



Request for Proposals: National Influenza Reference Center

Application Due date: September 30, 2019

Submit to: Melissa Warren, Senior Specialist, Influenza
(melissa.warren@aphl.org)

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Summary

The Association of Public Health Laboratories (APHL), in cooperation with the US Centers for Disease Control and Prevention's (CDC) Influenza Division (ID), is seeking to identify three (3) state or local public health laboratories (PHLs) to serve as National Influenza reference centers (NIRCs) in support of national influenza surveillance initiatives. The reference centers will serve as an extension of the CDC ID Virology Surveillance and Diagnosis Branch (VSDB) and will provide services that are complementary to those at CDC based on methods and protocols provided by APHL and CDC. Services provided by the reference centers will include: 1) influenza virus isolation and propagation; 2) antiviral resistance testing; and 3) genomic sequencing using next generation sequencing (NGS).

Background

State and local public health laboratories are the foundation of the US influenza surveillance system. PHLs collect and test specimens, reporting this information to the CDC. This information is included in national surveillance data to describe which viruses are circulating and at what prevalence. Furthermore, PHLs play a critical role in the vaccine strain selection process by providing specimens to CDC for further antigenic and genetic characterization. Data from PHLs and the viruses submitted to CDC are compiled and shared with the international community to help determine vaccine compositions for future seasons. These same viruses help CDC detect and monitor variant viruses and antiviral resistant viruses.

Antigenic characterization of viruses for vaccine composition meetings is a demanding and time sensitive process that requires large volumes of high titer viral isolates. Data from APHL surveys indicate that few PHLs are still performing virus isolation for influenza viruses and many no longer have staff with sufficient experience in this traditional method. APHL and CDC have supported three (3) NIRCs to culture and isolate influenza viruses since 2009 to meet national surveillance goals. Additionally, from 2011 to 2018 NIRCs performed neuraminidase inhibition testing on viral isolates to detect phenotypic changes in viruses that may reduce their susceptibility to antiviral therapeutics. In 2015, NIRCs began implementing genomic sequencing using next generation sequencing. This has enabled the detection of evolutionary mechanisms including hemagglutinin clade changes, antiviral resistance mutations, immune evading strains, reassortment and other genomic changes within a single data set. High throughput genomics is facilitating timely intervention strategies and improved data availability for vaccine strain selection.

Reference centers serve as a valuable source of expertise for virus culture in the PHL community and have increased the overall national capacity for processing specimens for vaccine strain selection and detecting antiviral resistant viruses. NIRCs have also provided valuable data with respect to preparedness planning and continuity of operations plans.

Eligible laboratories include all public health laboratories with the following capabilities and facilities in place. Specific expectations regarding methodologies to be used by the awardees are outlined in [Appendix A](#): Expectations for the National Influenza Reference Centers. All applicants are required to agree to the following minimum requirements (as outlined in [Appendix B](#));

- 1) Demonstrated competency and capacity for cell culture, preferably with Madin-Darby Canine Kidney (MDCK-ATL and MDCK-SIAT1) cell lines;

- 2) Demonstrated competency and capacity for influenza virus propagation and isolation;
- 3) Demonstrated capacity for next generation sequencing using Illumina MiSeq and ability to stream NGS read-level data to APHL Informatics Messaging Services (AIMS) cloud-based environment in near real-time using the Amazon Simple Storage Service (S3) Utility synchronization tools with IT support;
- 4) Sufficient space and staff to implement cell culture-based High content Imaging Neutralization Test (HINT) assay;
- 5) Sufficient equipment, laboratory space and workforce capacity for the proposed work;
- 6) Ability to transmit data to CDC via the APHL Informatics Messaging Services (AIMS) environment; and
- 7) Flexibility to respond to alterations or amendments in CDC-provided protocols.

Anticipated RFP Schedule

| | | |
|------------------------------|---|---|
| August 19, 2019 | – | RFP Issued |
| September 5, 2019 | – | Informational teleconference (optional) |
| September 9, 2019 | – | Letter of Intent Due to APHL (see below) |
| September 30, 2019 | – | RFP Responses Due |
| October 7, 2019 | – | Proposal review completed |
| October 14, 2019 | – | As needed, follow-up interviews/proposals due |
| October 15, 2019 | – | Final review completed and awardees selected |
| Spring 2020 | – | Training activities, as needed |
| 2020 – 2021 Influenza Season | – | First year contract awarded |

APHL will communicate any modification to this anticipated schedule on APHL’s procurement website (www.aphl.org/rfp) and via an email blast to public health laboratories (PHLs).

Response Submittal

Confirmation of Intent to Respond

APHL requires that prospective applicants submit a brief email statement indicating an intent to submit a proposal. APHL must receive this email by no later than **5:00 pm EST on Monday, September 9, 2019**. **To allow for appropriate review process planning, a letter of intent is required for consideration.**

Final Response

APHL must receive complete responses by **5:00 pm EST on Monday, September 30, 2019**. Please see [Proposal-Required Submissions](#) section for items that must be included in the completed proposal. Applicants may send proposals via email to melissa.warren@aphl.org.

APHL will send an email acknowledging the receipt of your application; if you do not receive an acknowledgement within 2 business days, please email the RFP point of contact above to confirm receipt.

Award

APHL and CDC will select three laboratories to perform this work. At the discretion of the reviewers, a fourth laboratory may be selected as an alternate. The top scoring laboratory will serve as the year-round NIRC, while the other two will provide services during seasonal surveillance (typically October-June). The amount of each award may vary year to year based on testing performed and volume of specimens submitted. Anticipated specimen volume is approximately 1000-1200 specimens per year, although not all methodologies are performed on all specimens. From 2016 to 2019 annual compensation per laboratory for NIRC activities during the influenza season has ranged from approximately \$245,000 to \$600,000, averaging \$407,000. Funding is distributed through an annual contract with APHL. By accepting the award, laboratories agree to these rates for a five (5) year time span barring substantive changes in scope or material expenses at APHL's discretion.

Compensation for the anticipated methodologies is provided at the following per specimen rates:

Virus isolation: \$145 per specimen inoculated into cell culture

Next Generation Sequencing (NGS): \$150 per specimen

High content Imaging Neutralization Test (HINT): \$350 per specimen (Note: this is a flat rate to accommodate testing up to 5 antiviral drugs per specimen; Only a small subset of specimens will be tested with HINT)

Use of funds: Recipient laboratories should use the funding for testing of referred specimens during the influenza season (including retesting due to laboratory/personnel error), reagents and consumables and personnel time required to conduct these activities and may be used for necessary equipment upgrades or expansions, equipment maintenance and service agreements or validation of new testing services.

Term of Project

The project term will be from July 1, 2020 through June 30, 2021. Additional activities may precede this start term if needed to establish testing capacity, data transmissions and proficiency demonstrations to ensure operational expectations are in place for seasonal surveillance.

The potential for annual renewals (with each additional funding year running from July 1 to June 30) by APHL is based on availability of funds and performance of the awardee for a maximum of four additional years (to end June 30, 2025). Each of the potential renewals may involve some adjustment to the scope of work in order to address any change in the funding received by APHL and to accommodate CDC programmatic needs in that funding year. The awardees will be notified in advance of any modification to the anticipated scope of work in a future funding year.

Evaluation Team

APHL staff, led by the Influenza Senior Specialist, will conduct an initial review of all proposals for completeness. Any incomplete application on the proposal due date specified in [Anticipated RFP Schedule](#) section above will not be considered and will not receive a formal evaluation.

A team of three subject matter experts from the CDC Influenza Division and a panel of three APHL members selected from non-applicant public health laboratories will review complete proposals. The VSDB chief will identify and select SMEs from the CDC, based on their familiarity with laboratory techniques and project requirements. The APHL Respiratory Disease Manager will identify APHL member experts from among the non-applicant laboratories. These members will have expertise in the laboratory testing methods described in this RFP and familiarity with APHL reference center structure. APHL's Director of Infectious Disease Programs has final approval over the review team's composition.

APHL will ask potential reviewers to complete and sign APHL's Conflict of Interest Disclosure Statement in order to disclose any real or perceived conflict of interest prior to the start of the evaluation process and to affirm that they have no conflict of interest that would preclude an unbiased and objective review of the proposals received. A copy of the disclosure statement and the related Fiduciary Responsibility and Conflict of Interest Policy is attached as [Appendix E – Conflict of Interest Disclosure Statement and Policy](#). APHL will not select reviewers with a perceived or potential conflict of interest. This Conflict of Interest Disclosure Statement is provided in the RFP for Applicant review only.

Applicants should not complete the Conflict of Interest Disclosure Statement unless instructed by APHL.

Evaluation Criteria

Proposals will be evaluated based on the responses to the questions in the [Proposal – Required Submissions](#) section and will receive a numeric score of up to 100 maximum points based on the scorecard template in [Appendix D](#).

Laboratories meeting the following criteria have preference in the evaluation:

1. Extensive experience with the test methods;
2. Ability to handle increased volume;
3. Existing in-house subject matter expertise;
4. Experience and past performance serving as a reference center;
5. Ability to comply with expectations laid out in [Appendix A](#); and
6. Ability to meet the minimum expectations outlined in [Appendix B](#).

Evaluation Process

APHL's Influenza Senior Specialist and the members of the evaluation team will conduct the entire review via a combination of email communication, teleconference and/or webinar evaluation sessions. APHL's Influenza Senior Specialist will coordinate the review process and the evaluation sessions.

The reviewers may request follow-up interviews with all or some of the applicant laboratories and, following these interviews, may request supplemental information on an applicant's proposal. These

interviews and any supplemental information would clarify a laboratory's capacity or experience in one or more of the evaluation criteria or to explain other information contained in an applicant's proposal.

A member of the APHL staff will not perform a formal evaluation. In cases where all other evaluation criteria are substantially similar, APHL will have the ability to advise the evaluation team on selections that would provide geographical spread or otherwise diversify APHL's funding allocations. In addition, the evaluation team may request documentation from APHL staff on an applicant's past performance as an influenza reference center or in other capacities noted in this RFP as part of the evaluation criteria.

Post-Evaluation Procedures

APHL staff will notify the selected laboratories within ten business days of the completion of the evaluation and APHL will post the names of the recipient to APHL's procurement website, www.aphl.org/rfp, within three (3) business days of the laboratories acceptance of the award. Unsuccessful applicants will receive notification of these results by e-mail within 30 days after the names of the awardees are posted.

All applicant laboratories will be entitled to utilize APHL's RFP Appeals Process to formulate a protest regarding alleged irregularities or improprieties during the procurement process. Specific details of this policy are located on the procurement website.

Conditions of Award Acceptance

The eligible laboratory must be able to contract directly with APHL or have an existing relationship with a third-party organization that can contract directly with APHL on behalf of the laboratory. Laboratories must agree to comply with expectations outlined in [Appendix A](#). Acceptance of the award means agreement to the compensation structure and amounts put forth earlier in the doc

The eligible laboratory must be able to receive specimens and report results to CDC.

Prior to making the official award, a group of individuals from CDC and APHL will be entitled to elect to tour the facilities to assess compliance with requirements for testing and/or have a teleconference with applicant laboratories. Post award, monitoring site visits may be conducted to include an assessment of continued compliance.

Proposal – Required Submissions

An interested laboratory must submit both a letter of intent to apply (due 9/9/19) and a proposal with the following items:

- **A completed and signed copy of [Appendix B](#).**
- **A completed response table [Appendix C](#).**
 - Appendix C responses should be limited to no more than 11 pages (font size \geq 11pt and page margins of \geq 1 inch).
- **A letter of support from your institution's IT department either:**

- **A) Confirming your ability to establish connectivity to APHL's AIMS S3 Utility/SDK environment with the support of a designated IT staff member**
- **B) CURRENT NIRC ONLY: Confirming your commitment to maintain connectivity to APHL's AIMS S3 Utility/SDK environment with the support of a designated IT staff member**
- **A biosketch or CV for the Principal Investigator.**

Applications must comply with submission requirements set out in the [Additional Information and Deadlines for Application Submission](#) below.

Additional Information and Deadlines for Application Submission

Applicants must direct all questions to Melissa Warren (melissa.warren@aphl.org). APHL will post questions received from interested PHLs, together with the answers provided by APHL or CDC staff to APHL's procurement website (www.aphl.org/rfp).

To allow for appropriate review process planning, a letter of intent is required for consideration. Applicants should submit letters by email to Melissa Warren at APHL (Melissa.warren@aphl.org) no later than 5:00 pm EST on Monday, September 9, 2019.

Applications are due to Melissa Warren at APHL (melissa.warren@aphl.org) **by close of business (5:00 pm ET) September 30, 2019.** APHL will send an email acknowledging the receipt of your application. If you do not receive an acknowledgement within two (2) business days, call 240-485-2741 to confirm receipt.

APHL will hold an optional teleconference on Thursday, September 5, 2019 at 3:00 pm ET. The purpose of this call will be to provide a brief overview of the project and to allow potential applicants to ask CDC and APHL questions. Please come with questions prepared.

Teleconference call-in information is below, or please contact melissa.warren@aphl.org or infectious.diseases@aphl.org no later than 12:00 pm ET on Tuesday, September 3, 2019 to receive the calendar invitation.

Join Zoom Meeting
<https://aphl.zoom.us/j/348940355>

Call-in Information
+1-646-876-9923 US OR
+1-669-900-6833 US

Meeting ID 348-940-355

All CDC protocols for the NIRC methodologies will be available to applicants who have submitted a letter of intent to apply.

Appendix A – Expectations for National Influenza Reference Centers

Methods

All CDC protocols will be made available to applicants who have submitted a letter of intent to APHL.

Accessioning

- The reference center will follow-up with submitters if information on a specimen is incomplete or seems incorrect. Follow-up documentation will be stored and attached to specimen logs provided to CDC.
- The laboratory will never inoculate a virus for which the subtype is unknown or inconclusive, a suspect novel virus or co-infections. The laboratory will forward these specimens to CDC within 48 hours, preferable 24 hours for diagnostic testing.
- Specimen accessioning is done using the Contract Laboratory Accessioning Webtool (CLAW). Laboratories are responsible for providing labels and related supplies that meet the provided specifications from CDC and APHL. CDC/APHL will provide label printers.
- The reference center will perform a quality control check of specimen accessioning data in accordance with CDC validation protocols, as provided.

Virus Isolation

- Cell culture of MDCK and MDCK-SIAT 1 cells is required. The reference center must be able to grow and maintain both cell lines at sufficient volume to inoculate up to 100 viruses per week into T75 flasks. Both cell lines must be maintained at all times in order to process all submissions in a timely manner (i.e. within 1 week). Currently MDCK cells are used for influenza A/H1N1pdm09 and B viruses; MDCK-SIAT 1 cells are used for influenza A/H3 viruses. SOPs used will be identical to those used by the CDC ID/VSDB virus reference laboratory.
- Influenza activity will impact volume demands for both cell lines. Throughout the season, the laboratory must be able to monitor and predict the number of T75 cell culture flasks needed based on submission schedules and influenza activity. The reference center must be able to grow and maintain both cell lines at sufficient volume to inoculate up to 100 viruses per week.
- The laboratory will be available to perform daily checks of cytopathic effect (CPE) and hemagglutinin (HA) titration and will schedule virus inoculations to ensure critical CPE checking and HA titration days fall on days with staff availability. The laboratory must be able to still perform CPE checks and HA titration on weeks with holidays but inoculation schedules can be adjusted slightly to avoid coming in on actual holidays whenever possible. The laboratory will notify CDC and APHL of holiday week schedules/change in procedures on the monthly teleconference the prior month or by email at least 3 weeks in advance.
- The laboratory must have flexibility to respond to alterations or amendments in CDC-provided protocols.

Next Generation Sequencing

- Extraction, library preparation and sequencing is expected to be run on a weekly basis. Runs will be dedicated to influenza/NIRC specimens. Laboratories should not add additional pathogens to the NIRC run. Runs may be postponed by one week if the run is less than 20 viruses to conserve reagents.
- The laboratory will use the Illumina MiSeq platform for NGS.
- The reference center will utilize Clarity LIMS and pre-configured Tableau Online dashboards for workflow management and sequence data analysis for each run.
- The laboratory must successfully complete a proficiency test panel of reference viruses prior to starting testing on surveillance specimens.

- The laboratory will perform data curation and bioinformatics analysis utilizing their AIMS workspace and protocols provided by CDC.

High Content Imaging Neutralization Test (HINT)

- A subset of specimens (~120 per season) will be characterized for antiviral susceptibility by high content imaging neutralization testing (HINT). This laborious method takes approximately 2 weeks to complete. The laboratory will maintain capacity for HINT throughout the influenza season, with runs approximately every 2 weeks per month.
- The reference centers will perform this assay against up to five antiviral therapeutics (non-neuraminidase inhibitors). It is possible the number and types of antiviral therapeutics will change in the future.
- The laboratory must successfully complete a proficiency test panel of reference viruses prior to starting testing on surveillance specimens.
- Preparing cells for the assay is a part of the protocol and needs to be performed by the influenza laboratory staff not in a core facility. The protocol requires a cell suspension and the cells are seeded in the presence of serial diluted viruses to determine working virus dilution. This step is followed by incubation, fixation of cells and then immunostaining. Week 1 is virus titration and week 2 is half maximal effective concentration (EC₅₀) determination assay.
- The laboratory will have to use a high-technology microscopy device and CDC-provided software to determine EC₅₀.

Procurement

Virus Isolation

- Cell lines and reagents used will be identical to those used by the ID/VSDB virus isolation laboratory or CDC-approved equivalents.
- The laboratory must be able to enter into a material transfer agreement (MTA) with Philipps University Institute of Virology to acquire MDCK-SIAT 1 cells. CDC will provide both cell lines free of charge but the MTA is required.
- The laboratory must be able and willing to adopt a new cell culture line if CDC determines that a different cell line will produce better antigenic characterization results for vaccine strain selection for a specific influenza type and/or subtype.

Next Generation Sequencing

- Equipment and reagents will be identical to those used by the CDC/ID. Limited financial support will be provided as needed to initially procure equipment to establish capacity for certain equipment required for the protocol. Existing capacity for 24 hours of dedicated run time per week on Illumina MiSeq is required. Maintenance and service of equipment is the responsibility of the laboratory where equipment is located. Ideally, the laboratory will have a second MiSeq, utilized in the event of downtime on the primary instrument.
- The laboratory will use the Illumina MiSeq platform for whole genome sequencing, the QIAGEN QIAxcel Advanced System for gel analysis used in quality control (QC) and normalization steps of the influenza NGS protocol.
- Clarity LIMS and Tableau are used for workflow management and sequence data analysis. APHL will provide licenses.
- CDC will provide Oligonucleotides.
- Laboratory must have 20TB of local storage integrated via network to the MiSeq(s) and with the ability to install Amazon S3 client and transfer data automatically to AIMS S3 bucket. No upfront funding will be available to procure this local storage.

HINT

- Equipment and reagents will be identical to those used by the CDC/ID. Financial support can be provided to initially procure equipment to establish capacity. Maintenance and service of equipment is the responsibility of the laboratory where equipment is located.
- The laboratory will use the BioTek plate washer and Life Technologies CX5 high content imager, integrated with the Thermo Scientific Orbitor.
- CDC will provide antiviral drugs, if not commercially available.
- Multichannel pipettes (12 channel) are critical for this assay.

Data Management

- Laboratory must have proficiency using databases and will enter specimens received into the CDC provided virus isolation database upon receipt (< 24 hours after receipt). CDC will provide necessary training for the specimen management system and only basic internet requirements are needed (i.e., Internet Explorer 11).
- The reference center will electronically transmit data from multiple applications to CDC on a weekly basis.
- The reference center will make weekly shipments of specimens/isolates to CDC using proper International Air Transport Association shipping regulations.
- The reference center must submit electronic monthly reports to APHL and CDC. The laboratory will monitor harvest rates, titers and turnaround times.
- The reference center will work with CDC on troubleshooting if any issues occur.

Performance Management and Evaluation*Virus Isolation*

The reference center must submit electronic monthly reports to APHL and CDC. The laboratory will monitor and submit to APHL and CDC harvest rates, titers and turnaround times.

HINT

Prior to starting surveillance testing, the reference center must successfully complete a proficiency panel each year. The laboratory must upload data at the completion of each run to a file transfer protocol (FTP) site and notify CDC and APHL of the upload via email. The reference center must upload data and a more comprehensive final report to APHL and CDC. The laboratory will monitor and submit to APHL and CDC number and percent of viruses showing reduced susceptibility, number of specimens tested and turnaround times.

Next Generation Sequencing

Laboratories will perform a limit of detection panel a proficiency panel annually, at a minimum. Once active surveillance testing starts, the reference center must submit electronic notices of data transfer and monthly reports, including number of specimens tested and turnaround time, to APHL and CDC. The laboratory is responsible for complying with all pre-determined quality checks at key stopping points within the laboratory workflow and quality checks within the curation workflow of assembled sequence data to minimize reagent waste and troubleshooting effort. Potential quality issues should be escalated issues within Clarity LIMS for CDC review.

Biosafety

CDC and APHL expect reference centers to follow best practices for biosafety and biosecurity according to their own institution's policies. These policies should be available to CDC and APHL upon request as they relate to NIRC activities and processing/handling of NIRC specimens.

Site visits and teleconferences

- As needed, CDC and APHL will conduct a site visit for training new laboratories on virus isolation, next generation sequencing and high content imaging neutralization test with CDC's protocols and to ensure surveillance testing is ready to start. Additional monitoring visits may be needed based on data review and any ongoing challenges mutually identified. Site visits could include data review, review of laboratory workflow, procedural observation, QC information and review of worksheets and database.
- APHL in collaboration with CDC will host a mandatory monthly teleconference for the reference centers to provide status updates and discuss any ongoing challenges and potential solutions.

Project Evolution

- Successful laboratories will need to have flexibility to meet the project requirements as national surveillance needs evolve over time. Any deviations in the scope of work, including updates to CDC SOPs, will be reviewed on an annual basis and after a training period. Laboratories will adopt all changes within a mutually agreed implementation period.
- NIRCs may be asked to participate in special studies and evaluations for new NIRC processes, methodologies and technologies. These studies will be supported under the NIRC contractual agreements.
- In the event of a pandemic or local surge response, the reference center is expected to maintain operations and fulfil the obligation to national surveillance. If the laboratory anticipates any disruption in services, the laboratory will notify APHL and CDC immediately to develop a contingency plan and prioritize incoming specimens.

Appendix B – Minimum Requirements for the National Influenza Reference Center RFP

| YES | NO | MINIMUM REQUIREMENT |
|-----|----|--|
| | | Does your laboratory currently perform in-house cell culture for the purposes of influenza virus isolation? |
| | | Would your laboratory be willing to alter or amend existing testing protocols at the request of APHL and CDC? |
| | | Does your laboratory have sufficient equipment, laboratory space and workforce capacity for the proposed work in Appendix A including a MiSeq that can allow for a dedicated NIRC influenza run once per week? |
| | | Would your laboratory be willing to increase the frequency with which certain methods are performed in your laboratory if required by APHL and CDC to meet expected turnaround times? |
| | | Does your laboratory have a letter of support from your IT department to establish/maintain connectivity to APHL’s AIMS S3 Utility/SDK environment and a designated IT staff member to support this activity? |
| | | Does your laboratory have staff with traditional virology expertise to help with troubleshooting and interpretation of atypical test results? |
| | | Is your laboratory able to enter into material transfer agreements with CDC? |
| | | Is your laboratory able to contract with APHL or do you have an existing relationship with a third party that can contract directly with APHL on behalf of the laboratory? |
| | | Is your laboratory able and willing to accession NIRC specimens into a separate, APHL-provided, web-based LIMS (CLAW)? |
| | | Can you accommodate a tabletop port label printer, requiring printer certificates to be installed on the Local Computer’s Certificate Store? |

Signature: _____

Date: _____

Printed Name: _____

Appendix C: Response Table

To submit a proposal for consideration, please respond to the following questions using this table.

| Applicant : | |
|--|--|
| Physical Environment (Questions 1-4) (15 points) | |
| <p>1. Describe the physical space (e.g. room set up, what testing services spaces are shared with, equipment location, unidirectional flow) that would be used for all reference work including:</p> <ul style="list-style-type: none"> • Specimen receipt • Cell culture • Virus inoculation to harvesting • NGS • HINT | |
| <p>2. Describe how you anticipate specimens flowing from accessioning through each methodology.</p> <p>Include how your laboratory would incorporate accessioning specimens in a separate web-based tool.</p> <p>If a Core Facility is used, please describe the core’s resources, what other groups they are serving and how influenza reference center work would be prioritized.</p> | |

| | |
|---|--|
| <p>Include information on how the NIRC staff work and coordinate with the core staff and at which step the specimen hand off occurs.</p> | |
| <p>3. Does your laboratory utilize or have experience with barcode tracking specimens/samples? If yes, please describe.</p> | |

| 4. Please provide the number of each of the following equipment available for NIRC activities. (provide response in numbers of instruments) | | | | | | |
|--|---|----------------|--------------|----------------|----------------|-------------------------------------|
| <i>BSC</i> | <i>Incubators (access to CO₂ needed for cell culture and HINT)</i> | <i>Freezer</i> | <i>MiSeq</i> | <i>QIAcube</i> | <i>QIAxcel</i> | <i>Other (specify) and/or Notes</i> |
| | | | | | | |

| Lab Workforce (Questions 5-9) (20 points) | |
|--|--|
| <p>5. Briefly describe the laboratory’s overall experience with similar projects of this scale and scope, including any relevant reference center experience.</p> | |

| Workforce, continued (20 points) | | | |
|--|--|--|-----------------|
| 6. For each person who would be involved in NIRC activities, please describe their relevant experience, the anticipated percent effort by method for NIRC activities and their planned role in the project. You may add as many rows as necessary; please include personnel from specimen accessioning through each methodology and reporting. Multiple staff cross-trained and assigned to each project area is preferred. | | | |
| Name | Experience | Role | % Effort |
| <i>(EXAMPLE) Jane Smith</i> | <i>3 years of cell culture (A549 and RhMK) and non-influenza virus isolation</i> | <i>Cell culture maintenance, virus inoculation (secondary contact/back-up)</i> | <i>20</i> |
| [Person 1] | | | |
| [Person 2] | | | |
| [Person 3] | | | |
| [Person 4] | | | |
| [Person 5] | | | |
| [Person 6] | | | |

| Name | Experience | Role | % Effort |
|-------------|------------|------|----------|
| [Person 7] | | | |
| [Person 8] | | | |
| [Person 9] | | | |
| [Person 10] | | | |

| | |
|--|--|
| <p>7. Who would be the NIRC Principle Investigator? Describe their relevant experience leading projects of this scale. You may attach the PI’s biosketch or CV to your application (does not count against page restriction).</p> | |
| <p>8. Please describe cross-training and redundancy in the skill set of your laboratory. Is there sufficient cross-training that work can be supported on a weekly basis without</p> | |

| | |
|--|--|
| <p>interruption due to absences? What is your plan for testing on holiday weeks particularly with regards to lengthier methods such as virus isolation and HINT?</p> | |
| <p>9a. Describe your capability/capacity to continue NIRC work during state or local outbreaks of other pathogens, pandemic influenza, etc. How would these responses affect staff assigned to NIRC work and how would NIRC work be prioritized?</p> <p>9b. If you would like to be considered as the year-round NIRC to provide services in the summer, please describe your staffing capacity and general ability to maintain these services year-round even when submission volumes are lower but compensation rates remain the same.</p> | |

| | |
|---|--|
| <p>Information Technology (Question 10) (10 points)</p> | |
| <p>10. Are you currently transmitting influenza NGS data through AIMS?</p> <p>If no, please describe the IT technical support and infrastructure in place to support this (e.g., local storage requirements described in RFP)? Describe any processes you would have to go through for IT approval to connect to AIMS via S3 including estimated timeframe for that approval process.</p> | |

| | |
|--|--|
| <p>If you are already connected to AIMS for transmission of other NGS data, please specify.</p> | |
|--|--|

| | |
|---|--|
| <p>Accessioning and Data Management (Questions 11-13) (5 points)</p> | |
|---|--|

| | |
|---|--|
| <p>11. Describe your plans to meet the requirement to accession specimens within 2 business days of specimen receipt.</p> | |
| <p>12. Are you willing/able to use Clarity LIMS for NGS workflow management? If you have previous experience with Clarity LIMS, please describe.</p> | |
| <p>13. What is your process for data evaluation, QC review, troubleshoot and escalating issues?</p> | |

| | |
|--|--|
| <p>Cell Culture and Virus Isolation (Questions 14-15) (15 points)</p> | |
|--|--|

| | |
|--|--|
| <p>14. Please describe your cell culture and virus isolation experience including the following information:</p> <ul style="list-style-type: none"> • Cell culture experience (i.e., cell line, virus) • Volume (i.e., typical per week and max capacity per week) • Recovery rate history | |
| <p>15. Have you had any contamination events in the past 5 years? If so, please describe the event, how it was discovered and rectified. How</p> | |

| | |
|--|--|
| does your laboratory respond to potential contamination events? | |
|--|--|

Next Generation Sequencing (Questions 16-19) (15 points)

| | |
|---|--|
| 16. What is the typical size and frequency of your sequencing runs? | |
| 17a. How many complete genomes have you done over the past year? Please describe the type (pathogen) of genomes that were sequenced. | |
| 17b. Did you complete and curate the data in-house or send outside the laboratory for data curation? | |
| 18. Describe the equipment available for NIRC activities. Are you able to accommodate weekly-dedicated influenza runs? | |
| 19. How does your laboratory troubleshoot sequencing issues and failed runs? | |

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| HINT (Questions 20-22) (10 points) | |
| 20. This protocol requires cells to be split a day ahead of the test and be in suspension (no monolayers) prior to mixing with antiviral and virus. Is your <u>influenza/virology laboratory</u> equipped with appropriate space and staffing to do this? | |
| 21. Please briefly describe how you interpret and envision running this assay in your laboratory based on the provided protocols and publication. | |
| 22. Please describe any experience with similar assays, such as neutralization of virus infectivity, plaque reduction assay, ELISA, which include working with cell culture and microplate washing, cell fixation and similar laboratory procedures. | |

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Flexibility and Methodology Adoption (Questions 23-24) (5 points)

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| 23. Is your laboratory be willing to evaluate and incorporate additional cell lines and/or new technologies/methodologies as they become available? | |
| 24. Please briefly describe any experience in participating in method or platform evaluation(s). Preference will be given to influenza testing method evaluations (limit 200 words). | |

Additional Comments (Question 25) (5 points)

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| 25. Describe any unique aspects of your laboratory you have not yet mentioned that you could bring to the project? (e.g., cutting edge technologies, high throughput, etc.) | |
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Appendix D: Score Card

The following table is a copy of the score card that will be used to evaluate RFP responses.

| Category/Question | Maximum Value | Score | Comments (REQUIRED) |
|--|---------------|-------|--------------------------------|
| <p>Physical Environment (Questions 1-4)</p> <p>1-2. Rate the suitability of the laboratory environment, including physical space for all methodologies and the flow of specimens. Ideal (6-9 points): Meets space requirements for all NIRC activities; describes a suitable and efficient flow of specimens; demonstrates clear understanding of the space and flow requirements. Adequate (1-5 points): Meets most space requirements but may have to rearrange or reformat lab to accommodate work; has some deficiencies in their understanding and proposed flow of specimens. Inadequate (0 points): Does not meet space requirements, workflow will not suffice for NIRC activities, and/or does not demonstrate a clear understanding of requirements.</p> <p>3. Does the applicant have experience with barcoding tracking of specimens? Yes (1 point), No/Unclear (0 points)</p> <p>4. Does the applicant have sufficient equipment to support NIRC activities? BSC Yes (1 point), No (0 points) Incubators Yes (1 point), No (0 points) Freezers Yes (1 point), No (0 points) MiSeq Yes (1 point), No (0 points) QIAcube Yes (0.5 point), No (0 points) QIAxcel Yes (0.5 point), No (0 points) Other (informative only, no points)</p> | 15 | | Type comments here. (REQUIRED) |
| <p>Workforce (Questions 5-9)</p> <p>5-8. Rate the suitability of the proposed workforce based on relevant experience and appropriate allocation of percent effort to meet the project needs. Please consider the following:</p> <ul style="list-style-type: none"> Does the applicant have sufficient dedicated personnel and experience to perform the methodologies described, including redundancy in their workforce? The PI and laboratory's level of experience with similar projects and their expertise in the subject area. <p>High suitability (10-15 points): Staff with strong history of relevant experience, appropriate allocation of staff time, strong cross-training/redundancy to ensure continuity of operations.</p> | 20 | | Type comments here. (REQUIRED) |

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|---|---|--|--------------------------------|
| <p>Very experienced PI, laboratory has very similar and relevant experience.</p> <p>Moderate suitability (6-10 points): Strong PI; good workforce experience but will have a learning curve on a few areas or may be lacking in some redundancy; appropriate allocation of staff time; could meet expectations but have some mild reservations</p> <p>Possibly/Uncertain (1-4 points): Clear deficiencies in workforce experience and/or expertise; unrealistic time allocations; strong reservations about meeting expectations</p> <p>Not suitable: (0 points)</p> <p>9. Does the applicant describe a reasonable approach to balancing NIRC activities and state/local response needs? Is summer staffing available?</p> <p>Ideal (4-5 points), Adequate (1-3 point), Inadequate (0 points)</p> | | | |
| <p>Information Technology (Question 10)</p> <p>10. Is the applicant currently transmitting influenza NGS data through AIMS?</p> <p>Yes (8 points), No (0 points)</p> <p>If not, do they have a reasonable process for implementation?</p> <p>Not transmitting, but has a reasonable implementation plan: plan includes acknowledgements of any security approval process and IT support required for implementation (5 points)</p> <p>Insufficient/unclear plan for implementation: (0 points)</p> | 8 | | |
| <p>Accessioning/Data Management (Questions 11-13)</p> <p>11. Are the plans described to meet the accessioning requirement within 2 business days of specimen receipt reasonable?</p> <p>Yes (1 points), No/unclear (0 points)</p> <p>12. Does the applicant have experience with Clarity LIMS? Is the applicant willing/able to use Clarity for NGS workflow management?</p> <p>Willing and prior experience (2 points), Willing, no prior experience (1 point), Not willing (0 points)</p> <p>13. Rate the processes in place for data evaluation, QC review and escalating issues.</p> <p>Ideal/Suitable: Set processes with clear communication and multiple QC mechanisms in place (4-5 points), Minimal: Unclear processes or potentially burdensome internal review before communicating to partners (1-3 points), None/Unacceptable: (0 points)</p> | 7 | | Type comments here. (REQUIRED) |

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| <p>Cell Culture/Virus Isolation</p> <p>14. What is the applicant’s experience and capacity for cell culture and influenza virus isolation? High: extensive experience with isolating influenza viruses from MDCK-ATL and MDCK-SIAT cells and sufficient capacity for processing 100 flasks per week (8-13 points); Moderate: does not use both cell lines for influenza virus isolation, isolates influenza or non-influenza viruses from a different cell line, or unclear capacity; (1-7 points); No Experience: does not have experience in virus isolation from cell culture or does not have the necessary capacity (0 points)</p> <p>15. Does the applicant have an appropriate contamination response in place? Yes (2 points), No (0 points)</p> | 15 | | |
| <p>Next Generation Sequencing</p> <p>16 - 17. What is the applicant’s experience with NGS methods for influenza? High: experience with influenza sequencing using the CDC protocol and workflow pipeline; experience with influenza data curation (8-11 points); Moderate: does not have experience with the CDC protocols for influenza NGS, but does have influenza NGS experience OR has NGS experience with another viral pathogens; has experience with in-house data curation. (4-7 points); Minimal: does not have viral pathogen NGS experience, but does have other NGS experience; may not curate data in-house (1-3 points); No Experience: does not have experience with sequencing influenza or other viral pathogens species (0 points)</p> <p>18. Rate the laboratory’s equipment for NGS. Ideal Does the applicant have one MiSeq that can accommodate dedicated influenza runs with a backup MiSeq that could be utilized in case of maintenance needs? Ideal: one MiSeq for dedicated influenza runs and a backup if available, QIAxcel, QIAcube (2 points); Adequate: one MiSeq for dedicated influenza runs (1 point); Inadequate: no MiSeq for dedicated influenza runs (0 points)</p> <p>19. Does the laboratory describe an appropriate plan for troubleshooting sequencing issues? Yes (2 points), No (0 points)</p> | 15 | | |

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| <p>HINT 20. Does the laboratory have capacity and experience to maintain cell culture internally as needed for HINT (i.e. not core facility)? Yes (4 points), No (0 points)</p> <p>21. How well does the laboratory demonstrate an understanding of the requirements to implement and maintain HINT? Well (3 points); Somewhat (1-2); Unclear/does not understand (0 points)</p> <p>22. Does the laboratory have relevant experience from other techniques? Yes (3 points); Unclear/Limited (1-2 points); No (0 points)</p> | 10 | | |
| <p>Flexibility 23-24. How well does the laboratory demonstrate a willingness to evaluate and incorporate additional new technologies as they become available? Does the laboratory have experience in participating in method or platform evaluation(s)? Rate on a scale of 0-5 points (5=strongest answer; 0=insufficient/weak answer)</p> | 5 | | |
| <p>Additional Comments 25. Does the applicant have any unique aspects/services to contribute to the project? (e.g., cutting edge technologies, high throughput, etc.) Yes (1-5 points), No (0 points)</p> | 5 | | |
| TOTAL SCORE | 100 | | |

Appendix E – Conflict of Interest Disclosure Statement and Policy (For Completion by Reviewers Only – Applicants Do Not Need to Complete)

Association of Public Health Laboratories Conflict of Interest Disclosure Statement

Applicability: Disclosure of the following information is required of all Officers, Directors, committee members, staff members and other volunteers who have been designated and who have accepted responsibility to act on behalf of APHL ("APHL Personnel"). Please answer the following questions and, where indicated, include the same information for your immediate family members (your parents, your spouse or partner, your children and your spouse/partner's parents).

APHL will keep your completed disclosure statement in the corporate records of the association.

1. Please list the name, address, phone number, email address and type of business of your current employer. If you are self-employed, please note that below and provide us with the address, phone number, email address and type of business you operate.

2. Do you, or does any family member, currently serve as an officer, director, committee member, or other volunteer (or work as an employee of or a paid consultant to) any organization serving the interest of laboratory science or public health laboratories other than APHL or your state or local laboratory?

Yes

No

If yes, please list the organization(s) and provide detail on your or your family member's interest or position in the organization(s).

*Approved and adopted by the Board of Directors on June 10, 2017
Effective July 1, 2017*

3. Do you, or any family member, have an existing or potential interest in, or compensation arrangement with, any third party providing goods or services to APHL, or with which APHL is currently negotiating?

Yes No

If the answer is yes, please provide the name of the organization below and describe in detail the nature of the position held.

4. Please note any other financial or business interest you may have with any organization serving the interests of public health laboratories.

If you have none, please check this box:

5. Do you, or does any family member, have any other interest or affiliation that is likely to compromise your ability to provide unbiased and undivided loyalty to APHL, or that could come in conflict with your official duties as an Officer, Director, committee member, staff member or other volunteer who has been designated and who has accepted responsibility to act on behalf of APHL?

Yes No

If you answered yes, please describe in detail below the nature of each such interest or affiliation.

6. If you are currently aware of any actual or possible conflict of interest that might otherwise hamper your ability to serve APHL to your best ability and with the highest degree of care, loyalty and obedience – ***including any potential conflict you or a family member may have with one or more of the RFP applicants*** – please describe them in detail below.

7. Do you agree that so long as you are an Officer, Director, committee member, staff member or other volunteer who has been designated and who has accepted responsibility to act on behalf of APHL you will immediately disclose to the other Directors and/or Officers or, for staff members, the Executive Director and/or General Counsel the nature of any interest or affiliation which you may hereafter acquire, which is in or is likely to become in conflict with your official duties with APHL?

Yes

No

YOU MUST READ THIS SECTION AND THEN SIGN BELOW

I acknowledge that I have received and read APHL’s Fiduciary Responsibility and Conflict of Interest Policy (the Policy). I have listed all my relevant fiduciary responsibilities and affiliations, and I have identified any actual or potential conflict of interest on this Disclosure Statement and I agree to abide by the Policy. I understand that it is my responsibility to inform APHL in writing of any change in circumstances relating to the Policy and this Disclosure Statement.

Signature: _____ Date: _____

Printed Name: _____

APHL Fiduciary Responsibility and Conflict of Interest Policy

1. Policy Statement and Purpose

The members of the APHL Board of Directors understand the importance of serving APHL to the best of their ability and with the highest degree of obedience, loyalty and care. Accordingly, the Board adopts the following policy for APHL Officers and Directors, all staff, committee members, and other volunteers who have been designated and who have accepted responsibility to act on behalf of APHL ("APHL Personnel").

2. Individual Duty and Annual Disclosure

APHL Personnel will avoid any conflict of interest with APHL. APHL Personnel will not profit personally from their affiliation with APHL, or favor the interests of themselves, relatives, friends or other affiliated organizations over the interests of APHL. As used in this Policy, "Conflict of interest" includes any actual, apparent, and potential conflict of interest.

Upon commencing service with APHL, each APHL Personnel will file with the Board an annual statement disclosing all material business, financial, and organizational interests and affiliations they or persons close to them have which could be construed as related to the interests of APHL or the profession of public health laboratory science. Each APHL Personnel has an obligation to make an additional disclosure if a conflict of interest arises in the course of the individual's service to APHL, whether arising out of his/her employment, consulting, investments, or any other activity. These disclosures will be documented promptly in writing and recorded in the Board minutes and corporate records.

3. Procedure

Whenever APHL considers a matter, which presents an actual, apparent, or potential conflict of interest for APHL Personnel, the interested individual will fully disclose his/her interest in the matter, including the nature, type, and extent of the transaction or situation and the interest of the individual or that individual's relatives, friends or other affiliated organizations. The Board, after consultation with counsel as appropriate, will determine whether an actual and material conflict exists and, if so, what is the appropriate course of action under this policy and the Board vote will be recorded in the minutes.

Any Board member having a conflict of interest must either (i) voluntarily abstain from and be disqualified from participation in all deliberation and voting on all Board actions relating to the situation or matter that gives rise to the conflict of interest, or (ii) ask the Board to determine whether an apparent or potential conflict of interest is considered by the Board to be an actual and material conflict. In the event that the Board member in question requests that the Board evaluate the apparent or potential conflict, that Board member will abstain and be disqualified from participating in (and voting on) the determination of whether the issue presents an actual and material conflict. If the Board determines that an actual and material conflict exists, the Board member in question will abstain from all voting on, and will be disqualified from participation in all deliberation concerning all Board actions relating to the conflict of interest. The vote will be recorded in the minutes.

These procedures will neither prevent the interested individual from briefly stating his/her position on the matter, nor preclude him/her from answering pertinent questions of Board members, since his/her knowledge may be of assistance to the Board's deliberations.

APHL Personnel must be cautious and protective of the assets of APHL and insure that they are used in the pursuit of the mission of APHL. The association's policy requires APHL Personnel to avoid transactions in which APHL personnel may have a significant financial interest in any property which APHL purchases, or a direct or indirect interest in a supplier, contractor, consultant, or other entity with which APHL does business. The Board, after consultation with counsel as appropriate, will determine whether an actual and material conflict exists and, if so, determine whether the transaction is nonetheless favorable to APHL before considering whether to approve it.

4. Other Duties and Obligations

Whenever any APHL Personnel discovers an opportunity for business advantage which is relevant to the activities of APHL, the opportunity belongs to APHL and the individual must present this opportunity to the Board. Only once the Board determines not to pursue the matter and relinquishes the opportunity may the individual consider it a matter of possible personal benefit.

APHL Personnel may not accept favors or gifts exceeding \$75.00 from anyone who does business with APHL.

All APHL Personnel will keep confidential those APHL matters designated confidential. APHL Personnel are prohibited from disclosing information about APHL to those who do not have a need to know or whose interest may be adverse to APHL, either inside or outside APHL, and are prohibited from using in any way such information for personal advantage to the detriment of APHL.

All APHL Personnel who participate in APHL activities, including committee activities and international consultation activities, must be adequately prepared to fully participate as their position descriptions require and will do so in accordance with the applicable laws and regulations of their respective state or territory and APHL's Articles of Incorporation, Bylaws, and corporate policies. The APHL Board will read and understand the association's Articles of Incorporation, Bylaws, corporate policies and financial statements, and routinely verify that all state, federal, and local tax payments, registrations and reports have been filed in a timely and accurate manner.

Board members will never exercise authority on behalf of APHL except when acting in meetings with the full Board or the Executive Committee or as authorized by the Board. If any member of the Board has significant doubts about a course of action of the Board, he or she must clearly raise the concern with the Executive Director and the Board and, when appropriate, seek independent expert advice.