

# Research Using Human and Animal Specimens During the COVID-19 Pandemic

On January 27, 2020, the *Public Health Agency of Canada* (PHAC) released an updated [Biosafety Advisory](#) on recommended biosafety measures for diagnostic activities using human and animal specimens that contain, or have the potential to contain the SARS-CoV-2 virus (the causative agent of COVID-19 disease). Currently, SARS-CoV-2 is classified as a Risk Group (RG) 3 human pathogen and a RG2 animal pathogen. As some of the research laboratories at the University of Saskatchewan use human and/or animal specimens, it is imperative that the requirements and recommendations under the new [Advisory](#) be followed to ensure that our staff, students, and faculty can conduct research in the safest way possible.

Please review the following sections below to determine whether your research activities using human and/or animal specimens (i.e. tissues, sputum, nasopharyngeal swabs, throat swabs, or feces) are covered under this [Advisory](#) and what safety precautions must be employed.

## **Research that does not result in the concentration or extraction of SARS-CoV-2**

Individuals who use human and/or animal specimens for diagnostic or clinical activities are at a low risk of being exposed to SARS-CoV-2, so long as the activities do not involve the cultivation, collection, or extraction of SARS-CoV-2.

Examples of activities which do not result in the concentration or extraction of SARS-CoV-2, may include:

- serology and hematology;
- clinical chemistry studies;
- fixation and visualization of tissues;
- visualization of bacterial and fungal cultures;
- assays with virus-inactivated specimens; or
- preparation of specimens for packing and distribution to other laboratories.

As per the [Advisory](#), PHAC recommends, at a minimum, [good microbiological laboratory practices](#) be implemented, which include, but are not limited to:

- wearing laboratory-dedicated PPE, including:
  - closed-toed shoes;
  - lab coats;
  - gloves; and
  - protective eyewear (e.g. safety glasses).
- appropriately decontaminating work surfaces and equipment (i.e. 1% bleach, 70% ethanol, or 0.5% hydrogen peroxide);
- limiting laboratory access to authorized personnel only;
- washing hands with soap and water before leaving the laboratory; and
- decontaminating contaminated clothing prior to being reused.

## **Research that may inadvertently result in the concentration or extraction of SARS-CoV-2**

Individuals who use human and/or animal specimens for diagnostic or clinical activities that may inadvertently result in the cultivation, collection, or extraction of SARS-CoV-2, have an elevated risk of being exposed.

Examples of activities which may inadvertently result in the concentration or extraction of SARS-CoV-2, may include:



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- centrifugation of samples; or
- sample preparation of for molecular assays, including antigen and antibody assays and nucleic acid extraction.

As per the Advisory, PHAC has recommended that facilities implement [containment level 2 requirements](#) with [additional recommendations](#), that include:

- centrifugation in sealed safety cups, or rotors, that are loaded/unloaded in a certified Biological Safety Cabinet (BSC);
- using a certified BSC as the primary containment device if the activity may produce infectious aerosols;
- where a BSC is unavailable, and the procedure could produce infectious aerosols, respiratory protection must be worn (i.e. an N95 respirator); and
- utilizing a sealed, secondary container to transport samples from a BSC to another area of the laboratory.

This document is intended to outline the minimum requirements and support local risk assessments for non-propagative diagnostic activities with human and/or animal specimens that may contain the SARS-CoV-2 virus. Improper handling of human and/or animal specimens poses a risk of exposure or infection, which could seriously impact the health of personnel and the community.

Any questions or assistance should be directed to the Biosafety Group at Safety Resources by emailing [biosafety@usask.ca](mailto:biosafety@usask.ca) or by contacting Safety Resources at 306-966-4675.



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