The Reckoning: What Happens to Digital Health After COVID?

May 9, 2022

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It has been a rough year so far for digital health. After an astonishing $45 billion poured into new digital health companies in 2020 and 2021, and an early 2021 peak in market valuations of publicly-traded digital health providers, valuations and multiples have collapsed. Once high-flying Teladoc, which traded at an eye-watering 42x revenues and commanded a $45 billion market capitalization, is now trading around 2.7X at about $5.7 billion. AmWell, the next largest telehealth player, has seen its stock drop more 90% from its high.

Nor is the evaporation in market value is confined to just a few highly visible incumbents. The 29 healthtech companies to go public (either via IPO or SPAC) in 2021 were collectively trading 45% lower than their opening day price by the end of the year, according to STAT. Among the privately held firms, re-valuation of digital health is getting underway. Bearish market signals portend a sharp correction in digital health, characterized by brutal price competition, widening (and less tolerated) operating losses, layoffs, and ultimately, widespread consolidation.

However, there is also major pushback from the ‘demand side’ of the digital health equation. With the explosion of digital health players, potential customers are confused and frustrated. There is a fundamental disconnect between the exuberant (and as yet largely unsubstantiated) promises of digital health startups and the needs of the four ‘phenotypes’ of health care customers. How digital health firms respond to those customers’ needs will ultimately determine the shape and size of the digital health market.

Why is the Digital Health Market Correcting?

Let's start with the supply side. It is not difficult to identify the source of the digital health boom: hyper liquidity in the market fueled by expansive COVID-related fiscal and monetary policy. In the heat of COVID, Congress enacted three enormous stimulus/relief packages in eighteen months. The Federal Reserve also turned deeply dovish, keeping interest rates near zero and embracing epic quantitative easing – pumping $120 billion a month into the economy and expanding its balance sheet by more than $6 trillion. Much of this newly printed cash found its way into the coffers of private investors. Private equity, growth equity, and venture capital collectively raised $733 billion in new capital across 2021. Globally, private equity firms alone invested $151 billion in healthcare in 2021.

Telehealth Ignition

The spark to ignite the digital health explosion came from the surprise growth in telehealth visits in the spring of 2020. In the wake of the spring 2020 lockdown and freeze on elective hospital care that accompanied the COVID public health emergency, telehealth visits went from less than 1% of total Medicare Part B patient visits in 2019 to nearly 13% during the spring of 2020 (and nearly 38% of all behavioral health visits), according to an analysis by DHHS's ASPE. Private insurers saw 50-70% of behavioral health visits turn virtual.

This surge was not caused by a spontaneous surge of consumer activism but rather by hospital systems desperate to remain in touch with existing patients during the spring COVID lockdown. These systems saw plummeting visit volumes not only due to service closures but to patient reluctance to visit hospital ERs and outpatient clinics crowded with contagious COVID patients. Larger systems with extensive IT infrastructure were able to stand up far more robust telehealth offerings than smaller systems. As Bob Wachter, Chair of Medicine at University of California at San Francisco said, "We made 20 years' worth of progress in twenty days."

The sudden multi-thousand percent rise in telehealth volumes led to breathless estimates of future growth in telehealth volumes and revenues. In July 2020, McKinsey estimated a total addressable market (TAM) of $250 *billion* for telehealth services — this from a business with a revenue base McKinsey itself estimated at $3 billion in 2019-2020, and $5.5 billion in 2020-2021. This risible TAM estimate assumed that 24% of all physician and outpatient visits (a 1.8 billion visit "universe") and 25% of Emergency Department visits would be addressed through telehealth alternatives.

However, more than 90% of telehealth visits during the spring of 2020 were with physicians patients already knew, not random, anonymous physicians signed on to cover telehealth services by vendors. And 47% of those visits were one-time users, according to a recent Trilliant analysis. Visit volume growth was also materially aided by Congressional approval of temporary Medicare coverage for telehealth visits as part of the COVID Public Health Emergency declaration.

Stratospheric COVID-driven TAM estimates helped ignite the tinder-dry digital health funding marketplace (as well as a broad range of digital companies beyond telehealth providers). From 2016 through 2019, there were *zero* digital health IPOs. In the midst of the COVID pandemic, PE and venture firms cleared the decks. 155 healthcare companies rushed into superheated public markets in 2021, including insurtech, telehealth, chronic disease management, care navigation, and AI-assisted care management firms, etc. – almost half through SPACs (Special Purpose Acquisition Companies, aka "blind pools"), a dangerous shortcut to liquidity.

New private digital health investment also exploded, fueled by record levels of dry powder accumulated through 2019. According to Rock Health, digital health PE and venture investments doubled, from $8.5 billion to $15 billion from 2019 to 2020, and then doubled again, to nearly $30 billion in 2021. Some companies were compelled by funders to take between double and triple the funds they sought. Due diligence processes shrank to a few days as venture funds shoveled cash out the door. In this mad rush, the total universe of digital health firms expanded to 11,000 according to CB Insights.

Telehealth's Journey from $5.5 billion to $250 billion Might Take a While

However, by the fall of 2021, as inflation forecasts pushed the Federal Reserve to signal interest rate increases, public markets began correcting across the tech spectrum, not only digital health but also fintech, biotech, cryptocurrency, semiconductors, and the big "platform" tech companies like Facebook, Netflix, Google, and Microsoft. That correction has markedly accelerated this spring.

In the balance of 2022, we see a marked deceleration of public exits for digital health firms. With exit windows closing, private companies will have to stay private longer and end up being traded to other private equity firms at much lower values than presently on the sellers' books. Small digital health firms with heroic cash burn rates will find it difficult to arrange follow-on financing. The resulting consolidation will dramatically reduce the number of digital health actors.

Why Transforming US Healthcare is So Hard

Though experienced healthcare investors understand many of the constraints, each new generation of 'tourists' from Silicon Valley and downtown Manhattan is slow to grasp that, at $4.3 trillion annually, the US health system is actually the size and complexity of a large industrial nation. It is larger than the economy of Germany and almost 2.5 times that of Russia. Pre-COVID, the US health system employed 17 million workers. Its 'product'- medical care – is the most complex thing our economy produces. Manufacturing an automobile or selling books on the Internet is child's play compared to treating leukemia or transplanting a kidney. It is financed through an astonishingly complex multi-payer system financed not only by state and federal governments but also millions of businesses small and large. Harvard Business School Professor Regina Herzlinger's famous essay in 2006 about "Why Innovation in Healthcare is So Hard" summarized the steep barriers to market entry in healthcare.

There are four main classes of customers for digital health. What these customers want will determine the ultimate size and shape of the digital health market.

1. **Consumers:** 258 million adults (almost 40 million of whom do not own a smartphone), only 5% of whom generate half of the $4.3 trillion in health spend in a given year. This 5% is astonishingly heterogeneous, and who they are in a given year is almost impossible to predict in advance. In addition, more than 31 million Americans lack health insurance, a number likely to rise when the COVID Emergency expires. And 27.6 million US households, over 22% of the total, lack a home Internet connection, let alone broadband. The sub-populations lacking a smartphone, home internet, or health insurance only partially overlap. For the vast majority of consumers, good health lessens the urgency of seeking health solutions, making them difficult to reach by any modality

- **Employers:** Of the 17.2 million employers in the US, 14.2 million have ten or fewer employees. Most of the latter group cannot afford to provide health benefits of any kind. For larger employers, health benefits costs are a bleeding ulcer that never heals. Employers have a record 11.5 million vacant positions, and are scrambling to adopt a benefits structure that is friendlier and more supportive of their workforce.

- **Hospitals and Health Systems:** Of the roughly 5200 US hospitals, 70% of them are owned by "systems". The hundred largest systems comprise $900 billion of this $1.2 trillion market. Hospital markets are provincial (metropolitan or super-regional), with two or three systems dominating each of the several hundred markets. Acute inpatient care is still roughly half of their business and they have struggled to keep the cost for the remaining ambulatory services from bankrupting their patients. Hospitals are a digital backwater, and their main clinical tech operating platforms were built in the late 1990s. The hospital industry may the only major sector of the US economy to see declining productivity as it "automated."

- **Health Insurers:** An even more concentrated market. Though there are over 900 health insurers, 10 write half the industry's premiums. The health insurer market structure is also provincial/metropolitan with the two top insurers accounting for half of most markets.

Why Selling Directly to Consumers Is So Difficult

Penetrating the Direct-to-Consumer digital health market is a daunting challenge, not only because it is highly fragmented, but also because it is clogged with many thousands of digital "point solutions" for every conceivable medical problem. There are over 350 thousand health-related smartphone apps, a veritable cloud of digital sandflies with a very high "mortality" rate. Annual app turnover rates sometimes approach 100%. There are no usable consumer ratings on reliability, efficacy, and safety.

Direct-to-consumer digital health applications have been in the marketplace for twenty years. These last twenty years have made clear that the market for "talk or text with a stranger about your intimate medical problem right now" is limited. Thus, targeting chronic problems the conventional health system struggles to deal with has been the go-to strategy. This is why behavioral health has become so crowded- over 500 companies and between 10 and 20 thousand smartphone apps. The behavioral health consolidation is already well underway – the combination of Headspace/Ginger and the acquisition of Ableto by Optum are emblematic. Behavioral health visits have grown from about 38% to 55% of all telehealth visits since the COVID 2020 spring and seem poised to dominate the modality.

One intriguing combination in the consumer-facing digital pharmacy space bears watching. Thirty Madison, which began its career selling baldness medication direct-to-consumer, and expanded into migraine care, allergies, and GI problems, recently merged with Nurx, which focused on women's health issues such as birth control and sexually transmitted diseases. The two companies had very similar business models-solving low-intensity clinical conditions amenable to prescription medications – though one focused exclusively on women and the other mainly on men.

The combined entity, Thirty Madison, provides real-time protocol-driven text-based interaction with physician specialists that help consumers identify the right drugs for eight defined conditions and helps manage their use remotely. The new entity will have revenues of $300 million, which, while impressive for a digital health company, is perhaps the size of one small community hospital. It remains to be seen if this strategic alignment will be sufficient in scale and product diversity to sustain its present "unicorn" valuation.

The digital health platform wars presently underway, with digital providers merging to provide more comprehensive product offerings to consumers, are likely

to devolve into a Death March – ending with at most a few dozen survivors. Uber-style Silicon Valley-esque approaches to "blitz scaling" the consumer digital health space- buying market share with below-cost pricing- will be an efficient method of squandering billions of investors' dollars. With market leverage so hard to come by and customer needs so heterogeneous, we think it highly unlikely there will be an Amazon or Google DTC platform in the consumer digital health space.

The one digital health platform that appears to have reached the magical status of generating actual black ink is Doximity, a social network targeted at physicians, an exceptionally difficult target audience. Modeled on LinkedIn, Doximity exceeded $200 million in revenues in 2021 and generated an impressive $82 million in cash flow from operations. The physician as the customer is a particularly challenging B2C relationship but Doximity has reached sufficient scale- claiming 1.8 million physicians and other caregivers- to generate both advertising and allied services revenues.

Employers – Overwhelmed and Suspicious

The employer market for digital health solutions is also highly fragmented and difficult to reach. Larger employers have been tentative consumers of digital solutions that help their workers avoid work absences and control manageable chronic illnesses. Employers' health benefits staffs have unhappy memories of the workplace "Wellness" craze of the "Oughts", during which an army of vendors made similar unsupportable promises about reducing health costs.

However, there will be fresh employer interest in solutions that reduce turnover and address chronic illness issues such as mental health and musculoskeletal health that hamper worker productivity or increase turnover. We are seeing interesting "hybrid" approaches to workplace health such as Crossover Health, which combines worksite clinics with digital access to their cadre of dedicated workplace providers 24/7. Crossover is the vendor working to expand Amazon's workplace health offerings to twenty locations nationally. However, the number of firms with a sufficient density of workers to justify an onsite health clinic is limited.

As will be discussed below, we see health insurers as the most efficient gateway to the fragmented employer market, with digital solutions that reduce benefits expense and promote efficient productive workers given high priority. Even large employers' health benefits staffs are hard-pressed to choose among the thousands of digital "solutions" targeted at them. Health insurers can deliver solutions that actually solve employers' problems at scale, and already have the customer relationships to leverage.

Hospitals and Health Systems – Anxious Incumbents

The hospital and health system market provided a lot of revenue lift for digital health in 2020-2021 and was the catalyst for the huge jump in 2Q2020 telehealth visits. Industry leaders are firmly convinced that digital health will be an important element of their infrastructure going forward. Hospitals and systems are anxious to avoid losing control over their patients from "virtual-first" digital care offerings from health insurers or employers. Thus, digital tools that enable health systems to provide 24/7 access, both video and text-based, to their caregivers, and that smooth care transitions after hospitalization, are likely to have enthusiastic receptions and uptake post-COVID.

There is also an increasingly promising suite of digital managerial applications ranging across key functions like revenue cycle, practice management, purchasing and materials management, and other management functions that can be performed remotely through Business Process Outsourcing (BPO). Optum Insight, a division of UnitedHealth Group, has recently executed five master contracts with regional health systems to perform multiple business office functions remotely via digital connections.

Digital enablement of formerly manual processes is a promising area for health system cost reduction. A rapidly growing digital health firm, Olive, uses AI-assisted robotic process automation (RPA) to automate routine clinical and non-clinical processes. Recently, through several timely mergers, PointClickCare has created a suite of digital solutions linked to a dedicated specialty EMR that automate the management of post-acute placement of hospital patients into home and institutional aftercare facilities, bringing scale and large patient databases to the management of care transitions. Digital firms with proven solutions that reduce administrative expense and improve clinician productivity are likely to receive a warm welcome from hospital and system executives

However, the highly concentrated hospital market is a nightmare for those seeking to sell system-wide solutions. By early 2022, the line of vendors selling digital solutions to health systems stretches around the block. Major purchasing decisions require so much internal "base touching" that a sale can take eighteen months. They then face a jam up in the system's IT shop that can add another six months to a year to ramp up times, delaying actual revenues flowing from contracts. Impediments such as lack of interoperability and cybersecurity concerns are all headwinds for hospital adoption of tech solutions. Larger systems are also demanding risk-sharing (i.e. profit contingency) from vendors based on achieving

key performance targets (KPIs), which will cut the profits of those vendors who cannot deliver solutions at scale.

The profusion of digital point solutions and absence of validation metrics has encouraged the formation of a consortium of health systems led by Intermountain Healthcare -a new non-profit entity called Graphite- to function as an "app store" for digital solutions for its members. Graphite recently added the $90 billion Kaiser Permanente as a member. Graphite will provide independent validation based on user experience and clinical validation of efficacy (and negotiating volume-related price concessions from those "blessed" with a high rating). CVS/Aetna and CIGNA's Evernorth subsidiary are offering somewhat similar services to employers. "App stores" are a promising gateway to reach both hospital and employer markets.

We believe care systems will hold digital health vendors accountable for ROI – therapeutic efficacy, operating cost savings, productivity improvements, usable clinical decision support, and higher patient Net Promoter Scores that bind patients to the system in the future. Digital firms that can meet these proof points are likely to grow rapidly.

Health Insurers-Wealthy Integrators

The most influential sector in the coming digital consolidation is likely to be health insurers. While there has been a recent spate of equity-funded "insurtech" market entrants like Devoted, Bright, and Clover, they are gnats on the rump of industry giants. The largest, UnitedHealth Group, is $100 billion larger than the British National Health Service. United and CVS/Aetna, the second-largest insurer, have combined revenues approaching 13.5% of total US health spending (!). The largest insurers also provide an increasingly complex array of non-hospital health services directly to consumers – ranging from physician services to ambulatory surgery and urgent care, as well as offering technical and management support to hospitals and physician groups.

Digital health solutions can extend and strengthen these insurers' increasingly dense care offerings by removing space and time as service constraints. And insurers are deploying "virtual first" telehealth primary care services to detach their subscribers from hospitals and control their trajectories through the care system when they become ill. The overriding objective is to lower medical expenses by identifying problems early and intervening before patients reach the hospital. Control over referral patterns will also strengthen insurers' bargaining leverage over hospital systems in rate negotiations.

Digital solutions that help the health insurers' subscribers navigate the health system and avoid needless use of complex and expensive care like emergency rooms and surgery, will find warm welcomes from health insurers. However, solutions that depend on insurers bridging the gap direct-to-consumer are going to face some of the same headwinds discussed above.

Insurers are also considering whether it makes more sense simply to leverage the "buyers' market" for companies and simply roll up attractive digital health firms into their own portfolios rather than purchase their services. Most insurers will end up fielding integrated suites of digital health products and use those products to acquire customers and differentiate themselves from their competitors.

Beyond COVID

Make no mistake. We are not digital health skeptics; there is a lot of valuable innovation in digital health space. Our skepticism relates to absurd valuations and industry fragmentation, not the transformational potential of this toolset. Sorting the difference-makers from the dross is going to depend on a major part on how effectively founders and funders listen to their customers and deliver measurable value for them. We have discussed above how hard these customers are to reach at scale, and what they are looking for.

The COVID pandemic provided a compelling use case for solving the fundamental accessibility problem in American healthcare- the need for costly in-person visits that interrupt the flow of a person's life. However, we never bought the idea that a whole new friction-free virtual health system had been born. We think the consumer digital health space is grossly overcrowded and will be brutally culled in the next two years. How large complicated incumbent actors in health care can adopt new digital modalities – both for care and for management of their own enterprises – holds the key to future digital health growth.

The pandemic also provided some clues to fundamental weaknesses in American society-an anemic and poorly resourced public health sector sorely in need of modernization, the absence of population-level health metrics and ways of communicating rapidly and credibly with people about health threats, and logistical constraints that hamper caregivers in their day-to-day work that limit their in-person care capacity. Digital health tools can help solve all these problems and create a society better capable of responding to serious future threats that may be more serious than COVID.

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