



HAND WASHING

Why, When, How, and with What?

Hand washing is an effective preventive practice in reducing exposure to microorganisms and subsequent spread to other people or animals.

Why is Hand Washing Important?

The spread of infection requires: 1) a **reservoir** of microorganisms, 2) a **host** or a **site** of infection, and 3) a mode of **transmission** between the reservoir and host. Humans, animals, and inanimate objects can serve as reservoirs; animals and humans can serve as hosts; and, the hands of humans handling animals often serve as a mode of transmission.¹

When to Wash Your Hands

- ⇒ Before and after:
 - A work shift
 - Eating and drinking
 - Treating wounds
 - Carrying out invasive procedures
 - Wearing gloves*
 - Coming into a contact with an infected/sick patient; especially, if working with neonates or immunocompromised patients (patients at a higher risk of infection)
- ⇒ After using the restroom
- ⇒ Upon exiting animal areas, even if you did not touch an animal
- ⇒ After coming into contact with equipment or fluids likely contaminated with microorganisms

*Wearing gloves reduces the risk of exposure or transmission but *does not* guarantee prevention or replace the need for hand hygiene.²

Hand Washing Technique

1. Wet hands with clean running water (warm or cold), turn off tap, and apply soap.
2. Apply enough soap to cover all hand surfaces.
3. Lather hands by rubbing them together with the soap making sure to lather the backs of your hands, under your fingernails**, and scrub for at least 15-20 seconds.
4. Rinse hands under clear clean running water (warm or cold).
5. Dry hands with a clean towel or air dry.

Note: If soap and water are not available, use an alcohol-based hand sanitizer that contains at least 60% alcohol.

**Studies have found that artificial fingernails are a risk factor and associated with changes in the normal flora of the hands, as well as impede proper hand hygiene.²



What to Use to Wash Your Hands

In many circumstances, thorough hand washing with plain soap and water may be effective. However, the decision to use an antimicrobial soap should be based on whether it is important to reduce and maintain minimal counts of resident flora, and if necessary, eliminate transient flora (common hand washing terms are found on the back of this fact sheet). In some veterinary or animal settings, the degree and type of contamination, as well as the invasive nature of a procedure, may warrant the use of an antimicrobial soap.

Choosing an Anti-septic Agent

1. Determine what characteristics are desired in an antimicrobial agent (reference the chart on the back of this sheet).
2. Review and evaluate the evidence of safety and efficacy in reducing microbial counts.
3. Evaluate the product in terms of personnel, acceptance, and costs.

Note: The effectiveness of antimicrobial agents may be affected by environmental factors such as pH, organic materials, presence of detergents, etc.

Choosing an Antiseptic Agent⁴

Antiseptic	Gram Positive Bacteria	Gram Negative Bacteria	Viruses (Enveloped)	Viruses (Non-Enveloped)	Mycobacteria	Fungi	Speed of Action	Residual Activity	Common Forms & Concentration	Use in Hand Hygiene Preparations
Alcohols	+++	+++	+++	++	+++	+++	Fast	No	Ethanol, n-propyl, isopropyl; 60-70%	HR
Chloroxylenol	+++	+	+	±	+	+	Slow	Variable	0.5-4%	HW
Chlorhexidine	+++	++	++	+	+	+	Intermediate	Yes	0.5-4%	HR, HW
Iodophors	+++	+++	++	++	++	++	Intermediate	Variable	Providone-iodine; 0.5-10%	HW
Quaternary ammonium compounds	++	+	+	?	±	±	Slow	No	Antibacterial hand soaps; or in combination with alcohols	HR, HW

Good = +++, moderate = ++, poor = +, variable = ±, unknown = ?; Hand rubbing (HR); Handwashing (HW)

Note: Hexachlorophene is no longer an accepted ingredient of hand disinfectants and was not included in this table. Triclosan has been removed from this table because new research suggests that the consistent use of products containing this antiseptic promotes bacterial resistance.

For more information about topical antiseptic products, please click the following: [FDA - Topical Antiseptic Products](#)

Defining the Common Hand Hygiene Terms^{2,3}

Alcohol-based (hand) rub: An alcohol-containing substance (foam, gel, liquid) that is designed to inactivate microorganisms and/or temporarily suppress their growth on living tissue.

Antimicrobial (mediated) soap: soap containing an antiseptic agent at a concentration sufficient to inactivate microorganisms and/or temporarily suppress their growth on living tissue. The activity of this soap may also dislodge transient microorganisms or contaminants from the skin to facilitate removal by water.

Antiseptic agent: an antimicrobial substance that inactivates microorganisms or inhibits their growth on living tissues. Examples of this include: alcohols, chlorhexidine, chloroxylenol, chlorhexidine, iodophors, and quaternary ammonium compounds.

Hand rubbing: rubbing the hands together without water or soap, but instead, using an antiseptic agent.

Hand washing: washing hands with plain or antimicrobial soap and water. The purpose is to remove, dirt, organic materials, and transient organisms.

Plain soap: detergent based cleansers that contain no added antimicrobial agents, used primarily for physical removal of dirt and transient contaminating microorganisms.

Resident flora: microorganisms living on the surface and in deeper layers of the skin.

Transient flora: microorganisms that contaminate the skin surface and can be removed by routine hand washing.



References

- Adapted from Overview of Hand Washing by Personnel in Animal Laboratory Facilities. LeBlanc, D., MA. Contemporary Topics. pp 12-14. (1993).
- WHO guidelines on hand hygiene in health care: first global patient safety challenge. Clean care is safer care. World Health Organization. pp 21-22, 43. 2009.
- Force, Hand Hygiene Task. "Guideline for Hand Hygiene in Health-Care Settings." pp. 29, 34. 2002.
- Table adapted from WHO Guidelines on Hand Hygiene in Health Care (2009), and Centers for Disease Control and Prevention Guideline for Hand Hygiene in Health-Care Settings (2002).