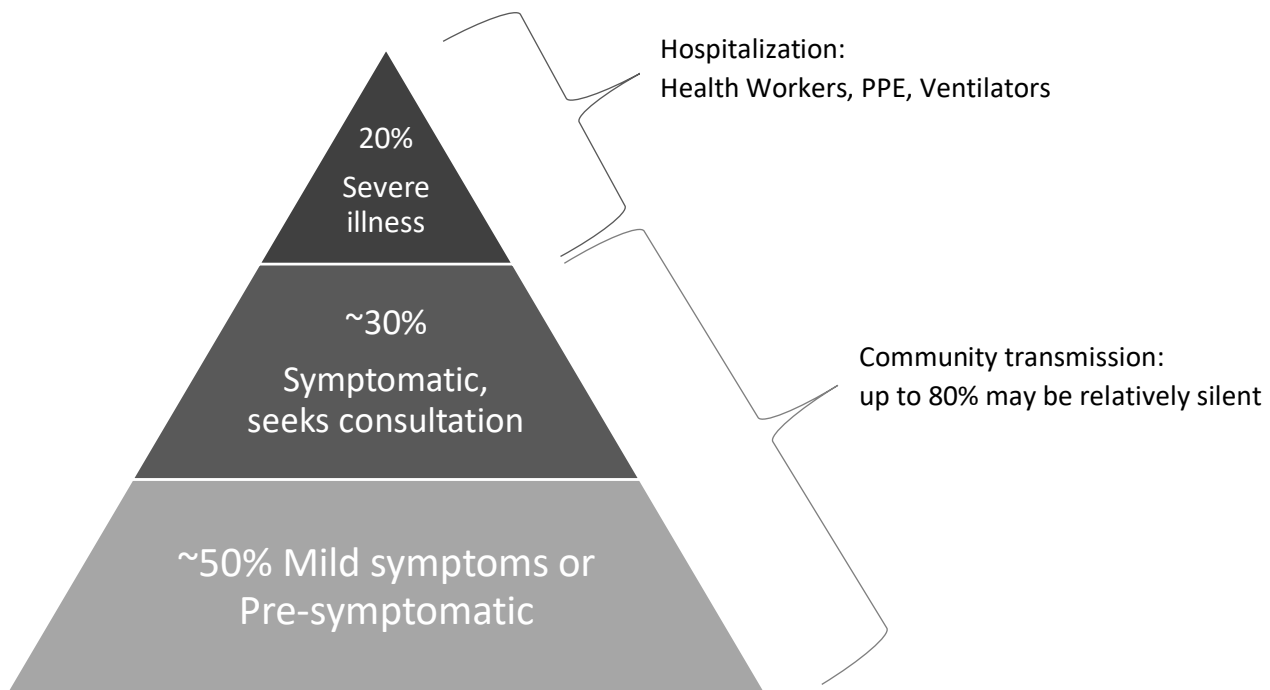Partners In Health

Community Tracing Collaborative

Introduction

The impact of the COVID-19 pandemic requires a response that is equal to the challenge. In countries that have begun to bring transmission under control used multi-pronged strategies that included social distancing as well as widespread access to testing, contact tracing, and support for those who are sick to assure they do not spread the disease to their contacts.

The current approach in the U.S. has focused primarily on preparing hospitals for the onslaught of cases, the 20-40% of people with COVID who need hospital beds, oxygen, ventilators, the medical staff who need PPE. These preparations are critical to provide treatment for people who suffer from severe symptoms of COVID.

However, far less has been done to prevent the spread of COVID at the community level. The slow scale up in testing in the United States has meant that people are told to stay home if they are mildly symptomatic. COVID is only identified when people are quite ill. Meanwhile 60-80% of people with COVID have asymptomatic or mildly symptomatic disease. They are working and living with others and unknowingly spreading the virus. The base of the COVID epidemic is this community spread.

Figure 1: Asymptomatic transmission of COVID-19 is the base of the pyramid.

Hospitalization:
Health Workers, PPE, Ventilators

20%
Severe illness

~30%
Symptomatic, seeks consultation

~50% Mild symptoms or Pre-symptomatic

Community transmission:
up to 80% may be relatively silent

The standard approach to prevent infectious diseases from spreading is through case investigation, contact tracing and support of exposed individuals. That is, for each person who is newly diagnosed with COVID as a "case", they are interviewed to enumerate their close contacts—those who have been within 6 feet for more than 15 minutes. Those people who are identified as "contacts" are notified that they may be at risk so they can be tested, watch for symptoms and linked to resources to protect themselves and their family.

In general, contact tracing for infectious diseases is done by Departments of Public Health and local or county health departments within states. Data is kept securely and managed by public health laws at the state level. These are well trained and committed public health professionals often who are linked to local communities. However, the magnitude of the epidemic has overwhelmed the capacity of the public health professionals to carry out their work. This work plan has been drafted as part of the Massachusetts emergency response, run out of the Governor's office. It represents one component of a broad based strategy-one that simultaneously focuses on a treatment strategy--expanding hospital bed capacity and the protection of health workers while developing a prevention strategy—testing and contact tracing and recognizes that care and social support at community level is needed to assure that measures to prevent spread and promote wellbeing are fully realized.

There are 6 main components of the Community Based response

Command Center: Established on 3/14/2020 by Governor Baker and Lt. Governor Polito. Headed by Health and Human Services Secretary Marylou Sudders, the Commonwealth's single point of strategic decision making and coordination for the Administration's comprehensive COVID-19 response. Focused solely on pushing back against COVID-19 and committed to supporting communities and residents of the Commonwealth of Massachusetts. The Command Center team is a critical, single point of decision-making to collaborate with partners to address this rapidly changing situation. The Command Center will have complete authority and discretion to tap whatever state funds are necessary.

Commonwealth of Massachusetts Department of Public Health

The Department of Public Health in Massachusetts is one of the Departments under the Secretary of Health and Human Services. The Department of Public Health addresses specific diseases and conditions and offers services to address the needs of vulnerable populations. The Department conducts active disease surveillance and develops, implements, promotes, and enforces policies to assure that the conditions under which people live are most conducive to health and allow people the agency to make healthy choices for themselves and their families.

The mission of the Massachusetts Department of Public Health (DPH) is to prevent illness, injury, and premature death, to assure access to high quality public health and health care services, and to promote wellness and health equity for all people in the Commonwealth. Massachusetts ranks among the healthiest of states according to comparative analyses, but departments of public health across the country face numerous challenges. Economic and social disparities in Massachusetts drive significant health disparities in chronic and infectious disease, substance abuse, violence, hospitalizations, and health outcomes.

- The Bureau of Infectious Diseases and Laboratory Sciences in DPH works to protect everyone in Massachusetts from infectious disease. The Bureau's work includes infectious disease prevention and surveillance, health information and education, vaccine management , and the operation of the State Public Health Laboratory. These services are provided to medical professionals, hospitals, local and regional health departments, community-based organizations, schools, correctional facilities, first responders, and the general public.

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- <u>MAVEN</u>: The Massachusetts Viral Epidemiologic Network (MAVEN) is a secure electronic disease surveillance system that is used to track and manage infectious disease incidence in the state and communicate disease data with local health departments. It is critical that projects for contact tracing make every effort to use the system of record for the stated so that policies and procedures can be followed.

Local Communities

Local communities are critical in the response. All epidemics are local, can track to families or congregate settings. Community responses should grow and scale to the size of the epidemic and may include local churches, schools, the private sector (hotels, restaurants) which may be involved in isolation of the sick, food and shelter for the vulnerable or other needed outreach services (either virtually or with PPE). Two critical community-based elements are included in the Massachusetts plan to date are Local Boards of Health and Community Health Centers

<u>Local boards of health (LBOH):</u> Massachusetts has a decentralized governance, 351 cities and towns are independently organized for the delivery of local public health services and operate autonomously from the Massachusetts Department of Public Health. The local boards of health are responsible for assuring access to a comprehensive set of public health services defined by state law and regulations. The responsibilities include enforcement of state sanitary, environmental, housing, and health codes, health care and disease control, including timely reporting of and response to communicable diseases.

<u>Community Health Centers</u>:

We are already seeing the disproportion effects of the COVID epidemic on vulnerable and marginalized populations. While numbers are surging, epidemics remain local — localized to families, congregate settings and communities. Community Health Centers (CHC), were founded in Massachusetts precisely to broadly increase access to care and particularly focus on the vulnerable. To deal with the highly unequal access to testing, care and outcomes, CHCs must be included in the Massachusetts COVID response. CHCs have a proven track record in caring for these populations with the cultural, linguistic and contextual knowledge to address the strengths and challenges in specific communities. They have an important role to play in the community response to COVID. Increasing equity in access to testing, triage and treatment, particularly with a focus on vulnerable populations, is the only way to get to zero.

The Massachusetts League of Community Health Centers (League) was founded in 1972 as one of the first state Primary Care Associations (PCAs) in the country. Established under the same federal authorizing legislation as the health center program (Section 330 of the Public Health Service Act), PCAs are organized around a set of core functions and competencies that provide a framework for support and assistance to health centers and the communities they serve. As such, the League is a non-profit 501(c)(3) organization registered as a public charity with the Commonwealth's Secretary of State, and maintains a professional staff at its headquarters in Boston and at its training center in Worcester. The League will serve as the main conduit for the network of 52 community health centers.

<u>Academic Health Departments:</u> Massachusetts is lucky to be among the strongest academic centers in the country, including schools of public health at premier colleges and universities throughout the Commonwealth. Student, alumni and faculty volunteers from these 11 schools of public health and community health work were deployed in collaboration with the Baker/Polito COVID-19 Command Center to offer an immediate infusion of support for contact tracing, as well as, myriad other local public health needs including translation support, policy analysis, social media strategy and more., Academic Health Departments engaged in this effort:

Boston University School of Public Health

Harvard T.H. Chan School of Public Health
Holyoke Community College, Foundations in Health & CHW Certificate Programs
Massachusetts College of Pharmacy and Health Sciences
Northeastern University
Northern Essex Community College
Regis College
Simmons University
Tufts University
University of Massachusetts, Amherst
University of Massachusetts, Lowell
University of Massachusetts Medical School

Commonwealth of Massachusetts Health Connector

The Massachusetts Health Connector is the country's first and longest running state-based marketplace, having been created in 2006 to provide high-value coverage to individuals and small businesses in the Commonwealth and to serve as a policy and outreach hub for both state and federal health reforms designed to expand and improve coverage. The Health Connector's 13-year history allows it to draw from a rich set of experiences and lessons acquired in the several 'chapters' of its existence, first as a state-designed independent public entity at the forefront of the state's pioneering health reform law, Chapter 58 of the Acts of 2006, and later as an ACA-compliant state-based marketplace (SBM) when the federal reform law that was heavily influenced by Massachusetts's approach to coverage expansion and insurance market reform was implemented. In the state's COVID-19 response, the Connector will be leveraged to assure that everyone has access to a care plan.

Technology Solutions

The scale and rapidity of the epidemic necessitates leveraging technology to reach everyone who has been in contact with the virus that causes COVID-19. A variety of systems will facilitate managing workflow for contact investigators, pooling results from contact investigation, populating lists for contact tracers and following up on monitoring of contacts in quarantine. Technology included in the Massachusetts response are Buoy Health and Salesforce. Accenture provides implementation, systems integration and ongoing management of the combined call center operations.

Partners In Health

Partners In Health (PIH) is a Boston-based international medical charity with more than 30 years of experience in global health. PIH believes that health is a human right and that to achieve equity, a focus on vulnerable populations is critical. To support the goal of health equity, PIH employs a two-pronged approach: 1) to strengthen the public provision of prevention, care and treatment and 2) support strong community participation in the development and delivery of strategies. PIH also leverages this government and civil society approach to develop strong other partners. This approach has led to PIH being a leader in health care delivery around the world including in epidemic control, health systems strengthening and surging a workforce to meet an urgent demand. From the Ebola epidemic in West Africa, to the sudden emergence of cholera in Haiti, to responding to earthquakes and floods, we have learned key lessons that are now being applied in countries from Haiti to Rwanda to Peru to help stop the spread of COVID-19 even as hospitals are preparing to care for the sick.

Studying the responses of countries from Germany to Iceland to Rwanda to South Korea and China, we believe there is a critical four-pronged strategy to support the Department of Public Health, the local boards of health and communities to stop community transmission of COVID-19.
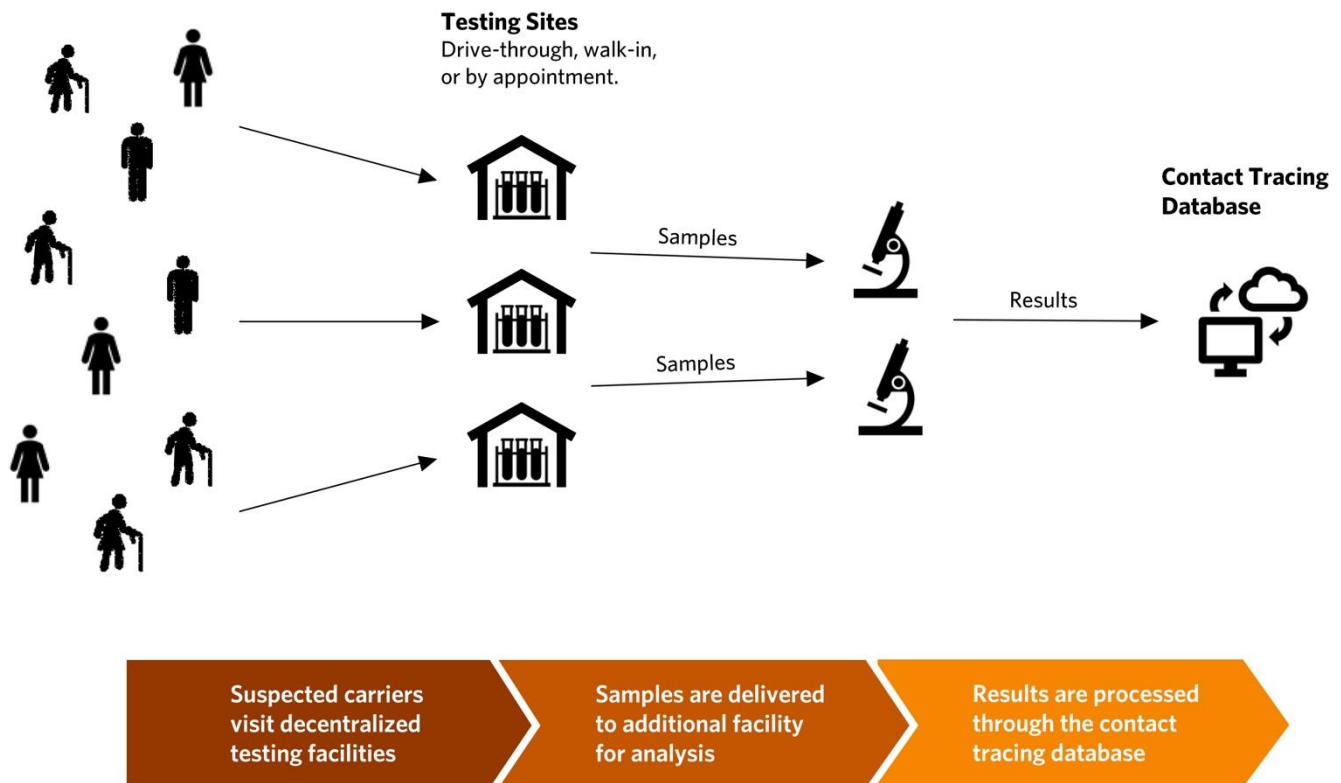
The Community Tracing Collaborative brings these partners together to investigate every new case, trace their contacts and assure that every person who is a case and a contact has the social support needed to get testing, care and protect their close contacts from contracting COVID-19

There are four elements needed to stop community spread.

1. <u>Wide-spread and decentralized testing</u>: 80% of people who are asymptomatic or mildly symptomatic with COVID-19 are currently told to "stay at home until you become short of breath." Currently, testing is in big centers, hospitals, labs and this fails to provide widespread access to testing. Centralization of tests also results in people congregating at a limited number of testing sites. Decentralization of testing or sample collection will allow more people to be tested. Decentralization of testing is a top priority of the **Command Center** (Figure 2). As the response continues to grow, these testing facilities will be at the community level linked to **CHCs.**

Figure 2: Community Based, Decentralized Testing: Distributed by municipality and population.


Testing Sites
Drive-through, walk-in, or by appointment.

Samples

Samples

Results

Contact Tracing Database

| Suspected carriers visit decentralized testing facilities | Samples are delivered to additional facility for analysis | Results are processed through the contact tracing database |

2. Contact tracing: In order to stop community spread, testing is specifically directed to contacts of those with confirmed COVID-19. We know from COVID-19 and other epidemics that spread occurs in families, congregate settings and small communities. There are two components of case tracing
   a. The first is contact investigation-which is to interview a newly diagnosed person with COVID and enumerate their contacts—anyone who has been within 6 feet of a person who has documented COVID-19 for 2 days before symptoms started.
   b. The second is contact tracing—which is to call all of those who were listed as contacts to inform them that they have been within an infectious distance. Contacts are interviewed, referred to clinical care or testing as needed and given instructions about quarantine.

   The **Department of Public Health, Local Boards of Health, Community Health Centers, and Partners In Health** will perform contact tracing through a coordinated system of electronic interfaces. (Figure 3)

Figure 3: Contact tracers call contacts of a newly diagnosed COVID-19 case within 24 hours to inform that they are a contact and give the person an appointment to a local testing site.

Case Investigators	Contact Tracers
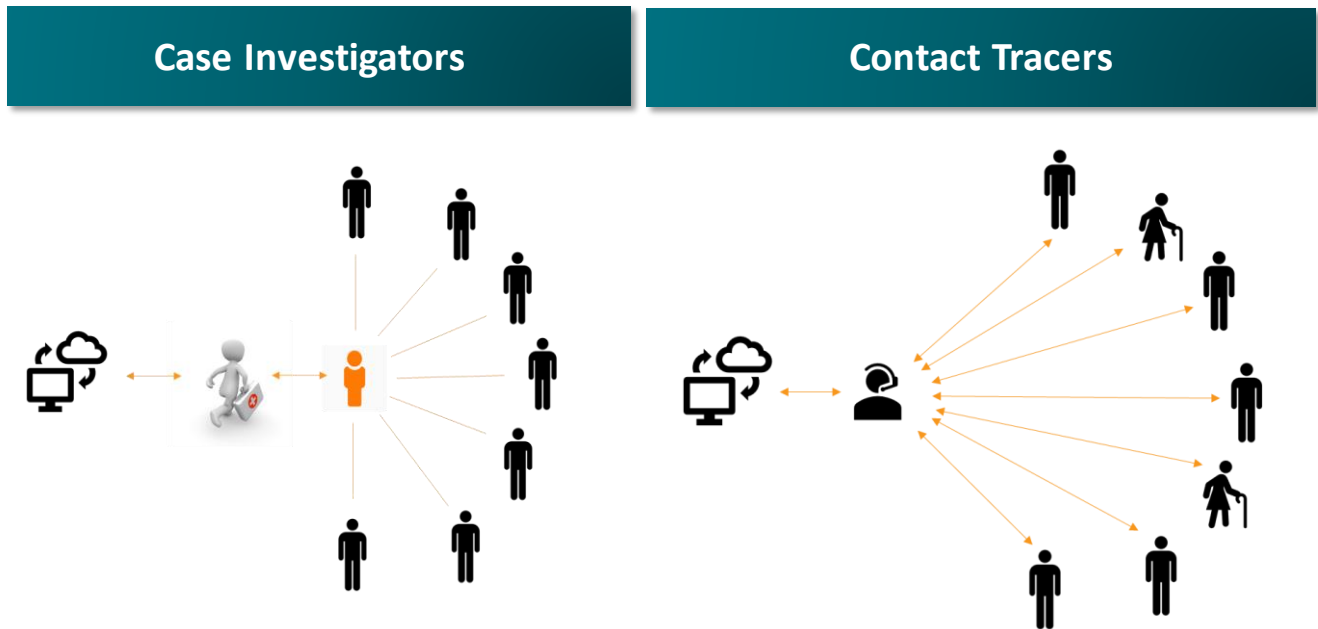
3. Quarantine, Isolation and Medical Care: Contacts are informed about the need to quarantine or isolate from others.
    a. Care: Those contacts who are already sick will be referred to care, this may take place with telemedicine or phone consultation.
    b. Quarantine: is recommended for those who are close contacts of a confirmed COVID-19 case but who test negative (or do not yet have access to a test).
    c. Isolation: is recommended for those who have COVID-19 who may not need hospitalization but need to be in a monitored area and separated from others to minimize the spread.

    Clear protocols are utilized in monitoring those who are quarantined and isolated to determine the need hospitalization. The goal to provide a compassionate response that takes care of the person affected and prevents community transmission of the virus. **Command Center, Community Health Centers and local governments** identify local beds for those who need support to quarantine or isolate.

4. Support: It is not possible to control epidemics without significant social support of the affected--whether it is support for people who are contacts to quarantine safely to creating dignified spaces for people with COVID who need to be isolated, to supporting the families of people who are isolated. Robust psychosocial support may include food, cell phone connection, transportation and economic supports. It may be decided on a case-by-case basis and based on means testing or it can be mandated by the state. Either way, support is essential to assure that people who are affected by the virus are supported to be able to quarantine, isolate or receive medical care. (Figure 4)

Figure 4. COVID Care Resource Managers will connect vulnerable people with local resources to support safe and effective quarantine and isolation.
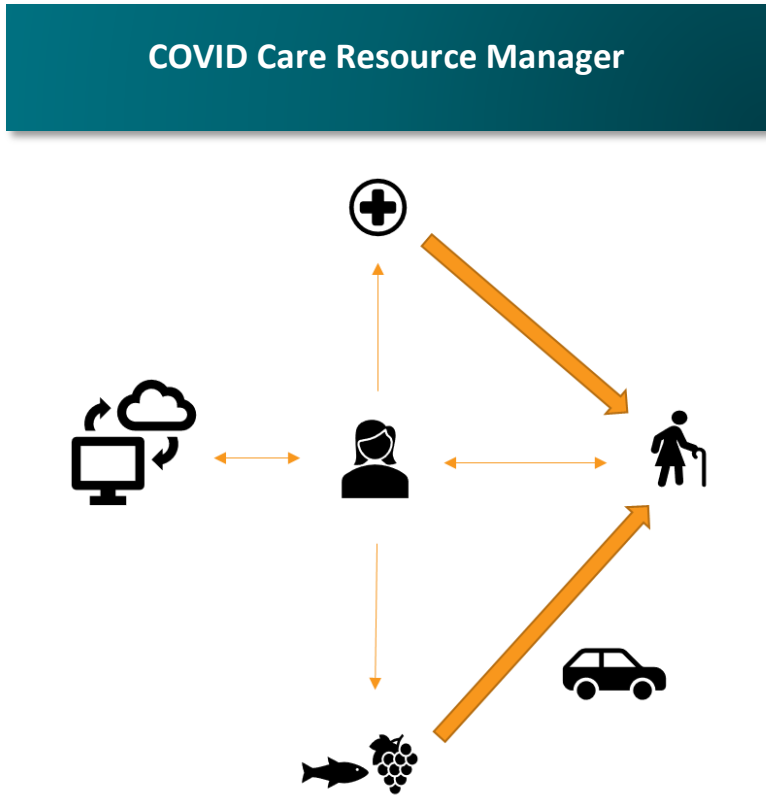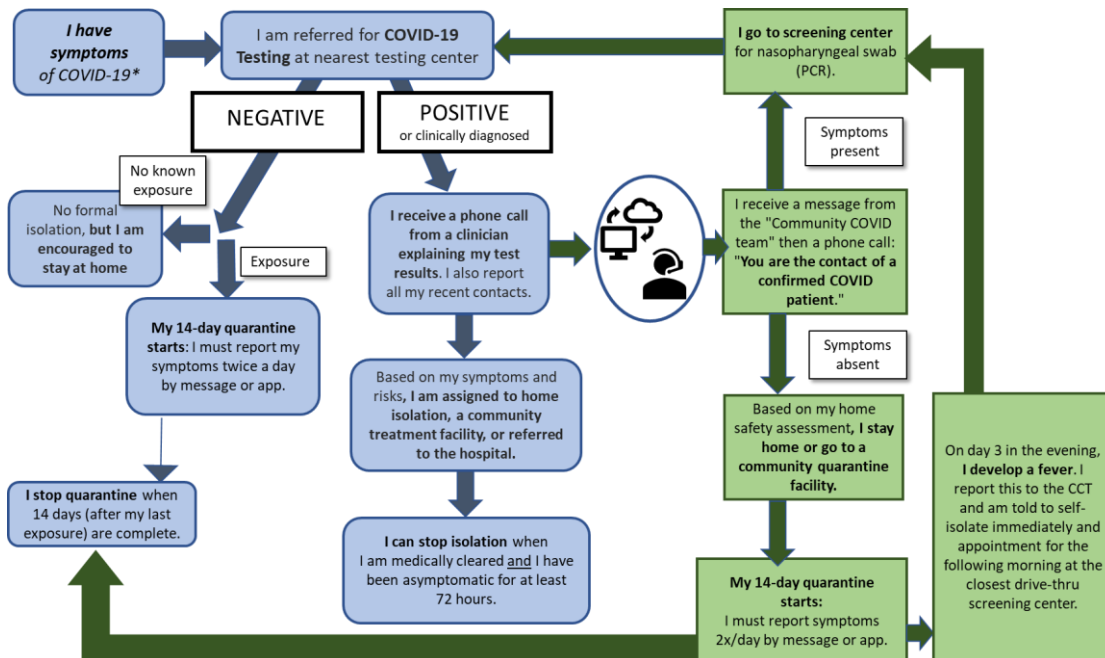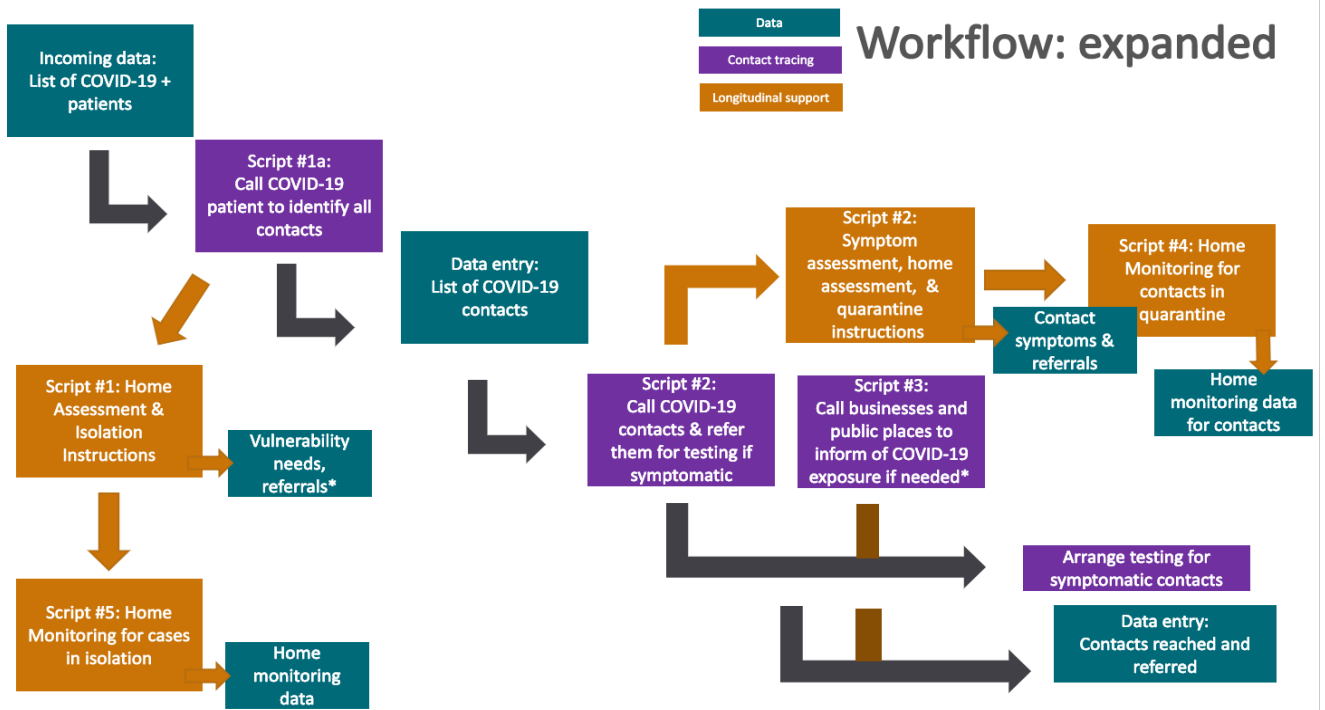

Figure 5. Workflow of contact tracing.

Figure 6. Workflow: There is workflow for three categories—data collection, contact tracing and longitudinal support of contacts. The flow diagram below shows each flow with scripts that are related to this workflow.

Scripts: The initial scripts to start the contact tracing are hyperlinked here. More scripts are in development.

| Script	Staff	Who	Contents
1: Case notification and contact tracing	Case Investigators	Case	• "you have COVID" • Symptom review • Who are your contacts? • Home assessment for social vulnerability [if staying home]
2: Contact notification and referral	Contact Tracers	Contact	• "you've been exposed" • Symptom assessment • Referral to nearest testing center • Instructions on home quarantine • Home assessment [if staying home]

CTC Units:

This is a "team of teams" approach. In our system, we have organized 10 teams. Within each team, there are smaller teams, or units. The number of units within each team can expand or contract based on the volume of contact tracing required. The team, made up of 10-12 units, is overseen by 1-2 supervisors.

Each unit includes:

- 1 Supervisor for a CTC unit: multiple case investigators and at least one COVID-Care Resource Coordinator
  - 1 Case investigator
  - 5 Contact Tracers
  - 1 COVID Care Resource Coordinator

Figure 7. Organization of the CTC unit
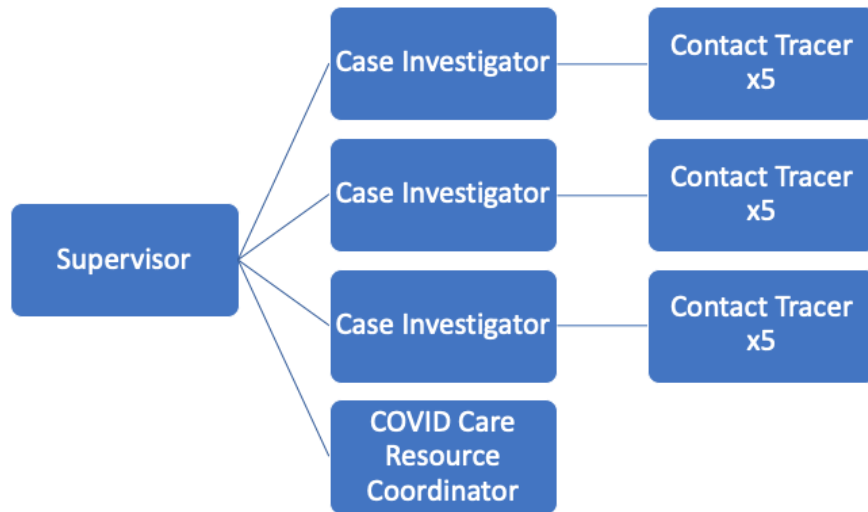
Implications and Conclusions:

The World Health Organization has repeatedly told us that social distancing measures will not be enough to stop the pandemic. They have pointed out that evidence from countries that are weeks ahead of the United States in the pandemic has made it clear that in order to prevent a grotesque number of excess deaths and to bring community transmission under control, social distancing mechanisms must be accompanied by widespread testing, contact tracing and an effective system of quarantining close contacts and isolating sick patients. A system that will expand testing to mild and asymptomatic persons, trace every case, and provide medical, social and economic support to isolated and quarantined people will be an enormous undertaking. But if we are to stop community spread, save lives, reduce suffering, decrease the burden on hospitals and restart the economy, we have no choice but to build a system that can do all those things. Moreover, for every day we wait to get started, more people will become infected and the job will simply grow larger and larger.

Governments throughout the world have been announcing massive, unprecedented stimulus packages to keep their economies from collapsing. These efforts are absolutely critical. But the crisis we face is fundamentally a public health crisis so we have to match our public health efforts to the scale of the pandemic as the Germans, Koreans, Singaporeans, and Chinese are doing now. **Moreover, in order to feel comfortable easing restrictions on movement and therefore get the economy back up and running, every state will have to have in place, a system that can instantaneously respond to anyone with symptoms, test and isolate them if they are positive and then trace, test and, if necessary, provide supported quarantine for all of their close contacts.** This massive expansion of a network of contact tracers, social support providers and public health professionals is doable, as we know from our long experience doing exactly these things with community health workers in some of the poorest places in the world. And, just as in our projects, building this system could create many thousands of jobs and better align stimulus money with activities that will help to end the epidemic in the United States.