Preface

This document defines the current protocols for operating the Research Vessel JOIDES Resolution (JR) as safely as possible for International Ocean Discovery Program (IODP) expeditions during a time when the novel Coronavirus Disease 2019 (COVID-19) is present globally and is still categorized as a pandemic. The approach we have taken throughout the pandemic, similar to other research vessels, has been to mitigate pathways for COVID to get on the JR and, if it does get onboard, to prevent or limit the spread while caring for those who have become ill. The advent of vaccines and booster programs, naturally acquired immunity, the emergence of less harmful COVID strains, along with the development of effective antiviral medication (available onboard) have all combined to significantly reduce the risk of severe illness. Society has responded by either relaxing or fully dropping mitigation measures that were common earlier in the pandemic. Likewise, the protocols in COPE have gradually been relaxed, including doing away with at home isolation prior to departing for port calls and doing away with hotel quarantines. This latest revision of COPE further reduces the quarantine time for those who get COVID on the ship, reduces the mitigation period further, does away with the dock-side container office for management, and returns more aspects of expeditions back to near their pre-
pandemic state. The remaining mitigation measures are intended to reduce the chance of COVID getting onboard and stop or reduce its spread if it does get onboard.

The protocols outlined in *COVID Mitigation Protocols Established for Safe JR Operations* (COPE) have been and will continue to be updated as developments and guidance (CDC and/or WHO guidance) about COVID-19 are updated. A fully vaccinated and boosted ship greatly reduces risks to participants and the expedition. Thus, we strongly recommend that all participants be vaccinated and stay up to date with boosters (see CDC for latest guidance). Until COVID-19 becomes endemic, the protocol will be adjusted accordingly. There are no perfect solutions and there is no way to ensure that illnesses, COVID-19 or otherwise, never occur on the JR. We therefore seek effective mitigation protocols for protecting the health of those who embark on the JR. The protocols outlined here will be followed to the extent that is practicable and may have to be modified due to constraints imposed by local authorities or logistical issues.

**Acronyms and Definitions**

CDC: Centers for Disease Control and Prevention (US)
COPE: COVID Mitigation Protocols Established for Safe JR Operations
COVID-19: Coronavirus Disease 2019
EPM: Expedition Project Manager
IODP: International Ocean Discovery Program
JR: Research Vessel JOIDES Resolution
JRFB: JOIDES Resolution Facility Board
JRSO: JOIDES Resolution Science Operator
LO: JR Lab Officer
MLC: Marine Logistics Coordinator
PMO: Program Member Office
PPE: Personal Protective Equipment
SBSC: Shipboard Science Complement (scientists and JRSO staff)

**Introduction**

COPE is a plan for how to conduct IODP expeditions on the *JOIDES Resolution* as safely as possible until we can fully return to normal operations. The health and safety of all those who participate on IODP expeditions—the ship’s crew, the JRSO staff, and the scientists—is paramount. To conduct operations that reduce the risks to crew, staff, and scientists, protocols for COVID-19 mitigation are described in this document for the following eight implementation stages.

1. Expedition planning and risk assessment
2. Recommended procedures to follow prior to departure from port
3. Protocols in port prior to moving onboard the JR
4. Protocols for port call activities
5. Shipboard mitigation measures
6. Dealing with a suspected COVID-19 case onboard
7. Protocols for medivacs or returning to port, in the event of a diagnosed case or development of serious symptoms onboard the JR
8. Ensuring safe return home

1 Expedition Planning and Risk Assessment

Well before the start of an expedition, the following steps will be taken to ensure the ship is prepared for dealing with COVID-19 and for assessing level of risk, which will then be used to determine what actions will be taken to cope with the risks prudently.

1.1. Port call determination: When the JRFB determines the expedition schedule, the JRSO selects ports to maximize logistical efficiencies and operational days on site, which is accomplished by minimizing transit time during expeditions. Moving forward, ports (both scheduled and to be scheduled) will also be evaluated in the light of several COVID-19 factors, including the following:
   1.1.1 State of the pandemic in departing and arrival ports
   1.1.2 Travel restrictions
   1.1.3 Availability of COVID-19 testing in port

1.2. Supplies: The ship will be stocked with sufficient supplies for infection mitigation and treatment, following guidance consistent with CDC latest information.

1.3. A possibly reduced shipboard science complement (SBSC):
   1.3.1 While COVID remains a risk for expeditions, sufficient berths will remain open to create a few isolation rooms on each expedition. Currently a minimum of 4 isolation rooms are reserved, although this may be adjusted depending on the risk level.

1.4 Risk assessment: The level of risk will be assessed as high risk or low-to-moderate risk.
   1.4.1 The criteria for risk assessment will be based on:
      1.4.1.1 Infection rates in departing and arrival ports.
      1.4.1.2 Travel restrictions to and from ports.
      1.4.1.3 Port call logistical considerations.
      1.4.1.4 Distance the ship will be from shore-based medical facilities.
      1.4.1.5 COVID-19 test availability in port and on the ship.
      1.4.1.6 Number and percent of fully vaccinated/boosted on board.
      1.4.1.7 Number of high-risk and unvaccinated participants.
2 Recommended Procedures to Follow Prior to Departure for Port

2.1 Shipboard participants must undergo the JRSO medical exam, which includes a COVID-19 risk assessment for severe illness.

2.1.1 The COVID-19 assessment asks the participant’s, or when needed, the ship’s physician to determine if the combined known health conditions put the person being examined at a potentially high risk of developing a severe illness from COVID-19, including impact of the participant’s vaccination status.

2.1.2 The ship’s doctor will evaluate the physicians’ assessments to determine if the shipboard medical facilities/capabilities can support care for those individuals deemed to be in a higher risk category.

2.2 All participants are strongly encouraged to get fully vaccinated and to get booster shot(s), as recommended by the CDC. Currently, the CDC recommends all adults receive the updated (bivalent) booster if it has been at least 2 months since their last booster. Additional guidance is available for those who are immunocompromised.

2.2.1 The CDC notes that COVID-19 vaccinations are safe and are effective at reducing the chance of becoming infected and, in case of infection, from getting seriously ill, being hospitalized, and dying. The best protection from COVID-19 is to stay up to date with recommended boosters.

2.3 A COVID-19 PCR or antigen test is required prior to departure for port. This will help identify infected individuals before they expose others during travel. The antigen test can be self-administered.

2.3.1 Unless otherwise instructed due to testing requirements of the starting port country, participants should complete the test with sufficient time to get the results before departing their home.

2.3.2 If a participant suspects a false positive, then two additional negative tests are required to verify that they are not infected.

2.3.3 JRSO staff will be tested with costs covered by the JRSO.

2.3.4 Costs for scientists are dependent on their respective Program Member Office (PMO) policy.

2.3.5 Anyone who has a confirmed positive test or has COVID-19 symptoms shall not depart for port.

2.3.5.1 Individuals who test positive should immediately notify the following (negative tests do not need to be reported):

2.3.5.1.1 Scientists: their EPM.

2.3.5.1.2 JRSO staff: their supervisor.

2.3.5.1.3 Siem staff: the ODL Crewing Manager.

2.4 Before leaving for the airport, participants should prepare to fly safely by following CDC guidelines for travelers. If traveling with any other participants, please note this information because this information may be needed for contact tracing.
2.4.1 Travelers are recommended to wear a well-fitting or respirator style mask (e.g., N95, KN95, KN94, FFP2/P2/KMOEL/DS) to protect themselves and others in airplane, airport, and other transportation settings.

3 Protocols in Port Prior to Moving Onboard the JR

3.1. The ODL Commercial Operations Manager and a few additional staff from the JRSO and Siem will attend upcoming port calls. The ODL Commercial Operations Manager will work with the Captain, who will have authority for decisions that need to be made in port, in consultation with the ship’s doctor and shore management as appropriate. Should the JRSO Director and any managers be unable to attend port calls, the JRSO Operations Superintendent will be the senior JRSO staff in port. If the Operations Superintendent is unavailable, JRSO port decision-making falls to the shipboard Lab Officer and then EPM, in consultation with shore management as needed.

3.2. Transportation from the airport to hotel will be by either prearranged transportation or individual transport options (e.g., taxi), depending on the situation in port, which will be communicated separately. Siem and Entier staff generally have prearranged transportation. JRSO staff and the scientists should use taxis, unless going directly to or from the ship or unless otherwise communicated.

3.3. Hotel stay, testing, and symptom monitoring:

3.3.1. Participants will not be required to quarantine.

3.3.1.1. Personal travel prior to the required arrival time in port is allowed.

3.3.1.2. All participants should remain mindful of exposure and minimize risks while traveling and in port prior to boarding.

3.3.2. A prearranged COVID-19 test will be conducted prior to boarding and in most cases will be conducted at the hotel. This may take the form of self-administration of a rapid antigen test. Details will be communicated to participants depending on logistical considerations for the particular port. Positive tests are to be reported to the respective supervisor.

3.3.3. Prior to departing the hotel for the ship it is critical to report ANY COVID symptoms. Although testing reduces the risk of someone moving onboard who has been infected, it cannot completely eliminate the risk (i.e., false negatives of asymptomatic or pre-symptomatic individuals). Therefore, it is critical that all participants monitor for and report any of the following to their supervisor for assessment by the ship’s doctor:

- Fever or chills
- Cough
- Shortness of breath or difficulty breathing
- Fatigue
- Muscle or body aches
- Headache
- New loss of taste or smell
- Sore throat
• Itchy or scratchy throat
• Congestion or runny nose
• Nausea or vomiting
• Diarrhea

3.3.4. If a test result is positive, the individual’s supervisor will assist with contact tracing and providing assistance to management in port with identifying close contacts.

3.3.5. A positive test prior to boarding:

3.3.5.1. Additional testing may be conducted to verify and eliminate the chance of a false positive.

3.3.5.2. Depending on when the ship departs, an individual who is confirmed to have COVID-19 may be able to board the ship and re-join an expedition.

3.4.7.3.2 A minimum isolation period of 5 days (from first symptoms or positive test, if asymptomatic) is required. Ending isolation requires the individual be fever-free for 24 hrs with symptoms improving. Masking will continue for 5 days after ending isolation, with social distancing as much as practicable.

3.3.5.3. If mission-critical personnel test positive, there are two options:

3.4.7.3.2 Ship departure will be delayed until they are allowed to board, unless there is a replacement available.

3.4.7.3.2 It may be possible for the ship to depart on time if the infected essential personnel can complete their isolation period onboard before their services are required (see also 7.2.1.5).

3.3.5.4. Housing arrangements will need to be made for an individual who tests positive and who may not be able to return home until they meet local health and reentry requirements for the home country.

3.3.5.5. Individuals determined to be in close contact with someone who is infected may have extended hotel stays and receive additional testing.

3.3.5.6. Costs for hotel and per diem for JRSO staff will be covered based on the JRSO travel policy.

3.3.5.7. Scientists’ expenses fall under their respective PMO policy.

3.3.5.8. Any medical care required for scientists or JRSO staff is to be covered by the individual’s insurance.

3.3.5.9. Cost for housing and meals for the crew is covered by Siem Offshore (to be reimbursed by JRSO). Medical care, if needed, for the crew is covered by Siem Offshore.
4 Port Calls

4.1 Off-going staff and scientists are allowed shore leave after arriving in port. Masking is optional.

4.2 Management may board the ship on the day it arrives in port. Masking is optional unless requested by proximal off-going staff. Some off-going staff may want to avoid exposure prior to traveling home.

4.3 In-person crossovers are allowed when no quarantines are being implemented. Masking for all personnel is required on crossover day.

4.3.1 Currently, all sailing personnel board on the same day, which has been the day after the ship arrives. After Expedition 400, this will be adjusted to return to pre-pandemic boarding when possible. An up-to-date schedule will be provided for each upcoming port call for boarding, crossover, and disembarking.

4.3.2 All onboarding personnel will wear masks (see 5.2) during the transition from exiting the hotel room through boarding the ship.

4.4 Once crew change has been completed, shore leave is not allowed.

4.4.1 Non-essential access to the dock will be allowed for exercise/breaks if dock work allows and personnel can stay socially isolated. Any participant must wear a mask when in proximity to other participants or shore/port personnel.

4.5 Minimize interaction between SBSC and crew and within each cohort group when possible.

4.6 Non-sailing personnel access onboard:

4.6.1 Prior to boarding the vessel, visitors/vendors will be given an antigen test, which must be confirmed negative. Masking (see 5.2) is required for visitors indoors and outdoors when in proximity to shipboard participants.

4.6.2 Siem and JRSO shore managers and supervisors will be allowed onboard during the port call. They are expected to self-test each morning before going to the ship and to mask when in proximity to oncoming shipboard personnel.

5 Shipboard Mitigation Period

This period begins the day of crew change and lasts for 5 days, assuming there are no suspected COVID-19 cases identified during that time. If any COVID-positive cases are identified onboard, the 5-day mitigation period will be extended from the last positive case. Depending on circumstances, the shipboard mitigation period may be adjusted upon request from the Captain, Drilling Supervisor, LO, and/or Operations Superintendent and approval by JRSO and Siem Management. The goal of the mitigation period is to reduce the potential of exposure to COVID-19 that may not have been identified prior to boarding.

5.1 Shipboard mitigation testing:

5.1.1 Daily antigen testing will be conducted on the ship until the end of the mitigation period.
5.2 **Wear masks in indoor laboratories and common areas, including passageways, and outdoors when working in close quarters.** This is a critical mitigation measure to prevent spread of COVID-19.

5.2.1 Masks should cover mouth and nose and fit snugly.

5.2.2 Public health guidance on masking recommends use of quality, well fitted masks, preferably high-filtration respirators (e.g., N95, KN95, KN94, FFP2/P2/KMOEL/DS). Suitable masks will be provided onboard.

5.3 Work in small groups when possible.

5.4 During the mitigation period, no room or office cleaning by Entier staff should occur. Cleaning supplies, towel, and bed linen replacement will be provided to each room occupant as needed.

5.5 Galley use will remain with the following usage limitations during the mitigation period:

5.5.1 Seating will be limited to 3/round table and 5/long table.

5.5.2 If eating in the mess hall, please depart when finished and do not linger for conversations, etc.

5.6 Use of some common areas should be minimized:

5.6.1 Meetings in the conference room should be minimized. When meetings are held, individuals should mask.

5.6.2 Gym usage will be restricted to two maskless persons at a time, implemented as 30 min slots, maximum two slots in a row.

5.6.3 Movie room and lounges may be scheduled for small groups from the same shift with all participants masked.

6 **Dealing with Suspected or Confirmed COVID-19 Cases Onboard**

6.1 Predefined isolation cabins or other rooms (at the Captain’s discretion) will be available for housing suspected or positive cases of COVID-19.

6.1.1 For each expedition, the ship’s doctor, Captain, and JRSO LO will develop a plan to redistribute personnel to make isolation rooms available, if needed. Redistribution that results in double occupation of rooms should be with personnel on opposite shifts.

6.1.1.1 The vessel’s air handling system includes MERV 13 hospital-grade filtration and ultraviolet light disinfecting systems in the accommodations. These systems provide assurance that isolating an individual in a cabin protects the other crew and scientists onboard.

6.1.2 All designated isolation cabins should have a hand sanitizer dispenser and designated lined disposal bin with cover outside the door.

6.1.3 If a confirmed case onboard occurs while the vessel is in port, it may be possible to move the case to a hotel, if allowed by the health and port authority, to provide additional isolation flexibility for preventing additional spread of the virus.
6.2 If it is determined that there is a suspected or confirmed case of COVID-19 onboard, the patient will be isolated immediately in a predefined isolation cabin with the door closed and implement the following measures:

6.2.1 The patient will be given a rapid antigen test. If positive, a second test will be administered to confirm the result. Additional tests may be necessary if conflicting results are obtained. Even when the results are negative, if the patient has other COVID-19 symptoms, they will be treated as a suspected case.

6.2.2 Instruct the patient to wear a mask and regularly wash hands with soap and water and use alcohol-based hand sanitizer.

6.2.3 Make sure all persons entering the isolation room wear proper PPE and perform hand hygiene using the hand sanitizer outside the room after removal of PPE.

6.2.4 Perform hand hygiene following all contact with ill person’s immediate environment.

6.2.5 PPE used by the care provider should be disposed in a designated double-lined bin with cover outside the isolation cabin. Do not re-use. Tissues, masks, and other waste generated by ill persons or in the care of ill persons should be placed in a double-lined container in the ill person’s room and treated as biological waste and incinerated.

6.2.6 Limit the number of persons entering the isolation room to the doctor or two other crewmembers (AM/PM shifts), in charge of cleaning the cabin and/or delivering food. They should use proper PPE when entering the patients’ cabin. Ideally, assign one who is in good health without risk conditions. Visitors are not allowed.

6.2.7 If patient is strong enough, their food tray can be placed in front of their door cabin on a table for pick up. This way, the crew member delivering food need not wear PPE. Full PPE is required to retrieve food tray.

6.2.8 Food to the patient can be served using single-use utensils and disposed of and incinerated afterward.

6.2.9 Master can implement more frequent cleaning and sanitizing regime than usual (disinfecting tables/handrails/door knobs/consoles, etc.).

6.3 Individuals who had close contact with the symptomatic person should be notified and closely monitor themselves for possible onset of symptoms and isolate as necessary.

6.3.1 Contact tracing will be used to identify individuals that they came into close contact recently.

6.3.1.1 Masking, if not already in effect, and testing will be required.

6.3.1.2 These individuals may need to isolate.

6.4 Report suspected or confirmed cases to the JR’s Vessel Manager, Crewing Manager, and the JRSO.
7 Isolation and Resumption of Duties for Confirmed Cases

7.1 An individual who is confirmed to have COVID-19 will be able to return to work 5 days after testing positive (or first symptom) once they are fever-free for 24 hrs with symptoms improving. Masking will continue for 5 days after ending isolation, with social distancing as much as practicable.

7.1.1 Isolation begins on the day of first symptoms (day 0) or positive test if asymptomatic.

7.1.2 Individuals in isolation who have mild symptoms (and thus feel up to it) are allowed an hour outdoors daily, masked and socially distanced, weather permitting, and as practicable.

7.1.3 The Master will have the flexibility to allow an infected person(s) to do essential tasks (masked, and isolated from others, as possible) for operations to continue, or to safely transit to port, as required.

7.1.4 If the positive case is onshore, port health authority/public health department may have different requirements for isolation, which we are obligated to follow. The exception would be if the COPE protocol is more conservative, which would then govern return to the vessel and resumption of duties.

7.2 If shore-based medical treatment is needed for a positive case of COVID-19, the Master will manage the situation, as is the case for other medical emergencies.

References


Boucau, J., et al., 2022. Duration of viable shedding in SAR-CoV-2 micron variant infection. medRxiv preprint, https://doi.org/10.1101/2022.03.01.22271582


Appendix: Quick Guide

Pre-Travel

- Self test before traveling, and do not travel if the test is positive.
- Masking recommended during travel.

Port call

- Oncoming personnel:
  - Personal travel allowed pre-expedition.
  - No quarantine required in hotel.
  - Personnel should take appropriate measures to mitigate risk during travel and in port.
- In-person crossover is allowed during crew change, properly masked.
- Testing protocol:
  - First test taken at hotel before boarding the ship.
  - Test daily for next 5 days.
- Implement standard initial shipboard mitigation program (masking, testing) as described in the main document:
  - Galley usage will remain staggered with limited seating (3/round table, 5/long table).
  - Use of conference room and movie rooms will return to pre-pandemic practices, other than that masking and social distancing should continue during the mitigation period.
  - Gym usage will be restricted to two maskless persons at a time, implemented as 30 min slots, maximum two slots in a row.
- Shore leave
  - Shore leave is permitted for off-going crew
  - No quarantine for oncoming arrivals; test before boarding (shipboard testing).
  - New arrivals mask and test for 5 days as above.
- Daily antigen testing on ship, as needed
  - If daily antigen testing and masking is discontinued due to a lack of cases, periodic testing may occur if deemed necessary.
- Vendors and shore personnel working port call are allowed onboard with daily testing and masking. Their meals may be eaten onboard.
- Cabin isolation for personnel who test positive, which may require rearrangement of rooms or move to hotel.