INSTRUCTION FOR THE PROCESSING OF BODY FLUIDS AND HUMAN TISSUE DUE TO COVID-19

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1. **Description**

This instruction describes how to process human samples during the COVID-19 pandemic. In the current situation, everyone should **review their risk assessments and hygiene routines** to assess if the safety precautions applied are sufficient. If a healthcare provider has assessed that there is no suspicion of COVID-19 infection at an operation or blood donation, this assessment should be adhered to also when processing samples from such an activity. According to requirements set by the Swedish Work Environment Authority (AFS 2018:4), a minimum of safety class II needs to be applied for the processing of material that may contain infectious agents.

2. **Background**

Due to the current public spread of infection of COVID-19 – the disease caused by SARS-CoV-2 – there is a risk that this novel coronavirus could be found in body fluids and tissues. According to the Public Health Agency of Sweden, there is currently not sufficient knowledge about what body fluids can spread SARS-CoV-2. Infectious virus has been found in samples from the lower and upper respiratory tracts (e.g. saliva, sputum, bronchoalveolar lavage, respiratory tract secretion and lung biopsies). Until present, only one study has shown infectious virus in faeces samples, which means that faecal-oral transmission is deemed rare. Small quantities of SARS-CoV-2 RNA have been found in other body fluids such as seminal fluid, urine and breast milk, but no transmission from these has been reported. The spread of COVID-19 occurs through contact, droplet and aerosol transmission. Therefore, the formation of aerosols, splashes and sprays from the processing of human samples forms a risk for laboratory staff. Tasks that represent a risk are aliquoting, mixing/shaking, sonication and centrifuging.

When processing body fluids and human tissue at the regions (Region Västerbotten, Region Västernorrland, Region Jämtland Häradalen and Region Norrbotten), their guidelines apply.

3. **Guidelines**

According to requirements set by the Swedish Work Environment Authority (AFS 2018:4), a minimum of safety class II needs to apply for the processing of material that may contain infectious agents.

The Swedish Work Environment Authority, in consultation with the Public Health Agency of Sweden, have categorised SARS-CoV-2 in Risk Class 3 since no effective vaccination or antiviral treatment has yet been found. Based upon this, the Public Health Agency of Sweden has drafted recommendations for the processing of sample material that is suspected to contain SARS-CoV-2 (see link further down). These recommendations should be adhered to at Umeå University as well.
Processing of sample material in the event of suspicion of COVID-19 infection that does not involve cultivation or concentration of SARS-CoV-2.

For sample material that contains or may contain SARS-CoV-2, but for which no cultivations of concentrations are made, please adhere to the following:

- Processing must take place using a safety class II microbiological workbench
- The following protective equipment is required:
  - Protective gloves
  - Long-sleeved lab coat, or a long-sleeved disposable apron
  - A risk assessment will determine if additional protective equipment is necessary, for instance:
    - Safety glasses or a visor
    - Protective face mask
- Special hygiene measures must be taken (Infectious risks, AFS 2018:4, Section 14)
- Waste disposal:
  - Sharp objects that have been in contact with human body fluids must be disposed of in secure disposal containers intended for piercing objects such as cannulas and scalpels.
  - Other waste that has come in contact with human body fluids must be disposed of as contaminated waste. The waste must be placed in intended disposal containers marked UN 3291.

When conducting molecular biological analyses on samples with suspected SARS-CoV-2, all work must take place in microbiological workbenches with safety class II until potential viral particles most likely have been inactivated, for instance using heat or through formalin fixation. Whether or not to undertake the following analyses under safety class I or II should be determined by the documented risk assessment.

Processing of sample material in the event of suspicion of COVID-19 infection that involves cultivation potentially leading to viral increase.

Sample material suspected of containing SARS-CoV-2 must have tested negative for the virus before the material can be exposed to conditions that allow for viral increase. Samples that have not been tested or turn out to be positive (contain SARS-CoV-2), may only be cultivated under conditions met by safety class III. Samples that are negative for SARS-CoV-2 can be processed according to safety class II. The applicable risk assessment decides whether a microbiological workbench class II or other non-compulsory safety precautions for this safety class must be used.
PLEASE NOTE! When intentional cultivation of SARS-CoV-2 is to take place, protective measures must be applied corresponding to safety class III and the work must be conducted in a class III laboratory. Such work also needs to be reported to the Swedish Work Environment Authority.

Freezing samples
When freezing untested samples containing body fluids or human tissue, and when suspicion of SARS-CoV-2 exists, samples must be labelled with a symbol for biological hazard and the text “suspected SARS-CoV-2”. When the time has come to process the frozen samples, this will make staff aware that the samples were taken during the ongoing pandemic and enables necessary safety measures to be taken.

Further information

The Swedish Work Environment Authority about the novel coronavirus: https://www.av.se/halsa-och-sakerhet/sjukdomar-smitta-och-mikrobiologiska-risker/smittrisker-i-arbetsmiljon/coronaviruset/#3

The Swedish Work Environment Authority regulations on Infectious Risks (AFS 2018:4).

For more information, please contact:
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