

March 17, 2020

Our country and our communities are living through extraordinary times. On January 19, the first case of COVID-19 in the US presented north of Seattle. While attention was trained over the following two months on Wuhan (China), South Korea, and northern Italy, in recent days the magnitude of the epidemic in the US has become apparent. Among the many “firsts” of the last week, McKinsey halted travel for all personnel to help stall the spread of the virus and preserve our colleagues, clients’ and our families’ health. Our commitment to having impact in healthcare nevertheless continues, and we are partnering with health systems who have already begun to see significant COVID-19 volumes.

This memo offers lessons from the front-lines. We believe sharing this information will help accelerate preparedness across the US. Based on discussions through the weekend, we know there is tremendous variation in the level of preparedness across systems today and in the pace at which systems have been able to mobilize. Topics that we address below include:

- Update on the Status Quo as of March 17;
- Workforce Resilience;
- Supply Chain Resilience;
- Preparation for Surge Capacity;
- Enabling Information Technology Capabilities;
- Enabling Organizational Capabilities; and,
- Issues we are working to address next

We have not aimed to be complete in this memo. We recognize that systems will experience this epidemic in three phases: launching emergency operations; treating a surge of cases; and rebounding in the aftermath. We focus only on the first phase here, given its urgency; we are preparing perspectives on the future phases and will share those soon.

UPDATE ON THE STATUS QUO AS OF MARCH 17

Information about the epidemic changes by the day, if not by the hour, as we learn more about the virus, its spread, patient outcomes, and health systems’ and the public’s response. Here is what we know now:

- COVID-19 has a reproduction rate that is 1.5-2x of the flu;
- Up to 20% of COVID-19 cases are severe/critical; and,
- South Korea, which has had among the broadest testing, has seen a case fatality rate of ~0.9%

We have seen widespread impact to date, with >195,000 confirmed cases in >150 countries and >7,850 deaths. Notably, the concentration of new cases has shifted, with China reporting <1% of new cases from March 9-15 while Europe reported ~75% of new cases in that period. In the United States, we have seen >5,700 confirmed cases and >90 deaths. Even with the actions taken by state and local governments and the CDC recommendation that all gatherings with 50+ participants be postponed for the next eight weeks, these counts will continue to rise. While several counties around San Francisco have ordered residents to shelter-in-place until at least April 7, this has yet to become the norm.

Among health systems, a critical question at this juncture is how to prepare for rising case counts and whether to defer elective cases that can be rescheduled. Essentially all health systems in Seattle have

adopted policies to delay non-urgent, elective cases as of Monday for their hospitals (including Swedish, Univ. of Washington, Seattle Children's, Overlake, and Evergreen). Discussions are underway to close all ASCs in Washington state, given the need for staff and supplies for COVID-19 cases.

Outside of Washington state, others rescheduling non-urgent, elective cases include Kaiser Permanente, UCSF, Northwell, and NewYork-Presbyterian. Shelter-in-place guidelines will likely prompt other Bay Area health systems to do the same. Most of the aforementioned systems have efforts underway with clinical leadership defining guidelines and timelines for rescheduling, and many have also reset their norms for visitors and physician office operations. Last Friday, the [American College of Surgeons](#) also recommended physicians review and reschedule elective surgeries if possible. We anticipate that most health systems will adopt this type of approach in the coming days.

WORKFORCE RESILIENCE

Given the expected patient demand that health systems will face and concerns for clinicians' wellbeing, a comprehensive strategy for workforce resilience is essential. This starts with consistent emergency preparedness training and clear messaging: all employees will be critical to manage this crisis, and many will have their roles impacted in significant and different ways.

Describing the situation and tactics from the front-lines:

- **Shortage Risks:** We see escalating challenges with absenteeism, with 10-20% of RN staff calling off shifts due to illness, dependent care, quarantine, or other reasons. Given changes in policies around school cancellations, absenteeism will likely increase over the coming weeks as many staff have children and no care alternatives (especially given exposure risk to seniors)
- **Approaches to Meeting Demand:** Usual solutions, such as agency or travel nurses, will likely be exhausted given the urgent need for nursing staff nationwide. Instead, strategies may include:
 - Flexing up existing resources, with a subset of clinicians "moving into the hospital" for a period, while systems provide for their immediate needs (e.g., food, housing near facility, behavioral health needs through the crisis) and for their family situations
 - Cross-support, as National Emergency status allows for greater leniency, including flexing clinical staff across care sites and beyond traditional boundaries (if willing)
 - Pivot work for as many staff members as possible, e.g.,
 - Explore flexibility in physician labor model, including specialists covering general medicine patients as needed
 - Enable clinical staff who must stay home to provide telehealth coverage and/or support telephonic triage
 - Activate physician office staff for screening calls (in office or remote)
 - Ask recent retirees to return to work (underway in New York state)
 - Expanding collaboration and team-based care within care settings to allow top of license activities supplemented by others performing more routine work (e.g., ICU critical care RN complemented by non-critical care RNs and LVNs to care for ICU patients)

Systems should also prepare to work with FEMA and others given National Emergency status, including the VA and DOD, which have emergency preparedness missions. In particular, the VA has bed capacity and clinical staff that should be incorporated into regional surge capacity planning. Independent pediatric hospitals may also have staff who can augment other systems' workforces as required.

SUPPLY CHAIN RESILIENCE

A leading concern across health systems is the supply of Personal Protective Equipment (PPE), including gloves and N95 masks. Given the initial outbreak in China, where much of this PPE originates, the global supply chain – including US medical supply distributors – has a shortage of these products. Moreover, as this is a global epidemic, there are limited sources for additional supply. As of March 15, the E.U. imposed export restrictions on protective equipment, highlighting the need for conversation and discipline in using these products until new, at-scale supply emerges.

Describing the situation and tactics from the front-lines:

- Hospitals in Seattle are running with less than 1 week of PPE supply given current demand
- Supply conservation strategies are vital to implement in collaboration with the CDC and relevant local department of health (and influence decision to defer non-urgent, elective cases)
- Remaining international sources are increasingly challenging to access and source from

Health systems should develop visibility into inventory levels and locations to enable dynamic transferring of products based on needs. Systems also should have models for how to allocate supplies and equipment when demand exceeds supply, similar to how they allocate bed capacity. Teams may also begin to review clinical protocols to mitigate supply constraints.

Finally, health systems with multiple facilities within a region have explored a COE-model, with facilities designated as COVID-19 sites while others attempt to treat other emergent volume. We have not seen a consensus on this approach yet given uncertainty around how patients will flow to sites of care and the ability to test patients rapidly and reduce demand on relevant PPE at the non-COVID-19 sites.

PREPARATION FOR SURGE CAPACITY

Health systems have not yet had to deploy substantial surge capacity. Nevertheless, major preparations have been underway in the early hotspot regions for systems to expand capacity in their facilities to meet the expected rise in patient demand, as well as triage patients prior to arrival.

Describing the situation and tactics from the front-lines:

- **Acute care facilities have started to adapt**, including the following approaches:
 - Launch drive-thru screening and triage tents to promote distancing from ED site
 - Design patient flow via two entries, with one reserved for potential COVID-19 cases
 - Bring online additional beds and reactivate decommissioned bed floors
 - Convert units and/or build out space on shelved floors
 - Build prototype of DIY ventilators as potential back-up
 - Insource testing
- **Explore additional solutions for emergency bed capacity**, including:
 - Determine maximum capacity for admissions based on adaptability for COVID-19 cases
 - Develop protocols for shifting acute care patients to lower acuity settings to manage

- Identify secondary sites (e.g., other healthcare locations, like VA or ASCs) and tertiary space (e.g., hotels, schools, gyms) and plan for engaging them, including an operational plan to convert and general contractor capacity to support

Prior to surge capacity being needed, health systems should also understand how they will collaborate within a region, especially for non-COVID acute care volumes that will require treatment (e.g., oncology, obstetrics). Similar discussions should occur regarding capacity for critical primary care, e.g., for complex chronic disease patients.

ENABLING INFORMATION TECHNOLOGY CAPABILITIES

Technology has been a key enabler of all organizations' early responses to the epidemic, highlighted by the shift to remote work. There are several activities that have been prioritized with positive results by systems responding to COVID-19 already:

- **Consumer Engagement:** Launch digital resources, including use of self-assessment tools (incl. online tests, chatbots) to raise awareness on CDC recommendations and redirect the "worried well" from sites of care; expand telehealth capabilities, including terminals and technology;
- **Electronic Health Record:** Update EHR to include screening criteria for all entry points and identification tools, along with new features (e.g., home monitoring enrollment, billing rules);
- **Tent & Bed Management:** Launch process for bringing technology to new sites, including network deployment, staff training, and design and build of relevant applications/processes;
- **Data & Analytics:** Create new operational tools/dashboards for key performance indicators, including bed volume tracking, inventory tracking, and active tracking of COVID-19 patients

Effective IT teams have also been able to deploy hardware for staff who need to work-from-home, deploy software for more effective collaboration, bolster network infrastructure, and accelerate ticket requests (e.g., quickly create accounts for new staff). Achieving this has required deprioritizing other critical long-term projects (e.g., EHR migration planning) to open capacity to serve these urgent needs.

ENABLING ORGANIZATIONAL CAPABILITIES

Essentially all the health systems we met with since the weekend have launched an Emergency Operations Center or expect to early this week. Several behaviors help ensure these efforts are successful, including a consistent daily rhythm of meetings and internal communications, centralized reporting on key metrics (e.g., case counts, workforce, supplies), and clear, designated leadership with several others in organized, function- or geography-specific support roles.

Our observations on priorities beyond launching an Emergency Operations Center and the topics addressed above include:

- **Social Distancing for Leadership:** Ensure separation of key personnel to reduce the risk of the leadership team spreading the virus among one another and being impacted;
- **Communications:** Mobilize enterprise communications at multiple levels, including:
 - All workforce, ideally with regular updates from Emergency Operations Center
 - Relevant leadership, ideally 2-3x daily from Emergency Operations Center
 - Board members, ideally ASAP as this situation emerges and on a regular basis

- Consumers and public-at-large, ideally with regular online updates and push communications through dedicated apps or when contact information is available
 - State and FEMA teams, along with other local providers, on clinician and PPE status
- **Engaging Additional Sites of Care:** Significant volume has emerged from high-risk sites, e.g., LTAC, nursing homes, and seniors' centers. Engage relevant leaders to move to quarantine these sites and/or raise restrictions on visitors and staff to avoid localized outbreak
- **Adapt scheduling and registration** activities to support COVID-19 response, e.g., patient screening via phone and intake processes

ISSUES WE ARE WORKING TO ADDRESS NEXT

Uncertainty continues, yet we learn more each passing day and see greater awareness on the urgency to act across health systems, government, and the public. While we will continue to refine our insights and support to health systems on each topic mentioned above, we are also developing viewpoints and approaches on the following priority topics:

- Implications of the National Emergency Declaration for health systems as epidemic spreads, including approach to engaging FEMA and new federal and state funding sources;
- Supporting nerve centers as systems are organizing to quickly respond
- Rapidly accelerating testing and surveillance, including how to operationalize testing regimens, aided by new tests and new networks (e.g., Quest, LabCorp, Walmart, CVS) being activated to augment existing capacity
- Scaling up remote call centers for diagnoses
- Modeling and ideas to creatively expand capacity in the near-to-medium term for pent-up non-emergent care, including patients' primary care needs
- Identifying supply chain needs and optimize use and inventory
- Determining how to quickly identify and mobilize qualified and "easy to become qualified" healthcare personnel where they are most needed
- Working with HR teams on creative childcare solutions
- Modeling near-term financial implications of epidemiological scenarios, including:
 - Cash management and liquidity given turmoil in the public markets, as well as rising costs associated with COVID-19 volume and rising accounts receivable given bill holds
 - Stability of premium revenue in the Individual market and implications on potential payor mix shifts in 2020
- Launching financial resiliency SWAT teams and modeling long-term financial implications of epidemiological scenarios, including:
 - Expectation on future demand utilization (e.g., 6-month, 1-year, 3-year forecasts), with tailwind of pent-up demand and headwind of potential economic downturn
 - Second-order effects of any economic downturn (e.g., coverage shifts as a result of rising unemployment; increasing patient bad debt as consumers' ability to pay for the patient portion of medical expenses declines)
 - Impact on days cash on hand given operating and non-operating income trends

We hope you find this information helpful. We have shared additional check lists and detailed action items in our PowerPoint supplements. We recognize these materials are preliminary, information is

changing rapidly, and that much work remains to be done. We welcome and encourage your reactions, questions, and inputs we aim to help the US health system in any way we can to see the country through this epidemic.