



# Guide to Biosafety at Vanderbilt

## Basics of Biosafety Level 1

The term **containment** is used in describing safe methods for managing biological materials in the laboratory environment where they are being handled or maintained. The purpose of containment is to reduce or eliminate exposure of laboratory workers, other persons, and the outside environment to potentially hazardous or detrimental materials.

The Centers for Disease Control and Prevention (CDC) and the National Institutes of Health (NIH) established criteria for four levels of containment called **Biosafety Levels (BSLs)**. These criteria consist of combinations of laboratory practices and techniques, safety equipment, and laboratory facilities. Each combination is specifically appropriate for the operations performed, biological materials to be used, and the laboratory function or activity.

**Biosafety Level 1 (BSL1)** practices, safety equipment, and facility design and construction are appropriate for undergraduate and secondary educa-

tional training and teaching laboratories, and for other laboratories in which work is done with defined and characterized strains of viable microorganisms not known to consistently cause disease in healthy adult humans. *Bacillus subtilis*, *Naegleria gruberi*, infectious canine hepatitis virus, and  $\alpha$ -empt organisms under the *NIH Recombinant DNA Guidelines* are representative of microorganisms meeting these criteria. Many agents not ordinarily associated with disease processes in humans are, however, opportunistic pathogens and may cause infection in the young, the aged, and immunodeficient or immunosuppressed individuals. Vaccine strains should not be considered avirulent simply because they are vaccine strains.

**Biosafety Level 1** represents a basic level of containment that relies on standard microbiological practices with no special primary or secondary barriers recommended, other than a sink for hand-washing.

### Basics of Biosafety Level 1 (Standard Microbiological Practices)

- Limit access to work areas. Close doors during work with research materials.
- Wash hands after handling biological materials, removing gloves, or before leaving work area.
- Don't eat, drink, etc. in the work area.
- Never mouth pipette.
- Use sharps only when no alternatives (e.g., safety devices or non-sharps) exist.
- Handle and dispose sharps carefully and properly.
- Minimize activities that are likely to create splashes, sprays, or aerosols.
- Decontaminate work surfaces at least daily.
- Decontaminate waste materials before disposal.
- Wear a **BUTTONED** lab coat to protect street clothes.
- Wear gloves if hands have broken skin or a rash.
- Wear eye/face protection if splashes or sprays are anticipated.
- Transport materials outside of the laboratory using secondary containment and a cart. Avoid public areas during transport.
- Transfer materials to and from the Vanderbilt campus according to federal and international regulations.
- Be familiar with written instructions for laboratory procedures and proper responses to emergencies.
- Report spills, exposures, illnesses, and injuries immediately.