Updated CDC Guidance for Specimen Submission for Surveillance of SARS-CoV-2 (NS3)

Dear Colleagues,

Thank you very much for your outstanding efforts in support SARS-CoV-2 genomic and virological surveillance. Your continued participation, support, and ongoing public health service in the National SARS-CoV-2 Strain Surveillance (NS3) System is incredible. NS3 continues to provide critical national SARS- CoV-2 surveillance information, increases publicly available viral sequence data, and provides specimens for isolation of viruses for phenotypic characterization, which is needed to inform how well the vaccine is/will work and if updates are required to the specific antigen used in future vaccines.

This update addresses the following topics:

- Updates in cadence of specimen shipping
- Updated number of specimens to be shipped to CDC
- Guidance for states with sequencing capacity to directly contribute data to the genomic surveillance system
- Eliminates the submission of the NS3 Supplementary Form, additional columns in the GFAT highlighted

As a reminder, it is critical for monitoring true variant proportions that specimens sent as part of NS3 surveillance be unbiased. The proportion and growth rate are critical data in understanding the emergence of variants and mitigation planning efforts.

Attached you will find the following documents:

- National SARS-CoV-2 Strain Surveillance (NS3) Submissions to CDC for SARS-CoV-2 Positive Specimens [SARS-CoV-2 Appendix 1] Updated 08/30/2023.
- CDC Recommended Number of National SARS-CoV-2 Strain Surveillance (NS3) Specimens for Weekly Submission to CDC by Jurisdiction [SARS-CoV-2 appendix 1, Table 1] Updated 08/30/2023.
- New: Guidance for laboratories with whole genome sequencing capacity [SARS-CoV-2 appendix 2]
- Updated email contacts [SARS-CoV-2 appendix 1 and SARS-CoV-2 appendix 2] Updated 08/30/2023.
- New: **GFAT column description of required and requested fields [SARS-CoV-2 appendix 3]**
- National SARS-CoV-2 Strain Surveillance (NS3) Frequently Asked Questions (FAQs)

For technical guidance, questions about forms or shipments, or sequencing-related questions, please contact the SARS-CoV-2 Sequencing Team at sarsseqshipping@cdc.gov.

For general questions about the national sequence-based surveillance strategy for SARS-CoV-2, please contact the Strain Surveillance and Emerging Variants team at sarsseqshipping@cdc.gov

SARS COV-2 Appendix 1: National SARS-CoV-2 Strain Surveillance (NS3) Submissions to CDC for SARS-CoV-2 Positive Specimens (Recommended) (Updated 08/30/2023)

1. CDC will continue to accept SARS-CoV-2 positive specimens biweekly based on the previous guidance described below.
2. Please ship randomly selected SARS-CoV-2 positive specimens every other Monday for overnight delivery to CDC on Tuesday. If Monday is an observed holiday, please ship on the next available business day (Tuesday). Please ship only on weekdays through Thursday.
3. Consult SARS-CoV-2 appendix 1 table 1 for the recommended number of specimens to ship bi-weekly for your jurisdiction.
4. Acceptable specimen types for sequencing and potential virus characterization are the same as for the CDC SARS-CoV-2 diagnostic assays that were authorized by FDA under an EUA: upper and lower respiratory specimens, including nasopharyngeal, oropharyngeal, nasal mid-turbinate, and anterior nares (nasal swab) specimens. In addition, a nasopharyngeal wash/aspirate or nasal wash/aspirate specimen collected by a healthcare professional is acceptable, as is a naturally expectorated sputum. Acceptable specimens will be limited to those collected in media that allow for viral culture (e.g., PBS, VTM, UTM). Specimens collected in Hologic Aptima buffer and Molecular Transport Media are excluded from submission. For more information, see the interim specimen collection guidelines (available at https://www.cdc.gov/coronavirus/2019-nCoV/lab/guidelines-clinical-specimens.html).
5. Considerations for selecting NS3 specimens:
    a. The quality of the specimen directly affects sequencing and virus culture success. Ideally, specimens should have an RT-PCR Ct value of ≤28. We recommend testing with the CDC flu-sc2 assay, however other mechanisms of SARS-CoV-2 specimens are acceptable. If Ct values are not available, specimens that are positive for SARS-CoV-2 may be included in the random selection of samples to be sent.
    b. The time from specimen collection to sequence characterization has a large impact on our ability to quickly detect and track proportions of emerging variants. Please send specimens that have been collected within the last 14 days whenever possible. If the number of specimens collected within the last 14 days is insufficient to meet your jurisdiction's requested number for NS3 submission (Appendix 2), please send the most recent specimens possible (i.e., collected up to 28 days prior to shipment).
    c. Laboratories should choose a random selection of specimens collected within the last 14-28 days.
    d. You may submit specimens that are being sequenced by you or your partners to CDC for NS3 submissions if this will help to meet your jurisdiction's NS3 submission goal (SARS-CoV-2 appendix 1, table 1). If submitting specimens being sequenced locally, please enter "yes" in the GFAT form's column "Alpha Numeric 01" (See Appendix 3) and provide the GISAID or GenBank accession numbers if they are available at the time of shipping in the GFAT form's column "Additional ID 1" (See Appendix 3).
        i. For sequence data generated locally, add a tag to the submission as described in the guidelines. For example, a submission to GenBank would have the keyword (purposeofsampling:baselinesurveillance).
        ii. If you or your sequencing partner(s) are already marking baseline surveillance samples using the purpose of sequencing field with the "Baseline surveillance

(random sampling)" option outlined in the PHA4GE metadata specification, you do not have to change to the surveillance tagging system described above.

6. Specimens can be stored at 2–8°C for no more than 72 hours from the time of collection, prior to shipping preparation. The 72- hour timeframe is a strict requirement for sequencing to be completed successfully. Specimens that require storage longer than 72 hours should instead be frozen at ≤ -70°C. Prior to shipping, specimens should be frozen at ≤ - 70°C and shipped on dry ice.
7. Please submit original clinical specimens with at least 500 µL volume and no more than 1 mL unless confirmed beforehand.
8. Please use 1.0–2.0 mL O-ring screw cap microcentrifuge tubes labeled with the de-identified specimen ID.
9. Please fill in the electronic Global File Accessioning Template (GFAT) form. Each specimen must be labeled with a unique identifier also included on the GFAT using the SPHL Submitter Specimen ID or the Original Submitter Specimen ID field (if no SPHL ID) (See Appendix 3 for more information). Please fill out all GFAT fields for which you have data. Please note: the fields highlighted in Appendix 3 are required or requested for the processing of specimens and downstream uses of the sequence data for public health surveillance. Do not include Personally Identifiable Information including "Patient Names, Birthdates".
10. In the GFAT form, please select or enter "NS3 - National SARS-CoV-2 Strain Surveillance" in the Event Name field and "1771" in the Event ID field. For additional support in filling out the GFAT or questions please contact sarsseqshipping@cdc.gov.
11. Specimens should be packaged and shipped as Category B infectious substances, and all requirements for proper packaging and shipping should be observed (see https://www.cdc.gov/coronavirus/2019-ncov/lab/lab-biosafety- guidelines.html#specimen).
12. Please include a printed manifest of your specimens with your shipment.
13. Email the GFAT form along with tracking information to sarsseqshipping@cdc.gov.
14. If possible, please ship specimens every Monday for overnight delivery to CDC using the following address:

ATTN: STATT Lab: Unit 66 COORS
Centers for Disease Control and Prevention 1600 Clifton Road, NE
Atlanta, Georgia, 30333
Telephone: 404-639-3931
Email: sarsseqshipping@cdc.gov

SARS-COV-2 appendix 1 table 1: Target Number of National SARS-CoV-2 Strain Surveillance (NS3)
Specimens Requested for Submission to CDC every other week by Jurisdiction (Updated 08/30/2023)

Jurisdictions are encouraged to submit specimens **bi-weekly**, and to and prioritize those specimens collected in the previous **28** days.

Abbr	Jurisdiction	No of bi-weekly specimens*
AK	Alaska	9
AL	Alabama	11
AR	Arkansas	10
AS	American Samoa	5
AZ	Arizona	14
CA	California	35
CHI	Chicago	12
CO	Colorado	12
CT	Connecticut	11
DC	District of Columbia	10
DE	Delaware	9
FL	Florida	26
FM	Micronesia	5
GA	Georgia	17
GU	Guam	5
HI	Hawaii	9
HOU	Houston	9
IA	Iowa	10
ID	Idaho	9
IL	Illinois	17
IN	Indiana	13
KS	Kansas	10
KY	Kentucky	11
LA	Louisiana	11
LAC	Los Angeles County	19
MA	Massachusetts	14
MD	Maryland	13
ME	Maine	9
MH	Marshall Islands	5
MI	Michigan	16
MN	Minnesota	13
MO	Missouri	13

Abbr	Jurisdiction	No of bi-weekly specimens*
NC	North Carolina	16
ND	North Dakota	9
NE	Nebraska	9
NH	New Hampshire	9
NJ	New Jersey	16
NM	New Mexico	10
NV	Nevada	10
NY	New York	18
NYC	New York City	18
OH	Ohio	17
OK	Oklahoma	10
OR	Oregon	11
PA	Pennsylvania	18
PHL	Philadelphia	7
PR	Puerto Rico	10
PW	Palau	5
RI	Rhode Island	9
SC	South Carolina	12
SD	South Dakota	9
TN	Tennessee	13
TX	Texas	33
UT	Utah	10
VA	Virginia	16
VI	Virgin Islands	5
VT	Vermont	9
WA	Washington	14
WI	Wisconsin	13
WV	West Virginia	9
WY	Wyoming	9
	TOTAL	770

MP	Northern Marianas	5
MS	Mississippi	10
MT	Montana	9

*Based on population – Minimum number of five (5) specimens per bi-week by jurisdiction.