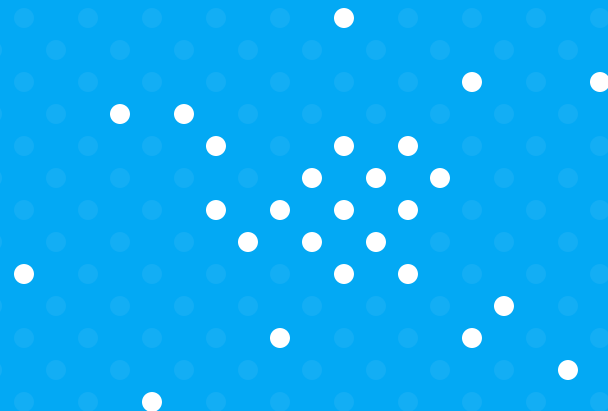


COVID-19 Contact Tracing

Program Design Framework

Outlining processes, systems and resources to rapidly scale effective COVID-19 contact tracing



What's included in this framework



Behaviors

we want to encourage for different status of individuals



Processes

and interventions that will support those behaviors



Tools & artifacts

that will enable and document those processes



Teams

that will implement the processes using the tools and artifacts



Roles

that will compose each of the teams to support processes



Guidelines

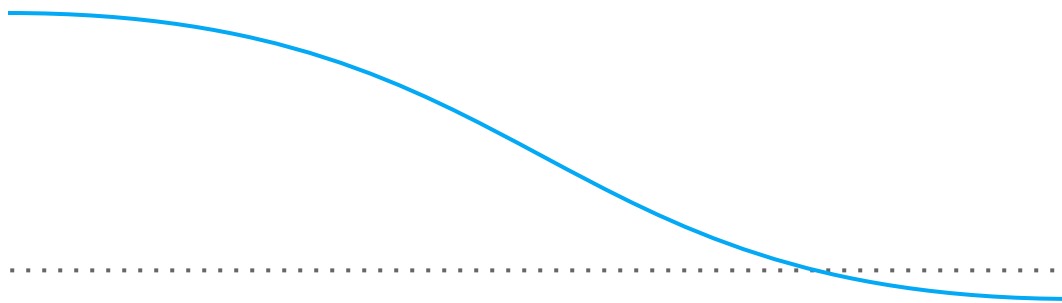
on how to staff those roles in a scalable manner

What's included in this framework

IMPORTANT NOTICE: This guide is meant to act only as framework and checklist for helping you go through the process of designing a context-appropriate contact tracing program. It should not be treated as a one-size-fits-all prescription. All specific details should be viewed as examples.

Feel free to reach out to info@instedd.org for additional guidance or support.

Suppression: Bringing R_t below 1



Why

R_t^1 is the effective reproduction number of an infection: sometimes also called R_e , it is the estimate of how many secondary infections are caused by an individual case. Values over 1.0 mean a community should expect more cases in that area, values under 1.0 mean we should expect fewer. There are already good efforts² in place to calculate this metric.

As human social factors change with stay at home orders being lifted, the R_t will begin to increase again - and to mitigate this challenge aggressive interventions are required to interrupt transmission.

Box it In Strategy

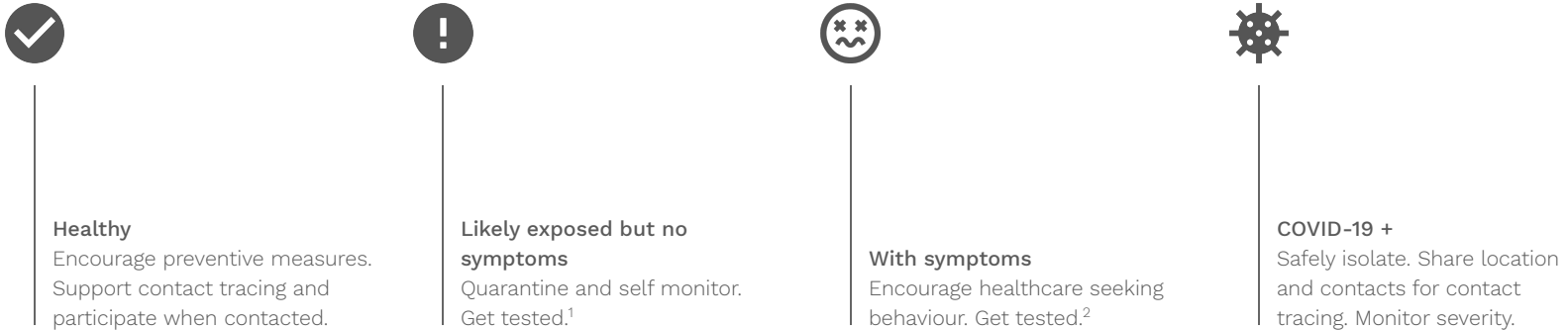


How

The Box-it-in strategy³ consists of four essential actions to box the virus in. All four are crucial: the ability to test widely, a protocol to safely isolate infected individuals, vigorous and extensive contact tracing to find everyone who has been in contact with infected people, and safe quarantine of individuals who have been exposed to the virus for 14 days.

Changing behaviors

Individuals can be categorized by status in relation to the disease, and each will require different behaviors to be encouraged.



1. Provided the testing capacity can handle it, likely exposed individuals will be tested even without symptoms.

2. If testing triage is needed, individuals with symptoms will have a higher prio.

Change Behaviors: Reduce and Track Exposures

Healthy individuals

How: Though the end goal of this system is allowing healthy individuals to carry on safely with their lives, we need them to maintain safe hygiene practices, and to support contact tracing efforts by participating when contacted and by keeping track of people they have contacted and places they have been.

An official contact tracing app could be developed, and with access to users' location (there are good ways in which this can be done while preserving privacy and anonymity), it could make the entire process faster and more traceable. It would also enable confluence of communication with the Contact Tracing Center volunteers, and even a chatbot could be implemented to reduce human workload.

These behaviors will be encouraged via an aggressive communications campaign, and reinforced by the Contact Tracing Center during the routine check-in calls.

SUPPORTING PROCESSES



Communications
campaign



A-priori
contact tracing

Change Behaviors: Quarantine, Monitor and Test

Exposed, asymptomatic individuals

How: Individuals who were potentially exposed to the virus, but display no symptoms, are required to self quarantine and self monitor for a cautionary period. If no symptoms are evidenced during that time, they can be considered Healthy. They should also collaborate when contacted for contact tracing.

An official app or a website can be implemented, to centralize important information from a credible source, and for individuals to report symptoms in a safe, traceable way.

A communications campaign will emphasize on clear instructions for safe trips to get provisions, disinfecting household items, and self-monitoring symptoms. If enough tests are available, this group can be included in the testing protocol to accelerate the grip on the outbreak.

SUPPORTING PROCESSES



Communications
campaign



Reactive
contact tracing



symptoms
self-monitoring

Change Behaviors: Isolate, Monitor, and Test

Individuals with symptoms

How: Individuals who display symptoms must be encouraged to cut all contact with non-medical personnel and immediately contact health authorities to get tested. Contact Tracing Center volunteers must deliver tests to these individuals within safety protocols.

Technology could be used to coordinate the delivery of tests to these individuals' homes, and it could even allow the system to contemplate the couriers into the contact tracing circuit.

SUPPORTING PROCESSES



Inbound symptomatic
report



Testing
protocol

Change Behaviors: Isolate, Monitor, and Care

Tested positive for COVID-19

How: Individuals who test positive for COVID-19 will be promptly triaged: depending on the case, some will go to the hospital, while others will be instructed to self-isolate at home.

When the Isolation Protocol is triggered, these individuals must enable and allow contact tracing, and Reactive Contact Tracing procedures will begin.

Tests results could be reported via an official app or website, directly and immediately updating the Contact Tracing Center confirmed cases database, and allowing prompt activation of contact tracing protocol.

SUPPORTING PROCESSES



Isolation
protocol

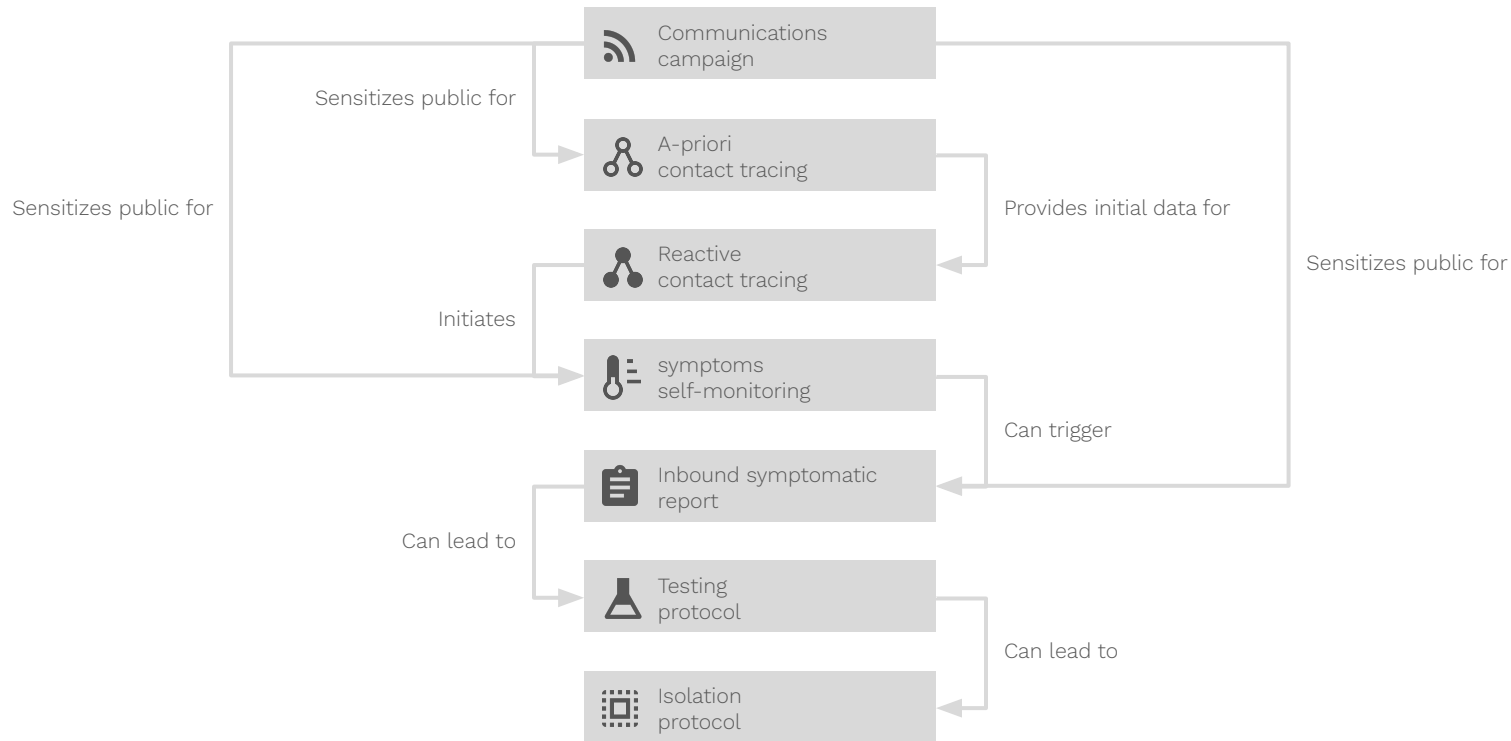


Reactive
contact tracing



Testing
protocol

Processes and interventions that will support those behavior changes⁴



Processes that will support those behaviors

Communications campaign

The main goal of the communications campaign⁵ is to raise awareness in the population about the importance of:

- maintaining safe hygiene practices
- contributing to contact tracing efforts
- self-monitoring for symptoms
- seeking medical examination when symptoms arise

The campaign must reach as many individuals as possible, and deliver clear instructions and information. Visibilization of government efforts to contain the spreading of the virus, along with communication of protocol guidelines are meant to have a calming effect on the population, and encourage collaboration.

Processes that will support those behaviors

Symptoms self-monitoring

Brochures will be distributed in physical and digital formats, with clear guidelines that will inform and encourage people to check themselves for symptoms like body temperature, cough, sore throat and difficulty breathing.

The official COVID-19 app can also include a quick feature to run a symptoms check and instruct the user on what to do in case there are reasons to report.

Processes that will support those behaviors

Inbound symptomatic report

An automated tech+human managed hotline will receive calls from individuals that show symptoms, for further analysis and guidance.

Processes that will support those behaviors

Testing protocol⁶

A testing protocol devised by an epidemiologist needs to manage suspected cases to deliver and perform testing. If needed, triaging to prioritize cases according to their degree of exposure, immunity status and vulnerability could be implemented.

Guidelines must be created and widely communicated regarding Reporting, Testing, and Specimen Collection.

Processes that will support those behaviors

A-priori contact tracing

Individuals will be encouraged to voluntarily keep track of places they went to and people they were in contact with, even if they have no symptoms or haven't been exposed. This will speed up the contact tracing process in the event that symptoms appear, or that themselves or someone they were in contact with test positive for COVID-19.

This could potentially be done using an automatic app that leverages privacy-preserving protocols and uses bluetooth and GPS data.

Processes that will support those behaviors

Reactive contact tracing

When a new positive case is detected, the Contact Tracing team will ask the individual to provide contact information for people they have been in touch with during the last 14 days.

The Contact Tracing team will then start checking in with each of the contacts to encourage quarantine and self-monitoring of symptoms.

Processes that will support those behaviors

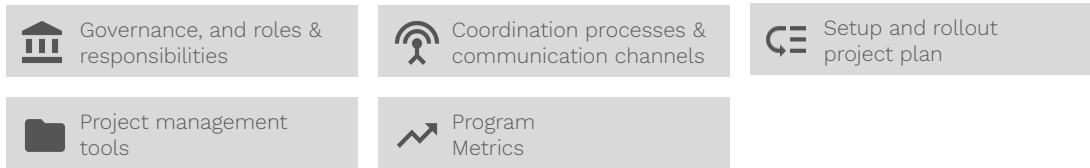
Isolation protocol

Protocols must also be put in place for situations that demand imposing quarantine or isolation.

Individuals who are not currently sick, but have been or may have been exposed to the virus ought to be quarantined. Individuals who tested positive for COVID-19 ought to be isolated, so that they have no contact whatsoever with healthy individuals.

Processes that will support those behaviors

Tools and artifacts



Tools and artifacts

Governance, and roles & responsibilities

All processes of interaction and decision-making among the actors and institutions involved in this initiative need to be defined in advance, and duly communicated to all parties.

Tools and artifacts

Coordination processes & communication channels

Effective communication, collaboration, and coordination are important contributing factors in the success of large scale projects like this one. Good use of designated channels ensures transparency and traceability, and reduce error margins in coordinating distributed work groups.

Tools and artifacts

Setup and rollout project plan

A step-by-step action plan must be outlined and communicated to all parties involved, highlighting each team's role and responsibilities, to ensure accountability and clarity about the task at hand.

Tools and artifacts

Project management tools

Being a large scale project carried out by distributed teams, efficient tools for managing the project at every stage are going to be necessary. There are open source, free software tools specifically designed for this purpose.

Tools and artifacts

Program Metrics

Metrics must be defined so that all parties involved can check periodically if the initiative is being successful in changing the population's behavior, and in effectively containing the outbreak.

Tools and artifacts

Systems to design

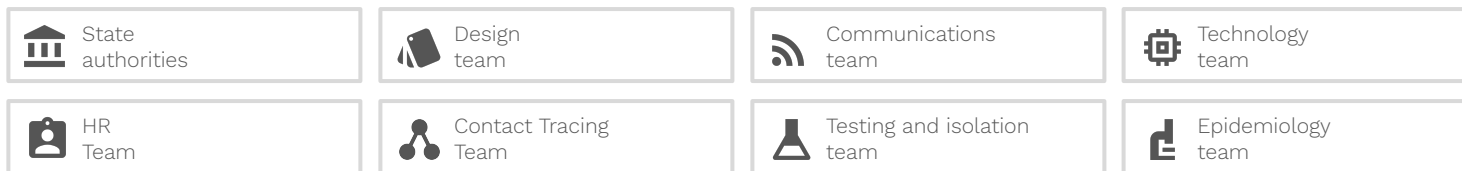
- Workforce
 - Applicant tracking system: we will likely source an off-the-shelf product.
 - Recruiting: flow for interview process, script for the interviews, criteria for hiring
 - Hiring: checklist for hiring individuals, legal steps, payroll, etc.
 - Onboarding: self-guided onboarding process, including materials and initial training
 - Monitoring: guidelines on how to monitor performance and collect feedback
 - Offboarding: process for offboarding individuals when required
- Webinar tool: platform for providing trainings to all roles involved.
- CRM: design the implementation of Contact Relationship Management software.
- Call Center: integrate a tool for running the call center operations.
- Monitoring dashboard: design a dashboard to present in real-time relevant metrics and KPIs
- Integrations with state health records: back-end integration with state databases

Tools and artifacts

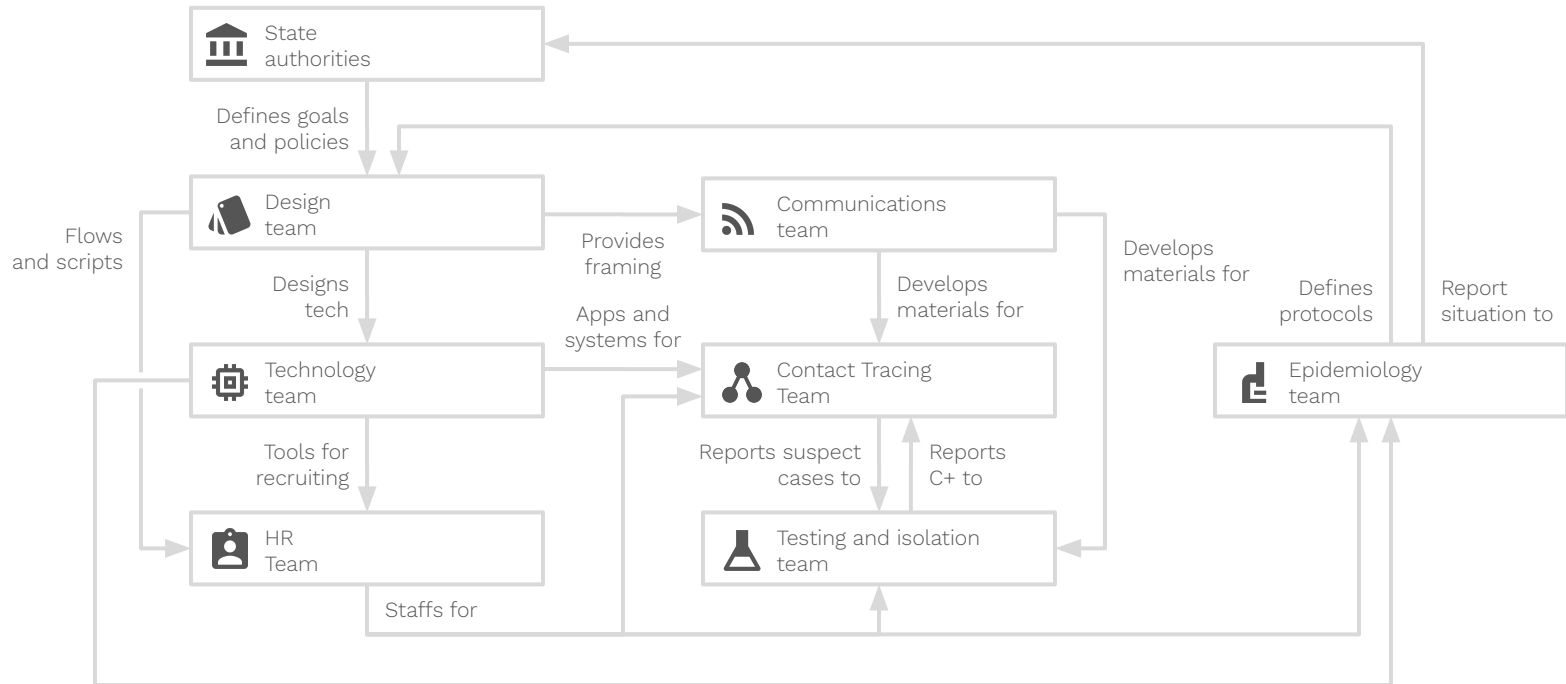
Artifacts to create

- Bootstrapping
 - Steps to define and procure MNO connections or aggregator
- Communications
 - Program overview brief
 - Community awareness materials
 - Flyers and materials for media outreach
 - Resource links for C+ self-quarantine
- Workforce
 - Job descriptions
 - Interview script
 - Onboarding materials
 - Ongoing trainings
- Operations
 - Protocol and workflow for contact tracing team
 - Positive case phone call script
 - Contact tracing phone call script

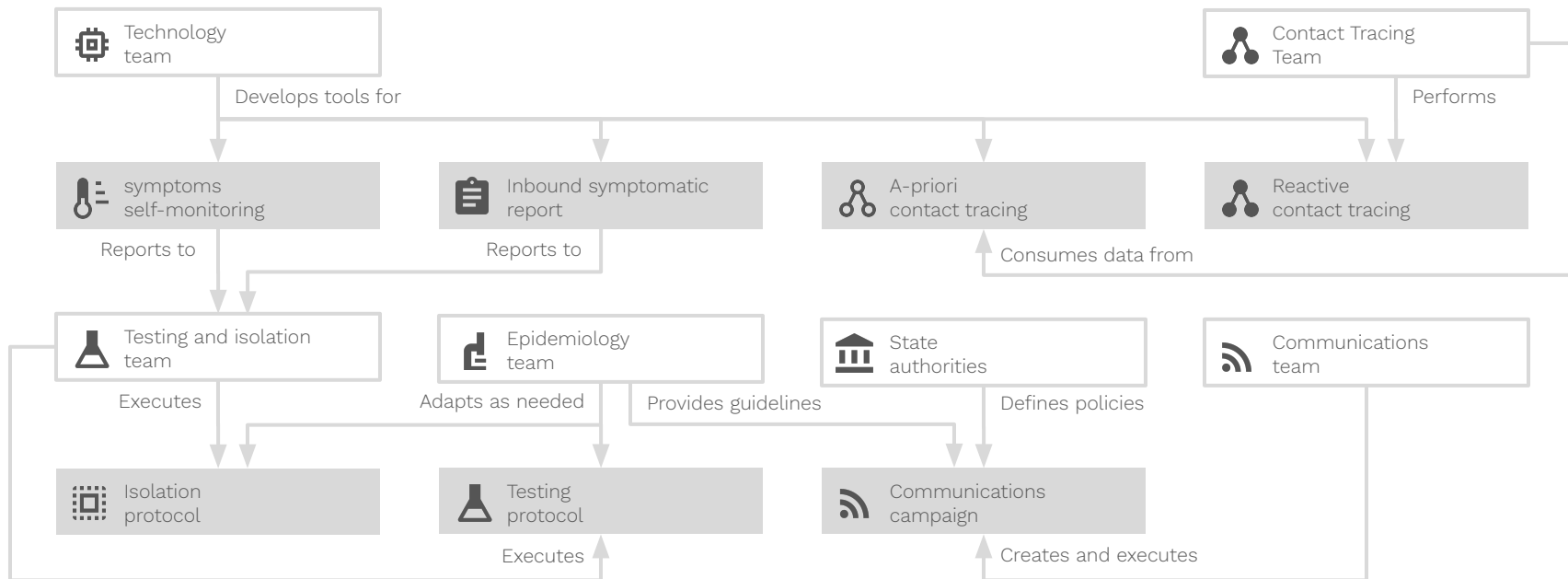
Teams



Teams interaction



Operational responsibilities



Roles per team

State Authorities (*draft, TBD by governor's office*)

Governor's office representative

Handles high level decision-making in matters of both budget and procurement/contracting for the state.

Local executive representative

In charge of local implementation of statewide initiatives in terms of resources and coordination.

Department of Public Health

Advisory and stewardship in matters of public health policy for the state. Works hand in hand with the Health Communications Specialist.

Roles per team

Communications team

Communications Director

In charge of media & advertising strategies, and design of statewide engagement campaigns, including messaging and channels.

Health Communications Specialist

Oversees all outgoing messages and ensures they are medically accurate and fact-checked.

Communications Campaign Coordinator

In charge of planning, developing and coordinating statewide communications strategies on a local level.

Content & Social Media Associate

Assists in the implementation of day-to-day and long-range communication strategies. Hiring should consider that each team must have content development, design and social media capabilities and skills.

Roles per team

Epidemiology team

Chief Epidemiologist

Responsible for monitoring the incidence, distribution and evolution of the outbreak, and key advisor in all efforts to reduce contagion of the disease. In charge of designing Testing and Isolation protocols, and overseeing implementation with Testing Coordinators and Isolation Team Leads.

Local Boards of Health

In charge of guaranteeing availability of resources for the successful control of the outbreak on a local level.

Roles per team

Testing & Isolation team

Testing Coordinator

Responsible for guaranteeing test-kit availability and distribution on a local level, coordinating testing collection according to testing protocol defined by the Chief Epidemiologist, and periodical reporting of test results to Local Boards of Health and Parish executive representatives.

Isolation Team Lead

Responsible for guaranteeing provision of isolation resources on a local level, and coordinating implementation of Isolation protocol defined by the Chief Epidemiologist.

Isolation Crew

Preferably of medical or nursing background, is in charge of conducting isolation procedures according to protocol defined by the Chief Epidemiologist.

Roles per team

Contact Tracing team

Contact Tracing Coordinator

Responsible for coordinating all Reactive Contact Tracing efforts, and direct, constant reporting to the Epidemiology Team and the Department of Public Health.

Contact Tracer

In charge of calling individuals who tested positive for COVID-19 and their identified contacts, to document a symptom check, refer them for testing according to established protocols, and provide them with instructions for quarantine. Also responsible for due registration of all data concerning the calls on a web-based client resource management (CRM) platform.

Roles per team

Technology team

Product and Project Manager

Has the overall responsibility for the successful planning, design and execution of all technology efforts.

Principal Engineer

Responsible for research, design, implementation and managing of software tools for Symptoms self-monitoring, Inbound symptomatic report and Contact Tracing.

UX Design Specialist

Responsible for research, design and implementation of user experience in software tools.

Roles per team

Staffing each team



Design
Team



Technology
Team



HR
Team

2 to 4 mid-sized HR companies, to avoid single points of failure and diversify sources



Communications
Team

Turn to existing state providers or create a rapid contest to select a communications agency



Contact Tracing
Team

Layered approach: turn to state universities to find coordinators who can recruit the following layer



Testing & Isolation
Team

Same layered approach used for staffing the Contact Tracing Team



Epidemiology
Team

Recruit from state universities

Thank you!

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Acknowledgements

We would like to thank Scott Teesdale, MPH, Epidemiology, for his initial review and Eliah Aronoff-Spencer, MD PhD, Professor of Infectious Diseases and a Global Public Health, UC San Diego for this thorough final review and contributions.