

OVERCOMING THE COVID-19 CRISIS AND PLANING FOR THE FUTURE

Steven H LoGiudice¹, Allison Liebhaber¹ and Heiko Schöder²

¹Department of Strategy and Innovation,

²Department of Radiology,

Memorial Sloan Kettering Cancer Center, New York

Address for correspondence:

Heiko Schöder, MD, MBA
Molecular Imaging and Therapy Service
Department of Radiology
Memorial Sloan Kettering Cancer Center
1275 York Avenue
New York, New York, 10065
Email: schoderh@mskcc.org

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*If you can look into the seeds of time, and say which grain will grow and which will not, speak
then to me...
William Shakespeare, Macbeth*

I. COVID-19 AND THE US ECONOMY

In late 2019, a new virus, Sars-CoV2 emerged in Wuhan, China, causing an infectious disease [1-3] that would later be named COVID-19 by the World Health Organization (WHO) on February 11, 2020. This disease quickly spread across the globe, with a very rapid increase in new cases noted in many European countries and the US between early February and early March of 2020. On March 12, 2020, the WHO declared the spread of COVID-19 a global pandemic. As of May 29, 2020, a total of 5,657,529 cases of COVID-19 were registered worldwide, with 356,254 confirmed deaths [4]. In the US alone, the total number of confirmed COVID-19 cases on May 28, 2020 was 1,698,523, and 100,446 Americans had died of this disease [5].

To slow down the spread of disease, policy makers and public health experts in many countries have developed a catalogue of measures that are applied to a variable degree in most countries worldwide, including restrictions on interpersonal contact, assembly, and travel, “social distancing”, recommendations for sanitation, hygiene and the wearing of masks in public places, rapid isolation of infected patients and use of personal protective equipment when treating affected patients. In the US, a decline in the number of new cases and COVID-19 related deaths is now seen in New York State [6] and other areas along the East coast. However, since Sars-CoV2 is highly contagious, further spread of the disease is expected and appears to follow an East-to-West and centripetal pattern. Currently, no causal treatment is available for COVID-19, and a vaccine against Sars-CoV2 is not expected until early 2021. Accordingly, researchers at the

Center for Infectious Disease Research and Policy (CIDRAP) at the University of Minnesota have concluded that we could see “significant COVID activity for at least another 18-24 months” [7]. In this report, published on April 30, the authors developed three scenarios regarding how the COVID pandemic could unfold during this time period: Scenario 1 consists of repeated “peaks and valleys”; scenario 2 predicts a peak in fall of 2020 with additional smaller peaks throughout 2020 and 2021; and scenario 3 is characterized as “slow burn”, with continued disease activity with smaller peaks and valleys until early 2022.

In early to mid-March, many US state and local governments started implementing temporary restrictions on public life and “non-essential work” in an attempt to decrease the spread of the virus, leading to a temporary “economic shut-down”. Accordingly, US economic output declined sharply and drastically for Q1, 2020, with real GDP decreasing at an annual rate of 5.0% [8]. Simultaneously, the number of people filing for unemployment increased rapidly, reaching 43 million by the end of the second week in May [9]. The unemployment rate increased from 3.5% in February to 14.7% in April [10], which when considering all workers placed on temporary layoff could have been as high as 22% [11, 12]. Simultaneously, US retail sales declined by 16.4% (~\$ 80 billion) in April as compared to March of 2020 [13]. In early May, the US government started to place increasing emphasis on the necessary economic recovery from the COVID-19-related temporary shutdown. Given uncertainties about the further spread of COVID-19, it is not surprising that predictions about the shape and speed of economic recovery in the US vary among experts and are adjusted continuously. For instance, predictions about the decline of real GDP at an annual rate for Q2, 2020 are in the range of 25-40% [14-16], with an estimated growth for total 2020 of (-5.6%) as compared to 2019 [15]. Of note, in the US, consumer demand for goods and services has been a key element of economic growth over the

past 50 years [17]. Accordingly, as long as consumer confidence remains low [18], at least in part due to uncertainty about employment and health status, economic recovery will remain sluggish. In a recent survey among global business CFO's (91% from the US), participants from all industries expressed less (!) optimism about the state of the economy and the financial prospects of their own company than during Q1, 2020, and 60% did not expect a return to near normal operating levels until sometime in 2021 [19]. In another survey among global business executives, only 48% of participants from North America expected a moderate or substantial improvement in the economy [20]. The Congressional Budget Office projects a robust uptick in economic growth for the second half of 2020. Nevertheless, it may take until the end of 2021 or beyond for real GDP to recover to pre-COVID-19 levels [15]. Finally, global supply chains could be disrupted for an extended period [21].

The *healthcare economy*, of course, is not insulated from events affecting the overall economy. Since March 2020, the rapid increase in the number of COVID-19 patients requiring hospitalization and emergency treatment, as well as public health and policy measures, have affected hospitals and private practice groups in several ways:

- a) An onslaught of COVID-19 patients overwhelmed the capacity of some hospitals and uncovered widespread shortages in personal protective equipment.
- b) Mandated restrictions on elective surgeries and other medical procedures led to a slow-down of regular clinical operations. At the same time, non-COVID-19 patients postponed medical visits out of fear of catching the infection, leading to postponed diagnoses, procedures, and follow-up visits. Other factors for delaying care may include a widespread uncertainty about future employment, as well as financial and insurance status. According to one survey, by the second week of

April 2020, 66% of US consumers had delayed seeing their primary care physician, and 58% had delayed receiving therapies at a hospital [22]. Accordingly, hospitals have been experiencing declining demand for elective procedures and surgeries as well as a decrease in the number of emergency room visits by 50% or more in the most affected areas. These trends have caused serious financial constraints on hospitals and private practices [23]. The American Hospital Association (AHA) recently estimated [24] a four-month (March-June 2020) financial impact of ~ \$203 billion in losses for American hospitals and health systems. These losses are largely driven by four factors: (1) the effect of COVID-19-related hospitalizations (estimated net loss \$36.6 billion); (2) the effect of canceled or postponed medical procedures and surgeries (\$164.4 billion); (3) additional costs related to purchasing supplies and PPE (\$2.4 billion); and (4) cost due to additional financial support extended to some hospital workers for transportation, child care (\$2.2 billion).

- c) A rapid rise in telemedicine has compensated only partly for the decline in expected new and previously planned medical visits. Moreover, not all patients and providers have been able to master the technological challenges of telemedicine.

Even the strongest health systems are not immune to financial challenges driven by COVID. For instance, the Mayo Clinic [25] is facing a \$3 billion shortfall through the end of 2020 barring interventions, and Beaumont Health's first quarter 2020 net revenue was \$407.5 million less than over the same period in 2019, yielding a net income of -\$278.4 million [26]. Geisinger Health is projecting losses of \$100 million per month. Health systems have employed a series of strategies

to mitigate this financial loss, including layoffs and furloughs, executive and physician pay cuts, reduced hours for hourly staff, and postponing capital projects.

Congress has provided some financial relief as part of the CARES Act and the Paycheck Protection Program and Health Care Enhancement Act, allocating a total of \$175 billion in relief funds to hospitals and other healthcare providers. By early May, \$50 billion had been distributed [27].

Following the initial phase of the crisis, which now seems to have passed in some of the initially most affected areas of the US [6] (as well as some European countries), we expect a staged and likely protracted recovery. This will require a return of patient confidence (a particular problem in the most affected urban areas) as a basis for the safe re-introduction of normal clinical operations, in which addressing chronic conditions, such as cardiovascular diseases and cancer, will again become a priority. There is considerable uncertainty about the speed of this recovery. Some previously planned procedures may still be performed with delay, but others may not: for instance, in some cancer patients, disease may have progressed, rendering them no longer suitable for potentially curative surgery; some patients with chronic diseases may have died of COVID-19; some may have lost their employer sponsored health insurance coverage and face financial constraints due to unemployment, further delaying their care. Some of these individuals may be eligible for Medicare or Medicaid, or seek insurance through the exchange system [28]. However, reimbursement rates by these alternative insurance systems will be lower than those from traditional employer-sponsored insurance, causing further financial constraints for hospitals and medical practices. The ultimate costs from COVID-19 remain unclear. Bartsch et al. [29] have attempted to model the direct medical costs from the management of the acute infection. For a scenario in which 20% of the US population get

infected, they calculate direct medical costs of \$163 billion, which would increase to \$409 billion if 50% of the population got infected. Additional costs, for instance due to lost productivity, economic decline, and potential follow-on costs from management of chronic organ damage after acute COVID-19 infection, still would need to be added to these staggering numbers.

Against this sobering economic background, we are now going to address how healthcare organizations can approach some of the COVID-19-related uncertainties and adjust their planning accordingly. To do so, they may find it helpful to create two sets of teams that focus on (a) immediate crisis mitigation (e.g., safety and infection control measures, procurement of needed supplies and PPE, resource and staff re-allocation), and (b) mid and long-term consequences of the current crisis at all levels (e.g., patient behavior, company finances, capital planning, and expected timeline to full recovery).

II. PLANNING DURING A TIME OF UNCERTAINTY

All organizations, including hospitals and healthcare systems, function in the context of their external environment, and the emergence of COVID-19 can serve as a prime example for this. Even in “normal times”, uncertainty is a constant element in the development of strategy by health systems, for instance due to unpredictable progress or setback in research and drug development, regulatory changes and digital disruptions. With increasing pace of change within the healthcare industry and society, the magnitude of this uncertainty has also increased. Under “normal” uncertainty, planners aim to identify actions that are likely to be successful within a wide range of possible futures and ensure a high degree of agility in the execution of those actions. In other words, companies need to identify *options* that can be paused or accelerated

based on changes in the business environment. They also need to develop a series of *no regrets moves* that are likely to be successful, regardless of what emerges in the marketplace [30].

The COVID-19 crisis has altered this planning process for many reasons, primarily because the degree of possible changes has expanded. This results in a wider range of possible outcomes. The speed of changes has also accelerated during this crisis: whereas previously relatively little uncertainty existed over a three to six-month time horizon, the pace of change is now measured in weeks or even days.

Modeling the External Environment

One of the biggest challenges for strategic planning currently is the unending onslaught of news and information. Placing these facts and actions into a contextual framework helps to focus attention on core dynamics each organization must understand. For this, one can use established frameworks. Here, we suggest a combination of the PESTLE framework for assessing external forces and Porter's Five Forces framework to assess industry forces (**Figure 1**). Starting with over 100 individual trends, we have used this combined framework to identify the three dozen most salient trends for assessing the consequences of COVID-19 on healthcare systems. For each trend, we leveraged a framework created by futurist Amy Webb [31] and considered possible scenarios, ranging from pessimistic to pragmatic and optimistic. Realistically, we aimed at scenarios through the end of 2021; the range of uncertainty grows significantly over time, and forecasting beyond the 18 to 20-month time horizon that takes us through the end of 2021 becomes unmanageable and perhaps counterproductive. Over the next 18 to 20 months, we believe that social, political, economic, and legal/regulatory forces will dominate and disproportionately impact the ability of physician practices, hospitals, and health systems to

recover patient volume. These forces combine in what is likely to be the most impactful trend – healthcare seeking behaviors. Modeling these forces allows an approximation of what is likely to happen; however, just like epidemiologic models [32], economic and strategic models are imperfect and require constant validation in the real world and adjustments when necessary.

Spotlight on a Key Trend: Health Care Seeking Behaviors

As the pandemic emerged, the first wave of changes in clinical activity was driven by regulatory actions at the State and Federal levels. By mid-March 2020, CMS issued its first guidance on the “postponement of all elective surgeries [and] non-essential medical, surgical, and dental procedures” [33]. On March 22, 2020, New York governor A. Cuomo ordered the cancellation of all elective surgical cases, a move matched by many other states. However, by mid-April, a curious dynamic had emerged across the healthcare system – even for allowed procedures and acute conditions, such as myocardial infarctions [34], acute appendicitis and acute gallbladder disease, patient volumes declined greatly. A study of CIGNA claims data [35] showed that hospitalization rates for atrial fibrillation decreased 35% over the two months, while hospitalizations for acute appendicitis and acute coronary syndromes, decreased by 13% and 11%, respectively. Another study [36], by the medical record company Epic, revealed that appointments for cervical, colon, and breast cancer screenings had declined between 86% and 94% in March of 2020, as compared to average volumes in the three prior years. Although government restrictions are now being lifted in many parts of the country [37], the demand for healthcare services has not rebounded, highlighting the importance of healthcare seeking behaviors. This is also reflected by the results of a survey conducted by NRC Health in April 2020 [38], showing 72% of respondents would not personally visit a healthcare provider because

of a perceived risk of getting infected. This may make it more difficult for practices and hospitals to regain volumes during 2020. Our scenario analysis framework provides a perspective on some of the likely dynamics around health seeking behavior (**Figure 2**). To predict which of these scenarios will eventually play out, we employ a series of triggers and signals from inside and outside the healthcare industry, including:

- Trends in ambulatory visits
- Trends in screening and preventive care
- Trends in telehealth visits versus in-person visits
- Transportation trends and patterns
- Google searches for “cancer”

Spotlight on a Key Trend: Unemployment and Insurance Coverage

Even once fear has subsided, unemployment and insurance coverage will play an important and longer lasting role. Individual behavior will be impacted by the loss of employer sponsored insurance and the ability to gain insurance coverage through Medicaid, Medicare, or via an exchange. The consultancy Oliver Wyman estimates that a 15% unemployment rate will translate to an 11% decrease in the number of people covered by employer sponsored insurance plans, or 17.1 million people [39]. In this estimate, an even higher unemployment rate of 30% could translate into a 26% decrease in the number of people covered by employer sponsored insurance plans, or 41.5 million people. Using our scenario analysis framework, we provide a perspective on these possible futures (**Figure 3**), which can inform the actions an organization may take.

Application to Hospital Planning

We are using our trend monitoring and scenarios to inform decision making and planning and for forecasting possible futures for patient activity recovery. To do so, we need to translate these various forces into metrics that *quantify* the impact of changes in health insurance coverage and healthcare seeking behaviors, as well as overall economic health and pent-up demand for medical procedures. We then enter these metrics into a quantitative model. The quantification of unemployment and its impact on insurance coverage is relatively easy. However, for other factors, we must rely on proxy metrics; ideally, those that are reported regularly and are also forecasted. For instance, the Consumer Confidence Index can serve as a proxy for general economic wellbeing, but its utility is limited because it is not forecasted. In contrast, GDP growth, a summation of overall economic activity, is also forecasted over the next 6-12 months.

Based on such modeling work, we agree with the belief that recovery in the health care sector will resemble the famous Nike “swoosh” [40], with slow and protracted improvement after the sharp and sudden drop that occurred in March and April. The return of confidence in the safety of hospitals will take time and will mean a slow return to normal levels of health care activity, especially for those activities that patients feel can be delayed, such as routine annual exams and screening mammograms and colonoscopies.

For our planning process, we start with a baseline strategy assessment [41], reviewing the organization’s last position just before the crisis and determining if these pre-crisis strategic actions still make sense now. We suggest placing the pre-pandemic strategic big bets into three categories; (1) “even more important” – the urgency/need to make these bets and successfully execute on them has increased; (2) “about right” – the bets still seem correct; (3) “unsure” – the importance and value of these bets is unclear in the wake of the pandemic. To help make these

assessments, it is valuable to connect each of these bets with the most relevant external forces and trends, so that scenario analysis can directly influence the decision making. A final consideration are *no-regrets* moves, i.e., actions that are considered important for the long-term sustainability and vibrancy of the organization, regardless of the speed and shape of the recovery.

III. SUMMARY AND OUTLOOK

The COVID-19 crisis came as a surprise to the US and its health care system. Undoubtedly, events over the past 5 months will be investigated in greater detail in the future. However, the major aim of this article is to look forward. **Figure 4** shows some potential future threats if the crisis is not mitigated quickly, but also some reasons for optimism as well as opportunities to apply lessons learned in recent months. For instance, the crisis may unlock ingenuity in drug design and vaccine development. In the clinical arena, it has already forced the rapid introduction of telemedicine at all levels of the health care system. If implemented properly, the latter clearly can translate into considerable time savings for patients and physicians. It will be important to maintain this spirit of innovation throughout the US healthcare system.

Institutions and their leaders should learn from their successes and failures in handling the primary medical and secondary economic COVID-19 crisis. A stable and sustainable path to financial recovery will require a fine balance between improving revenues and decreasing expenses. For hospitals, the main source of revenue is income from clinical operations, and the largest source of expenses is staff compensation. Faced with a decline in revenue from elective procedures, surgeries and therapies, virtually all organizations have implemented cost-cutting measures, including, in some cases, painful cuts to salaries and benefits, and virtually systemically freezes on capital expenditures (the latter possibly affecting the medical equipment

industry). Nevertheless, while cost cutting measures may be necessary in the short-term to address immediate financial imbalances, it is generally true that companies cannot save their way out of a crisis. Accordingly, the main emphasis must be on the recovery of revenue from clinical services, which in the first instance requires re-establishing patient confidence. To emerge successfully, retaining current patients and expanding the future patient pool (e.g., by expanding geographic reach and introducing new services and procedures) are as important as retaining the talent that can offer these services. Institutions may also critically review their supply chains, the efficiency of their revenue cycle and potential reductions in their physical footprint to cut real estate expenses. Most importantly, however, institutions *must* look beyond the day to day operations and develop and implement long-term initiatives and programs that will help them to defend and expand their position in the marketplace. This may be the right to time to remember that “*The best way to predict the future is to create it*” (Abraham Lincoln).

FIGURES AND TABLES



Figure 1. A model assessing the impact of COVID-19 on the healthcare industry, using PESTLE and Porter’s frameworks

Health Seeking Behaviors

| | Scenario 1: Optimistic | Scenario 2: Pragmatic | Scenario 3: Pessimistic | |
|---------------------------|--|---|---|---|
| What that would look like | <ul style="list-style-type: none"> ▪ Fear of resuming care subsidies, and utilization of remote care and digital tools for some visits increases clinical efficiency and compliance. ▪ Communities hardest hit by pandemic resume pre-pandemic behaviors. ▪ COVID testing capabilities increase in the community and reassure people about hospital safety. | <ul style="list-style-type: none"> ▪ Demand rebounds for those at greatest risk, and major delays are forestalled by telehealth and other care delivery innovations. ▪ Hard-hit communities delay seeking care short term but recover over time. ▪ COVID testing increases for some areas, but not others. | <ul style="list-style-type: none"> ▪ Sustained decrease in demand for routine care compromises ability for early diagnosis, leading to reduced hospital and physician practice activity and worse health outcomes. ▪ Decreases in demand are pronounced in hard hit communities. ▪ COVID testing remains sporadic, prolonging fear of resuming activity. | |
| What you have to believe | Demand and Continuity | <ul style="list-style-type: none"> ▪ Alternative modes of communication and delivery sustain effective continuity of care until fear of in person activity lessens. | <ul style="list-style-type: none"> ▪ High risk, time sensitive conditions are not significantly delayed. ▪ Telehealth enables patients to avoid many poor health outcomes. | <ul style="list-style-type: none"> ▪ Compliance for both elective care and surveillance exams declines significantly |
| | Health Disparities | <ul style="list-style-type: none"> ▪ Pandemic un-masks but does not change existing health disparities. | <ul style="list-style-type: none"> ▪ Pandemic temporarily exacerbates existing health disparities, but effect is not permanent. | <ul style="list-style-type: none"> ▪ Impact of the pandemic on communities hit hardest will profoundly worsen health outcomes long term. |
| | COVID Testing Capacity | <ul style="list-style-type: none"> ▪ Government and business efforts to scale testing reach public health benchmarks. | <ul style="list-style-type: none"> ▪ Government and business efforts to scale COVID testing increases capacity but remains uneven. | <ul style="list-style-type: none"> ▪ COVID testing remains difficult to access and inadequate for population needs. |

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Figure 2. Three potential scenarios for healthcare seeking behavior

- **Sustained decreases in demand for routine care:** Compliance for surveillance declines significantly depressing hospital and physician practice activity long term
- **Worse Health Outcomes:** Reduction in preventative visits compromises ability to diagnose diseases early leading to higher morbidity and mortality
- **Decreases in Demand are pronounced among hardest hit communities:** Minority and lower socioeconomic status communities are the most resistant to resuming health care resulting in an exacerbation of health disparities.
- **COVID Testing Remains Sporadic:** Lack of adequate testing and tracing leads to periods of uncertainty and to feel comfortable resuming routine and specialty medical care.

| | | Scenario 1: Optimistic | Scenario 2: Pragmatic | Scenario 3: Pessimistic |
|--------------------------|-------------------------------|--|---|---|
| What you have to believe | What coverage would look like | <ul style="list-style-type: none"> Short-term losses in employer coverage return to pre-COVID levels as job market rebounds quickly | <ul style="list-style-type: none"> A new normal for coverage mix with fewer people covered by employer sponsored insurance, as more opt for other coverage (e.g. Medicaid) | <ul style="list-style-type: none"> Lasting gains in Medicaid / uninsured; employer coverage declines sharply and takes 2+ years to recover |
| | Future unemployment | <ul style="list-style-type: none"> Unemployment remains above 10% in 2020, but hiring recovers as govts give the 'all-clear' to restart economy | <ul style="list-style-type: none"> Unemployment rises to 15% - 20% in 2020, but recovery post-pandemic is steady and rebounds in 2021 or 2022 | <ul style="list-style-type: none"> Unemployment rises to 30%+ in 2020, and the road to economy recovery stretches to 2023 or 2024+ |
| | Future legislative action | <ul style="list-style-type: none"> Legislation passed to combat losses to employer-provided insurance and premium spikes | <ul style="list-style-type: none"> Legislation passed to support employer coverage, such as govt subsidies covering 100% of COBRA | <ul style="list-style-type: none"> Congress fails to pass legislation, allowing rising unemployment and premiums to go unchecked |
| | Future premiums | <ul style="list-style-type: none"> COVID costs contained to '20 and HC demand is flat in '21, leading to flat / modest premium growth | <ul style="list-style-type: none"> Costs contained in 2020, but reserves are used, and HC demand returns in 2021, premiums rise 5% to 10% | <ul style="list-style-type: none"> Costs spill over to 2021+, demand for HC rises to capacity, causing premiums to rise 20% to 30%+ |

SOURCES Oliver Wyman, Covered California, US Congress

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Figure 3. Three potential scenarios describing loss of insurance coverage. SOURCES Oliver Wyman, Covered California, US Congress

| | Helpful | Harmful |
|----------------------------|--|---|
| Largely US National | Strengths <ul style="list-style-type: none"> ▪ Ingenuity in science & technology ▪ Modern HC system w/latest technology, access to latest drugs ▪ International leader in basic biomedical research ▪ Modern pharmaceutical industry and medical equipment industry | Weaknesses <ul style="list-style-type: none"> ▪ Low level of preparedness (scenario planning) ▪ Lack of active drugs, vaccine ▪ Time delays in implementing public health measures ▪ Suboptimal communication at various levels |
| National and Institutional | Opportunities <ul style="list-style-type: none"> ▪ Identify inefficiencies in HC and hospital systems and improve upon ▪ Employ modern technology (e.g. <i>telemedicine, resource planning, ordering, billing</i>) ▪ Remote work, virtual meetings ▪ Decentralize work, re-assess need for expensive real estate in urban areas | Threats <ul style="list-style-type: none"> ▪ Search for vaccine takes longer than expected → continuing waves of COVID-19 ▪ Another epidemic ▪ Telecommuting stifles team creativity ▪ Political bickering grinds economy and HC industry to a hold (hospital closures, mergers, lack of access especially outside urban areas) ▪ Trade wars disrupt supply chains ▪ Intl political events require re-allocation of money and resources away from HC ▪ Banking crisis ▪ Return to old habits and bureaucracy |

Figure 4. Modified SWOT analysis – opportunities and threats for the overall and healthcare economic recovery in the US

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