



# HP Healthcare Edition for Print Disinfection and Sterilization Guide

**This guide is for the following  
Healthcare Edition multifunction  
printer models:**

HP PageWide Managed Color Flow MFPs:  
E77650z/zs/z+  
E77660z/zs/z+  
E58650z

HP Color LaserJet Managed Flow MFPs:  
E67660z  
E57540c

HP LaserJet Managed Flow MFPs:  
E52645c  
E62665h/z



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## HP Healthcare Edition Solutions - Supporting your Infection Prevention Protocol

Computers, displays, MFPs, and accessories (e.g., keyboards and mice) are valuable clinical and instructional tools for healthcare clinicians to view and transmit patient data, access and print healthcare literature, provide patient and family education, and facilitate learning. As these electronic devices are used at the point of care (e.g., emergency department, operating room, intensive care, hemodialysis, and long-term care) or in common areas where patient care is delivered, contamination of pathogenic bacteria and epidemic viruses from the hands of healthcare providers or the environment has been demonstrated in numerous studies.<sup>1,2,3,4</sup> Ensuring the cleaning and disinfecting of these IT and IoT devices is a critical component of environmental hygiene.

The Centers for Disease Control and Prevention (CDC) [recommends](#) cleaning surfaces, followed by disinfection, as a best practice to reduce the transmission of pathogenic bacteria, viral pathogens, and other viral respiratory illnesses in hospital, ambulatory, long-term care and other healthcare settings.<sup>5</sup>

### Responsibility

The responsibility for routine cleaning and disinfection of the Healthcare Edition for Print devices and accessories shall be dictated by the healthcare facility and clearly communicated along with appropriate training as defined in this disinfection and sterilization guide. Collaboration between epidemiologist(s), infection prevention and control, nursing, environmental services (EVS), cleaning/janitorial staff and information technology (IT) is critical for defining this responsibility and ensuring that training occurs.

### Cleaning and Disinfection Guidance

In addition to routine care (defined by the healthcare facility's infection prevention protocol), if the Healthcare Edition multifunction print devices become visibly soiled or contaminated with blood and/or other bodily fluids, it is the responsibility of the user of the device(s) to perform cleaning and disinfection using the following recommended protocols.

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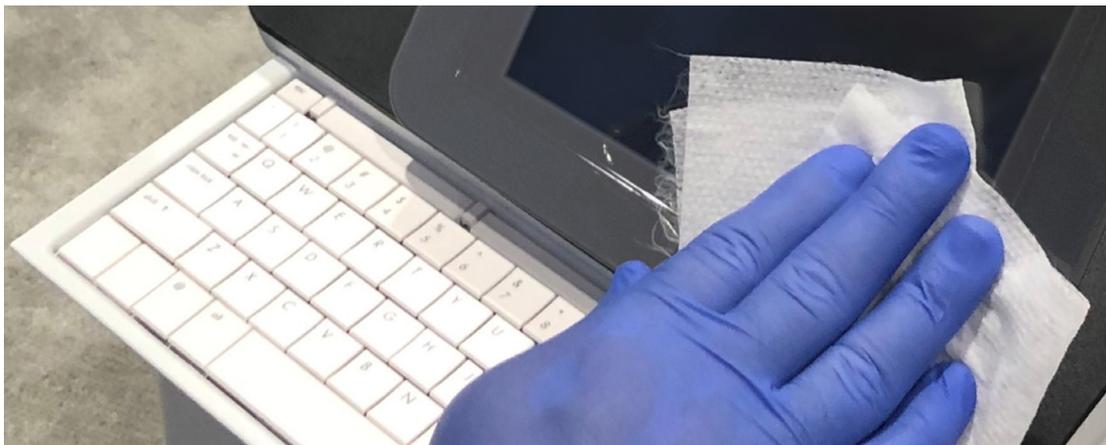
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## Cleaning

1. Perform hand hygiene.
2. Don clean (non-sterile) disposable gloves made of latex (or nitrile gloves if you are latex-sensitive).
3. Turn off the device and disconnect AC power. Never clean a product while it is powered on or plugged in.
4. Disconnect or remove any external items such as USB memory sticks or media.
5. Remove soil from the device with a manufacturer-approved cleaning or cleaning and disinfecting germicidal wipe (commonly used formulations listed in the attached Recommended Healthcare Edition for Print cleaning formulas table), or a water-dampened cloth. The cloth/wipe should be moist, but not dripping wet. Microfiber cloths, chamois (static-free cloth without oil), or static-free cloth wipes are preferred.<sup>6</sup> Do not use fibrous materials, such as paper towels or toilet paper.
6. Do not spray any liquids directly onto the product.
7. Do not use disinfecting/germicidal wipes on the scanner/copier glass.
8. Gently wipe the moistened cloth on the surfaces to be cleaned. Do not allow any moisture to drip into areas like keyboards, display/control panels or USB ports, as moisture entering the inside of an electronic product can cause extensive damage.
9. Start with the display/control panel, continue with keyboard, and end with power and/or network cables if applicable.
10. Each Healthcare Edition MFP is equipped with sanitizable/sterilizable drapes. These can be cleaned and disinfected without removal with a manufacturer-approved cleaning or cleaning and disinfecting germicidal wipe (commonly used formulations listed in Table 1: HP Healthcare Edition compatibility-tested formulations for cleaning and disinfecting).
11. When cleaning a display screen or printer control panel, carefully wipe in one direction, moving from the top of the display to the bottom.

## Disinfection

1. Additional disinfection should be performed using germicidal wipes. Refer to the germicidal wipe manufacturer's recommended instructions for use (IFU) for the product(s) used at the facility to ensure appropriate application and contact time of the product.
2. Disinfect all surfaces covered with drapes. Additionally, disinfect the surface of the control panel and keyboard of the device.
  - Ensure that the germicidal wipe remains wet during the application process. Replace, if necessary.
  - Make sure that the surfaces remain treated with the disinfectant for the contact time specified by the germicidal wipe manufacturer.
3. Determine that surfaces have completely air-dried before turning the device on after cleaning. No moisture should be visible on the surfaces of the product before it is powered on.
4. Gloves should be discarded after each cleaning. Perform hand hygiene immediately after gloves are removed.

**NOTE:** If contamination with *Clostridioides Difficile* is suspected, a sporicidal agent (e.g., hypochlorite or bleach) is required.



Do not use cleaners that contain any petroleum based materials such as benzene, thinner, or any volatile substance to clean the device. These chemicals may damage the device.

If you are not sure whether a cleaning product is suitable, or if it is not specifically listed in this document, do not use it as it may cause permanent damage to the product. The following table lists the cleaning formulas approved for HP Healthcare Edition for Print devices.

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Recommended cleaning formulas

Type of agents	Select HP Healthcare Edition for Print compatibility-tested products	Manufacturer contact time for Select HP Healthcare Edition for Print compatibility-tested products	Comments
<b>Cleaning agents*</b>			
	Ethyl alcohol: 0.10–1.00% and cellulose Isopropanol: 60–70% and water	Not applicable	Required only if multifunction printer is visibly soiled.
<b>Cleaning and disinfection agents: one-step products*</b>			
Alcohol-free quaternary ammonium compounds (QAC)	Benzyl-C12-18-Alkyldimethyl ammonium chlorides: < 0.1%, Quaternary ammonium compounds, C12-14-alkyl[(ethylphenyl)methyl] dimethyl, chlorides: < 0.1%	10 minutes**	
QAC/alcohol	Quaternary ammonium compounds, C12-18-alkyl [(ethylphenyl) methyl] dimethyl, chlorides: < 0.5%, Benzyl-C12-18-alkyldimethyl ammonium chlorides: < 0.5%	3 minutes**	
	Isopropanol: 10–20%, 2-Butoxyethanol: < 5%, Quaternary ammonium compounds, C12-18-alkyl [(ethylphenyl) methyl] dimethyl, chlorides: < 0.5% Benzyl-C12-18-alkyldimethyl ammonium chlorides: < 0.5%	3 minutes**	
	Isopropyl alcohol: 55.0%, Alkyl dimethyl benzyl ammonium chlorides: 0.250%, Alkyl (68% C12, 32% C14) dimethyl ethylbenzyl ammonium chloride: 0.250%	2 minutes**	
	Isopropanol: 10–20%, Ethylene Glycol Monobutyl Ether (2-Butoxyethanol): 1–5%, Diisobutylphenoxyethoxyethyl dimethyl benzyl ammonium chloride: 0.1–0.5%	2 minutes**	
Hypochlorite (bleach)	Sodium hypochlorite 0.1%–1.0%	3 minutes**	
Improved hydrogen peroxide	Hydrogen peroxide: <1%	3 minutes**	
<b>Tested Germicidal Towelettes</b>			
	Sani-Cloth® Plus Germicidal Disposable Cloth (EPA Reg. No. 9480-6) Sani-Cloth® AF3 Germicidal Disposable Wipe (EPA Reg. No. 9480-9) Super Sani-Cloth® Germicidal Disposable Wipes (EPA Reg. No. 9480-4) CaviWipes® (EPA Reg. No. 46781-8) Clorox Healthcare® Bleach Germicidal Wipes (EPA Reg. No. 67619-12)		HP Healthcare Edition multi-function printers have been tested to simulate up to 10,000 wipes with germicidal towelettes on Control Panel and Keyboard over a 3-year period. Repeated use of these germicidal wipes may cause some cosmetic changes to the product. Testing completed as of September 2019. Germicidal towelette chemical composition is subject to change.

\*\* Contact times listed correlate to the germicidal wipe products that are HP-compatibility tested. Refer to manufacturer Instructions for Use (IFU) and product labels to determine the recommended contact time for products used at your facility.

**NOTE:** Use of wipes soaked in peracetic acid or hydrogen peroxide may be an alternative to quaternary ammonium compounds (QAC) and bleach for low-level surface disinfection, but studies supporting their effectiveness have only recently emerged. Augmentation of manual surface cleaning and disinfection with automated disinfection technologies (e.g., UV light and hydrogen peroxide vapor machines) is being adopted for use in operating rooms and patient rooms where electronic devices may be present.<sup>7,9</sup>



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HP Healthcare Edition for Print devices are equipped with at least one set of sterilizable, sanitizable drapes (made of VMQ silicone). In addition to the cleaning and disinfection guidance previously detailed, these drapes can be removed, immersed in soap and water or a recommended disinfectant solution (please refer to included table: Recommended Healthcare Edition for Print cleaning formulas). For further sterilization purposes, these drapes can be exposed to Hydrogen Peroxide Vapour (HPV). Also, the drapes are sterilizable in an autoclave or thermo disinfectant at temperatures up to 134 °C (270 °F). HP recommends that the drapes be replaced after 200 sterilization cycles in an autoclave. Please contact your HP representative for replacement drapes when necessary.

Approved and tested cleaning and disinfectant formulas for VMQ silicon-based drapes covering surfaces for HP Healthcare Edition for Print include:

- Chlorine based, up to 100,000 ppm (10%) bleach content
- Formaldehyde based, up to 370,000 ppm (37%) formaldehyde content
- Oxidizing, such as Hydrogen Peroxide, up to 30,000 (3%) ppm content
- Quaternary Ammonium, up to 20,000 ppm (2%) content.

Note: Customers may experience some visible changes to cosmetic finishes over time as a result of the cleaning techniques mentioned in this document.

### Definition of terms<sup>7,8</sup>

**Contact time:** A specific length of time a chemical disinfectant must remain in contact with a microorganism to achieve complete inactivation. Contact times for each microorganism are clearly listed on the label of U.S. Environmental Protection Agency (EPA)—registered liquid disinfectants. The treatment time for a wipe and spray disinfectant consists of the wet time plus wiping as well as the undisturbed “dry” time.<sup>8</sup>

**Hydrogen peroxide:** Improved hydrogen peroxide is a disinfectant. Manufacturers will add cleaning agents to improve cleaning efficiency. These agents are bactericidal, virucidal, fungicidal, and tuberculocidal.

**Hypochlorite (bleach):** These agents are bactericidal, fungicidal, virucidal, mycobactericidal, and sporicidal. Used to disinfect blood spills.

**Quaternary ammonium compound products (QAC):** These agents are bactericidal, virucidal against enveloped viruses (e.g., HIV), and fungicidal. They are not sporicidal and generally not mycobactericidal or virucidal against nonenveloped viruses (e.g., norovirus). Healthcare facilities commonly use EPA-approved QAC products for routine cleaning and disinfection of the environment and non-critical medical equipment.

**NOTE:** Customers may experience some visible changes to cosmetic finishes over time as a result of the cleaning techniques mentioned in this document.

### Footnotes

1. Neely AN, Weber JM, Daviau P, et al. Computer equipment used in patient care within a multihospital system: Recommendations for cleaning and disinfection. *Am J Infect Control*. May 2005; 33(4):233-7.
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4. Contamination of healthcare workers' mobile phones by epidemic viruses, [https://www.clinicalmicrobiologyandinfection.com/article/S1198-743X\(15\)01034-4/fulltext](https://www.clinicalmicrobiologyandinfection.com/article/S1198-743X(15)01034-4/fulltext)
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7. Leas BF, Sullivan N, Han JH, Pegues DA, Kaczmarek JL, Umscheid CA. Environmental Cleaning for the Prevention of Healthcare-Associated Infections. Technical Brief No. 22 (Prepared by the ECRI Institute – Penn Medicine Evidence-based Practice Center under Contract No. 290-2012-00011-I.) AHRQ Publication No. 15-EHC020-EF. Rockville, MD: Agency for Healthcare Research and Quality; August 2015. [www.effectivehealthcare.ahrq.gov/reports/final/cfm](http://www.effectivehealthcare.ahrq.gov/reports/final/cfm).
8. Rutala WA and Weber DJ. Surface Disinfection: Treatment Time (Wipes and Sprays) Versus Contact Time (Liquids). *Infect Control Hosp Epidemiol* 2018; 39(3):329-331.
9. Investigation into the cleaning methods of smartphones and wearables from infectious contamination in a patient care environment (I-SWIPE), [https://www.ajicjournal.org/article/S0196-6553\(19\)30845-4/pdf](https://www.ajicjournal.org/article/S0196-6553(19)30845-4/pdf)

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