

The Covid pandemic has forced healthcare providers and patients into the remote world of virtual consultations and telehealth, but it has also accelerated the move to direct-to-consumer diagnostic testing, as L.E.K Consulting partners **Klaus Boehncke**, **Guillaume Duparc** and **Leah Ralph** explain



Delivering healthcare at the touch of a **button**



As Covid ravaged countries around the world, a dramatic transformation of the traditional healthcare system began to take place. No longer could patients get a face-to-face consultation with their GP; instead, symptoms and sickness were discussed over the phone, via video call and through apps.

Covid did what the digital revolution has currently struggled to do – it marked the tipping point where telehealth suddenly became mainstream.

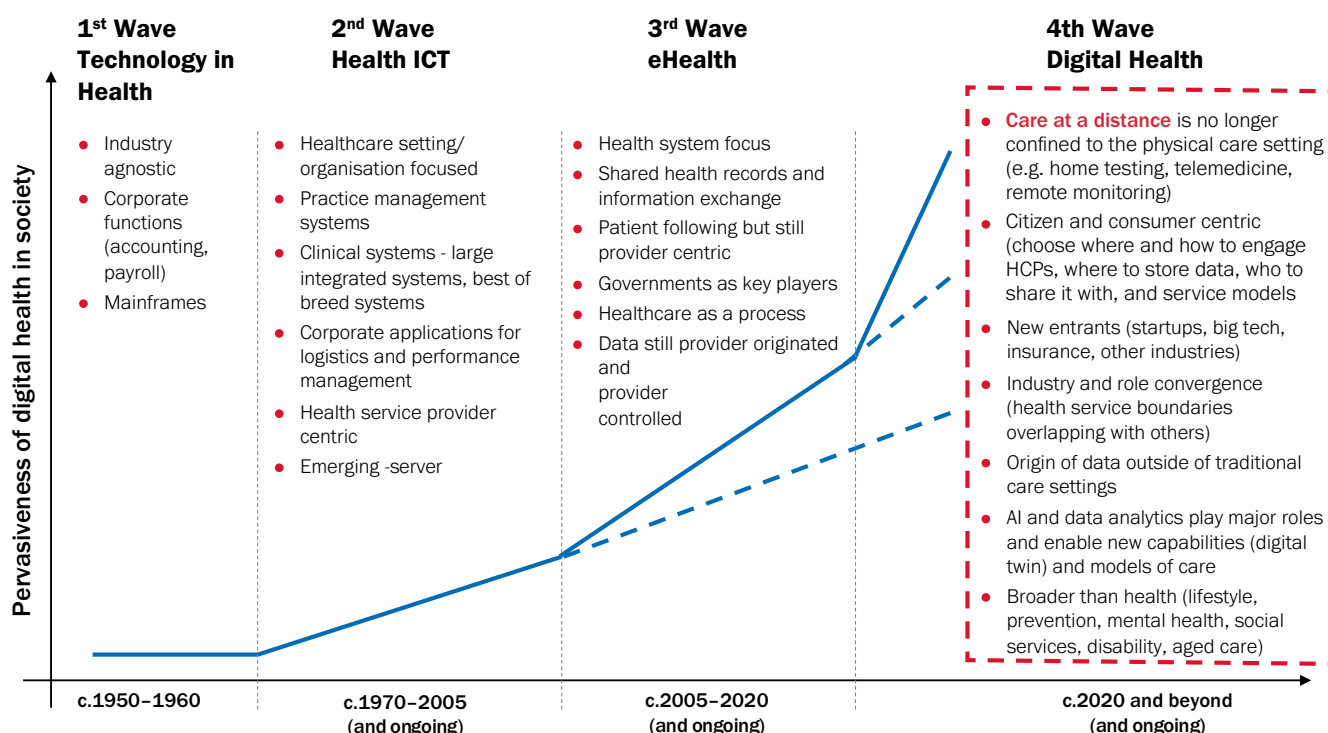
The accelerated use of virtual consultations is nothing short of momentous. In the US, telemedicine provider Amwell reported a 3,000% growth of remote

consultations over a two-month period, while the number of publicly funded teleconsultations in Australia reached around 10 million in just two months of launching. Globally, 50–80% of patients and doctors tried telemedicine for the first time during the pandemic.¹

Face-to-face consultations have returned as Covid restrictions have eased. However, the use of telehealth has continued and remains at a level higher than before the pandemic. It's not going to disappear back into the woodwork either because, for the most part, healthcare providers and patients have found virtual consultations work well and are very convenient.

But it is not just telehealth that has boomed as a result of Covid. The impact of Covid's requirement for care-at-a-distance combined with other healthcare trends is heralding the fourth wave of digital health. This is characterised by growing, consumer-centric business models, the burgeoning interest of tech firms in health and the rise of user-generated data, where artificial intelligence and data analytics also come to the fore. It takes us beyond a health-system, provider-centric focus on eHealth to an era where the patient sits firmly in the centre, where healthcare is delivered remotely rather than in the traditional healthcare setting.

FIGURE ONE
OUR CURRENT FOURTH WAVE OF DIGITAL HEALTH WILL BE CHARACTERISED BY REMOTE CARE, GREATER PATIENT CENTRICITY AND IS NOT LIMITED TO 'SICK CARE'



SOURCE DAVID ROWLANDS, L.E.K. RESEARCH AND ANALYSIS

In this wave, healthcare also becomes more than just about sickness – it becomes about lifestyle, mental health, social situation, prevention and self-care.

The rise of D2C testing

Within this new landscape, we are now witnessing the rise of direct-to-consumer (D2C) diagnostic testing. This market was already growing pre-pandemic, and this has now accelerated, driving annual growth of c.26% CAGR to reach more than \$30bn globally in the next ten years.²

D2C diagnostic testing allows consumers to use test kits at home that can be bought from a pharmacist, ordered online, or delivered to the home following a telemedicine consultation. They can then carry out the required examination by themselves in the comfort and convenience of their home. Simple tests that are well known include those for Covid-19 (lateral flow), pregnancy and urinary tract infections. Results are delivered very quickly either through the test kit itself or via an accompanying smartphone app (e.g. by taking a photo of a testing strip that is then analysed by the software).

If the diagnostic tests are more com-

plex, the samples can be sent off to the lab by the patients themselves or can be collected from patients' homes by a courier for analysis. This tends to be for more sophisticated tests such as saliva samples, genetic tests, sexually transmitted infection tests, nasal swab tests like the Covid PCR test and stool tests. Results are then provided to the patient either directly in digital format or via a medical professional (see Figure Two).

The maximisation of convenience

Direct-to-consumer diagnostic testing is part of a bigger trend that we refer to as the 'maximisation of convenience'. Over the past few years there has been significant growth in digital home delivery. Think Amazon, Deliveroo, and online grocery shopping, where you shop online from the comfort of your home then wait for the doorbell and your delivery.

This convenient home shopping trend was dramatically accelerated during Covid, and as a result, for example, 48% of UK consumers purchased a product online during the pandemic that they had never purchased online before.³

Direct-to-consumer diagnostic testing is merely an extension of this trend that leverages telemedicine. Our research and analyses show that typically in a telemedicine consultation 50–80% of patients will be issued a prescription. In 10–20% of these cases the medication will be delivered straight to the patient's home, and in the remaining cases, the medication has to be picked up from a pharmacy by the patients themselves.

In contrast, 40–50% of telemedicine appointments resulted in a diagnostic test requirement, and only 3–5% of patients were sent a home testing kit.

This shows that there is considerable potential for a better overall telemedicine experience with both prescription drug delivery as well as at-home-testing. As a result, we are seeing many companies jumping on the bandwagon and incorporating testing as part of their offering, and a broad range of D2C testing business models.

For instance, many traditional lab and diagnostic firms have, even before Covid, set up consumer arms, while a raft of D2C start-ups have entered the space. In the US, LabCorp has a consumer division, Pixel, that offers home collection tests for colorectal cancer and Covid that

FIGURE TWO
IN THE MARKET TODAY, A VARIETY OF HOME COLLECTION SAMPLING METHODS CAN BE USED TO TEST FOR A VARIETY OF CONDITIONS



Blood prick

- Diabetes
- Cholesterol
- Thyroid function
- Kidney health
- HIV
- Hepatitis
- Hormone
- Pregnancy



Urine sample

- Chronic kidney disease monitoring
- STI
- PrEP monitoring
- Iodine level



Stool sample

- Colorectal cancer
- Calprotectin (IBS)
- Peptic ulcers
- Clostridium difficile toxin



Saliva sample

- Genetic testing
- Covid-19



Nasal swab

- Covid-19
- Influenza



NOTE NON-EXHAUSTIVE
SOURCE COMPANY WEBSITES; L.E.K. RESEARCH

can be purchased out of pocket without a doctor’s visit. Competitor QuestDirect offers diabetes, colorectal cancer and Covid home collection tests that can be purchased online.

The entrance of non-traditional companies

In recent years, we have also witnessed another trend in this space – the entrance of non-traditional diagnostic companies including dedicated D2C testing start-ups, many of which are centred in the wellness space and who offer additional products. For instance, wellness firm Lykon in Europe combines the use of blood and saliva genome lab tests to offer personalised nutrition and supplements. In the US, Vivoo is a wellness assistant that focuses on nutrition and lifestyle and uses patient data from urine tests to provide personalised advice, while Numan describes itself as a ‘digital health company for men’, offering blood tests alongside personalised supplements. In Japan in 2018, Nestle

introduced at home genome and blood testing for its AI supported personalised nutrition service.⁴

In addition, large eCommerce platforms have started to specialise in healthcare products in recent years, offering an alternative to products bought in traditional brick and mortar pharmacies. Pharmacy2U and Zur Rose are both good examples of this. Delivery companies, including Uber and Deliveroo, are taking advantage of the D2C trends, and provide same-day delivery.

Meanwhile, telemedicine leaders including HealthHero, Kry, Teladoc and Babylon continue to look for opportunities to expand their business offerings and are increasingly creating or partnering with health platforms, governments, insurers and large corporates, which will further drive this trend.

Alongside these developments, there is also substantial growth in testing for digital biomarkers driven by the larger tech players. The ubiquity of smartphones already allows people to measure movement, walking balance and activity data, and wearables such as the

Apple Watch, Google Fitbit and others broaden this to include measurements such as heart rate, ECG, blood oxygen, and sleep quality. Blood glucose is likely to be the next big step in this list⁵ which will have a significant quality of life and healthcare outcome impact on many of the 400m+ patients with diabetes in the world. Startups are also ‘following the money’ and entering the digital diagnostics and digital therapeutics space which is increasingly being reimbursed by payors.

For example, last year Germany became one of the first countries in the world to fund approved digital mobile healthcare apps through statutory (public) health insurance.

Finding a path forward

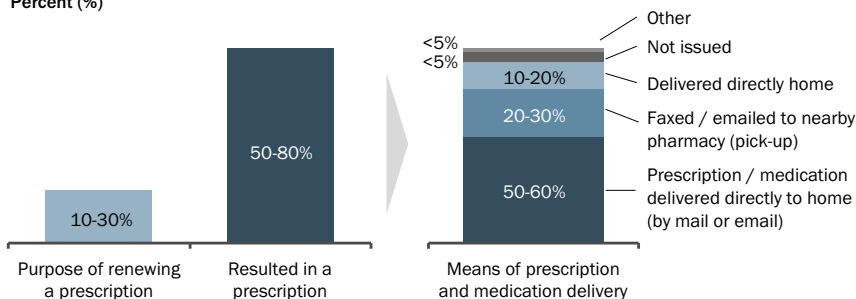
In the future, we expect the D2C testing marketplace to become increasingly complex with a larger variety of players and business models. How the landscape develops will also depend on how companies approach the challenges presented by telehealth and D2C testing.

FIGURE THREE
TELEMEDICINE PROVIDERS TODAY ARE ALREADY DOING MANY CONSULTATIONS THAT EITHER REQUIRE PRESCRIPTIONS AND/OR TESTING, D2C TESTING IS EXPECTED TO GROW RAPIDLY

Our current view of the market of D2C prescribing and testing

Remote consultations and e-prescriptions (2020)

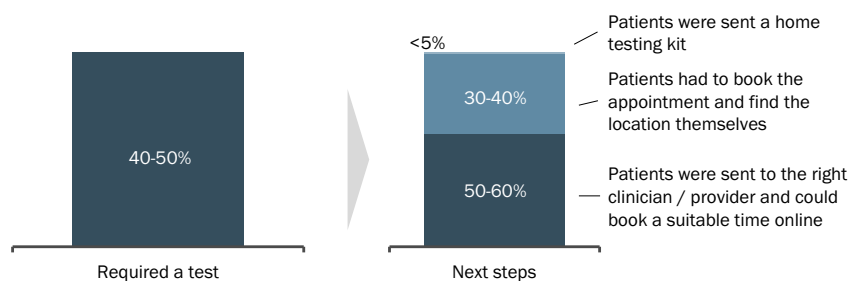
Percent (%)



- According to a recent report, the global direct-to-consumer laboratory testing market was valued at US\$2.4bn in 2020. It is projected to expand at a CAGR of ~26% from 2021 to 2031
- Telemedicine providers today have focused on prescriptions and home delivery rather than on home testing, which is shown by c.10-20% home delivery of medications, but less than 5% of delivery of home D2C testing

Remote consultations and D2C testing (2020)

Percent (%)



- We anticipate D2C testing to contribute significantly more the telemedicine companies in the future

NOTE NON-EXHAUSTIVE

SOURCE COMPANY WEBSITES; L.E.K. RESEARCH

Logistics and the supply chain are a case in point, where firms without this capability will need to consider with whom to partner. Regulation, too, is still a challenge. It varies across countries, but for the most part D2C test kits are regulated as medical devices with some easily purchased online while others require a prescription. Yet the market is not necessarily enforced and regulation can be limited. This is particularly seen with D2C genetic testing across the US and Europe.

For instance, Germany banned consumer genetic testing in 2009 and required such tests to be carried out by medical professionals. However, given transactions and results reporting happens over the Internet, companies outside of Germany offering these services can still be accessed by citizens.⁶ Another ongoing concern is the data challenge, specifically: who owns the data and what is being done with it? Personal data is becoming a currency of sorts especially for startups, but using it requires companies to walk the tightrope of public perception.

This was evidenced with Google's \$2.1bn acquisition of fitness tracker Fitbit earlier this year. While consumers may have been happy with Fitbit having access to their data, many objected to the transfer of this information to Google.

In spite of all of these challenges, D2C testing is here to stay and there is no going back to the pre-Covid days. As we have explained in this article, there will be significant growth in this market in the future due to digital technologies, care-at-a-distance acceleration, the shift to greater patient centricity and maximisation of convenience, as well as overall growth in demand for healthcare vs. supply.

We also expect the number of use cases to expand significantly, from diagnosis of acute patient symptoms to prevention and screening (e.g. for genetic risk markers) and remote monitoring (e.g. for cardiology patient's cholesterol levels) over time.

All these factors should also allow telemedicine and D2C testing to accelerate the global trend to more value-based

healthcare which is based on funding patient outcomes rather than fee-for-service.

Beyond Covid, we can expect a landscape where much more of healthcare will be delivered by the touch of a smartphone button and a knock on the front door.

NOTES

- 1 Sermo Covid-19 Healthcare Practitioner Survey, Apr 2020 (figure based on USA, Europa & Asia), Dynata's Global Consumer Trends Covid-19 Edition: *The New Normal*, 2020 (global figure based on 11 countries)
- 2 <https://www.transparencymarketresearch.com/pressrelease/direct-to-consumer-laboratory-testing-market.htm>
- 3 <https://uk.pfscommerce.com/blog/pfs-uk-covid-19-consumer-research/>
- 4 <https://fortune.com/2018/08/30/nestle-dna-nutrition-test/>
- 5 <https://www.nature.com/articles/s41746-021-00465-w>
- 6 <https://www.sueddeutsche.de/leben/gen-test-dna-analyse-1.4579606>