## **Use of Pipettes and Pipetting Aids**

Pipetting aids should be selected with care. Their design and use should not create an additional infectious hazard and they should be easy to sterilize and clean.

- 1. A pipetting aid should always be used. Pipetting by mouth is prohibited.
- All pipettes should have cotton plugs to reduce contamination of pipetting devices.
- 3. Plugged (aerosol-resistant) pipette tips should be used when manipulating microorganisms and cell cultures.
- 4. Air should never be blown through a liquid containing infectious agent.
- 5. Infectious materials should not be mixed by alternate suction and expulsion through a pipette.
- 6. Liquids should not be forcibly expelled from pipettes.
- 7. Mark-to-mark pipettes are preferable to other types as they do not require expulsion of the last drop.
- 8. Contaminated pipettes should be completely submerged in a suitable disinfectant contained in an unbreakable container. They should be left in the disinfectant for 18-24 h before disposal.
- 9. A discard container for pipettes should be placed within the biological safety cabinet, not outside it.
- 10. Syringes fitted with hypodermic needles must not be used for pipetting. Blunt cannulas should be used instead of needles. There are devices for opening septum-capped bottles that allow pipettes to be used and avoid the use of hypodermic needles and syringes.
- 11. To avoid dispersion of infectious material accidentally dropped from a pipette, a disinfectant-soaked cloth or absorbent paper should be placed on the working surface; this should be autoclaved or discarded as infectious waste after use.
- 12. Pipettes with cracked or chipped suction ends should not be used as they damage the seating seals of pipetting aids and so create a hazard.

# Section 9.4 Protection of Vacuum System when Filtering Biohazardous Materials

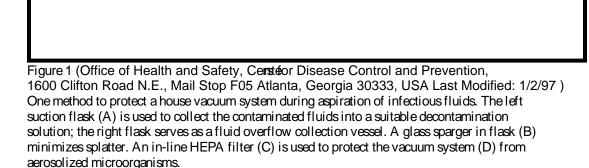
The aspiration of tissue culture media from monolayer cultures and of supernatants from centrifuged samples into primary collection flasks is a common laboratory procedure.

- 1. A HEPA filter provides an effective barrier to protect the vacuum system.
- 2. Flexible tubing is used of appropriate inside diameter for the flask and filter fittings and of sufficient wall thickness for the applied vacuum.
- 3. Flasks should be of appropriate size to contain the amount of fluid aspirated.
- Flasks contain an appropriate disinfectant solution. Use an antifoam additive to prevent foam production, if allowed to reach the filter, foam will shut off the vacuum.
- 5. If the filter becomes contaminated or requires changing, the filter and flask can be

The apparatus is shown in Figure 1:

- x two suction flasks (A & B)
- x HEPA filter (C)
- x vacuum source (D)
- x rubber stoppers
- x flexible vacuum tubing
- x glass tubing

Χ	glass sparger (aerosol passing through the collection flask is dispersed in small
	bubbles so that adequate contact is made with the disinfectant solutions)



## Section 9.5 Autoclave Operating Procedures

The following procedures are recommended by the Biosafety Office.

## What Materials Should Be Autoclaved?

The following materials are recommended to be autoclaved:

- x Culture and stocks of infectious agents (bacteria, viruses, fungi, etc.)
- x Reusable items to be sterilized: plastic pipette tips, pipettes, surgical instruments, and scrubs
- x Animal tissue specimens and cages of potentially pathogenic animal carcass(es)

#### **Autoclave Cycles**