

## SECTOR COMMENT

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## DIGITAL HEALTH & THE COVID-19 PANDEMIC

The rapid spread of COVID-19 throughout the United States has subjected the nation's healthcare system to substantial strain. As U.S. deaths related to COVID-19 surpass 65,000, there has been a surge in demand for care, as the capacity of our health systems plummets.

In anticipation of the COVID-19 pandemic, hospitals, health systems, and other healthcare providers such as urgent cares and physician practices implemented emergency protocols. Today, even with social distancing measures effected nationwide, providers are struggling with appointment backlogs, lack of staff, and shortages of supplies and testing equipment.

According to the Federation of State Medical Boards, there are roughly only one million physicians in the U.S., and only a portion of those can treat COVID-19 or related conditions. Furthermore, doctors are even more scarce in rural areas, where some hospitals are facing revenue declines as high as 80%. In addition to a lack of physicians, clinicians are highly susceptible to COVID-19 infection, due to significantly higher exposure to the virus in the workplace. The risk of infection for healthcare workers is exacerbated by dwindling supplies of personal protective equipment like N-95 masks.

In urban and suburban areas, ICU capacity and supply of ventilators are serious issues. For example, in the Chicago area, Northwestern Medicine's Lake Forest Hospital, Vista Medical Center, and Advocate Condell Medical Center reached their licensed ICU capacity in the first week of April.

As healthcare provider organizations continue to fight the COVID-19 pandemic, three urgent priorities for the healthcare system at large to address are:

1. *Maintaining a supply-demand balance of clinicians and patients*
2. *Alleviating burden on traditional healthcare providers*
3. *Ensuring adequate medical supplies & workforce protection*



## Digital Health

At the intersection of healthcare and technology, the digital health startup ecosystem has rapidly mobilized and is well-positioned to help solve these critical issues, as the wellbeing of the U.S. population hangs in the balance. According to Rock Health, “while the COVID-19 epidemic has created twin crises of a global pandemic and massive economic shifts that will rapidly impact all market sectors including digital health, solutions in this space can immediately combat the pandemic.” Investors see the potential of growth in digital health even through the pandemic, as a total of \$3.1 billion was raised across 107 deals in Q1 2020, more than 1.5 times total funding in Q1 of any previous year.

Some areas are experiencing severe shortages of medical specialists, while in other areas of the U.S., healthcare providers like hospitals or urgent cares have to shut down, due to little or no revenues. Telemedicine and virtual care startups address this supply-demand imbalance, by bringing patients to provider organizations where demand is low and healthcare to patients in areas where other facilities are overwhelmed. These startups have the ability to make an immediate impact, because Congress cleared restrictions associated with telehealth nationwide.

Remote monitoring and care management startups can play a significant role in easing the oversized burden on healthcare facilities. Remote monitoring and care management startups may allow for less frequent doctors’ visits and subsequently the conservation of resources for the sickest patients.

Healthcare provider management software startups can assist with supply chain management, medication tracking, and device monitoring. This can help ensure adequate sources of medications, ventilators, medical supplies, and personal protective equipment vital to the welfare the healthcare workforce.

## Telemedicine

“The most significant problem facing health is a historic mismatch between supply and demand. This was true before the onset of the pandemic and it will remain true after COVID-19 peaks,” Tom Cassels, president of Rock Health, said.

Indeed, this mismatch between supply and demand has been exacerbated by the pandemic, as some healthcare providers are experiencing massive declines in revenue, while some vulnerable patients cannot access care due to social distancing measures and virus exposure risk.

As the CARES Act, the \$2 trillion COVID-19 relief package, expanded telehealth coverage for Medicare, telehealth is particularly appropriate to correct the imbalance, as doctors can be matched with patients regardless of location.



Teladoc (NYSE: TDOC), with a market cap of \$12 billion, is one of the largest, most established companies in the telehealth space. The company offers a telehealth platform through which patients can receive on-demand healthcare on mobile devices, the internet, video and phone. The platform boasts over 3000 board-certified physicians and behavioral health professionals, and serves over 7000 employers, health plans and health systems. The company reported 1.8 million visits in 1Q 2020, 70% higher than 1Q 2019. In response to the pandemic, the company streamlined physician onboarding processes and expanded the number of active providers to meet demand, spending an additional \$4 million in the first quarter.

VPCare360 is a company on the other side of the spectrum, concerning size and scope. C3 Healthcare Rx, based in Morrisville, N.C., is the parent company of VPCare360. C3 provides healthcare for complex chronic patients through in-home and telehealth-based medication management and behavioral services solutions.

Despite operating a telehealth platform similar to Teladoc, C3NowMD, powered by VPCare360 is focused on enabling local healthcare providers and works closely with providers in North Carolina to establish telemedicine services. While VPCare360 has had a specific focus on behavioral health, in light of the pandemic, the company engaged with a few orthopedic providers to digitize post-surgery rehab to ease care access for patients in rural areas. The program enables three months of virtual care and medication management after joint replacements. The program also saved \$1,500-2,000 in spending per patient. This is a unique strategy to address the imbalance of supply and demand of healthcare during the pandemic, and VPCare360 is likely to continue to offer these services after the pandemic ends.

San Francisco-based Lemonaid, a VC-backed online telemedicine platform founded in 2013, is also tweaking operations to better serve patients, helping satisfy the unprecedented demand for healthcare. “We’ve launched a service where patients can speak to one of our doctors on video about anything,” Paul Johnson, CEO of Lemonaid Health, says. “We launched it in response to getting so many questions about COVID-19 and many patients asking us for refills for things like blood pressure and asthma medicines.” Lemonaid Health has raised \$21.7 million to date, and is backed by investors such as Novartis Venture Fund and Hikma Ventures, according to sources.

Other telemedicine & virtual care startups positioned to smooth supply-demand imbalances in healthcare include:



Name	Description	Funding (\$M)
eVisit	SaaS-based telemedicine patient engagement platform	9.8
SnapMD	Platform that connects patients to doctors as well as health education	16.3
HealthTap	Telemedicine platform designed to leverage live video consultations	87.9

## Remote Monitoring & Care Management

Of course, health systems are currently burdened like never before. With the recent influx of COVID-19 cases, health systems need to be able to free up beds for high-risk patients, carve out time for providers to serve those patients, and help healthy patients self-manage their conditions from home. Remote monitoring and care management platforms can help providers stratify patients by risk and free up resources to meet acute COVID demands.

Propeller Health is one such startup contributing to alleviating the burden on healthcare providers. Propeller operates a platform intended to improve the management of chronic respiratory disease. The company's mobile platform offers sensors, mobile apps, analytics and services to support respiratory health management.

Propeller Health is working closely with our health system partners to help them implement or scale their use of Propeller. In addition, Propeller is increasing engagement with patients to update healthcare providers. "We are also working hard to take care of existing Propeller users and make sure they have access to reliable, trustworthy information about COVID-19," David Van Sickle, co-founder and CEO of Propeller Health. "We have been sending regular communications about managing asthma and COPD during COVID-19, both within our app and via email, and surveying patients to understand how they're doing and how we can help."

Propeller allows patients to stay out of hospitals and doctor's offices, so there is capacity for those with severe COVID-19 infections. Propeller's data can also inform health systems to help predict demand for healthcare services, and prepare in advance. "We've also been able to use Propeller data to gain insights into how patients are faring during this pandemic," Van Sickle says. "Since the outbreak began in earnest in January, people with asthma and COPD have become 14.5% more adherent to their daily medication regimen."

According to Pitchbook, the company was acquired by ResMed (NYS: RMD) for \$242.9 million on January 6, 2019. Previous investors of Propeller included McKesson Ventures, 3M Ventures, Hikma Ventures, SR One, and Social Capital.



Proteus Digital Health is a remote care management company that has developed a service (Proteus Discover) that enables effective remote management or oral pharmacotherapy. The company's service is enabled by a unique ingestible sensor that is co-encapsulated with drugs of interest, a small wearable patch that detects exactly what medicine is ingested and tracks activities of daily life, a patient facing mobile application and a digital portal for data analytics, enabling healthcare providers to manage risk and drive outcomes.

Proteus Discover eliminates the need for many routine doctor's visits, as patient data is automatically transmitted to a provider, enabling triage based on risk indicators and effective intervention driven by accurate information. This solution has increasing relevance in a post-lockdown world.

"We are not tweaking our product for the pandemic, the pandemic is tweaking the healthcare system to recognize that remote care management with the use of data is an important solution for patients when we come off lockdown," Andy Thompson, co-founder of Proteus Digital Health, says. "People who are at risk – the elderly, those with cardiovascular disease, and others who are immunocompromised need medical care, but they are unwilling to visit physical clinics, for fear of coronavirus infection. Proteus Discover is proven to make remote care highly effective."

Some other remote monitoring and care management startups positioned to alleviate burden on health systems include:

Name	Description	Funding (\$M)
VivaLNK	Developer of medical grade devices that continuously monitor health	1.5
MedWand	Developer of a portable physical health examination device	2.5
Kaia Health	Developer of a digital health platform designed to treat chronic disease	25.9

## Healthcare Provider Management (Software & Devices)

According to Steve Burrill, vice chairman and US healthcare leader at Deloitte, wrote in Deloitte's blog, "For hospitals that are now dealing with a surge of COVID-19 patients, ensuring they have the appropriate levels of mask, gowns, gloves, and other types of personal protective equipment is top of mind. To stretch scarce resources, some health systems have moved all non-COVID-19 patients to alternate sites of care and are keeping COVID-19 patients in facilities equipped with ICUs, ventilators, and experienced clinicians."



Clearly, personal protective equipment is vital to successfully maintaining a supply of clinicians to treat the pandemic. Additionally, ensuring adequate working supplies of ventilators and necessary medications is especially crucial during this time.

Ohio-based Emanate Wireless is a developer of healthcare equipment monitoring devices. Emanate is leveraging their healthcare monitoring equipment for ventilators, a critical piece of medical equipment for those with more severe COVID-19 infections. “We have a new product (called "UCLS") in development that uses smart, sensing tags to track the Utilization, Condition, and Location of clinical devices in a hospital,” Neil Diener, CEO of Emanate Wireless writes. “We are quickly working on a demonstration with the VA along with a couple other companies that will use our smart tags to provide data for a dashboard that tracks ventilator location and usage state at one of the VA hospitals.” Emanate has \$1.55 million of angel funding from undisclosed investors, according to sources.

Kit Check, offers a software platform designed to offer automated hospital pharmacy kit processing and medication tracking. The startup is helping providers with medication tracking. “We are actively partnering with our providers out in the field to help them best meet the demands that are in front of them. Our clinical and product teams have been reaching out to help hospitals plan for sterilization of medications and managing of shortages that are coming,” Kevin MacDonald, CEO of Kit Check, says. “We've also been helping some hospitals track medications that are new diversion targets like hydroxychloroquine. Also, we have added a number of features to our products including allowing for support of FDA extended dating and supporting new Covid-19 kit types.” D.C.-based Kit Check has raised \$44.5 million of venture funding to date from investors including Baxter Venture and NLV Partners, according to sources.

While the pandemic is indeed a black swan event, the shortages of both PPE and ventilators has forced a new perspective on the value of healthcare provider management technology for supply chain management, medication tracking, and device monitoring.

Some other healthcare provider management software startups that can help health systems with supply-chain management and device monitoring:

Name	Description	Funding (\$M)
ConnectSx	Developer of supply chain management software for medical devices	n/a
Versus Technology	Provider of real-time locating systems for the healthcare industry	62.8



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