GUIDELINES for the **ESTABLISHMENT** of Respiratory Specimen Collection Sites (RSCS)

Prepared by:



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Summary

The emergence of COVID-19 as a health threat to communities around the world has necessitated the development of emergency sample collection facilities in response to the immensely high volumes of patients who seek testing. This document outlines the basic steps that MUSC Health in Charleston, South Carolina has taken to divert patients away from our hospitals and ambulatory care sites and funnel them to a secondary location for the sole purpose of specimen collection in the midst of a global pandemic. The following pages contain an overview of the facility that MUSC Health has set up, as well a description of the basic operations and workflow at this facility.

DISCLAIMER

This document is only intended to share information with emergency managers, clinical staff, and support staff supporting the COVID-19 respiratory specimen collection sites. This document outlines the basic steps that MUSC Health in Charleston, South Carolina has taken to divert patients away from our hospitals and ambulatory care sites and funnel them to a secondary location for the sole purpose of specimen collection in the midst of a global pandemic. This document was created to quickly share current information about our process of patient flow at the respiratory specimen collection center. It is not intended to be considered best practice as some processes are still changing at the time of this writing. It should not be used as any type of research source or a sole source of best practice for any institution, organization, agency or department that is considering the use of a similar operation for specimen collection for COVID-19 patients.

Choosing a Site

When choosing a site to create a testing facility, there are multiple factors that should be considered before settling on a particular location. Potential locations for sites should utilize areas that are currently shut down or unused. The best sites will be able to handle a large capacity of cars, be easily accessible to the public and staff, and be the least impactful on normal traffic patterns. The site must be in a close proximity to the hospital and keep an open line of communication with the hospital at all times. Sites that often have all of these elements in the site vary in scale, but include: mall parking lots, fair grounds, grocery stores, high schools, and truck stops. For example, the main MUSC campus is located 6 miles from the testing facility currently in Charleston's West Ashley. There is also a clinic 3 miles away supported by MUSC that can provide quick response in case there is a dire need for materials or extra staff support.

When determining the size of the facility needed, it is helpful to examine the population density of the area that the facility will serve. This data should include the density of the immediate county of where the facility is placed and the surrounding counties. This will help better define the size of the site, how many staff should be placed here, and how many PODs will be needed to efficiently test a large number of people per day.

There must be planning in place for traffic and accommodating the rush of vehicles each day as patients queue up and proceed through the testing process. Having a plan set in place for a large queue of cars will minimize disruptions in traffic and mitigate confusion. The location must support the traffic of the patients and allow for large semi trucks and emergency vehicles to deliver supplies and service to the site. The facility should be split into 3 zones of safety. Zone one is the green zone, which houses storage and staff support rooms that assist with preparing to see patients. Within this zone staff should be able to don PPE and prepare for administering tests. Deliveries and transportation enter and exit through this zone Zone 2 is the orange zone. This zone acts as a buffer between zone one and zone three. Zone three is the red zone and most dangerous due to the potential for high biohazard contamination. In the red zone patients' tests will be conducted and staff in this zone must be fully protected from exposure. After the site is prepared and ready to serve patients in a way that will ensure a safe and efficient testing facility, day to day operations can commence.

RESPIRATORY SPECIMEN COLLECTION SITES (RSCS) GUIDELINES





RED ZONE:

High hazard. This zone encompasses all patient registration, sample collection, and traffic lanes. 63,500 sq.ft.



ORANGE ZONE:

Possible hazard. This zone is the intermediate between green and red zones and includes decontamination area. 730 sq.ft.



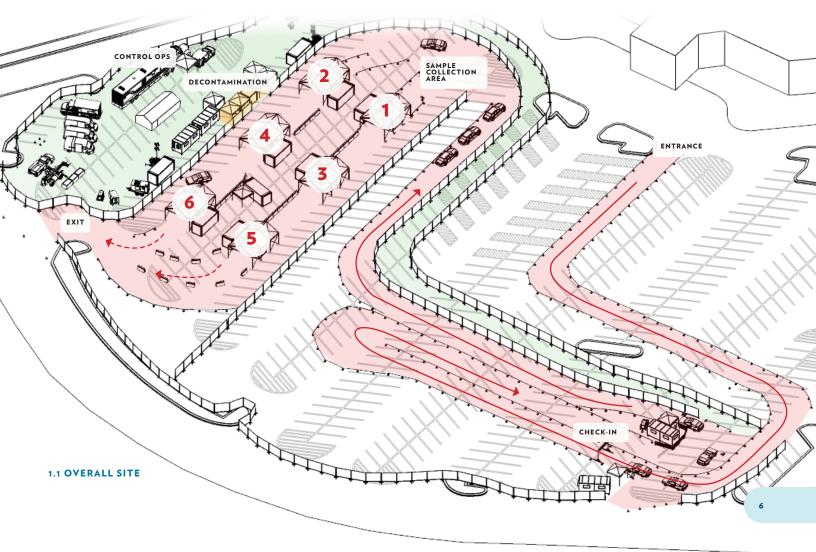
GREEN ZONE:

No hazard. This zone is kept contamination free and includes control-ops, equipment, and other back-of-house. 29,700 sq.ft.

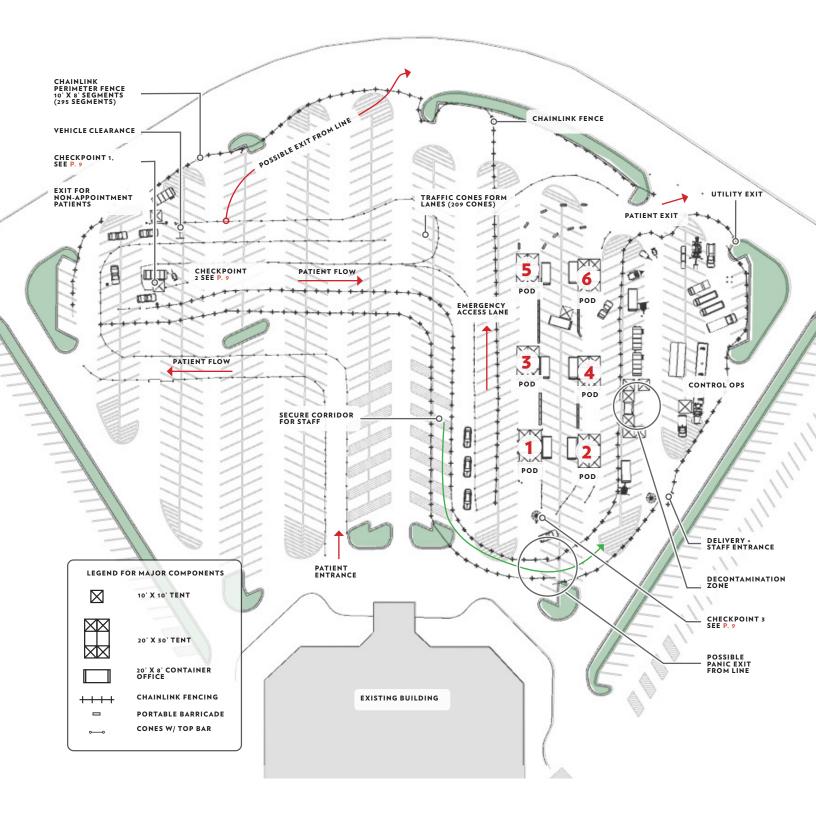
Facilities Overview

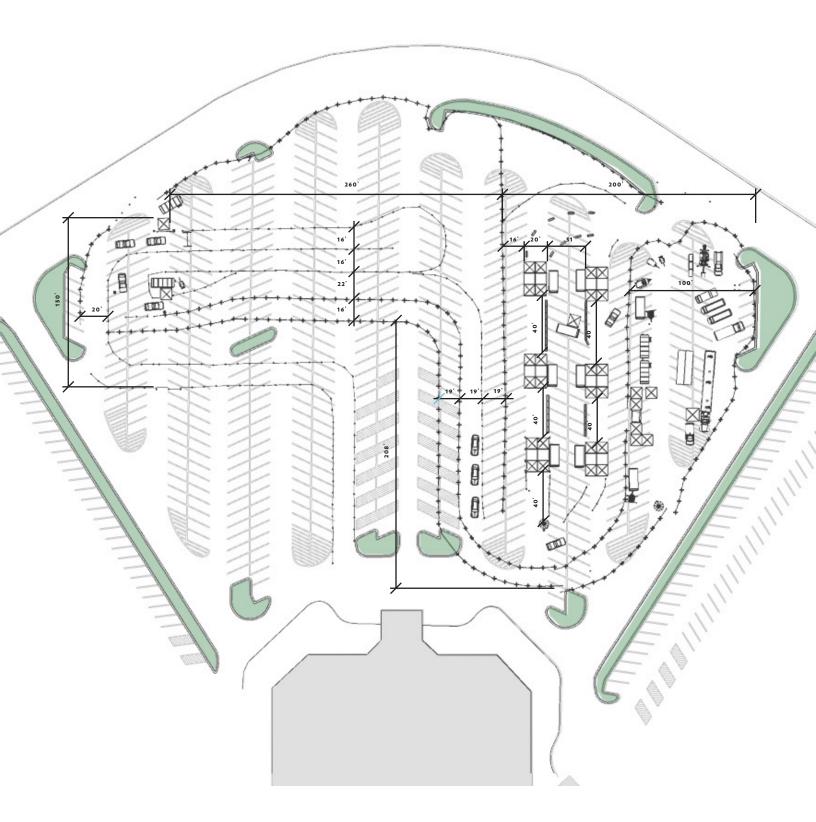
This Respiratory Specimen Collection Site has the capability to collect samples for up to approximately 600 individuals per day, depending on supply levels, at a rate of 100 sample collections per POD per day. Each sample collection takes 6-7 minutes on average with a total of approximately 10 minutes spent from the time the patient arrives to the time they depart. The 93,930 sq. ft. facility is located in an existing parking lot of a shopping mall. The layout of the parking lot does not affect the efficacy of the facility. The facility consists of:

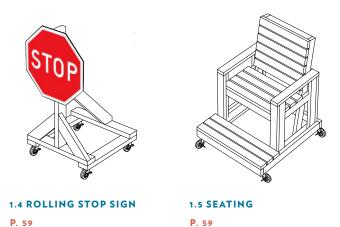
- 3 standard PODs
- 3 PODs with alternate testing booths in case of test supply shortage
- A continuous perimeter fence surrounding the entire facility, equipped with panic exits
- A back of house command center

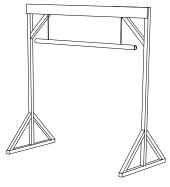


For a list of components and quantities, please see p. 58









1.6 VEHICLE CLEARANCE FRAME
P. 61

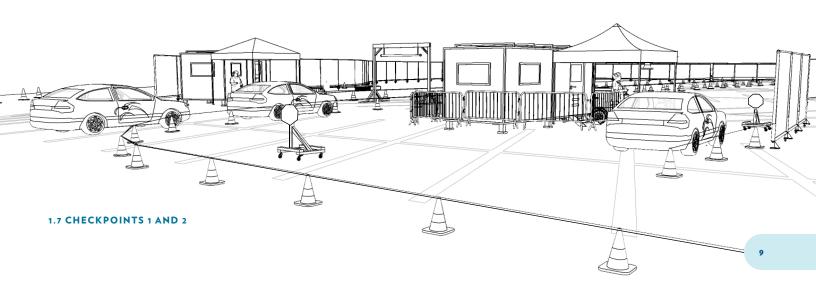
Checkpoints

Patient traffic is directed into a single lane marked by traffic cones. Provide emergency exits in exterior fencing in the event that a patient needs to exit or be removed from the traffic lane; emergency exits can be opened by security personnel. A staff access lane connects back-of-house operations to patient traffic entrance by way of golf cart or small vehicles. This lane is sandwiched between the back perimeter fence and a secondary fence separating patient and staff traffic. Checkpoints occur along patient traffic lane located:

- At entrance gate (Checkpoint 1)
- Between entrance and PODs (Checkpoint 2)
- Before PODs (Checkpoint 3)
- At main exit gate (Exit Checkpoint)

Emergency Traffic Lane:

Emergency traffic lane is a secondary traffic lane that runs alongside the main traffic lane for emergency situations. In the case of car breakdown, a patient needing a restroom, or a panic event, patient cars can be diverted to the exit along this lane.



CHECKPOINT 1

Materials: tent, connex, rolling stop sign

Clearance gate is positioned at the initial entry point to assist with traffic flow and ensure that vehicles are able to drive under POD height thresholds. Personnel at Checkpoint 1 confirm patient appointments. An abort lane and exit gate are provided if a patient arrives without a scheduled appointment. Security personnel will direct unscheduled patients out the abort exit and provide information about how to get an appointment in the future.

CHECKPOINT 2

Materials: tent, connex, rolling stop sign, framed gateway apparatus

If the patient has an appointment, registration staff (RS) at Checkpoint 1 directs the patient to the registration tent at Checkpoint 2. A rolling stop Sign (figure 1.4) placed in front of Checkpoint 2 stops the patient

to allow RS to instruct patients on procedures. RS assigns the vehicle a number corresponding to the POD where they will be tested and gives the patient Information Packets (page 19). RS staff then direct the patient from Checkpoint 2 through the Vehicle Clearance Frame (figure 1.6) and on to Checkpoint 3.

CHECKPOINT 3

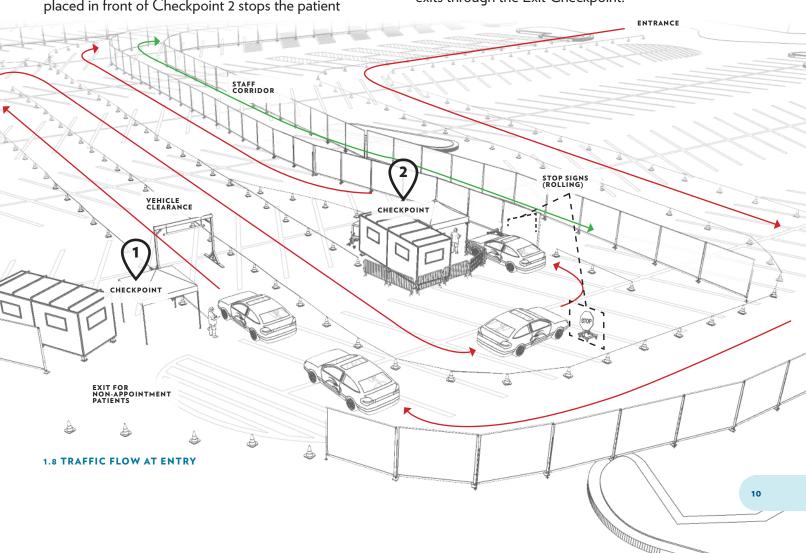
Materials: umbrella-chair apparatus, rolling stop sign, safety vests, placards, LED traffic sticks

Traffic Lane continues to checkpoint 3. Personnel reside at chair apparatus (figure 1.5) at Checkpoint 3 and direct patients to testing PODs with the corresponding number assigned to the patient vehicle at Checkpoint 2.

EXIT CHECKPOINT

Materials: tent, safety vests

Patient traffic leaving the testing area exits through the Exit Checkpoint.



Support Area (Green Zone/Cool)

Located in the green zone is the control-ops, equipment, and other (back of house) entities. All "behind the scene" work takes place here. No patients or unregistered personnel are allowed in this area. A secure corridor is located alongside to ensure no other vehicles or personnel enter the space. There is a delivery entrance located towards the South end of the gated zone where supplies can be dropped off or picked up through an operable gate. There are also working vans/vehicles in this zone along with suitable containing shelters for supplies.

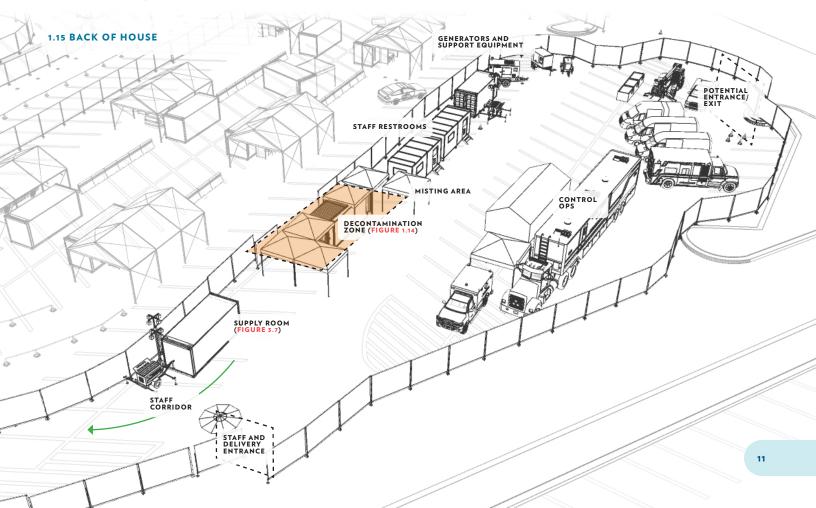
At the beginning of each day, staff/working personnel arrive and enter via the green zone. Each person will have their vitals taken for proper precautions. Before entering the orange and red zones, working personnel should follow all sanitation guidelines and put on appropriate necessities (i.e. mask, gloves, shield, hazmat suit) before entering. Upon preparing to re-enter the green zone, all personnel proceed

through the orange zone to the decontamination area, take off the necessities and sanitize properly following all guidelines (figures 3.1 and 3.2)

PERSONNEL:

All listed in Diagram p. 18

- Clinical Leader
- Clinical Staff (x3-4)
- Supply Leader(x1)
- Supply Staff (x1)
- Registration Leader (x1)
- Registration Staff (x3)
- Charleston Police (x2)
- MUSC Public Safety (x2)
- MUSC Security (x1)
- Traffic Staff Members (x4)



Decontamination Area (Orange Zone/Warm)

The orange zone is noted as the "possible hazard," or decontamination zone. It consists of 3 10'x10' tents that serve as the barrier gateway between the green zone and red zone. This is where staff entering the green zone sanitize appropriately and will decontaminate through removing all hazmat suits, masks, gloves, etc. before entering the green zone. Staff who are entering the red zone via the orange zone must be dressed and have appropriate accessories on (i.e. masks, gloves, hazmat suit, etc.) before entering, as there could potentially be germs from the decontamination process. Only working staff are allowed to pass through this zone.

Equipment donning procedures listed in figure 3.1

Equipment doffing procedures listed in figure 3.2

PERSONNEL:

All listed in Diagram p. 18

Clinical staff across-trained in Decon (3)

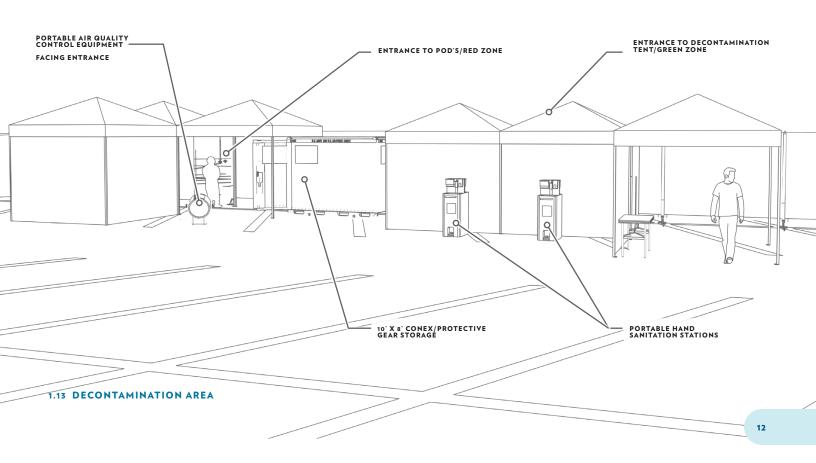
Division of responsibilities:

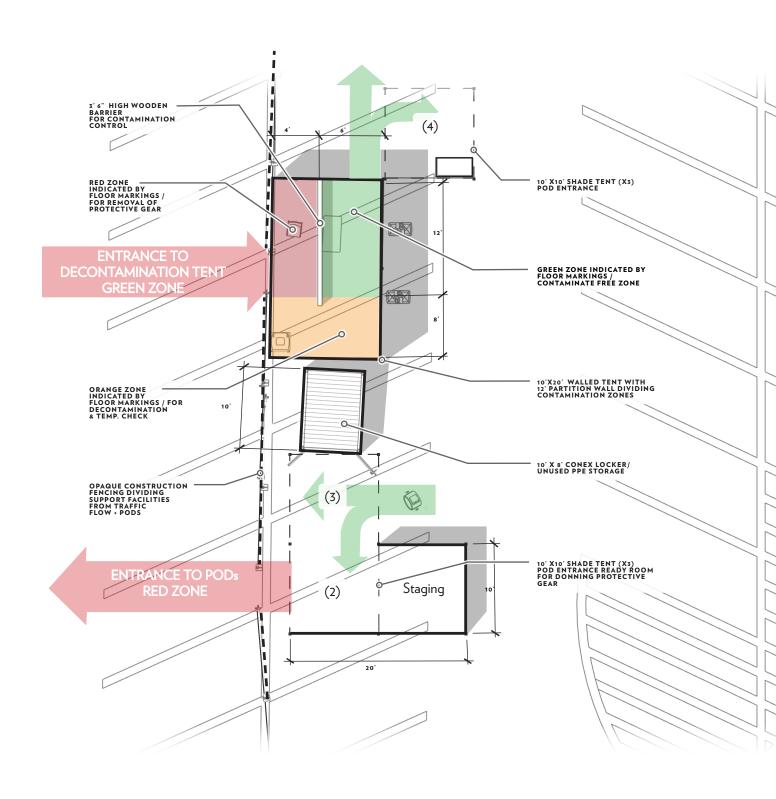
- Actual Decon personnel in full PPE
- Wiping down all equipment with bleach
- Taking vitals for clinical staff coming out of Decon
- Relief for Decon in full PPE



IMPORTANT:

No food or drink is allowed in the Orange Zone





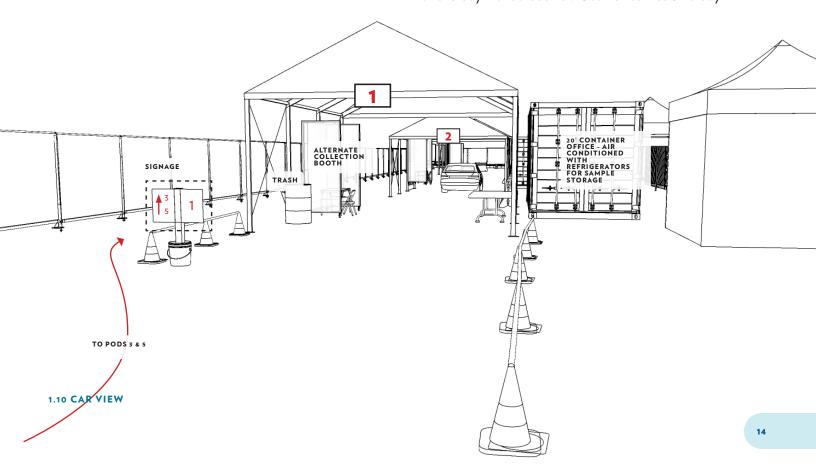


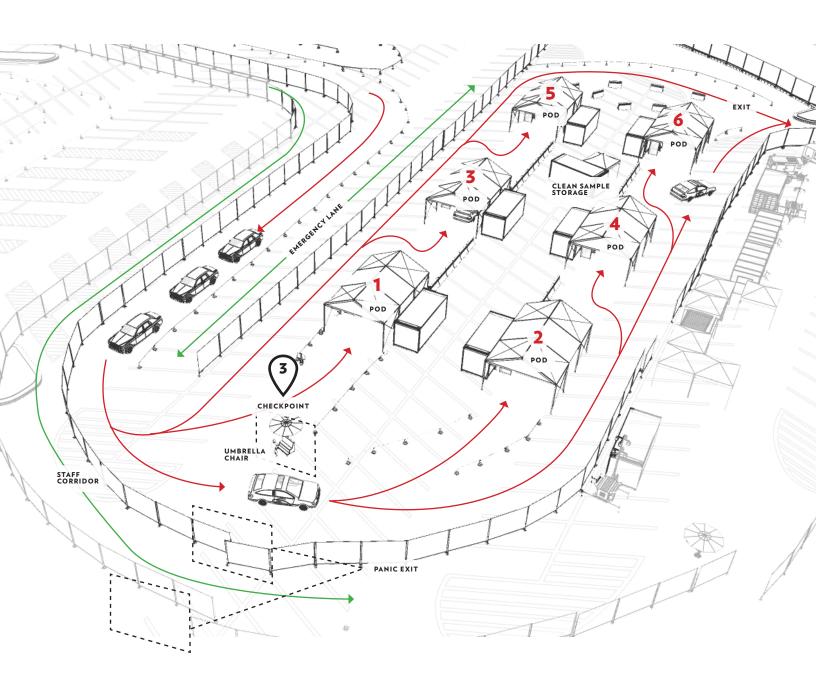
1.9 ALTERNATIVE COLLECTION BOOTH

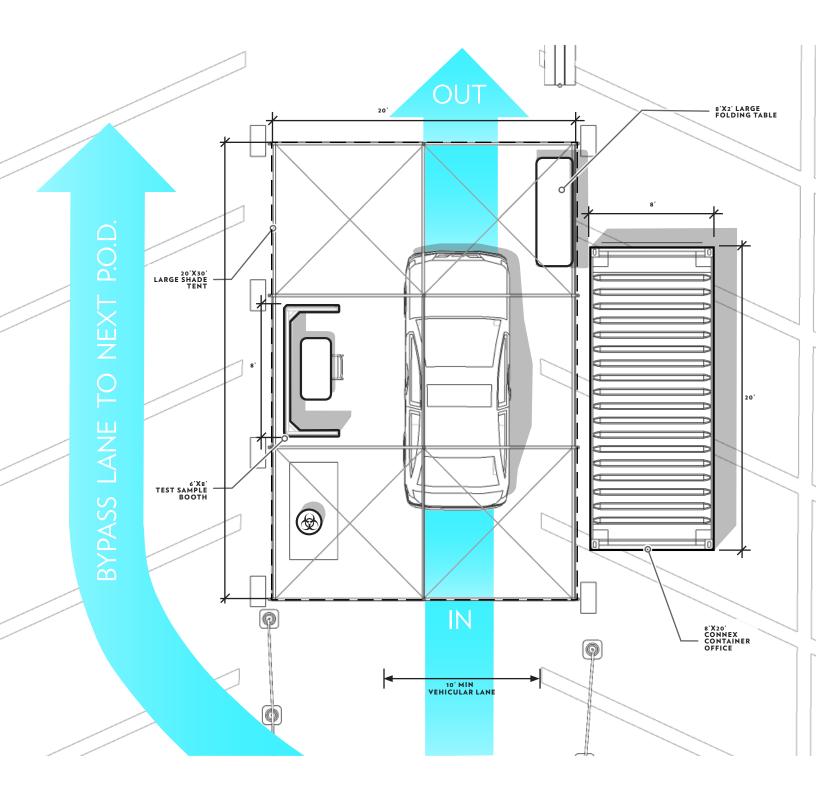
P. 62

Sample Collection Area (Red Zone/Hot)

Cars are directed into 1 of 6 individual PODs. These 20'x30' tents are stabilized by concrete weights and located 40 feet apart with a 30 foot corridor between rows. PODs 1, 3, and 5 are located to the left, while PODs 2, 4, and 6 are located to the right. (PODs 1, 3, and 5 have alternative collection booths. Alternative collection method information in figure 3.6.) PODs will operate at the time listed in the Operational Workflow section. POD is equipped with two clinical personnel who perform sample collection (figure 3.3). All clinical staff will have their vital signs taken prior to their shift, and immediately following decontamination Clinical staff will utilize supplies in POD and outside tables to collect specimens from each patient for each case. Supplies are replenished by both administrative and clinical staff depending on zone operations. Patients will follow guidelines given by the clinical staff working at each POD. Once complete, cars proceed to the exit lane. Clinical staff will then label specimens collected and submit to the lab at the end of the day via lab courier. Courier comes 3x a day







RESPIRATORY SPECIMEN COLLECTION SITES (RSCS) GUIDELINES

Operations

COMMAND

- Defines the incident goals and operational period objectives
- Includes an Incident Commander, Safety Officer, Public Information Officer, Senior Liaison, and Senior Advisors

OPERATIONS

- Establishes strategy

 (approach methodology etc.) and specific tactics to accomplish the goals and objectives set by Command
- Coordinates and executes strategy and tactics to achieve response objectives

LOGISTICS

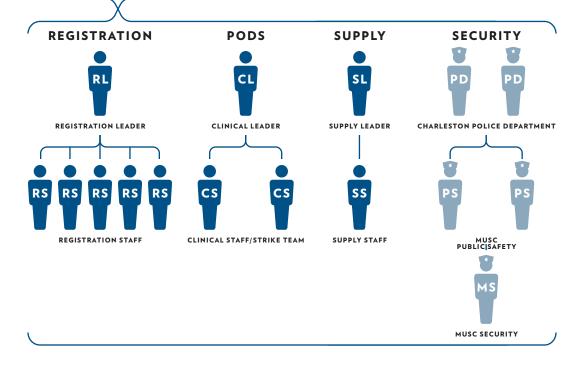
- Supports Command and Operations in their use of personnel, supplies, and equipment
- Performs technical activities required to maintain the function of operational facilities and processes

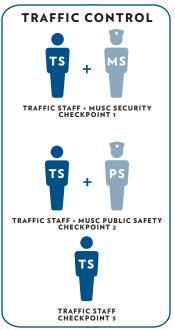
PLANNING

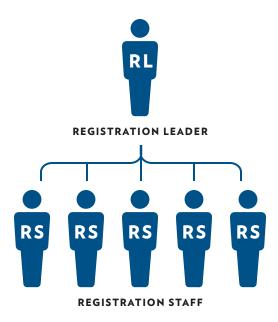
- Coordinates support activities for incident planning as well as contingency, long-range, & demobilization planning
- Supports Command and Operations in processing incident information
- Coordinates information activities across the response system

ADMIN / FINANCE

- Supports Command and Operations with administrative issues as well as tracking and processing incident expenses
- Includes such issues as licensure requirements, regulatory compliance, and financial consulting







2.2 REGISTRATION PERSONNEL FLOWCHART

Registration Personnel

Registration Leader (RL): One registration leader is required each day to manage workflow and any issues stemming from registration.

Registration Staff (RS): Two registration staff assigned to greet patients each day and three registration staff distribute packets to patients.

Prior to drive-thru clinic opening each day, a medical office assistant (MOA) will "arrive" each patient and print the Epic Scheduling Labels to prepare patient packets for distribution.

Patient Packets will contain: 3 patient labels in front pocket of specimen bag, MUSC Temperature Monitoring log, MUSC Health Education Tip sheet, CDC handouts related to COVID-19, and a thermometer*. In a clear drawstring bag, a patient mask and 3 tissues (This is dependent on supply levels and availability)

*Patients will be asked if they have access to a thermometer. If not, one will be provided.

Three registration staff (RS) assigned to greet patients will take all patient packets and schedules out to the registration station. Staff will also check to make sure Surface Pros and interpretive services iPad work each morning. If not, IT must be alerted



IMPORTANT:

All registration staff will wear surgical mask with a shield and gloves. Change gloves and complete hand hygiene between each patient.



LOGISTICS

1 CONFIRM
PATIENT APPOINTMENT

(RS) at Entrance

2 CONFIRM IDENTITY

(RS) at Check-in

DISTRIBUTE PACKET,
DIRECT PATIENT TO PODS

(RS) at Check-in

4 RADIO CLINIC
TO RELEASE LAB ORDERS

(RS) at Check-in

2.3 REGISTRATION STEPS

Registration Workflow

When patient arrives, 1 RS will greet patient at entrance (Checkpoint 1) and verbally confirm the patient has an appointment. If yes, patient will be directed to proceed to check-in station (Checkpoint 2). If no, patient will be given a virtual visit flier and directed to exit via the designated abort lane (during this process the RS at entrance will give thumbs down signal to alert security to open abort gate).

With patient's window opened approximately 2 inches (or enough to effectively communicate), the second RS will greet patient and confirm patient identity with two verbal forms of identification. The two identifiers will be confirmed against the pre-printed labels. Once confirmed, RS will explain the contents of the patient packet and drawstring bag along with instructions of the specimen collection process. With the window rolled up, the RS will place the patient packet under the driver-side windshield wiper. If there are other passengers in the car without a mask, those passengers will be given a mask in the drawstring bag* (masks will be given based on supply levels and availability)

If raining, the RS will place the patient packet in a drawstring bag and place this around the driver-side rearview mirror.

Once the patient packet is placed, the RS will give a thumbs up to security officer to proceed in the queue and patient will then proceed to the next stop sign. Here, all occupants of the vehicle will put on their masks and place the drawstring bag in the vehicle. After this is completed, patient will proceed to the stop sign.

RS will remove gloves and complete hand hygiene, and the third RS will radio to clinic support partner to release the lab orders.

The second and third RS will rotate between each patient ensuring efficient patient flow.

The clinical support, located in Health West, will

REVIEW SCHEDULE FOR RELEASED ORDERS



release lab orders and monitor schedule for addons, arrive the patient in Epic, confirm active orders and print labels to the check-in station. If order is not there, they will place the order.

If Health West is not open, Registration will conduct procedure of releasing labs

Registration End-of-Day Procedure

RS will review schedule for released orders, indicated by the blue dot in Epic.

If there is no blue dot in Epic, the patient was not seen and RS will un-arrive patient appointment to place them back into a scheduled status.

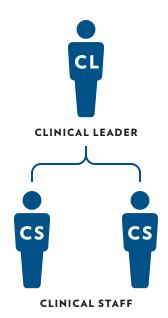
The RS will provide a no-show list to the patient appointing center (PAC) to call the patient and attempt to reschedule

Patient will remain in a scheduled status for 72 hrs.

If the patient fails to show within the 72hrs they will need to complete another virtual visit. (We will account for weekend and adjust appropriately)

Belfor Environmental Surfaces will wipe down and sanitize the check-in station.

2.4 ORDERS WORKFLOW



2.5 CLINICAL PERSONNEL FLOWCHART

Disclaimer: Staging/Safety Officer may shut down operations temporarily due to unsafe event. Staging MUST notify command immediately. Command staff will determine the security and when operations will begin again.

Staging and PODs Personnel

Clinical Leader: One clinical leader required each day to manage and direct all staging operations.

Leader should be well versed in HAZMAT Ops and understand critical procedures and protocols.

Clinical Staff: Two HAZMAT trained clinical staff are required for each POD. An additional two trained individuals are placed in a holding pattern to relieve staff collecting/testing specimens.

Prior to drive thru clinic opening each day, all clinical personnel meet with clinical operations, staging, and decontamination leaders to receive daily in brief. At this time all staff will be placed in two-person teams (at the discretion of Staging Leader), whom they will stay with for the duration of their shift, and will be assigned to their PODs. Additionally, staff will receive most up to date patient count in an effort to prepare teams for their daily patient flow expectations. Simultaneously, teams will review all relevant procedures and ckecklists (figure 3.5) with their team members on the ground to include accurate supply counts to and reduce likelihood of collection/testing delays due to supply chain issues.

Fifteen minutes prior to shift start time POD teams receive initial vital signs. This will be compared to their exit/decontamination vital signs to determine if medical care needs to be rendered to staff upon exiting of contamination zone (red zone). Vital signs are taken before and after every shift. **20% above initial vitals then care team member needs to be evaluated** If it is deemed that clinical personnel must be evaluated, EMS will be alerted and clinical leader on ground will report status to Operations Cell.

If unable to accommodate recommended knowledge, base individual selected must have direct access to key leader who is knowledgeable in HAZMAT Ops. If unable to accommodate either protocol recommendations, staging area and entire operation is at risk for increased exposure of clinical teams

1 OPEN APPROPRIATE NUMBER OF PODS
(CL)

2 RECEIVE FIRST PATIENT
(CS) at Furthest Pod

2.6 STAGING WORKFLOW

Staging and PODs Workflow

POD Operations: Standard Operating Procedures (SOP) for POD Operations are as follows:

POD Timeline and Flow:

POD opening: start with two PODs by 0900-1130 flex 3 PODs; 1130-1330 2 PODs; 1400-1700 (3 PODs)

At the beginning of each day the Staging Leader will decide how many PODs to operationalize based on projected patient volume. Standard Operating Procedures dictate collection site will open with two PODs with the flexibility (scalability) to flex to three PODs if necessary and if there are available staff (staffing remains a key driving force for entire operation and must be carefully considered prior to any decisions being made and executed).

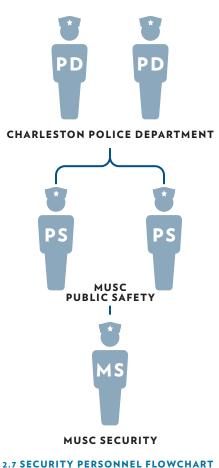
1000-1130: Two PODs are activated (requires a total of 4 teams; totaling 8 personnel)

1130-1330: An additional POD is activated bringing the total to three PODs (requires a total of 6 teams; totaling 12 personnel)

1330-1700: One POD is deactivated bringing the total to two PODs (requires a total of 4 teams; totaling 8 personnel)

Staging Leader or Command makes final decision regarding activating and deactivating PODS, in collaboration with Operations Cell, to ensure proper movement through site.

Furthest POD receives first car/patient of the day. Currently, our operations are set up so that the order of traffic is POD 6, POD, 4, and POD 2. In the event PODs 1-3 open the flow would be the same beginning with PODs 3 & 6 receiving the first patients.



1 RECEIVE PROTECTIVE MASKS

2 STATION AT DIRECTED POSTS

RADIO TO STAGING LEADER: GREEN STATUS

All Police and Security

All Police and Security

All Police and Security

4 RADIO TO SL: SIGNING OUT AT END OF SHIFT

All Police and Security

2.8 SECURITY WORKFLOW

Law Enforcement and Security

Charleston Police Department: Two uniformed police officers recommended

MUSC Public Safety: Two uniformed officers recommended

MUSC Security: One uniformed officer recommended

Main purpose is law enforcement presence to preserve the peace and be at the ready in the event staff need assistance with unruly patients or potential breach of site.

While at the site law enforcement and security personnel will report to Operations Cell to receive daily assignments which will be coordinated through agency Chain of Commands.

RECOMMENDED LOCATIONS OF SECURITY PERSONNEL:

Charleston Police Department: Responsible for securing and maintaining the safety and integrity of collection site from outside the parameter.

MUSC Public Safety: Stationed at Traffic Checkpoint 2 (immediately in front of PODs) or if deemed appropriate at the entrance of collection site (dependent on operations and local public safety chain of command).

MUSC Security: Stationed at front entrance to support and assist registration personnel and to man abort gate for patients who do not have appointments.





2.9 SUPPLY PERSONNEL FLOWCHART



Change gloves and complete hand hygiene between each patient.

Disclaimer: If refrigerator is above 8° F, notify operations immediately and adjust fridge thermostat.

Supply Personnel

Supply Leader: One Supply Leader (SL) required each day to manage supply workflow and any issues stemming from ordering and retrieving supplies.

Supply Staff: Supply Staff (SS) to assist in accurate documentation and restocking PODs and Registration.

Daily Supply Workflow (show up at designated time determined by operations and command) temperature check 2-8 degrees-if its not within the range adjust temp range within the fridge and update in operation center). Task complete before 9.

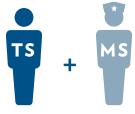
Prior to drive thru clinic opening each day, the two identified supply personnel will arrive at the operations center to receive an in brief of the previous day's patient volume and identified issues dealing with both internal and external supply chains. Immediately following the in-brief from the operational leader both supply individuals will report to staging area and request access to PODs (this is to ensure operations and staging leader know supply personnel are in PODs conducting inventory and restocking).

Once access is granted to PODs, supply personnel will enter each POD and do a quick count of current supplies. Utilizing the supply sheet and provided picture of the supply layout within each POD, the team will identify required supplies for the day based on projected patient volume. If patient volume is unknown or unclear, the team unclear team will stock POD utilizing pre-determined list and flex items if needed based on direction from the operations cell and/or the staging leader.

Immediately following POD supply count both supply personnel will central supply All RS will wear surgical mask with a shield and gloves.





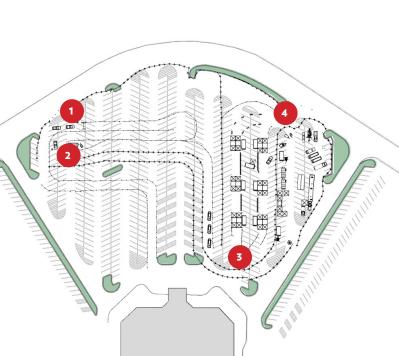


TRAFFIC STAFF + MUSC SECURITY CHECKPOINT 2



CHECKPOINT 3

2.10 TRAFFIC PERSONNEL FLOWCHART



Traffic Control Points

Checkpoint 1: One traffic staff member and MUSC Public Safety

Checkpoint 2: One traffic staff member and MUSC Security

Checkpoint 3: One traffic staff member

Exit Checkpoint: One traffic staff member

Traffic control point personnel are identified a week in advance through the guidance of operations cell. Personnel can be from any field as their roles and responsibilities do not require an advanced skill-set or licensure.

On the day of scheduled shift personnel will arrive to operations cell 30 minutes prior to receive in brief from operational leaders on duties and expectations.

Once in brief is received personnel will report to staging leader to receive protective mask and will don mask prior to crossing into red zone.

Upon relieving personnel currently stationed at traffic control points, individual assuming role of traffic controller will don additional PPE (e.g. reflective vests) and ensure all required equipment is available and operational (e.g. number placards, directional wand, and radio).

Once hand-off is complete personnel assuming roll will radio to operations cell and staging leader they are green and ready to receive and direct patients to PODs.

Each shift is approximately two hours (shift 1 is at checkpoint 1 and shift 2 is exit checkpoint, totaling a collective two hour block).

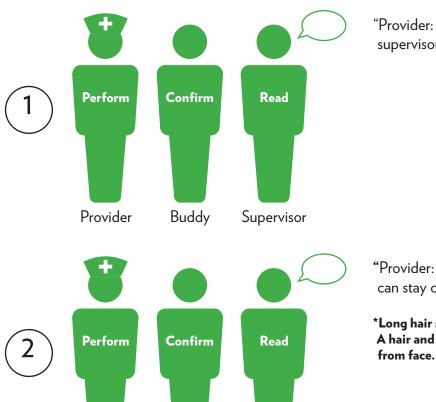
At the end of entire shift personnel will report to operations cell and sign out for accountability and out brief.

RESPIRATORY SPECIMEN COLLECTION SITES (RSCS) GUIDELINES

3 Appendix

COVID - 19 Protocol for **Donning**Biosuit [with MaxAir CAPR]

Text is read, performed, and then confirmed by team member assigned to the role on each step Team member is in the zone that correlates to the color assigned to their icon on each step



Buddy

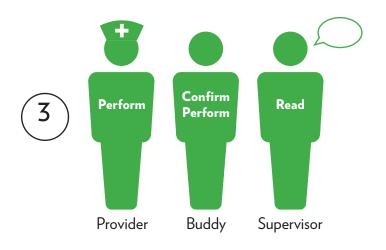
Supervisor

"Provider: Ensure donning buddy and supervisor are present"

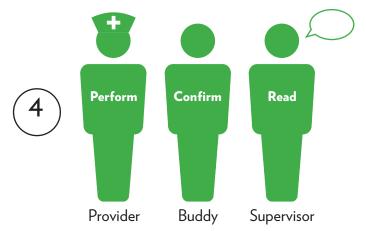
- "Provider: remove all jewelry; eyeglasses can stay on"
- *Long hair should be placed in a braid or bun.

 A hair and should be used to keep hair away

Provider



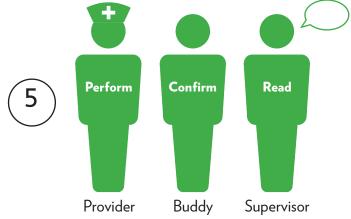
- "Provider with Buddy: Inspect all PPE pieces for integrity"
- PPE to inspect:
- Biosuit
- Boots
- Max Air CAPR shroud (DO NOT UNFOLD)
- Pair of shoe covers
- 3 pairs of extended cuff surgical gloves
- Colored duct tape
- Permanent market
- Bouffant (optional)
- CAPR
 - Helmet
 - Battery Pack
 - Heavy loading filter
 - Filter cover cap (OPTIONAL)
 - Belt (OPTIONAL)



"Provider: Don shoes covers"

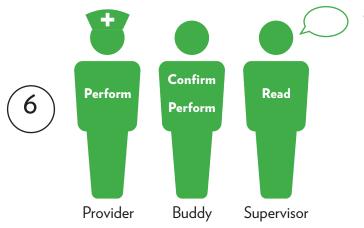
(OPTIONAL) "Provider: Don bouffant and ensure that all hair is contained"

*Check fit of CAPR helmet by adjusting the snaps and straps at the rear of the helmet.



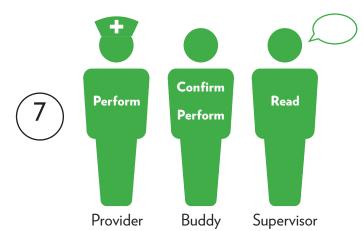
"Provider: Fold Biosuit hood inside of Biosuit and secure with a piece of tape. May also use shears to carefully remove the hood, ensuring the integrity of the suit below the collar line."

3.1 COVID 19 PROTOCOL FOR DONNING BIOSUIT CONTINUED



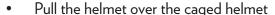
"Provider with Buddy: Unzip Biosuit, place boots into legs of Biosuit and push Biosuit down to the ankles of the boots."





"Provider with Buddy: Assemble CAPR"

- Defog eyeglasses if worn
- Attach CAPR battery pack to belt or waistband of scrubs on right hip
- Attach the hood to the helmet by first securing the center snap then secure the two side snaps



- Twist the knob counter clockwise to fully extend/open the headband
- Plug helmet into the battery pack
- Ensure the indicator lights are on inside of the helmet
- Place cord over right shoulder
- Place helmet on head from the rear, positioning helmet about half an inch above the eyebrows so indicator lights can be seen in upper peripheral vision. You should feel air flow on your face
- Twist know clockwise until helmet fits securely
- Pull hood down and around the shoulders, gently tugging on the back while holding just underneath the face shield
- Apply heavy loading filter to the top of the hood starting at the rear, tucking under the rear of the helmet then pulling forward, securing the front with the velcro at the front of the hood. Pull down to create a snug fit.
- Add filter cap (OPTIONAL)



There are 5 LED lights on the front of the helmet, visible in the upper peripheral vision while being used. When first turning on the unit, all 5 lights should light up briefly.



If the yellow light is flashing, air flow is marginal.

If the yellow light is solid air flow is low.

If a yellow or red light turns on during operation, carefully exit the area as quickly as safely possible to doff the helmet.

3.1 COVID 19 PROTOCOL FOR DONNING BIOSUIT CONTINUED





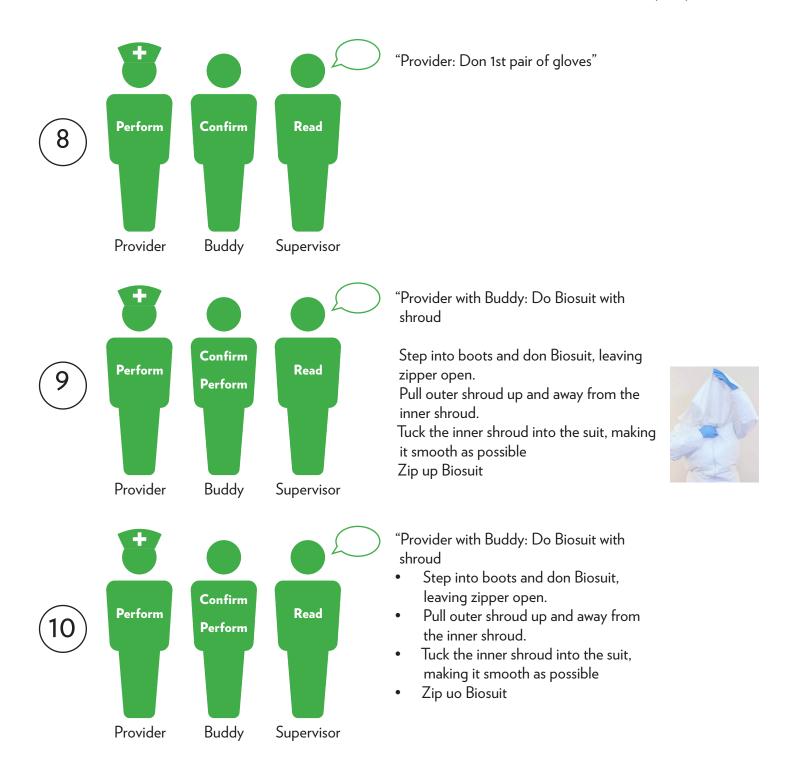


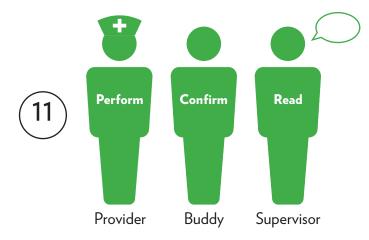












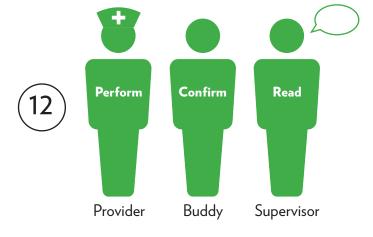
(OPTIONAL) "Provider: Secure neck and waist ties"

- Locate neck ties on either side toward back of shoulders
- Pull loose ends on either side by removing tape and pulling ties forward
- Tie in the front, leaving about an inch of space between your neck and the hood
- Pull body ties forward
- Lace through the slits in the front of the hood
- Ties so that the hood fits snugly around the waist

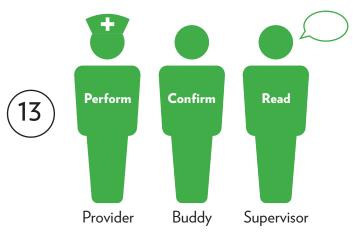




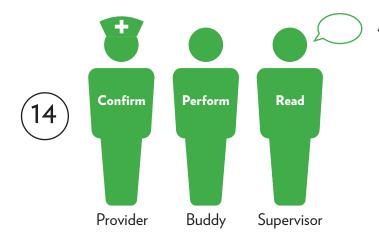
*If the provider chooses not to use the ties, they may be removed from the hood and discarded



"Provider with Buddy: Don 2nd pair of gloves, ensuring that the gloves cover the sleeve cuffs, and loosely secure with tape.



"Provider: Don 3rd pair of gloves



Perform

Buddy

Confirm

Provider

"Buddy: Write Provider's name on duct tape that is the color of the zone the Provider will enter. Place tape on front of PAPR shroud on top of face shield but make sure to not obscure team member's line of vision.

DO NOT TAPE THE FILTER CAP TO THE FACE SHIELD



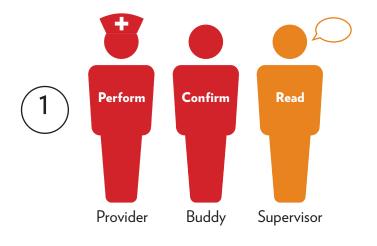
Supervisor

"Buddy: Mark the back of the suit with the Provider's 1st initial using duct tape in the color of the zone to which the Provider is going. DO NOT inadvertently tape the PAPR shroud to the back of the Biosuit.

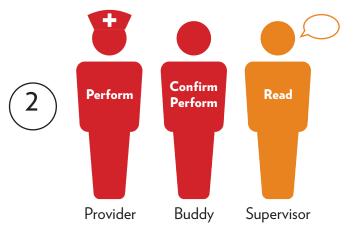
*Create a large letter so Provider can be identified

COVID - 19 Protocol for **Doffing**Biosuit [with MaxAir CAPR]

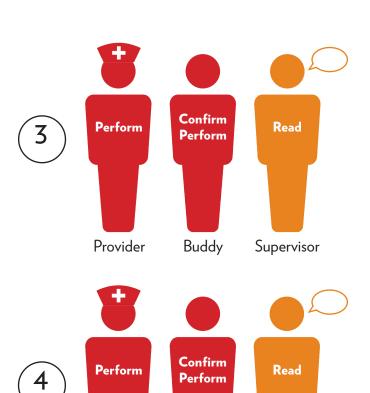
Text is read, performed, and then confirmed by team member assigned to the role on each step Team member is in the zone that correlates to the color assigned to their icon on each step



"Buddy: Ensure walkers are in Green and Orange Zones."



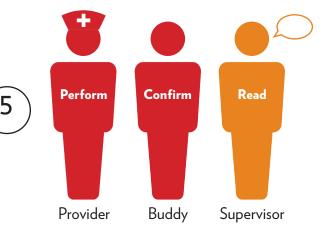
"Provider and Buddy: Position biohazard container near the inside threshold of the Red Zone."



"Provider with Buddy: Place the chuck on floor in Red Zone, next to the Orange Zone threshold and spray with bleach to serve as doffing mat."

"Provider and Buddy: Perform hand hygiene."



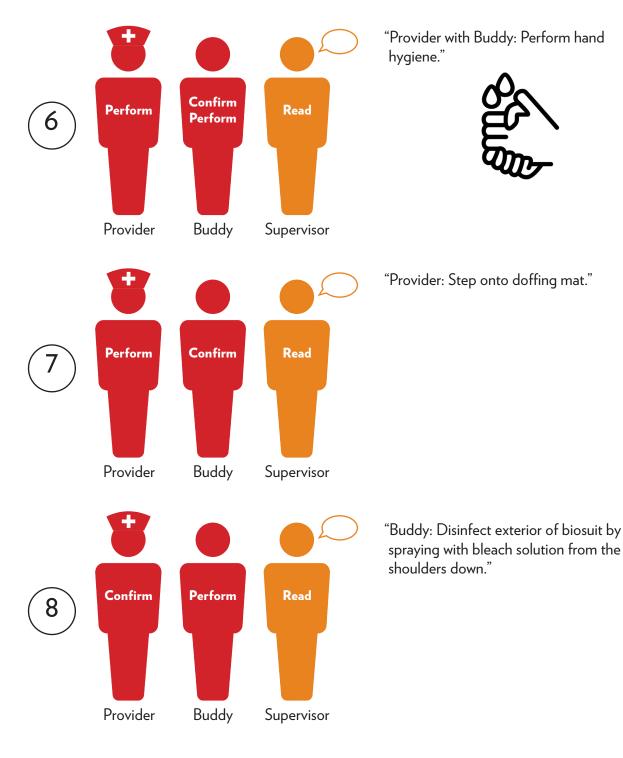


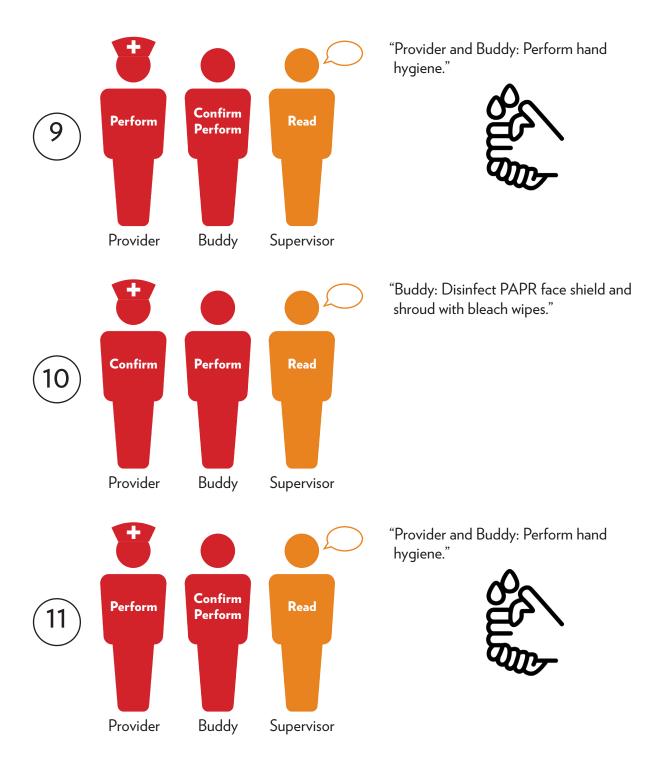
Buddy

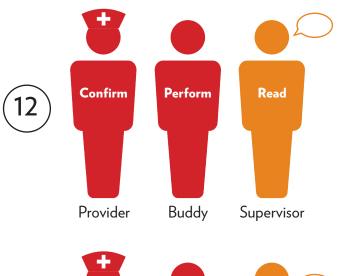
Provider

Supervisor

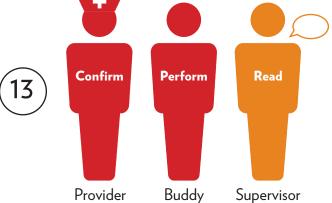
"Provider: Doff outer pair of gloves and dispose in biohazard container."







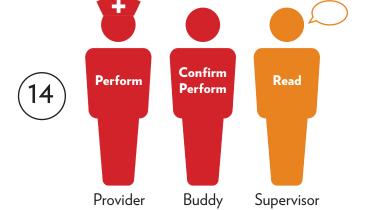
"Buddy: Remove optional fluid resistant cap if present."



"Buddy: Remove heavy loading filter.

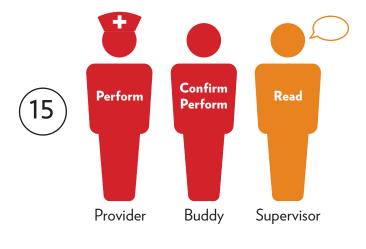
- Have provider bend forward at the waist
- Untuck the rear of the filter from the helmet
- Pull filter forward
- Dispose of filter





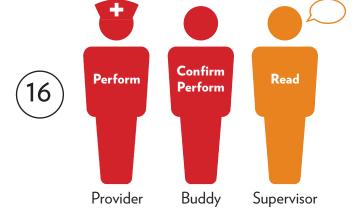
"Provider and Buddy: Perform hand hygiene."





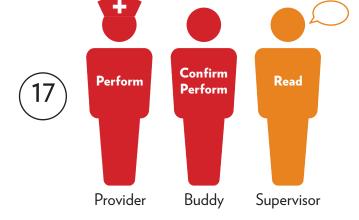
"Provider and Buddy: Remove option neck and waist ties and dispose."

- Untile body tie
- Remove from slits on the front
- Pull through to one side and dispose
- Untie neck tie
- Pull through to one side and dispose



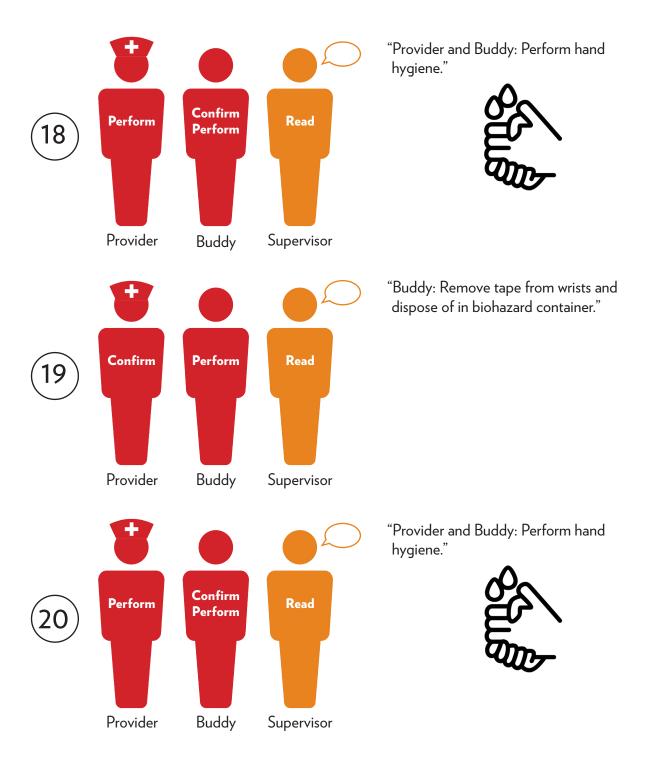
"Provider and Buddy: Perform hand hygiene."

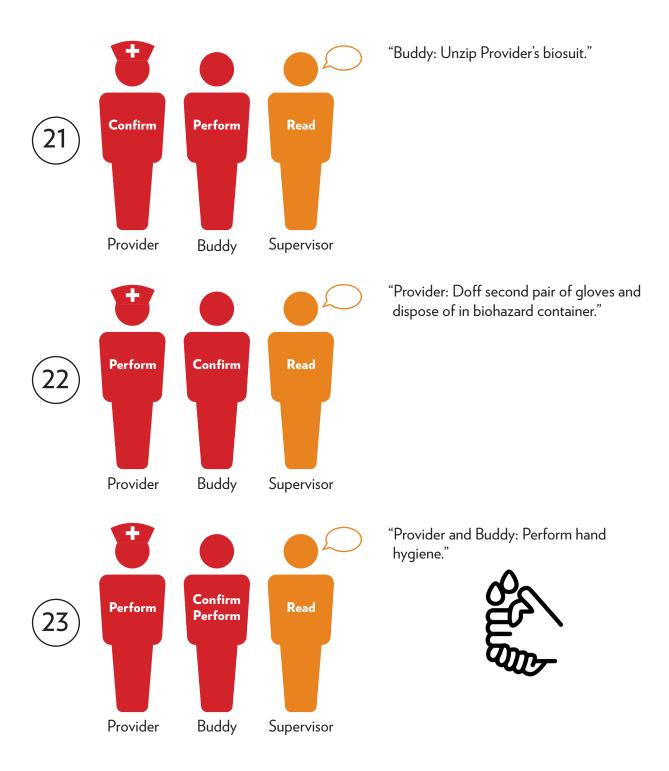


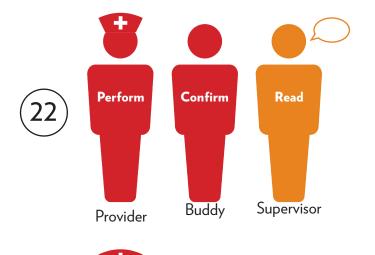


"Provider and Buddy: Remove shroud using the following sequence:"

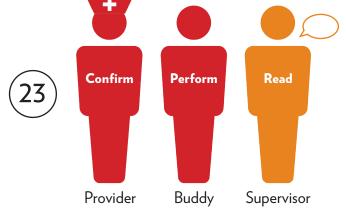
- Helmet will stay in place throughout this process.
 Unsnap two side posts of face shield from helmet
- Provider bend forwards at waist 90 degrees toward Buddy with hands clasped together
- Buddy flip over outer shroud and grasp sides of inner shroud
- Inner shroud is carefully pulled out of biosuit and roll over outer shroud
- Buddy rolls shroud forward to remove.
 Unsnap from center post and dispose.







"Provider: Hold arms to side and form 'bangle hands'."

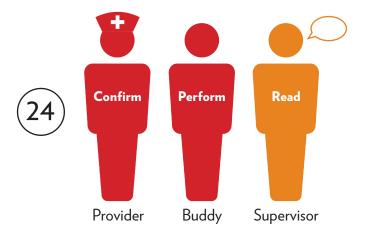


"Buddy: Remove biosuit from Provider." Pull suit off if of shoulders and down to waist level

Remove arms from suit, one at a time, by grabbing the material around the wrist and pulling down to release Provider's arms Biosuit may then be pulled down until the tops of the boots are exposed. Inner gloves remain on

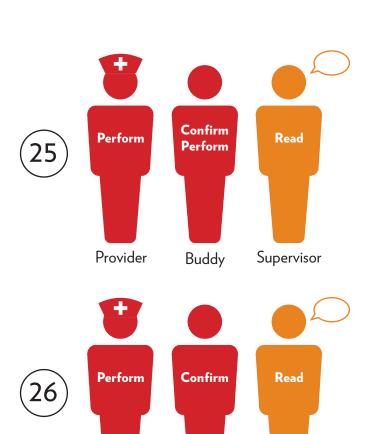


*Buddy is pictured without PPE to maximize visual depiction of process.



"Buddy: Ensure sleeves are contained within biosuit."

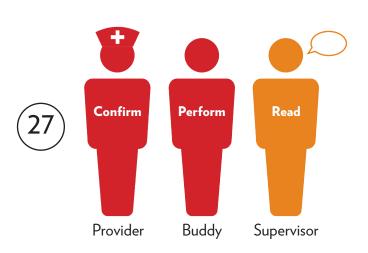
*If sleeves are completely inside out, tie arms of biosuit behind legs.



"Provider and Buddy: Perform hand hygiene."



"Provider: Face Orange Zone while standing near the edge of the Red Zone. Hold on to the Orange Zone walker."

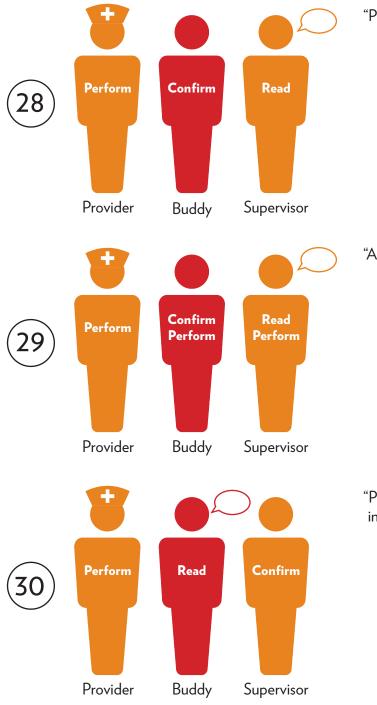


Buddy

Supervisor

Provider

"Buddy: Remove the remainder of the biosuit and boots while Provider steps into the Orange Zone one foot at a time."

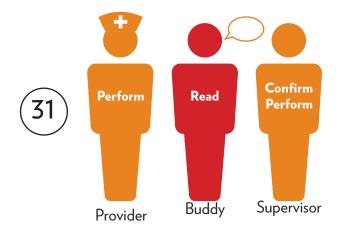


"Provider: Place walker to the side."

"All Team Members: Perform hand hygiene."

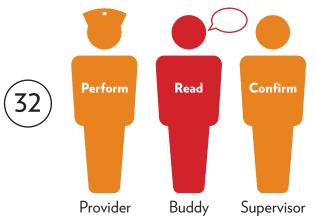


"Provider: Doff inner gloves and dispose of in biohazard container."

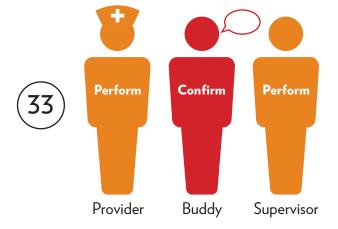


"Provider and Supervisor: Perform hand hygiene."

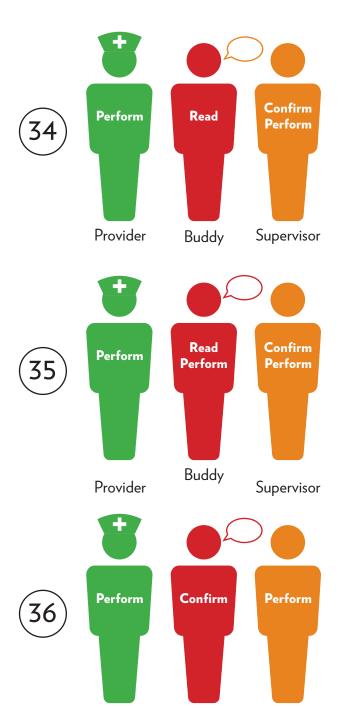




"Provider: Walk to the threshold of the Orange Zone near the Green Zone. Hold onto the Green Zone walker."



"Supervisor: Remove the Provider's shoe covers while Provider steps into the Green Zone one foot at a time. Dispose of shoe covers in biohazard container."



"Provider: Place walker to the side."

"All Team Members: Perform hand hygiene."



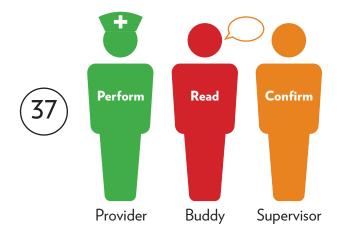
"Provider: Remove CAPR."

- Unplug battery cable from battery by depressing the tab and pulling straight out.
- Rotate ratchet wheel counter clockwise to loosen helmet.
- Remove helmet and battery pack

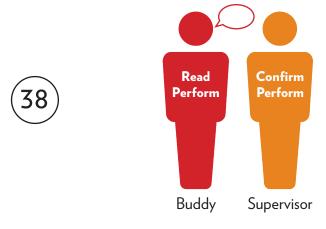
Buddy

Supervisor

Provider



"Provider: Proceed to shower."



Orange Zone: Wipe down walker completely with bleach and mop Orange Zone.

Red Zone: Place boots in container with disinfectant and discard biosuit in biohazard container. Mop Red Zone.

Notes on Decontamination/Cleaning:

Do not immerse the battery, helmet, and fan module into water or other liquid. This will cause irreparable damage to the helmet.

Do not use solvent or alcohol to clean the helmet. Isopropyl alcohol may be used to clean the helmet. However, repeated long term of Isopropyl alcohol may deface the helmet.

Do not subject helmet to any sterilization cycles.

Do not use organic solvents or strong oxidizing agents to clean the helmet.

The air channels should never need cleaning. If they do, the filters are not being maintained properly or replaced at the proper intervals.

If other cleaning agents are to be used, it is recommended to test their use on a small section of one DLC lens and/or a small section of the helmet liner to determine short and long term side effects.

It is not recommended ot disconnect the power cord from helmet. The power cord should be decontaminated and cleaned as part of the helmet.

Respiratory Collection Site Daily Checklist

_		
Date:	Fellow Point of Contact	

	POD 1		·
In use?	Ye	es / No	
Refrigerator Temperat	ure	•	
ltem	Daily	Current	Needs
Item	Needs	Supply	rveeds
Exam Gloves: Small	2 Boxes	1 ' '	
Medium	2 Boxes		
Large	2 Boxes		
XLarge	2 Boxes		
Tissues	6 Boxes		
Hand Sanitizer	2 Boxes		
Sanitizer Wipes	2 Boxes		
Specimen Bags	3 Bags		
Nasopharyngeal Kits	100 Kits		
Notes:			

	POD 2		
In use?	Ye	es / No	
Refrigerator Temperat	ure	,	
ltem	Daily	Current	Needs
item	Needs	Supply	rveeds
Exam Gloves: Small	2 Boxes		
Medium	2 Boxes		
Large	2 Boxes		
XLarge	2 Boxes		
Tissues	6 Boxes		
Hand Sanitizer	2 Boxes		
Sanitizer Wipes	2 Boxes		
Specimen Bags	3 Bags		
Nasopharyngeal Kits	100 Kits		
Notes:			

POD 3			
In use?	Ye	s / No	
Refrigerator Temperat	ure	·	
ltem	Daily	Current	Needs
item	Needs	Supply	rveeds
Exam Gloves: Small	2 Boxes	,	
Medium	2 Boxes		
Large	2 Boxes		
XLarge	2 Boxes		
Tissues	6 Boxes		
Hand Sanitizer	2 Boxes		
Sanitizer Wipes	2 Boxes		
Specimen Bags	3 Bags		
Nasopharyngeal Kits	100 Kits		
Notes:			

	POD 4		
In use?	Ye	s / No	
Refrigerator Temperati	ure		
ltem	Daily	Current	Needs
item	Needs	Supply	rveeus
Exam Gloves: Small	2 Boxes		
Medium	2 Boxes		
Large	2 Boxes		
XLarge	2 Boxes		
Tissues	6 Boxes		
Hand Sanitizer	2 Boxes		
Sanitizer Wipes	2 Boxes		
Specimen Bags	3 Bags		
Nasopharyngeal Kits	100 Kits		
Notes:			

Respiratory Collection Site Daily Checklist

ure Daily	S / No	
Daily	Current	
1 '	Current	
INI I	1	Needs
Needs	Supply	rveeas
2 Boxes	'''	
2 Boxes		
2 Boxes		
2 Boxes		
6 Boxes		
2 Boxes		
2 Boxes		
3 Bags		
100 Kits		
	2 Boxes 2 Boxes 2 Boxes 2 Boxes 6 Boxes 2 Boxes 2 Boxes 3 Bags	2 Boxes 2 Boxes 2 Boxes 2 Boxes 6 Boxes 2 Boxes 2 Boxes 3 Bags

	POD 2		
In use?	Ye	es / No	
Refrigerator Temperat	ure	•	
ltem	Daily	Current	Needs
item	Needs	Supply	rveeds
Exam Gloves: Small	2 Boxes		
Medium	2 Boxes		
Large	2 Boxes		
XLarge	2 Boxes		
Tissues	6 Boxes		
Hand Sanitizer	2 Boxes		
Sanitizer Wipes	2 Boxes		
Specimen Bags	3 Bags		
Nasopharyngeal Kits	100 Kits		
Notes:			

SMT/Regis	stration
Extended Gloves S/M/L	
Thermometer Probe Covers:	
Hoods:	
Hair Covers:	
Shoe Covers:	
Miscellaneous:	
Notes:	

Supply I	Room
Refrigerator Temperature:	
# of Nasopharyngeal Kits:	
Notes:	

Follow-Up Notes:

of Patients Seen Today:______

Total NP Tests:_____

of Expected Patients Tomorrow:______

Auxillary Respiratory Infection Specimen Collection Site Collection Protocol

Staffing

Teams of 2 in full PPE with RN obtaining sample and buddy for decon/safety (may be RN or PCT)

RN 1 will obtain sample

Buddy will observe and assist

The relief team will be present to act as safety observers.

General Rules

As it pertains below, the testing site is defined by all areas beyond the boundary of the clean storage area.

No photo or video is to be taken while on site

When in the testing area but not in PPE, please wear a surgical mask

Maintain minimum of 6 feet from open vehicle windows if not in full PPE

No eating or drinking in the testing site

Should there be a concern about contaminated surfaces or persons, please immediately perform hand hygiene, apply new gloves, and clean surface with purple top wipes. Then perform hand hygiene again.

Shifts

Staff members should not remain in PPE for more than 2 hours. There should be contingency for backfill should a member need to exit early.

Another team of RN and buddy will act as observers and be ready to switch roles at the 2-hour mark

Pre-Arrival

Please arrive on site well rested, well hydrated, and in good physical health. Should you feel ill, please notify your departmental leadership immediately.

The pre-opening checklist below should be completed prior to allowing any patients on site.

Upon Arrival

Present to the clean storage area and gather the supplies for your shift

Tyvek suit

- Crocs
- CAPR helmet (check padding)
- Battery pack
- CAPR hood
- Optional bouffant cap
- Shoe covers

We will be utilizing long cuff nitrile gloves in lieu of sterile gloves

Don PPE

Staff with don PPE per the attached protocol pdf for the MaxAir CAPR and Tyvek suit

They will don in donning area near clean storage

Upon exiting the clean storage area in PPE, the staff will not re-enter

Patient Arrival

Patient will arrive at the registration site where their identity and appointment time will be confirmed verbally by registration staff

Registration staff will maintain a minimum distance of 6 feet from the vehicle and will wear a surgical mask

The patient will be asked to roll up all windows

The testing packet with label, instructions, and thermometer will be placed under the windshield wiper

In inclement weather, the packet will be placed in a patient belonging bag and hung from the side mirror of the vehicle

All patients must be on the outside seating areas of the vehicle and easily accessible through a window or open door. No 3rd row testing or middle seat passengers. They will be asked to reposition to allow for testing.

The vehicle will be directed by traffic flow personnel (in surgical mask) to the appropriate lane

Testing

Patient will arrive at the testing tent

Team will obtain packet and verify patient identity with name/DOB (both RN and Buddy must confirm verbally)

Packet will be given to patient while label is kept for specimen

RVP swab will be obtained via standard practice – ensure deep insertion and swirl for 10 seconds 3.3 SPECIMEN COLLECTION PROTOCOL CONTINUED

Label will be applied by RN

Buddy will open sample collection bag and sample will be dropped in without direct contact

Swab will be placed in specimen fridge by buddy

Patient will exit the testing area by being directed to the side traffic flow lane

Patient will then be directed by further traffic personnel to exit the premises

For vehicles that prohibit testing through open windows (limited opening, mini-van rear passenger) the door will be opened and testing will occur through the door

For patients in the same vehicle, decon between patients is not necessary. However, all patients must be on the outside seating areas of the vehicle and easily accessible through a window or open door. No 3rd row testing or middle seat passengers. They will be asked to reposition to allow for testing.

Decon between patients:

Both team members will perform hand hygiene over existing gloves

RN1 will doff outermost gloves

Buddy will remove visible soil/snot from PAPR face shield (if present) with 2 (purple-top) PDI Super Sani-Cloth Germicidal Disposable Wipes.

Buddy will perform hand hygiene over existing gloves.

Buddy will wipe exterior of RN's PAPR face shield and entirety of the Tyvek suit with (purple-top) PDI Super Sani-Cloth Germicidal Disposable Wipes (would field test this honestly, and specify the number) to get the suit and PAPR hood surface wet for 2 minutes. Dispose of wipes in standard waste stream.

Suit will be allowed to dry for at least 2 minutes.

Close lid of wipes to ensure they do not dry out between uses

Buddy will doff outer gloves

Both partners will perform hand hygiene

Both partners will don new gloves at the table at the testing tent

Sample movement:

Occasionally throughout the shift, samples will need to be taken to the central collection point

Staff in PPE will wipe down exterior of fridge with purple top wipes then go to small decon tent

While staff in PPE remain in the small decon tent, the staff in standard surgical mask and gloves may retrieve samples from the small fridge

Samples will then be taken to the main fridge site

3.3 SPECIMEN COLLECTION PROTOCOL CONTINUED

After placing in fridge, hand hygiene will be performed, gloves removed, and hand hygiene again Replenish Viral Transport Medium and bags to bring back to testing area

Specimens will be collected from the collection site by courier periodically through the day

Waste collection:

At the end of the day, the staff in full PPE will collect waste from the bins in the small decon tent and take it to the waste collection point prior to proceeding to the doffing area

Doffing PPE:

Team members will perform decon per standard practice in the small decon tent first

Team members will walk to the doffing area near the showers

This area will have dedicated red, yellow, and green zones

Team members will doff PPE following the attached protocol and then enter the shower area

The last team members of the day will be doffed by Johan, who will then self-doff

Pre-Opening Checklist for Each Site

Testing tent area

- 2 chairs
- 1 table
- Fridge for samples (confirm is running)
- Long cuff gloves (3 sizes)
- Hand sanitizer
- Purple top wipes
- Viral transport media for testing
- Specimen bags
- Trash bin with biohazard bag

Lab collection point

- Main supply of viral transport medium
- Additional sample bags
- Hand sanitizer
- Standard gloves (3 sizes)

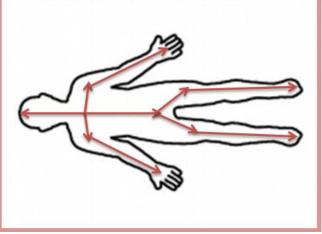
Doffing area

- 2 trash bins with biohazard bags
- Hand sanitizer
- Purple top wipes or sprayer

Down Person Protocol:

Should a provider in PPE go down during the course of a shift, the following steps should be completed

- Partner will immediately assess the level of consciousness
- Partner will alert the nearest supervisor or team member
- Additional providers may come assist with donning of standard mask, gloves, and gown
- Outside of down provider suit and hood will be wiped down with PDI Super Sani-Cloth Germicidal Disposable Wipes
- Suit will be cut per the below diagram, leaving face shield in place



- DO NOT rip the suit this will aerosolize particles
- Face shield and CAPR will be pulled out and up, taking care not to drag over provider's face
- Once biosuit is removed patient should be cared for by providers who are not potentially contaminated – EMS on scene may then place patient on backboard and removed for care

Modified NP Swab Collection for Respiratory Specimen Collection Site

Background: Given national shortage and availability issues with our standard RVP sample kits, we find it necessary to utilize a modified sample collection kit in order to function until we are re-supplied.

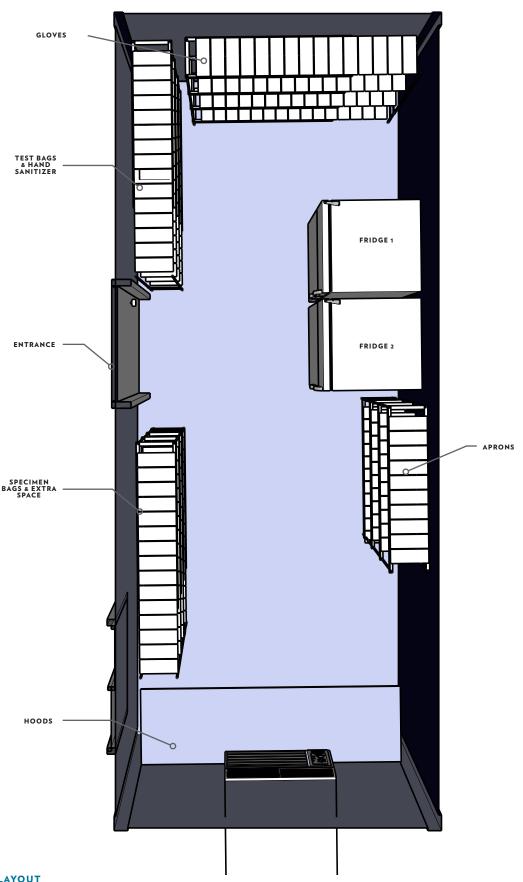
NOTE: The flocked swabs that will be utilized have a larger diameter and are less flexible than the standard RVP swabs. As such, greater care needs to be taken to ensure a quality sample is obtained by meeting sufficient depth of insertion (should be about half the distance between the external nostril and the ear) as well as prevent complications such as nasal turbinate injury or nosebleeds. Expect increased patient discomfort with these larger swabs.

New supplies:

- Standard flocked swab
- 15mL sterile conical tube pre filled with 3mL sterile saline

Procedure with 2-person team technique:

- The technique of collection is well demonstrated in the video link below
- Have the patient blow their nose prior to testing
- Performing team member will hold the flocked swab, keeping their other hand free to stabilize the head
- Buddy will apply the label to the sterile tube after ensuring the correct identifiers are present
- Buddy will hold the sterile tube for the performing provider
- Performing team member will obtain the specimen utilizing the technique in the video below ensuring:
 - Adequate depth of insertion for most adults, only about one inch of the swab should protrude from the nose when full depth is reached
 - o Spin 10 times once depth is reached
 - o https://player.vimeo.com/video/399172884
- Buddy will hand the sterile tube to the performing provider who will insert the swab, spin the swab in the saline, then snap off the swab at the break point and discard the remnant
- Buddy will hand the cap to the performing provider who will ensure it is capped tightly
- The buddy will hold open the specimen bag while the tube is dropped into the bag



SAMPLE COLLECTION AREA COMPONENT COUNT

- 1X UMBRELLA CHAIR
- 7X 20' X 8' CONTAINER OFFICE
- 6X 20' X 30' TENT
- 3X 12' SIDEWALL
- **3X FOLDING CHAIR**
- 3X FOLDING 6' TABLE

TRAFFIC COMPONENT COUNT

CHECKPOINT 1

- 1 X 10' X 10' TENT
- 1 X 20' X 8' CONTAINER OFFICE
- 1 X ROLLING STOP SIGN

CHECKPOINT 2

- 1 X 10' X 10' TENT
- 1 X 20' X 8' CONTAINER OFFICE
- 1 X HT CLEARANCE CHECK
- 2X ROLLING STOP SIGN

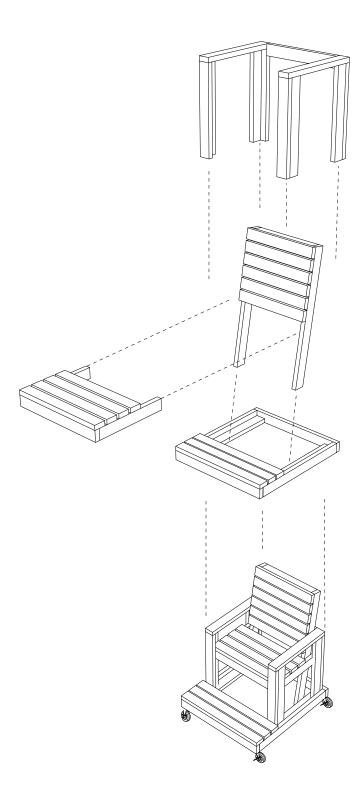
POD COMPONENT COUNT

- 1X 20' X 20' TENTS
- 4X BLOCK-N-ROLL FOR TENT STABILIZATION
- 1X SAMPLE COLLECTION BOOTH
- 1X TRASH
- 1X CONTAINER OFFICE

Components

COMPONENT COUNT

ITEM COUNT	ITEM NAME
13	10'x10' Tents
6	20'x30' Tents
11	20'x8' Connex
1	Overhead Clearance
209	Traffic Cones
3	Rolling Stop-Signs
3	Umbrella Chairs
292	10'x8' Chain-link Fence Segments
10	Steel Crowd Barriers
1	Control-Ops Trailer
24	Concrete Weights
3	Folding Chairs
3	Folding 6' Tables



Seating

MATERIAL COUNT

17 17 18 18 18 2" x 4" x 12' Pine Wood
1 2" x 4" x 8' Pine Wood
100 2-1/2" Wood Screws

CUT LIST

2 x (46 9/16") at 10° (One end)

4 x (48")

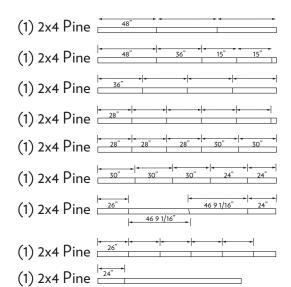
5 x (36")

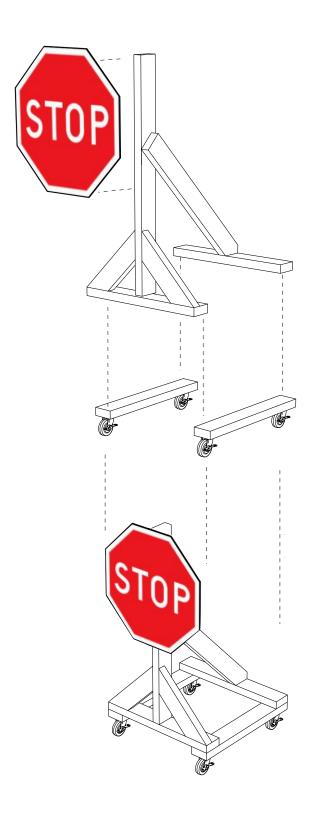
6 x (30")

8 x (28")

6 x (26")

3 x (24")





Rolling Stop Sign

MATERIAL COUNT

20 2-1/2" Wood Screws
4 3" Locking Casters
1 24" Stop Sign
2 2" x 4" x 8' Pine Wood

CUT LIST

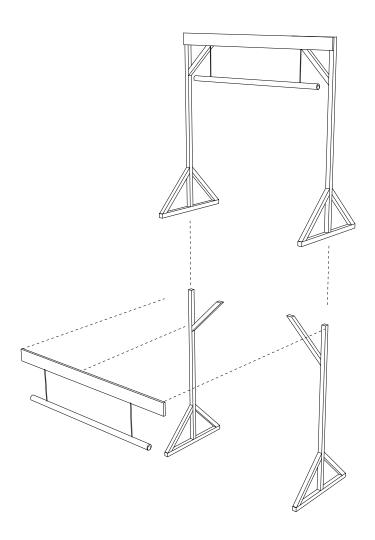
2 x (16") at 45° (Two ends)

1 x (32 1/2") at 45° (One end)

4 x (24")

1 x (38")





Vehicle Clearance Frame

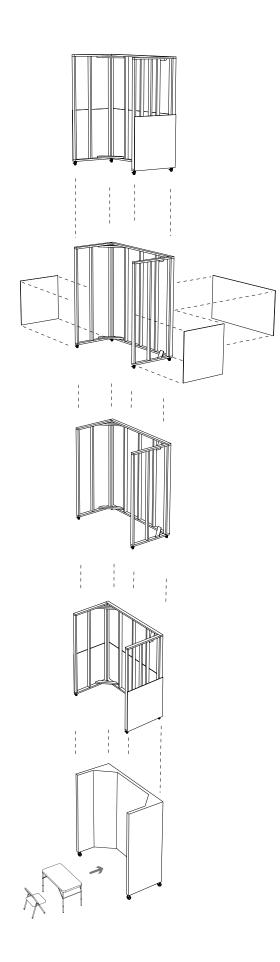
MATERIAL COUNT

ITEM COUNT	ITEM NAME
1	2" x 10" x 8' Pine Wood
2	2" x 6" x 8' Pine Wood
1	2" x 4" x 8' Pine Wood
4	4" x 4" x 8' Pine Wood
1	4" x 12' PVC Pipe
40	2-1/2" Wood Screws

CUT LIST

- 1 x (12')
- 1 x (9')
- 2 x (6')
- 2 x (12')
- 3 x (41")



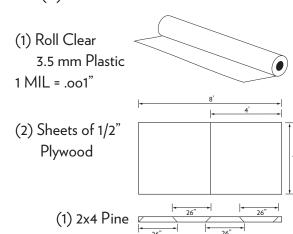


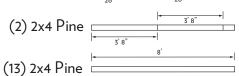
Alternative Sample Collection Booth

MATERIAL COUNT

ITEM COUNT	ITEM NAME
2	1/2" x 4' x 8' Sheets of Plywood
16	2" x 4" x 8' Pine Wood
1	10' x 25' Clear Plastic Sheeting
4	3" Locking Casters
80	2-1/2" Wood Screws

CUT LIST





Glossary:

Alternative Sample Collection Booth: Constructed barrier for alternative sample collection methods

Checkpoint: Specified area for traffic control and patient direction, there are four checkpoints in total.

Epic: Scheduling program used for patient registration and check-in

Patient Packet: Items administered to registered patients. Included are:3 patient labels in front pocket of specimen bag, MUSC Temperature Monitoring log, MUSC Health Education Tip sheet, CDC handouts related to COVID-19, and a thermometer*. In a clear drawstring bag, a patient mask and 3 tissues (This is dependent on supply levels and availability)

POD: Point of Dispensing, one individual tented section for testing

Respiratory Specimen Collection Site: Entire facility for COVID-19 testing

Sample Collection Area: Location including all 6 PODs

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MUSC Health

Erik Modrzynski, CBCP, CHSP, CEDP, CRMP

AMBULATORY EHS & EMERGENCY MANAGER

MAJ Kimberlyn Whitaker, MBA
UNITED STATES ARMY
ADMINISTRATIVE FELLOW-OPERATIONS

Mary P. Mauldin, EhD

PROFESSOR AND EXECUTIVE DIRECTOR

Dustin P. LeBlanc, MD

ASSISTANT PROFESSOR OF
EMERGENCY MEDICINE

National Center for Preservation Technology and Training (NPS)

Simeon A. Warren

CHIEF OF ARCHITECTURE AND ENGINEERING.

Cluck Design Collaborative

Paul Mosher, AIA
PROJECT MANAGER

Will Bullock Creative

Will Bullock
OWNER / CREATIVE DIRECTOR

Clemson University

ARCHITECTURE + COMMUNITY BUILD

David Pastre, Professor

Justin Acevedo

Ryan Bing

Jeremy Eaton

Mohamed Fakhry

Luke Gibson

DJ Holmes

Steve Kurtz

Henry Lee III

Andrew Matthews

Claire Mcmanus

William Poynor

Courtney Wolff

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For more information please contact Erik Modrzynski at modrzyns@musc.edu