

ELC ENHANCING DETECTION: MINNESOTA TESTING PLAN

2020 Overarching Jurisdictional SARS-COV-2 Testing Strategy

Jurisdiction:	Minnesota
Population Size:	5640000

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

The COVID-19 pandemic continues to present an unprecedented and rapidly evolving challenge to the state of Minnesota. For a variety of reasons, Minnesota is currently prioritizing COVID-19 testing for those who are symptomatic or are in a high-risk setting or population (congregate settings, staff in high-risk settings, critical utility workers, etc). We are continuing to expand the availability of testing for high-priority groups through a strong public/private partnership between MDH, the University of MN, the Mayo Clinic, and health systems and providers throughout the state, so that we can immediately respond to emerging hotspots and areas of concern, as part of our overall goal of ensuring testing is available with as few barriers as possible for anyone who needs it. Funding from the Epidemiology and Laboratory Capacity for Prevention and Control of Emerging Infectious Diseases (ELC) Enhancing Detection effort in Minnesota (MN-ELC) will help increase overall testing for COVID-19 across the state and improve the public health infrastructure that supports an effective response to disease outbreaks.

Testing 2% of the Minnesota population (5.64 million in 2019) monthly for COVID-19 requires reaching 113,000 individuals per month. To test 2% of the population in a month requires testing about 3,800 individuals per day. For May 2020 Minnesota has averaged about 5,100 tests analyzed per day; our goal is to reach 20,000 tests/day by the end of June, 2020. In the spreadsheet below, we have done our best to describe the complex set of relationships that exist between testing entities, performing labs, and priority populations in MN. We have very accurate and robust data on daily testing capacity by each lab. But because we already have so many sites across the state where COVID-19 testing is available - more than 200 clinics and hospitals - and are using mobile 'swab squads' from health systems and the National Guard to do onsite swabbing in congregate settings and sending specimens to multiple labs based on where capacity is available that day, these relationships are difficult to show here.

A. Testing platforms currently being used in Minnesota include CDC-2019-nCoV RT-PCR, ThermoFisher TaqPath SARS-CoV-2 RT-PCR, Roche Cobas 6800, Cepheid, GeneXpert, Diasorin, and Hologic Panther; we are adding Seegene Starlet technology in June. Results are tracked using our existing electronic laboratory reporting system, and have shown a steady increase in the number of tests performed. Daily lab capacity is monitored via a daily survey conducted by the University of Minnesota. The greatest number of tests are currently being performed at the Mayo Medical Laboratory.

Minnesota will meet anticipated increased demand using a combination of adding lab capacity within existing private labs and increased point-of-care testing. Funding will support analyzing routine tests at labs across the state (both instruments and staff), additional targeted sample collection capacity, and improvements to the PHL lab information system.

B. There are currently more than 200 sites in Minnesota where an individual can receive a test to detect COVID-19. Public testing sites are listed online at <https://mn.gov/covid19/for-minnesotans/if-sick/testing-locations/index.jsp> and are updated daily. Minnesota is also increasing testing in congregate

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care and living facilities in response to community outbreaks, as well as increasing testing for large employers with outbreaks.

C. Both molecular and serological testing are available in Minnesota. We currently are prioritizing diagnostic testing for symptomatic individuals and individuals in high risk settings such as congregate settings (long-term care facilities, shelters for people experiencing homelessness, correctional facilities) or high risk workplaces (such as food processing plants) or occupations (healthcare workers, first responders, critical utility workers, childcare). We will continue to make diagnostic molecular testing readily and widely available to the people of Minnesota through the use of mobile testing teams and community testing events, in partnership with private labs and health systems as well as community partners and local public health. We will explore other options to facilitate access to testing as indicated by the specific community and setting. This will include community centers and other local sites. We plan to hire health educators for specific minority communities who we are finding to be at high risk of infection and yet are not being tested to the same degree as other populations. These include health educators for the Karen, Hmong, Somali, Hispanic, African American and Tribal communities. In addition to molecular testing, we plan to run serial seroprevalence studies to assess exposure to COVID-19 in a variety of settings and communities throughout the state. These include testing blood bank donors, CASPER-like studies in different regions of Minnesota (including Tribal communities), an ongoing community survey with a serological component added, healthcare workers in acute and long-term care, residents in assisted living and long-term care, grocery workers, food processing plants, corrections officers, teachers and university students and faculty. We are also interested in assessing the seroprevalence among children prior to and after the reopening of schools. Other areas of interest for serial serological testing include communities that are experiencing outbreaks. We will collect demographic and epidemiological data in these studies in order to best understand the populations who have been exposed and use these data to inform prevention and control measures. We are partnering with the University of Minnesota for a mobile team that can be deployed in various parts of the state to collect data, and conduct serological and molecular testing on different populations on a regular basis.

D. For the immediate future all communication will be managed by the State Incident Command Structure (ICS), which has been fully activated since March 17, 2020 and maintains a Joint Information Center to coordinate messages. In addition to state agency representation, a Testing Command Center (TCC) has been established by the University of Minnesota and the Mayo Clinic, with State guidance and oversight and participation by major health systems and community providers from around the state, to manage COVID testing logistics and maximize available lab capacity. The Statewide Emergency Operations Center (SEOC) houses a large testing workgroup that is tasked with operationalizing the overarching testing plan described here.

Existing electronic lab reporting (ELR) and eCR reporting from external providers to MDH will be enhanced by using improved direct messaging, Digital bridge and existing health information organization (HIO) infrastructure in MN. HIO infrastructure will be expanded by enhanced governance as well as focus on public health reporting use cases. Data received through ELR and eCR will be enriched by adding additional data elements from electronic health records, to cover gaps in reporting. This systematic approach to improving surveillance, exchange, and reporting systems will maximize the use of existing assets with full stakeholder engagement to increase efficiency of disease reporting and follow-up and address emerging research and population health needs.

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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*	186,000	465,000	600,000	675,000	750,000	750,000	750,000	750,000	4,926,000
Serology	28,000	100,000	300,000	450,000	450,000	450,000	450,000	450,000	2,678,000
TOTAL	214,000	565,000	900,000	1,125,000	1,200,000	1,200,000	1,200,000	1,200,000	

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 throughput	Daily serologic throughput	Platforms or devices used (list all)	Specific at-risk populations targeted (list all)
	Other		1,000			Vulnerable populations in congregate care or living settings, persons experiencing homelessness
	Commercial or private lab		6,000	6,000		Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers

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Name of testing entity	Testing venue (select from drop down)	Performing Lab (if different from testing entity)	Daily diagnostic throughput	Daily serologic throughput	Platforms or devices used (list all)	Specific at-risk populations targeted (list all)
	Hospitals or clinical facility		1,500	500		Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers
	Hospitals or clinical facility		2,300	5,000		Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers
	Hospitals or clinical facility		2,000	300		Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers

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Name of testing entity	Testing venue (select from drop down)	Performing Lab (if different from testing entity)	Daily diagnostic throughput	Daily serologic throughput	Platforms or devices used (list all)	Specific at-risk populations targeted (list all)
	Hospitals or clinical facility		1,600			Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers
	Hospitals or clinical facility		750			Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers
	Hospitals or clinical facility		1,100	500		Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public

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						utility workers, hospital inpatient, childcare/education workers
	Hospitals or clinical facility		450			Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers
	Hospitals or clinical facility		450			Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers
	Hospitals or clinical facility		430	200		Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers

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Name of testing entity	Testing venue (select from drop down)	Performing Lab (if different from testing entity)	Daily diagnostic throughput	Daily serologic throughput	Platforms or devices used (list all)	Specific at-risk populations targeted (list all)
	Hospitals or clinical facility		400			Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers
	Hospitals or clinical facility		200			Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers
	Hospitals or clinical facility		1,400			Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers
	Hospitals or clinical facility		200			Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers

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Name of testing entity	Testing venue (select from drop down)	Performing Lab (if different from testing entity)	Daily diagnostic throughput	Daily serologic throughput	Platforms or devices used (list all)	Specific at-risk populations targeted (list all)
	Hospitals or clinical facility		35			Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers
	Hospitals or clinical facility		165			Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers
	Hospitals or clinical facility		220			Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers
	Hospitals or clinical facility		200			Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers

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Name of testing entity	Testing venue (select from drop down)	Performing Lab (if different from testing entity)	Daily diagnostic throughput	Daily serologic throughput	Platforms or devices used (list all)	Specific at-risk populations targeted (list all)
	Hospitals or clinical facility		100	100		Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers
	Federally Qualified Health Center	Multiple laboratories	2,000			Vulnerable populations in metro and rural Minnesota, with a focus on populations of color, tribal nations, and persons experiencing health inequities or barriers to access to care
	Commercial or private lab	University of Minnesota/ M Health Fairview	2,000	500		Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers

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Name of testing entity	Testing venue (select from drop down)	Performing Lab (if different from testing entity)	Daily diagnostic throughput	Daily serologic throughput	Platforms or devices used (list all)	Specific at-risk populations targeted (list all)
	Commercial or private lab	Henepin Healthcare	500			Nursing homes, prisons, other congregate living settings, persons experiencing homelessness, healthcare workers, public utility workers, hospital inpatient, childcare/education workers

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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.

As a note on the information below: we have provided information both for our public health laboratory (PHL) and for private labs. We have entered some of this information in narrative form, so that it is easier to distinguish which needs are for the PHL and which are for private labs. Because we have provided the information in that way, the TOTAL column is not able to calculate a total; we cannot manually enter one. We are happy to provide this information in a different format if that is easier.

A. The Minnesota Department of Health (MDH) is expanding testing capacity through the Public Health Laboratory (MDH-PHL), as well as through partnerships with Mayo Medical Laboratory (MML) and the University of Minnesota (UMN) and other community partners such as private sector health care system reference laboratories. Contractual agreements with MML and UMN and others will provide daily capacity of 20,000 tests a day between the two entities by June 2020. In May, there was an average of 5,100 tests each day. Each testing facility outside of MDH is procuring equipment and reagents as described below, to maintain and expand their capacity. MDH-PHL will be expanding its capacity to test up to 1,000 samples a day through the addition of two new King Fisher Flex extraction instruments being requested through this funding. To facilitate collection of samples, MDH, in close collaboration with the Testing Command Center, the SEOC, and local/community partners throughout the state, is expanding our use of mobile testing teams and our ability to rapidly respond to COVID-19 hotspots. The state is entering into contractual arrangements with multiple health systems, federally qualified health centers, and community partners to conduct mobile testing in high-priority settings and populations, and leveraging the Testing Command Center to ensure that samples from these priority settings are directed to labs with available capacity. State resources will be leveraged to ensure that appropriate case investigation and contact tracing occur in a timely manner. In addition to the MDH-PHL, the private sector health care system laboratories are trying to increase their COVID 19 testing capacity through the purchase, in the coming months, of 17 testing platforms from multiple manufacturers including: Luminex Aries, Roche, Seegene-(Starlet), Hologic Panther and Thermo Fisher (KingFisher). The exact delivery dates of these systems varies by manufacturer but several should be installed before Fall 2020. Funds for these purchases are not being requested as part of this grant, but we are listing them below because they are critical to the success of the overall testing strategy.

B. Health equity is the primary emphasis of the MDH vision, which helps us strive towards a time when “all communities are thriving and all people have what they need to be healthy.” Existing COVID dashboards track age, gender, race, exposure route, and residence type, documenting a number of vulnerable populations in the state so that we can best target outreach and supports.

In early May, Minnesota began implementing a 5-part ‘Long Term Care Battle Plan,’ to ensure that vulnerable residents and staff in skilled nursing and assisted living settings are prioritized for testing and provided necessary supports to address staffing and infection control needs. The expanded testing protocols that form the center of this plan will be extended to other congregate settings in the coming weeks. Minnesota is also working closely with federally qualified health centers, tribal health directors, and community partners to enhance both testing and wrap-around supports in communities of color and tribal nations. We are also working to ensure testing is available in homeless shelters and

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encampments, domestic violence shelters, correctional settings, and in other vulnerable groups through a range of partnerships and contractual arrangements

Capacity at MDH-PHL is reserved for the highest-priority testing when there is a need for the fastest turn-around time and extra epidemiology and infection prevention support. MDH-PHL also reserves capacity for community-based testing through partnerships with outpatient clinics as well as for suspect COVID-19 related deaths.

C. The Testing Command Center serves as the “air traffic control center” for testing logistics in Minnesota, with daily monitoring of available capacity at labs throughout the state and protocols for sending samples to and from labs based on need and capacity. This unique public/private partnership has helped drive a level of health system collaboration around testing that is helping MN achieve its testing goals more efficiently and effectively than would otherwise be possible. A data team at the TCC is also working to ensure complete and timely data submission to MDH for case investigation and contact tracing. The SEOC serves as the home for the testing workgroup that guides the TCC and is responsible for operationalizing the overall testing strategy. The SEOC also houses the state’s warehouse of testing supplies and PPE; testing supplies are made available to testing sites as needed, with a priority placed on testing in priority populations and settings such as long term care.

D. Serology testing will continue to be an integral part of the COVID response in Minnesota. MDH-PHL is implementing IgG serology for COVID-19 with estimated implementation in June 2020. The laboratory will be using a manual method with serology kits compatible with automated systems if demand increases. MDH-PHL also plans to validate capillary blood collected on filter paper to facilitate sample collection on children or just public collection of samples. MMC, UMN, and partners also have developed serology capacity of up to 15,000 tests a day on high-throughput automated platforms. That testing capacity will be used for mass testing of communities for serial seroprevalence surveys, as described in an earlier section. Capacity at MDH-PHL will be used for smaller seroprevalence surveys where more epidemiologic data needs to be collected to further understand viral spread in that specific setting.

E. Community mitigation and sentinel surveillance will be enhanced by final implementation of the Minnesota Electronic Disease Surveillance System (MEDSS) and enhancements targeting interoperability between the state and local public health departments. Efforts will also support conducting serology testing with an FDA EUA authorized serological assay to understand past infection; surveillance will include testing high-risk populations and using a modified Community Assessment of Public Health Emergency Response (CASPER) protocol.

F. The MDH Department Operations Center (DOC) works in coordination with the state ICS to expedite and streamline allocation of resources and staff to meet priorities. Materials coming in from local, state, and federal sources are coordinated and managed through a warehouse with assistance from the Minnesota National Guard. MDH is working closely with its Financial Management and Human Resources Divisions to help with procurement and staff. MDH already has “Emergency authorization” in place for purchasing laboratory reagents, supplies and equipment. In addition to hiring, MDH is able to work through its ICS structure to have staff reassigned to areas that need staff immediately.

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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	
Number of additional* staff to meet planned testing levels	2 for the Public Health Lab	Total of 32. 2 for Public Health Lab. 30 additional staff for testing and analysis for private, county and U of MN labs	30 additional staff for testing and analysis for private, county and U of MN labs	30 additional staff for testing and analysis for private, county and U of MN labs	30 additional staff for testing and analysis for private, county and U of MN labs	30 additional staff for testing and analysis for private, county and U of MN labs	30 additional staff for testing and analysis for private, county and U of MN labs	30 additional staff for testing and analysis for private, county and U of MN labs
FOR DIAGNOSTIC TESTING								

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BY MONTH:	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	
How many additional* testing equipment/devices are needed to meet planned testing levels? (provide an estimated number, and include platform details in narrative above)	2 for the Public Health Lab	If available 3 testing platforms installed by private sector health system and county labs	If available 3 testing platforms installed by private sector health system and county labs	If available 3 testing platforms installed by private sector health system and county labs	If available 2 testing platforms installed by private sector health system and county labs	If available 2 testing platforms installed by private sector health system and county labs	If available 2 testing platforms installed by private sector health system and county labs	If available 2 testing platforms installed by private sector health system and county labs
Volume of additional swabs needed to meet planned testing levels ⁺⁺	No additional needed	110,000 for the PHL. 165,000 for the private health system labs.	270,000 for the PHL. 330,000 private health system labs.	303,750 for the PHL. 371,250 private health system labs	337,500 for the PHL. 412,500 private health system labs.	337,500 for the PHL. 412,500 private health system labs.	337,500 for the PHL. 412,500 private health system labs.	337,500 for the PHL. 412,500 private health system labs.

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BY MONTH:	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	
Volume of additional media (VTM, MTM, saline, etc.) needed to meet planned testing levels**	No additional needed	110,000 for the PHL. 165,000 private health system labs.	270,000 for PHL. 330,000 private health system labs.	303,750 for the PHL. 371,250 private health system labs.	337,500-PHL. (412,500 private health system labs)	337,500 for the PHL. 412,500 private health system labs.	337,500 for the PHL. 412,500 private health system labs.	337,500 PHL. 412,500 private health system
Volume of additional reagents needed to meet planned testing levels, by testing unit and platform (i.e. 100K/day - Hologic panther; 100k/day - Thermofisher)	No additional needed	116,250/month -Hologic 116,250/month-Starlet 116,250/month Cepheid 116,250/month KingFisher	150,00/month -Hologic 150,000/month-Starlet 150,000/month Cepheid 150,000/month KingFisher	168,750/month -Hologic 168,750/month-Starlet 168,750/month Cepheid 168,750/month KingFisher	187,500/month -Hologic 187,500/month-Starlet 187,500/month Cepheid 187,500/month KingFisher	187,500/month -Hologic 187,500/month-Starlet 187,500/month Cepheid 187,500/month KingFisher	187,500/month -Hologic 187,500/month-Starlet 187,500/month Cepheid 187,500/month KingFisher	187,500 -Hologic 187,500 Starlet 187,500 Cepheid 187,500 KingFisher
FOR SEROLOGIC TESTING								
Number of additional* equipment and devices to meet planned testing levels	28,000	100,000	300,000	450,000	450,000	450,000	450,000	

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BY MONTH:	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	
Volume of additional reagents needed to meet planned testing levels, by testing unit and platform (i.e. 100K/day - Hologic panther; 100k/day - Thermofisher)	28,000/month Roche Cobas	100,000/month Roche Cobas 100/day- Euroimmune	300,000/month Roche Cobas	450,000/month Roche Cobas	450,000/month Roche Cobas	450,000/month Roche Cobas	450,000/month Roche Cobas	450,000/month Roche C

* 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.