

Introduction

This plan has been developed to ensure the safe return to research at PennVet and to meet the requirements outlined by the Provost's Research Resumption plan. It has been developed by PennVet's Current Research Restart Team that includes *Phil Scott, William Beltran, Montserrat Anguera, Chris Hunter, Boris Striepen, Igor Brodsky, Hannah Galantino-Homer, Ellen Pure, Oliver Garden, Katrin Hinrichs, Sparky Lok, Kim Kopple and Robert Schieri*. The purpose of this plan is to provide an overview for faculty and staff of what will be required at PennVet for a resumption of research. As more information becomes available this plan may be modified accordingly.

This School plan is guided by the following principles:

- The health and safety of the research community, and the community at large, should be protected.
- The careers of early stage researchers should be protected.
- Graduate students and Post-docs have to opt-in to return in phase I.
- The PIs/Supervisors are best equipped to define physical distancing plans and appropriate shifts in their labs. Plans will differ depending upon the types of research and physical location.
- Lab plans should involve discussion with the research personnel who do the work in the labs and communicated to all lab members.
- COVID-19 research will continue to be prioritized until full operations are resumed.
- Compliance and enforcement mechanisms are required at the school and at lab levels.

The resumption of research activities on campus will be accomplished in three phases.

- Phase I: Increase of prioritized research with enforced population density restrictions and telework continued.
- Phase II: Expanded scope of research operations increasing population with physical distancing enforced.
- Phase III: Return to full research operations, with new awareness and hygiene practices as the norm and telework utilized where possible.

Current Status- Research Discontinuation

During research discontinuation all research activity is halted except that determined to be essential, very narrowly defined. COVID-19 activities that could have immediate impact on the pandemic are designated as essential; COVID-19 related activities not severely impacted by a delay are planned and negotiated but not initiated until research resumes. Physical distancing, appropriate PPE, and sanitation protocols are in place.

Training for implementation of physical distancing, appropriate use of PPE, handwashing, and sanitation is available from EHRS. All personnel will be required to take EHRS training that is available in knowledge link. (Procedures for confirmed COVID-19 exposures are available at inside.vet and here in Appendix 1 and are to be followed currently and subsequently as research returns to PennVet.

Research Resumption Phase I

The goal of Phase I is to enable research to begin with the fewest people possible and continued reliance on teleworking. During this phase, **population density on a lab floor** (or building) and the ability of an **individual laboratory to maintain physical distancing** will determine the number of personnel allowed in the labs. This combination of density and distancing for a lab floor/building ensures that personnel using common spaces (lunchrooms, restrooms, etc.) will be able to maintain a safe working place.

Individual laboratory research resumption plans will be required for each laboratory and for all cores. These plans will address the following issues as they relate to their labs: Access to and appropriate use of PPE (masks provided by PennVet, other PPE by the labs); physical distancing plans; enhanced sanitation plans; and how lab activity would be reduced if there is a spike in COVID-19 cases. A more detailed description of these requirements is in Appendix 2. **The plans will be submitted to the department chair for review, and to the vice dean for research and academic resources for final approval.** PIs are encouraged to review the research resumption checklist provided by EHRS (<https://ehrs.upenn.edu/covid-19/research-resumption-checklist>). Once a lab is approved to go to phase 1, EHRS needs to be notified (see EHRS website).

The lab head will designate who are essential personnel to return in Phase I. Scheduling flexibility in consideration of child-care, elder care, individual risk factors, etc. is encouraged. A risk mitigation plan has to be developed if the research involves field work/travel or involves community work. **Graduate students and post-docs must opt in** to return to the lab during phase 1. All trainees will receive an email from the vice dean for research and academic affairs asking them to indicate if they want to opt-in and return to the lab in phase I. To opt-in they will fill out a google form that will indicate that they are volunteering to come back to PennVet. [Alternatively, trainees will opt-in via BGS and BPP if systems are established]. This issue will also be covered in a Town Hall prior to research resumption.

School level resumption plans to promote increased safety and ensure compliance have been developed, and include specific trafficking patterns, use of elevators, and appropriate signage. The school will provide masks and disinfectants to the labs during phase I. No in-person meetings will occur in conference rooms unless approved by the school's administration. A Town Hall for all research personnel will occur immediately prior to personnel returning in phase 1, which will outline all the procedures that must be followed to ensure safety in the school. The physical distancing measures and other enhancements to ensure safety that have been developed for common areas is in Appendix 3. Should accurate FDA approved virology and serology testing become available for widespread use, it will be added to the measures outlined above to inform prioritization of on-campus activity.

Tracking personnel and health monitoring: All personnel will fill out a tracking form identifying when and where they are when at PennVet. No personnel should come to a research lab if they feel any signs or symptoms of illness or if a housemate has been diagnosed with COVID. Research personnel should take their temperature before leaving home, and not come into PennVet if the temperature is above 100.3°F. Thermometers will be provided to those personnel without them. If necessary testing stations would be set up as you enter a lab floor for those essential personnel who do not have thermometers at home. Research personnel will attest on the tracking form that their temperature is not above 100.3°F. If you are a trainee (graduate student/postdoc) you will also attest on the tracking form that you are a volunteer. You should limit taking public transportation to the extent possible and wash your hands frequently. The availability of free parking at the 38th and Walnut garage will be communicated to all personnel returning to PennVet in phase 1.

Clinical research resumption in phase 1 will occur as the hospitals increase their staffing and case load. This research will follow the general guidelines outlined above, with an understanding that the hospital environment presents unique challenges in meeting those guidelines. The density in clinical research in Phase I will be determined in conjunction with the hospitals with the same goal of ramping up slowly. A detailed description for resuming clinical research is provide in Appendix 4.

School level monitoring of phase I will occur by an evaluation of each resumption plan at the school level, which will ensure prioritized research and management of population density across research floors/buildings, as well as distancing plans for each lab. No in-person meetings will occur in conference rooms unless approved. A **Town Hall** for all research personnel is planned to occur prior to personnel returning in phase 1, which will outline all the procedures that must be followed to ensure safety in the school. The physical distancing measures and other enhancements to ensure safety developed for common areas at PennVet is in Appendix 3.

Compliance: The density compliance will be assessed by a combination of the tracking forms and the PI's own tracking. Specifically, the PIs will be provided the information obtained in the tracking forms weekly to review with their own tracking of personnel in their labs to ensure that it is accurate. The tracking forms will be used to confirm the number of personnel in the buildings/lab floors. The use of PPE and physical distancing will be enforced 1) locally by designated individuals who will walk-thru labs based upon a schedule developed by the vice dean of research and academic resources, 2) providing at the school level a mechanism to report infractions, and 3) communication to the research personnel the university reporting website

<https://secure.ethicspoint.com/domain/media/en/gui/22868/index.html>

Communication: One of the most important aspects of this plan is to ensure it is communicated effectively to the PIs and research personnel. PennVet will use several communication methods, including email, a Town Hall for faculty and research personnel prior to resumption and more as needed, and discussions at department meetings. A copy of the plan will be distributed to the faculty and stored at inside.vet. In addition, a succinct version with the specific guidance for safety will be provided to the research personnel. Signage will be a major mechanism of communication at the entrance to lab floors and elsewhere and will reinforce the PPE and physical distancing requirements.

Continual review of the safety measures outlined above. During Phase I the research restart team will meet weekly to review issues of compliance, review additional new procedures and protocols that can further improve safety, and alter plans as needed.

Phase II. Similar restrictions will apply with an increase in density. The success of the plans described above will be reviewed and any changes to improve safety implemented.

Appendix 1: Procedures for COVID-19 positive cases for PennVet

Upon confirmation of a COVID Positive diagnosis in one of our employees, we are prepared to institute the following action plan to ensure the safety of our community:

SOP following Confirmation of a COVID POSITIVE Employee

1. The individual with a confirmed COVID POSITIVE diagnosis should report test results to their Section Chief/Supervisor/Principal Investigator and follow the recommendations of their healthcare provider.
2. The Section Chief/ Supervisor/Principal Investigator will contact the Point Person for their division. • Research in Philadelphia: Dr. Phillip Scott • Ryan Hospital & Diagnostic Services: Dr. Michael Mison • NBC: Dr. Barbara Dallap
3. The point person will collect all available contact tracing and personal risk data relevant to the specific exposure. EHRS will be notified and can assist in contact tracing.
4. The point person will notify either the Philadelphia Department of Public Health (PDPH) or the Chester County Department of Health (CCDH).
5. PDPH or CCDH will issue recommendations for our employees based upon risk of exposure.

It is critical that employees complete the appropriate Building Access Forms at the end of each onsite day at Penn Vet. Separate forms exist for Ryan Hospital, Philadelphia Research, and NBC. This information will assist with Contact Tracing, which can protect you and others upon confirmation of a COVID positive case.

Appendix 2: Requirements for research resumption in laboratories and cores.

All labs/cores need to ensure proper PPE, physical distancing, tracking of their personnel and sanitation within the labs. The following are the guidelines to meet these requirements.

Enhanced PPE: Masks are required for all personnel at PennVet. These can be fabric masks. Upon arrival in the laboratory, fabric masks should be removed and stored in a paper bag. Hands should be washed and surgical masks put on; in the laboratory all personnel are required to wear a surgical-style mask. The only exception to wearing a mask is when eating lunch, where personnel should be physically distancing. Surgical-style masks will be provided by the school, and if not soiled can be worn for several days. **Lab coats** should be worn at all times in the lab and are provided by the labs. Cleaning of lab coats will be coordinated by facilities. **Safety glasses or face shields** will be provided by the lab and required at all times in the lab. All research personnel at PennVet are required to take the EHRS training. It is the job of the PI to verify that EHRS training has occurred. In addition, to reinforce this training PIs should review with their research personnel appropriate use of PPE. All normal EHRS rules and regulations for safety in the laboratories are required (e.g. shorts and sandals may not be worn into the lab, even under a lab coat).

Physical distancing- Labs: As each lab differs in the number of personnel, physical layout, and work requirements, it will be the responsibility of the PI to prepare a comprehensive plan for how enhanced physical distancing can be optimized in their lab. For those labs with an open floor plan, this will require coordination between the PIs who share open space. This plan that is developed has to be communicated to all research personnel prior to research resumption.

Tracking research personnel at PennVet: All research personnel will continue to record when they are at PennVet (day, time) and areas visited using the tracking forms. The PI will review the tracking records and verify their accuracy by comparing with the lab's own calendar indicating when lab personnel will be at PennVet.

Enhanced sanitation (labs, common research space, equipment): All laboratories should be maintained in a manner that would facilitate daily cleaning. Specifically, lab benches, desks, common equipment areas, etc. should be clear, organized and disinfected at the beginning and at end of each day. This will be the responsibility of the lab. The School will provide the disinfectant to all the labs.

Lab plan for phase I: Your lab plan will be submitted to your department chair and the vice dean of research & academic resources for review and approval **prior to returning to the lab**. The lab plan should also be shared with your research personnel, and optimally your lab members should contribute to the plan as appropriate.

Things that should be included:

- 1) PI name, lab location, a brief paragraph on the nature of the research and its priority for phase I. Consider carefully long-term research projects that might be influenced by a second shutdown of research if there is a spike in cases.
- 2) Identification of spaces for work including a floor plan or sketch indicating the locations for personnel in the lab or other spaces associated with your lab (e.g. tissue culture rooms; shared equipment rooms).
- 3) An excel spread sheet listing the research personnel who will be returning in Phase I. Information to be provided include name, position, email, and telephone number if available.
- 4) The number of research personnel you can fit with appropriate distancing in your lab space at any one time. **This may not be the number allowed to return**, as that number will also be determined by the

density in the whole floor/building. Once these plans are submitted, your Department Chair will let you know the number of personnel who will be allowed to return to your lab.

- 5) A description of how you will use shifts and a seven-day week to ensure the density of the lab spaces are maintained at a low level. Recognizing that shifts may change depending upon the experiments involved you may elect not to identify the exact times for these shifts in this plan. However, you should be keeping a calendar that is available to all lab members that shows the times when personnel are in the lab.
- 6) Confirmation that you have appropriate PPE (masks provided by PennVet) for research personnel, and confirmation that your research personnel have taken the EHRS training available in knowledge link
- 7) A description of how you will maintain good communication with your lab (examples include Microsoft teams, Slack, WhatsApp, etc.).
- 8) Identification of any shared equipment in your lab, and how you will ensure that it is used safely.
- 9) Description of how you would ramp down your research.

Cores: Cores should provide a similar plan identifying how common equipment would be used and sanitized; the personnel involved, and other unique aspects of the cores that need to be addressed to ensure safety.

Appendix 3: Facilities Issues with Campus Re-occupancy

School level facilities issues as related to resumption of research will be overseen by the following committee: *Robert Schieri, Kim Kopple, Chris Phillips and Bryan Isola*. The committee will meet weekly (or as needed) during phase I and II to ensure all issues described below are addressed. The committee will coordinate its activities with the Research Restart team at PennVet, and FRES and EHRS as appropriate.

1. Physical Distancing
 - a. Common spaces will have posted occupancy limits
 - b. Furniture will be removed and that remaining will be placed to ensure physical distancing
 - c. Outdoor furniture will be provided for lunch and breaks and placed to allow physical distancing
2. PPE
 - a. Masks will be provided by the school
 - b. Laundry of research lab coats in PHL will be done in Ryan Hospital
3. Disinfectant
 - a. School will provide disinfectants to labs in spray bottles.
 - b. At frequent touch points wipes and hand sanitizers will be provided.
4. Entrances
 - a. Research personnel will enter and exit at designated doors.
5. Vertical circulation
 - a. Elevators- only one person per elevator- signage to indicate
 - b. When possible, up and down staircases will be identified.
6. Restrooms
 - a. Door signs will indicate the number of occupants; knock for admission
7. Signage
 - a. Signage will be provided by the school, and it is anticipated that the turnaround time is short to obtain signage. Signage will be evaluated weekly to determine if additional signage is required.
8. Dividers
 - a. PIs will communicate to facilities any special dividers that would improve safety in their labs, which would then be provided by the school.
9. In lab deliveries (e.g. compressed gas, dry ice): delivery personnel will be required to wear masks and physically distance.
10. Housekeeping
 - a. Communication to the PennVet personnel returning in phase 1 will indicate how housekeeping will work, and that all housekeepers have received PPE training
 - b. Housekeeping will not sanitize within the labs, but will sanitize high touch common areas.
11. HVAC
 - a. Communications to personnel will indicate the current HVAC systems for their space, and indicate where doors should not be left open due to air handling.

Appendix 4: Clinical Research at PennVet

This document describes Penn Vet's incremental approach to restarting clinical research activities. It is felt that restart of many of these activities will not significantly change current staffing numbers or the risk reduction procedures already in place, as many personnel involved in clinical research are already at work at Penn Vet centers, performing essential clinical service.

The guidance below assumes that all faculty and staff will continue to adhere to all Penn Vet COVID-related requirements as they are released, inclusive of testing, temperature monitoring and provision of strategies, such as shift work, to ensure appropriate physical distancing practices within the workplace. It can be expected that guidance will change over time as requirements change.

Restart of Clinical Trials at Ryan and NBC Hospitals. Ryan Hospital and New Bolton Center have established standard operating procedures to allow continuation of essential clinical services during the COVID-19 outbreak. All procedures that have been initiated since the outbreak will remain in place during the period of clinical research re-start until university, school and hospital leadership deem change appropriate. The procedures and guidance for essential personnel, facility access, use of personal protective equipment as well as information specific to client interactions will continue to be followed to minimize potential exposure for all. In case of confusion or discrepancy, these requirements supersede the needs of clinical research projects. Resources including descriptions and SOPs can be found on the COVID-19 tab on Inside Penn Vet (<https://inside.vet.upenn.edu/categorized-content-item/covid-19>).

Principal investigators at the Ryan and New Bolton Center Hospitals are encouraged to actively anticipate, discuss and address their research staff's concerns and anxieties about continuing at or returning to work, including transportation challenges and child/eldercare responsibilities, and to proactively account for how they will be responsive to those needs within their respective research teams, clinical services and academic departments. Faculty concerns regarding nursing support for trials should be addressed to Michael DiGregorio, Executive Director of the Veterinary Clinical Investigations Center.

Return to clinical research activity will occur in a phased manner coinciding with the Penn directives on research re-start, and dependent upon resumption of the clinical service (i.e. ophthalmology, oncology, cardiology) under which each clinical trial operates and the availability of required hospital resources. In the initial phase (Phase 1), allowable clinical trial appointments will be limited to outpatient visits expected to have minimal impact on numbers of hospital personnel (aside from the PI and clinical research nursing staff) as well as minimal impact on diagnostic labs and imaging services. As services continue to scale up, clinic activities and limited inpatients will be permitted, and clinical trials for patients requiring urgent medical treatment can be offered to owners at the discretion of the principal investigator. It is the responsibility of the PI and clinical research nursing staff to confirm, to the best of their ability based on then-current circumstances, that ancillary services needed for study visits can accommodate the work prior to enrolling a study patient. Clinical studies requiring advanced procedures, extensive monitoring or diagnostics, complex test article administration, pharmacokinetic sampling and/or overnight or extended hospitalization may be able to resume based on Penn directives and if patient care wards/barns have returned to 24-hour coverage.

Any questions or concerns related to the resumption of clinical research activities specific to companion animal research can be directed to Michael DiGregorio or Cynthia Clendenin; activities specific to large animals to Hannah Galantino-Homer.

Restart of Clinical Research in Pathobiology. Clinical and pre-clinical research within the Department of Pathobiology normally takes place in diagnostic laboratory spaces or vivaria within the School of Veterinary Medicine and is conducted by department faculty and staff who provide diagnostic services for the Ryan and Widener Hospitals. These personnel also provide both clinical care and diagnostic services in support of the University Laboratory Animal Resources group. From the time of the mid-March shutdown of research in the University to the present, clinical faculty and staff have continued to conduct their essential diagnostic and clinical duties. In general, the restart of clinical research in Phase 1 will not entail an increase in numbers of personnel within the diagnostic laboratories and offices. Currently, all personnel in these areas are adhering to Covid 19-related safety guidelines on physical distancing, use of PPE, temperature and symptom monitoring and sanitation. They will continue to adhere to these guidelines in Phase 1 of the restart of clinical research. Specifics of how clinical research will resume in the first phase are related here for each clinical unit within the Department of Pathobiology.

Anatomic Pathology – Philadelphia: Clinical research in anatomic pathology to be restarted in Phase 1 generally involves recording of and analysis of histopathological data, which, given the diagnostic lab's capabilities in digital microscopy, may be undertaken remotely by faculty and resident diagnosticians and investigators. This capability will also support remote work by faculty and resident clinical investigators during Phase 1 of the restart of clinical research. Given that the faculty and house officers in anatomic pathology are classified as essential personnel in the current shut down, no significant increase in the density of personnel within the relevant diagnostic spaces will occur during the restart of clinical research in Phase 1. *It is noteworthy that resident training is a key part of the educational mission of the Anatomic Pathology group and resumption of clinical research in Phase 1 is essential for residents to complete and publish a research project within the one-year time frame of their residencies.*

The Comparative Pathology Core (CPC): This facility, which is led by Anatomic Pathology faculty in the Department of Pathobiology, provides expert gross and microscopic interpretations of lesions in murine and other small animal models used by researchers in the entire biomedical research community at Penn. Its work has been largely curtailed during the general shut down of research at Penn. The CPC will move into a new laboratory around the time of the Phase 1 restart, and the Technical Director will prepare a new plan for physical distancing and density of occupancy within this space as a prerequisite to restarting research.

Clinical Pathology – Philadelphia: Research in clinical pathology consists primarily of collaborative work in which faculty clinical pathologists conduct and interpret complete blood counts, mini chemistries, bone marrow and blood smears on murine samples for Penn investigators. These activities have been on hold since the shutdown of research mid-March but are expected to ramp up with the Phase 1 restart of research across the campus in Phase 1.

Microbiology – Philadelphia: Research deriving from data gathered in the context of normal diagnostic activities in support of the Ryan Veterinary Hospital, and from collaborations with clinicians in the Department of Clinical Studies and Advanced Medicine (CSAM), will resume during Phase 1 of the restart. Prominent among the topics of this research are studies on the epidemiology of carbapenem resistant *Enterobacteriaceae* in dogs and the prevalence of SARS-CoV-2 in domestic cats and dogs. The Clinical Microbiology Lab, where assays and analyses for clinical research will be conducted, is currently active, and faculty and technical staff there are essential personnel. No increase in the density of personnel within the Clinical Microbiology Lab is anticipated upon the restart of research in clinical microbiology.

Laboratory Animal Medicine – Philadelphia and New Bolton Center: In Phase 1 of the research restart, wet bench pre-clinical research will resume in space shared by Drs. Abigail Smith and Raimon Duran-Struuck in ULAR's diagnostic laboratory in the Hill Pavilion of the School of Veterinary Medicine. As they are currently doing their diagnostic work in support of ULAR, faculty and staff investigators conducting wet bench pre-clinical research will adhere to all guidelines on physical distancing, PPE, temperature and symptom monitoring and sanitation. Control of social distancing, enhanced sanitation, and tracking of activity within the vivaria will be dictated by ULAR's new Covid 19-related policies for working in these facilities. *Note that the Division of Laboratory Medicine in the Department of Pathobiology also trains residents, for whom resumption of research required to sit for board exams is crucial.*

The Pennsylvania Animal Diagnostic Laboratory at New Bolton Center (PADLS): As with diagnostic facilities in Philadelphia, this laboratory which serves both the New Bolton Center Hospital and the Commonwealth of Pennsylvania with diagnostic microbiology, toxicology and anatomic pathology, has been continuing its services with essential personnel during the shutdown of research at Penn. Like other diagnostic facilities within the Department of Pathobiology, its faculty and staff have been and will continue to observe guidelines as to physical distancing, use of PPE and health monitoring and tracking. Clinical research by the faculty, which includes toxicological and pathological studies and an investigation of SARS-Cov2 infection in bats, will resume with adherence to guidelines about density of personnel occupancy at the Phase 1 restart.