

ELC ENHANCING DETECTION: SOUTH CAROLINA TESTING PLAN

2020 Overarching Jurisdictional SARS-COV-2 Testing Strategy

Jurisdiction:	South Carolina
Population Size:	5,148,714

1. Describe the overarching testing strategy in your state or jurisdiction.

a) South Carolina has a population of approximately 5.1 million residents in 46 counties. To bolster testing capacity and reach the goal of testing at least 2% of the population each month, the South Carolina Department of Health and Environmental Control (DHEC) is utilizing agency resources and fostering public and private partnerships to increase access to testing, particularly for under resourced communities and vulnerable populations. Initial activities have included coordinating with a private laboratory, LabCorp, to test all residents and staff (~40,000 individuals) in all 194 nursing homes in the state. Working with LabCorp enabled DHEC to leverage this laboratory's larger testing throughput and testing supplies. The nursing home initiative was conducted in three phases with the last phase scheduled during the final week of May.

South Carolina's Public Health Lab (PHL) has used multiple platforms for PCR extraction and testing. The ThermoFisher Kingfishers, Roche 96, and Hologic Fusion have allowed for an increase of the daily throughput of specimens at the PHL to 2,000 per day. External partners have their own testing capacity and utilize an array of equipment and methodologies with varying throughput. The PHL in conjunction with Health Information Systems (HIS) staff will work towards the implementation of a Kofax scanner to expedite entry of lab orders into the Laboratory Information Management System (LIMS). Initially, data entry was a limiting factor in the amount of tests that the PHL could process each day. New staff have been brought on board to overcome this hurdle while the Kofax scanner is being implemented. Additionally, upgrades to HL7 messaging will allow more healthcare providers to order tests electronically and reduce the burden of manual processes. The vast majority of test results in DHEC's surveillance system are molecular tests. Less than 1% are listed as antigen tests.

Testing initiatives from July to December will focus on other congregate settings including assisted living facilities and correctional facilities. In South Carolina, there are 502 assisted living facilities with 21,959 licensed beds. A survey was provided to all of these facilities to ascertain the current census, number of staff, and if any COVID-19 testing had already been performed. Based on the responses to the survey questions, facilities will be prioritized for testing in a tiered approach. In addition to assisted living facilities, a pilot testing project will be conducted at one of the state's correctional facilities. Best practices will be noted as the feasibility for broader testing among correctional facilities is assessed. Isolation and supervision of cases pose challenges in correctional facilities that are already at maximum capacity.

DHEC is also holding community testing events in areas where access to care is minimal; specimens collected during these events are being tested at the DHEC Public Health Laboratory (PHL). DHEC is also coordinating with the SC Hospital Association, SC Office of Rural Health, SC Primary HealthCare Association, federally qualified health centers, Rural Health Clinics, Emergency Medical Services, faith based organizations, the National Guard, and private businesses to quickly increase testing capacity by mobilizing community testing events throughout the state in a variety of venues. As of June 25th, 375 community testing events have been completed and an additional 81 events are planned for the rest of

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the month. Of the 375 completed events, 9 (13%) were partnered with DHEC; 326 (87%) were hosted by private and community partners in all 46 counties. Eighty-one testing events in ten counties have been scheduled in July 2020 with additional events currently in the planning stage.

b) Both DHEC and our testing partners are seeking to host testing events in venues that are easily accessible for community members. These venues include schools, stores, churches and faith-based centers, parks, fire departments, convention centers, and fairgrounds. Multiple sites per county are being scheduled to help ensure appropriate coverage for counties. These sites have undergone a feasibility study to increase access to our citizens and improve the testing flow of the specific events. Another resource to help expand testing capacity is partnering with community paramedics to provide at-home testing for citizens. Currently, this program is occurring in three counties in three regions of the state.

c) DHEC is exploring partnerships with clinical and academic partners to develop and field a prevalence study in South Carolina in order to better understand the true rate of COVID-19 infection in the state. As we are not currently performing serology testing for COVID-19, we will likely rely on testing capacity available at clinical or private laboratories to process samples collected as part of the study.

d) The agency has created a centralized testing branch to help coordinate testing efforts throughout the state and ensure information is quickly relayed to our citizens. New testing events are advertised in the community through community partners, publication on the DHEC website, and media press releases. In addition, the South Carolina legislature has issued a continuing resolution which was signed by the governor to assign funding to hospitals for additional testing in the community in collaboration with DHEC. It is not clear at this time what the additional testing capacity will be as a result of this additional funding. Lastly, the level of testing proposed in this document is predicated on the ability of laboratories and our federal partners to obtain adequate testing reagents and specimen collection materials. Additionally the collection materials (swabs and transport media) must be acceptable for all platforms and lack temperature restrictions such as requiring refrigeration.

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Table #1a: Number of individuals planned to be tested, by month

BY MONTH:	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	TOTAL
Diagnostics*	110,000	140,000	140,000	140,000	165,000	165,000	165,000	165,000	1,190,000
Serology		3,100		3,100			3,100		9,300
TOTAL	110,000	143,100	140,000	143,100	165,000	165,000	168,100	165,000	

*Each jurisdiction is expected to expand testing to reach a minimum of 2% of the jurisdictional population.

Table #1b: Planned expansion of testing jurisdiction-wide

Name of testing entity	Testing venue (select from drop down)	Performing Lab (if different from testing entity)	Daily diagnostic through-put	Daily serologic through-put	Specific at-risk populations targeted (list all)
Affinity	Community-based	PHL	1,600		High Density Populations Under Resourced Communities
Beaufort-Jasper Comprehensive Health Services	Community-based	PHL	1,600		High Density Populations Under Resourced Communities
Caresouth	Community-based	PHL	1,600		Under Resourced Communities
Carolina Health Centers	Community-based	PHL	1,600		Under Resourced Communities

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Name of testing entity	Testing venue (select from drop down)	Performing Lab (if different from testing entity)	Daily diagnostic through-put	Daily serologic through-put	Specific at-risk populations targeted (list all)
Clemson University Sullivan Center	Community-based	PHL	1,600		High Density Populations Under Resourced Communities
DHEC PHL	Public health lab	PHL	2,000		Under Resourced Communities
Family Health Centers Inc	Community-based	PHL	1,600		Under Resourced Communities
Fetter Health Care Network	Community-based	PHL	1,600		High Density Population Under Resourced Communities
Kroger Health & Harris Teeter	Community-based	Gravity Labs	4,000		High Density Populations
LabCorp	Hospitals or clinical facility		50,000		Nursing Homes
Luxor Labs	Commercial or private lab		5,000		Under Resourced Communities
Mcleod Health	Community-based	LabCorp	50,000		High Density Population Under Resourced Communities
Mcleod Health	Community-based		300		High Density Population Under Resourced Communities

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Name of testing entity	Testing venue (select from drop down)	Performing Lab (if different from testing entity)	Daily diagnostic through-put	Daily serologic through-put	Specific at-risk populations targeted (list all)
Medical University of South Carolina	Community-based		2,000		High Density Populations Under Resourced Communities High Tourism Areas
Nephron	Commercial or private lab	PHL	1,600		Workforce
Precision Genetics	Commercial or private lab		4,000		Under Resourced Communities
Prisma Health	Community-based		300		Under Resourced Community
Regenesis Healthcare	Community-based	PHL	1,600		Under Resourced Communities High Density Populations
Regional Medical Center	Community-based			125	Under Resourced Community
Self Regional	Community-based		325		Under Resourced Community
St. James Health and Wellness	Community-based	PHL	1,600		High Density Populations Under Resourced Communities
Vikor Scientific	Commercial or private lab		5,000		Under Resourced Communities

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Name of testing entity	Testing venue (select from drop down)	Performing Lab (if different from testing entity)	Daily diagnostic through-put	Daily serologic through-put	Specific at-risk populations targeted (list all)
Wal-Mart	Community-based	Quest and LabCorp	50,000		High Density Populations

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2020 Direct Expansion of SARS-COV-2 Testing by Health Departments

2. Describe your public health department's direct impact on testing expansion in your jurisdiction.

a) DHEC will increase testing from 2% of the population per month to 3.2% by December 2020 by implementing a multi-faceted testing strategy. DHEC has partnered with the Governor, SC Legislature, SC Hospital Association, SC Office of Rural Health, SC Primary HealthCare Association, federally qualified community health centers (FQHCs), Rural Health Clinics (RHC), Emergency Medical Services, and private businesses throughout the state to increase testing capacity in our communities using mobile testing clinics, community paramedic testing, and fixed testing sites.

b) DHEC recognizes the importance of testing individuals at highest risk in congregate settings. Approximately 40,000 South Carolinians live or work in the state's 194 nursing homes. As of May 26th over 42 percent of people who have died as a result of COVID-19 infection in South Carolina were residents of Long-Term Care Facilities (LTCF). Beginning the week of May 10, DHEC, in partnership with LabCorp, began a phased testing approach to include all nursing homes in the state. In addition to nursing homes, DHEC will partner with the South Carolina Department of Corrections (SCDC), South Carolina Department of Mental Health (DMH), other state agencies and organizations, and healthcare providers to expand testing in other congregate facilities such as correctional facilities, acute care hospitals (DMH) and homeless shelters. As part of this effort, DHEC is working in partnership with SCDC to provide testing to inmates and staff with support from the National Guard. Furthermore, to address the unmet needs of minority and under resourced communities, DHEC will use mobile testing sites, community paramedics, and community healthcare and retail partners to increase testing capacity in communities around the state. Mobile teams will be deployed to areas where access to services and transportation are major concerns. As described, DHEC is partnering with The South Carolina Primary HealthCare Association, FQHCs, the South Carolina Office of Rural Health and the RHCs throughout the state to set up mobile testing in clinic parking lots or other identified locations (i.e. churches, community centers, FQHCs) if the facility does not have a parking lot large enough. Working with the state's 22 FQHCs, including their many satellite sites, will help DHEC increase screening and testing capacity in every county of the state and further support testing in rural and under resourced areas. As part of this partnership, DHEC is supplying the appropriate PPE to protect clinical staff as they collect the specimens for testing at these facilities. DHEC is also partnering with MUSC to expand access to testing in critically underserved and minority communities around the state. Additionally, DHEC is collaborating with Walmart to identify drive up testing sites for specimen collections. Sites will be identified in collaboration with Walmart and specimen collections could take place from 7:00 a.m. to 9:00 a.m. on Mondays, Wednesdays, and/or Fridays. DHEC has also reached out to grocery store owners to collaborate on testing grocery store clerks who have repeated contact with the public and continue to educate workers on implementing safety practices. In addition, DHEC's Community Paramedic Program allows paramedics and emergency medical technicians (EMTs) to operate in expanded roles by assisting with public health, primary healthcare, and preventive services to underserved populations in the community. With this program, paramedics and EMTs will test individuals at their homes. The Community Paramedic models are being utilized when individuals call 911 and are stable but exhibiting symptoms of COVID-19. In this situation, a community paramedic team will be dispatched to assess the

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person and collect a specimen if needed. The paramedics will leave the individual with information regarding COVID-19 and the agency's CARELINE number. The team will then bring the specimens to DHEC for shipping to PHL. This model will also be used to provide a personalized, home-based approach for individuals with co-morbidities or transportation issues as paramedics and EMTs will be able to test these individuals at their homes. This will not only provide an opportunity for COVID-19 testing but also for educating families and addressing other health needs. Further, enhanced statewide surveillance will help identify emerging hotspots where the spread of COVID-19 virus is increasing.

c) DHEC has created Rapid Response Teams that can rapidly deploy to identified areas to increase screening and testing in order to reduce ongoing transmission. Reports of individuals with unknown COVID-19 infection status who have died alone at home raise the concern for unrecognized and unreported deaths due to the virus. In order to fully understand the impact of this virus on the number of people dying in our state, DHEC has updated guidance for coroners and medical examiners related to increased testing, including patients who died unexpectedly. DHEC will distribute test kits to coroners throughout the state to use in post-mortem testing of patients who die unexpectedly regardless of symptoms. Positive test results will be followed by contact tracing with family of the deceased. Rapid-testing devices and testing supplies are being deployed to areas of the state where testing for the virus may be limited. The Abbott ID NOW COVID-19 rapid-response test recently received emergency use authorization from the FDA to test specimens for COVID-19, and South Carolina received 15 of the devices from U.S. Federal Emergency Management Agency (FEMA). DHEC deployed the devices and a limited amount of testing supplies to 15 health care facilities across the state. Several factors were considered in determining where to send these initial rapid-test devices, including regions with high numbers of positive cases at the time of distribution; regions with rates above the state average for underlying conditions like diabetes, hypertension and chronic diseases; and a facility's capacity to use the machines to expand testing to rural communities. Using data from the CDC Community Protection Team's (CPT) gap analysis we will prioritize testing in those counties with higher gap scores; Allendale, Aiken, Saluda, Williamsburg, Jasper, Edgefield, Beaufort, Laurens and Lee. These counties are generally located along the south western portion of the state. Should capacity for additional testing be available, additional counties with a slightly lower gap score would then take priority. These counties include Greenville, Pickens, Orangeburg, Dillon, Marlboro, McCormick, Sumter, Newberry, and Bamberg. DHEC is also partnering with Nephron Pharmaceutical to collect information on testing in the workplace.

DHEC is implementing a partnership with the SC Hospital Association to maximize the utilization of all the state's testing capacity. The hospital members of the association have a large percentage of the capacity and are essential to meeting our state testing goals and any future increases. DHEC will allocate resources received through federal agencies to ensure that our hospital partners have sufficient materials, especially those difficult to obtain such as specimen collection materials, to maintain a high level of testing.

d) DHEC is exploring partnerships with clinical and academic partners to develop and field a prevalence study in South Carolina in order to better understand the true rate of COVID-19 infection in the state. As we are not currently performing serology testing for COVID-19, we will likely rely on testing capacity available at clinical or private laboratories to process samples collected as part of the study. DHEC is also interested in using quantitative serology testing, when available, to test staff at long term care facilities to assess potential immunity in order to reduce the frequency of regular PCR testing of staff with antibody levels that appear to be protective. The PHL currently uses multiple testing platforms, including

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the Abbott Architect and is purchasing a Diasorin Liaison and can rapidly adopt a serology test that operates on either of these two platforms. The PHL will investigate the utility of quantitative antibody testing for surveillance testing, when the assays become available. This testing if implemented will be done in collaboration with hospitals within the SC sentinel hospital system and capacity will depend on the capabilities of the testing platforms and hospital partners.

e) DHEC's COVID-19 surveillance draws from multiple data sources, including existing influenza and viral respiratory disease surveillance, syndromic surveillance, case reporting, and public and commercial laboratory reporting. These systems, when robust and in combination, assist us in making informed decisions for responding to COVID-19. Currently, 28 hospitals report data to DHEC for use in the syndromic surveillance system; these hospitals are in 19 of SC's 46 counties. There are also facilities in 21 of the 46 counties that report data into that national ILINet surveillance system. To help improve the number of facilities providing syndromic and ILI surveillance data, DHEC will actively recruit and bring on-line hospital Emergency Departments to increase reporting through syndromic surveillance and healthcare practices to increase ILINet participation. In addition, DHEC will work with the CDC to expand the key words used to capture chief complaint data by ESSENCE to be more inclusive of the constellation of symptoms experienced by patients with COVID-19. DHEC is also obtaining KINSA data regarding fevers in South Carolina. We will seek to further integrate testing and contact tracing with enhanced surveillance of potential COVID-19 symptoms and outbreaks and build on our existing surveillance capacity. Sentinel surveillance for vulnerable populations has been enhanced through biweekly reporting of cases and deaths among both residents and staff of long-term care facilities. Further testing will occur as appropriate.

f) DHEC convened a staffing work group to develop and implement a rapid hiring process. This work group includes various HR staff (recruitment, onboarding, hiring, benefits, classification and compensation), Public Health Chief of Staff, Finance & Operations staff (Budgets and Project Management) and is responsible for helping program areas identify and fill needed positions, and track these new rapid hires. Our Human Resources Department streamlined the agency's hiring process, to include recruitment, selection, hire approvals, and onboarding. DHEC recruits via temporary staffing agencies, postings via state careers website, coordination with local School of Public Health and other community partners, and other outreach methods such as social media (LinkedIn, Facebook, etc). All new hire paperwork and initial orientation is conducted virtually. We are able to onboard staff in as few as two days (including conducting a background check). New employee equipment (laptops, cellphones) is ordered in bulk and can be requested as part of this process. The Microbiology Division in the SC PHL has a buyer dedicated to the division who orders and tracks all supplies associated with COVID testing, including processing complex procurements. The PHL has established regular shipments for reagents for both the Taqpath SARS-COV2 assay and Hologic Panther Fusion assay and weekly submits requests to the IRR for the CDC real-time PCR assay. Collection kits are being supplied by federal partners; in addition the PHL is producing saline collection kits to ensure that there are multiple supply chains for collection devices. The PHL will work on expanding testing by the procurement of two KingFisher extraction instruments and two liquid handlers to provide capacity and redundancy to ensure that the PHL can meet the expectations for increased testing. The PHL also has a Magna Pure 96 that could be utilized if reagents were available.

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Table #2: Planned expansion of testing driven by public health departments

BY MONTH:	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	TOTAL
Number of additional* staff to meet planned testing levels	0	4							4
FOR DIAGNOSTIC TESTING									
How many additional* testing equipment/ devices are needed to meet planned testing levels? (provide an estimated number, and include platform details in narrative above)	4								4

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BY MONTH:	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	TOTAL
Volume of additional swabs needed to meet planned testing levels ⁺⁺	0	140,000	140,000	140,000	165,000	165,000	165,000	165,000	1,080,000
Volume of additional media (VTM, MTM, saline, etc.) needed to meet planned testing levels ⁺⁺	0	140,000	140,000	140,000	165,000	165,000	165,000	165,000	1,080,000

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BY MONTH:	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	TOTAL
Volume of additional reagents needed to meet planned testing levels, by testing unit and platform (i.e. 100K/day - Hologic panther; 100k/day - Thermofisher)	0	4,667/day Thermofisher	4,667/day Thermofisher	4,667/day Thermofisher	5,500/ Thermofisher	5,500/ Thermofisher	5,500/ Thermofisher	5,500/ Thermofisher	
FOR SEROLOGIC TESTING									
Number of additional* equipment and devices to meet planned testing levels		2							2

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BY MONTH:	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	TOTAL
Volume of additional reagents needed to meet planned testing levels, by testing unit and platform (i.e. 100K/day - Hologic panther; 100k/day - Thermofisher)		110/day ABBOTT		110/day ABBOTT			110/day ABBOTT		

* Report new monthly additions only, not cumulative levels

++ For May and June, only include needs beyond the supplies provided by FEMA. Report new monthly additions only, not cumulative levels.