

ELC ENHANCING DETECTION: ARIZONA TESTING PLAN

2020 Overarching Jurisdictional SARS-COV-2 Testing Strategy

Jurisdiction:	Arizona
Population Size:	7,189,020

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

The Arizona Department of Health Services' (ADHS) plan to expand COVID-19 testing is a multi-tiered approach leveraging public and private partnerships. The plan has four core strategies in various stages of implementation:

Strategy 1: Arizona Testing Blitz

Strategy 2: Increased testing of vulnerable adults in congregate settings

Strategy 3: Increased testing at additional community sites (e.g. pharmacies, urgent cares, community health centers)

Strategy 4: Contracting with complex laboratories to increase targeted testing of healthcare workers, first responders, university students and staff, and other critical infrastructure personnel

Strategy 5: Increased testing in laboratories with unutilized or underutilized instrumentation to support COVID-19 testing

Strategy 1: Arizona Testing Blitz

The goal of Strategy 1 is to increase the availability of diagnostic testing across Arizona throughout May 2020, with a special focus on Saturday testing. On 4/22/2020, Dr. Cara Christ, director of ADHS, issued statewide standing orders for the testing of individuals who believe they were exposed to an individual infected with COVID-19. ADHS invited known community-based testing sites, large testing laboratories, and other potential testing partners and offered financial and logistical support to participating sites. ADHS created and promoted a website (azhealth.gov/TestingBlitz) with a full list of sites, instructions on how to pre-register if required, and contact information for the providers. The Arizona Testing Blitz sites offered, at a minimum, PCR testing to registrants. The Arizona Testing Blitz also served as a public awareness campaign informing on the current availability of COVID-19 diagnostic testing in Arizona. More than 5,400 PCR tests were conducted at 32 sites around the state during the first day of the Arizona Testing Blitz on May 2. On the second Saturday of the Arizona Testing Blitz, May 9, more than 50 sites participated, with more than 9,700 PCR tests completed. More than 10,000 PCR tests were reported for Saturday, May 16. The Arizona State Public Health Laboratory served as a Testing Blitz site, with over 1,400 diagnostic PCR tests performed over the three Blitz weekends. With additional awareness of testing locations and the availability of testing supplies, diagnostic testing has greatly increased across the state. Over 37,000 diagnostic tests were reported completed the first week of May as compared to less than 12,000 PCR tests reported the first week of April, a 200% increase in testing that is at least partially due to the successful implementation of Strategy 1.

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Strategy 2: Increased testing of vulnerable adults in congregate settings

The goal of strategy 2 is to increase testing for vulnerable populations within congregate settings and to enhance infection control recommendations for facilities with identified cases. ADHS is partnering with county health departments, long-term care associations, and facilities in support of strategy 2. ADHS has contracted with a specimen collection vendor (SCV) and a large commercial laboratory to ensure a coordinated response with efficient execution. The SCV will coordinate specimen collection of nasopharyngeal swabs for diagnostic PCR testing in addition to serum collection for antibody testing of staff. Alternatively, facilities will have the option of being provided with materials and performing their own collection. This strategy has a phased approach as follows:

Phase 1: Test all LTC facility staff and residents with a start date of 5/16

Phase 2: Expand testing to assisted living (AL) facility and intermediate care facilities for individuals with intellectual disability (ICF/IID) staff and residents with a start date of 7/15

Phase 3: Retest all LTC facility staff and residents with a start date of 8/15

Phase 4: Test the Arizona Department of Corrections, Rehabilitation, and Reentry (ADCRR) staff and inmates with a start date of 6/10

Phase 1 of Strategy 2 will offer to test all staff and residents of long-term care facilities in Arizona. All residents without a prior positive COVID-19 test will be offered a PCR test. All staff without a prior positive COVID-19 test will initially be offered a serology test, with a PCR test offered the following week for those with negative serology tests. ADHS and county health departments will be reaching out to each LTC facility to review test results, provide infection control recommendations, and facilitate any resource requests (e.g., PPE and staffing). Phase 1 began with a notification to all long-term care facilities on 5/11, distribution of detailed plans and a stakeholder call on 5/14, and the first onsite collection by the SCV on 5/16. Under Phase 1, all 147 LTC facilities will have specimens collected by June. This effort of testing the entire census of residents and staff serves as sentinel surveillance among this vulnerable population. Phase 2 will expand testing to staff and residents in assisted living (AL) facilities and intermediate care facilities for individuals with intellectual disability (ICF/IID): 320 AL centers with 11 or more residents, 1,803 AL homes with 10 or fewer residents, and 12 ICF/IIDs. Phases 2 and 3 are planned to be similar in approach and design as Phase 1.

For Phase 4, ADHS is working with the Arizona Department of Corrections, Rehabilitation, and Reentry (ADCRR) to offer serologic testing to all correctional officers and contractors interacting with inmates, approximately 16,000 personnel. This effort is expected to be initiated by 6/10. In addition, when inmates test positive, ADHS or local health departments work with ADCRR to conduct a contact investigation and facilitate testing for all identified contacts.

Strategy 3: Increased testing at additional community sites (e.g. pharmacies, urgent cares, community health centers)

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The goal of Strategy 3 is to increase testing capacity in community sites like urgent care clinics, pharmacies, and community health centers. Offering testing at these sites is expected to decrease geographic barriers to accessing testing and basic patient care, particularly in rural areas of the state, and in the case of community health centers, can increase access to testing for racial/ethnic minorities, persons experiencing homeless, and traditionally underserved populations that more frequently seek care at these locations. ADHS will partner with county health departments, urgent care providers, pharmacies, community health centers, and clinical laboratories. On 5/15/2020, Dr. Cara Christ, director of ADHS, issued statewide standing orders which permit licensed pharmacists to order or administer testing of individuals who believe they were exposed to an individual infected with COVID-19. As of 5/17/2020, 12 pharmacy testing sites have opened up across central and southern Arizona: 2 Walgreens and 10 CVS pharmacy testing sites. In addition, at least two large urgent care centers with multiple sites in the population centers of the state are offering testing. Multiple federally qualified health centers (FQHCs) have participated in the Arizona Testing Blitz described in Strategy 1, with great success. ADHS' partnership with the Arizona Association of Community Health Centers coupled with additional funding recently granted to FQHCs statewide will support further expansion of testing within these locations.

ADHS has also had success partnering to expand testing for individuals accessing care or services at non-primary care sites including locations providing outpatient behavioral health support (i.e. Copa Health, Terros) and organizations serving the access and functional needs community (i.e. Copa Health, Ability360). Continuation of these successful efforts with expansion to similar organizations will be pursued to expand access to testing for vulnerable populations.

As Arizona continues to enhance and expand contact tracing for COVID-19 cases, increasing our jurisdictional testing capacity through additional community sites will help ensure that identified contacts have easy and rapid access to testing, especially in rural or remote communities or among underserved populations.

Strategy 4: Contracting with complex laboratories to increase targeted testing of healthcare workers, first responders, university students and staff, and other critical infrastructure personnel

The goal of Strategy 4 is to increase testing capacity for critical infrastructure personnel and individuals in congregate settings. On 4/27/2020, the state of Arizona announced a partnership including \$3.5 million in funding support, with the University of Arizona to provide COVID-19 antibody testing to 250,000 healthcare workers and first responders. ADHS is engaging with university partners to develop a testing strategy that will support a safe reopening of in-person classes, as appropriate, and allow for the detection of COVID-19 and influenza in university populations. This partnership will increase access to testing for the over 178,000 students and 9,000 staff at the three major universities in Arizona: Arizona State University (111,000 students; 4,700 staff), University of Arizona (45,000 students; 3,500 staff); Northern Arizona University (22,000 students; 1,175 staff). Implementation of this phase of Strategy 4 is planned for the beginning of the fall academic semester. Additionally, ADHS will continue to support

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increased access to testing for healthcare workers, first responders, and other critical infrastructure personnel.

University partners

ASU (~115,000)

Staff - 4,704

Students - 111,249

U of A (~48,500)

Staff - 3,500

Students - 45,000

NAU (~23,000)

Staff - 1,175

Students - 22,000

ADHS recently contracted with Translational Genomics Research Institute (TGen) to provide additional RT-PCR and serology testing. Currently 400 samples can be tested per day, with the goal of 750/day by June 1, 2020. TGen North uses a Bio-Rad CFX96 qPCR Instrument Bio-Rad xMARK plate readers and Bio-Rad 1575 plate washer (ELISA). TGen's serology assay is still being onboarded and they plan to be able to do 500/day beginning early June, and can be scaled up as needed. TGen tests a number of at-risk populations, including tribal, homeless, jail, first-responders, healthcare workers, individuals in LTCF and rehab facilities, as well as psychiatric in-patient and pregnant women prior to C-section or induction. ADHS has also directed clinical laboratories to send positive RT-PCR specimens to TGen for genomic sequencing. TGen, ADHS, ASU, UofA and NAU organized a team of academic molecular, genomic and evolutionary biologists that meets weekly to review and share the sequencing results as well as post sequence data to the nextstrain.org website.

In addition to higher throughput diagnostic tests, many hospital facilities utilize rapid testing, including the Cepheid rapid test platform, to conduct timely triage. Arizona facilities have expressed concern about the lack of supplies, such as Cepheid test kits for these rapid instruments, which is hampering their ability to most effectively triage patients and maximize PPE.

Strategy 5: Increased testing in laboratories with unutilized or underutilized instrumentation to support COVID-19 testing

ADHS has surveyed Arizona laboratories to assess current testing capacity throughout the state. In addition to this effort, federal partners have queried laboratory instrumentation manufacturers to identify current locations and types of instrumentation throughout the state. These efforts have identified robust instrumentation throughout Arizona that is unutilized or underutilized for COVID-19

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PCR testing. ADHS will collaborate and establish regular communication with the laboratories that may have new or increased potential for COVID-19 PCR testing to assess how these labs can begin testing or expand their testing capacity. These efforts will further support the statewide coordinated testing effort by maintaining more comprehensive awareness of supply chains and will assist the state in reaching testing goals. ADHS will encourage feedback from partners of barriers and needs so that mitigation strategies can be identified and implemented to expand testing across the state.

ADHS will work with instrument and reagent vendors to obtain supplies for these labs to increase testing capacity. To this end, ASPHL is working with HHS and CDC to obtain test kits which are in short supply and back ordered. ASPHL is working with multiple vendors in the USA and abroad to try and secure these testing supplies. Working with FEMA and other vendors, ASPHL will work to secure supplies of swabs and viral transport media to ensure that labs can maintain and increase their testing capacity.

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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*	87,000	72,500	72,500	36,250	72,500	108,750	108,750	108,750	667,000
Serology	58,000	72,500	72,500	108,750	72,500	36,250	36,250	36,250	493,000
TOTAL	145,000	145,000	145,000	145,000	145,000	145,000	145,000	145,000	

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)
Arizona State Public Health Laboratory	Public health lab		500	500		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, etc.
Arizona General Hospital	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, etc.
Arizona General Hospital-Mesa	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, etc.

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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)
Arizona State University	Commercial or private lab		1,200	500		Essential infrastructure employees, healthcare workers, homeless, first responders, congregate settings, university employees and students, public facing employees
Chandler Family Health Center	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, etc.
Avista Medical Center	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, etc.
Avondale Medical Center	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, etc.
Crisis Life Sciences	Commercial or private lab		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, etc.

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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)
Walgreens	Drug store or pharmacy	Unknown	400	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, etc.
Fry's Pharmacy	Drug store or pharmacy	Unknown	250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, etc.
Chandler Regional Medical Center	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, etc.
Chinle Comprehensive Helath	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, etc.
Cobre Valley Commuity Hospital	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, etc.

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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)
Complete Care	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, etc.
Comprehensie Health Care	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, etc.
Dignity Health Gen Med Clinic	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, etc.
Dignity Health Glendale	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, etc.
El Mirage Family Health Center	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, etc.

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Tgen	Commercial or private lab		400	0		Tribal, homeless, congregate, psychiatric, pregnant women prior to C-section induction, essential infrastructure, healthcare workers
Flagstaff Medical Center	Hospitals or clinical facility		500	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Fort Defiance Indian Hospital	Hospitals or clinical facility		500	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
LabCorp	Commercial or private lab		35,000	600		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.

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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)
Maricopa Health	Hospitals or clinical facility		500	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Maricopa Intergrated Health System (Valleywise)	Hospitals or clinical facility		500	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Mayo Clinic Arizona	Hospitals or clinical facility		940	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Sonora Quest Labs	Commercial or private lab		2,300	2,500		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.

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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)
VAMC	Hospitals or clinical facility		500	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
El Rio Health Center Foundation	Federally Qualified Health Center		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Guadalupe Family Health Center	Federally Qualified Health Center		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Honor Health System	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.

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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)
Huhukam Memorial Hospital	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Keyenta Indian Health Services	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Kingman Regional Hospital	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Little Colorado Medical Center	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.

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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)
Maricopa County Department of Public Health	Public health lab		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Maricopa Medical Center	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Maryvale Family Health Center	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Mercy Gilert Medical Center	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.

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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)
Mesa Family Health Center	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Midwestern University	Commercial or private lab		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Northwest Medical Center	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
One Life Medical Ceter	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.

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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)
Phoenix Indian Medical Center	Hospitals or clinical facility		250	0	, Panther	Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Prescott Family Practice and Wellness	Hospitals or clinical facility		250	0	Roche Cobas 6800/8800	Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Primuslabs	Commercial or private lab		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Rapid Laboratory Services	Commercial or private lab		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.

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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)
Saint Joseph's Hospital & Medical Center	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
San Carlos Apache Healthcare Corp.	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
San Tan Family Medicine	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
South Central Family Health Center	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.

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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)
St. Joseph's Medical Center	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Western Regional Medical Center	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.
Yuma Regional Medical Center	Hospitals or clinical facility		250	0		Tribal, healthcare workers symptomatic, congregate settings, minorities, essential infrastructure, homeless, elderly, disabled, at-risk populations, etc.

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.

In the past month, ADHS has worked with partners to expand access to COVID-19 testing across the state, as described in Strategies 1 through 4 on the Overarching Strategy tab. In addition, ADHS has deployed 15 Abbott ID NOW platforms across the state to provide access to rapid diagnostic testing in high-risk, vulnerable populations, including eight-county health departments, one tribal nation, two-state correctional departments, a state-run inpatient psychiatric facility, and a community healthcare provider serving individuals experiencing homelessness. ADHS has also distributed over 13,000 collection kits to 84 local health departments, tribal health departments, and healthcare facilities. In response to COVID-19, the Arizona State Public Health Laboratory (ASPHL) has implemented a 7 day-a-week operation schedule, with up to 8 COVID-19 runs performed per day. In order to facilitate specimen delivery to ASPHL, the state's contracted courier service has been expanded to support will-call specimen pick-ups, with the same day or next day delivery to ASPHL depending on location. Since beginning testing on 3/2/2020, ASPHL has tested over 5,000 specimens for COVID-19.

Throughout the COVID-19 response, testing of high-risk and vulnerable populations has remained a priority for ADHS, and these populations will remain a target for Arizona. As described in Strategy 2, ADHS has implemented a plan to test all LTC facility residents and staff for COVID-19 by June. Subsequent phases of Strategy 2 will expand the focus to other residential living facilities. ADHS has worked with correctional partners to deploy two Abbot ID NOW platforms directly to correctional settings, and platforms issued to county health departments are also being utilized to provide testing for local congregate settings. ADHS and ASPHL will continue to procure and distribute testing kits to these partners to promote rapid detection and appropriate control measures in these high-risk settings.

ADHS has established chains of communication with local health departments and private and regional testing partners to facilitate the identification of barriers to testing. In response to the redirection of supply chains through state public health laboratories, ADHS and ASPHL have developed processes to ensure the rapid reallocation and distribution of materials to partners throughout the state. ADHS has contracts with specimen collection vendors (as described above), to facilitate collection of blood and swab specimens, and a statewide courier system to allow for rapid specimen collection of targeted, high-risk populations and timely delivery of these specimens to ASPHL. To increase overall capacity for testing in the state, ADHS is partnering with academic and research labs and offering support for the addition of CLIA labs at these sites, including support for the development and procurement of LIMS systems. At this time, the supply of collection materials and testing supplies are adequate to meet current response efforts in Arizona. The current supply of materials, particularly swabs, is anticipated to be insufficient for the fall and winter season, due to the need for concurrent influenza and COVID-19 testing. ADHS is working with partners to investigate opportunities to manufacture swabs, in addition to evaluating alternative swabs and media to support future testing needs. ADHS continues to work with federal partners and commercial suppliers to maintain a sufficient supply of personal protective

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equipment (PPE) to support safe specimen collection and patient care activities. ADHS has a process for healthcare providers and facilities to request PPE support through their county health departments. ADHS also maintains relationships with Arizona's sovereign tribal nations and provides support through testing at ASPHL and by providing collection supplies, testing supplies, PPE, and/or technical assistance upon request.

With the implementation of the strategies above, ASPHL has ensured rapid turn-around from specimen collection to the delivery of test results. The median length of time between collection and receipt at ASPHL is 0 days, from receipt to completion is 1 day, and a total collection to result of 2 days (median). ADHS has also implemented 7 day-a-week staffing, to report results from ASPHL to the local county health departments. ASPHL plans to implement high-throughput serological testing for COVID-19 IgM and IgG antibodies using the Elecys Anti-SARS CoV-2 assay on the Cobas e411 analyzer. The automated Tecan plate dispenser will be used as part of the serological test system enabling automated high-throughput with less hands on personnel time required. This serology test will be validated and ready to test samples in the Fall of 2020 (dependent on instrument availability) and ASPHL expects a testing capacity of approximately 500 samples per day. In addition to serological testing, ASPHL will expand molecular testing to different platforms to ensure reagents and testing kits will not be limiting factors to testing. ASPHL plans to acquire high-throughput PCR testing capabilities through the use of fully automated extraction/PCR instrumentation such as the Roche Cobas 6800 and Hologic Panther Fusion systems. Both instruments are capable of performing approximately 350 PCR tests/8hr period with minimal user interactions. To support high volume molecular testing with the current COVID19 assays performed at ASPHL, four additional QuantStudio DX instruments are being requested. The QuantStudio DX instruments will be used to increase testing capacity for RT-PCR SARS-CoV-2 and allow for increased influenza testing capacity for the upcoming influenza season. ASPHL is requesting a Tecan Evo to aid in the extraction and PCR setup for assays associated with high volume such as COVID-19 and influenza. Due to the Tecan Evo's flexibility for various applications, this instrument will also be valuable and integral with expanding the use of WGS capability at ASPHL. The ASPHL currently has sequencing capabilities and plans to expand its capacity by acquiring an Illumina HiSeq/NextSeq instrument for viral characterization to strengthen surveillance. Due to the increased use of whole genome sequencing for infection control and surveillance, ASPHL is expanding its sequencing menu and COVID-19 and other organisms outside PulseNet. To facilitate the testing preparation involved in the high number of samples, ASPHL will use the Tecan Evo to aid in library preparation.

The surface decontamination robot and surface decontamination device will be used to decontaminate laboratory spaces where COVID-19 testing is performed. The decontamination will be performed on a routine basis. The additional 5 refrigerators will be used for storage of COVID-19 specimens which these refrigerators will increase storage capacity and also replace existing aging refrigerators that are unreliable. The two autoclaves will replace existing autoclaves (which are now 15 years old) which are nearing end of life. These autoclaves will be used to decontaminate biological waste from the BSL-3 laboratories.

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ASPHL will increase the use of electronic data exchange. For this to be accomplished, ASPHL needs to work with Abbott StarLIMS to strengthen StarLIMS role in handling all aspects of testing from receiving of samples to reporting of results. ASPHL will work with Abbott to use the various functionalities offered by StarLIMS to progress the laboratory towards an electronic based operation where a sample can be easily tracked and information readily accessible.

ASPHL currently uses version 12 of Abbott StarLIMS to track specimens throughout the lab by entering tests requests and reporting of testing results. StarLIMS entry of test requests is a current bottleneck in rapid processing of samples submitted for COVID-19 testing. This can be alleviated by changes to StarLIMS Receiving module integration to allow multiple staff enter specimen demographics at the same time thus speeding up the accessioning process. A barcoding system interconnected with StarLIMS will allow for faster accessioning and processing of samples submitted for COVID-19 testing and reduce the number of data errors that need to be corrected. ASPHL will be progressing towards the use of STARLIMS-integrated Electronic Laboratory Notebooks (ELN). This is a powerful tool that ensures that aspects of testing, including all test preparation and execution steps defined in the standard operating procedures (SOP) are followed, and that all operation information and data required to meet regulatory requirements is recorded. This will alleviate the laboratory from excess use of paper and have records readily accessible electronically throughout the laboratory. Another functionality offered by Abbott is StarLIMS Advanced Analytics, which will allow laboratory management to gain new insights into laboratory operations through analyzing data in a powerful visual manner. This will improve laboratory operations and efficiency by providing visualization to make workflow adjustments necessary for improvement.

The StarLIMS App, My StarLIMS, will allow flexibility for retrieving test results on additional devices permitting submitters to access their test results remotely from their cell phone or tablet device. ASPHL also plans to integrate instruments with StarLIMS to allow flow of data directly from the instruments into StarLIMS speeding up results reporting of COVID-19 testing. ASPHL reports results for Influenza and COVID-19 testing directly to CDC through HL-7 messaging. ASPHL is in the process of implementing ETOR for test ordering and results reporting for COVID-19 by working with APHL and other resources. ASPHL would like to expand ETOR to include all current laboratory tests. This will permit a more rapid turnaround time from specimen receipt to results reporting for COVID-19 testing. The StarLIMS HTML 5.0 upgrade will allow access to StarLIMS using Google Chrome (which is now the preferred system used by all State Government in Arizona).

To ensure public health awareness of all COVID-19 testing being performed in the state, an enhanced surveillance advisory (Executive Order 2020-13) was issued on 4/7/2020 and updated on 5/21/2020 (Executive Order 2020-37) which requires laboratory reporting via electronic laboratory reporting (ELR) to report all positive and negative tests performed. ADHS has also developed a “flat file” reporting pathway. A current priority of the department is to increase the utilization of the flat file reporting pathway, which will decrease reporting delays and reduce the need for manual data entry. Currently, ADHS has successfully onboarded one major hospital system onto the flat-file process and aims to have additional facilities throughout the response.

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Throughout the COVID-19 response, ADHS and ASPHL have prioritized testing at ASPHL for high-risk and vulnerable populations, in alignment with community mitigation policies. ADHS and ASPHL, in cooperation with local county health departments, have maintained a Testing Matrix, which is available online (<https://www.azdhs.gov/documents/preparedness/epidemiology-disease-control/infectious-diseases-services/coronavirus/arizona-state-public-health-laboratory-testing-matrix.pdf>). Arizona has maintained the capacity to test symptomatic contacts of COVID-19 cases, symptomatic vulnerable individuals and those in high-risk, congregate settings or critical infrastructure positions, and acutely ill, hospitalized individuals. As testing supplies have become more available, ADHS has reduced the threshold for testing, and for the past month, has maintained capacity to test contacts and high-risk, vulnerable, or critical infrastructure personnel who are experiencing fever or signs/symptoms of lower respiratory infection. The rapid turnaround time available through ASPHL ensures that infections in these populations can be rapidly detected and appropriate control measures, including contact tracing, can be immediately implemented.

In regards to staffing, ADHS activated its Health Emergency Operations Center on January 26, 2020 with a rotation of 154 full time staff in the center in preparation and response to Governor Doug Ducey's Declaration of Emergency on March 19, 2020. Additionally, while the department has many staff at its disposal to aid in sourcing, we also have the support of other sister agencies in the event additional procurement staff are needed. Additional staff are assigned roles to assist in the response as needed and all timecards and hours worked on the response are tracked. For hiring new staff, we have a contract in place with a vendor who partners with countless staffing agencies who then is then able to quickly find the talent we need. This vendor also takes care of screening and any background checks. If for any reason, they are unable to meet our needs we can work through the emergency procurement process.

ADHS has encountered consistent barriers concerning the acquiring vital supplies such as rapid test kits, such as the Abbott IDNow, and critical PPE needed to ensure the health and safety of essential workers such as healthcare workers and first responders. Due to this, ADHS has implemented a variety of contracts for a wide array of goods and services. In instances when these vendors cannot meet our needs, we can go through our emergency procurement process that documents the need to go off-contract allowing us to engage with any vendor that can meet our business needs. This process gives us the flexibility to ensure we can acquire supplies, reagents, test kit, collection materials required for expanding testing. These actions allow our Finance Section to rapidly execute procurement of needed services and supplies for this response and Logistics Section arranging for receipt in the ADHS warehouse and dispersal of supplies.

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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	10	8	0	0	0	0	0	0	18
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)	7	8	0	0	0	0	0	0	15
Volume of additional swabs needed to meet planned testing levels ⁺⁺	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	128,000
Volume of additional media (VTM, MTM, saline, etc.) needed to meet planned testing levels ⁺⁺	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	128,000
Volume of additional reagents needed to meet planned testing levels, by testing unit and platform (i.e. 100K/day - Hologic panther; 100k/day - Thermofisher)	60	60	60	60	60	60	60	60	480
FOR SEROLOGIC TESTING									
Number of additional* equipment and devices to meet planned testing levels	2	0	0	0	0	0	0	0	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)	800K	800K	800K	800K	800K	800K	800K	800K	6,400K

* 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.