

## Exercise 1.3 – Hand Hygiene

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### LEARNING OUTCOMES

1. Discuss the importance of hand hygiene.
  2. Describe proper handwashing technique.
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Practicing good hand hygiene is important both in and outside of a health care setting. Clean hands reduce the transmission of germs to others and prevent the spread of infection. The CDC reports that each day, at least one healthcare-related infection is spread for every 31 patients.<sup>1</sup> Many of these infections are caused by bacteria that are resistant to treatment with multiple drugs, which has resulted in a global effort to combat antibiotic resistance.

Although microbiology teaching labs are relatively safe, they are not without potential risk of infection. Between August 2010 and June 2011, a *Salmonella* outbreak resulted in multiple hospitalizations and one death. Infected individuals were from 38 states and ranged in age from one to 91 years. The incident was eventually traced back to three students taking a community college microbiology course who had been working with the outbreak strain of bacteria.<sup>2</sup>

The most effective ways to ensure hand hygiene are handwashing with soap and water or using an alcohol-based hand sanitizer or similar antiseptic. When using soap and water, hands should be washed for at least 20 seconds by first wetting and then lathering with soap. Fingernails harbor greater numbers of microorganisms relative to their length and are often overlooked when scrubbing. Hands should be rinsed and dried with a clean towel or air dryer. When soap and water are not available, hand sanitizer that contains at least 60% alcohol can be used. Since most people tend to wash their hands with the same pattern, a nontoxic fluorescent product called GloGerm™ will be used in this exercise to visualize washing efficacy.

### References

1. United States, Department of Health and Human Services, Centers for Disease Control and Prevention. "Hand Hygiene in Healthcare Settings." *Centers for Disease Control and Prevention*, 2019, [www.cdc.gov/handhygiene/](http://www.cdc.gov/handhygiene/).
2. United States, Department of Health and Human Services, Centers for Disease Control and Prevention. "Salmonella Typhimurium Infections Associated with Lab Exposure." *Centers for Disease Control and Prevention*, 2017, [www.cdc.gov/salmonella/typhimurium-07-17/index.html](http://www.cdc.gov/salmonella/typhimurium-07-17/index.html).

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### OBJECTIVE

Determine personal handwashing pattern.

### MATERIALS

- ☒ SOLUTIONS: GloGerm™ nontoxic fluorescent mineral oil; soap and water
- ☒ EQUIPMENT: Ultraviolet lamp

### PROCEDURE – STUDENTS WORK INDIVIDUALLY

1. Begin with unwashed hands.
2. Add a few drops of GloGerm™ to your palm and rub in as you would lotion.
3. Wash and dry your hands at the sink NORMALLY, without removing watches or jewelry. It is tempting to over-wash, but this defeats the purpose of the exercise!
4. **Safety glasses must be worn for this step.** Shine a UV lamp over your hands to check for areas where you missed washing, which will fluoresce.



*Figure 1.3. Areas of the hands where GloGerm remains will fluoresce under ultraviolet light.*