

ELC ENHANCING DETECTION: NEBRASKA TESTING PLAN

2020 Overarching Jurisdictional SARS-COV-2 Testing Strategy

Jurisdiction:	Nebraska
Population Size:	1.9 million

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

Nebraska Department of Health and Human Services (NDHHS) is utilizing multiple avenues in order to increase and maintain testing capacity to thoroughly provide access to Nebraskans in both the urban population centers and in the rural/frontier areas on a consistent basis. In order to accomplish, the goal of testing at least 2% of the state's population (estimated at 38,700 tests/month or 1,300 tests/day based on 2019 U.S. Census estimates) NDHHS is working with local public health department partners; medical and health care professional associations; public and private laboratories; health care facilities, systems, and providers; large employers such as distributors, manufacturers, and meat processing facilities; pharmacies; academic institutions; as well as many others.

The main strategies NDHHS is utilizing include (1) identifying and maximizing testing platforms throughout the state; (2) identifying points-of-care to perform small and large scale testing; (3) identifying areas, industries, and populations that are at an increased risk for infection or severe outcomes; and (4) localized and statewide communication and outreach plans.

Strategy 1: Identifying and maximizing testing platforms throughout the state

NDHHS has identified the three (3) high-throughput machines outside of the Nebraska Public Health Laboratory (NPHL) in the state and more than 50 other low-throughput machines throughout the state (tests able to be run per day is highly variable depending on the machine and the supply availability; estimates are not included in capacity estimates to reach 2% for this reason). In addition to these machines, Nebraska has procured contracts to utilize and increase testing capacity through private labs like LabCorp (300 tests/day), Physicians Lab (300 tests/day), and Quest (300 tests/day) as well as through TestNebraska. Nebraska is using a variety of platforms and testing options to ensure full coverage of the state and ensure the continuity of testing even if one particular laboratory is experiencing a backlog, delay, limited supplies, or other limitations. In order to maximize the use of the high-throughput and low-throughput machines, NDHHS has reached out to each facility to identify barriers to the full utilization of these machines. Early information gathered from these facilities has identified a variety of needs depending on the lab include specimen collection kits (nasal pharyngeal swabs, viral transport media and tubes), staffing limitations, and other testing supply limitations (PCR enzymes, extraction kits, etc.).

Nebraska does have some rapid testing machines (included in the above communications with facilities) located throughout the state, however, the cartridges and supplies needed to make these a valuable tool has had several supply chain issues on a continual basis. NDHHS is in communication with facilities that do have this equipment and will continue to work with them to identify ways that these can be utilized further. An additional note, if NDHHS, a provider, or the local health department need to

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receive test results quickly, NPHL, in many cases is able to have those results turned around within 24 hours to ensure rapid response in the event of an emerging outbreak such as in the case of a shelter or in high-risk facilities for rapid transmission like meat processing or distribution facilities.

The procurement team at the Nebraska Department of Administrative Services in collaboration with NDHHS, has identified a variety of suppliers that can help assist labs in procuring additional specimen collection kits and laboratory supplies as needed. In order to increase the overall workforce, NDHHS has been working and collaborating with local academic institutions and increasing testing avenues (public, academic, private labs) to address staffing limitations to facilitate labs running at maximum capacity. Additionally, through our conversations with the labs, several are looking into further routes to increase their qualified lab personnel to increase testing capacity.

Strategy 2: Identifying points-of-care to perform small and large scale testing

To identify locations to perform small and large scale testing NDHHS is collaborating with our local public health departments (LHDs). The LHDs are embedded in the local communities and have been working in the 19 geographic regions for years, this local knowledge and the variety of established relationships is ideal for ensuring that the appropriate locations for testing are identified quickly. Smaller scale testing sites that have been used up until this point include primary care providers, health care facilities, long-term care facilities, federally qualified health centers (FQHCs), and the LHDs. Larger scale testing sites that have been used up to this point include community centers, fairgrounds, FQHCs, hospitals, local large employers like meat processing plants, and long-term care facilities. In order to staff the large scale testing we have utilized the Nebraska Army National Guard (ANG), agreements with local hospitals and health care providers. These strategies have allowed for NDHHS to quickly identify, organize, set-up, and complete testing in a variety of locations, with a variety of populations, and across the state.

To accommodate testing demand and provide testing in the future, NDHHS is working with several partners to identify additional traditional and non-traditional testing sites (e.g. hospitals, pharmacies, clinics, churches, mobile testing sites, housing authorities, etc.). To ensure our existing health care infrastructure is utilized to provide continuous testing, NDHHS is working with professional associations, health care facilities and providers in addition to the LHDs on a weekly basis to ensure that these systems are continued to be used even with our large scale testing sites. The existing infrastructure and medical providers, are a stable and trusted source of information, health care in their communities, and are key to ensure that vulnerable populations are reached. Furthermore, in order to ensure that our at-risk populations have access and an ease of access to testing NDHHS and LHDs have been working with local housing authority, churches, providers, community/cultural centers, shelters, schools, LTC, FQHCs, and medical staffing to provide testing sites that are easy for individuals to access and meet timing needs.

Through our work with the ANG and LHDs, we are reaching out to local health care facilities including clinics, hospitals, pharmacies, FQHCs, long-term care facilities, and medical staffing (additional mobile sites) to secure agreements for permanent high-throughput testing sites. Conversations have begun with several entities through our partnerships with LHDs with a goal of solidifying initial sites by the end of July. At this time Nebraska has contracts with more than 30 partners to provide regular, at minimum,

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weekly testing throughout the state to also include areas with highly vulnerable populations. Additionally, the ANG is providing training to these facilities on protocols, methods, logistics, and procedures to ensure that these facilities can utilize the methods used by the ANG to ensure efficient testing of large numbers of individuals (in some cases up to 600 individuals tested at one site in one day). NDHHS has also begun conversations with the Nebraska Pharmacists Association to onboard pharmacy testing locations throughout the state. In Nebraska, there are approximately 500 community pharmacy locations and this network of pharmacies would provide a valuable trusted location for individuals to receive testing throughout the state including our rural/frontier counties. Finally, if needed, the ANG would be an option to provide additional support if there is a facility or large community outbreak that requires a “strike team” to provide surge support. To round out our capacity and to ensure that we are able to provide quick testing access in the event of multiple outbreaks around the state, Nebraska is working with our partners to stand up “strike teams” to provide additional support when the ANG is not able to or has met capacity in the event of a community, large employer, long-term care facility or other emergent need.

When serologic testing is needed, these same strategies will be utilized to ensure statewide coverage is provided. NDHHS will coordinate with the NPHL, who will identify a serological test platform in consultation with CDC that will provide the performance and test process that works best within the laboratory.

Strategy 3: Identifying areas, industries, and populations that are at an increased risk for infection or severe outcomes

Throughout the pandemic it has become apparent that geographic areas, populations and industries that are at an increased risk for infection or severe outcomes need to be identified quickly and proactively to ensure mitigation procedures are put into place prior to an outbreak. Through our collaboration with University of Nebraska Medical Center (UNMC) infection prevention and control experts, NDHHS has identified facility types and vulnerable areas throughout the state that can be worked with proactively, at the beginning of an outbreak, and in the midst of an outbreak to mitigate risk and slow the spread of infections in those areas. A team of experts has been able to be deployed to burgeoning hot spots or prior to an outbreak to provide on-site training and guidance for each facility taking into account specific areas of risk for coronavirus infection spread. This team is also able to provide quick and effective feedback on where additional testing is needed. In addition to this team, conversations with LHDs occur at minimum daily to ensure hot spot areas, industries, or populations at risk are identified quickly.

In planning and preparation for the near future, NDHHS and UNMC College of Public Health are working together to develop two additional teams to provide proactive support, education, and infection prevention, as well as, post-outbreak support and prevention education to mitigate risk for future outbreaks. These teams will include local health department members to help increase partnerships within the communities, capacity, and knowledge base at a local level. The goals for work with UNMC College of Public Health is to provide support and assist in building capacity at the local/community level.

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Strategy 4: Localized and statewide communication and outreach plans

NDHHS uses a variety of modalities to ensure that communication is occurring with local and statewide testing and laboratory partners, as well as the general public.

Health care partners: NDHHS utilizes our Health Alert Network, weekly calls with professional associations, multiple provider conference calls each week, press releases, press conferences and LHDs to provide up-to-date information and guidance on testing. These communications include schedules for mass testing sites, testing protocols, best practices, and testing consultation. Additionally, processes for requesting testing supplies have been put into place to ensure at least weekly supply fulfillment when needed.

Laboratories: NDHHS has embedded liaison staff with our public health lab and have put into place processes for requesting testing supplies, reagents, and other supplies for at least weekly supply fulfillment when needed. Regular conference calls and stable point of contacts have been established to ensure regular check-ins with laboratories. For our non-public health laboratories, NDHHS has staff that is regularly reaching out and having discussions with the facilities, in addition to our LHDs communications with these labs (the majority have established weekly central command meetings to ensure all response efforts in their communities are addressing challenges as quickly as possible).

LHDs: NDHHS has at least daily calls with the LHDs to do check-ins and guarantee regional and statewide testing plans and goals are shared and discussed. NDHHS also has a stable point of contact/liaison to make sure that they have ample opportunities to provide feedback and updated on needs of their jurisdictions.

General public: NDHHS uses press conferences, press releases, information call lines, social media, major employers, collaborations with a variety of stakeholders and LHDs, partnerships with the Governor's office and others to communicate testing throughout the state and in local communities.

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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*	38,700	38,700	50,000	50,000	50,000	50,000	50,000	50,000	377,400
Serology									0
TOTAL	38,700	38,700	50,000	50,000	50,000	50,000	50,000	50,000	

*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)
Nebraska Public Health Lab (NPHL)	Public health lab		300		hospitalized, healthcare workers, residents of group living facilities (LTCF, shelters), over 65, first responders
Nebraska Medicine	Hospitals or clinical facility		100		overflow from NPHL; focused test collection sites
LabCorp	Commercial or private lab		300		Focused high-risk areas
Quest	Commercial or private lab		300		Focused high-risk areas

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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)
Physicians Lab	Commercial or private lab		300		Focused high-risk areas
TestNebraska	Other		3,000		all NE residents eligible

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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.

Testing capacity expansion

NDHHS is primarily expanding lab testing capacity beyond current capacity through the public health lab, contracting with new state and national laboratories, procuring testing supplies, and partnerships with health care systems.

Expansion of lab testing through the public health lab has included identifying additional high-throughput extraction and PCR equipment to increase the throughput of the tests and increasing the efficiency of test processing by staff. Through NDHHS partnership with Nebraska Department of Administrative Services (NDAS), the high throughput equipment has been ordered and is currently awaiting fulfillment (with an expected receipt date by June 30th, 2020). NDAS, NDHHS, NPHL and CDC IRR have had conversations to ensure that once the equipment has been received the IRR will be able to provide the required supplies, enzymes, and reagents to reach full capacity on this machine. This expansion in equipment will allow for NPHL to run up to 800 tests/day, an increase of 500 tests/day from our current capacity.

The machine ordered is the Qiagen EZ1 Advanced XL system and will require NDHHS to source automated purification nucleic acids to allow for the additional 500 tests/day to increase our current capacity.

Through a partnership with a local health care system, an overflow of 100 tests/day from NPHL has been secured.

Contracts with new state and national laboratories such as LabCorp, Physicians Lab, and Quest have been fully executed and have increased our daily testing capacity by 900 tests/day through 3 different laboratories that are regularly used by providers throughout the state.

Through NDAS' recent procurement of TestNebraska and a contract with a local lab to perform the testing, NDHHS is able to currently test approximately 1,500 tests/day and will be expanding in the next week to 3,000 tests/day capacity. The expansion of this testing allows for large-scale community based testing instead of only targeted high-risk populations only being tested. This capacity allows for better insight into the true burden of disease in Nebraska.

Finally, NDHHS is working with our contracted provider of our disease surveillance system to ensure that the system is able to handle surges in electronic lab reports. All of Nebraska's lab results are received electronically. Additionally, NDHHS is working with our IT support team with the Office of the CIO (OCIO) on data management, data integrity and quality, as well as, incoming feeds from labs and outgoing feeds to our local health departments and disease investigators to make sure that the current systems are able to maintain service needs now and in the future.

Testing of vulnerable and at-risk populations

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NDHHS has been working with LHDs and with other partners to prioritize vulnerable and at-risk populations in a variety of ways. The main way that we are reducing barriers to testing for these groups are through the use of trusted partners to set-up and perform testing, current infrastructure, and through the help and guidance of LHDs. One main focus of the work with our partners is to make sure that testing is accessible for all populations. Items considered and focused on for all testing sites and testing options include: (1) registration for testing (online, phone, on-site/in-person, etc.); (2) locations for testing (drive-up ease of access, wheelchair or other access needs, proximity to mass transit pick-up/drop-off sites, access to and from major thoroughfares, existing testing locations like FQHCs, congregate living or large employer facilities, etc.); (3) variety of timing options for shift work and for others that are not able to go to testing between a typical 8am-5pm timeframe; (4) in situations like long-term facilities for example, training qualified staff at the facility to perform the testing as to not introduce outsiders into the facility to limit risk of exposure to the residents.

Elderly not currently living in a congregate setting: NDHHS has opened up priority testing for this population specifically through our TestNebraska drive-thru test sites. Of TestNebraska's (as of 07/10/2020) ~85,000 scheduled appointments, ~23% have reported an age of over 65 years (Census.gov notes 65+ population makes up ~16.2% of Nebraska's total population). This allows them to set up an appointment to come for testing on their schedule without requiring them to wait/stand in lines and allows them to stay in their vehicles to reduce exposure to anyone who is possibly infected. Appointments do need to be made online, however, we are working through strategies to ensure that everyone (all Nebraskans, including those 65+) has multiple opportunities to be tested if they do not have internet/email capabilities or are not comfortable inputting their information on a website.

Individuals living in congregate settings: NDHHS and LHDs work together to set-up testing in these locations. Depending on the individuals living in these settings, ANG staff may be utilized for the testing or the facilities own health care personnel. Typically, we prefer to limit exposure to the individuals by using ANG staff to train the facilities personnel to perform the testing on-site and then return the completed specimens to ANG for courier to the lab. This also provides additional security to the patients, as they are more familiar with the individuals performing the tests and again, it reduces the possibility that the staff from outside the facility will introduce the virus in the facility. NDHHS is planning on providing testing to all staff at these facilities as they are the main entry point of coronavirus into the facilities and will be working with facilities directly on testing residents as quickly as possible. There are approximately 490 long-term care facilities and approximately 110 facilities for those with intellectual and developmental disabilities licensed across the state and we will be prioritizing facilities in hot spot areas, around meat processing/distribution facilities, and those with known cases in staff or residents. NDHHS and the Nebraska Department of Correctional Services (NDCS) are collaborating on increasing testing capacity to make sure that correctional staff and inmates are able to be tested regularly and as needed in the event there are cases in the facility.

Racial/ethnic minorities and those persons experiencing homelessness: NDHHS, LHDs, and the local FQHCs or other community partners such as local housing authority, shelters or faith communities serving these populations are utilized to set-up and perform the testing for those populations. This arrangement allows for those familiar with those communities to provide the point of care testing in a location and environment that is familiar and comfortable. Additionally, we have found that it is key to work with a trusted community leader to ensure that the message for testing reaches all the members of those communities and not just those that use social media or other mass media.

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Healthcare workers, first responders, and other critical infrastructure: NDHHS, LHDs, and employers all work together to ensure these groups are provided testing when needed. NDHHS has communicated with health care providers that these groups need to be prioritized as well as, they are prioritized through our TestNebraska drive-thru test sites.

Barriers to efficient testing

The primary way that NDHHS identifies barriers to efficient testing is through regularly daily or weekly communication with those that are performing the testing and through having a main contact person that they are able to reach out to immediately if problems arise. In the past, we have had challenges with underutilization, supply chain issues and logistics, each of these has been identified through the lines of communication and NDHHS has been able to overcome issues by working with these individuals and through our partnership with NDAS, ANG, LHDs, IT support staff, and many others.

Serologic testing

To date, 4,608 serology tests have been performed on NE resident specimens including 212 positive (4.6%). NDHHS will coordinate with the NPHL, who will identify a serological test platform in consultation with CDC that will provide the performance and test process that works best within the laboratory. The CDC continues to also evaluate EUA serological assays to determine which processes will be most useful for epidemiological investigating. Once the appropriate assay has been identified, NPHL will perform a verification process and complete the electronic order/reporting processes necessary to have the assay available. NPHL will collaborate with their clinical partner laboratory at Nebraska Medicine to evaluate serological assays to detect antibodies to different protein targets (spiked and nucleocapsid) to determine immunological responses within the Nebraska population. NPHL will also work with partners at the University of Nebraska Medical Center as well as CDC to better define long-term antibody responses to COVID-19 infection. These studies will be designed to evaluate antibody titers over time and potentially the role neutralizing antibodies might play in the overall serological response.

Resource utilization and sentinel surveillance

As described above in the testing capacity expansion, Nebraska plans to allocate and utilize our testing supplies and resources in a variety of ways. These will include working with local providers and existing health care infrastructure to encourage and utilize them in making sure that all populations (rural/urban, minority groups, at-risk populations, etc.) all have access to testing when needed. Additionally, we have been working with our influenza sentinel surveillance providers throughout the state and our FQHCs to ensure that if/when further infections or outbreaks occur they are caught quickly. This timeliness will be key to mitigating the risk of further spread to both vulnerable and our general populations. Other methods for surveillance include: (1) the use of our syndromic surveillance system (through ESSENCE platform) with our influenza like illness and coronavirus like illness definitions to rapidly identify when and where treatment for these symptoms is being sought. As of February 2020, NDHHS syndromic surveillance covers 78% of emergency departments and 96% of emergency department near real-time visits statewide (rural and urban), providing a valuable tool to rapidly identify if there are surges in any particular region of the state. NDHHS is continuing to onboard facilities with

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the ultimate goal to have 100% coverage. (2) Through the NDHHS Infection Control Assessment and Promotion Program (ICAP) in collaboration with our Long-Term Care licensure team and the LHDs, we monitor long-term care facilities to identify positive cases. We plan to utilize testing through TestNebraska and other testing methods to ensure that we are providing regular testing capabilities to our long-term care facilities. NDHHS is currently developing a testing plan to ensure we are utilizing this as a sentinel surveillance tool including planning for a sampling of a proportion of our ~600 long-term care facilities and facilities for those with intellectual and developmental disabilities and to ensure that all of our congregate living facilities (including correctional facilities in addition to those mentioned above) are receiving adequate testing on a regular basis.

Procurement

Through the pandemic to this point Nebraska has identified several ways to expedite and streamline procurement, hiring, and on-boarding new staff; the most effective and efficient way to do this is through our partnership with NDAS and NDHHS Human Resources. The partnerships and ability to work with individuals who are experts in operations and staffing has been the key to expediting all of the procurement, hiring and on-boarding to this point. We will continue to work with them to ensure this continues. The main bottlenecks experienced to this point have been sourcing personal protective equipment, lab equipment, and testing/lab supplies. Through time we have been able to source what is needed however, any assistance that can be provided to expedite these timelines, particularly with high throughput lab equipment and testing/lab supplies would be extremely beneficial. An example would be to procure another high-throughput machine for NPHL, DAS/NDHHS/NPHL began work in mid-March to procure the equipment and will be expecting this to be fulfilled by the end of June, consequently directly effecting testing capacity throughout the state during several large meat processing facility outbreaks.

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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	3	3	3	3	3	3	3	3	24
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)	1								1

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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 ⁺⁺	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	120,000
Volume of additional media (VTM, MTM, saline, etc.) needed to meet planned testing levels ⁺⁺	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	120,000

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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)	Automated purification nucleic acids to allow for 16,730 tests/month with a 10% increase for any errors and for validation	Automated purification nucleic acids to allow for 16,730 tests/month with a 10% increase for any errors and for validation	Automated purification nucleic acids to allow for 16,730 tests/month with a 10% increase for any errors and for validation	Automated purification nucleic acids to allow for 16,730 tests/month with a 10% increase for any errors and for validation	Automated purification nucleic acids to allow for 16,730 tests/month with a 10% increase for any errors and for validation	Automated purification nucleic acids to allow for 16,730 tests/month with a 10% increase for any errors and for validation	Automated purification nucleic acids to allow for 16,730 tests/month with a 10% increase for any errors and for validation	Automated purification nucleic acids to allow for 16,730 tests/month with a 10% increase for any errors and for validation	Automated purification nucleic acids to allow for 16,730 tests/month with a 10% increase for any errors and for validation
FOR SEROLOGIC TESTING									
Number of additional* equipment and devices to meet planned testing levels									0

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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)									

* 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.