

ACEP Guideline on COVID-19: Ultrasound Machine and Transducer Cleaning

Approved March 31, 2020

This policy is an addendum to the ACEP policy, **Guideline for Ultrasound Transducer Cleaning and Disinfection, 2018.**

The ACEP Emergency Ultrasound Section wishes to provide guidance for cleaning and disinfection of ultrasound equipment in the context of the COVID-19 pandemic.

Special guidance regarding COVID-19 includes the following:

1. Removal of all nonessential equipment prior to entering the room of a suspected COVID-19 patient.

This prevents unnecessary items from contamination by droplets and may include removal of non-essential transducers or extraneous items (eg, peripheral IV cannulas, plastic film dressing, bags holding towels, etc.).

2. Clinicians should follow optimal hand hygiene by washing their hands between patients and wearing single-use gloves.

We recommend that before cleaning, clinicians remove gel and debris, then use one of the EPA recommended products in between each patient encounter to disinfect the probe.(1) Clinicians may find it advantageous to use a double-glove technique to help avoid cross-contamination from bare hands during the cleaning process.

3. When scanning patients who are at low-risk for COVID-19 or are not in droplet precautions, we recommend disinfecting the probe and surfaces that were touched during the examination (screen, keyboard, cable, etc.).

Due to recent knowledge that SARS-CoV-2, the causative agent of COVID-19 can be present on surfaces for days, we recommend disinfecting surfaces that either come into contact with the patient (cable and transducer) as well as surfaces that are touched by the clinician (keyboard, screen, handlebar, etc.).(2) We recommend the clinician remove gel and debris, and then use one of the EPA recommended products in between each patient encounter.(1,3)

4. In situations when aerosolization or high-risk procedures can occur, probes and machines should be covered (if possible) and disinfected with low-level disinfection (LLD) after every use.

We recognize that many clinicians will not have access to transparent covers for ultrasound systems. In those cases, the entire ultrasound system and frequently touched surfaces should be disinfected with LLD solution between each patient.(4)

When performing an ultrasound examination in critically ill patients requiring active resuscitation where aerosolization is a risk (intubation, medication nebulization, chest compressions, non-invasive ventilation, etc.) the machine and its components should be protected as much as possible.(1,5) This

includes use of probe covers (sterile and non-sterile) and may involve draping material such as translucent bags. These covers should be discarded prior to exiting the patient's room taking care to avoid cross-contamination, in keeping with local infection control recommendations.

5. *High-level disinfection (HLD) is not required when using ultrasound probes on intact skin.*

Please refer to the current *ACEP Guideline for Transducer Cleaning and Disinfection* to determine when to use HLD.(3) There is no evidence that HLD offers benefit for disinfection from SARS-CoV-2.

For ultrasound use during procedures (such as peripheral or central venous access), a sterile probe cover should be used, followed by LLD in accordance with the *ACEP Guideline for Transducer Cleaning and Disinfection*.

6. *Handheld devices may be covered with device covers for both the touchscreen and the probe with its cord. All items should be cleaned with LLD after use on each patient.*

7. *Innovative cleaning solutions should be discussed with local infection control and the vendors supplying the machine.*

The stocking of different solutions and products vary across the country, and some systems are facing shortages of certain products. We recommend that, in conjunction with Infection Control, physicians and health systems consider common disinfectants for cleaning if there are no alternatives to commercial healthcare products. Examples would include soap and water, diluted bleach, and ammonium chloride derivatives. This should be discussed with the vendor to prevent inadvertent destruction of machine elements.

References

1. Environmental Protection Agency. List N: Disinfectants for Use Against SARS-CoV-2. 2020 Available at: <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>. (Accessed March 24, 2020)
2. van Doremalen N, Bushmaker T, Morris DH, et al. Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1. *N Engl J Med*. 2020 Mar 17.
3. Guideline for Ultrasound Transducer Cleaning and Disinfection. *Annals of Emergency Medicine*. 2018 Oct;72(4):e45–7.
4. Centers for Disease Control and Prevention. Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings. 2020 Available at: https://www.cdc.gov/coronavirus/2019-ncov/infection-control/control-recommendations.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fhcp%2Finfection-control.html#infection_control. (Accessed March 24, 2020)
5. Tellier R, Li Y, Cowling BJ, Tang JW. Recognition of aerosol transmission of infectious agents: a commentary. *BMC Infectious Diseases*. 2019 Jan 30;1-9.

PRIOR TO ENTERING ROOM



Ensure that all unnecessary materials are removed from the machine and the basket.

For Patients on DROPLET precautions, once the ultrasound is completed, remain inside the room with PPE on. Sanitize gloves and then:



Visually inspect the machine for any gel, bodily fluid or debris

- Clean with low level disinfectant spray, soap + water, or approved wipe



For a list of approved wipes check [EPA site](#)

Using approved wipe, disinfect all machine surfaces including:

- surfaces that either come into contact with the patient
- surfaces that are frequently touched by the clinician

*** please remember that there is a “wet time” associated with all wipes, check the manufactures recommendation**

For patients on AIRBORNE precautions, once the ultrasound is completed, remain inside the room with PPE on. Sanitize gloves and then:



Visually inspect the machine for any gel, bodily fluid or debris

- Clean with low level disinfectant spray, soap + water, or approved wipe



While still in PPE, move the machine as far from the patient as possible. Using approved wipes, disinfect all machine surfaces including:

- probes and cords
- the keyboard
- the screen
- the power cord
- the lid
- the wheels
- wells or buckets built into the machine
- gel bottles and wipes containers

*** please remember that there is a “wet time” associated with all wipes, check the manufacturers recommendation**

****Consider cleaning again immediately after leaving the room**



Maintain wet for required amount of time before considering the device decontaminated

*** In addition to the above, follow the policies of institutional infection control**