NU–IACUC POLICY

Northeastern University Institutional Animal Care and Use Committee

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| Hypodermic and Gavage Needle Use and Injection Policy in Animals |

*IACUC Approval Date: 01/11/2022*

*The health and well-being of all animals used in research and teaching are of the utmost importance to the IACUC and Northeastern University. An important part of this responsibility is the proper use of hypodermic needles for injecting animals for treatment with study drugs, anesthesia, analgesia, etc.*

The following rules must be practiced by all researchers when using hypodermic needles with animals for research and teaching at Northeastern University:

* One needle per animal. Needles must be changed between animals. One single needle may not be used to inject multiple animals (>1 animal).

**Why?**

* + Needles dull after multiple injections. This makes it unnecessarily more painful to the animal(s) being injected.
  + Using one needle per animal prevents disease transmission, cross contamination of animals, and stock solutions.

Recommendations for hypodermic needle use:

* Make sure you are properly trained to properly restrain an animal for injection. Improper technique could lead to injury to the animal.
* When injecting always have the bevel of the needle facing up.
* Make sure all air bubbles are out of the syringe.
* Use the proper needle size. Always use the largest sized needle possible for ease of injection (See Chart below).
* Inject only what volumes are recommended. Do not inject more for there is a risk of injuring the animal(s)
* Never re-cap a needle.
* Properly dispose of needles and syringes in the appropriate sharps container.
* When injecting hazardous materials, use a syringe that locks the needle to the syringe. Also ensure all personnel working with hazardous materials aware of the steps to follow in the case of an exposure prior to starting.

**Recommended Locations for Injection, Injection Volumes and Needle Sizes:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Species | Intravenous | Intraperitoneal | Intramuscular | Subcutaneous |
| Mouse | Lateral tail vein, 0.2 ml, 23-25ga | 2-3 ml, 25-27 ga | Quadriceps, posterior thigh, 0.05ml, 25-27 ga | Scruff, dorsolateral thorax, flank, 2-3 ml, 23-25 ga |
|  |  |  |  |  |
| Rat | Lateral tail vein, 0.5 ml, 22-25ga | 5-10 ml, 25 ga | Quadriceps, posterior thigh, 0.1 ml, 25 ga | Scruff, dorsolateral thorax, flank, 5-10 ml, 23-25 ga |
|  |  |  |  |  |
| Hamster | Femoral or jugular vein, 0.3 ml, 25-27 ga | 3-4 ml, 23-25 ga | Quadriceps, posterior thigh, 0.1 ml, 25 ga | Scruff, dorsolateral thorax, flank, 3-4 ml, 23-25 ga |
|  |  |  |  |  |
| Rabbit | Marginal ear vein, 1-5 ml slowly, 22-25 ga | 50-100 ml, 21-25 ga | Quadriceps, posterior thigh, lumbar muscles, 0.5 ml, 23-25 ga | Scruff, dorsolateral thorax, flank, 30-50 ml, 21-25 ga |

**Recommended Gavage Needle Sizes for Rats and Mice**

To determine the needed length of a gavage needle, measure the distance between the oral cavity and the xiphoid, the sternum’s caudal point during the oral gavage procedure. A small piece of tape or permanent marker is used for marking the tube or needle when the distance is measured outside of the animal.

**Mouse Gavage Needle Sizes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mouse Weight Range (grams) | Gauge | Length (inches) | Ball Diameter (mm) | Shape |
| To 14 | 24 | 1” | 1 ¼ mm | Straight, Curved |
| To 15-20 | 22 | 1”, 1 ½ “ | 1 ¼ mm | Straight, Curved |
| To 20-25 | 20 | 1”, 1 ½ “, 2” | 2 ¼ mm | Straight, Curved |
| To 25-30 | 18 | 1”, 1 ½ “, 2” | 2 ¼ mm | Straight, Curved |
| To 30-35 | 18 | 2’, 3’ | 2 ¼ mm | Straight, Curved |

**Rat Gavage Needle Sizes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Rat Weight Range | Gauge | Length (inches) | Ball Diameter (mm) | Shape |
| 50-75 | 20 | 1-1.5 | 2.25 | Straight, Curved |
| 75-100 | 18 | 1-1.5 | 2.25 | Curved |
| 100-200 | 18 | 2-3 | 2.25 | Curved |
| 200-300 | 16 | 3-4 | 3.0 | Curved |
| 300+ | 13-14 | 3-4 | 2.9-4.0 | Curved |