MILLIMAN WHITE PAPER

Telehealth adoption in health insurance, implications for proposition design and cost containment

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Telehealth expansion is an important development priority for most leading health insurers. It is also a focus for many emerging insurtech disrupters and health tech startups. However, the usage of telehealth has been very limited historically; 92% of US consumers reported they were not using telehealth prior to the onset of the COVID-19 pandemic.[1] The COVID-19 crisis and the enforced lockdowns and shelter-in-place orders worldwide have accelerated the relevance and usage of telehealth—with major implications for health insurers.

This paper examines the current status of telehealth in major geographic markets, including the US, Europe and Asia. We develop a framework for telehealth with its key market participants, including a typology of models of virtual care, which we use to consider telehealth adoption. We then take a deep dive on implications for insurer proposition design and cost containment. Appendix 1 contains some specific examples and case studies in the development and use of telehealth within the health insurance universe in our key geographic regions.

Methodology

We have conducted a review of the publicly available industry, trade and governmental research publications as well as exploratory and qualitative interviews with Milliman experts and selected health insurance market participants. We have used secondary data to provide a view of market structures and volumes as well as future trends and developments.

Telehealth and telemedicine definitions

The terms "telehealth" and "telemedicine" are often used interchangeably and there is a vast amount of literature with many definitions. However, telehealth is a broad term encompassing a wide variety of technologies and uses whereas telemedicine is specific to practitioners providing care to patients. The US Health Services Resources Administration defines telehealth as the use of electronic information and telecommunications technologies to support long-distance clinical healthcare, patient and professional health-related education, public health and health administration. The US Agency for Health Research and Quality (AHRQ) defines telemedicine “as the use of telecommunications technology for medical diagnostic, monitoring and therapeutic purposes when distance separates the users.”[2] Miller suggests that telehealth refers to both clinical and nonclinical applications in the way of education, administration and research, while telemedicine is often reserved for clinical patient care applications.[3] For example, a video-based physician visit by a patient located remotely is typically telemedicine whereas telehealth encompasses communication-based technologies to facilitate patient education, diagnosis and treatment. Mobile applications that support cognitive behavioural therapy may be considered under the broader umbrella of telehealth.[4]

Telehealth usage and impacts of COVID-19 in key geographic regions

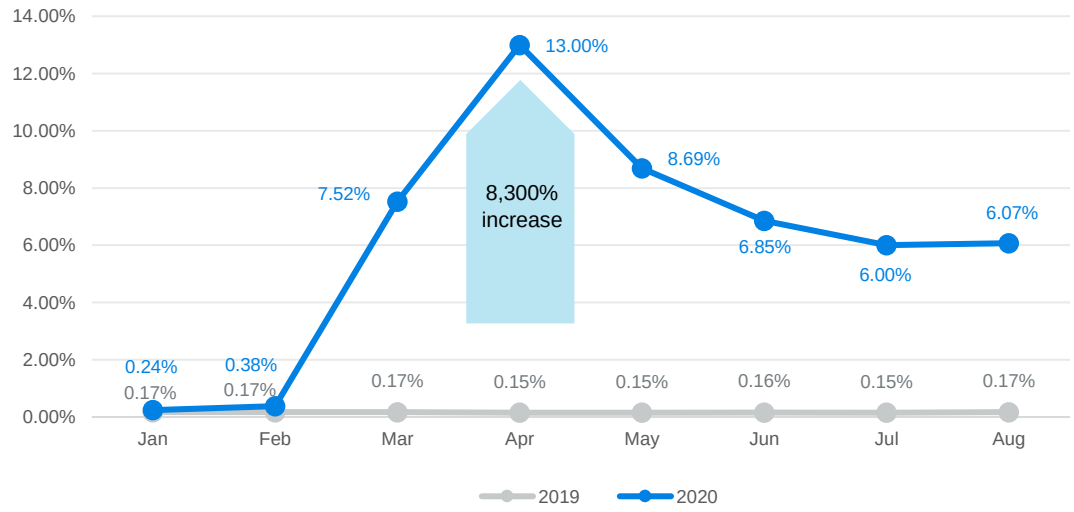
Among the three regions we reviewed, the US market is the biggest telehealth market in terms of market size with USD 25.4 billion in estimated revenue in 2020—projected to reach USD 55.6 billion by 2025.[5] The telehealth market in Europe ranks second with an estimated USD 9.93 billion revenue in 2020 and predicted to grow to USD 19.2 billion by 2025.[6] Asia is the third-biggest telehealth market with USD 8.51 billion estimated revenue in 2020—anticipated to reach USD 22.45 billion by 2025.[7] However, the telehealth market growth rates are anticipated to be highest in Asia with a compound annual growth rate (CAGR) of 21.4% between 2020 and 2025, followed by the US with a CAGR of 16.9% and Europe with a CAGR of 14.1%.[8]

TELEHEALTH USAGE AND IMPACT OF COVID-19 IN THE US

While telehealth utilisation increased steadily in the US prior to the onset of the COVID-19 pandemic, uptake still remained extremely low. One key inhibitor was inconsistency in coverage determination criteria and regulations, meaning that providers often did not know how much they would be reimbursed, if at all.[9] After the COVID-19 pandemic was declared a public health emergency, the Centers for Medicare and Medicaid Services (CMS) loosened regulations applicable to Medicare and Medicaid, and insurance companies expanded telehealth coverage significantly.[10] State governments also expanded telehealth benefits available to Medicaid beneficiaries.

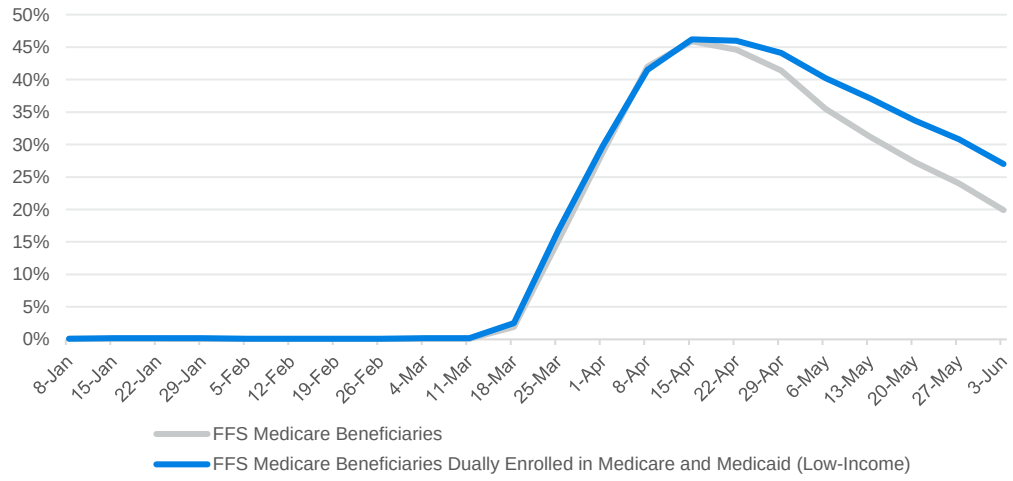
During the first few months of the pandemic, as providers and patients sought to limit in-person interactions to avoid coronavirus exposure and preserve personal protective equipment (PPE), adoption of telehealth and telehealth usage increased substantially. Providers quickly expanded their telehealth offerings. Some estimates indicate 50 to 175 times the number of patients were seen via telehealth than in 2019.[11] Through telehealth visits, patients can receive nonemergency acute care, manage their chronic conditions through brief regular check-ins, and receive feedback about whether an in-person or emergency department visit is necessary. Telehealth also has the potential to provide a revenue stream for hospitals to partially replace income from the cancellation of routine surgeries and other services. Thus, telehealth has become critical to maintain both patient physical and mental health, and provider financial health during the pandemic. Figures 1 and 2 show the increase in telehealth visits in the fully insured and Medicare markets.

FIGURE 1: TELEHEALTH VISITS IN THE FULLY INSURED SEGMENT IN THE US DURING THE COVID-19 PANDEMIC (EXCL. MEDICARE AND MEDICAID)



Source: FAIR Health (2020), https://www.fairhealth.org/states-by-the-numbers/telehealth.

FIGURE 2: TELEHEALTH VISITS IN THE MEDICARE SEGMENT IN THE US DURING THE COVID-19 PANDEMIC



Note: FFS = Fee-for-service.

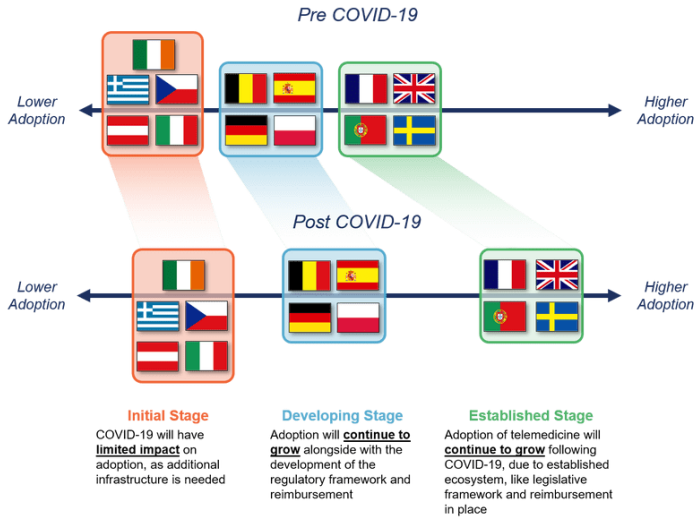
Source: ASPE (2020), https://aspe.hhs.gov/system/files/pdf/263866/HP_IssueBrief_MedicareTelehealth_final7.29.20.pdfIn addition to provider and consumer adoption, US health insurers were requested by state and federal payers to help maintain healthcare access through the public health emergency. Four large US insurers (Aetna, Cigna, United and Humana) as well as the Blue Cross Blue Shield Association announced a temporary copay waiver for in-network telehealth visits specifically to ensure access to healthcare during the epidemic.[12] While insurers have expanded telehealth benefit coverage during the public health emergency, the extent to which such coverage levels will persist is unclear. Some insurance companies fear that telehealth consultations may lead to higher overall costs. A study of acute respiratory illnesses based on 300,000 patients from 2011 to 2013 estimated that only 12% of telehealth visits replaced in-person visits and the remaining 88% represented new utilisation.[13]

Effective treatment for mental illness and substance abuse is important during the pandemic. A study published by the Centers for Disease Control and Prevention (CDC) found that over 40% of US adults struggled with these conditions based on responses in late June 2020.[14] In the US fully insured market, mental health represented approximately 30% to 40% of telehealth consultations both before and during the pandemic.[15] An American Psychological Association study of 2,000 member clinicians conducted during the COVID-19 pandemic (April/May 2020) found that 1% already exclusively treated patients remotely before the pandemic, 75% switched to treating patients exclusively remotely, 16% combined tele-therapy and in-person sessions, 5% have stopped treating patients and only 3% treated all patients in person.[16],[17]

TELEHEALTH USAGE AND IMPACT OF COVID-19 IN EUROPE

The adoption of telehealth in Europe varied by country before COVID-19. The UK, France, Sweden and Portugal showed significantly higher levels of adoption before and with the outbreak of the pandemic, as shown in the chart in Figure 3.

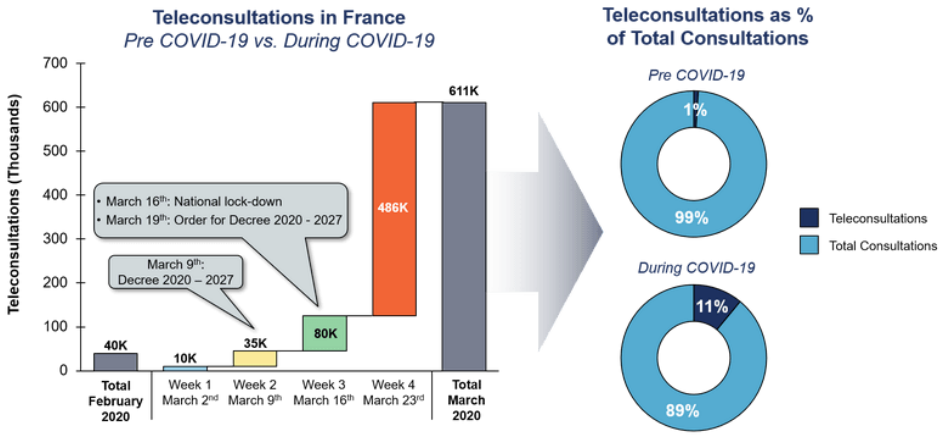
FIGURE 3: TELEHEALTH ADOPTION IN EUROPEAN COUNTRIES



Source: Health Advances (2020).

There are some European countries that have seen an explosion in telehealth usage due to the COVID-19 crisis. In France, for instance, the combination of new reimbursement structures being put in place prior to the crisis, coupled with the impact of lockdown since early March 2020, has transformed the virtual care market.[18]

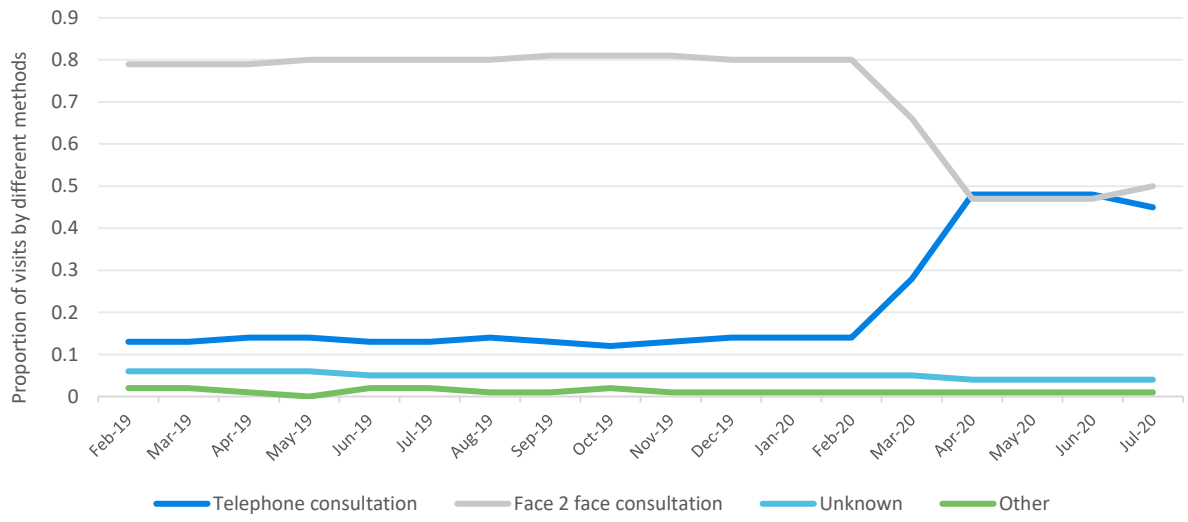
FIGURE 4: TELECONSULTATIONS IN FRANCE BEFORE AND DURING THE COVID-19 PANDEMIC[19]



Source: Health Advances analysis (2020), Assurance Maladie (2020), Bloomberg (2020).

In the UK, telephone and text consultations have been favoured by patients during the COVID-19 pandemic but better data collection on the use of digital services is needed, according to the Digital Healthcare Council. Text and telephone consultations proved more popular than video consultations, which providers attribute to video being newer than telephone and therefore less familiar.[20]

FIGURE 5: NHS GP VISITS BY APPOINTMENT METHOD

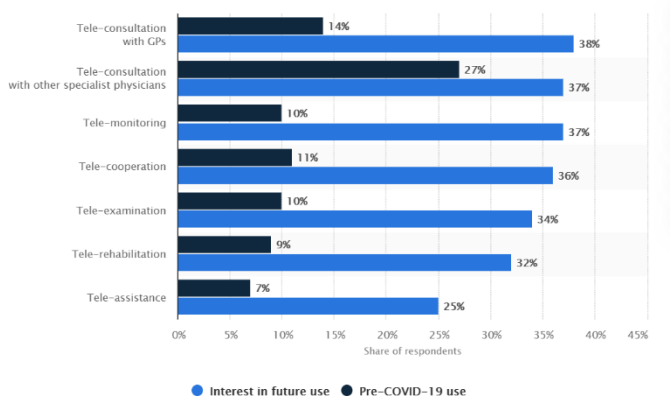


Source: NHS Digital (2020)

In March 2020, the Doctorlink platform was selected by the National Health Service (NHS) to provide both online triage and video consultations during COVID-19 in the UK. As a result, Doctorlink is now available to over 12.5 million NHS patients through 1,500 general practitioner (GP) surgeries. The digital triage, video and phone consultation service has increased its active user base by 148% between January and June 2020, as well as growing the total number of NHS GP surgeries using the platform by 278%.[21]

During the COVID-19 emergency in Italy, many patients could not access health services in the usual way and interest in telehealth increased among physicians. According to a survey conducted in June 2020 among medical specialists in Italy, 10% of respondents mentioned that they used telemedicine to conduct examinations before the pandemic. However, the share of medical specialists that would be interested in carrying out tele-examinations in the future reached 34%.[22]

FIGURE 6: USE OF TELEMEDICINE AMONG MEDICAL SPECIALISTS BEFORE AND DURING COVID-19 IN ITALY

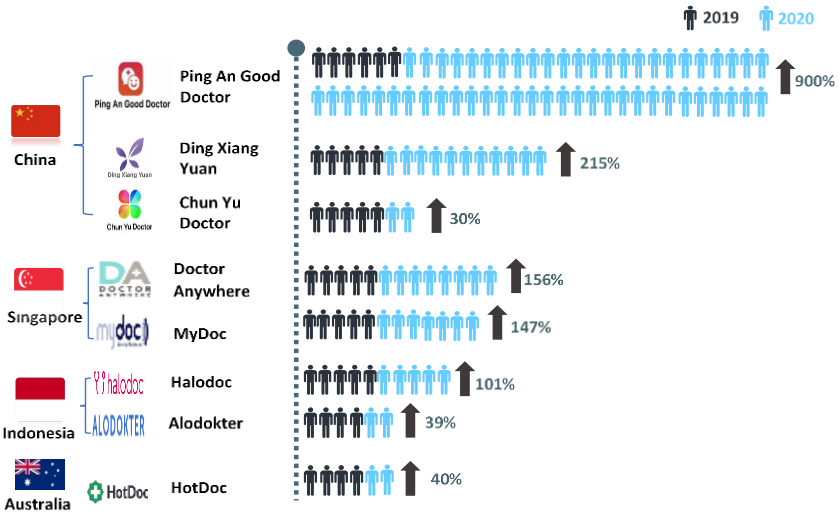


Source: Statista (2020).

TELEHEALTH USAGE AND IMPACT OF COVID-19 IN ASIA

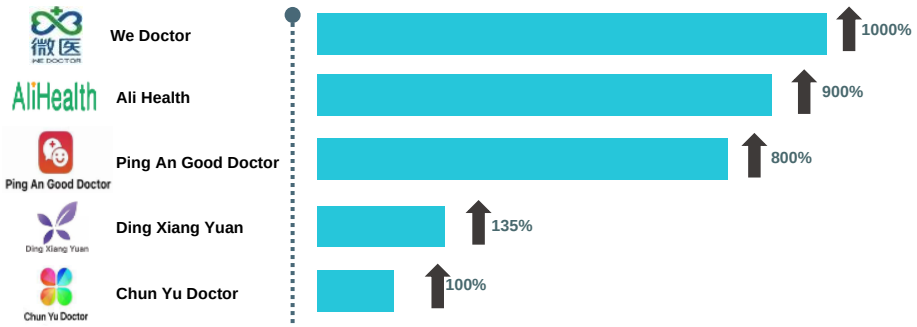
In Asia, there was a significant growth of telehealth active users as a result of the pandemic. For example, the Ping An Good Doctor program experienced a 900% increase between 2019 and 2020. Similarly, the We Doctor program experienced a 1,000% increase in the number of online consultation visits from December 2019 to January 2020. Figure 7 shows the growth of new users in Asia and in China in 2020.

FIGURE 7: NEW USER GROWTH IN ASIA IN 2020



Sources: SOHU (2020), "How Telehealth Will Develop Under COVID-19, With Increasing Users and Consultation Growth up to 1,000%," and Kapur & Boulton (2020), "Covid-19 Accelerates the Adoption of Telemedicine in Asia-Pacific Countries."

FIGURE 8: ONLINE CONSULTATION GROWTH IN CHINA (DECEMBER 2019 TO JANUARY 2020)



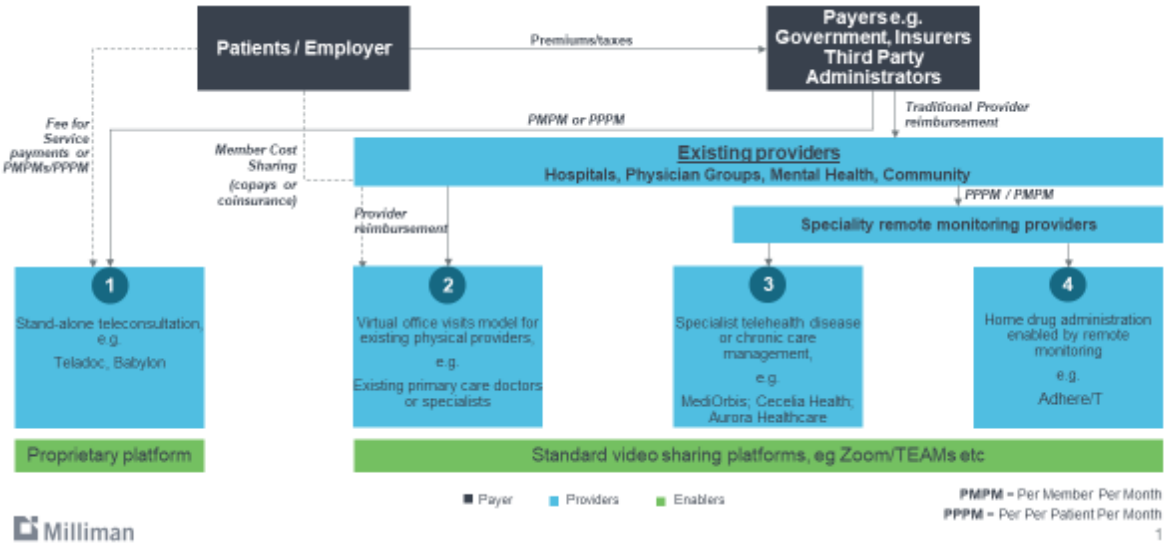
Source: SOHU (2020), "How Telehealth Will Develop Under COVID-19, With Increasing Users and Consultation Growth up to 1,000%."

There are several factors that drive the fast development of telehealth in Asia, including the ubiquitous nature of the internet and smartphones, unevenly distributed medical resources between urban and rural cities and the development of technology as well as governmental support in developing and regulating telehealth. Since January, China's government has announced over 10 regulatory policies in guiding and strengthening telehealth usage and reimbursement approaches. During COVID-19, Singapore's government also encouraged use of video consultations for follow-up of chronic diseases.[23]

Telehealth reimbursement framework

Our telehealth reimbursement framework in Figure 9 summarises the key participants in the telehealth market, including insurers, service providers and specialist telehealth providers.

FIGURE 9: TELEHEALTH REIMBURSEMENT FRAMEWORK



Source: Milliman analysis.

In the framework, service providers deliver telehealth care to patients and are compensated by either private insurers or government payers. Service providers use software or pay a telehealth platform for access. Alternatively, patients may interact directly with a telehealth platform and may pay on a subscription (usually monthly) or per-use basis while the telehealth platform compensates the provider either on a salaried or per-use basis. Specialist telehealth technology and services can be owned by an insurer or provider or may be independent and can be compensated by the insurer, provider or member.

Health insurers are likely to cover one or several models of virtual care depending on the degree of adoption of their telehealth operating models. In the on-demand virtual care model (1), urgent but low-acuity care needs are the most common telehealth use cases among insurers and payers. This model allows a consumer to remotely consult on-demand with a provider with whom the patient does not have a prior relationship, potentially avoiding a trip to an urgent or emergent care center. The tele-provider will usually have its own proprietary secure platform, for example Teladoc or Babylon.

The virtual office visits model (2) operates with an established provider for consults that do not require physical exams or concurrent procedures. Such visits are principally primary care, including behavioural health sessions. The virtual office visits work alongside access to a physical clinic, where the patient can access tests or receive physical exams, whether that is an existing physician's office, a worksite clinic or even a retailer. In this model, the virtual office visits are more likely to be supported with standard video-conferencing platforms.

Both of the first two models described above are primarily telemedicine models. Models 3 and 4 demonstrate broader telehealth applications. Model 3 involves a specialist telehealth management model for chronic care and disease management, including remote monitoring and digital patient engagement and education tools. Specific examples of providers supporting this model of virtual care include MediOrbis[24] and Aurora Healthcare.[25] Lastly, and perhaps the newest and most infrequently applied model to date, is the tech-enabled home medication administration model (4). Model 4 allows patients to use remote monitoring to enable them to inject themselves with drugs and infusibles from home and receive immediate feedback from the connected device.[26] A specific example of a technology application in this model includes AdhereIT, a reusable integrated device that pairs auto-injectors used by patients for at-home drug delivery to a software application via Bluetooth technology to provide immediate feedback about whether the injection was performed correctly.[27]

Whilst these models of virtual care provide a basis for our framework, they are not meant to be exhaustive of all communication-based technologies used to support healthcare. In particular, these models do not address provider-to-provider telehealth, which is emerging as an important way to change the way patients are managed along entire pathways. The degree to which insurance companies cover telehealth services will have implications for telehealth service volumes and spend. As insurers gain experience in telehealth benefit design, there may also be a correlated level of sophistication in provider contracts, such as risk embedded in reimbursement methodology. We use our framework for analysis of telehealth adoption in the case studies set out in the next section, as well as to develop considerations for proposition design and value-based contracting.

Strategies and implications for proposition design

Among the health insurers we interviewed for this paper, the most commonly cited goal of telehealth is to improve customer experience, increase access and convenience and provide additional levels of differentiation from competitors. An increasing focus is dedicated to innovation in the proposition design aspects of telehealth as well as the integration of telehealth within the wider insurance proposition ecosystem.

Such innovations and new design features may include virtual-first networks, digital front-door features (e.g., e-triage), seamless "plug and play" capabilities to offer innovative digital solutions or benefit coverage for at-home diagnostic kits.[28]

Other features focused on maximising convenience for insureds and patients are likely to be developed with time. Leading insurers are looking to combine their own innovation capabilities with developments in other areas and disciplines, often leveraging innovations brought by disruptive startups, universities or governments. Some specific examples during the COVID-19 pandemic provide a glimpse of such possibilities. As such, the startup Paginemediche in Italy, one of the countries most affected by the pandemic, launched an online chatbot which was developed following guidelines of the Ministry of Health to support remote triage of potential COVID-19 cases. Several institutions in the country have adopted the solution as a measure to reduce hospital visits and cross-contamination.[29] In the US, the CDC has partnered with Microsoft's Healthcare Bot service to launch a COVID-19 chatbot. After a series of questions regarding symptoms, the Coronavirus Self Checker bot shares useful links as well as local health department contacts.[30] In the UK, Healthcare Communications has deployed a chatbot which is available to any NHS service and instantly answers the most common questions using verified sources. The company also provides an eClinic video consultation platform for virtual appointments and patient assessment.[31] The Coronavirus Checker developed by Emory University's School of Medicine asks questions about age, location and symptoms to provide a view of the person's status and risks related to COVID-19.[32]

Future approaches are likely to include e-visits to respond to straightforward medical issues without provider intervention. Doing so may allow telehealth tools broadly to increase provider collaboration. Providers are increasingly partnering to create new access—such as in rural markets—which may benefit the local patients and hospitals by extending services. Examples of such collaborations include:

- Regional providers that provide virtual specialist visits and therefore extend access to services
- "Tele-ICU" coverage for intensive care unit (ICU) treatment in partnership with rural local health systems
- Provision of primary and specialty care through physical and virtual applications
- Partnerships with academic medical centers to access virtual subspecialty care

At the same time, telehealth adoption can create opportunities for a variety of providers to attract patients with new service offerings to perceived higher-quality providers. Some large providers are already offering virtual specialty care consults across geographies traditionally covered by other smaller providers. Enabling virtual and cross-geography models of care could become increasingly attractive to payers if it enables members to access lower-cost settings of care or lower-cost providers of equivalent quality.[33] Strategies that go beyond telehealth and clinical replacement to drive growth in new markets and populations are likely to become a key focus for health insurers and providers alike.

Charging strategies and implications for cost containment

Telehealth providers have tended to charge for their services in two distinct ways, as described in Figure 9 above.

1. Fee-for-service (FFS) or pay-per-use models.
2. Capitated models, where a fee is paid monthly on either per patient per month (PPPM) or per member per month (PMPM) bases, regardless of the number of encounters.

With the first charging model, the telehealth provider bears limited long-term financial risk for changes in demand, although it may still face issues of scalability. With the capitation model, the profitability of the telehealth provider can be enormously sensitive to small changes in the utilisation rates for the service, which can be challenging to manage in fast-changing environments. The capitation model is especially risky in telehealth, which insurers have included in their suites of benefits as “add-ons,” but have traditionally seen extremely low take-up, as customers have preferred to use their trusted face-to-face primary care options. It was not unusual pre-pandemic to find that only a very small proportion of insured customers had actually used their telehealth add-on (which would have been listed as a marginal “bells and whistle” add-on benefit at the bottom of the policy schedule, rather than a primary focus around which the entire proposition revolved).

As a refinement to these basic charging models, some telehealth providers in certain markets have pay-for-performance (P4P) metrics built into their contracts, but these metrics have tended to be process or customer-reported metrics looking at lead times to book appointments, or percentages of customers who self-report satisfactory experiences with the telehealth consultation. It is unusual to find telehealth contracts which have any significant measure of outcomes-based contracting. This partly reflects the difficulty in coming up with measurable metrics on outcomes in primary care and partly reflects the business models of many standalone telehealth providers, which are highly focused on revenue growth and scale rather than overall cost containment. Primary care outcomes frameworks tend to describe three dimensions: long-term and short-term effectiveness, patient experience and patient safety. While the patient experience can be measured directly through patient surveys, effectiveness and safety metrics that account for remote delivery of healthcare services need to be developed or adapted. Such metrics are necessary to deploy value-based contracting effectively.

Payers, faced with the challenges of measuring the impact of telehealth and payment models that either reward the telehealth provider for increased utilisation with no onus to reduce downstream costs, or view telehealth as an appealing marketing “add-on” to a benefit plan, have been rightly skeptical of broad cost containment potential. In most health systems, adding more modalities of accessing the healthcare system creates not only additional primary care visits and related services, but also increases downstream services and hence costs, at least in the short term. Several of the models in our framework allow high-cost physician resources to “extend their reach” and see more patients in a shorter time, which increases capacity and efficiency. In addition, the patient time saved from not having to travel to face-to-face visits is significant. However, given that only a minority of total services in the healthcare system can be replaced with telehealth encounters, the cost containment potential overall for health systems is currently somewhat limited.

The diagram in Figure 10 shows our categorisation of telehealth models with some commentary on their current charging models and potential for cost containment.

FIGURE 10: PAYMENT APPROACHES IN TELEHEALTH

Model	Traditional charging structure	Cost containment potential
1. Standalone teleconsultation for on-demand virtual care	Fee-for-service or capitation incentivises the provider to offer more convenient alternatives to emergency department. Benefit design also often provides for lower copays for patients for telemedicine use.	Depends on whether it replaces existing utilisation or adds to access, providing additional utilisation.
2. Virtual office consultations	Fee-for-service or capitation model covering primary care only. Extensions might include covering a wider range of services in the capitation rate.	May allow provider to charge same fees but deliver care more efficiently. Overall cost containment potential limited, unless wider set of services included in the capitation.
3. Specialist telehealth management for chronic care and disease management	Fee-for-service or per patient per month, with quality metrics.	May even increase short-term costs if services are additive, rather than substitutive. Some potential for longer-term cost savings in some markets.
4. Self- administered home medication enabled by remote monitoring	Per patient per month or fee-for-service	Cost containment potential for those services related to drug administration, but likely to be a small fraction of overall costs.

Source: Milliman analysis.

Some emerging telehealth business models are starting to challenge the existing framework set out in the table in Figure 10. In a few markets, some telehealth providers are negotiating a capitation payment for each person in a defined population, covering not just primary care services but a large proportion of all healthcare services—diagnostic, surgical, emergency medicine, etc.—and only carving out very high-cost services. The logic of these models is that the entrant to the healthcare pathway, the primary visit or consultation, is best placed to control the entire ensuing pathway. However, like all health risk contracts, this raises a number of questions, such as:

- How much control can the telehealth provider realistically have over the onward pathway from a cost and utilisation perspective? These functions require significant levels of capability and capacity and prices with providers are typically volume-driven.
- If you follow the logic model that says that good primary care and early intervention reduces downstream medical costs, what is the payback time for the return on investment? In most cases, it will likely be beyond the time or budget horizon of a typical payer.
- Are telehealth providers, especially standalone technology companies with limited or no health insurance expertise, really equipped to manage this level of financial risk? How do they handle high-cost patients or the systemic risks of high medical inflation?

It is difficult to avoid the conclusion that, for telehealth providers to offer significant cost savings potential to payers, they will inevitably have to manage a much larger proportion of total health spend than the small proportion over which they currently have direct control. This means they will need to either own or partner with the relevant organisations to jointly manage all the functions required to control utilisation and unit cost across the entire spectrum of healthcare services.

Conclusion

Our conclusions summarise the impacts of telehealth across our key markets.

First, the COVID-19 pandemic had a significant impact on the adoption of telehealth across key markets in the US, Europe and Asia and accelerated the telehealth journey for most established health insurers. In some cases, the increase of telehealth usage and adoption was dramatic, but it remains to be seen whether these levels of usage can be sustained over time in a post-COVID-19 world, and particularly whether any enabling regulatory flexibilities remain in place. Nevertheless, the pandemic has spurred significant investments in digitalisation and fast-tracked the transformation of many traditional health insurers on their journeys from payer to healthcare partner.

Second, health insurers have adopted telehealth at varying levels. In most cases, the basic models of virtual care prevail, focusing on the provision of on-demand virtual urgent care and varying degrees of virtual visits. The more progressive players, however, have started to use dedicated telehealth centers as well as developing dedicated telehealth management capabilities for chronic disease and continuous disease management. The self-administered home medication model still seems to be far off from reality for most players, but first-use cases are starting to appear. We anticipate that health insurers will likely adopt more advanced models of telehealth with time, in order to maximise convenience. In the areas of recurring disease categories and continuous disease management, the use of the broader telehealth models is likely to become a norm.

Third, telehealth's primary objective today for an insurer is access to care, convenience and differentiation in the marketplace. Given the fairly limited differentiation options that health insurers have at the insurance product level, telehealth is likely to become a key differentiation factor when choosing a health insurance provider as well as a key component of the health insurance proposition ecosystem. The technologically savvy and innovative health insurers will leapfrog ahead of the less innovative followers and laggards in the healthcare universe in integrating their telehealth offerings with their existing propositions, rather than viewing it as an "add-on" in the benefit design.

Fourth, cost containment will become an increasingly important consideration when designing telehealth strategies. While it appears clear that telehealth can increase provider capacity and efficiency and transform care for patients, it is less clear that insurers are positioned to share in those potential costs savings given current reimbursement norms. Sophisticated value-based contracting principles with healthcare providers and outcomes-based reimbursement strategies will be adopted by progressive health insurers, but they will rely on telehealth providers being able to manage larger proportions of overall healthcare services. Ultimately, if cost containment potential is realised, insurers will start to incentivise telehealth usage in their benefit designs more aggressively.

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Appendix 1: Case studies

Telehealth case studies in health insurance in the US, Europe and Asia

US CASE STUDY: KAISER PERMANENTE

Kaiser Permanente is one of the nation's largest not-for-profit integrated health care delivery systems, serving 12.4 million members. It was founded in 1945 and is headquartered in Oakland, California.[34] Within its telehealth framework, Kaiser Permanente currently utilises models of virtual care 1, 2, 3 and 4.

Even prior to the COVID-19 pandemic, Kaiser Permanente was an early adopter of telehealth technologies. As an integrated delivery system primarily built on a capitated payment model, there were strong incentives to invest in technology infrastructure and develop telehealth capabilities.[35]

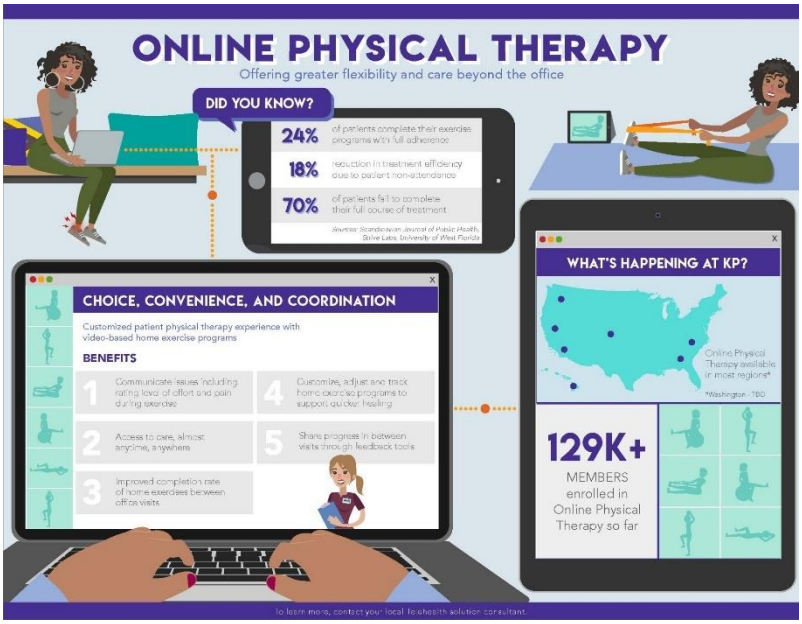
Launched in 2005, Kaiser Permanente's telehealth platform is embedded in its electronic health record, Kaiser Permanente HealthConnect. HealthConnect consolidates the medical history, physician notes, test results, prescription history and other clinical information. Clinical team members are granted access and can view overdue tests and other recommendations, and members can review much of their personal information via the member interface.[36]

From 2014 to 2015 the system reported enabling 20 million email collaborations between healthcare providers, 17 million patient prescription refills, 4 million scheduled appointments and 37 million tests viewed online. By October 2016, Kaiser Permanente was the first large health system to announce more virtual encounters than in-person encounters.[37]

Kaiser Permanente states that it views telehealth as a tool to enable member choice, convenience, and care coordination. Bill Marsh, MD, Vice President of Care Delivery IT, The Permanente Federation, explains: "Healthcare has forever been rooted in patients coming to see the physician wherever the physician resides, usually in a facility. That is going to change. We need to meet patients, members, where they are."[38]

One aspect of Kaiser Permanente's patient-centered model of telehealth is synchronous versus asynchronous care. In synchronous care, patients and providers communicate with each other at the same time. In-person visits, real-time video chats and phone calls are synchronous. Asynchronous care includes secure patient-to-provider emails, physician-to-physician communication and online self-assessment tools that enable providers to respond to patient queries or data at their convenience. Because logistics can be a barrier to care, enabling both synchronous and asynchronous modalities encourages physicians to address member issues promptly and conveniently while optimising their time.

FIGURE 11: KAISER PERMANENTE'S ONLINE PHYSICAL THERAPY CONCEPT



Source: Smith, C. (2018), "Kaiser Permanente Telehealth Infographics," http://www.cher-smith.com/kaiser.

Kaiser Permanente states that it considers telehealth as a modality to increase provider teamwork—enabling provider-to-provider videoconferencing, secure messaging, consultations and allowing work groups to discuss telehealth best practices. Encouraging provider-to-provider communication may be more difficult for traditional insurers that do not explicitly reimburse provider-to-provider consultations on a fee-for-service basis. However, Kaiser Permanente's integrated delivery system and prepaid payment model encourages real-time interprofessional collaboration.[39]

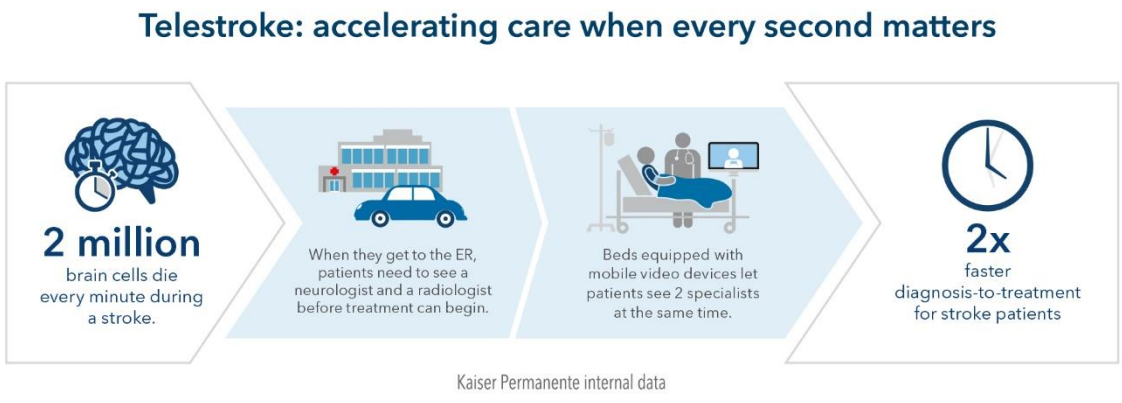
FIGURE 12: KAISER PERMANENTE'S TYPES OF TELEHEALTH INTERACTION AND KEY DEFINITIONS[40]

KP Health Connect	Electronic health records accessible by Kaiser Permanente providers, patients and patient caregivers
Physician to Physician Telehealth	Telehealth tools like video chat used for teams of providers to collaborate on patient care
e-Visit	Chat-bot enabling patient to follow guided algorithms that then go to the clinical team for review
Covid e-Visit	e-Visit for Covid-19 questions, medically sound recommendations and suspected symptom next steps
Telestroke	Suspected stroke victims are quickly assessed by specialists through telehealth, enabling more rapid treatment

Sources: Interviews with Kaiser Permanente; Milliman analysis; Kaiser Permanente website, https://business.kaiserpermanente.org/kp-difference/high-quality-care/telehealth-value-in-connected-system.

Telehealth has additional applications. One such application is remote patient monitoring, where Bluetooth-enabled monitoring devices for example can send biometric data to remote systems, such as blood pressure, blood glucose level and pulse oxygenation. Care teams can easily use these remote systems to analyse graphical results of the collected data and may be notified immediately when results exceed set parameters. Figure 11 details Kaiser Permanente's Online Physical Therapy program and Figure 12 defines many of their widely used applications. Figure 13 illustrates how Telestroke technology allows specialists to quickly assess suspected stroke victims via telehealth. Telestroke has enabled rapid diagnosis and treatment during the first critical moments of a stroke.[41]

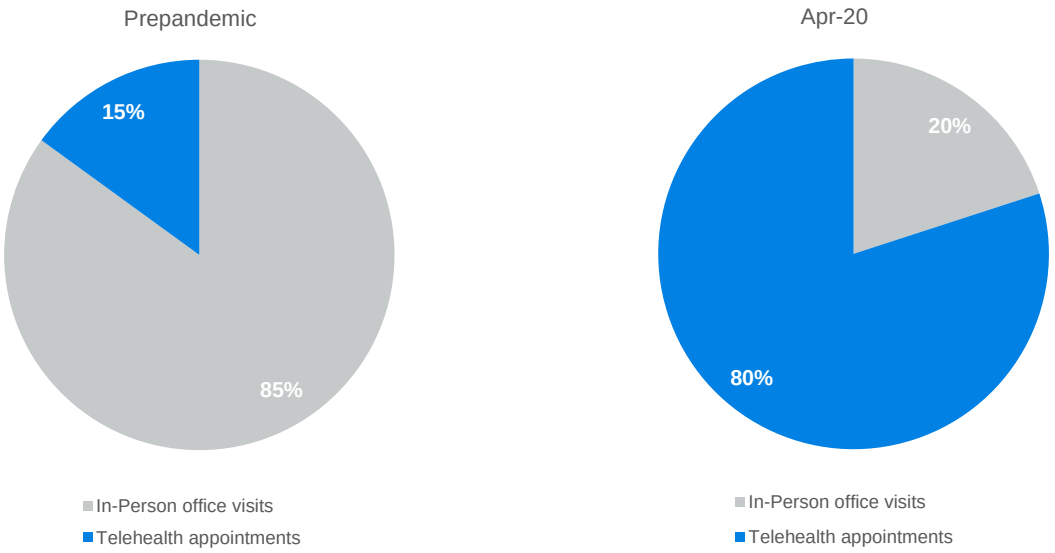
FIGURE 13: TELESTROKE TELEHEALTH TECHNOLOGY



Source: Kaiser Permanente (2020), https://business.kaiserpermanente.org/kp-difference/high-quality-care/telehealth-value-in-connected-system.

During the COVID-19 pandemic, Kaiser Permanente had an opportunity to increase member exposure to telehealth tools already in place, including video visits and secure email. Kaiser Permanente experienced a 3,000% increase in video visits during the first few months of the pandemic. In addition, physicians can use remote diagnostics to listen to a patient's heart or lungs, look in their ears or mouth and visualise skin lesions.[42]

FIGURE 14: KAISER PERMANENTE VISITS BEFORE AND DURING THE PANDEMIC



Source: The Permanente Federation (2020), https://permanente.org/telehealths-time/.

Telehealth enables more self-directed care without direct physician involvement, until the physician is needed. In e-visits, patients answer a set of simple guided questions online that can go to a clinician for review. Kaiser Permanente also created a COVID-19 e-visit, a guided algorithm for members to first narrow their requests, then either speak with someone or asynchronously receive clinical recommendations from physicians.[43]

Like many insurers, Kaiser Permanente now enables an online portal to schedule calls or video visits, chat, remote therapeutics and diagnostics. Forward-looking approaches include e-visits to respond to straightforward medical issues without the need for face-to-face visits and utilising telehealth tools to increase provider-to-provider collaboration.

GLOBAL CASE STUDY: AXA GROUP

AXA is a multiline global insurer and health is a key growth priority for the Group.[44] AXA operates all four models in our telehealth framework with varying degrees of adoption, depending on the market in which the company operates. In most countries, AXA operates virtual office visits and on-demand virtual care (models 1 and 2). In some cases, virtual GP services are extended to in-person diagnostics with virtual specialist reviews of results. Virtual specialist consultations are offered both as standalone by AXA's specialist providers and in a more collaborative way within the digital pathway. This includes booking in-person diagnostics with virtual specialist reviews.[45]

In the UK, AXA offers telehealth in conjunction with a partner providing GP services, Doctor Care Anywhere. With the outbreak of COVID-19, AXA rolled out this service to all of its private medical insurance (PMI) customers. Several clinical and operational protocols have been authorised as part of Doctor Care Anywhere engagement. They include the control of ordering diagnostics and follow-up treatment. The current sign-up rate of the virtual GP service, as of October 2020, is 15% of the members, which represents approximately 290,000 members. The five-year goal is to increase membership substantially. AXA UK is managing 18,000 consultations per month.[46] AXA UK has another telemedicine initiative with a provider called HBS, where AXA brings physiotherapy groups to virtual settings.

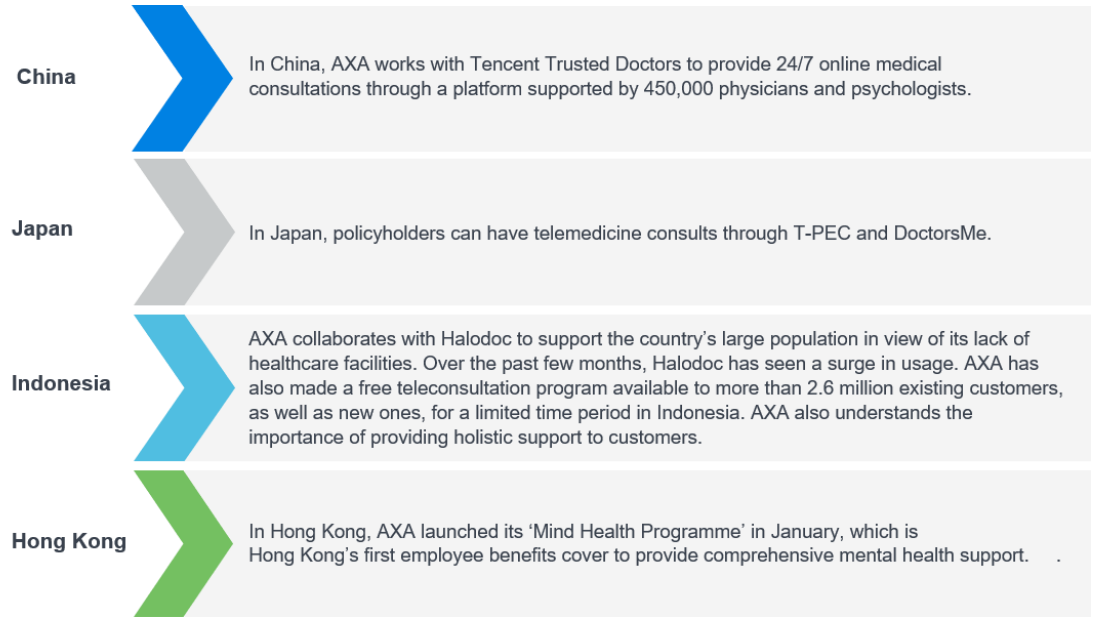
AXA UK's Taking Care service is an example of a telehealth management service for elderly care (model 4 in our framework). The service provides remote assistance, e.g., in the event of a fall. It is based on remote devices for the elderly or less mobile people and provides access to call agents specialising in this area of care. Whilst this is not a medical service per se, it acts as the first point of contact when the member is in need.

Another example is the “chemo at home” treatment, which also falls into the category 4 of our models of care. This is overseen by a specialist who reviews the patient's treatment usually every cycle (as it would be if it were undertaken at any facility). All blood test results and side effects are reviewed by the nurses before each treatment and, if there were any issues, results are directed to a specialist to decide whether treatment should go ahead or be amended. The blood results and side effect forms are readily available electronically for all specialists to review online and amend any treatment accordingly at any time. The consultant pathway is no different at home than it would be in a hospital or clinical setting, and all the information is available electronically rather than in a patient file.[47]

In France, AXA’s telehealth offering is provided via AXA Assistance (a company of AXA Partners) and Qare, a Kamet venture incubated in 2016.[48] AXA’s telehealth services via AXA Partners were launched in 2014 and were an innovative offering in the French market, initially related to customer triage. The objective was primarily convenience and differentiation. Today, the service has over 5 million members in France. Furthermore, AXA Partners provides telehealth services to AXA Italy and AXA Belgium.[49]

In Asia, COVID-19 necessitated accelerated adoption of telehealth. Besides leveraging its in-house capabilities, AXA Asia has collaborated with service providers to address the country-specific demands of patients across Asia. AXA’s key telehealth initiatives in Asia are summarised in the table in Figure 15.

FIGURE 15: AXA’S TELEHEALTH INITIATIVES IN ASIA



Source: Company websites.

For AXA’s international healthcare business, AXA Global Healthcare partners with Teladoc Health, to provide a global telemedicine service, Virtual Doctor From AXA. First launched in 2018, it offers servicing in multiple languages and geographies based on the demand of members. To date, the service has facilitated consultations in more than 115 countries, covering more than 27 medical specialties. The outbreak of COVID-19 resulted in the service being rolled out to all members and, since the beginning of the pandemic, it has seen an increase of up to 240% in registered users. As of October 2020, approximately 9.4% of those eligible to use the Virtual Doctor have registered and 42% of those who have registered have had consultations. The service is integrated with AXA’s global second medical opinion proposition, which will expand into mental health services in 2021.[50]

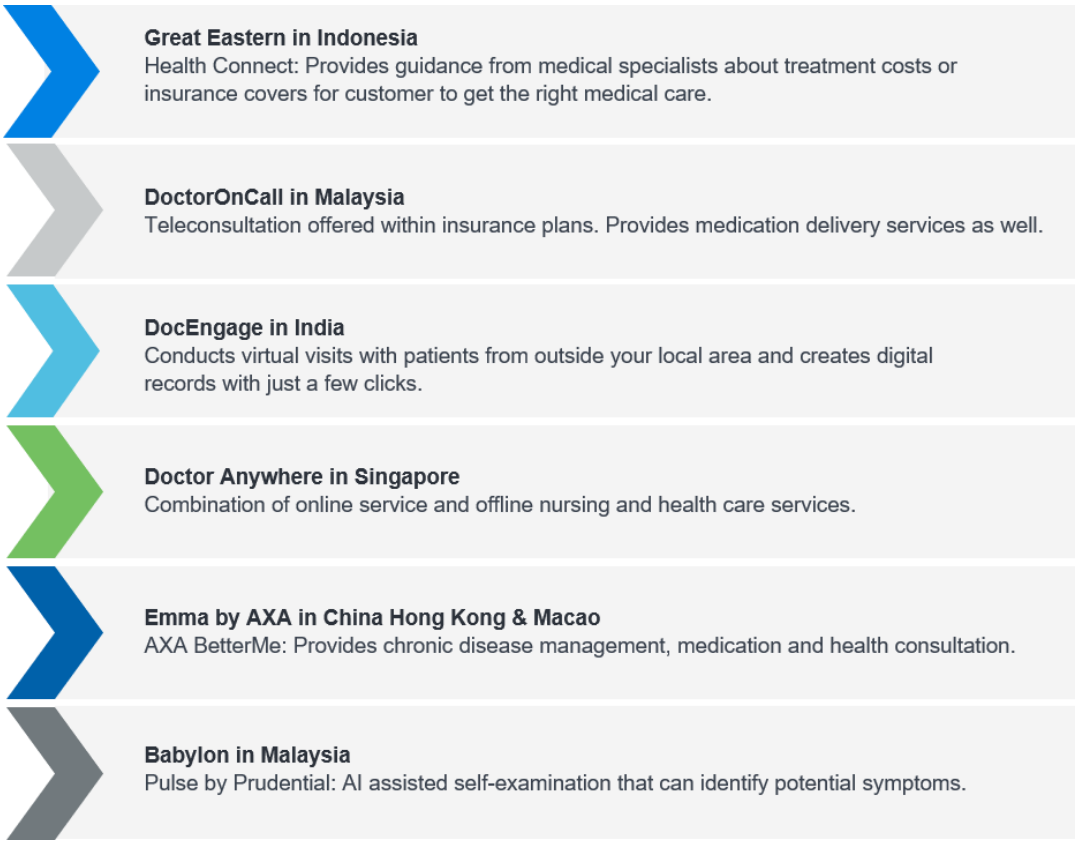
In terms of building telehealth capabilities, in some countries, such as Italy and Belgium, internal solutions are built. In other countries, such as the UK, Germany and Spain, external partners, such as Teleclinic and Advance Medical, are being used. The maturity of the market is often the key determining factor. In very mature markets, AXA tends to collaborate with mature players, but if the market is new, AXA prefers to build solutions from the ground up internally.[51]

Telehealth was traditionally considered at AXA as a claims focus area to help customers with their benefits and provider selection. Today, telehealth is the starting point for care delivery as opposed to being a final point to orient claims, with the stated goal of telehealth as "Start with teleconsultation, do not end with it." Telehealth will undoubtedly remain a key element of AXA's strategic transformation in the near future.

CASE STUDIES IN ASIA: PING AN HEALTH

With fast technology development in Asia, there have been a significant number of innovations in telehealth across Asian markets in recent years. Some examples of telehealth initiatives in Asia are shown in Figure 16.

FIGURE 16: TELEHEALTH INITIATIVES IN ASIA



Source: Companies' websites, Milliman analysis.

The most prevalent virtual care models in Asia consist of virtual office visits and on-demand virtual care models across the biggest players (models 1 and 2 in our framework). Among these companies, Ping An Good Doctor is considered by the industry as a health tech disruptor and is positioned among the leading telehealth operators in Asia.

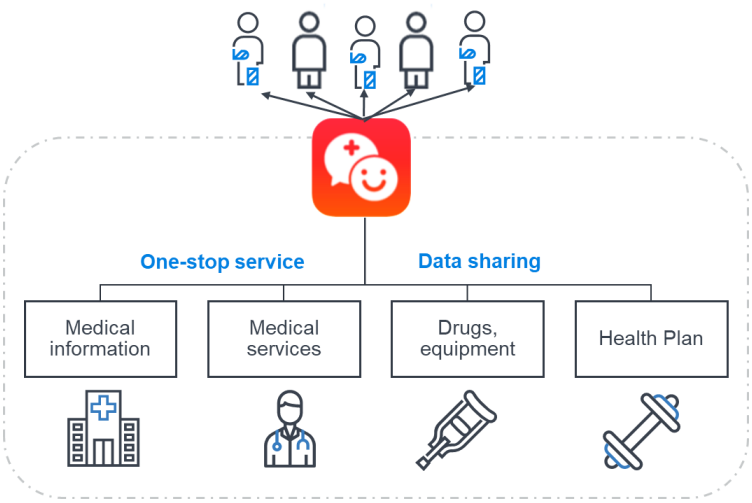
Ping An Good Doctor is a health tech company founded in 2015 under Ping An Group. Its value proposition is to form a one-stop platform offering comprehensive services with artificial intelligence (AI)-assisted medical capability to address burning pain points through diversified channels.[52] The focus is on key issues that people are facing in terms of access to healthcare in China:

- Limited availability of appointments with experienced and highly reputable doctors
- Long waiting times in hospitals and poor hospital environments
- Limited medical resources in rural areas

Ping An Good Doctor provides telehealth with efficient and simplified consultation processes and better patient experience. Both online and offline medical services are provided. Online consultation covers fronting business, including consultation, health education, health management planning, medical guidance and doctor appointment arrangement services, focusing on common and chronic diseases. Offline office visits cover medical diagnosis, medical treatment, hospitalisation arrangement, referral and health examination.

Ping An Good Doctor follows a two-way online-to-offline/offline-to-online (O2O) business model. When customers need further consultation after online visits, Ping An Good Doctor helps make appointments for face-to-face visits. If customers need chronic disease prescription refills, it can refer to a doctor's consultation online.

FIGURE 17: PING AN GOOD DOCTOR HEALTHCARE SERVICES



Source: Milliman analysis.

For the online business, Ping An Good Doctor has an online doctor team with its own full-time staff of over 1,400 doctors covering 22 medical departments. It also contracts with specialists from top-tier hospitals numbering more than 5,000.[53]

For offline business, it has strong collaboration with hospitals and drugstores, with a network of over 3,000 hospitals and over 2,000 check-up and testing facilities, 1,800 dental facilities, over 48,000 clinics and 94,000 drugstores, covering 375 cities and 32 provinces.[54]

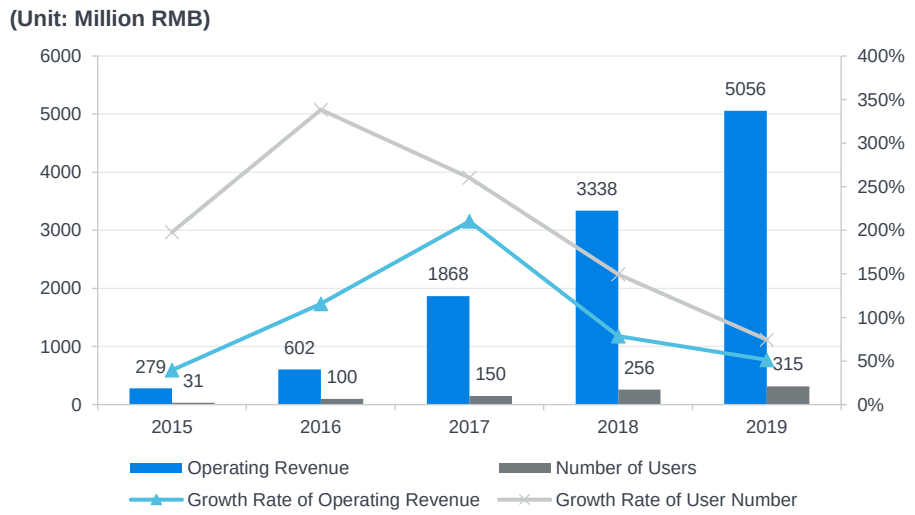
As an owned insurer under the same Ping An Group, Ping An Life is working with Ping An Good Doctor to provide 24/7 online consultation to its own customers. This "Insurance + Health" business model aims to improve health, customer experience and satisfaction as well as to lower medical claims.

Other than providing services to individual customers, Ping An Good Doctor also expands its service package to employer groups as employee benefits, Private Doctor Services, part of an innovative proposition design in 2020. This package provides one-stop medical services, including 24/7 online consultation, health management, appointment arrangement, 24/7 nursing care and within-one-hour drug delivery services, to employees and their family members. In the first half of 2020, Private Doctor Services gained a 99.9% customer satisfaction rate on consultation services.[55] They now serve more than 500 employers with over 400,000 employees.[56]

Artificial Intelligence (AI) algorithms are applied in online consultation services, including pre-diagnosis, doctor matching, individual disease risk evaluation and disease prevention. The company launched additional AI innovations in 2020 to improve the online consultation experience, including AI triage with an accuracy rate of 99.4%, AI diagnosis of over 3,000 types of diseases and AI prescription and critical illness identification.[57]

Since Ping An Good Doctor launched in 2015, its operating revenue has increased from RMB 279 million to RMB 5.1 billion in 2019 with a CAGR of over 100%.[58] Registered users have also increased from 31 million to 346 million in June 2020.[59]

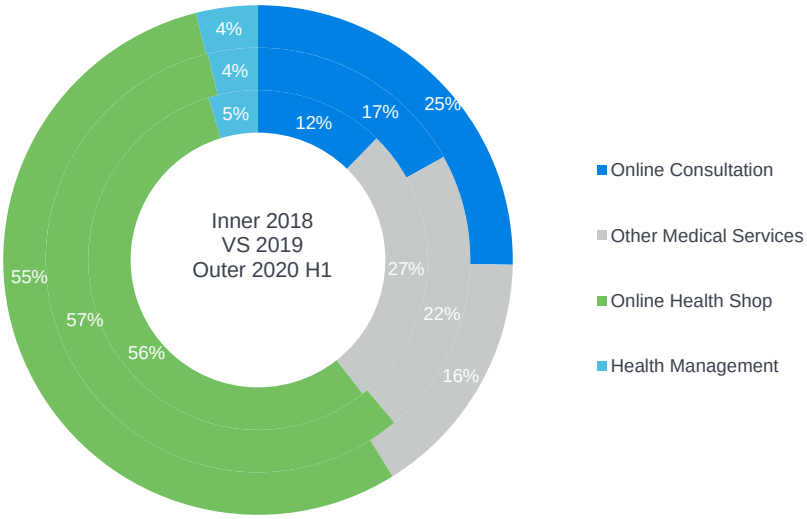
FIGURE 18: PING AN GOOD DOCTOR OPERATING REVENUE AND NUMBER OF USERS, 2015-2019



Source: Ping An Good Doctor 2019 Annual Report.

Online consultations consisted of 25% of total revenue in the first half of 2020 and increased from 12% in 2018. This was due to the COVID-19 pandemic as well as the fast development of online consultation usage in recent years. Other medical services include check-ups, dental services and genetic testing, some of which require in-person visits.

FIGURE 19: PING AN GOOD DOCTOR REVENUE BY BUSINESS SEGMENT



Source: Ping An Good Doctor 2019 Annual Report, Ping An Good Doctor 2020 First Half Year Report.

However, like most other telehealth platforms, Ping An Good Doctor is still enduring losses, reflecting its high operating and marketing cost base.

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