UWO Contaminated Biological Waste Disposal Policy

PREAMBLE

Many biological materials, both plant and animal, may be infectious if a mechanism exists whereby they can infect a host. Therefore, laboratory personnel must be informed of the known and/or potential hazards associated with all research projects.In addition, disposal procedures must be performed with the same level of care as research procedures. Disposal of waste biological material from research laboratories must be safe for the personnel involved and for the environment, but also must be perceived as safe by the public. For these reasons, the University requires absolute compliance with all regulations relating to the disposal of waste material from research laboratories.

PURPOSE

The Contaminated Waste Disposal Policy is designed to ensure that all waste material produced in teaching or research laboratories at The University of Western Ontario, which may be contaminated with hazardous biological material of plant or animal origin, is rendered non-infectious prior to disposal. In addition, disposal must comply with existing legislation.

RESPONSIBILITY

Compliance with this policy is the responsibility of the Principal Investigator of each research laboratory, or the course chairperson for each teaching laboratory. Instances of non-compliance will be referred to the Biosafety Committee for review and appropriate action.

NATIONAL AND PROVINCIAL LEGISLATION AND GUIDELINES

1. Regulation 309, Environmental Protection Act, Ontario 1985, Section 1 (27)

2. Guidelines for the Handling and Disposal of Biomedical Wastes from Health Care Facilities and Laboratories, Ontario Ministry of the Environment, 1986.3. Guidelines for the Handling of Recombinant DNA Molecules and Animal Viruses and Cells, Medical Research Council, 1980. (Under review 1989)

4. Canadian Standards Association Manual Z317-10-88: Handling of Waste Materials within Health Care Facilities, 1988.

DEFINITIONS

(a) Hazardous Biological Material includes:

i. human tissues, blood and/or blood products, and/or body fluids.

ii. cell cultures and spent media derived from human tissue;

iii. whole animal carcasses (infected);

iv. tissue samples, blood and blood products, and/or body fluids from infected animal sources;

v. cultures of, and spent media from, bacteria, viruses, fungi, plant or mammalian cells;
vi. plasticware and/or glassware that has been in contact with any of the above; and
vii. any other material specifically identified by the University Biosafety Committee.

(b) DECONTAMINATION PROCEDURES

1. Decontamination by Autoclave

Autoclaving is the preferred method for sterilizing waste material prior to disposal. The autoclave used must be proven effective against the biological material in question, under the actual conditions of application.

2. Decontamination by Chemicals

Chemical decontamination is the preferred method for disinfecting reusable equipment and apparatus. The effectiveness of chemical decontaminating agents must be tested under the same conditions as those under which they will be used in the laboratory, and thereafter used only under conditions demonstrated to allow them to be used effectively.

3. Decontamination by Incineration

Incineration is the preferred method of disposal for small animal carcasses, and tissue samples, both human and animal. It is also the preferred method of disposal for sharps.

REQUIREMENTS

(a) All experiments involving hazardous biological material must be conducted in accordance with current Health Canada Guidelines.

(b) i. All human tissues must be disposed of by incineration.

ii. Human blood and body fluids, although they may be considered as human tissues, do not require the same level of decontamination. They may be discharged directly into the sewer, and flushed with disinfectant or water (this is the disposal method for these items in everyone's home). Where these fluids have been used for research purposes, autoclaving or chemical decontamination is recommended.

iii. Solid waste material contaminated with blood or body fluids must be bagged securely at the site of origin, placed in an opaque garbage bag, and disposed of through the regular garbage.

iv. Reusable glassware which has been in contact with human blood or body fluids must be autoclaved or disinfected by soaking in an effective disinfectant before being washed and reused.

(c) Small animal carcasses and tissues, both infected and non-infected, must be disposed of by incineration. Large animal carcasses must be disposed of in compliance with the instructions from the Animal Care Facility.

(d) All hazardous biological materials other than those described in a), b), and c), must be adequately decontaminated before disposal.

(e) Autoclaving must be done in an approved autoclave bag, which is in a leakproof container. The material must be placed in the bag in the laboratory, and closed before being transported to the autoclave. The autoclave must be capable of placing steam, at 121 degrees C, in direct contact with the biological material for the necessary time to achieve sterility, or of sustaining a dry temperature of 160 to 170 degrees C for over three hours. All autoclave procedures must be tested and proven effective on a regular basis, and records must be kept indicating the date, type of test and test results.

(f) Chemical decontamination must be done in the laboratory using either a liquid or gas that has been proven effective in the specific application. Personnel must be provided with adequate personal protective equipment for handling decontaminating agents. Following decontamination, liquid decontamination agents must be disposed of as chemical waste in accordance with the Hazardous Materials Management Handbook
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(g) All identifying information on clinical samples must be removed and destroyed before disposal.

(h) Glassware for disposal must be separated from plasticware prior to decontamination by autoclave. It should be bagged and clearly labeled before being handled by janitorial staff.

(i) Sharps (needles, scalpel blades, etc.) must be collected in an approved sharpscontainer, prior to incineration, in accordance with the Hazardous Materials Management Handbook.

(j) Reusable glassware, which has been in contact with hazardous biological material, must be decontaminated before being washed and reused.

(k) After decontamination, all material may be disposed of through the normal route. If the material is contaminated with a radioisotope, or if it contains a chemical hazard, this must be handled in accordance with the directions included in the Hazardous Materials Management Handbook.

(l) All methods of decontamination must be proven effective for the material in question. This includes the agent under study, those agents which are known to be associated with it, and those that may potentially be associated with it.

(m) Stored hazardous biological materials (from freezer, refrigerator or laboratory) which are no longer required, must be autoclaved before being discarded.

(n) All cases in which compliance with the requirements of this policy are not possible, or which pose unique problems for the research laboratory, must be referred to the Biosafety Officer, in Occupational Health and Safety, for resolution.