doctors who request to join the service.

**References:** Comprehensive System of the Clínica San Felipe – SIC, <https://uhcgm.eu.qualtrics.com/reporting-dashboard/>

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**Team Members:** Rocío Antón, User Care Platform Executive, Clínica San Felipe, Perú; Ana Vásquez, User Attention Platform Executive, Clínica San Felipe, Perú

**Figure 2: Comparison between NPS and satisfaction for teleconsultation and in-person care from 2019-2020**



# Brief Reports: Virtual Health

## Dr. Colmédica: Improving Colmédica's telemedicine app and website

In response to the shifting needs of the COVID-19 pandemic,<sup>1</sup> Centros Médicos Colmédica (Colmedica Medical Centers) strengthened at-home care services and implemented telemedicine to improve access to care, availability and continuity, and to facilitate follow-up with patients with acute and chronic conditions.

We designed the Dr. Colmedica app and website to bring medical service into patients' homes. Launched in April 2020, the app enables videoconferencing calls, appointment scheduling, and access to patient's clinical records through Mi Salud (My Health), our medical record platform.

Dr. Colmédica is compatible with all mobile operating systems currently on the market and is also optimized for Google Chrome for use on desktop computers. Patients can make appointments and payments either through the app or website versions of Dr. Colmédica. To improve the users' experience, the telemedicine service was integrated into the Colmedica app in September 2021, allowing patients access to all services in one location. For the purposes of this study, which took place between April 2020 and February 2021, we refer to the telemedicine service as Dr. Colmédica, which is no longer available as a stand-alone app and website.

### Implementation learnings: Keys to success

Effective training and efficient communication were critical to ensuring medical access through this modality: speaking to our physicians and users in a clear language and listening to their feedback during the implementation process enabled quicker improvements and better teaching.

Following training, professionals faced challenges because they were using a new care delivery format without in-person contact between the doctor and patient and not allowing for direct physical examination. Patients faced similar challenges in dealing with this new way of receiving care: tutorials and messages through all channels were needed to teach users how to access the application, deal with internet quality, identify the appropriate type of smartphone, solve connectivity problems, and access previous examination and test results to support the telehealth consultation. These provider and patient challenges often increased consultation times.

The implementation team listened and responded to these challenges with appropriate fixes. Examples of some enhancements included the introduction of capabilities that allowed upload of photographs of injuries to facilitate pre-consultation assessment by the physician, creation of a help desk for patients and doctors, implementation of a more stable teleconsultation platform, and development of instructions based on accepted Clinical Practice Guidelines developed internally at Colmédica for telemedicine.

The app development team is currently working on a virtual waiting room for patients when the physician assigned to the consultation is delayed by another call. The team is also working to create access to the help desk through a virtual channel. Currently, access to the help desk is only available by phone.

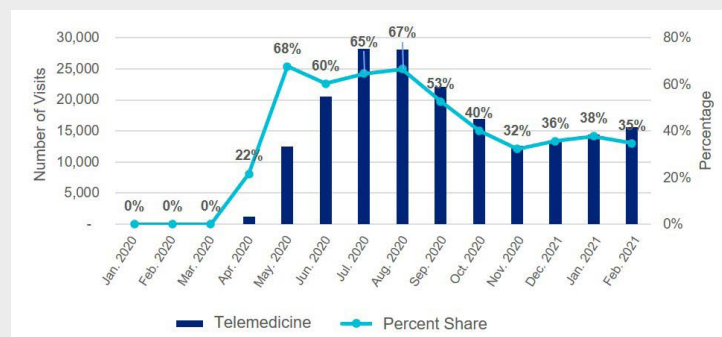
### The outcome? Caring for more than 185,000 patients in the first year

Since April of 2020, we have delivered more than 388,500 services, 185,000 (48%) of those by telemedicine. More than 24 medical specialties are available through this modality (Figure 2).

Figure 1: Dr. Colmédica app QR code

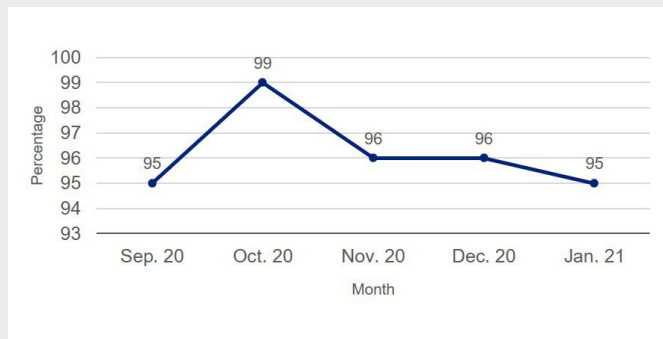


Figure 2: Percent Share of Telemedicine Visits



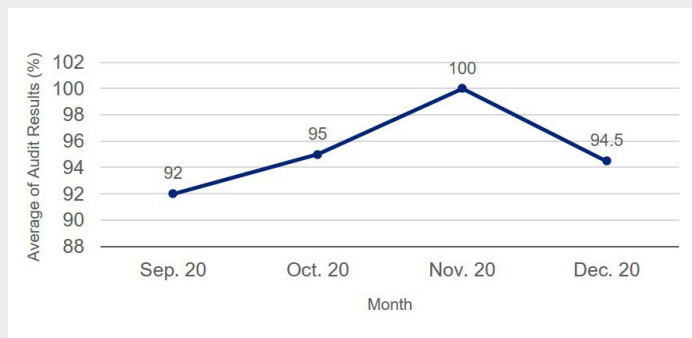
\* Global data source based on internal data

**Figure 3: Percentage of avoided follow-up appointments after initial virtual visit**



\*Global

**Figure 4: Results of the telemedicine quality-of-care audit**



\*Audit Bases

To monitor the effectiveness of telemedicine visits, we carried out an audit on a sample of repeat visits within 45 days from the initial assessment for related diagnoses. Patients who had a repeat visit using the in-person format (emergency room, home visit, in-person office visit) were also audited, generating the following results. Data analysis indicates that only 4% of patients initially treated by telemedicine requested an in-person appointment for the same issue within the 45 days following the initial visit (Figure 3).

The quality-of-care audit measuring relevance, completion of clinical record, and rationality was higher than 94.1% on average (Figure 4).

The Dr. Colmedica app and website have proven to be important tools to reach patients needing chronic care and acute follow up in this time where social distancing is essential to controlling the spread of COVID-19. We are pleased that the vast majority of patients and clinicians are happy with the care they receive with the app. We are also mindful of continually improving the experience and addressing issues within the app and will continue to optimize this tool to improve access and convenience.

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## COVID-19: From health education to telemedicine – Experience report

**The Problem:** In 2020, we recognized the need to transform our existing health care models to combat the COVID-19 pandemic. The way that health care was offered had to be adapted to ensure quality and facilitate patient access during a difficult time. The challenges resulting from the pandemic and compliance with World Health Organization (WHO) social distancing guidelines accelerated our efforts to deliver care through safe and effective virtual platforms.

**The Program:** Academia da Saúde, the Amil Health Academy, is a part of the UnitedHealth Group Brasil corporate education office. Our nurse educators serve all employees of Amil Brasil outpatient units, with current, evidence-based, clinical education. Our goal is to promote a culture of learning with a focus on quality care.

In March 2020, as we approached the peak of the first wave of the pandemic in Brazil, the Health Academy team received the news that we would have to leave our offices and go home, with no scheduled return date. As the “home office” routine began, our mission of providing timely, evidence-based clinical education was more critical than ever. We had to adjust quickly to these new circumstances and focus on improved digital learning. This way we could support clinicians and patients now relying on digital care delivery.

Telemedicine programs were rapidly launched to respond to the pandemic. The Amil Health Academy nurse educators focused on assisting care teams in learning to manage the remote patient intake.

Our first Amil Health Academy task force of nurse educators trained to teach remote and telemedicine best practices began to work alongside the Amil Ligue Saúde (Amil Health Line) nurses. The Health Line nurses were virtually triaging and providing guidance to patients with signs and symptoms of COVID-19. Because of increased demand, Emergency Telemedicine triage was also implemented with a procedural flow that started with initial assessment by a nurse and then, if necessary, a referral for a virtual visit with a doctor.

In addition to the increased demand for Amil Ligue Saúde and Emergency Telemedicine services, the pandemic—and social distancing—increased anxiety levels for many. High numbers of Amil members and employees began seeking not only medical care but also psychological support. This need for psychological care led to the launch of a third area needing the support of Amil Health Academy task for nurse trainers: the telepsychology program.

Nurses are essential to this new virtual care ecosystem. Many steps were necessary to ensure a proper intake process, provide clear and objective communication, show respect for the patients’ conditions and deliver an analysis focused on each individual’s current needs.

As each urgent need for clinical education was clear, the Amil Health Academy nurse educators were there to train and support clinicians. We were first charged with training a telemedicine triage system for COVID-19 symptoms. Next, we supported an Emergency Telemedicine team. After that, our nurse educators were assigned to support nurses managing psychological care triage. Each of these programs serves thousands of patients per month and continues to provide consultations to this day.

Our professional and personal growth during this period was immeasurable. We had to learn new skills in order to teach new skills, and this meant leaving our comfort zones. Under pressure we rose to the challenge of understanding the world of telemedicine in a rapidly changing environment and overcoming its challenges while offering empathy and compassion for our patients.

Amil telemedicine showed us that even in the most difficult situations, we can offer personalized, humane, and high-quality care to our patients—even from a distance. Despite innumerable challenges, what remains in our memories are the many inspiring stories and the feeling of having risen to the occasion.

**Results:** Remote handling of patients requires qualified, empathetic and caring listening skills. In this context, health care had to adapt to the “new normal” created by the COVID-19 pandemic. Telemedicine was the answer to the need, providing excellence in virtual service to customers and employees. The nurse educators at Amil Health Academy were vital, training clinicians who would go on to carry out between 30,000 to 70,000 telemedicine patient encounters per month.

The Amil Ligue Saúde training was taken by 177 employees working in telemedicine. At the end of the training, each employee performs an assessment of their learning experience, answering the following question: "On a scale of 0 (least satisfied) to 10 (most satisfied), how satisfied are you with the training?" A total of 77 respondents, or 43%, gave the training a score of 10 (Figure 1).

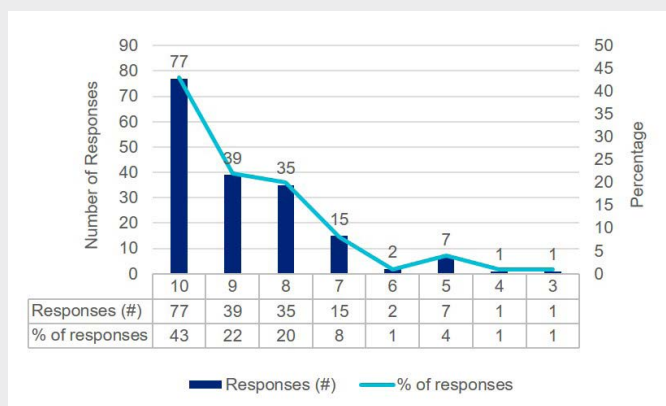
Our experience with Amil Ligue Saúde building out telemedicine was a time of resilience and reward. We were able to offer excellent service using the cornerstones of primary care: access, integration, a longitudinal perspective and coordination of care.

We continue to collaborate through the educational process, providing the necessary tools and supporting all the professionals involved in telemedicine services.

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*This work is a result of the entire team of the Amil Health Academy.*

**Figure 1: Results of Amil Ligue Saúde Training Satisfaction Assessment**



Source: Virtual Learning Platform

## Accelerating the scope of teleconsultation in the SANNA providers network in Peru during the COVID-19 pandemic

**The Problem:** In November 2019, the SANNA provider network in Peru began offering outpatient teleconsultation through our Doctor Online and SANNA app. Consistent with the legal restrictions in place, teleconsultation general practitioners could only make recommendations and guide patients to the right care option. Average volume during this time was very low at approximately 50 visits per month (internal data).

However, in the context of the pandemic, it became a priority to improve the teleconsultation service. The main challenge was to develop an agile system that could meet the emotional and physical needs of the patient.

**The Program:** At the onset of the COVID-19 pandemic in March 2020, the Peruvian government declared a state of emergency and ordered the closure of all primary care provider offices and facilities. This decision also led to a change in legislation, expanding the types of telehealth services allowed in the country.

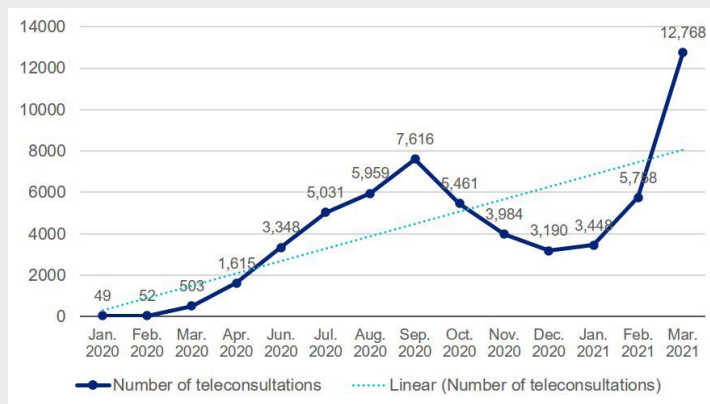
The need for agile and efficient teleconsultation software became an immediate priority to provide services to our patients — both for visits with general practitioners and specialists. SANNA needed our app and website technology to rapidly improve, respond to and manage the increase in inpatient volume. To streamline digital patient registration, we developed an adaptable and efficient proprietary software called Jitsi. We also began using corporate WhatsApp for administrative support and patient communication.

In February 2021, within four months of the change in legislation, we had expanded our telehealth services to more than 18,000 total consultations across our provider network (5,758 consultations) (Figure 1) and the ambulatory division (12,599 consultations) (Figure 2). Gradually, the service expanded to include prescription home delivery, diagnostic imaging scheduling and telehealth for other specialties such as pediatrics, dermatology, pneumology, endocrinology and other areas related to chronic condition management.

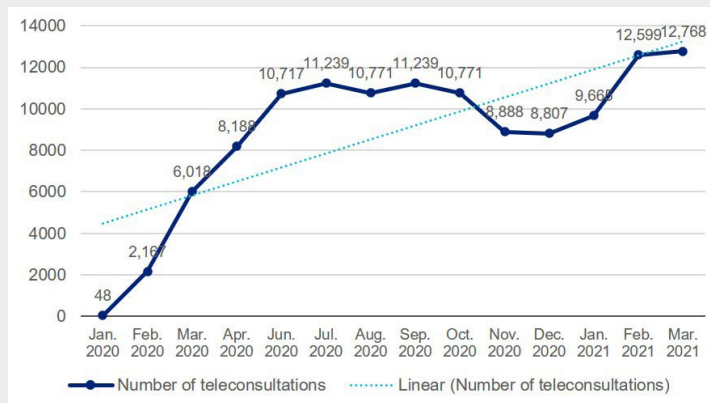
**Results:** The pandemic allowed us to overcome the negative historical and cultural views of teleconsultation and spurred us to rapidly expand our existing app and launch several new digital solutions. We have also recently added virtual prenatal workshops, and we expect to continue to grow the program by adding additional benefits and services for our patients.

**Authors:** Italo Camposano M.D., MBA, Ing, Chief Information Officer, SANNA Healthcare Network, Perú; Paula Ponce de León Lovatón, M.D., MBA, HCQM, CEO and Medical Director, SANNA Healthcare Network, Clínica San Felipe, Perú

**Figure 1: Number of teleconsultation services in the SANNA provider network (Dr. Online)**



**Figure 2: Number of teleconsultation services in the SANNA ambulatory division (hospitals and outpatient centers)**



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