



COVID-19
DRIVE-THROUGH TESTING
& SCREENING SITES

Applying Lessons Learned from Around the World

The coronavirus disease (COVID-19) outbreak and desire to reopen our communities is driving the critical need for widespread testing for both those who may have COVID-19 and those who may have developed the antibodies that give immunity to COVID-19.

The goal of testing sites, whether for COVID-19 or for other health challenges, is to help alleviate the pressure on hospital emergency rooms, protect healthcare workers from additional exposure, get faster test results, and suppress new community transmissions through isolation after testing.

Finding innovative ways to safely test large numbers of people quickly and efficiently is a challenge facing countries worldwide. As author Scott Berkun states, “Innovations that change the world often begin with humble aspirations.” A humble, yet innovative, approach being used to address the widespread testing need is to apply the 1940s concept of the “drive-through” to large-scale, systematic screening and testing. The idea was utilized in Korea and is now being extended and adapted across the world. This approach is useful for both screening and testing and can also flex for use in several types of physical locations.

While studying the best practices being implemented across the globe, several studies emerged that offered insights into drive-through testing in several locations including Texas, Florida, Pennsylvania, California, Nigeria, South Korea, India, and more. This commentary represents best practices observed in these locations and from other experts. Find a complete list of references at the end of this article.

The

DRIVE THROUGH APPROACH

Drive-throughs were developed in the 1940s with the idea of delivering speedy food conveniently to occupants who waited in the comfort and convenience of their automobiles. Speed, comfort and convenience are all integral to drive-through test sites, too. Add to this the function of safely isolating the passengers from other people and isolating the healthcare workers from the passengers, the drive-through becomes a viable solution for mass screening and testing. As the drive-through approach for screening and testing continues to roll out across many countries and regions, a general process is emerging as the de facto best practice. The steps in that process involve sponsorship, site location and layout, site activation and operationalization.

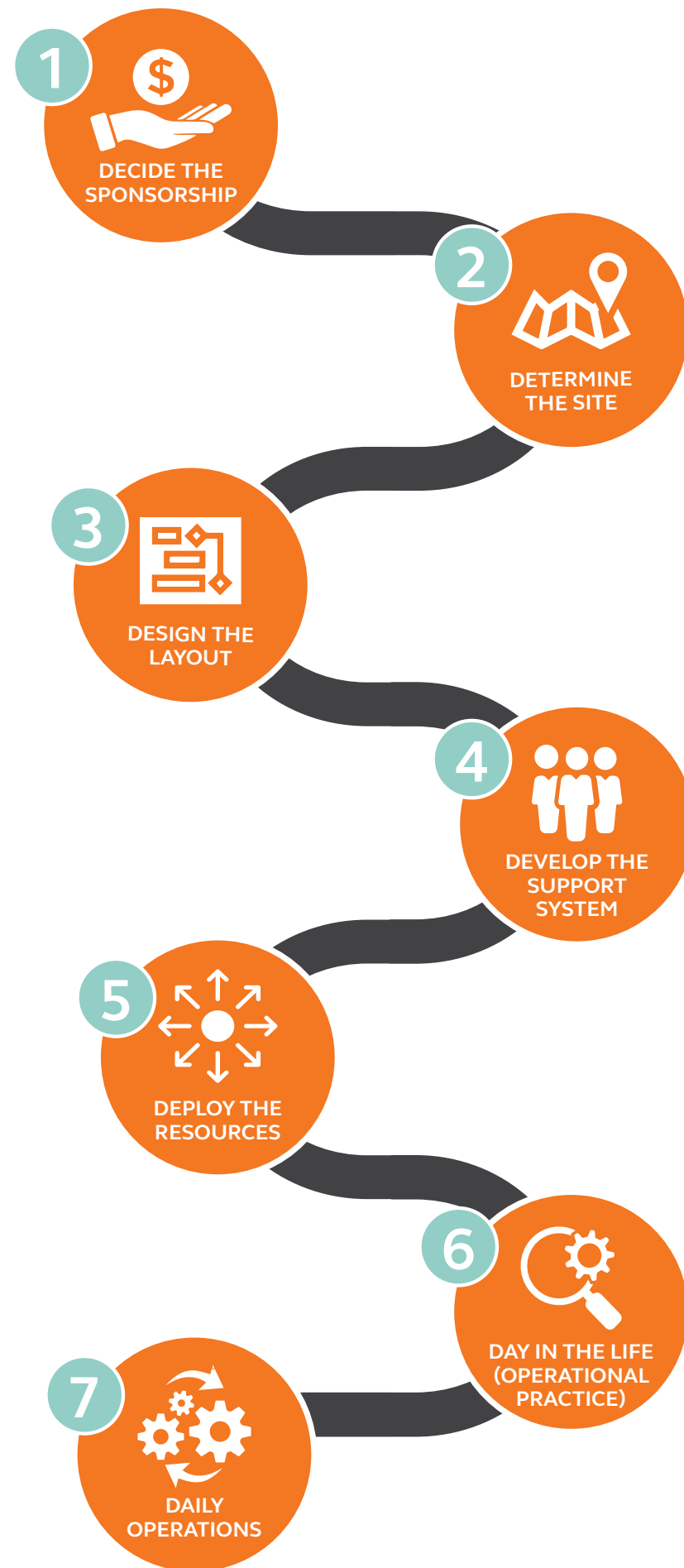


Figure 1: Drive-Through Testing Approach

1

DECIDE THE SPONSORSHIP

The first step to developing a drive-through testing site is to determine who will actually sponsor the site. This step is important as it determines the site's location, financing, staffing, and procedures to set up and maintain.

SITE SPONSORS CAN INCLUDE THE FOLLOWING:

- Healthcare organizations (private, public, local, regional, national)
- Local municipalities and governments (cities, districts, regions, police and fire boards)
- State agencies (health departments, licensing boards)
- Private sector (researchers, NGOs, insurance companies, private labs)
- National or international agencies (FEMA, WHO, national healthcare systems)



Figure 2: Site Sponsor Examples

After sponsorship is determined, the sponsor holds the responsibility to approve and provide oversight of the drive-through site. These responsibilities include defining the hours of operation; resource allocation of staff, supplies and infrastructure; daily site management; determining patient eligibility; providing a process to schedule a screening or test; and confirming methods of payment (if required).

2

DETERMINE THE SITE

When possible, testing sites are best located in large areas away from the public. As a drive-through location, the site needs to accommodate traffic easily moving into and out of the site as well as parking for staff working at the site.

THE SITE ALSO NEEDS TO INCLUDE INFRASTRUCTURE TO ACCOMMODATE:

- Access to potable water for washing and drinking
- Power for lighting and equipment
- Open ventilation or ventilation specifically designed to reduce worker exposure to potentially contagious patients
- Sanitation facilities for restrooms and, if possible, showers
- Telecommunications connectivity for phones, computer systems, printing, and other types of communications related to command centers

3

Several references including a study in the *Journal of Korean Medical Science* listed sites around the globe that currently use or have utilized large parking lots, open fields, convention centers, and indoor arenas. Existing facilities may also be used, but a recent article on CVS and Walgreens offering drive-through testing points out that they may require additional reservation capability to accommodate lessened traffic flow.



Woolwine, 2020

DESIGN THE LAYOUT

The most important aspect of the drive-through design is to control automobile and pedestrian traffic throughout the testing and screening processes. The optimal flow runs in a single direction, so the entire service is provided without patients having to leave their automobiles. Traffic flow should include an arrival area with adequate signage and staff facilitating traffic management. In practice, the drive-through layout should accommodate up to four distinct functions, one following after the next.

THOSE FUNCTIONS INCLUDE:

- Entry / Registration / check-in / questionnaire
- Examination
- Specimen collection
- Instructions and information / Exit



Tabrez, 2020

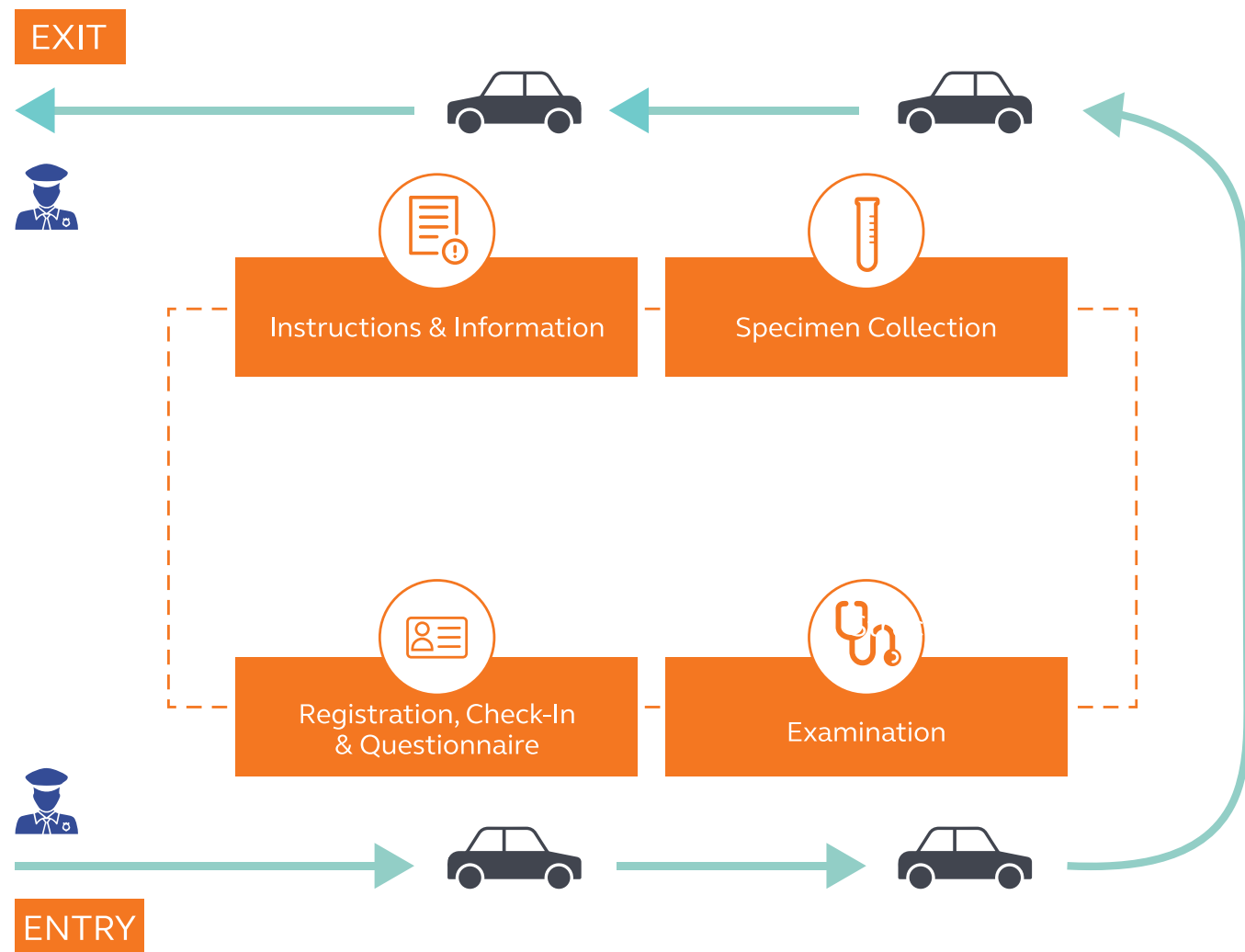


Figure 3: Standard Drive-Through Testing Site Layout

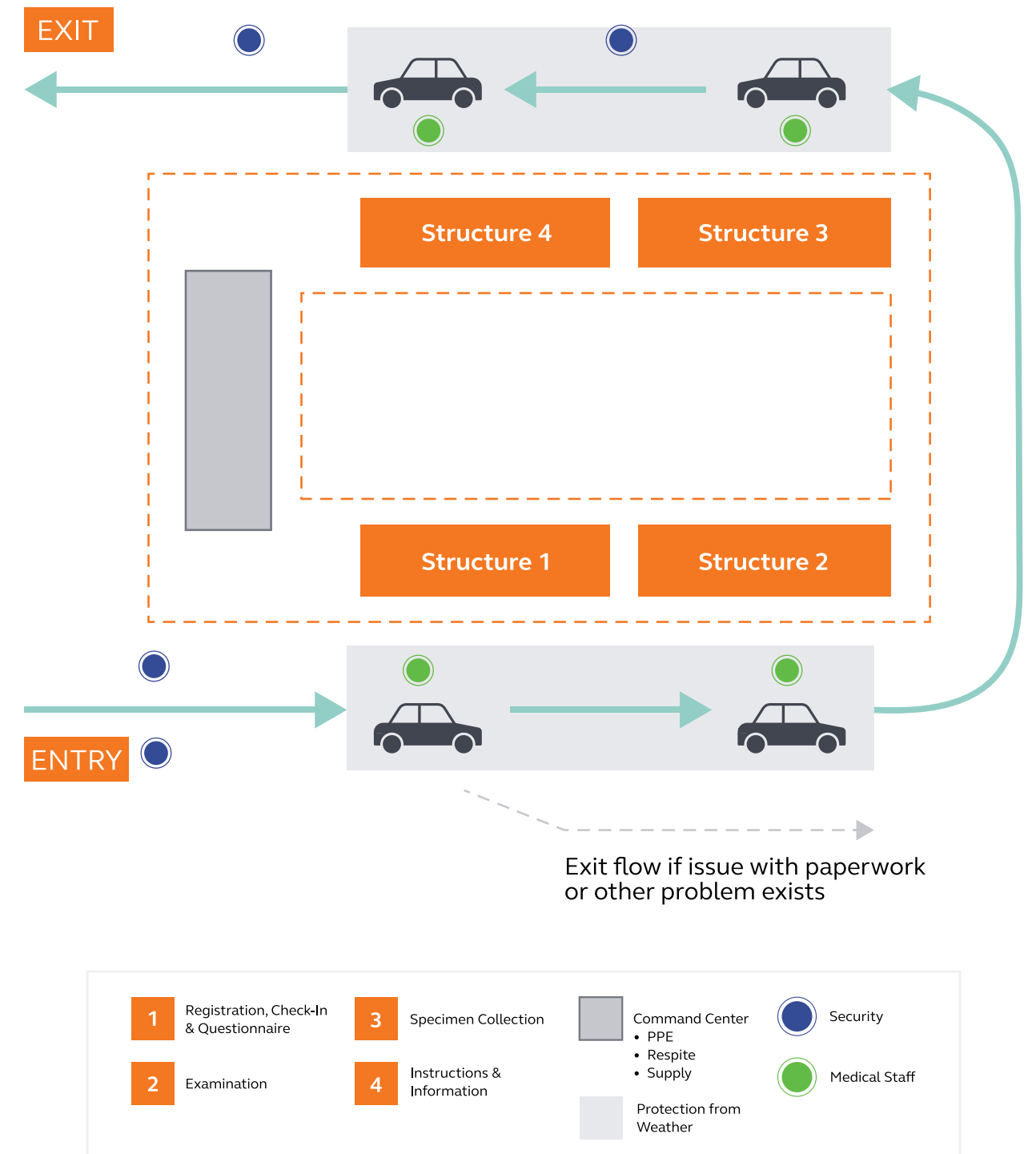


Figure 4: U-Shaped Drive-Through Testing Site Layout

Temporary buildings or open tents serve well as work booths to accommodate each work function. Based on the size of the site and division of work functions, three to six tents (20' by 20' and 10' by 10') can accommodate the effort while providing natural ventilation. Temporary or on-site buildings offer additional protection from weather and are more secure, but need to ensure adherence to the separation of clean and contaminated work spaces.

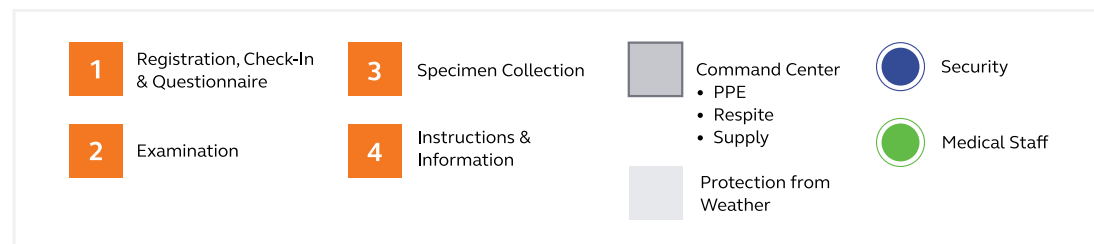
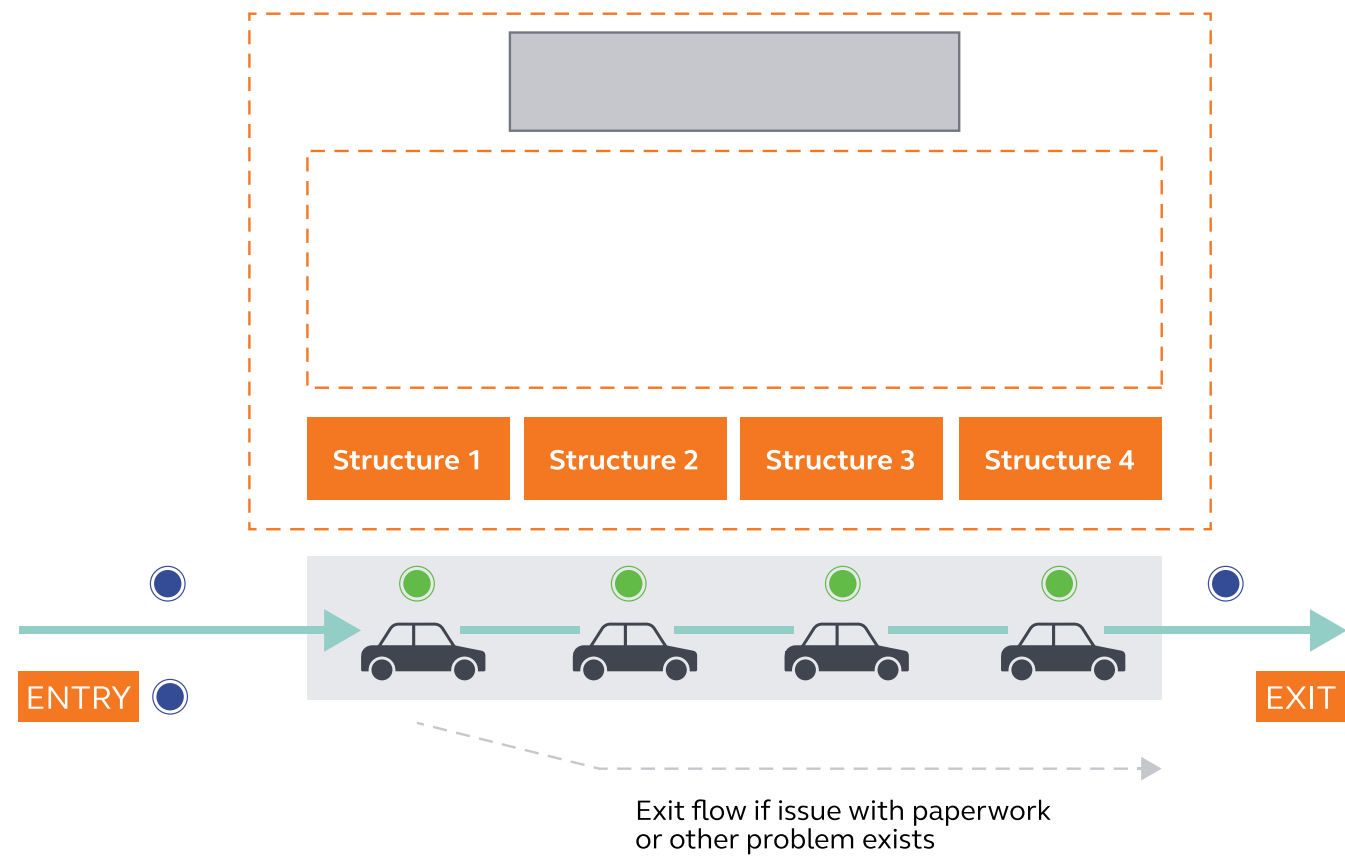


Figure 5: Linear Drive-Through Testing Site Layout

While one of the main advantages of the drive-through site is utilizing the automobile as a means of isolation for potentially ill patients, a drive-through site may also need to accommodate pedestrian patient traffic. For sites that include pedestrians, a specific pedestrian flow needs to be added separately from the automobile flow.

The flow should:

- Isolate the pedestrians from staff
- Flow the pedestrians through each function
- Safely move the pedestrians away from automobile traffic

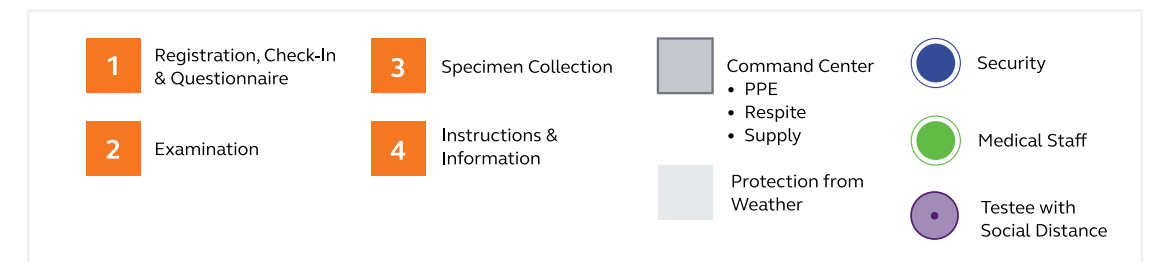
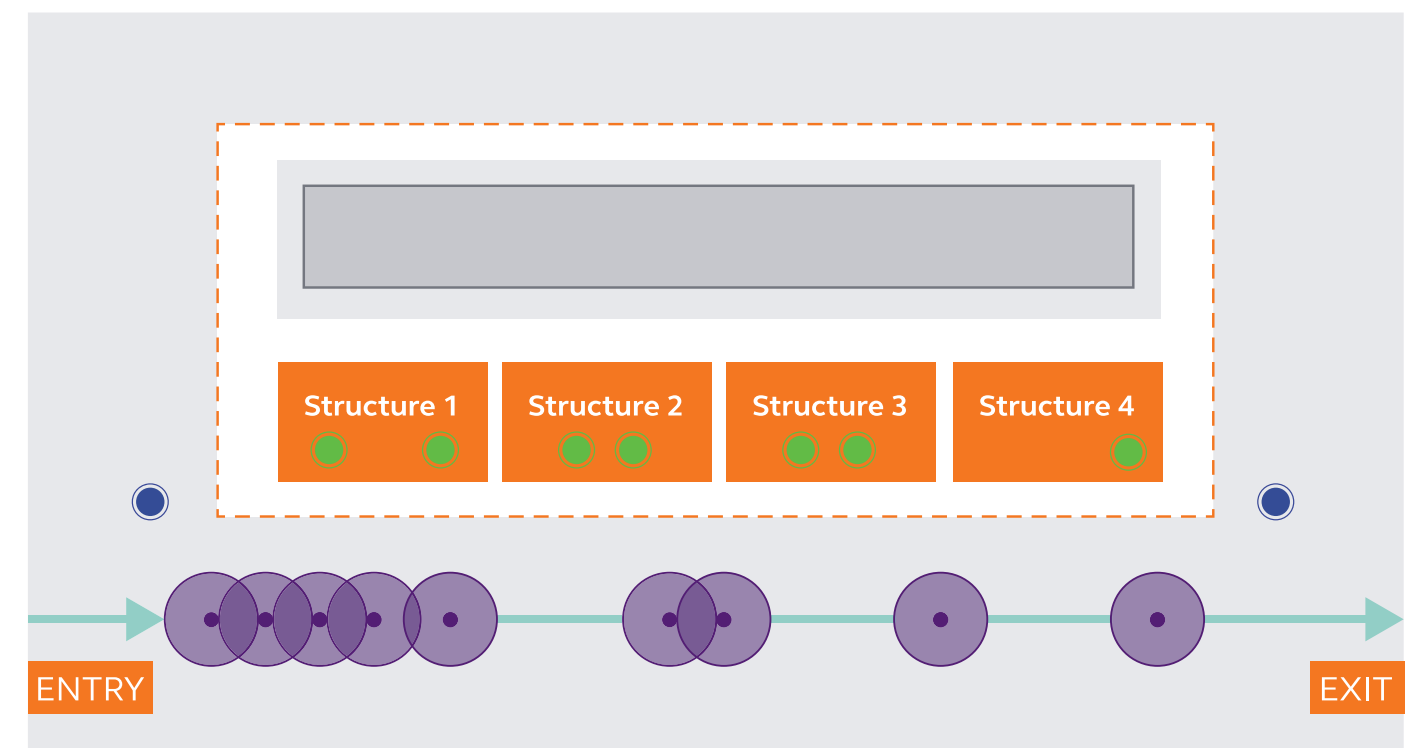


Figure 6: Linear Pedestrian Walk-Through Testing Site Layout

Finally, the site layout needs to include flows for staff and clean materials to enter the site as well as staff, specimens, and soiled materials to be removed from the site.

4

DEVELOP THE SUPPORT SYSTEMS

Along with the basic infrastructure of water, power, and telecommunications, the site requires additional support for overseeing patient information, specimens, materials, staff and the site itself.



Sonnemaker, 2020

Patient Information and Specimens

Many of the testing and screening sites require patients to register and schedule an appointment before arriving to the site. Registration methods such as a secure web-based portal via the sponsor's electronic health record software or through a proprietary secure portal allow patients to confirm eligibility, register, obtain a provider order, schedule, and pay as appropriate. It also can provide some type of reference ID, barcode or QR code that is accessible via a mobile device at the drive-through site. While paperless is the preferred method (even for payment), an optional paper process might be needed for those who do not have access to a mobile device.

The same reference ID, barcode or QR code is used at the site for patient check-in and specimen identification. Common practice has patients hold the ID, the registration and the provider order against the windows of the automobile to confirm eligibility and testing specifics. During the check-in process, the patient's information is accessed on-site to print a label that is affixed to the specimen container, matching the patient to the sample.



Sonnemaker, 2020

Materials Management

Several key materials are required to operate a drive-through testing and screening site such as personal protective equipment (PPE), computers and label printers, cleaning supplies, trash receptacles, sample kits, individual specimen bags or tubes, and specimen storage containers. Additional support materials reported by [*Becker's IT*](#) and [*Business Insider*](#) include supplies such as:

- Safety vests, traffic cones and bullhorns for traffic management
- Microphone and speaker systems for communicating with patients in automobiles
- Wayfinding and instructional signage for patient communications; mobile site lighting for safety and security
- Tables, chairs, mobile computers, printers, paper, pens and clipboards for information management
- Hydration and nutrition stations
- Specific waste receptacles for biohazard and standard trash

Delivering these services requires agreements and integration with IT providers; utility companies; waste management services; office, medical and lab supply distributors; lab testing organizations, and security service providers.

Drive-through sites also need to accommodate storage and security of these on-site support materials. The PPE must be easy to access by staff for easy donning and doffing. The specimens normally required temperature-controlled storage, and all materials need to be secured outside of the site's operating hours. Lessons from around the world range for simple shelving for supplies and coolers for storing gathered specimens to mobile, lockable supply shelving containers and refrigerated trucks for the specimens



Sonnemaker, 2020



Park, 2020

Staff Management

Drive-through sites require various roles to enable success. These roles include traffic management facilitators, check-in and screening teams, specimen technicians, and site managers.

CLINICAL TEAMS THAT PERFORM SCREENING AND SPECIMEN GATHERING MAY INCLUDE A:

- Physician or provider
- Nurse practitioner
- Physician assistant
- Medical assistant

Support staff are critical to the process as they management traffic flow, help with supplies, assist with documentation, and staff the site operations hub. Developing role job sheets which document basic duties of each role will assist with on-site training of team members as they deploy to the site.



Repko, 2020

Several sites have noted scheduling staff in four-hour shifts are effective to accommodate the site's physical layout, PPE protocols, and hours of operation. Staff acquisition for the site is organized by the sponsor and designated site operations managers. Successful drive-through sites have used combinations of volunteers, vendors, contractors, government agency staff, and employees to provide personnel for the effort.

Site Management

Site operations teams ensure drive-through testing sites run efficiently. These teams are located on site and are responsible for coordinating logistics, security, communications, staffing and supplies for the operation. The site operations lead is the "single-point-of-contact" for issue management for all site-related activities.

Successful drive-through testing and screening sites have housed their site operations inside buildings as much as possible, allowing for the space to also serve as the staff break area, restroom location, and a check-in / check-out space. When possible, these spaces are designed similar to an incident command center with tables, chairs, computer technology and communication systems with secure access to the Internet.

5

DEPLOY THE RESOURCES

Activation of a drive-through testing or screening site follows the plan designed and developed by the sponsor and drive-through site operations team. When the selected site layout is determined and all temporary structures and utilities are in place, the site support spaces, equipment and supplies are deployed. The operations command center is activated and authorizes operations team members to schedule delivery and setup of equipment and supplies to the site. **Protocol for equipment preparation** includes the following: Equipment is tested for functionality, traffic flows are designated using wayfinding signage and traffic cones, and supplies are stocked as appropriate in assigned areas. Staff are scheduled and receive training using the role-based job sheets.

6

“DAY IN THE LIFE” OPERATIONAL PRACTICE

While none of the research speaks to using simulations, simulating a “day in the life” of a drive-through site before it opens to daily operations is an effective teaching tool and can ensure the flows and layout of the site are as optimal as practical. The simulations should engage several clinical and site operations team members to test the processes for accuracy and efficiency. Well-designed simulations address the expected flow of automobiles and pedestrians as well as any high-risk flow such as a critically ill patient seeking immediate medical assistance.

These key simulations include:

- Patient traffic flow into and out of the site to verify traffic flows, wayfinding, and logistics
- Patient check-in and information collection to verify technology connectivity and functionality, the patient information gathering process, and communication systems between staff and patients
- Patient specimen collection to verify collection process, test kit management, specimen storage and pickup, and infection control between patient encounters
- Emergent patient issues including those requiring immediate medical attention



Yancey-Bragg, 2020

7

DAILY OPERATIONS

Drive-through test and screening sites are designed for testing efficiency, patient convenience, and safety through minimizing contact between patients and healthcare staff. Lessons learned from across the globe show these goals are met by establishing an efficient daily site operations system that can move effectively between pre-planned activities and creative problem-solving to tackle the unforeseen hurdles that often arise with temporary or urgent activities.

The pre-planned activities of daily operations at a drive-through test site are similar to those found with other service-providing organizations. As the site lead, the site operations administrator works with the on-site team to ensure staffing is adequate, to confirm sufficient supplies are available, and to confirm specimens are both stored properly on site and delivered to testing sites following test protocols. The administrator provides leadership throughout the team to ensure staff and patients adhere to safety and security protocols and communicates with on-site teams and with external agencies. When problems arise, the site administrator and staff work collaboratively to resolve challenges quickly so normal operations can resume. Typical issues drive-through sites are addressing include high demand for testing and screening, limited test kit and PPE availability, and staff fatigue.

THE NEED CONTINUES

CVS Chief Medical Officer Dr. Troyen Brennan noted in a recent article the need for testing sites will remain crucial, stating, “This testing is going to be important for the next 18 months.” For many countries, the drive-through testing and screening centers are a significant addition to the arsenal of tools necessary to flatten the curve of infection rates, to restart economies, and ease social distancing. From its humble beginnings as a quick and convenient way to get a meal, the drive-through concept is now one more innovative weapon being used on the front lines of healthcare to help fight the global COVID-19 outbreak.



The Fintech Africa, 2020

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