Introduction

We’ve seen a wealth of development in the health care space in the last few years, with digital solutions gathering pace. 2020 was the year that this development transformed into a step-change, with the COVID-19 pandemic proving the catalyst for a huge leap forward.

Over the past ten years of working in the digital health care space, I’ve witnessed innovators and early adopters creating solutions, demonstrating the potential of health care by putting the patient at the center. The COVID-19 pandemic has expanded the adoption of digital health, making technology a necessity due to increased demand, social distancing measures, and the need for remote care - providing a ‘crossing the chasm’ moment: the point at which a market innovation suddenly enters mainstream adoption, going from minority to majority.

Looking back to five years ago, there were three main issues that needed to be addressed in order for health care innovation to reach wider adoption and deliver on its promise. First, we needed to see proof of outcome, tangible evidence that digital would have a true and demonstrable positive impact on health care. Second, there needed to be a functional range of business models that enabled these solutions to deliver market value, defining who would pay for digital health services. Finally, there had to be a real need that would provide the demand and market dynamics for a huge uptick in adoption.

2020 provided on all of these fronts. Those with workable business models and who could prove outcomes were provided with conditions in which they could accelerate rapidly. Telemedicine is the obvious example here, with companies seeing an unprecedented surge in the volume of visits. A report by Amwell found that before COVID-19, fewer than 1% of all physician visits in the U.S. were conducted via telehealth; in just over a month, an analysis of health claims data found that this number had spiked to over 50%. But this goes beyond telemedicine: almost every aspect of digital health is experiencing rapid growth.

In the wake of this acceleration, it’s important that industry leaders continue to innovate, staying up-to-date with the latest developments while keeping in mind the keys to success in the digital health care space. They must continue to ask themselves the questions that will enable them to maintain momentum.

This means three things: they must have a clear understanding of exactly what they want to offer, what their solution looks like, and the value it provides; they must think through exactly how their solution will fit with market dynamics, with a strong idea of how it will sustain itself, whether this means reimbursement by a payer, directly by patients, or a free model; and, most importantly, they need need to have the right team, the right data, and the right position in the ecosystem.

With this in mind, we thought this would be an opportune moment to reflect on the future of digital health. Record funding is flooding into the sector, indicating sustained growth; existing companies are diversifying to offer health care solutions; and the impact of the COVID-19 pandemic continues to be felt, challenging us to innovate in new ways. Additionally, rapid developments are underway throughout multiple disciplines within digital health, making it more challenging than ever to stay informed.

What follows is a series of predictions from our multidisciplinary team of digital health experts, spanning the breadth of the space, including Biopharma, MedTech, Payer, Provider Services, and Consumer Health. We hope you find their insights enlightening, and that they give you the scope to think about what’s coming next for health care innovation as we look forward to 2021.

ASHKAN AFKHAMI
Managing Director and Partner
BCG Digital Ventures

1 In Q3 2020, the running total invested into US-based digital health startups was $9.4B, exceeding the previous record of $8.2B set in 2018. (Rockhealth report)
Telemedicine and televisits will continue to grow
Perhaps the most visible change in digital health this year was the hockey-stick adoption curve of telemedicine and telehealth, with nearly half of physicians seeing their patients in this way. The main telehealth players, American Well, Teladoc, and Kry, will continue to grow (Teladoc has experienced a 203% growth in usage on 2019), but there are also opportunities for other players to enter the field. This growth will be supported by payer reform, with reimbursement from payers covering telehealth consultations (Medicare has already expanded telehealth coverage).

We’ll see an uptick in remote patient monitoring, digital therapeutics, and digital health
Alongside remote consultations, we will also continue to see more tools that allow the remote monitoring of patients, supporting a variety of different therapeutic areas. Remote patient monitoring (RPM) tools are facilitating closer patient engagement and continued monitoring, partly driven by COVID-19 distancing conditions, and, as is the case with telemedicine consultations, payers are increasing coverage of RPM. BCG has projected a shift in value of $130 billion towards remote health from the biopharma sector.

There will be a further consumer health bounce
We’ve already seen a variety of different digital in-home health options grow, partly due to the pandemic, including Peloton: the company’s stock reached a peak of 453% of its IPO price in October. Due to the success of these companies and the move towards home fitness and away from public venues due to the pandemic, we will see new offerings in this area and the growth of existing products. Some will be in with the existing digital health ecosystem, while others will try to build their own ecosystems. Recent examples include Whoop and Oura Ring. The launch of Apple Fitness+ in late 2020 will likely spur other big players into investing in their own offerings, and there will also be continued investment into startups and mid-sized companies, following the example set by Peloton.

In-home testing and diagnosis will see attention from investors and further innovation
The COVID-19 pandemic has triggered a flood of interest in home testing and diagnostics, with some national authorities requiring a negative test for those seeking to travel or return to work. Companies like Cue Diagnostics and Spartan Biosciences are innovating in this area, with Cue delivering test results within 20 minutes. We will start to see an expansion of these solutions in a multitude of diagnostic categories.

Ashkan Afkhami
MANAGING DIRECTOR AND PARTNER

Ashkan Afkhami is a Managing Director and Partner at BCG Digital Ventures. He is an entrepreneur, strategist, and technology business leader with close to 20 years of experience in new innovation models, enterprise implementation, and partnerships, with further experience building health care innovation solutions. As Global Topic Leader for Digital Ventures and Digital Innovation in Health Care, Ashkan has worked on digital solutions in a variety of areas within the space across different clients within BCGDVs’s MedTech, BioPharma, Payer/Provider, and Global Health sectors. Ashkan has been able to develop and launch a variety of different solutions such as validated product development (including digital therapeutics and software as a medical device); commercial, R&D, and G2M assets across marketing, sales, and pricing.

In February 2020, just before the pandemic hit, mindfulness app Headspace received $93m in equity and debt, followed by a further $477m in June. The announcement of this funding was combined with Headspace’s renewed commitment to positioning its app as a solution to a public health issue, with governments and companies as key focus areas. Virgin Pulse, an employee wellbeing platform, is PE-owned, and it acquired diabetes startup Blue Mesa Health at the start of the year. Such investment models and M&A activity look set to gain more momentum heading into 2021, and public health platforms are seemingly attractive targets.

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There will be an uptick in investment and acquisition activity from private equity and venture capital, particularly in population health tools

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A standalone digital therapeutic startup will secure reimbursement from a major payer
To date we have seen smaller examples of digital therapeutic startups securing reimbursement, such as Minnesota Blues and Omada, and Blue Cross NC and Carrot/Virta. Even UnitedHealth Group has stood up its own virtual care platform for diabetes. Step by step, DTx solutions are proving out their commercial model, and one major deal will be enough to change the risk equation from faith-based to revenue multiples.

M&A acceleration continues upward as digital health matures
After a flat deal trajectory in 2019 (53 deals as reported by MobiHealthNews), 2020 has been booming (35 deals in H1 as reported by MobiHealthNews) given the capital availability and hotness of the sector. With pandemic resolution nowhere in sight and anticipated stickiness of virtualization regardless, deal volume shows no signs of slowing.

Pharmacies will be integrated into virtualized primary care at scale
All practitioners are familiar with the excitement around the telehealth-to-Rx models from the likes of Nurx, hims, bars and Ro. Enablers in the space such as TruePill and Medly have not yet received funding to build out their offerings. On the brick-and-mortar side, established players such as Walgreens and CVS have pivoted the traditional pharmacy model to offer online clinics for limited provider services. On the manufacturer side, new channels investigating all of these avenues are being explored for drugs and diagnostics. These solutions are already coming together for select opportunities, and by the end of the year they will be considered necessary for the fulfillment of a virtualized experience of primary care.

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Home health hardware will accelerate
We will see a notable >$100M deals in home hardware (e.g. TV, Alexa, other) closed in 2020 that extend beyond the fitness industry. While remote monitoring and diagnostics have been gaining new traction through increased funding - Myia, Biofourmis, Butterfly, and Eko to name a few - the fitness sector has exploded with new home hardware at a totally different scale. This can be seen in Peloton’s performance post-IPO and Lululemon’s $500m acquisition of Mirror. Soon, the proliferation of smart devices will enable virtual care platforms to operate across a network of hardware within our homes, away from the screen and integrated into our lives.

Clintech will see an IPO
With pipeline resilience a major theme during the COVID-19 pandemic, an already hot clintech market has shifted from accelerating acquisitions to multiple deals in the nine figure range. Soon enough, one of these companies will “go it alone” for the long term by entering the public markets.

Nate Beyor is a Managing Director and Partner at BCG Digital Ventures. He is passionate about the interface between technology and biology, and has devoted his career to innovation at this intersection, including in microfluidics, biologistics manufacturing, and stem cell therapy development. Nate is an expert in digital health, including DTC patient engagement to accelerate the adoption of medical devices and drugs; clintech; remote monitoring solutions; and software solutions such as digital therapeutics. Before coming to BCG, Nate founded Roz Health, Tweed Network and Polymorfix (now Baronova).
Remote patient monitoring at discharge will become prevalent

For years, we saw low adoption of digital health. Then, in 2020, the COVID-19 pandemic forced an impromptu user experiment, proving in many instances that health care and digital technologies have a long and prosperous future. One area where we will see increased demand is in remote monitoring, particularly around the discharge of patients. There is currently increased anxiety around visiting hospitals due to risk of COVID-19 infection. Enabling patients to be discharged quickly and monitored in the comfort of their own homes, utilizing new technologies such as AIcure is a win-win, for both patients’ wellbeing and for hospital capacity and budgets. This will surely continue once the pandemic is over.

Trust in computers and AI will increase

AI pioneer Antonio Di Leva astutely noted in The Lancet that ‘machines will not replace physicians, but physicians using AI will soon replace those not using it.’ Physicians, traditionally reluctant to adopt telehealth services, have embraced them due to necessity, as a result of the COVID-19 global pandemic. In 2021, this trust will extend to other innovators, including the use of AI to enhance diagnostics, disease tracking, projections, and patient care.

Health care expenditure will fall globally

This assertion may sound counterintuitive, given that we are in a health care emergency, but the COVID-19 pandemic has meant that many non-urgent care services have reduced and people are reluctant to access care. Emergency departments in hospitals have seen radically reduced footfall and in many countries, elective surgeries have been paused. Whether backlogs and waiting lists may cause problems into 2022 and beyond remains to be seen.

There will be an increased use of personal data to fight and prevent disease globally

Historically, patients have been nervous about sharing their own health care data, but during the COVID-19 pandemic we have seen citizens more readily share such information. COVID-19 contact tracing apps have had substantial uptake – in Ireland, within 36 hours of launching, over 30% of the population had downloaded the ‘COVID Tracker Ireland’ app. Developers NearForm have since created localized versions of the app in four US states. Data gleaned from a number of COVID-19 studies has proved groundbreaking in the fight against the pandemic. We have also seen an increase in non-health care players contributing to this research, such as data-sharing on social platforms.

In-home testing becomes typical

With people wanting or indeed having to stay at home more frequently, there will be an increased appetite for at-home testing for medical conditions and diseases. We have seen a novel interest in at-home DNA testing kits to link up with ‘family trees’ online in recent years, but in 2021 we will see these commercial capabilities translate to more ‘serious’ testing for illnesses such as COVID-19, as well as HIV. The discretion afforded by at-home test kits is being utilised by companies such as Nurx to provide sexual health services through an end-to-end telehealth platform.

Grace Davey
STRATEGIC DESIGN DIRECTOR

Grace Davey works as Strategic Design Director and is one of the founding members of BCG Digital Ventures, where she defines new innovative break-out products and businesses. With 12 years of experience, her passion for human behaviour and expertise in strategic design has helped shape multiple award-winning products from banking to health care, with users ranging from London cab drivers to aboriginal elders in Queensland, Australia. Grace has worked with several charities to unlock funding through digital innovation, including a partnership with the Asthma Foundation to develop a new app with support from Google. She has also led the design of a breakout growth health insurance venture for one of the world’s leading loyalty programmes, and in nine months designed and launched an app to support epilepsy patients in managing their condition.

Grace

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Telemedicine will extend beyond the quick diagnosis and integrate at relevant points of the patient journey

In 2021, telehealth will become more than just a video visit for a quick problem-solving diagnosis. As adoption of digital models of care has skyrocketed because of COVID-19, patients will be open (or be forced) to extend their use of telemedicine beyond a service for receiving a quick diagnosis. Providers, after becoming more comfortable with digital tools, will integrate them more closely with their workflows. This will translate into system-wide virtualization of hospitals, not the one-off virtual hospital, while payers will look to expand reimbursement to fit the demand driven by members.

Sustained patient engagement will become a primary focus for systems

As digital engagement tools and platforms have been launched, payers and providers are struggling to move beyond the application of so-called ‘low-hanging fruit’. In 2021, we will see more focus on engaging telehealth users in creating sustained behavioral change in order to prevent the onset of chronic diseases, such as cardiovascular disease, that were not part of the first wave of conditions where patient engagement made a lasting impact (e.g. diabetes).

Data accessibility will advance as a result of improved integration

Most hospitals now use large Electronic Health Record systems (EMRs) and payers continue to better structure their data to provide actionable insights to their members. New EMR and claim systems implementations are becoming less of a cost burden for systems that have improved their integration. Data accessibility will be accelerated by the expanding landscape of players collecting health data that payers and providers need, in order to realize its value before becoming a secondary source of input. Developed by MIT Media Lab, MedRec is a platform moving in this direction by using blockchain technology.

Stronger partnerships will emerge to enhance digital offerings

Payers, providers, and other health care organizations will increasingly partner with companies that can enhance their digital offerings and unlock value in their distribution networks. This will connect them closer with the patient across their entire journey. Expect to see large non-healthcare companies involved, but there will also be better management and understanding of how to partner with start-ups. One example here is the API-connected healthcare infrastructure company TruePill.

Austin Gispanski
VENTURE ARCHITECT DIRECTOR

Austin Gispanski is a Venture Architect Director at BCG Digital Ventures. With over a decade of experience in the health care industry, he is an expert in leading the innovation, design and development of digital solutions for patients, payers and providers. This includes a platform aimed at preventing the progression of cardiac disease, a patient engagement app that personalized health care devices; and an enterprise-wide eCommerce and eBusiness platform for health care and life science products. Austin is passionate about helping payers and providers reduce waste and costs, while improving patient experience and outcomes through technology-enabled solutions.

As adoption of digital models of care has skyrocketed from COVID-19, patients will be open (or be forced) to extend beyond the quick diagnosis.
Easy-to-adopt plug-and-play solutions will level the playing field for all doctors, including small practices.

New technologies will drive remote health capabilities
With the rise of sensors and advances in mobile computing speed brought about by edge computing and 5G, the potential of remote health tools will be fully unlocked. Wearables for conditions like heart disease will be the starting point, but more advanced remote testing solutions will follow. This will allow for more frequent and more reliable remote testing, thereby improving triage decisions. Other possibilities include spatial computing, AR and VR, and high-quality imaging - all of which, unlocked by increased data speed, will improve patient experience and remote health.

True personalized healthcare models based on genetic screening will come to the fore
Telehealth and remote care services will move beyond the quick-diagnostic delivery of primary care to include modern testing services such as drug dosing and gene therapy. These targeted, personalized treatments will ultimately deliver more effective treatment options and regimens for management of complex and longer-term conditions, the treatment of cancer being one example.

AI solutions will drive efficiency and cost gains
Overuse of health care systems drives higher costs and decreases capacity. Triage leveraging AI technology will begin to play a larger role in identifying the right level and type of patient care required. This will support patients in navigating an increasingly complex health care landscape. A BCG report examines this issue in more detail.

Key outcomes will include reduced overcrowding of hospitals and increased efficiency in treatment and convenience for patients; as a side-effect, costs will go down.

New solutions will put the patient at the center
New service models, such as direct-to-patient healthcare delivery, will tie the patient experience end-to-end, encompassing everything from diagnosis to treatment to aftercare. Unlocked by technology, these possibilities - which we’re already seeing in some telemedicine models that offer prescription drugs and treatment after consultation, such as Ro - will result in greater efficiency and a better experience for the patient, with lower costs involved.

Driven by telemedicine, health care will become decentralized
Telemedicine enables small practices and single doctors to access patients everywhere. This means that large hospitals and provider groups will become less relevant in the consultation process. Easy-to-adopt plug-and-play solutions will level the playing field for all doctors, including small practices. Large tech infrastructures will be required less frequently. This will ultimately lead to the decentralization of health care.

André Heeg
MANAGING DIRECTOR AND PARTNER

André Heeg is a Managing Director and Partner working from BCG Digital Ventures’ Berlin center. A medical doctor, he has vast experience in the healthcare industry as a maxillofacial surgeon, tech entrepreneur, pharma executive, and company builder. André is an expert in digital venture building and innovation with a focus on digital healthcare and D2C models. At DV, he has developed tiered and community-driven mental health support for older women, built a patient-physician platform and engagement tool in immune thrombocytopenia, and developed a concept for telemedicine implementation for a large hospital chain. Prior to joining DV, André was CDO at Sandoz International (Novartis) and VP of Sales for ZacDoc, the largest healthcare professional appointment booking platform in the US.
Digital health decentralization will accelerate
2021 will see a major acceleration in the shift
to decentralized healthcare, enabled by digital
advances in clinically accurate sensors in
consumer wearables; continuous data
transmission; data interoperability; a constellation
of apps that enable personalized health tracking
and coaching; and virtual access to consultations,
diagnosis and tailored treatment plans that
predictively and preemptively guide people to
healthier choices and outcomes. Going to the clinic
or hospital will become an infrequent activity as
the majority of interactions with health
professionals will be conveniently on-demand
through digital channels and pharmacies/
wellness clinics.

AI and human doctors will work together
AI and healthcare professionals will work
seamlessly and bionically together to automate
the diagnosis and management of common
conditions based on real-time data analysis,
digital biomarkers and at-home tests. “Human”
doctors will use their expertise to manage more
complex cases and virtual visits with their
geographically distributed patients. Patients will
be able to reach their AI coach or doctor’s avatar
24/7 for counselling, emotional and psychological
support, and fully automated prescription
preparation, refills, and deliveries. This will lead
to welcome efficiencies for biopharma, payers,
providers, and medtech companies, and some
value transfer to tech companies.

Consumer biomedical monitoring will advance
Consumer wearable devices will integrate sensors
that go beyond biometrics and vitals monitoring
into medical implants. These devices will perform
real-time blood analysis for toxins, viruses and
bacteria and push the data back to patient
medical records and the patient’s personal health
AI to be analyzed, in conjunction with genome
and microbiome sequencing data. The
personalized monitoring service will make
predictions and perform interventions by sending
tailored medical advice and prescriptions,
customized diet plans, nudges, and reminders
for automated virtual appointment scheduling
to patients’ calendars. Wearable medical devices
may also be instructed to administer medications.
Self-quantification, self-management of
conditions, and interactions with the health
system will become largely automated, enabling
patients to focus on living their best life with
disease. One company offering a remote
monitoring solution that seeks to leverage these
technologies is Current Health, whose AI wearable
device measures multiple vital signs; it received
FDA clearance in 2019.

Digital health will integrate voice channels
and emerging media into a seamless
omnichannel patient or HCP experience that
is coordinated by an AI
Zero-UI voice interfaces will become more
prevalent for capturing symptoms and health
concerns (with real-time biomarker analysis for
mood and mental state) and for conversing with
a health bot that can guide patients to healthier
life and behavior choices, and improved treatment
adherence. The fatigue of text and app
notifications will be replaced with contextually
sensitive, emotionally relevant prompts, nudges
and reminders through voice and video appliances
or a few taps of haptic feedback through
wearables. TV and VR apps will move beyond
entertainment and fitness to deliver visually and
emotionally impactful content that is programmed
into the patient’s overall wellness experience.

Patients will have greater visibility and
fine-grained control over access to their health
data records
Personal choices around PHI sharing will be
managed and signed in real time through mobile
apps, and the results of processing will be available
directly to patients along with AI-informed medical
guidance, in return for the granted access. Patients
may be able to directly monetize their own
longitudinal data records for exploratory research
and analysis through health data exchanges.

Stuart John
PRODUCT DIRECTOR

Stuart John is Product Director for Healthcare
at BCG Digital Ventures’ Manhattan Beach
Center. He has over 20 years of experience as an
early stage product strategist, with a strong
technology, design and marketing background.
At DV, he is responsible for innovating, incubating
and commercializing digital solutions for pharma,
medtech, payers and providers. Stuart has led
groundbreaking ventures to enable better
outcomes and quality of life for patients through
digital therapeutics, Software as Medical Devices,
AI/ML analytics, and data-driven integrations
with clinical workflows and systems. He is an
expert in mobile user experience, advanced
analytics and machine learning, and SaaS
platform development. Prior to joining DV, Stuart
co-invented the Skype patent for real-time data
synchronization across the Skype P2P network.
From a population health perspective, COVID-19 has created an urgency to better manage chronic disease in patients, and to be able to do it remotely. Adoption of remote monitoring technologies by clinicians will inevitably increase as patients continue to avoid the doctor’s office, and as patient-generated data becomes more cohesively integrated into clinician workflows.

Self-care will become driven by data

An evolution of the quantified-self trend, data-driven self-care is allowing consumers to increasingly take control over their health through access to data about their own genome or physiology. Fueling this trend towards preventive care (further heightened by COVID-19) is the growing access and affordability of at-home diagnostic and self-monitoring kits. From food sensitivity screenings to fertility testing, a range of DTC home kits are empowering consumers to make proactive decisions and engage with their health on a daily basis.

Doctors will open up to remote chronic disease management

Chronic disease management has been a priority in healthcare to improve patient outcomes while reducing costs; however, current practices in managing chronic diseases have been inadequate. From a population health perspective, COVID-19 has created an urgency to better manage chronic disease in patients, and to be able to do so remotely. Adoption of remote monitoring technologies by clinicians will inevitably increase as patients continue to avoid the doctor’s office, and as patient-generated data becomes more cohesively integrated into clinician workflows.

Care will move outside the clinic

Milk. Check. Apples. Check. Blood work. Check. From drive-up COVID-19 tests to flu shots administered at your local retailer, consumers are becoming accustomed to receiving care outside of the clinic. With the rising adoption of telehealth, consumers prefer to receive care at alternative care sites that offer convenience and access.

Vocal biomarkers will aid early disease detection

Vocal biomarkers are an emerging technology that uses voice analysis of speech patterns to detect the onset of psychological, neurological and other diseases. With the rise of voice-based interfaces, in 2021 we will see increased adoption of non-invasive product experiences that monitor and detect anomalies in voice patterns. This will provide an early detection warning system to both caregivers and clinicians of the potential health decline of at-risk patients. Sonde Health is focused on this area, and claims its product can tell if a person is at risk for common health and wellness concerns, including COVID-19, from just a six-second audio clip of their voice.

From a population health perspective, COVID-19 has created an urgency to better manage chronic disease in patients, and to be able to do it remotely.

We’ll see new health services curated around niche demographics

In 2021, we will see the rise of supplemental health care services that fill the niche needs ignored by traditional healthcare. With the rise of startups like Gennev, which provides a telehealth service to women experiencing menopause, and Therapy for LatinX, which provides mental health resources for the Latinx community, products are being built to address the nuanced health needs of underserved communities.
Digital health apps will require clinical validation for greater adoption by payers and providers. Millions of users are now downloading and using digital health apps. In order to continue to engage patients in the long term and ensure they get the benefit they seek to achieve, digital health applications will need to be validated on clinical outcomes. This acceleration towards clinical validation is also fueled by need and request from providers to push for applications that would offer better engagement and clinical benefit to patients. Clinical validation will provide a greater seal of legitimacy for patients using health care and health apps, and bolster trust with the user.

Provider IT organizations will accelerate the adoption of patient-focused digital health solutions integrated into the core data platform. As more and more people seek telehealth solutions, care at instant clinics or self-care through online tools, providers will seek to keep the patient in their ecosystem by creating extended solutions that can be consumed by the patient in different settings. This could include ‘nudges’ and reminders in the form of app push notifications, the use of remote testing and introducing trackers and wearable healthcare devices to the patient in order to help manage chronic disease or focus on wellness and prevention.

Consumer digital health applications with an integrated provider offering will require hardware integration. Providers will seek hardware-integrated digital health apps to offer telehealth services with additional data points that would otherwise only be available by onsite visit or through additional testing. Wearable devices can for example track certain vital signs and indicate patterns and trends. This will also facilitate the providers in practicing evidence-based care in the remote setting, and availability of reimbursement through payers. It will further offer additional opportunities for providers to scale their reach by providing care through their own team.

The consumerization of data will increase through providers and payers. In 2021, we will see larger providers and payers opening up to consumer apps, thus enabling better patient care. These consumer applications may eventually be federated via distributed identity in order to allow consumers to control how their data is shared with different services. The consumer applications will leverage advances in AI to use the data available for the patient across providers and payers to personalize care.

“Millions of users are now downloading and using digital health apps.”

Sawan Ruparel
ENGINEERING DIRECTOR

Sawan Ruparel is Director of Engineering at BCG Digital Ventures, where he has led multiple digital health ventures from idea to commercialization, including the development of Class I and Class II Software as Medical Devices (SaMD). At BCG, Sawan has created custom software solutions to maximise solution impact with over twenty partners, and has worked as Venture CTO for four digital health ventures. He has expertise in digital therapeutics, creating analytical and workflow solutions, ensuring digital health compliance with ethics regulations such as HIPAA, and has significant experience as a hands-on engineering leader and security architect.
BCG Digital Ventures

Telehealth consultations and remote patient monitoring gains are set to stay beyond the COVID-19 crisis

2020 saw a clear rise in the use of telehealth services, which have been in regular use for the last few years often as a quick diagnostic service for patients unable to attend a doctor’s office. However, remote monitoring and intervention across chronic disease areas will be the real winner in the long term. Now that physicians have adapted to the use of telehealth services, they will be willing to explore its capabilities to virtually manage conditions such as diabetes, leveraging technology such as wearables, trackers and digital ‘nudges’ and push notification reminders from apps to help provide early intervention and monitor patients.

Health data sharing through exchanges and vaults will gain ground, given the lessons learned from the siloing of data during the COVID-19 crisis. Use of distributed ledgers and blockchain networks that guarantee integrity and enable data sovereignty by owners (patients/provider systems) will see real adoption. Technology and TMT companies will partner effectively to run these platforms successfully. To take one example, earlier this year health data streaming platform MiPasa began operating on IBM’s blockchain network.

AI in health care will start showing significant impact in early diagnosis and treatment interventions

There will be an uptick in the use of AI in healthcare provision across many disease areas, particularly to assist with early detection. One study involving patients at risk for stroke, for example, used AI algorithms based on the presented symptoms and genetic history of the participants to place them in an early detection stage. AI usage in healthcare will also cross the threshold of drug discovery - it will be used to help identify drug targets, molecules within data libraries and suggest chemical modifications.

Neuro health will broadly start adopting a fusion of advanced technologies

Treatment and therapy for neurological conditions will see the adoption of technologies across VR/AR/XR, gaming, and AI. AI is already used to train machine learning algorithms in neuro-oncology to assist with brain tumour assessment and diagnosis. In 2020, neuro tech will be enabled by closed loop and brain computer interface will open new diagnosis and treatment corridors for patients.

Dharmesh Syal

CHIEF TECHNOLOGY OFFICER

Dharmesh Syal is the Chief Technology Officer at BCG Digital Ventures. He has over 25 years of experience in leading teams to build digital platforms and solutions, and advance intelligence and collaboration technologies. At BCG, Dharmesh has led the creation of several large platform-based digital businesses. These include the scaling of a consumer behaviour AI-based platform to 20 million customers in nine months, and an industry-first Blockchain platform business with data disclosure. As CTO, he has led IP investments across several emerging technologies including Human 2.0, emotion voice AI, smart edge/DML, neurotech and symbiotic bots.

Remote monitoring and intervention across chronic disease areas will be the real winner in the long-term.
Consumers will avoid on-site visits as much as possible, resulting in sustained growth for telehealth services

Telemedicine services have proved an efficient means of triaging potential COVID-19 patients, relieving pressures on healthcare services during a global pandemic. Nearly half of physicians are seeing patients through telemedicine, up from 18% in 2018, with high levels of patient satisfaction. The telemedicine product provides a good foundation upon which to build a platform and an ecosystem.

EMR and telehealth apps will compete with non-traditional players to command the telehealth space

Telehealth players such as Amwell could capitalize on the current boom, adapting their platforms and highlighting their capacity regarding privacy, data security and secure networks. However, EMR players have scale to leverage, but must modernize and improve their UI to match the standards set by tech upstarts. A third pathway could be driven by payers, who are the most incentivized to drive efficiency and collaboration, and could leverage telehealth to deliver better care at lower costs. Humana, for example, has partnered with telehealth startups to launch new models. Alternatively, tech giants such as Amazon and traditional teleconference systems such as Skype and Zoom could appeal to the market, integrate with EMR systems and offer end-to-end security concerning medical data. How the battle will play out remains to be seen, as considered by BCGDV here.

Digital native health and healthcare companies with direct-to-consumer e-commerce platforms will expand to other disease states

The pharmaceutical sector has strong potential for new, accelerated e-commerce models. Mail-order services have bolstered remote care, and a BCG study (discussed here) indicates that DTC services are becoming the default choice for patients, with mail-order pharmacy channels in high demand. Digital native healthcare companies such as hims and hers are widening their berth to treat a suite of men’s and women’s health issues respectively, providing an end-to-end platform that includes a telemedicine service and mail-order pharmacy.

There will be a rise in the development of end-to-end DTC digital platforms by pharma companies themselves in order to sell their own brands

The increased adoption of telemedicine solutions combined with warming consumer sentiment towards online channels and a more sympathetic regulatory climate has presented a big opportunity for pharma companies willing to take a new look at how they sell their products. Pharma companies will begin to accelerate their e-commerce operations and offer their own branded products. This will not only benefit patients by providing them with the convenient digital experience the COVID-19 crisis has demonstrated an appetite for, it would also give the companies the means to bring the value chain together, increase their margins, help them to understand patients through access to data, and give them a valuable advantage over competitors, as they can sell their own branded drugs through a telehealth service. Telehealth services such as Ro that currently offer end-to-end services typically only prescribe generic medications.
Telemedicine will become a standard part of physician practice, even after the COVID-19 pandemic

There has been a significant increase in the use of telemedicine as a result of the COVID-19 pandemic (from 25% pre-COVID-19 to 71% during COVID-19, according to the BCG Physician COVID-19 Response BioPharma survey). In 2021, even after the pandemic subsides, we will see telemedicine become a standard part of physician practice. Both physicians and patients alike will favor telemedicine for follow-up appointments, or matters that do not require an in-person examination. Some specialties (e.g. primary care) will have a greater proportion of visits via telemedicine, with virtual care tools providing supplemental data, while others (e.g. surgery) will have a smaller proportion. Telemedicine is here to stay!

Disease management platforms and digital therapeutics will become more widespread

As more physician practice happens via telemedicine, it becomes increasingly apparent that tracking of and access to patient data in between appointments is critical for providing the best care. Disease management platforms that connect physicians and patients in between appointments will become an expectation at the top tier of health systems. By extension, in therapeutic areas where digital can prevent, manage or treat the condition, we will see increased recommendation of digital therapeutics by physicians. Digital health formularies will begin to help physicians select the best options amongst available solutions.

Pharma companies will evolve their commercial model to be increasingly virtual

Physicians are spending more time remotely interacting with pharma companies as well as patients (from 73% virtual interactions pre-COVID to 86% during COVID, according to the BCG Physician COVID-19 Response BioPharma survey). In 2021, pharma companies will increasingly use data to precisely target physicians with personalized messaging, and deliver those messages virtually. They will use data determining the effectiveness of those campaigns to iteratively fine-tune the engagement model. This will enable physicians to receive information that is more relevant to them, and facilitate pharma companies to optimize for the most valuable engagement model.

Pharma companies will go direct-to-patient for OTC drug sales

In an increasingly virtual world, pharma companies will begin to leverage digital in order to sell OTC drugs directly to patients, allowing them to circumvent several steps in the current value chain. Pharma companies will farm direct relationships with patients, causing them to be more patient-centric, and use data to continuously refine their marketing. For Rx drugs, pharma companies will still value providers as the primary channel, so uptake in going direct-to-patient will be slower.

Patients will use more virtual care tools in the home

As patients become more accustomed to remote appointments, they will also increase their adoption and usage of virtual care tools, such as remote monitoring and health coaching. Healthcare will evolve into a more continuous experience, with patients becoming more proactive about prevention and maintenance. Since a lot of these interactions do not require physician appointments, these virtual care tools will fulfill that need, thus empowering patients to better their health.

Vicky Zhou
VENTURE ARCHITECT DIRECTOR

Vicky Zhou is a Venture Architect Director and Venture GM at BCG Digital Ventures. She has over ten years of experience in the life sciences and a formidable scientific background, having invented a new technology to study the human genome while completing her PhD at Harvard University. At DV, Vicky focuses on innovation and incubation of novel digital health solutions. She led incubation of a digital therapeutic in oncology for a leading pharma company, incubated a contact lens platform for eye care professionals and patients for a major medtech company, and designed the digitization of an injectable antipsychotics patient access and adherence program for a large pharma company, among other ventures. Vicky joined BCG New Jersey in 2012 where she advised pharma, medtech and public health clients as a healthcare Principal.
Conclusion

We hope that this report provided you with an informative and wide-ranging overview of health care trends and topics that will offer inspiration in fuelling your conversations and planning as we head into 2021 and beyond.

There are several clear takeaways from the report. There is a strong consensus that telehealth and remote care will continue to expand and bolster patient and physician interaction, especially in outpatient models. Within hospitals and urgent care facilities, we see improvements to medical equipment for diagnosis, new clinical support decision tools that are integrated into workflow through tools like electronic medical records (EMR) to ensure convenient, physician-guided support, and workflow improvement to optimize practice or department processes.

Based on the changing landscape given the implications of the COVID-19 pandemic, we expect that new entrants from the start-up community along with enterprise players will continue to push the boundaries of direct-to-consumer (DTC) opportunities such as digital diagnostics, home health and wellness, drug delivery, and connected experiences across the patient journey.

At a higher level, we believe the report is a clear testament to the fact that digital health will see continued growth in the future, with the promise of enhancing patient satisfaction, reducing cost drivers, improving clinical experience, and driving better outcomes.

Lastly, outside of technology improvements and digital health solutions developed by large and small companies, we believe that there will be pressure on business models. This will come in the form of performance-based contracts, reimbursement to cover digital therapies (ie. CPT or ICD codes), and population-based structures that will require a holistic model for care delivery.

At BCGDV, we are committed to “unlocking the potential of those who advance the world.” We share a deep appreciation for the opportunity to re-shape the health care ecosystem by leveraging digital tools, technologies, and solutions to empower patients, physicians, care teams, and others. To quote Abraham Lincoln: “The best way to predict your future is to create it.”

We look forward to collaborating with you to create the next generation of digital health solutions.

About BCG Digital Ventures

BCG Digital Ventures (BCGDV) is the corporate innovation and digital business building arm of Boston Consulting Group. The organization invents, launches, scales, and invests in industry-changing new businesses with the world’s most influential companies. BCGDV’s diverse, multidisciplinary team of entrepreneurs, operators, and investors work cross-functionally, rapidly moving from idea to market in less than 12 months. Founded in 2014, the organization has 12 Innovation Centers and satellite locations around the world.

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