Surface decontamination procedures for coronavirus and other respiratory viruses

January 2020

Important: For large-scale contamination or deep cleaning of facilities, an outside vendor must perform the decontamination. ASU-approved vendors are listed in Appendix A.

A new coronavirus, 2019-nCoV, has caused an outbreak of respiratory illness originating in China and expanding internationally. Coronaviruses are part of a large family of viruses, with some causing illness in people and others causing illness in animals. Some examples of previous coronaviruses causing illness in people include Severe Acute Respiratory Syndrome, or SARS, and Middle East Respiratory Syndrome, or MERS. It has not been determined how this new virus spreads from person-to-person. Therefore it is highly recommended to follow these guidelines when cleaning spaces with potential 2019-nCoV contamination. Coronaviruses have been shown to be viable on surfaces for several days.

Section I: Personal Protective Equipment

Personal Protective Equipment must be worn before entering spaces to be decontaminated.

Recommended PPE items:

- Disposable face shield.
- Disposable gloves.
- Disposable gowns.
- N95 respirator or surgical mask.

Note: All disposable masks, gowns and gloves should be disposed of as biohazardous waste after use. Do not reuse.

Section II: Preparation before cleaning spaces

1. All solutions of detergents or disinfectants must be prepared in a clean, dry container.
2. All solutions must be prepared fresh daily with tap water and at the proper mixture for the dilution (for example, a 10 percent bleach dilution is one part concentrated bleach to nine parts water).
3. Do not use spray bottles when cleaning surfaces. Spraying surfaces may cause aerosols. Containers that dispense liquid can be used to apply disinfectants to surfaces, or disinfectants can be poured gently onto cleaning cloths to clean surfaces.
4. EPA-registered disinfectants must be used. Examples include bleach, Conflikt, and CaviCide. Please review the complete list of EPA-registered disinfectants.
5. Pre-mixed “ready-to-use” disinfectant solutions or wipes may also be used. Examples include EZ-KILL Disinfectant Wipes, CaviWipes, and CiDecon Plus Wipes.

Section III: Housekeeping surfaces can be divided into two groups

1. Those requiring minimal hand-contact, such as floors, windowsills, walls and ceilings.
2. Those requiring frequent hand-contact, such as counters, doors, handrails, light switches and areas in bathrooms.

To clean minimal hand-contact surfaces follow these guidelines:

1. For windowsills, walls and ceilings, prepare the cleaning solutions (for example, a 10% bleach dilution is one part concentrated bleach to nine parts water) using the recommended PPE.
2. Follow standard procedures for cleaning with the **exception that no spray bottles should be used**. Disinfectant must be poured gently into cleaning cloth and surfaces wiped gently and allowed to dry completely.

3. Methods for cleaning hard floors include wet mopping and wet vacuuming. Water-disinfectant solutions for mopping should be prepared as described in **section II**.

4. Disinfectant solutions used for mopping must be replaced regularly, after every three-to-four rooms, at no longer than 60-minute intervals.

5. Replace soiled cloths and mop heads with clean ones every time the disinfectant solution is replaced, after every three-to-four rooms.

6. A source of contamination in the cleaning process is the cloth or mop head. **Never leave cloths or mop heads to soak in dirty cleaning solutions**. Cloths and mop heads must be decontaminated by immersing them in 10% bleach (one part concentrated bleach to nine parts water) for a contact time of 20 minutes. Then rinse mop heads and cloths with cool water and allow to dry completely before reuse.

7. Single-use disposable cleaning cloths and mop heads can also be used as an alternative. If using disposable cleaning cloths and mops, double bag appropriate biohazard waste in plastic bags before disposal.

8. After cleaning, remove all disposable PPE and double bag biohazardous waste before disposal.

9. Wash or scrub hands and forearms for at least 20 seconds with soap and warm water after removing PPE.

10. Keep a log of locations and surfaces that are cleaned and the date and time.

**Section IV: How to clean frequent hand-contact surfaces**

1. For counters, doors, handrails, bathrooms and other surfaces that are hard or non-porous, such as plastic, glass, or metal, wear the recommended PPE and pour an EPA-registered disinfectant gently into a cleaning cloth or use disinfectant wipes (EZ-KILL, CaviWipes, etc.) to wipe down the surfaces. Allow the surfaces to dry completely.

2. Follow with a second wipe with a clean cloth and disinfectant or disposable disinfecting wipes.

3. Place disposable wipes in a sealed, Ziploc plastic bag after cleaning then transfer to appropriate biohazard waste. Reusable cloths must be placed in a sealed plastic bag until laundered or immediately transferred to a clean bucket and decontaminated by immersing them in 10% bleach (one part concentrated bleach to nine parts water) for a contact time of 20 minutes. Then rinse cloths with cool water and allow to dry completely before reuse. If a plastic bag was used, discard it in the appropriate biohazard waste.

4. All disposable materials used during cleanup must be double-bagged as biohazardous waste before disposal.

5. After cleaning, remove all disposable PPE and double bag biohazardous waste before disposal.

6. Wash or scrub hands and forearms for at least 20 seconds with soap and warm water after removing PPE.

7. Keep a log of locations and surfaces that are cleaned and the date and time.

**Section V: Furniture and carpeting**

**Furniture**

For surfaces that are soft or made of cloth, such as furniture — even though pathogenic microorganisms have been isolated from these surfaces — evidence does not suggest they create an increased risk of infection compared with areas that contain hard-surfaced furniture. Furniture may be cleaned with disinfectant wipes using the recommended PPE. For gross contamination of furniture, an outside vendor must be contacted. Please see **Appendix A** for a list of ASU-approved vendors.
Carpets

For gross contamination of carpets, an outside vendor must be contacted. Wet vacuum cleaners may be used to decontaminate smaller sections using the recommended PPE. According to OSHA, carpeting contaminated with blood or other potentially infectious materials cannot be fully decontaminated. Allow carpet and rugs to completely air dry without the use of fans, which can create aerosols.

Section VI: Potential Exposures

If personal clothing becomes contaminated during the clean-up process, it should be removed in a manner that avoids the potential for mucous membrane exposure (e.g., to the eyes, face, mouth) and placed into sealed bags (preferably red biohazard bags). Any exposed body surfaces must be washed and scrubbed for at least 20 seconds with soap and water.

In the event of an exposure to an infectious agent or material:

1. ASU Health Services is available during business hours in person, and at all times by phone at 480-965-3346. Contact 911 for life-threatening situations.
2. For all incidents involving ASU employees, contact CorVel for assistance at 602-542-WORK or 602-542-9665.
3. Report all incidents or potential incidents immediately to the supervisor and to ASU Biosafety and Biosecurity at 480-965-1823 or biosafety@asu.edu.

If any spill or cleaning situation cannot be managed by ASU personnel, notify ASU Biosafety and Biosecurity at 480-965-1823. For response outside of business hours, contact the ASU Police at 480-965-3456. Always call 911 for life-threatening emergencies.

References

2. Centers for Disease Control and Prevention. Background E. Environmental Services Guidelines for Environmental Infection Control in Health-Care Facilities (2003). cdc.gov/infectioncontrol/guidelines/environmental/background/services.html#anchor_1554827215
3. United States Environmental Protection Agency. EPA’s Registered Antimicrobial Products Effective Against Mycobacterium tuberculosis, Human HIV-1 and Hepatitis B Virus. epa.gov/sites/production/files/2018-01/documents/2018.05.01.liste_.pdf
5. World Health Organization. First data on stability and resistance of SARS Coronavirus Compiled by Members of WHO Laboratory Network. who.int/csr/sars/survival_2003_05_04/en/

9. Centers for Disease Control and Prevention. Environmental Infection Control Guidelines. cdc.gov/infectioncontrol/guidelines/environmental/index.html#e


Appendix A

ASU-approved vendors*

<table>
<thead>
<tr>
<th>Biohazardous materials vendors</th>
<th>Phone Numbers</th>
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<tr>
<td>Clean Harbors Environmental Services</td>
<td>800-645-8265 or 602-258-6155</td>
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<tr>
<td>Environmental Response, Inc.</td>
<td>480-967-2802</td>
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<tr>
<td>Kary Environmental Services, Inc.</td>
<td>480-945-0009</td>
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Kary Environmental Services, Inc. and Environmental Response, Inc. have local response teams that may provide earlier response.

*NOTE: The ASU department calling outside vendors for biohazardous waste cleanup is responsible for ensuring funding is available to cover vendor expenses.