UNIVERSITY OF BIRMINGHAM

Guidance Note 10: Protective Equipment

Appropriate protective equipment must be worn in the laboratory. It should conform to the appropriate British Standard and should be clean, complete, in good condition and worn correctly. It should be removed, decontaminated, cleaned and repaired as necessary.

General Trousers and shoes give better protection than thin tights and sandals. High heeled shoes or loose sandals may lead to trips and falls. Sharp instruments must not be kept in pockets.

Laboratory Coats/Gowns must be worn, adequately fastened, at all times in areas where microbiological hazards are handled (including people not involved in the work). Ordinary laboratory coats are adequate for containment levels 1, but high necked, side or back fastening gowns (Howie Coats) with elastic cuffs (or equivalent) give better protection and must be worn in containment Level 2 and 3 areas. Containment level 3 gowns must not be worn elsewhere. The wearing of laboratory coats/gowns is prohibited in rest rooms, canteens, libraries, lavatories and offices and should be kept to a minimum in corridors and areas to which there is general access. Coats/gowns must be changed regularly (e.g. daily at Level 3 and weekly at Level 2) and those worn in Level 2 areas should be autoclaved before laundering (obligatory in Level 3 areas). Some materials containing man-made fibres may melt and cause serious skin burns if ignited. These are not suitable for work close to a naked flame.

Gloves of adequate resistance and durability must be worn for messy operations, post mortems, decontaminating equipment, cleaning up spillages, handling Group 3 hazards (including blood suspected of containing Hepatitis B virus and human immunodeficiency virus), handling concentrated disinfectants or when the hands are cut or abraded. When wearing gloves care must be taken not to transfer contamination inadvertently. Gloves used to remove hot objects from autoclaves must be heat resistant and insulated gloves used for low temperature work (e.g. operating liquid nitrogen banks) must be of an appropriate type. Where gloves are used for biological laboratory work, low allergen, powder free latex gloves should be used if latex is deemed necessary for the task, otherwise nitrile gloves should be used to avoid the possibility of latex allergy. If exposure to any glove material produces a skin rash, or respiratory discomfort you must cease using those gloves and seek medical attention straight away.

Plastic aprons and/or boots must be worn for messy operations where there is a risk of splashing.

A visor must be worn where there is a significant risk to face or eyes and it is not practicable to use a safety cabinet (e.g. when removing vials from liquid nitrogen banks, using freeze dryers, pouring materials down sinks or sluices, removing bottled fluids from autoclaves, inoculating animals and replenishing acid or alkali reservoirs used for pH control of fermentation and when handling concentrated solutions of disinfectants).

Respiratory protection. Those working in a laboratory setting are unlikely to need Respiratory Protective Equipment (RPE) to control exposure to biological agents during routine work as all laboratory operations generating significant aerosols should be performed in a safety cabinet. However, there may be circumstances when its use is required. For example, respirators should be worn when hosing down water tanks and other installations which may harbour *Legionella* spp. To be effective Respiratory

Protective Equipment (RPE) must be properly fitted and used correctly. *The Control of Substances Hazardous to Health Regulations* require fit testing of facepieces (full mask, half mask or filtering facepieces/disposable masks) to be carried out to ensure the selected facepiece is of the right size and fitted correctly. The protection given by respirators depends on the quality of the fit (e.g. beards may allow passage of unfiltered air). Ordinary surgeons' masks give negligible protection against infection. If there is a significant risk that room air has become contaminated by agents in Hazard Groups 3 that are infectious by the airborne route, suitable positive pressure respirators should be worn by trained people to deal with the situation. Appropriate chemical respirators should be available when areas are fumigated with formaldehyde.

RPE should be kept in efficient working order and good repair. Regular examination and, where appropriate, testing of the RPE must be carried out and records kept.

Other protective equipment (safety helmets, safety footwear, ear defenders, etc.) should be worn as appropriate.

Removal of Protective Clothing

- Protective clothing should be removed, if possible, without potentially contaminated areas coming in contact with uncontaminated skin or clothing.
- Gloves intended for re-use should be rinsed in disinfectant before removal.
- Contaminated items must be disinfected, autoclaved or incinerated.
- Uncontaminated items should be hung on pegs or stored in racks, lockers or other containers provided for the purpose.
- In Containment Level 3 laboratories, there should be a detailed protocol for the removal of protective clothing.
- Hands must be washed with soap (or antiseptic detergent) and running water after removal of protective clothing.