2020 Overarching Jurisdictional SARS-COV-2 Testing Strategy

Jurisdiction:	Guam
Population Size:	168,322

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

[Add text here] Enhancing detection will require both on-going PCR testing to determine active infectious cases (incidence) as well as the assessment of how widespread COVID-19 infections are in the community (prevalence) through serologic testing. (A) The Department of Public Health and Social Services (DPHSS) will maximize the use of testing platforms by increased laboratory staff at the Guam Pubic Health Lab (GPHL), new equipment and supplies, as well as expanded contact tracing and investigative staff to address any increased need for testing at the GPHL during anticipated surges of COVID-19 infections, especially as opening up of the economy and possibly tourism in the summer of 2020, occurs. Currently testing is available not only at the GPHL but also through the DLS (Diagnostic Laboratory Services), and at Guam Memorial Hospital Authority (GMHA), the local public hospital, and Guam Regional Medical City (GRMC) via point of care testing. Refer to the current SitRep (attached) which summarizes the tests conducted by venue as well as the results. (B). DPHSS leadership decided to hold community-based mass screenings at non-traditional sites beginning April 25, 2020 and more are planned through early July 2020 (refer to the attached summary of mass screenings conducted in April-June 2020). All testing conducted on Guam to date has resulted in the recommended molecular testing of at least 4-5% of Guam's total population, with 8,706 molecular tests conducted as of 6/15/2020 (Including follow-up tests), which constitutes 5.2% of Guam's population (2% of Guam's population would be n=3,366). Refer to the most recent SitRep (attached). (C) Resources are requested in this supplemental grant application to conduct an islandwide baseline Community Level Seroprevalence Survey to determine the extent of COVID-19 infection in the Guam community. The methodology and scope of the Community Level Seroprevalence Survey will consist of a randomly selected, representative islandwide population-based household sample. This will entail developing a sampling frame, along with hiring of temporary survey workers and an RN to take samples, to conduct door-to-door household assessments. Later follow-up can be done as needed with existing contact tracers and data analysis can be done within the Office of Epidemiology and Research. It is possible that Guam may utilize a CASPER methodology (Community Assessment for Public Health Emergency Response) for repeated surveys if surges occur in the next 30 months and it is also possible that the DPHSS may work with the University of Guam School of Health Sciences under contract to assist in conducting Community Level Seroprevalence Surveillance, as needed during and after surges of infections on the island. For the Community Level Seroprevalence Survey, the additional requested funds in this supplemental grant will include monies for acquiring enough serologic tests and widespread testing for those participating in the Community Level Seroprevalence Survey. In order to conduct serologic testing among Guam's population, estimated to be 168,322 in 2020 (Guam Statistical Yearbook, 2016: 438), and using the Platella serologic test ($43.50 per test), the estimated cost for testing alone will be $72,000. The estimated number of temporary survey workers and others required to conduct this survey is twelve people: eight survey workers, one data entry clerk, one logistics coordinator and one administrative assistant and one RN to do blood draws using the Platellia serologic test. Utilization of the Guam Behavioral Risk Factor Surveillance System (BRFSS) Survey's existing sampling frame to obtain

participants for the aforementioned seroprevelance survey is currently being explored. (D). Note that the testing capacity described in Tables 1a and 1b reflects a M-F, 8am to 5pm workday. During surges, this capacity could increase as needed, noting that the average number of tests run was 40 per day from 3/12/2020 to 5/27/2020, but increased in June and July 2020. The average number of tests run per day from 01-25 June2020 is 148 (counting 6 works days per week, 5 of which are at least 12 hrs). The estimate here is based on the GPHL's increased capacity for testing, and assumes that the lab will receive this many samples, as well as additional equipment and staffing. *Please note: this number could be readily increased if GPHL was able to duplicate current equipment (ABI 7500 and Cepheid GeneXpert), add automated RNA extraction capabilities, and 2-4 staff members. Additional staff are still needed to address data input shortfalls. GPHL currently does not have a LIMS, COVID-19 lab results are entered manually into NBS by data entry staff for both positive and negative lab results. Investigations are then created based on the ELRs received or lab results that have been entered manually by data entry staff. When we implement the LIMS (as supported thru these grant funds), lab results will be sent to Guam DPHSS' National Electronic Disease Surveillance System Base System, NBS, as ELRs. NBS currently has the capacity to receive only Diagnostic Laboratory Services (DLS) electronic laboratory reports, which includes COVID-19 lab results. Additionally, lab results from tests conducted at GMHA and GRMC will also be entered manually into NBS by DPHSS staff. As we refine our processes, we will set up NBS to auto-create Investigations from ELRs for positive results. Regular delays in equipment procurement and delivery are a significant concern, and must be addressed to steeply increase testing capacity, while simultaneously decreasing daily stress and burnout to laboratory staff.* Continued communication, collaboration and coordination with our testing community partners, DLS, GMHA's laboratory, GRMC's private hospital laboratory, U.S. Naval Hospital Laboratory for military and dependents, and Guam Army National Guard's (GUNG) Mobile laboratory. Please see attached table of SARS-COV-2 Testing Facilities, as of 5/29/2020, total available supplies = 8,309 tests capacity for Guam collection and testing community for regular outreach and jurisdictional goal. GPHL continues to submit orders to CDC International Reagent Resource (IRR). Emergency funds are used for the procurement of consumable supplies and PPEs needed that is not supplied by CDC IRR and or WHO Regional Supply Source. From 3/12/2020 to 7/9/2020, GPHL has conducted 9,544 tests; DLS has conducted 2,297; GMHA has conducted 2,057 tests; GRMC has tested 511; the Department of Defense (DoD) has tested 2,100, and GUNG has tested 17 (GUNG is no longer doing any clinical tests). Therefore, the grand total for community is 16,526 molecular tests and 142 serology tests (done via DLS), with total laboratory confirmed cases tested at 299 (and 8 probable clinical cases). Staffing levels for each testing facilities are sufficient with at least 2-4 Microbiologists trained for SARS-COV-2 testing. GPHL and GMHA's Laboratory MOA with staff lateral assistance daily to assist with accessioning, processing manual RNA extractions, and testing. Guam DLS has given assurance of uninterrupted testing capacity due to their BD Max test kits availability with efficient and sufficient supply from Hawaii DLS. It is anticipated that additional ABBOTT ID NOW machines will be donated to Guam and these would be distributed to the Northern and Central Community Health Centers, the Quarantine facilities, Guam's larger medical clinics (SDA, FHP and AMC) and to the hospital, if sufficient numbers of these machines become available.

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*	1,500	2,000	3,500	3,500	3,500	3,500	3,500	3,500	24,500
Serology	0	0	0	500	500	500	500	500	2,500
TOTAL	1,500	2,000	3,500	4,000	4,000	4,000	4,000	4,000	

*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)
Guam Public Health Lab	Public health lab		225	100	Symptomatic and high risk populations as needed; serology for presence of antibodies, not diagnostics. The average number of tests runs was 40 per day from 3/12/2020 to 5/27/2020. Average tests run per day in June 2020 is 148 (counting 6 works days per week, 5 of which are at least 12 hrs). The estimate here is based on the GPHL's increased capacity for testing, and assumes that the lab will recieve this many samples, as well as additional equipment and staffing. *Please note: this number could be readily

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)
					increased If GPHL was able to duplicate current equipment (ABI 7500 and Cepheid GeneXpert), add automated RNA extraction capabilities, and 2-4 staff members. Additional staff still needed to address data input shortfalls.*
Diagnostic Laboratory Services (DLS)	Commercial or private lab		75	100	Same as above
GMHA (public hospital)	Hospitals or clinical facility		10	0	Same as above for point of care testing using ABBOT ID Now.
GRMC (private hospital)	Hospitals or clinical facility		50		Same as above but unknown capacity for serologic testing.

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.

Expanded testing capacity/testing projections for PCR tests. Refer to most recent SitRep for current testing capacity and testing conducted by the GPHL and partners from March 12-July 9, 2020 (attached). Resources are requested for supplies and reagents for PCR testing to continue to be done on COVID-19 symptomatic individuals. It is unknown at this time the projected numbers of tests needed since this will depend upon decisions made by the Governor of Guam, her Physician's Advisory Group and the Director of DPHSS on opening up Guam to increased air traffic, opening of businesses and schools and so on. It is expected that these kinds of decisions could result in new waves of COVID-19 infections on Guam. It will be extremely important to conduct on-going PCR testing for active infections in the community, and at quarantine and isolation faciliities, as well as ensure that testing is available at all hospitals for priority testing of high risk patients as needed during surges or waves of COVID-19 infections (symptomatic persons, contacts of recently confirmed positive cases, elderly people, people with underlying conditions at any age, healthcare workers and others such as pregnant women). Serial testing at dialysis centers, the prison and junvenile facility and other congregate sites are planned, along with testing of healthcare workers and front-liners as needed. Refer to tabular data on mass screening conducted in villages (attached), and note that Village Mayors continue to request for mass testing. Refer also to recommendations for COVID-19 testing moving forward from July 2020. Guam only has one long term care facility (St. Dominic's) and all persons residing there were already tested; St. Dominic's residents can be tested again in the future as needed. Testing was also conducted in elderly housing. Targeted testing will include serologic testing of confirmed cases and known contacts of confirmed cases, along with on-going PCR testing of recent contacts of known positive cases. Targeted testing of the Department of Corrections (i.e. the prison) and the DYA juvenile facility is planned , and for dialysis centers and day care centers (once opened). Serial testing of healthcare workers and frontliners is planned in the near future as well. As of June 18, 2020 more than 8,000 diagnostic tests have been conducted of which 3,000 have been at mass screening sites. Therefore, in 4 months (from March-June 2020) Guam has already tested 5% of its population estimated to be 168,322 in 2020 (Guam Statistical Yearbook, 2016). Testing 2% of Guam's population per month can be accomplished during July-December 2020 and thereafter as needed if widespread infections or waves of infections are occurring. The mass testing sites have included targeted vulnerable populations including elderly housing, homeless and other populations (Micronesian migrants). It is also important to point out that Guam's population composition, based on single ethnic groups, is a majority "minority" population. Based on 2020 estimates, Guam's population is comprised of 41% Chamorro, 26% Filipino, 7.8% "whites" and 12.7% non-Chamorro Micronesians and 6.5% other Asians, and 6% others. And based on the 2017 U.S. Census estimates, Guam's poverty rate was 22.9%, much higher than the U.S. rate of 12.3%. The barriers to efficient testing on Guam occurred early in the outbreak when there were not enough test kits available. Guam will manage testing and alignment with SARS-Cov-2 mitigation strategies by continuing testing of vulnerable populations as needed, including sentinel surveillance for vulnerable populations as revealed by the data as it unfolds in any subsequent surges or waves of infections and evidence revealed by cluster analysis and investigations. The DPHSS plans to expedite hiring and on-boarding of new staff which can be accomplished by LTA-limited term appointments, and procurement of supplies

can be expedited during a State of Emergency declaration during any surges or waves of infections. The ABI 7500 PCR machine was procured through assistance from the PHEP COVID-19 Crisis fund and is awaiting vendor delivery (current delays with manufacturer per vendor). The Automated RNA Extraction System and GeneXpert equipment will also be procured through emergency funds per Governor's the support, pending updated quotes from vendor.

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

BY MONTH:	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	TOTAL
Number of additional* staff to meet planned testing levels	0	0	1	4	0	0	0	0	5
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)	0	0	2	0	0	0	0	0	2

ELC ENHANCING DETECTION: GUAM TESTING PLAN

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[++]	1,500	2,100	3,500	3,500	3,500	3,500	3,500	3,500	24,600
Volume of additional media (VTM, MTM, saline, etc.) needed to meet planned testing levels[++]	1,500	2,100	3,500	3,500	3,500	3,500	3,500	3,500	24,600

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)	OBE	OBE	300 boxes of cartridges for GeneXpert; TBD ABI probes/controls (need enough for 60 plates per month); 20 QIAGEN QiaAmp mini kits (or 40 Qiagen EZ1 RNA extraction kits)	15 boxes/day for GeneXpert; TBD ABI probes/controls (need enough for 60 plates per month); 20 QIAGEN QiaAmp mini kits (or 40 Qiagen EZ1 RNA extraction kits)	15 boxes/day for GeneXpert; TBD ABI probes/controls (need enough for 60 plates per month); 20 QIAGEN QiaAmp mini kits (or 40 Qiagen EZ1 RNA extraction kits)	15 boxes/day for GeneXpert; TBD ABI probes/controls (need enough for 60 plates per month); 20 QIAGEN QiaAmp mini kits (or 40 Qiagen EZ1 RNA extraction kits)	15 boxes/day for GeneXpert; TBD ABI probes/controls (need enough for 60 plates per month); 20 QIAGEN QiaAmp mini kits (or 40 Qiagen EZ1 RNA extraction kits)	15 boxes/day for GeneXpert; TBD ABI probes/controls (need enough for 60 plates per month); 20 QIAGEN QiaAmp mini kits (or 40 Qiagen EZ1 RNA extraction kits)	
FOR SEROLOGIC TESTING									
Number of additional* equipment and devices to meet planned testing levels	0	0	0	0	0	0	0	0	0

ELC ENHANCING DETECTION: GUAM TESTING PLAN

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

* 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.