2020 Overarching Jurisdictional SARS-COV-2 Testing Strategy

Jurisdiction:	Mississippi
Population Size:	2,989,260

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

The overarching strategy of the Mississippi State Department of Health (MSDH) is to continue to provide a consistent and scalable testing capacity to inform county level incidence, to provide access to testing of vulnerable populations and to provide hotspot or targeted enhanced testing as indicated by the current epidemiology. This will be accomplished through enhancement and assurance of testing capacity in the Mississippi Public Health Laboratory (MPHL), numerous commercial laboratories, hospitals, Federally Qualified Health Centers (FQHC), in Long Term Care Facility (LTCF) settings, other healthcare facilities, clinics, and correctional facilities. Several testing methodologies are available to providers in Mississippi including RT-PCR, serology, and antigen through various commercial laboratories, hospital laboratories, and MPHL, and through rapid test platforms in hospital emergency departments and clinics throughout the state. The wide availability of these tests has provided broad reach to testing throughout the state, with some limitations noted in reagents, collection kits and cartridges and other testing supplies. However, in recent weeks, approximately 23,600+ tests for COVID-19 per week have been conducted in Mississippi consistent with a 2% monthly testing expectation. MSDH will continue to focus on expanding testing capacity throughout the state to address availability of testing in vulnerable populations, including in higher risk settings, in both traditional and non-traditional settings. This will be accomplished through the expansion of testing platforms within the MPHL using multiple EUA approved platforms already possessed by the laboratory; specifically, capacity will be increased through Abbott m2000rt, Thermo TaqPath and Hologic Panther platforms with plans to expand RT-PCR and serology testing capacity through the purchase of additional automated instrumentation, including a liquid handling system, a Roche Cobas 6800 for RT-PCR and the Diasorin Liaison for IgG serology. By using these platforms MPHL will have the capacity to perform 2,300 molecular tests per day, with testing priorities of LTCF employees and residents during outbreaks, other outbreak settings, and close contacts to cases. To expand testing within areas with the highest incidence of hospitalized patients with COVID-19, the MPHL distributed 14 Abbott ID Now instruments to expand testing in areas based on need. MSDH will continue to support testing with these instruments through the distribution of test kits received from the International Reagent Resource (IRR), with testing directed at hospitalized patients, symptomatic individuals, and healthcare workers. The deployment of Abbott ID NOW instruments and test kits expanded the testing capacity to facilities that had no means to provide testing in their communities. The MPHL will continue to provide support for additional and increased testing in other laboratories and hospitals in the state through mechanisms such as supply of reagents or test collection kits, ordering from multiple vendors to maintain capacity, through federal support and in-state manufacturing and through frequent communication and monitoring supplies. The MPHL will continue to conduct quarterly surveys to asses COVID-19 testing capacity, resources, and testing platforms used in hospitals and laboratories across the state. MSDH will continue to provide a list of all the testing sites in Mississippi, with additional sites added as they are identified. MSDH will continue to conduct weekly calls with providers throughout the state to inform about testing strategies, and is continuing to provide the most up to date guidance to providers around testing priorities, best

practices for testing methodologies and indications for testing to maximize testing to inform incident data, identify outbreaks, and perform presurgical and pre-procedure testing for asymptomatic individuals. MSDH will continue to provide mobile testing at non-traditional sites (e.g., churches, central areas within a community), is developing contracts with clinics to provide testing in non-traditional sites, and MSDH will continue to test in outbreak settings such as LTCF, congregate settings, and correctional facilities. MSDH is providing support for initial testing around outbreaks in LTCFs. MSDH is transitioning to a NEDSS based surveillance system for COVID-19 and is in the process of transitioning COVID-19 reporting in the state to be done through ELR or online reporting through the NBS surveillance system. MSDH continues to encourage providers and labs to report complete data on cases to enhance our capacity to respond to and investigate cases and outbreaks in a timely manner. MSDH is working with at least one pharmacy to support electronic reporting for their testing clinics. The director of the Public Health Pharmacy will continue to serve as a direct contact to the pharmacies in the state. MSDH is considering additional plans to conduct testing around identified close or household contacts to cases. UMMC is planning a statewide seroprevalence study. MSDH is planning a broader seroprevalence study on a sampling in counties identified with high, medium and lower incidence to conduct an additional 1300 tests.

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*	75,000	90,000	120,000	120,000	120,000	120,000	120,000	120,000	885,000
Serology	0	1,300	1,500	3,000	3,000	3,000	3,000	3,000	17,800
TOTAL	75,000	91,300	121,500	123,000	123,000	123,000	123,000	123,000	

^{*}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)
MPHL	Public health lab		2,300		nursing homes, healthcare workers, elderly, disabled, personal care homes,racial and ethinic minorities, prisons, first responders, contacts
Singing River Health System - Ocean Springs/Pasagoula	Hospitals or clinical facility		150		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers

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)
Highland Community Hospital	Hospitals or clinical facility		40		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Merit Health - Natchez	Hospitals or clinical facility		10		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Boliver Medical Center	Hospitals or clinical facility		40		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Magnolia Regional Health Center	Hospitals or clinical facility		20		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Greenwood Leflore Hospital	Hospitals or clinical facility		10		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Southwest MS Regional Medical Center	Hospitals or clinical facility		25		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Rush MFI Outreach Lab	Hospitals or clinical facility		10		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers

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)
South Sunflower County Hospital	Hospitals or clinical facility		10		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
GA Carmichael Family Health Center	Community-based		10		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Open Arms Healthcare Center	Community-based		10		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
South Central Regional Medical Center	Hospitals or clinical facility		24		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Baptist Medical Center-Leake	Hospitals or clinical facility		20		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Baptist Memorial Hospital - Attala	Hospitals or clinical facility		10		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Tippah County Hospital & Tippah	Hospitals or clinical facility		10		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers

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)
County Health & Rehab					
Field Health System - Hospital	Hospitals or clinical facility		100		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Baptist Memorial Hospital Golden Triangle	Hospitals or clinical facility		288		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Merit Health - River Regional	Hospitals or clinical facility		40		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
UMMC	Hospitals or clinical facility		1,080	486	elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Merit Health Wesley	Hospitals or clinical facility		98		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
GV Sonny Montgomery VAMC	Hospitals or clinical facility		4		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers

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)
Merit Health- Central	Hospitals or clinical facility		192		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Ocean Springs Hospital	Hospitals or clinical facility		75		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Memorial Hospital At Gulfport	Hospitals or clinical facility				elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Forrest General Hospital	Hospitals or clinical facility		10		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Delta Regional Medical Center	Hospitals or clinical facility		14		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
St. Dominic Hospital	Hospitals or clinical facility		140		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
AEL	Commercial or private lab		3,000		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers

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)
Quest	Commercial or private lab		3,000		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Metric Lab	Commercial or private lab		2,000		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Lab Corp	Commercial or private lab		3,000		elderly, disabled, pre-existing conditions, racial and ethnic minorities, healthcare workers
Hattiesburg Clinic	Hospitals or clinical facility		70		elderly, disabled, pre-existing conditions, racial and ethnic minorities
Covington County Hospital	Hospitals or clinical facility		250		elderly, disabled, pre-existing conditions, racial and ethnic minorities
Choctaw Regional Medical Center	Hospitals or clinical facility		50		elderly, disabled, pre-existing conditions, racial and ethnic minorities
Merit Health- Biloxi	Hospitals or clinical facility		20		elderly, disabled, pre-existing conditions, racial and ethnic minorities
Merit Health Madison	Hospitals or clinical facility		50		elderly, disabled, pre-existing conditions, racial and ethnic minorities

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)
Baptist Memorial Union	Hospitals or clinical facility		10		elderly, disabled, pre-existing conditions, racial and ethnic minorities
Lackey Memorial Hospital	Hospitals or clinical facility		40		elderly, disabled, pre-existing conditions, racial and ethnic minorities
Noxubee General Critical Access	Hospitals or clinical facility				elderly, disabled, pre-existing conditions, racial and ethnic minorities
Ochsner Medical Center-Hancock	Hospitals or clinical facility		1,000		elderly, disabled, pre-existing conditions, racial and ethnic minorities
Webster Health Services-Eupora	Hospitals or clinical facility		20		elderly, disabled, pre-existing conditions, racial and ethnic minorities

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.

Many of the strategies outlined in the overarching strategy are applicable in the direct expansion of testing capacity within the Mississippi State Department of Health (MSDH) and through the Mississippi Public Health Laboratory (MPHL). To develop fluid strategies actively aligned with the state's COVID-19 landscape and the national blueprint, the MSDH has implemented a COVID-19 subject matter expert task force that is composed of epidemiology, laboratory, informatics technology, communicable disease, health disparity, licensure, communications and local health department administrators that meet weekly to review objectives and discuss available metrics to guide activities. This task force is lead by the State Health Officer and is responsible for ensuring that MSDH activities are effective and communicated.

Through the use of multiple EUA approved platforms already possessed by the laboratory, the MPHL's daily testing capacity is 2,300 molecular-based tests. The MPHL will source reagents and supplies through multiple means including the International Reagent Resource (IRR), various commercial vendors, and local organizations for the in-state manufacturing of specimen collection material. The MSDH was given emergency authority to allow the rapid procurement of supplies, test kits, collection kits, instruments, and equipment needed for COVID-19 testing. Vendors are contacted for products, estimated availability and price quotes. A vendor quote along with a purchase request for supplies or equipment is submitted to the MSDH purchasing department. A purchase order can be generated within two hours if needed to secure the product. Due to the high demand of the items related to COVID-19 testing, lead times for delivery of products may be 3-4 months. Orders are filled by vendors as items become available based on when a purchase order is submitted to the vendor. The quick turn-around-time to generate purchase orders is instrumental in obtaining test kits, collection kits, test consumables and other products needed to continue the support for COVID-19 activities.

The MPHL will recruit and hire additional testing and support staff to meet the needs of current and increased testing. The MPHL's primary COVID-19 testing bottlenecks are associated with data entry and specimen receipt/accessioning, both of which require individuals with less technical training. The limited number of testing staff restricts work shifts to 8 hours per day. To address these bottlenecks, the MPHL intends to hire 10 new accessioning staff, 6 additional data entry staff, 5 additional technologist and 2 shift supervisors using temporary staffing agencies, social media recruiting strategies, and computer-based interview processes. The MSDH Human Resources department has implemented an expedited hiring process to shorten the timeframe for onboarding newly hired staff from 4 weeks to 2 weeks using creative job opening marketing and implementing rapid part-time contract positions. Until new staff are onboarded, the MPHL will continue to reassign staff to assure that all testing activities are completed and will utilize MSDH volunteers for non-technical process. The MSDH and MPHL will reconfigure workspaces to practice safe distancing and implement multiple work shifts to accommodate increased staff.

The testing priorities at the MPHL are initial testing of Long-Term Care Facility (LTCF) employees and residents in new outbreaks, other identified outbreaks (particularly in congregate living settings),

healthcare workers, first responders, and close contacts to cases. The MSDH is assisting providers located in high incidence areas or associated with congregate settings (schools, universities, churches, industries, and prisons) throughout the state to expand testing capacity through the implementation of antigen testing, identifying laboratories with available COVID-19 testing capacity and providing account set-up information, and by providing direct testing support as needed. The MSDH will continue to partner with UMMC to perform testing for symptomatic individuals throughout MS, including remote areas with limited access to providers. The MSDH will continue to perform onsite testing in correctional institutions, industries, long term care residential facilities and other congregate settings with active outbreaks using with the National Guard, if possible. The MSDH will expand current partnerships with minority communities and the Mississippi Band of Choctaw Indians (MBCI) to target testing at vulnerable and high-risk settings including those areas with a higher incidence of morbidity and mortality. The MSDH will provide testing support for clinics, providers and community-based organizations located in high incidence areas as needed to enhance testing within vulnerable populations by at least 3% using commercial laboratories for individuals with insurance and the MPHL for the uninsured. MS currently estimates that 2100 individuals are affected by homelessness, a condition that greatly increases their risk for contracting and spreading COVID-19. To determine current disease rates within this population, The MSDH will work with homeless shelters to determine base-line testing on homeless individuals that utilize shelters. The MSDH will also provide COVID-19 educational materials to all sites and all individuals tested. The MSDH will also plan to provide testing support around outbreaks within Mississippi Department of Corrections (MDOC) system which houses approximately 20,000 inmates.

To ensure sufficient testing capacity at the MSDH, the MPHL will continue contracting with the University of Mississippi Medical Center (UMMC) and the American Esoteric Laboratories to provide overflow testing for up to 2500 RT-PCR specimens per day. To further expand testing capacity at a provider-level within the state, the MSDH will offer testing incentives to providers that implement point-of-care testing and/or enhance diagnostic testing. The incentive program will be advertised via a Health Alert Network message to all providers through-out the state as well as through the Mississippi Hospital Association and on the MSDH website. The incentive program will hinge on interested providers providing a testing plan to the MSDH that describes their testing method and platform for diagnostic testing, CLIA certification status/category, proposed patient population, daily testing volume and reportable disease reporting process. The plan will be submitted using a template developed by the MSDH's COVID-19 task force, who will also review each proposal, rate the testing impact provided through the plan and then determine the appropriate incentive amount based on a task forcedeveloped reimbursement calculation.

The MSDH will also enhance statewide syndromic surveillance by requesting established influenza-like illness providers to submit a minimum of 10 tests per week on both symptomatic and asymptomatic individuals. The MPHL will test the specimens for both influenza and COVID-19 using different assays until the CDC influenza/COVID-19 multiplex assay can be implemented. The MPHL will continue to report all influenza and COVID-19 test results to the CDC via a PHLIP message, which will be updated as soon as the CDC multiplex is implemented.

The MSDH will partner with UMMC to utilize serology to conduct a comprehensive statewide seroprevalence survey using targeted and geographical sampling seroconversion studies. The MPHL will supplement the statewide seroprevalence study by performing testing on a minimum of 5000 specimens

obtained from targeted individuals that live in high incidence areas, remote areas that have been underrepresented or are residents of conjugate settings such as prisons or detention centers. The MPHL will utilize specimen obtained through the county health department clinics that were collected for HIV surveillance through family planning, TB or STD programs after IRB review. The specimens will represent 15% of all HIVs tests received by the MPHL annually, with the majority of specimens collected from racial and ethnic minorities that have a higher risk for infection. The samples will be deidentified prior to testing except for the county of collection, race and any associated conjugate setting. Upon testing completion, the data will be reviewed to determine prevalence statistics by county, race and congregate setting type. To perform testing, the MPHL will implement an orthogonal testing algorithm for SARS-CoV-2 IgG because a high positive predictive value cannot yet be assured with a single test. The MPHL will perform an initial ELISA against the nucleocapsid protein of SARS-CoV-2 in serum obtained from specific populations of MS residents (residents associated with congregate setting, high incident areas, and low incident area). All positive specimens will then be tested by a confirmatory ELISA against full length SARS-CoV-2 Spike protein. The combined predictive values for the ELISA results will be reviewed to determine overall population-specific prevalence data. The MPHL will utilize a its current Abbott architect platform for the nucleocapsid testing and will obtain a second automated platform for the spike protein assay. If the second automated platform is not available, the MPHL will utilize a manual EIA for positive specimen confirmation. All data will be reviewed through reports generated by the MPHL Laboratory Information Management System (LIMS).

The MPHL will also explore the feasibility of IgM serology use in our county health department clinics for the diagnosis of COVID-19 infections by performing a pilot study that will compare RT-PCR and IgM results.

To streamline reportable disease reporting, the MSDH is moving to a mandate of only electronic reporting of positive and negative tests for SARS-CoV-2 with reporting through one of three mechanisms: MSDH Online Case Reporting Mechanism, COVID-19 CSV reporting template uploaded daily for positive and negative results and through Electronic Laboratory Reporting. The CSV template allows for direct reporting from facilities through an upload that is converted to an HL-7 message for uploading in the MSDH surveillance database. The electronic reporting mandate is expected to provide additional visibility for the testing being conducted in the state on a county basis and will assist with identifying a county level percent positive to inform community mitigation efforts at the local level. MSDH is in the process of implementing and transitioning to the NEDSS Based System (NBS) for COVID-19 only surveillance. The transition to NBS is expected to provide greater ease in reporting timely data to the public, and improve test result (positive/negative) reporting to CDC. In addition to streamlining reporting requirements, the MSDH will incorporate local county health departments as additional testing sites for close contacts identified through cases and contact tracing activities.

To streamline testing through electronic test orders and reporting, the MPHL will implement a web data entry portal for all on-site COVID-19 testing. The web data entry portal will replace the current test requisition and will require all CARES act information to be documented prior to test order completion. To facilitate congregate setting that have limited network capacity or that have MSDH-performed collections, a separate dual interface will be created that will allow data entry data to be imported through a spreadsheet and all test results to be reported back to the clients via a LIMS-generated spreadsheet. Both LIMS enhancements will reduce the time required to report test results through decreasing data entry processes and will also enhance the lab's ability to obtain the required CARES act

information by preventing the submission of test orders without all required patient information recorded.

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	20	3	4	10	3				40
				FOR DIAGNO	STIC 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)	3	0	1		1				5

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**	35,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	315,000
Volume of additional media (VTM, MTM, saline, etc.) needed to meet planned testing levels**	35,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	315,000

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 - Thermofish er)	3500/mont h of May- Hologic Panther;56 4/day- Abbott m2000; 486/day- Thermo TaqPath	1000/day- Hologic Panther;19 2/day- Abbott m2000; 428/day- Thermo TaqPath; 380/day- CDC							
				FOR SEROLO	GIC TESTING				
Number of additional* equipment and devices to meet planned testing levels	0	0		1					1

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 - Thermofish er)	0	1300/mont h Abbott Architect			1000				

^{*} 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.