

**COLLEGE OF MEDICINE
CONTINUITY OF
RESEARCH**

EMERGENCY PLAN

03.16.2020

TABLE OF CONTENTS

	Page No.
Priority 1: Safety of Personnel	1-2
1. Communication plan.....	1-2
a. Contact list example.....	1
Checklist.....	2
Priority 2: Laboratory Continuity	3-9
1. LAMS and animal experiments.....	3
2. Long term closure plan.....	3-9
a. Laboratory staff planning.....	3
Checklist.....	3
b. Disruption of goods and services.....	3
c. Shipping and receiving.....	4
Checklist.....	4
d. Integrity of research materials.....	4-7
<u>Checklists:</u>	
Tissue culture.....	4
General lab activities.....	4-5
Controlled substances.....	5
Radioactivity.....	5
Physical hazards.....	5-6
Equipment.....	6
Decontamination.....	6
Waste management.....	6-7
Security.....	7
e. Digital Resources.....	7-8
Appendix A- Examples of critical equipment, operations & supplies.....	9

Priority 1: Safety of personnel

Vulnerable personnel and faculty should not report to the lab. This population includes those 65 years and older; on chronic immunosuppression including immunobiologics for diseases such as rheumatoid arthritis; those with chronic lung diseases (e.g. asthma, COPD); and other serious chronic medical conditions such as heart disease, diabetes, cancer, hypertension.

The following items should be addressed in each laboratory emergency plan. Checklists and proposed formats (tables) are included to aid in the planning.

1. Communication Plan.

a. Contact list. Each lab should maintain an extended contact information, including home, office, and cell phone numbers, for key personnel, including individuals familiar with the operations of the laboratories. The list should be managed according to the leadership structure- who can make decisions, but also who is in closest proximity to the lab. An example is shown below:

Name	Leadership Structure*	Cell Phone	Land line	Email	Alternative email	Proximity to lab
	Primary					
	Secondary					
	Tertiary					
Emergency responders	911					

There are numerous ways to communicate during an emergency. Each laboratory group should have a communication plan that details which means of communication may be implemented. The laboratory must make sure that there are specific times when they must check the selected communication method, such as emails.

Telephone. The telephone is often the most direct way to contact someone. Cell phone towers can become overloaded and a backup is suggested.

Text messages. Even when cellular service is too weak or overloaded for calls, text messaging is often available. Text messages can be sent via cell phone or through e-mail. Check with the individual's service provider to determine the domain name to send text messages via e-mail. For example, for a Verizon Wireless customer with the phone number 123-456-7890, sending an e-mail to 1234567890@vtext.com would deliver the message as a text message. Most text message services have a limit of 120 characters per message.

Email. E-mail can be a reliable way of sharing information and can contain a more detailed and lengthier message than text messages. In the event that the institution's computer system is affected, it is prudent to have an alternative e-mail address for each person (e.g. a gmail account). Consider preparing a Listserve or e-mail list for use during an emergency.

Emergency Contacts. The name and contact for a friend or family member of lab personnel is prudent. A person may fall ill and a family member will need to be alerted or the emergency contact can be useful in the event the lab person cannot be reached.

CHECKLIST:

ITEM	Complete	N/A	Notes
Create contact list including all lab personnel, principal investigator, lab administrative director, research operations manager, and building manager.			
Ensure the contact list is saved where it can be remotely accessed by everyone in the lab. Include home and cell phone numbers.			
Test your phone tree or email group to facilitate emergency communication amongst lab researchers and staff.			
Ensure that emergency contacts listed on lab placards are up to date and posted on outside of lab doors.			

Priority 2: Laboratory Continuity

1. LAMS and Animal Experiments

Limitations or shortages of supplies necessary for animal husbandry are anticipated as well as reduction in LAMS personnel to provide support. **The College of Medicine asks investigators to pause any new experiments unless absolutely necessary. No new animal studies should be initiated during the COVID 19 emergency.**

Exceptions to this mandate include studies that absolutely must continue. An example of such an exception would be the assessment of the ability of mice infected with a bacterium and subsequently treated, to transmit the infection to naïve mice. A new order of recipient mice would be needed in this scenario and approved.

Ongoing experiments with existing mice should continue as planned unless cessation would not detrimentally affect the outcomes.

2. Long-Term Closure Plan. A 6-8-week plan should be put in place for each laboratory. It may be necessary to place the laboratory into a state of inactivity or hibernation during an emergency that causes serious staffing disruptions. Plans for making the transition from active to suspended laboratory operations should be a part of the lab's emergency response policy. The following should be considered:

- a. **Laboratory Staff Shortage.** Staff may not be able to report to the laboratory. For continuity of laboratory operations, ensure that personnel are cross-trained to be able to fill in for a person who is absent.
 - Have a succession plan that clarifies who is responsible when supervisors are not available.
 - To limit contact among personnel, consider implementing shifts of 2-4 hours for as few personnel as possible to complete experiments that must be done in the lab.

CHECKLIST:

ITEM	Complete	N/A	Notes
Identify all non-critical activities that can be ramped down, curtailed, suspended or delayed.			
Identify personnel able to safely perform essential activities.			
Implement shift times for personnel			

- b. **Disruption of Deliveries of Goods and Services.** Many laboratories rely on just-in-time delivery of chemicals and supplies because stockpiling chemicals poses its own risks and should be avoided. Excessive storage of other supplies may result in an increased fire risk from combustible materials.

c. Shipping and receiving:

- Prepare a list of alternative vendors and service providers in the event that the primary vendor is unavailable. Add them to the vendor list for centralized purchasing or have a contract on hand if necessary.
- Ensure that primary vendors have up-to-date business continuity plans.
- Ensure that the institution or laboratory is a priority for your primary vendors and service providers.
- Ramp down non-essential experiments

CHECKLIST:

ITEM	Complete	N/A	Notes
Do not order any new research materials except those items needed to support minimal critical functions.			
Cancel orders for non-essential research materials if they have not yet shipped.			
Contact loading dock/mail services personnel to notify them of any expected incoming shipments.			
List of alternative vendors for essential reagents/items			

- d. Integrity of Research Materials.** While essential reagents will vary with the laboratory, the following checklist should be observed for the individual unit. Observance of these actions will ensure a recovery of lab function after the pandemic is quelled. Examples of critical equipment, operations and supplies are included in Appendix A.

CHECKLIST:

ITEM	Complete	N/A	Notes
TISSUE CULTURE			
Freeze down any biological stock material (e.g. cell lines, virus, bacteria, vectors) for long term storage.			
Consolidate storage of valuable perishable items within storage units that have backup systems.			
Fill dewars and cryogen containers for sample storage and critical equipment.			
Remove infectious materials from biosafety cabinets, and autoclave, disinfect, or safely store them as appropriate.			
GENERAL LAB ACTIVITIES			

Properly secure all hazardous materials in long-term storage			
Ensure all flammables are stored in flammable storage cabinets.			
Ensure that all items are labeled appropriately. All working stocks of materials must be labeled with the full name of its contents and include hazards.			
Remove all chemicals and glassware from benchtops and fume hoods and store in cabinets or appropriate shelving.			
Collect contents of any acid/base baths and request waste pickup.			
CONTROLLED SUBSTANCES			
Confirm inventory of controlled substances and document in logbook.			
Consider additional measures to restrict access to controlled substances.			
RADIOACTIVITY			
Ensure all radioactive materials are locked/secured inside a refrigerator, freezer, or lockbox. If you need to transfer RAM to another location or need a RAM waste pickup, contact the Radiation Safety Office			

Physical Hazards:

ITEM	Complete	N/A	Notes
Ensure all gas valves are closed. If available, shut off gas to area.			
Turn off appliances, computers, hot plates, ovens, and other equipment. Unplug equipment if possible.			
Check that all gas cylinders are secured and stored in an upright position. Remove regulators and use caps.			
Elevate equipment, materials and supplies, including electrical wires and chemicals, off of the floor to protect against flooding from broken pipes.			

Inspect all equipment requiring uninterrupted power for electricity supplied through an Uninterrupted Power Supply (UPS) and by emergency power (emergency generator).			
Secure sharps containers			

Equipment:

ITEM	Complete	N/A	Notes
Check that refrigerator, freezer, and incubator doors are tightly closed.			
Biosafety cabinets: surface decontaminate the inside work area, close the sash and power down. Do NOT leave the UV light on.			
Fume hoods: Clear the hood of all hazards and shut the sash			
Review proper shut down procedures and measures to prevent surging.			
Shut down and unplug sensitive electric equipment.			
Cover and secure or seal vulnerable equipment with plastic.			

Decontamination

ITEM	Complete	N/A	Notes
Decontaminate areas of the lab as you would do routinely at the end of the day.			
Decontaminate and clean any reusable materials that may be contaminated with biological material.			

Waste Management:

ITEM	Complete	N/A	Notes
Collect and properly label all hazardous chemical waste in satellite accumulation areas (SAAs). Segregate incompatible chemicals by means of a			

physical barrier (e.g., plastic secondary bins or trays).			
Place a request for chemical hazardous or biohazardous waste to be collected			
Biological waste: Disinfect and empty aspirator collection flasks.			

Security

ITEM	Complete	N/A	Notes
Lock all entrances to the lab. Ensure key personnel who will support critical functions have appropriate access.			
Secure lab notebooks and other data.			
Take laptops home.			

e. Digital Resources

Microsoft Office 365. It is important to note that with UC’s recent move to Office 365, it is no longer necessary to use the VPN to access your UC email or other Office 365 products. Microsoft Office 365 can be accessed by any computer system with internet access by logging into <https://www.office.com/>. You can access and use all of your Office applications online or you can choose to install Office 365 onto your system. See more instructions here <https://kb.uc.edu/KBArticles/EC.aspx>. Microsoft’s OneDrive is a secure way to store, access and share files remotely – it has been cleared for storing restricted data. The CHI will continue to use the established secure “Data Drop Directory” as described in local policy. See more about OneDrive here <https://kb.uc.edu/KBArticles/OneDrive-LandingPage.aspx>. Office 365 at UC requires Duo two-factor authorization.

Microsoft Teams. Online tool for virtualized teams/groups of people that need to work collaboratively in a virtual way with file shares, online meetings, and chat features. This feature is open to everyone and IT@UC will work with you to create your team sites and get you started. More info on MS Teams here <https://kb.uc.edu/KBArticles/MicrosoftTeams-FAQs.aspx>.

VPN (Virtual Private Network). Several UC core business systems require you to be connected to the UC network remotely using the Cisco AnyConnect VPN client. The following systems require you to be connected to the UC VPN. UC Flex, SAP GUI, Share Network Drives like S:/ and P:/. If you need to access one of these systems to perform your work then you will need to install and use the VPN (CoM issued laptops already have the VPN installed so you can skip the installation step). See instructions here <https://kb.uc.edu/KBArticles/VPN-InstallandUse.aspx>. NOTE: All data at the CoM is considered restricted data and aside from email, that data cannot be accessed using a non-UC owned device. If you want to access CoM data using your personally owned device you will need to use the Remote Desktop Connection (RDC) or Virtual Desktop Infrastructure (VDI) outlined below.

Duo. Duo is a user-centric two-factor authentication platform that protects access to sensitive data at scale for all users, all devices and all applications. Duo is the university's established two-factor authentication to get into secure locations like those noted above.

Remote Desktop Connection (RDC). If you have a desktop computer on campus and you need to access it remotely you can do so using the Remote Desktop Connection (RDC). RDC will present your UC system on your personally owned device screen and you can use that system as if you were onsite. Go here to the Client Portal to request remote access <https://uc.teamdynamix.com/>.

Virtual Desktop Infrastructure (VDI). VDI is defined as the hosting of desktop environments on a central server. It is a form of desktop virtualization, as the specific desktop images run within virtual machines (VMs) and are delivered to end clients over a network. This is the method (the actual tool is called 'VMWare Horizon Client') that BMI data analysts use to connect to UC Health's Epic data and other secure resources. Depending on the version running, a UC VPN connection may need to be initiated first, before connecting to the VDI, or connection to the VDI may occur with a VPN connection being established simultaneously.

Data analysts can connect to UC Health either via an RDP connection to their UC desktop and then using their VDI, or by using VDI directly. Both methods are secure and a matter of preference. A VPN connection to UC will need to be established, before either method is used.

Note: As usual, all activity is logged by enterprise systems.

Developers may use locally installed (home) development tools or use tools provided by application servers. Code is not to be stored locally. All web applications are deployed to enterprise servers, which are usually located either in the MSB G95 data center or in the UC Health data center.

APPENDIX A: EXAMPLES OF CRITICAL EQUIPMENT, OPERATIONS & SUPPLIES

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