



## **Research Continuity Guidance for Laboratories and Research Facilities**

Each lab should complete a business/research continuity plan to meet its unique research activity needs and to minimize loss of research resources. The guidance below is provided to aid Administrative Directors, Research Operations Managers and Principal Investigators (PIs) in considering the additional steps that should be taken to protect laboratory personnel and the valuable research being conducted on Harvard campuses.

### **Assumptions you can use for planning, based on a scenario with widespread COVID-19 community transmission:**

- The primary focus in all planning must be personnel safety.
- Plans should include ensuring continued animal care and humane treatment of research animals. Please follow-up with veterinary care staff on specific plans.
- A significant percentage of your laboratory workforce may be out sick or be unable to come to work (resulting from imposed isolations due to recent travel history, family and personal health matters, closures of schools and daycare centers, etc).
- Exposure to a confirmed or suspected case of COVID-19, either at Harvard or elsewhere, may result in the self-isolation at home of **ALL** close contacts of the individual(s).
- Orders for critical supplies may be delayed.
- Core facilities and other resources may not be available.
- Facility and equipment repairs, calibrations, and certifications may be delayed.
- Disinfection treatment of your workspace or heavily touched surfaces may be necessary in the event of a local illness.
- Collaborators at other institutions (domestic or foreign) may be similarly impacted and unable to participate in the project.
- Essential research infrastructure, such as power and telecommunications, will be maintained.
- The University will communicate any disruptions to laboratory access.

### **Steps you can take now to ensure continuity of critical functions:**

- Identify procedures and processes that require regular personnel attention (e.g. cell culture maintenance, animal studies).
- Assess and prioritize critical laboratory activities. For examples, see Appendix A.
- Identify projects that should not be started.
- Identify any research experiments that can be ramped down, curtailed, suspended, or delayed.
- Identify all personnel able to safely perform essential activities.
- Prepare to limit access to shops or core facilities if warranted by reductions in staff.



# HARVARD

## Campus Services

### ENVIRONMENTAL HEALTH & SAFETY

- Maintain an updated list of everyone who works in the lab or research facility. Include home and cell phone numbers and ensure access to the information even while away from the lab. Create a phone tree or email group to facilitate emergency communication amongst lab researchers and staff.
- Cross-train research staff to fill in for others who may be out sick or unable to come to work. Consider documenting either via video or written documentation critical step-by-step instructions.
- Coordinate with colleagues who have similar research activities to identify ways to ensure coverage of critical activities or sharing of personnel.
- Maintain frequent communication with collaborators with whom you have dependencies for materials, components of the research, or data.
- Maintain a sufficient inventory of critical lab and safety supplies that may be impacted by global shipping delays.
- Plan for delays or loss of vendor support over an extended period of time such as gas or dry ice deliveries, chemical or biological waste removal, etc.
- Arrange for removal of chemical or biological waste prior to staff reductions.
- Preserve critical/irreplaceable samples such as cell lines or mouse lines.
- Consider installing remote control monitoring devices for critical equipment (e.g., -80C freezers, liquid nitrogen storage Dewar's, incubators).
- Ensure you have adequate supply of cryogenic liquids needed to maintain samples (e.g. cell lines) or cool equipment (e.g. magnets).
- Secure all research materials and Personal Protective Equipment (order distributions already on special allocation only to existing customers) from loss, misdirection, or misuse.
- If your lab works with Research Animals, follow guidance provided by the animal care facility and IACUC, plan accordingly, and ensure that your Lab-Level Emergency Response Guide (see Appendix B) is up-to-date and that you have made provisions for their care. Please consult with veterinary staff to coordinate animal care needs.
- Before shipping, check for service alerts from your shipper and the ability of the recipient institution to receive the shipment.  
[FedEx Statement on Coronavirus](#) and [UPS Service Alerts](#)
- Communicate significant planned absences and/or lab closures to your PI/Lab Manager/designee, Departmental Research Operations Manager and Department Administrators. Maintain a system to know the whereabouts of all members.
- Confirm that all lab members have registered for Message Me, the tool the University uses for widespread notification of emergencies or widespread disruptions.  
[Message Me](#)
- Review contingency plans and emergency procedures with researchers and staff.
- Recognize that events like these can cause anxiety and emotional strain and your colleagues may be dealing with other difficult situations outside of work. Consultations are available at Counseling and Mental Health Services (for students and HUGHP members) or Harvard's Employee Assistance Program (for faculty and staff).



### **Measures you can take to prevent the spread of illness among your group if the risk of COVID-19 increases within the University community:**

Simple measures can help lower your risk of getting sick. We all have a responsibility to prevent the spread of flu, cold, and other illnesses. Dense social and public spaces can present an increased risk of contracting and spreading illnesses, and prevention is centered on good hygiene:

- Wash your hands often with soap and water (20 seconds of scrubbing) or use alcohol-based hand cleaners (cover all surfaces and rub until dry). Hand sanitizer is not a substitute for hand washing in the laboratory.
- Cough/sneeze into a tissue. Dispose of used tissues immediately into a trash can and then wash your hands. If you don't have a tissue, cough/sneeze into the crook of your elbow, not your hands.
- Avoid touching your eyes, nose, and mouth, which accelerates the spread of infections. Wear eye safety protection when working in the lab.
- Avoid close contact with others who are sick. Remind staff to stay home when they are not feeling well.
- If you are sick, avoid contact with others, including parties, meetings, and events.
- Do not share glasses, eating utensils, water bottles, cigarettes/vapes/JUULs, lipstick/makeup, etc.
- Disinfect common laboratory areas and frequently touched surfaces with 70% ethanol (e.g. doorknobs, sink handles, freezer doors, fume hood sashes, telephones).
- Consider alternating work schedules to meet the demands of the laboratory while limiting close contact with others (and still ensuring the safety of the work partner).
- Identify work that can be done from home or remotely, such as data analysis.
- Test and update remote work collaboration technologies available through your IT department. ([Zoom video conferencing for FAS, SEAS, and SPH](#), [HMS Collaboration Tools](#)) and see the latest information at the [Harvard Coronavirus webpage](#).
- Avoid in-person meetings. Use remote work technologies such as Zoom and WebEx conferencing.
- If people are forced to self-isolate, they may be asymptomatic and feeling well, and can still contribute to research remotely.

### **Other safety considerations:**

- Ensure that individuals performing critical tasks have been adequately trained, have access to all PPE and essential safety equipment, and understand whom to contact with technical or safety questions.
- Do not perform high-risk procedures alone. When working alone is necessary, exercise maximum caution.
- Notify colleagues of your schedule when working alone for an extended period of time.
- Ensure that high-risk materials (radioactive, biohazards, chemicals) are secured.



**Grant related questions:**

- Any federal funding guidance associated with potential coronavirus-related disruptions to research will be shared by the University's Office of Sponsored Programs (OSP) and the Vice Provost for Research. Contact your designated Research Administrator for additional information or to coordinate notification of regulatory and funding agencies.

**NEXT STEPS:**

Reviewing and updating your Research Continuity Plan, and maintaining situational awareness on the part of all members of your unit throughout this outbreak may help limit loss of research and will prevent illness.



## **APPENDIX A: EXAMPLES OF CRITICAL EQUIPMENT, OPERATIONS & SUPPLIES**

- Equipment
  - NMR/MRI/other magnets requiring cryogenes
  - GC/MS, PET, EM, Confocal microscopes, irradiators, cleanrooms
  - Glove boxes
  - Solvent Purification Systems
  - Incubators
  - Refrigerators/freezers, -80 Freezers, cryogenic storage
- Information resources (IT and paper)
- Samples and Specimens (live, fresh, frozen, and fixed)
  - Novel compounds and biochemicals
  - Type specimens
  - Cell lines
  - Seeds
  - Animals
- Specialized reagents and chemical inventories
- Supplies
  - Personal Protective Equipment (e.g. gloves, masks, respirators)
  - Disinfectants and spill cleanup materials

Vital laboratory support functions include:

- Basic utility inputs of electricity, heating and cooling, potable water, sewage, and telecommunications
- Specialized utilities such as de-ionized water, process chilled water, and local exhaust
- Procurement, transportation, receiving, and delivery networks
- Uninterrupted vendor operations
- Service and maintenance on sophisticated equipment
- Waste management services
- Emergency response services



## **APPENDIX B: LAB-LEVEL EMERGENCY RESPONSE RESOURCE GUIDE**

**Applies to:** All users of research animals in laboratories and/or satellite animal facilities. Animals within vivariums will be managed in accordance with the Harvard Center for Comparative Medicine or FAS Office of Animal Resources emergency management plans.

**Purpose:** To provide guidance and action steps to lab personnel to help ensure the well-being of research animals in their labs when an emergency or disaster occurs.

**Responsibilities:** The research animal user is responsible for assessing the situation and the condition of the animals, taking emergency action steps, and providing status updates to and requesting resources from the Harvard Center for Comparative Medicine or FAS Office of Animal Resources.

Please plan ahead before a genuine emergency arises by reviewing the following material and working through the necessary steps that your lab might take in the event of an emergency. Document in the laboratory training records when individual lab members have been trained on the laboratory emergency response plan.

### **Pre-Emergency Planning Steps:**

- Know your building, department and local emergency plans. Refer to the [EHS Lab Emergency Response Guide](#) and stay alert for communication and updates from your department's emergency lead.
- Register for Harvard's *Message Me* notification (or your home institution's mass notification system) so that you are aware of emergencies potentially affecting the campus and its animal facilities.
- Take weather forecasts into account when planning experiments.
- Always maintain sufficient quantities of euthanasia agent(s) to euthanize all animals in the lab.
- Maintain paper copies of emergency contact lists and call trees in both home and work areas. Power/computers/internet access may be unavailable or inoperable during an emergency.
- Verify that critical animal-related equipment (including storage of research materials) is plugged into functioning emergency outlets, if needed.
- To the degree possible, maintain supplies locally that would enable continued animal care during an emergency (e.g., flashlights, rubber boots, plastic sheeting for leaks, emergency extension cords, required PPE, back-up food supplies, etc).
- Investigators are strongly encouraged to cryopreserve mouse strains (embryos or sperm) that are irreplaceable, especially those that do not exist with collaborators elsewhere. Contact the Harvard Center for Comparative Medicine or FAS Office of Animal Resources for a list of vendors/kits that perform this service. If you have specific



animals which cannot be replaced in the event of an emergency, please contact your facility supervisor to identify them.

### **Lab-specific emergency contact information:**

PI:

Lab Manager:

Other emergency contacts:

### **Emergency Action Steps:**

1. Obey all alarms and emergency notifications from Harvard, your institution, or your community (i.e., “Reverse 911 notification”). Human safety is the top priority. Do your best to alert others as you evacuate the premises, or shelter-in-place, as directed.
  2. If an evacuation is signaled, evacuate first, then return animals to their appropriate animal housing facility if possible to do so (i.e. if animals are housed in a building other than that being evacuated).
  3. If returning the animals to their animal housing facility is not feasible and/or would cause delayed evacuation, secure the animals in cages and leave immediately.
  4. Euthanize animals who are in imminent danger and/or would harm themselves without a human attendant if it would not cause a delay in evacuation.
  5. As soon as building re-entry is authorized by the fire department or police, assess health and safety status of the animals and make efforts to optimize their care:
- Return animals to their designated housing facility, if possible; if not possible, maintain contact with the animal facility manager/supervisor and:
  - Verify that critical animal-related equipment (including storage of research materials) is plugged into functioning emergency outlets, if needed. When power returns (if affected), RESET all equipment and check functioning of equipment;
  - Check animals more frequently in affected areas and report status changes to animal facility supervisors or veterinary care staff. Monitor temperature and humidity. Modulate temperature by increasing ventilation or reducing heat/light load in the room;



# HARVARD

## Campus Services

ENVIRONMENTAL HEALTH & SAFETY

- Cages with limited airflow are of special concern. Thermometer-check temperature inside the cage. Remove animals from behavioral boxes;
- Animals that are found to be affected by extreme heat/cold/other environmental conditions as a result of the emergency should be removed from the environment and treated or euthanized at the discretion of the veterinary care staff;
- Call the Facilities Emergency Number if animal lives may be at risk from a facilities-related emergency.