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Living offline and online: The future of hybrid care pathways



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Hybrid care pathways

Abstract: Online shopping has not made offline shopping irrelevant (and likely never will). Similarly, in healthcare, there will always be a coexistence between traditional and digital care delivery – even more so due to the challenges that the COVID-19 pandemic has brought about. Today, care pathways consist of disconnected, singular touchpoints, often neglecting the interrelated nature of online and offline. Hybrid care pathways, on the other hand, connect touchpoints in both worlds: for example, a patient with chronic heart disease who uses an app to manage their condition might be notified to go see a physician based on connections between all available data points. Combining these touchpoints into seamless patient journeys has three benefits: (1) a more efficient health system with reduced duplication and delays, (2) better quality of care due to better condition management, and (3) greater patient satisfaction through higher convenience. Core elements for successfully implementing these pathways are a robust IT and data infrastructure across national health systems, outcome-based payments, and novel reimbursement programs.

Living offline and online: The future of hybrid care pathways

by Kristin-Anne Rutter, Ulrike Deetjen, Stefan Biesdorf, and Michael Green

The healthcare industry's collective mission is to promote individual health and well-being, cure diseases, and care for the communities in which we live, work, and play. Technological advancements have already contributed greatly to this mission, transforming the way in which healthcare is delivered.

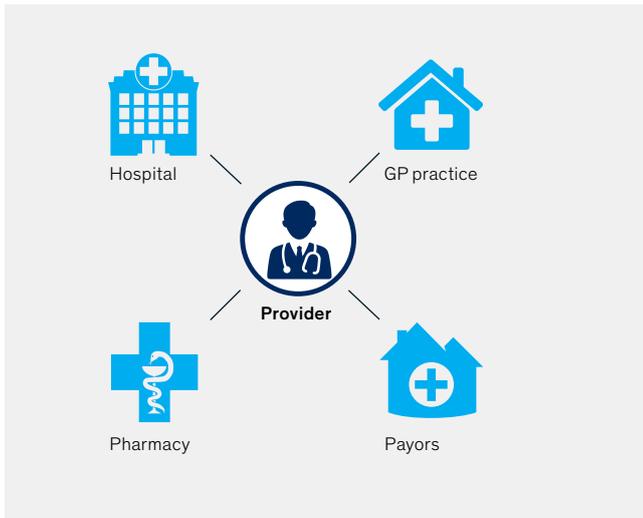
In the last century, we witnessed the emergence of IT systems in healthcare. Electronic medical records (EMRs) became standard and integrated with other systems, such as radiology or clinical imaging. From 2005 onward, we saw the development of health and wellness applications,

driven by the advent of the smartphone. Yet EMRs remain siloed, making it hard to create a complete picture of a patient's care. Digital health apps in their current form remain niche products, only catering to the needs of patients to a small extent because they only cover unconnected, singular facets of the patient journey.

COVID-19 elevated this situation to new heights. With the sudden and unexpected advent of the pandemic, three major things coincided: First of all, interest in health-related issues grew – many wanted to get help interpreting their symptoms. Second, access to offline health services for a

E-health and digital health

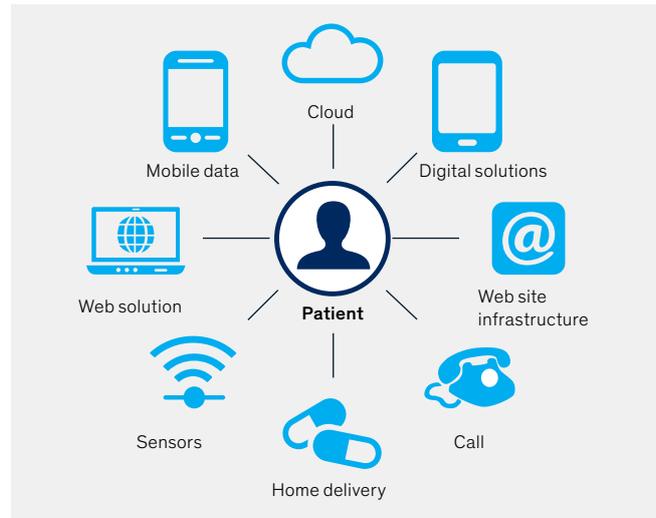
E-health: centred around the provider



National e-Health programs

- Nationally focussed
- Low perceived benefits for providers
- Limited competition
- Fragmented IT
- Change resistance

Digital health: centred around the patient



Digital health transcends national borders

- Global scale
- Intrinsic interest in connecting
- Winner-takes-all logic
- Modern IT
- No natural owner

wide range of acute and chronic conditions was restricted due to social distancing rules. And third, in many countries, regulations such as volume caps or reimbursement restrictions were at least temporarily lifted, which increased the service provision side of healthcare, like telemedicine.

COVID-19 has therefore amplified the trend towards digital health that has been going on for years – and many challenges remain. All these singular facets must be connected into a seamless patient journey, and different providers must be connected to each other so that they can fully understand their patients. Furthermore, information on different medications should also be linked to warn about potential side effects, and new digital health services must be incorporated into regular care to improve the management of chronic conditions and enable getting help in acute cases.

Only through seamless patient journeys, high numbers of patients can be provided digitally. Viewed from the patient's perspective, fully hybrid care pathways have three main benefits. First of all, they can greatly improve efficiency in the health system via quicker diagnoses, treatment, and administration. For example, combining insights

on medication data and previous medical history can reduce unwanted side effects. Second, they may also improve quality of care through better condition management and adherence, and provide insights into less-understood conditions. For example, for diseases such as dementia, it is estimated that the socioeconomic context of a patient, beyond the confines of the medical system, plays just as much of a role in the patient's well-being. Third, they can improve patient satisfaction and convenience in managing health and wellness.

Why hybrid care pathways are hard to realize

To understand the difficulty in setting up hybrid care pathways, it is useful to distinguish between "e-health" (centered around the healthcare provider) and the more recent development of "digital health" (centered around the patient or person). Exhibit 1 illustrates the different concepts.

Over the past few decades, many countries have invested heavily in national e-health programs, with modest returns and big execution challenges. These have tended to rely on medical professionals as agents of change. Yet rather than being agents of change, they have often shown high resistance

to accepting the new systems. For example, only an estimated 25 percent of German hospitals are using EMRs, while 75 percent still use paper.

Digital health is different. Digital health is driven by change agents who have experienced the convenience of digital services in their everyday lives or in other industries. Other industries developed an obsession with customer needs much earlier on, using the new opportunities that smartphones and an “always on” mindset brought about. Customers are also demanding change from the health system to cater to their needs. They like convenience, like using symptom checkers to get answers to quick medical questions or appointment finding and booking apps to schedule appointments.

So while much of the value is in e-health, demand for change comes through digital health. For realizing maximum value, it is important to bring both e-health and digital health together, which would include innovative services ranging from diagnosis to appointment booking to management of chronic conditions, designed from the patient’s perspective. These become even more valuable through seamless integration with offline health services (e.g., traditional physician appointments) – and, in turn, create value for the health system by improving efficiency and quality.

“Seamless patient journeys are crucial requirement for hybrid care pathways”

Integrating e-health and digital health into seamless journeys

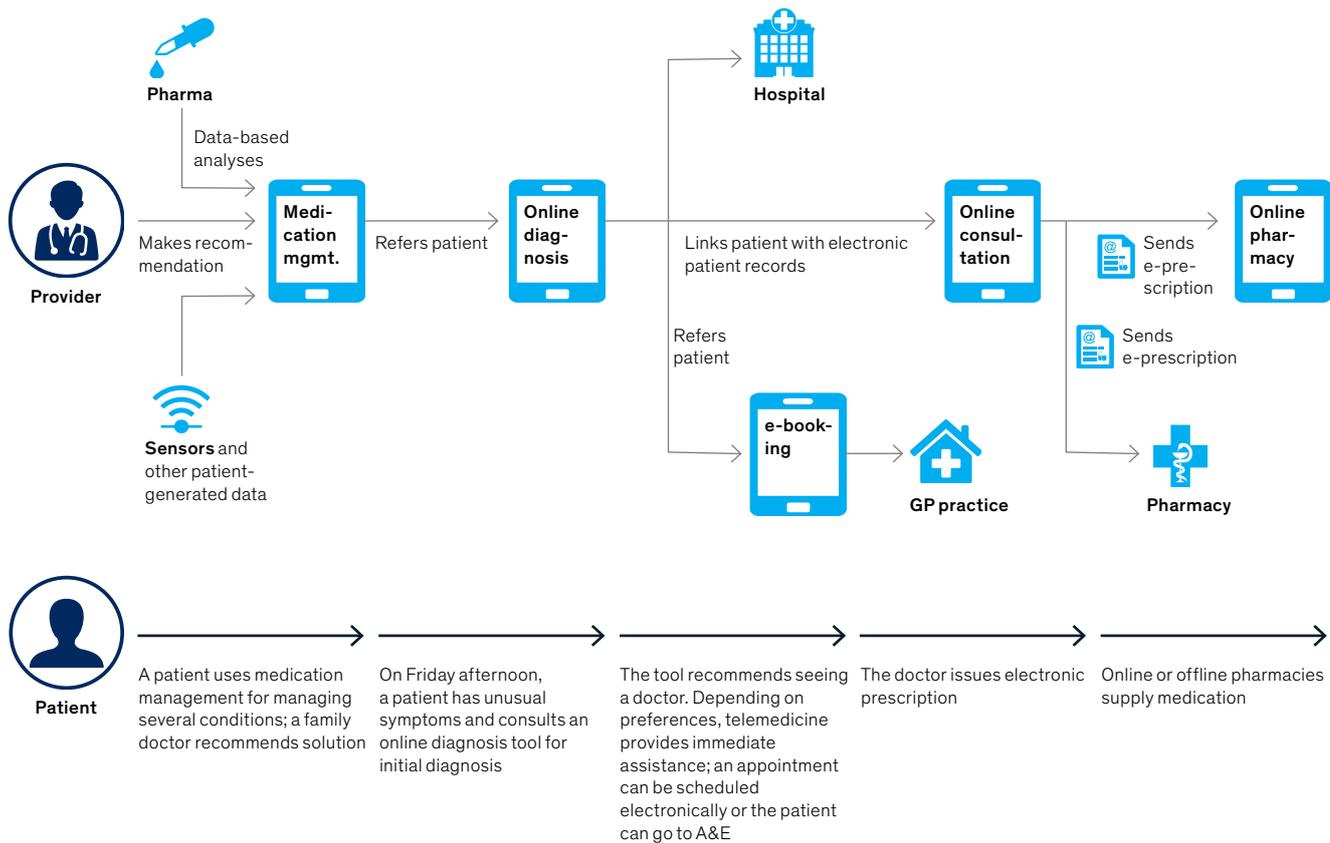
The vision for hybrid care pathways is simple. For example, a patient with chronic heart failure uses an app and a set of digital monitors to manage their condition. Upon experiencing symptoms or the detection of an abnormality, they consult a diagnosis app to find out what to do. If required, the app automatically connects to a telemedicine consultation, which can recommend a trip to the emergency department. When the patient arrives, all the data for this specific emergency is already there, plus general information on the patient’s medication, statistics on their adherence to beta-blocker therapy, and data from their blood pressure monitor.

However, it is not yet possible to bring traditional data sources together with new, patient-generated data to enable hybrid care pathways and smooth handovers. Connectivity in today’s health system centers around claims and reimbursement. Traditional care providers form part of a prescribed network of services: the family doctor refers the patient to the specialist, the specialist prescribes a drug or a treatment, the pharmacy or hospital provides the drug or care. Each step is regulated, with clear guidelines and standards that define how information flows.

And outside these standard channels (and sometimes within them), data inefficiencies plague health systems: data on health is highly protected and often locked up in legacy e-health systems, or data access is controlled by the technical and commercial constraints of e health providers. There may not even be a common language that data is stored in. Consequently, it can hardly be accessed by innovative players to improve their services. Moreover, integrating these services – at least enabling digital health at scale beyond point-to-point solutions – into seamless patient journeys remains practically impossible due to a lack of interoperability standards and technical platforms. An efficient, well-designed customer journey that spurs patient engagement should connect digital health offers into a “string of pearls” (Exhibit 2).

The “pearls,” which are the various digital services and innovations, already exist, but we have yet to string them together. To realize the value created by each individual solution, we need to connect all offers into one seamless patient journey.

'String of pearls' logic for hybrid care pathways



Data is the basic foundation

In the e-health world, there are three main categories of data in health systems: EMR data, claims data, and patient-generated data.

EMR data is the information gathered by physicians during patient exams, including treatments applied and drugs prescribed. This data resides in healthcare IT systems, be they in family practices or hospitals. It is very valuable, but since it's kept in fragmented places, this data is hard to use outside the setting in which it was generated (i.e., a doctor can only see the EMR information they created themselves, but not the information from another doctor at a different practice).

Claims data is the information that doctors and hospitals pass along to payers for reimbursement purposes. This information is highly standardized, as it has to be accepted and processed by different payer organizations. Then again, it is less rich than EMR data, as it only contains the necessary data for reimbursement. In addition, claims data comes with high data latency: information often reaches payers several months after it was created. Such data can hardly be used for treatment and diagnostics.

Patient-generated data is a new data category created through digital health. These data sets consist of activity information (e.g., pills taken, physical activity) and vital parameters (e.g., blood pressure, blood sugar readings) or general information on everyday life. Given that this data is not just collected during medical treatment but every single day, this real-world data provides new perspective on patients for healthcare providers and the scientific community. As an estimated 30 to 50 percent of outcomes depend on patient behavior – particularly for some less-understood conditions, such as dementia – bringing these insights into clinical settings will be a critical driver for improving population health and advancing the way in which care is provided.

A key challenge to stringing the pearls together is the required coordination beyond point-to-point connections of single actors. It requires a way of connecting digital services to each other or even embedding them within each other, exchanging data to form a real end-to-end patient journey, and also linking these services and data with the traditional care sector.

Driving change for hybrid care pathways

National health systems may not be in the best position to drive this change. Health systems are national by design and therefore pursue national e-health projects. This is cost effective, but also prevents them from developing innovative solutions. This can be compared to drug development, where the risk stays with the pharma companies, with health systems only providing reimbursement for drugs that are proven to be effective.

“Data security and privacy are not just essential, done right it can be a competitive advantage”

In contrast to national health systems, digital health has clear change agents and no borders. Digital health solutions that are successful at scale will create a strong “winner takes all” effect, eliminating less-successful offers. Acceptance by patients is what will make the difference: solutions that attract the most patients will accumulate the most data and will – supported by built-in AI functions – become superior solutions as a result.

In order to enable hybrid care pathways, countries or national organizations should invest in the basic technical infrastructure that allows digital health solutions to refer patients and their data from one solution to the next, and between digital and physical touchpoints. National health systems should not think about developing digital health solutions themselves, but rather include (certified

and tested) digital health solutions that already exist. Core elements of technical infrastructure that should be invested in include:

- Digital identity management of patients and healthcare staff
- Encrypted data transfer based on standard APIs and clinical terminology
- Patient consent functions
- Logging of referrals and data transfer.

High security standards are a must. There is no need to store the data within the technical infrastructure: the data only “travels” through the infrastructure between authorized digital solutions, thus making data theft less likely. Health systems should build on the existing local infrastructure in each member state – ensuring they remain in compliance with overarching regulations such as GDPR. In Canada, for example, Canada Health Infoway is building a national digital health platform that will connect an alliance of solution and service providers with personal health data using a standardized identity, trust, and consent framework. The right infrastructure is expandable, giving it almost limitless potential. If grounded in a stable technical platform (technology infrastructure, analytics capabilities, and other specific offerings), the model can create a foundation across different countries, thereby even helping to establish a cross-national digital health system. This is already the case in Finland and Estonia: since January 2019, patients from Finland can visit a pharmacy in Estonia and get prescription drugs using their electronic prescriptions issued by their Finnish doctor.

In addition, a mechanism to certify apps is required. Certification would include an assessment of potential health risks, data privacy, security, and the ethical use of patient data (i.e., to prevent single players from accumulating or monopolizing data). Furthermore, a regulatory framework that allows digital health solutions to use the technical infrastructure is required: only those solutions which are without risk to patient health and comply with necessary security and data minimization safeguards should be allowed to connect to the infrastructure. In the UK, for example, the National Institute for Health and Care Excellence published the “Evidence standards framework for digital health technologies,” covering this balance. To avoid creating obstacles to certification, evaluating standards may also be established via distributed certification mechanisms (e.g., open-source requirements).

Lastly, the right commercial and policy conditions have to be created. These conditions should ensure that players who control data are mandated to share it with authorized third parties. Some countries have started implementing the first steps towards this idea, for example, Germany with its Digital Care Act.

Realizing the full potential of hybrid care pathways will rely on introducing outcome-based payments into current reimbursement programs and combining activity data (from digital health solutions) with outcome data (from e-health solutions and the traditional health system). By doing so, there would be clear competition between different services and an incentive to steer the patient to the best solution possible for their individual situation.

The online and the offline realm can hardly be separated in today's world anymore – hybrid care pathways are a necessity in health systems going forward. Provided that they meet basic privacy and security standards, they help improve efficiency, speed, and quality of care, as well as patient satisfaction.

Because of the traditionally huge skepticism in healthcare systems when it comes to integrating digital offerings, purely digital care pathways have to be established first. These will then be adopted by a large portion of patients. Due to this high demand, traditional providers will become increasingly interested in being part of these digital pathways – thus causing hybrid care pathways to emerge.

The development of digital health in these times of COVID-19 is a good example of this trend increasingly becoming part of our health systems. It is not just patients who are experiencing the convenience of digital health services; many doctors have also uncovered a new way to enhance their profession. While not all of this usage will remain sustainable, some of it will – with use comes experience, and with experience comes habit.

Ultimately, just as digitization is leading to a melting of industry boundaries, creating successful hybrid care pathways also goes beyond the realm of healthcare. Patient-centric infrastructure should be linked to broader initiatives surrounding the single digital market. Done successfully, this would be a further step towards strengthening and empowering citizens to take advantage of opportunities created by digitization in all aspects of everyday life.

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