This policy is intended to provide guidelines, which meet regulatory requirements, for the maintenance and record keeping of rodent guillotines used for euthanasia

The 2013 AVMA Guidelines for the Euthanasia of Animals states that decapitation is acceptable with conditions if performed correctly and that it may be used when required by experimental design and approved by the IACUC. The advantages include a rapid loss of conscientiousness combined with the ability to collect tissues and body fluids that are chemically uncontaminated. When this type of euthanasia is performed correctly, it also provides a means of obtaining undamaged brain tissue for research studies. Decapitation can be performed on anesthetized animals without additional justification to the Marquette IACUC.

NOTE: Decapitation without anesthesia must be scientifically justified in your Animal Protocol Form and must be approved in advance of any work by the Marquette University Animal Care and Use Committee. All personnel that perform decapitation must be properly trained to do so and are monitored by the PI or PIs designee for competence. Any equipment used to perform decapitation must be maintained in good working order and serviced on a regular basis to ensure that the blades remain sharp.

Decapitation may be accomplished by use of a commercial guillotine, dedicated scissors or razor/scalpel blades. Scissors and razor or scalpel blades may only be used for neonatal rodents. Use of decapitation is restricted to amphibians, fish, reptiles and rodents (take note: amphibians, fish, and reptiles should also be pithed following decapitation.) The equipment used to perform decapitation must be maintained in good working order and serviced on a regular basis to ensure the sharpness of the blades. If animals need to be restrained during decapitation the use of plastic restraint cones (Decapicones®) is recommended at this appears to reduce distress from handling, minimizes the chance of injury to personnel, and improves positioning of the animal in the guillotine.

All personnel performing decapitation should be properly trained by the PI or the PIs designee and supervised until deemed proficient (see training requirements/examples in this document). All training must be documented in your lab specific training folders. If personnel are not listed in the current approved IACUC protocol it will be the responsibility of the PI to complete an Appendix G form for submission to IACUC@marquette.edu.
Responsibilities:

- The Principal Investigator (PI) is responsible for ensuring that anyone using a guillotine or decapitation device is properly trained and that training is recorded in the lab and with the IACUC.

- Personnel using a guillotine or decapitation device should make sure that it is free of rust, operates smoothly, and is clean prior to use; any problems should be reported to the PI. Guillotines should also be periodically lubricated.

- The frequency of guillotine sharpening will depend on the animal species involved and volume of use, however, a minimum of every 12 months is recommended. The responsibility for sharpening the guillotine blades rests with the PI.

- All labs using a guillotine or decapitation device must maintain a log to record dates or sharpening and frequency of use. Please see the ARC for a copy of this log. Guillotines and their maintenance logs will be inspected as part of the Marquette IACUC semi-annual inspections.

Preparation before decapitation:

1. The equipment used for decapitation should be inspected prior to use. Lab personnel and the PI are responsible for insuring that the equipment is always in good working condition prior to any use.

2. Good working condition is that the guillotines and dedicated scissors are clean, in good condition, sharp and move freely. The action should be smooth with no binding or resistance, and the blades must be rust-free, sharp, and decapitate with minimal force.

3. All razors and scalpel blades used must be new.

4. In the event that the equipment is found in not good working condition the euthanasia should be rescheduled or other appropriate equipment located and used. The equipment that is not in good working condition should be reported to the PI for repair. Any deficiencies must be repaired prior to its use.

5. If using plastic (Decapicones®) make sure there is sufficient number on hand.

Decapitation Procedure:

- Each decapitation will be performed in a room that is isolated from all other rodents and free of distractions for the individual performing the decapitation.

- Animals will be removed from their home cage(s) or experimental environment, and carried to the guillotine, scissors, or scalpel.
• When at all possible there should be only one animal in the decapitation room at a time to minimize stress.

• The guillotine must be placed on a clean and stable surface for operation, and the sharpness and smooth operation must be verified before the procedure can begin. The use of dedicated scissors for decapitation should be done in an area set aside for specific use (much like a rodent surgical area); the scissors must be checked for good working condition before use. The use of a razor or scalpel blade must be done upon a firm surface.

• The use of (Decapicones®) (a rodent restraint bag) is recommended. The use of plastic restraint bags reduces stress from handling, minimizes the chance of injury to personnel, and improves the positioning of the animal in the guillotine.

• Every effort should be made to make sure the animal is calm prior to placing the animal in the guillotine or scissors.

• The user will hold the animal securely, and place the animal on the stage at the entrance of the guillotine.

• The head of the animal will be advanced gently but firmly into the guillotine opening or placed between the scissor blades. Do not depress the guillotine lever unless the user can verify that the animal’s head is appropriately positioned and immobile.

• When positioning of the animal is verified and no other obstructions (fingers, lab coat, etc.) is present the guillotine lever is quickly and smoothly depressed, scissor blades rapidly closed or razor/scalpel blade firmly and quickly forces down, decapitating the animal. Be certain that the animal’s head can be removed in one clean stroke before depression of the guillotine lever, using of the razor/scalpel blade or closing of the scissors.

Guillotine Maintenance and after use care:
All personnel that will use a guillotine are responsible for proper cleaning after each use. Scissors should be cared for in a similar fashion. Razors and scalpel blades must be discarded following use.

• After use, a guillotine must be rinsed under cold water to remove all blood and tissue.

• Following removal of all blood and tissue the guillotine must be thoroughly disinfected by rinsing with 70% alcohol.

• When drying the guillotine should be turned upside down with the blades open.

• Periodically the guillotine should be sprayed or wiped with a lubricating agent, then the unit worked to distribute the lubrication.

Note for guillotine or scissors maintenance: Lubrication may not be needed, but when it is, the use of Teflon® or silicone containing compound is recommended over petroleum based.
compounds. This is because petroleum compounds will, over time, dry out or leave deposits that inhibit smooth operation.

- As with any laboratory equipment that comes in contact with animals, guillotines can act as a source of transmission of infectious agents between animals and therefore, movement of guillotines from one room to another is discouraged. If you need to transfer a guillotine to a different animal facility room or lab, the guillotine should be sanitized before moving and after replacing it in the original room.

- The PI is responsible for sharpening or replacing the blades whenever they are dull (minimum of every 12 months or more often as needed). Depending on the species involved and volume, PIs may need to have the blades sharpened more or less frequently. Please make sure that the blades are adequately sanitized prior to submitting for service. Sharpening of guillotine blades can be performed by the Biological Science Department.
  1. Obtain and complete the Marquette University Machine Shop Work Request Form.
  2. Send a copy to daniel.holbus@marquette.edu
  3. Dan will review and reply with a date and time that the guillotine can be dropped off to the Machine Shop.
  4. Once complete you will receive an e-mail with a pick up date and time.
  5. PIs must keep records of the sharpening in their lab or in the work chart folder where guillotines are kept.
  6. After sharpening PIs must record the sharpening date on the work chart where the guillotine is kept.

- A log of guillotine use and maintenance should be kept in the lab or where the guillotine is used. For a guillotine use and maintenance log please contact the ARC.

- Suggested methods for checking the blades for sharpness includes using a fresh rodent carcass of an animal that has been euthanized in another protocol-approved manner or using a thick rubber band, a guillotine is sharp enough if it will cut a thick rubber band, without dragging it between the blades and sticking.

**Safety and Training**
Always make sure that hands and fingers are clear of the blade path. Do not depress the guillotine lever, close scissors or use blades unless your fingers are out of the way. Staff that are not properly trained should not use the guillotine for decapitation. Blades that are no longer serviceable must be placed in a sharps container for disposal. Please contact the Environmental Health and Safety Department with questions.
Note on Training: Principal Investigators must ensure that all individuals responsible for administering decapitation euthanasia are appropriately qualified and monitored, and that they adhere to the IACUC-approved protocols and Marquette Animal Care and Use Policies. The primary responsibility for establishing, monitoring, and recording decapitation training lies with the PI. Additional training in these techniques are available from the Marquette University Animal Resource Center. Any personnel who will be performing decapitation techniques can arrange a training session by contacting the Animal Resource Center Office. It may be good practice to add into a protocol proposal a few extra animals for training/practice purposes.

Training responsibilities:
This can also be used to describe training methods in protocol proposals.

1. The trainee will demonstrate the decapitation method to one or more lab staff, PI, consulting veterinarian or his/her designee.

2. The trainee will each practice the procedure on anesthetized or dead rodents until proficient. The trainer will be present for each of these practice decapitations.

3. The trainee will then perform a live decapitation under the supervision of the trainer. This step can be repeated at the discretion of the trainer until the trainee demonstrates proficiency.

4. Proficiency will be determined by the trainer, and will be based upon one or more demonstrations that the trainee conducts the decapitation quickly and smoothly, without any overt signs of distress in the animal.

5. Upon completion of training/demonstration of proficiency, the trainer will document the proficiency in a lab training binder, and will provide in writing to the IACUC (via Appendix G) that the trainee has completed the required training for physical method euthanasia.

This process will need to be repeated for each new staff member not listed on the original IACUC approved protocol that is doing any form of physical euthanasia (in this case decapitation).

References:
2. Cornell University Institutional Animal Care and Use Committee, ACUP 309.02 Maintenance of Decapitation Equipment.
3. Florida State University Policy for Use and Maintenance of Guillotines and other Equipment Used for Decapitation.