

Update to UNOLS Considerations for Conducting Seagoing Science

The following information and guidance is provided as an update and adjustment to previous UNOLS Guidance related to conducting science onboard U.S. Academic Research Fleet vessels (see: [1June2020 UNOLS COVID-19 Considerations For Conducting Seagoing Science](#), [11May2021 Update to UNOLS COVID-19 Guidance](#), [4June2021 Update to UNOLS Considerations for Conducting Seagoing Science](#), and [25August2021 UNOLS COVID-19 Guidance Update](#)). Those elements of the previous UNOLS Guidance not addressed in the following paragraphs remain in effect.

This update has been developed with advice and guidance provided by George Washington Medical Faculty Associates.

A COVID-19 variant, Omicron, that appears to be more easily transmitted between persons has been identified in many countries and several U.S. states. Coupled with increasing evidence that vaccine-induced immunity wanes, the CDC has recommended booster shots for persons over 18 who were previously considered fully vaccinated. Based on these recommendations and the understanding of the increased risk of transmission inherent to congregate settings (such as ships), it is prudent to mandate boosters for persons boarding Academic Research Fleet vessels.

Based on the below stated (see “Background”) observations, recommendations, guidelines and published data, the following changes are made to previously issued UNOLS guidelines for consideration in conducting oceanographic research on U.S. Academic Research Fleet vessels. In all cases, the Vessel Operators and Chief Scientists can choose to use stricter protocols if deemed appropriate for any reason.

UPDATED GUIDANCE

Our goal is that all persons aboard Academic Research Fleet vessels are fully vaccinated against COVID-19. Due to the close quarters of vessel operations, we recommend that operating institutions mandate vaccinations for all cruise participants. UNOLS expects that all involved parties will maximize efforts to ensure that all persons (crew and science party) are fully vaccinated by a ship’s sail date. In addition to ensuring that all persons are fully vaccinated, the pre-travel safety, symptom-checking and testing protocols addressed in Table 1 should be implemented.

Any requests to proceed without a fully vaccinated vessel will require concurrence from the funding agency, institution and UNOLS prior to proceeding. Risk level shall be determined through the established Risk Mitigation Process. Any unvaccinated participant is expected to complete the pre-cruise requirements as indicated in Table 2 below. For ships that have voyages that are longer than 7 days and/or anticipate being more than 24-hour sail from medical facilities, consideration should be given to having on-board NAAT or Ag testing

If a vessel must proceed with one or more unvaccinated persons, additional testing and safety measures will need to be implemented for those persons as addressed in Table 2. In addition, the Operator and Chief Scientist should consider the following precautions:

1. Operating the ship within 2 days of adequate medical facilities.
2. Obtaining the informed consent of other crew/science party.

Update to UNOLS Considerations for Conducting Seagoing Science

3. Outfitting the vessel with the ability to conduct on-board NAAT or Ag testing.
4. The cost associated with quarantining requirements for those who voluntarily do not get vaccinated, aside from medical or religious accommodations, must be supported by the individual or the institution.

Fully Vaccinated Persons

Based on the CDC’s recommendations for persons over 18 who were previously fully vaccinated and the understanding of the increased risk of transmission inherent to congregate settings (such as ships), the ARF defines fully vaccinated as a person who has:

- a. completed the initial 2-dose series of Pfizer or Moderna more than 14 days ago AND less than 6 months have passed since last dose was administered
- b. received 1 dose of Johnson & Johnson (Janssen) more than 14 days ago AND less than 2 months have passed since the dose was administered
- c. if > 6 months have lapsed since completing 2-dose series of Pfizer or Moderna, OR > 2 months since 1 dose of J&J, must have also received a single (booster) dose with any of the COVID-19 vaccines authorized for use in the U.S.

Table 1 – Fully Vaccinated Persons

	Action Required
At least 14 days prior to travel ¹	Submit COVID-19 Vaccination Documentation
At least 7 days prior to travel	Begin Pre-travel safety measures: <ul style="list-style-type: none"> • Avoid all crowded public² spaces • Mask in all crowded outdoor spaces • Mask in all indoor public spaces • Mask in indoor private³ spaces (e.g. home) if there are unvaccinated (e.g. young children) and/or immunocompromised persons in the same household
At least 7 days prior to travel	Begin daily symptom tracking ⁴ <ul style="list-style-type: none"> • If develop symptoms of possible COVID-19, initiate quarantine and obtain RT-PCR test. There should be at least 48 hours between this test and the pre-travel test
1-3 days prior to embarkation	RT-PCR ⁵ Pre-Travel Testing Tests should be as close as possible to travel date.
Upon embarkation	RT-PCR ⁵ or Ag ⁶ test on embarkation ⁹ Tests should be as close as possible to embarkation.

Update to UNOLS Considerations for Conducting Seagoing Science

Table 2 – Persons Not Fully Vaccinated

	Action Required
15-17 days prior to embarkation	Complete RT-PCR ⁵
14 days prior to embarkation	Submit any COVID-19 vaccination documentation ⁷
14 days prior to embarkation	<ol style="list-style-type: none"> 1. Begin pre-quarantine safety measures: <ul style="list-style-type: none"> • Avoid crowded indoor public spaces • Mask in all indoor public spaces • Mask in all indoor private spaces (e.g. home) if there are unvaccinated (e.g. young children) and/or immunocompromised persons in the same household 2. Begin daily symptom tracking. <ul style="list-style-type: none"> • If develop symptoms of possible COVID-19, initiate quarantine and obtain RT-PCR test. <p>There should be at least 48 hours between this test and the pre-travel test</p>
10 days before embarkation	Begin Pre-embarkation quarantine ⁸
~2 days prior to embarkation	<p>PCR⁵ or Ag⁶ test⁹</p> <p>Tests should be as close as possible to embarkation date.</p>

Key:

1. Travel begins when a person leaves their last place of residence to join the vessel.
2. Public is defined as an event or space with more than one household
3. Private is defined as occurring in and including only persons from one’s own household
4. CDC [COVID-19 symptoms](#)
5. PCR: any CDC recognized Nucleic Acid Amplification Test (NAAT¹) test. - CDC recognized NAAT - Nucleic Acid Amplification Test – see: <https://www.cdc.gov/coronavirus/2019-ncov/lab/naats.html>
6. Ag: any [CDC recognized Antigen test](#).
7. This includes incomplete series (e.g. one vaccine of a 2-shot series, no booster) or vaccination with a vaccine that has not had FDA or WHO approval (EUA/EUL)
8. Quarantine: For purposes of this document, only persons not fully vaccinated against COVID-19 are expected to complete pre-embarkation quarantine (unless quarantine is instituted by another health authority- for e.g. as a result of contact tracing efforts). During the quarantine period, persons are expected to establish single-occupancy residence and to take their meals in their residence.
9. If a person has a positive PCR (or any NAAT) or Ag test they will not be allowed to sail or board a vessel. Before being allowed to board, they must be cleared by a physician. Unless they are recently recovered from COVID-19, they will need to complete a period of ISOLATION before they are allowed to sail. The necessity of repeating the testing (for e.g. documenting a negative Ag test) will be left to physician discretion. Currently, documenting a negative PCR test is not considered an alternative to isolation and is not needed to provide clearance once isolation is completed.

Update to UNOLS Considerations for Conducting Seagoing Science

Risk levels shall be determined through the established Risk Mitigation Process. Any requests to proceed without quarantine for high risk cruises require concurrence from the funding agency, institution and UNOLS prior to proceeding. **In all cases, current or more strict protocols can be utilized in cases where risk levels are determined to be significant.**

When determining risk: Considerations in determining risk should include distance from shore, cruise duration, investment, science party size, whether public transport travel is required, the number of high-risk participants, the ratio of vaccinated to unvaccinated persons.

Travel Recommendations – for crew and science party who travel to meet the ship

- Travel to port should be conducted in private vehicle when possible.
- Travelers should always wear a mask and minimize interaction during travel.

Background

Vaccinations

Persons who have been fully vaccinated against COVID-19 can be infected with the virus. Despite becoming infected, they are much more likely to have subclinical (asymptomatic) illness. Such persons, despite being vaccinated and asymptomatic can transmit COVID-19 to others.

A small percentage of vaccinated persons who become infected will manifest clinical illness (breakthrough cases) and have the following repercussions to becoming infected:

- Manifest any signs of infection
- Become seriously ill and/or need hospitalization
- Die from COVID-19 complications.
- Transmit COVID-19 to others

The potential for true vaccine failure (being vaccinated but not mount an adequate immune response) is low in the general population. In the populations with increased rates of vaccine failure (e.g., persons with cancer, recipients of organ transplants, etc.), the CDC recommendations can be found at:

<https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/immuno.html>

Vaccines

Currently one vaccine is fully approved by the U.S. Food & Drug Administration.

- Pfizer-BioNTech vaccination: 2 initial doses spread by 3 weeks.

Two vaccines are authorized under an Emergency Use Authorization (EUA) by the U.S. Food & Drug Administration (FDA):

- Moderna COVID-19 vaccination: 2 initial doses spread by 4 weeks.
- Johnson & Johnson – Janssen COVID-19 vaccination: 1 dose

Moderna petitioned the FDA for full approval in early June 2021.

Update to UNOLS Considerations for Conducting Seagoing Science

Boosters

The CDC has issued guidance recommending everyone over 18 years of age should receive boosters. Booster guidelines are outlined here: <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/booster-shot.html>

In addition to the above, the WHO has given EUL approval to:

- Astra Zeneca: 2 doses
- Sinopharm: 2 doses
- Sinovac: 2 doses
- Covaxin: 2 doses
- Covishield: 2 doses

U.S. Vaccination Status

As of December 8, vaccinated data:

- Total Population
 - ~60% are fully vaccinated
 - ~71% are partially vaccinated

Globally over four billion vaccine doses have been administered but overall vaccine availability and vaccination rates remain low in most countries.

US Infection and Death Rates in U.S. by 7-Day Moving Average

Avg#/day over last 7 days

Date	Cases/day	Deaths/day
Jan 8, 2021	252,000	3,364
Feb 8, 2021	107,000	2,488
Mar 8, 2021	55,000	1,246
Apr 8, 2021	63,000	601
May 8, 2021	40,000	579
May 22, 2021	24,000	504
June 22, 2021	12,000	252
July 22, 2021	48,000	254
Aug 25, 2021	141,000	775
Sept 25, 2021	119,000	1,944
Oct 24, 2021	73,000	1,538
Nov 24, 2021	96,000	1,485
Dec 6, 2021	111,000	1,069

Based on these numbers and other trends, on October 15, 2021 the CDC issued the Interim PublicHealth Recommendations for Fully Vaccinated People

(<https://www.cdc.gov/coronavirus/2019-ncov/vaccines/fully-vaccinated-guidance.html>)

Update to UNOLS Considerations for Conducting Seagoing Science

UNOLS calls attention to the following:

1. The fact that the CDC's current recommendations for all persons (vaccinated and unvaccinated) are INTERIM, and amendments are therefore expected.
2. The CDC makes explicit that these recommendations are subject to local governmental laws/regulations; business/workplace guidance.
3. The continued increase in vaccinations in the U.S is expected but no clear number has been set to define "herd immunity" or adequate to "return to normal".
4. The continued variability in vaccination rates and disease transmission rates at a state, county, and community level within in the U.S.
5. A ship can be considered a congregate setting with colocation of living accommodations, eating facilities and work areas.
6. A ship represents a potential remote location without ready access to adequate healthcare facilities.
7. Operating a ship during COVID-19 without instituting strict pre-cruise quarantine and testing protocols even when community vaccination rates are high and disease transmission rates are low introduces a finite chance of active, symptomatic COVID-19 disease with potential onboard transmission.
8. The chance of on-board disease and transmission increases with a greater proportion of persons who are vaccine non-responders and if not fully vaccinated persons have boarded.