

BOSTON COLLEGE

ORIENTATION & TRAINING

ANIMAL

CARE FACILITY

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Orientation & Training for the Animal Care Facility

<i>CONTENTS</i>	3	FEDERAL, STATE, AND LOCAL LEGISLATION GUIDELINES
	4	PUBLIC HEALTH SERVICE POLICY ON HUMANE CARE AND USE OF LABRATORY ANIMALS
	5	STATE AND LOCAL LAWS AND INSTITUTIONAL POLICIES
	5	GUIDE FOR THE CARE AND USE OF LABRATORY ANIMALS
	6	THE INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE
	7	THE PROTOCOL
	14	CONTACT INFORMATION

FEDERAL, STATE, AND LOCAL LEGISLATION GUIDELINES

The USDA administers a Federal law known as the **Animal Welfare Act**, PL 89-544 and its amendments. Groups that conduct research with animals are subject to regulation by the Animal Welfare Act. The Animal Welfare Act **regulates the use of all warm-blooded vertebrates in research except birds, rats and mice bred exclusively for research**. The Animal Welfare Act covers all wild mammals, even wild rats and mice. The **regulations deal with housing, handling, feeding, watering, sanitation, ventilation, transportation, separation of species and veterinary care for these animals**. The USDA provides forms to animal care suppliers and research facilities for keeping records of their acquisition and disposal of animals. Facilities must record and total their yearly animal inventory and use on this form and submit the form to the USDA. In order to follow the statutes of the Animal Welfare Act a laboratory animal research facility which houses animals covered by the Act must:

- Submit a count by species of the number of animals involved in projects which result in minimal pain or distress as well as those which may result in stressful or painful procedures. (The USDA supplies the form for reporting this information.)
- House each species separately, and provide appropriate floor area and environmental controls for each animal.
- Meet or exceed standards for sanitation of cages and facilities.
- Provide adequate veterinary care.
- Use proper shipping containers with food and water when shipping and receiving animals and maintain proper temperatures.
- **Training for scientist, animal technicians and others using animals.**
- Requiring that anesthetics, analgesics and/ or tranquilizers be administered if a procedure is likely to cause more than momentary pain, unless otherwise scientifically justified.
- Prohibiting the performance of more than one major survival surgical procedure on an animal, unless otherwise scientifically justified.
- Inspection of facilities by the Institutional Animal Care and Use Committee to assess animal care and use and the minimization of animal pain and distress.

In order to ensure compliance with all of these regulations, **the USDA periodically sends an inspector to the research facility to conduct an unannounced site visit. The inspector looks at the animals, the facility and the records of the institution.** Any violations are listed on an inspection form and forwarded to the institutional officer for correction. **The USDA has the authority to stop research** at an institution that does not treat its animals in accordance with the law.

Research facilities should be aware that records of inspections conducted by the USDA are available to the general public. This availability is a provision of another federal law called the Freedom of Information Act (FOIA).

PUBLIC HEALTH SERVICE POLICY ON HUMANE CARE AND USE OF LABORATORY ANIMALS

Institutions using funds provided by agencies of the Public Health Services (PHS), including the National Institutes of Health (NIH) must follow additional regulations in order to conduct research on ANY vertebrate animal. The Assurance Statement must contain, among other things, the following information:

- A description of the procedures the IACUC will follow regarding the review of proposed animal research.
- A description of the occupational health and safety program for personnel who work in laboratory animal facilities or have frequent contact with animals.
- **An outline of training or instruction or instruction offered to scientists, animal technicians and other personnel in the humane practice of animal care and use.**
- A description of each animal facility, including satellite facilities, the gross square footage, the species housed and the average daily inventory, by species, of animals in each facility.

This letter is a promise from the institution that it will conduct all animal research in accordance with the *Guide for the Care and Use of Laboratory Animals*, the Public Health Service Policy and any other applicable animal welfare laws and regulations.

STATE AND LOCAL LAWS AND INSTITUTIONAL POLICIES

In addition to federal regulation that set standards for the care and use of laboratory animals, there are a number of other laws and policies that affect animal facilities. Facilities must comply with state and local laws that regulate animal-based research. Moreover, most colleges, institutions, and corporations have internal rules and policies that must be adhered to by the scientists and technical staff conducting animal research. **The director of the animal facility is responsible for ensuring that the institution operates in compliance with local requirements. Institutional policies require training and certification for personnel working with animals.**

GUIDE FOR THE CARE AND USE OF LABORATORY ANIMALS

The Guide for the Care and Use of Laboratory Animals is a booklet prepared by the Institute of Laboratory Animal Resources (ILAR). The purpose of the *Guide* is to help institutions address issues that concern the humane care, use and maintenance of laboratory animals. It outlines and references adequate veterinary care, facility environment and housing requirements, personnel qualifications, sanitation standards, surgical and postsurgical care, acceptable euthanasia techniques and facility construction guidelines.

The *Guide*, in conjunction with the Animal Welfare Act and other applicable federal, state, and local laws, as well as institutional policies, is usually the basis for evaluating the quality of animal care and use programs. The Association for the Assessment and Accreditation of Laboratory Animal Care, International (AAALAC, International), an organization that evaluates laboratory animal care and use programs, uses the *Guide* and other documents as a basis to accredit animal care programs. **Many funding agencies require that animal care and use be in accordance with the standards of the *Guide* as a condition of providing money for research projects.**

THE INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE

The Animal Welfare Act and Public Health Service policy require the appointment of an *Institutional Animal Care and Use Committee* (IACUC). The Committee is responsible for overseeing animal research programs at that institution. IACUCs review research protocols that require the use of animals to be sure the methods of animal care and use are appropriate and in compliance with federal regulations and institutional policies or established operating procedures. They inspect animal facilities and evaluate animal care programs within the institution twice a year, and are to report their findings and plans for correction of deficiencies to the Institutional Official. They serve as an information resource on animal welfare concerns for institutional personnel and the community at large. At the institutional level, the IACUC can exert the necessary controls to ensure quality animal care. An IACUC that fails to comply with its duties can cost the institution its ability to receive public funding for animal research.

THE PROTOCOL

A protocol is a detailed description of the procedures involving the use of animals in a research project. The IACUC reviews all protocols that require the use of animals, and approval of the protocol by the IACUC is required before any animal work can begin.

The Committee may review the protocol for scientific merit as well as reasonable and appropriate use of animals. The IACUC can either require the investigator to make modifications or can refuse to permit the project to begin or continue. **Protocols must be strictly followed! Any additional or spontaneous procedures, medications, manipulation, etc, is outside the approved protocol and forbidden.** Additions and modifications of the protocol can be cleared with the IACUC through procedure.

** ALAT Training Manual, AALAS

Purpose: To familiarize animal users to the traffic patterns and procedures in the animal facility.

- 1) **Food, Drink and Backpacks:** No food or drink intended for human consumption is allowed in the animal facility. No backpacks or any other type of bags (including pocketbooks) are allowed in the animal facility.
- 2) **Gowning:** To enter the animal facility one must wear blue shoe covers, a lab coat (white disposable or colored cloth), and bouffant head cover. Gloves are required for handling animals. Face masks are recommended when working with rodents and other species since they decrease the risk of developing allergies.
- 3) **Traffic Patterns:** All rooms where animals are housed are clearly marked 1,2 and 3.
 - 1) Clean room, disease free
 - 2) Second stage quarantine: to be determined if animals are diseased.
 - 3) Quarantine:diseased animals

One can enter a #1 room and proceed into another #1 room. Once entering into a #2 room or #3 room you cannot go back into a #1 room unless showered and re-gowned with a new lab coat, head and shoe covers. When working in a quarantined room, #3 should always be done last unless it interferes with the results of research. (Please see page 12 for more detailed quarantine procedures.)

- 4) **Cage Supplies:** Vinyl covered clean cage supply carts are provided the throughout facility. Use clean gloves when taking supplies in order to reduce cross contamination. Clean carts are supplied outside the clean cage wash room. Clean cages supplied are not to be stored in conventional animal rooms, however, clean cage supplies may be stored in barrier quarantine rooms.

- 5) **Dirty Cages:** Dirty cages should be covered and removed from conventional animal room/cubicles. The dirty cages may be either placed on a designated dirty cage cart or just inside the door to the dirty wash room. Leave all dirty cages in quarantine animal room/cubicle and BC's animal care staff will remove them.
- 6) **Animal Holding Rooms/Cubicles:** The animal facility contains holding rooms of mixed health statuses. Always work with clean animals first and quarantine animals last. Never enter a clean animal room or cubicle after working in a quarantine room. If breeding schemes and experiments conflict with the order which you need to enter rooms, contact the ACF Manager.

Animal rooms need to be kept free of clutter -pens, cage cards and other supplies can be stored neatly in an empty, clean mouse cage with a microisolator top. Inhalation anesthetics such as Isoflurane cannot be used or stored in animal rooms and must be stored in locked cabinets. Needles and syringes cannot be stored in animal rooms.

Dispose of used needles and syringes in sharps containers. Do not put broken glass into the trash cans. Notify a member of the animal care staff who will properly box the glass as sharps waste.

Each animal room is provided with a supply of food, Quatricide PV disinfectant cleaner, broom and mop. In order to eliminate cross contamination, these items stay within their designated room. Use the stainless steel carts or sink shelves within the room as work surfaces. Always disinfect the work area with Quatricide PV when finished.

Cage racks are in numerical or alphabetical order to facilitate identification of mouse or rat cage location.

Respect the light cycles in animal rooms to avoid interference with breeding. This is the most important when you are sharing animal housing space with other investigators. If you must work in a room after the lights have been turned off, make sure the lights are turned off after you are finished. It is best to do your animal work between 7am and 7pm while the lights are scheduled to be on (unless otherwise specified). Changing the period of light and dark cycles is disruptive to the animal's normal behavior, i.e. breeding, etc. and results of research.

- 7) **Procedure Rooms:** Procedure rooms contain slotted vent hoods where inhalation anesthetics can be safely used. Bell jars should be labeled with the anesthetic agent used and a contact person's name. Vent the jars at the slotted vent hood when finished working. Don't leave these jars contaminated with mouse feces for more than 24 hours. Gauze soaked with inhalation anesthetics must be vented and completely dry before discarding in the trash.

8) Euthanasia Procedure: The carbon dioxide rodent euthanasia chamber is located in the necropsy room (Room 1919). Follow these guidelines which are also posted above the chamber.

Carbon Dioxide Euthanasia of Rodents

- A) Prefill chamber with CO₂ for 1 minute.
- B) Place animals in the chamber
 - **Do not overcrowd animals**
 - **Do not mix species**
- C) Allow animals to remain in the chamber for a full five minutes. Periodically add more CO₂ to the chamber during this time by gently depressing the spring-loaded handle.
 - **Do not blast CO₂ into chamber with animals in it**
 - **Do not prop a spring-loaded handle into the open position**
 - **Give neonates (babies) at least 15 minutes of exposure**
- D) Ensure that animals are dead (no respiration or heart beat.) **The following techniques may be necessary to ensure that neonates do not recover:** (performed on unconscious/asphyxiated animals)
 - Remove head or open both sides of the chest wall with sharp scissors
 - Inject pentobarbital (200mg/kg) or commercial euthanasia solution into the abdominal cavity
 - Cervical dislocation
- E) Put animals in a plastic bag
- F) Fill bag with CO₂ and seal bag (this ensures that animals will not recover from asphyxiation)
- G) Place bag in carcass refrigerator
- H) Clean euthanasia chamber

9) Disposal of Dead Animals: Do not leave animal carcasses in cages, the CO₂ chamber, procedure rooms, holding rooms, or on the floor. Plastic bags are provided by the facility. Place animal in bag, tie securely and place in designated refrigerator or freezer located in Room 1920.

10) Colony Management: Rodent housing guidelines are posted within the animal rooms. Investigators need to check their animals at least weekly and preferably daily in order to keep up with weaning and the health monitoring status. Investigators that are implementing acute studies such as tumorigenesis or EAE need to monitor their colonies daily. Have someone from your lab monitor your colony if you plan to be away or are leaving the institution. Please contact the ACF Manager if you need additional help with colony management.

- 11) **Moving Animals:** In order to preserve some order and equity in the use of rooms, all requests to move animals from one housing room to another or the placement of newly arrived animals in a housing room must be approved by Mary Smart and Dr. James Fox. It's helpful for all involved, including the lab, if the request is made as far in advance as possible.

Cages of rodents being taken to a lab for processing must leave the facility in a microisolator cage placed inside a black plastic bag so that the cage is not visible. Once rodents are taken out of the facility, they may not reenter except in certain instances pre-arranged with the clinical veterinarian, such as using the cesium irradiator located outside of the animal facility for irradiation purposes.

- 12) **Surveillance Program:** BC places sentinel mice in every conventional rodent room for health monitoring purposes. These mice are used to detect any disease presence in the room. These sentinel mice receive dirty bedding from specific cages within the mouse colony. A red card labeled "BC Surveillance" is taped to one or more rodent racks to indicate from where the samples of dirty bedding will be taken. Do not move the card or the cage of sentinel mice. Please contact the ACF Manager with any problems or questions regarding the surveillance program.
- 13) **Lighting Cycles:** Lighting should be uniformly diffused and bright enough to permit animal technicians to see the animals and perform appropriate husbandry.

Dark 24 hours:

Numan Room **1953**

Reverse light cycle:

Numan Room **1943, 1945, 1954, 1955, 1957** 7:30pm on / 7:30 am off

Heinrich **1937, 1939, 1940, 1941, 1956** 10 pm on / 10 am off

- 14) **Animal Bite, Scratch or Needlestick:** Any individual who has been bitten or scratched while working with an animal, or who has a known exposure to a zoonotic disease should report the incident to the Principal Investigator, Animal Care Supervisor, and to the appropriate health officials. Handlers must fill out an accident report and give it to the Animal Care Supervisor within 24 hours of the incident. Handlers receiving bites, scratches, or needlesticks, or those who have experienced eye splashes with animal urine, feces, blood, or secretions should proceed immediately to St. Elizabeth's Hospital emergency room or the Beth Israel/Deaconess Hospital emergency room. Those having a known exposure to a zoonotic disease should contact the OHC (2-3225) and, at the determination of OHC, make an appointment to receive the appropriate information and/or treatment.

FIRST AID Procedures for Animal Bite, Scratch, or Needlestick

- A) Massage and apply gentle pressure to the wound to make it bleed. (Use discretion if a major vessel is pierced.)
- B) Immediately massage the wound with soap and warm water for 3 to 5 minutes. THIS IS VERY IMPORTANT! Rinse periodically.
- C) Dry and cover the wound.
- D) Proceed immediately to the St. Elizabeth's Hospital.
- E) Complete the Accident/ Injury Report and submit it to the Animal Care Supervisor within 24 hours of injury.

FIRST AID Procedures for Eye Splash with Animal Urine, Feces, Blood or Secretions

- A) Rinse eye(s) immediately with eye wash solution or water for 5 minutes.
- B) Proceed immediately to St Elizabeth's Hospital Emergency Room.
- C) Complete the Accident/ Injury Report and submit it to the Animal Care Supervisor within 24 hours of injury.

- 15) **Communication/BC Cage Card System:** BC uses various cards and forms to organize communications regarding colony status with investigators, veterinary, and technical staff.

I. Clipboard Communication

A clipboard on the outside of each animal room door contains several information sheets.

- A) Animal Health Monitoring Sheet: Any activity within the room is recorded on this sheet. i.e: overcrowded cages, sick animals needing veterinary care, animal deaths, need to sacrifice animals, etc.
- B) Husbandry Record Sheet: Daily health checks, environmental statistics and husbandry activity.
- C) Census Sheet: Cage counts are updated by the veterinary technician on a monthly basis. Investigators should update accordingly as they remove or add cages.
- D) Surveillance Cage Sheet: Maintained by the veterinary technician to account for surveillance cages within the room.

II. Principle Investigator Cage Card System

Investigators are required to post the following information on each animal rack or cage as appropriate. Cage cards can be ordered through the Animal Facility at no charge (contact Mary Smart).

- A) Principle Investigator
- B) Contact Person (responsible for colony management) and phone number
- C) Protocol Number

III. BC Cage Card System

Health Check Cards (green):

- Placed on a cage by a Animal Care technician when an animal needs veterinary care or weaning, or when a cage is overcrowded. They are also used when animals need to be separated for fighting.
- Animal Care Staff will record this information on the animal health-monitoring sheet on the outside of the door, indicating location in the room and date. (i.e. rack 2 back, 1 health check, 2/1/02).

IV. Rules and Regulations

- **Overcrowded:** The Investigator has seven days to correct this problem from the date indicated on the green card. If it is not done in seven days, an Animal Care Technician will separate the animals in the cage by sex.
- **Euthanasia:** If an animal needs to be euthanized, the BC Staff will advise on the green card.

16) **Quarantine Procedures:** Quarantine rooms are to be locked at all times. Access is to be strictly controlled, allowing only authorized personnel. Quarantine rooms contain adequate supplies of clean cages, cage tops, carcass bags, paper towels, nesting pads, and cage identification cards and plastic holders. This is essential in order to prevent investigators or animal care personnel from leaving quarantine rooms in search of these items, which requires multiple changes of dress.

I. Protocol for Entering the Animal Care Facility

- 1) Put on disposable coat, hat, gloves and shoe covers in animal care in the facility lobby.
- 2) Enter the animal care facility.
- 3) Perform all required procedures.
- 4) If cages were changed, enter the dirty side of the wash room and place the dirty cages and bottles on the appropriate racks.
This is the last action to be performed in the animal care facility.
- 5) Immediately leave the animal care facility: do not enter any other rooms.

II. Protocol For Entering Quarantine Room Within the Animal Care Facility

- 1) Put on disposable coat, hat, gloves and shoe covers in animal care facility lobby.
- 2) Obtain a change of disposable garments.
- 3) Enter the animal care facility.
- 4) Enter the quarantine room.
- 5) Place extra garments on stainless steel (SS) table in the quarantine room.
This requires that a permanent SS table be in the corridor of the quarantine room.
- 6) Enter quarantine cubicle and shut the glass sliding door tightly.
- 7) Perform the necessary tasks in the quarantine cubicle on the stainless steel cart. Each cubicle should contain a SS cart marked with cubicle letter, SS rack for the mice, a bucket of food and food scoop.

- 8) When finished, step outside the quarantine cubicle and close the sliding door.
- 9) Remove disposable garments and place in trash bin in quarantine room corridor.
- 10) Put on new garments in the corridor.
- 11) Leave quarantine room and leave animal care facility.
CAUTION: Do not enter any clean room in the facility.

III. Protocol for Placing Materials and Items in the Quarantine Room

- 1) Items for the AC facility (heavy black trash bags, cages, etc) are carried into the quarantine room and then into quarantine cubicle.
- 2) When moving several items into quarantine room, obtain a clean SS cart from the clean side of the washroom. Place all items on cart and wheel cart into quarantine room.
- 3) Place cart directly outside sliding door of quarantine room cubicle.
- 4) Enter quarantine cubicle and transfer items from SS cart into cubicle.
- 5) Shut cubicle door.

IV. Protocol for Removing Items from Quarantine Cubicle to the Main Animal Care Facility

- 1) Prior to entering quarantine rooms, place items on a clean SS cart.
- 2) Follow steps 2–5 in III.
- 3) Place all items to be removed from the quarantine cubicle into heavy, black trash bag.
- 4) Tie bag closed.
- 5) Open door of quarantine room .
- 6) Place trash bag on SS cart.
- 7) Exit the quarantine cubicle and shut the sliding door.
- 8) Remove disposable garments and place in trash bin in quarantine room.
- 9) Don new disposable garments from the SS table.
- 10) Wheel cart out of quarantine room and place on dirty side of wash room.
- 11) Exit animal care facility and do not enter any clean rooms.
 - The quarantine room, including quarantine cubicles, will be mopped with disinfectant once a week by either an appropriately trained and certified animal care technician or an appropriately trained researcher.
 - Only certified and appropriately trained animal care technicians and researchers may enter the quarantine room. No work study students or untrained personnel should enter the quarantine rooms or cubicles.

N.B. These procedures may be amended from time to time to accommodate the requirements of specific circumstances. All such changes are subject to the prior review and written approval of the Committee on Animal Care. No procedures may be implemented without advance review and approval.

CONTACT INFORMATION

Animal Care Facility	E-Mail	Telephone
John Carfora, Director, Office Sponsored Programs	carfora@bc.edu	617-552-4850
Dr. James Fox, Veterinarian, MIT Comparative Medicine		617-253-1757
Mary Smart Animal Care Supervisor	smartm@bc.edu	617-552-8476
Anthony Beer, Animal Care Technician	beerpb@bc.edu	617-552-4323

Researchers	E-Mail	Telephone
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Biology

Grant Balkema	balkema@bc.edu	617-552-8722
Thomas Chiles	chilest@bc.edu	617-552-3551
Laura Hakes	hakel@bc.edu	617-552-1935
Thomas Seyfried	seyfridt@bc.edu	617-552-3563

Psychology

Stephen Heinrichs	heinrics@bc.edu	617-552-4100
Jon Horvitz	horvitjo@bc.edu	617-552-2999
Michael Numan	numan@bc.edu	617-552-4106