Part 1: Creating a Coordinated Federal Telehealth Response to COVID-19

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With an unprecedented rise in testing for illness, we are at risk of overwhelming our health care system – as we are seeing in other countries. We need to ensure that hospitals are not overwhelmed by patients who can be treated elsewhere, and that medical professionals are not exposed more than is necessary. Fortunately, our innovative private sector has the infrastructure available to address this problem. However, these resources can only be put to effective use with government direction.

On March 13, the president's announcement allowed the different agencies to take advantage of telehealth technology to change the way we manage the pandemic. These changes permit the use of telehealth but do not determine the way it will be deployed and the specific areas in which it can deliver value. Telehealth technologies could lower the risk of exposure for both medical providers and the general public, and enable clinical services from various areas around the country to reach into areas that are overwhelmed.

To take advantage of President Trump's announcement yesterday on telehealth:

- The Administration should establish a National COVID-19 Center (NCC), charged with making telehealth services available to everyone.

- Telehealth companies, working with cloud computing companies and under the direction of the government, will spin-up the digital services needed to allow mass enrollment of clinicians so that health care professionals can reach patients in all parts of the country.

- As states declare their own emergencies, this platform will offer enabling infrastructure and facilitate cross-state cooperation and pooling of care management and delivery.

This system should be leveraged to launch a nationwide effort to minimize the spread of the outbreak among high-risk patients and communities by ensuring that they are isolated, cared for, and provided with all their basic needs. Otherwise, we are very likely to soon see in the U.S. the health care delivery crisis that exists today in Italy.

The private sector has already built the infrastructure needed to enlist telehealth technology as a direct intervention on the spread and treatment of COVID-19. A nationwide system, directed by a government-appointed executive, could in our assessment be rolled out in one week. This could then be applied to reduce the exposure of Americans to the virus as well as to reduce the risk of health care system crises by improving the allocation and availability of medical services across the country.

Part 2: FAQ for Johnson-Levi, "Creating a Coordinated Federal Telehealth Response to COVID-19"

What Does the National COVID-19 Center (NCC) Do?

The NCC plays several key roles:

1) As a nationally sanctioned and coordinated center for triaging the care of the infected. Only by ensuring that infected individuals use this coordinated center can we effectively manage the progress of the disease and the burden on our health care system
2) As an onboarding and management tool for health care providers to deliver the care that is needed to those who are infected
3) Enabler of nationwide effort to limit the outbreak spread among high risk populations and communities
4) As a coordination device to organize the provision of care across communities to ensure that our national health care resources are used efficiently to leave no communities behind.

Who Runs the NCC?

The Administration should appoint the head of the Center, who would set up the center and would be responsible for its functioning and success. The center will work closely with the State command centers and authorities

Personnel and Compensation for the NCC

The NCC would set up an onboarding portal where any medical professional could qualify to work with the NCC.

The onboarding portal would provide broad information about required qualifications and would use all possible sources to verify entered data. Medical professionals would provide hours/days that they would commit to be on call.

Medical professionals who qualify and who are willing to commit at least a small number of hours per week would immediately receive a bonus.

They would then be on call during those times to be used as a care coordinator. Rates would be 110% of Medicare, which should be straightforward under existing rules

Recommendations by Medical Professionals through the NCC
Medical professionals would assess the situation for each individual and make appropriate recommendations for the course of care. This would include at least the following options:

1) Sending the individual to a health care facility or other designated facilities formed by authorities. In this case the medical professional would coordinate with local resources to ensure that the patient is going to the right location and that they have a way to get there.
2) Recommending that the patient remain at home. In this case the medical professional would provide detailed instruments for self-care.
3) Recommending that the patient go to a new non-health care facility (e.g. requisitioned hotels). In this case the medical professional would coordinate with non-health care facilities that have been established to house infected individuals to ensure that the patient is going to the right location and that they have a way to get there
4) Identify a patient as high risk and coordinate (with the help of other staff members) the supporting services to enable safe home quarantine of the patient.

Ongoing coordination of care
Medical professionals who make these initial recommendations may also provide ongoing coordination of care, particularly if patients stay at home. NCC must develop protocols for when to call on existing care teams and how to coordinate with them.

Funding for NCC
Existing emergency funding within HHS budget could be used to stand up and run the infrastructure of the NCC. Additional funding should be appropriated immediately

What About HIPAA?
It is unlikely that any statutory or fundamental regulatory changes are needed in HIPAA. HIPAA rules state that personal health care information can be shared with any health care provider without authorization so long as doctor is being contacted for purposes of being treated.

Proactive Outreach by NCC
If the government felt it appropriate, the NCC could play a proactive role in reaching out to infected or other at risk individuals to provide care coordination services. Ongoing evaluation should be carried out to assess whether such a proactive role would provide a useful complement to the efforts of the CDC.

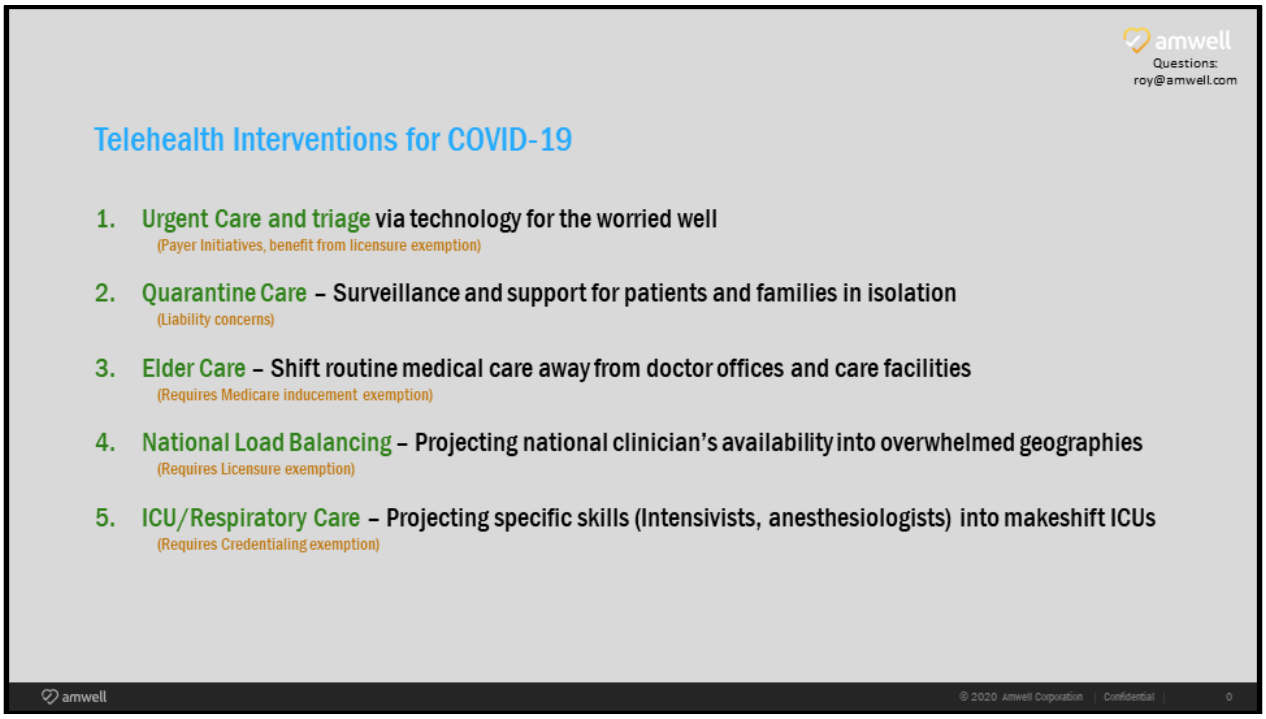

FIGURE 1. Telehealth Interventions for COVID-19

Part 3: Emergency Operational Strategy to Reduce Deaths from COVID-19

Operational Goals:

1) Sustaining critical hospital capacity, particularly, Emergency Dept., ICU (beds, ventilators, etc.) and medical staff.
2) Minimizing fatalities.

Operational Imperatives:

1) Control the volume and pace of critically ill patients who require extensive hospital care.
2) Divert as much testing, triage, and care management activities from hospitals and clinics to people's homes and alternative locations, to minimize load on hospital-based clinical teams and risk of infection exposure.
3) Maximize and make flexible capacity, and deploy dynamically across regions as per risk assessment.

Immediate actions (in the coming days):

1) Identify high risk communities and individuals, extensively test them, and ensure their isolation, care, and wellbeing (e.g., general medical care food, prescription drugs, etc). Government should lead the effort with insurers, health systems, and other industry stakeholders that provide logistics infrastructure (telehealth, ambulances, home care resources, home food delivery, online prescription fulfillment, etc) and operational expertise.
2) Start managing suspect and mild cases in their homes or dedicated facilities outside hospitals and clinics via telehealth systems and apps, with support of appropriate logistics resources (e.g., ambulances). Federal government should work with health systems, including retail health systems, to develop unified guidelines and communicate aggressively to the public.
3) Centralize national awareness of capacity and demand via data collection and analytics, and enable flexible dynamic deployment of capacity across regions and states as per data driven risk analysis. The federal government should form structured coordination channels to allow data and information sharing. Federal and state command centers are needed.

Critical enablers:

1) Building testing capacity ASAP.
2) Telehealth is a critical enabler to each one of the operational imperatives. The technology can be made available within days, but the government needs to develop and articulate a clear strategy to deploy telehealth resources, and remove, on an emergency and temporary basis, any regulatory and reimbursement barriers (e.g., cross state licensing, CMS restrictions, malpractice solutions).

Background

The global expanding Corona virus (COVID-19) epidemic outbreak presents unprecedented threats to the health of communities across the globe. Its nature poses unique challenges and requires unusual actions and approaches from policy makers, health systems, industry and citizens.

The wide range of strategies as well as respective resulting outcomes observed across different countries is striking. Some countries like China pursued extreme measures such as a complete and long lockdown of entire cities and millions of people – to ultimately achieve what seems, at least for the moment, some control on the spread of the outbreak. South Korea, like China, had initially faced a major uncontrolled burst of cases, but as of recent days seems to get control of the outbreak with extremely low death rate (7,513 confirmed cases and 54 deaths). Singapore and Taiwan have obtained an even more impressive record with a very low number of confirmed cases and no/one reported fatalities, respectively. Italy represents perhaps the antithesis scenario with what seems to be an uncontrolled situation, exponentially rising number of confirmed cases (more than 10,000 at the moment) and very high death rate (close to 1,000). Moreover, the health system in Italy seems to be overwhelmed and some fear it is on the verge of collapse. While there are many potential explanations to the marked difference in outcomes, it is quite clear that the central government policies and actions make a BIG difference.

The question we are concerned with is what it takes to make sure that the US does not become Italy, but follows the path of other countries that seem to cope with the outbreak with significantly superior outcomes. The intention of this document is not to describe a complete detailed strategy since this requires the involvement of many experts in the government, industry and academia, and moreover likely to change over time in response to evolving situation. Instead, the goal of this document is to offer several important principles and resulting immediate steps that the government should seriously consider in developing the 'what and how' of the US national strategy to manage this crisis. The high-level message is that these are times of what is often called "Irregular Operations" conditions, which call for unusual plans and actions, including ones that potentially deviate from what typically works well (or even very well) under regular conditions.

'What' Principles

From what is known about the outbreak, it is clear that the Corona virus is extremely infectious and that it has highly variable impact that is minimal for most people (particularly young and healthy), but could be very severe for older patients or individuals with underlying health conditions, often requiring long hospital care and frequently extensive ICU resources.

This implies that any successful strategy will have to be able to efficiently and safely manage high numbers of infected people and suspect cases. However, most importantly, a successful strategy will have to focus on ensuring that the number of seriously ill patients does not overwhelm and compromise the health systems – creating a spiral effect that, as we observe in Italy, could lead to high death rate, and put the entire health systems at risk of collapse. In essence this is a challenging problem of managing the potential mismatch between the demand

of critically ill patients with the scarce supply capacity of essential hospital resources, such as ICU beds, ventilators, drugs and medical staff members:

1) Controlling the number of critically ill patients. **The statistics of the outbreak suggests that the load on health systems will be directly determined by the number of critically ill patients and respective rate of demand for critical resources that they impose.** Clearly actions aiming at creating social distancing are helping to move in the right direction. However, a special focus should be allocated to high risk patients. This includes, among others, nursing home, elderly housing, Medicare patients and patients with compromised health. There is a need for a systemic effort to identify, extensively test and monitor, as well as isolate these patients, while securing their wellbeing, specifically, providing food, prescription drugs and other basic needs to prevent any reason to be exposed to potential contraction of the virus.
2) Managing milder and suspect cases. If there is one piece of good news in the story of the Corona outbreak is that most patients are likely to experience mild symptoms. That said, these patients still pose serious risks, not only by potentially overwhelming the outpatient and inpatient health systems seeking for diagnosis and care, but also by potentially infecting medical staff, one of the most critical resources to be managed. **Therefore, another critical element is a system that is able to manage a very high number of patients without using the traditional in-person care management in clinics and hospitals**. This system will have to ensure effective ways to provide reliable information to worried patients, triage and monitor patients to ensure their health condition does not deteriorate and rapidly intervene whenever it does.
3) Pooling and expanding supply capacity. In all likelihood, and even assuming aggressive actions to increase capacity of critical resources, capacity will be highly constrained and must be used strategically based on centralized protocols and priorities. Therefore, the ability to create flexibility in how capacity of various critical resources is used will be essential to ensure the best outcomes. In particular, it should be expected that the demand will not be uniformly distributed across regions, and that regional needs will change over time. This requires not only systemic and centralized awareness of where and what capacity is available and where demand exists, but also the ability to pool capacity and flexibly deploy it as needed, across regions and states. Clearly, other strategies to expand capacity (e.g., opening field hospitals in strategic locations, accelerating the production of ventilation machines, etc.) should also be seriously considered.

'How' Principles

While each of the countries that were able to effectively manage the Corona outbreak pursued different approaches and interventions, there are still several core aspects that are common to all of them. We believe that these should be highlighted and inform government thinking regarding how to approach the execution of a nationwide strategy to manage this crisis:

1) The need for a command center. All of the relatively successful countries have a very proactive central command center that operates around the clock to develop and update strategies, monitor the situation, inform the public, respond to changes and coordinate the national efforts. It seems that having a federal command center that works with respective

state-level command centers is an essential crisis management structure. These command centers should be able to leverage advanced data analytics and technology at scale.

2) Testing & sensing. All successful countries have been using aggressive and strategic testing of patients, particularly high-risk people. There is an imperative to create robust testing capabilities and protocols and remove all technical and economic barriers. This should be coupled by other surveillance and sensing technologies that will build centralized situational awareness and enable advanced analytics to inform the most effective, risk-based resource allocation.
3) Telehealth. It is evident that existing telehealth technologies will have to be deployed strategically and at scale to enable each one of the desired 'What' principles described above, as well as to ensure the ability to have an effective sensing system. There are at least three actions to be taken to allow strategic use of this essential capability. The first is to technically ensure that the technology could reliably scale to manage a tremendously large volume of transactions. The second is to ensure that none of the existing regulatory and legal barriers (e.g., reimbursement issues, state level licensing and other existing legal limitations) stand in the way of being able to fully utilize this technology during this crisis situation. Finally, there is a need to develop and execute appropriate operational policies to effectively engage health professionals, health systems, patients, and other resources (e.g., ambulances).
4) Collective engagement. It is clear that to be successful in facing and managing this tremendous challenge, there is a need to engage all the relevant stakeholders including industry and academia to ensure a coordinated and collaborative joint effort for the sake of our country and society.

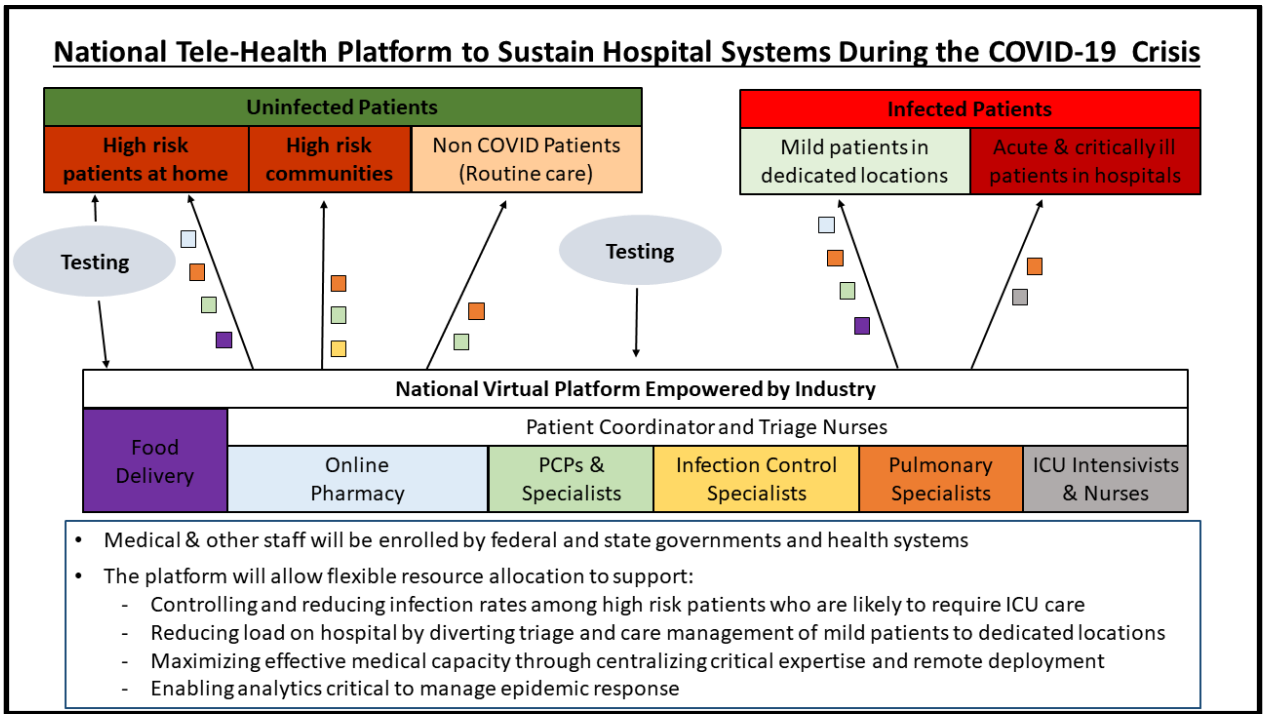

FIGURE 2. National Tele-health Platform to Sustain Hospital Systems during the COVID Crisis