Purpose:
This policy describes the requirements for developing and defining humane endpoints for all vertebrate animals used in teaching, training, or testing at SIUC. This policy provides guidance, but the Principal Investigator (PI) must also work with the Attending Veterinarian (AV) and the IACUC to determine a humane endpoint that both minimizes animal pain and distress, and allows the study to meet its goals.

Definitions:
**Humane Endpoint**: as defined in the Guide,¹ “the point at which pain or distress in an experimental animal is prevented, terminated, or relieved.”

**Experimental Endpoint**: when the scientific objectives have been met at a pre-determined endpoint.

Policy:
Animal pain, distress, discomfort, and suffering must be minimized in any experiment. Conditions or procedures that cause more than momentary or slight pain or distress should be performed with appropriate sedation, analgesia, or anesthesia. Humane endpoints refer to one or more predetermined physiological or behavioral signs that define the point at which an experimental animal’s pain and/or distress is terminated, minimized, or reduced by taking actions such as euthanizing the animal, terminating a painful procedure, or giving treatment to relieve pain and/or distress. Humane endpoints function as an alternative to death as an endpoint, and provide investigators with an effective way to refine their research. The establishment of humane endpoints prior to the start of an experiment allows the investigator to prevent unnecessary animal pain and distress, while ensuring accurate and timely data collection.

Unless a PI identifies and adequately justifies alternative endpoints and the IACUC approves them, endpoints for laboratory animals will be triggered by any of the following conditions:

1. Loss of 20% of body weight from baseline weight when assigned to the protocol. A growth

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nomogram must be used to adjust the basal weight of growing animals.

2. Organ failure or major medical conditions that are unresponsive to treatment, such as respiratory distress, jaundice, loss of renal function, intractable diarrhea, self-mutilation, or persistent vomiting.

3. Surgical complications that are unresponsive to immediate intervention, such as bleeding, vascular graft/circulation failure, infection, or rupture of sutures.

The protocol application should include detailed written criteria for humane endpoints that will be used to determine when animals can be removed from the study, treated, or euthanized. There must be clear directions concerning who can make the decision to treat or euthanize animals, including procedures to be followed if a situation arises on weekend, holidays, or in the absence of the PI.

Experimental animals must be monitored at least daily, and more frequently if the animals’ condition warrants. Signs and symptoms of abnormal conditions for rodents include: inactivity; labored breathing; sunken eyes; hunched posture; piloerection or matted fur; one or more unresolved skin ulcers; abnormal vocalizations; tumors that affect normal functions, that become ulcerated, or exceed 10% of normal body weight; prolonged recumbency or inability to ambulate; CNS behavioral signs such as circling or convulsions; pain which cannot be alleviated despite administration of analgesics; inability to eat, drink, urinate, or defecate normally; bilateral blindness; septicemia.

Use of death as an endpoint is strongly discouraged. In some special circumstances, however, it is necessary or unavoidable, and thus will be considered by the IACUC on a case-by-case basis. Approval of death as an endpoint requires adequate scientific justification, including reasoning for why alternative endpoints and/or analgesics cannot be used. PIs who request death as an endpoint must clearly detail plans for monitoring and supportive care, including describing monitoring frequency and record-keeping practices.

The AV has the responsibility for oversight of the health and welfare of animals used for research, teaching, and testing at SIUC. The AV has the authority to euthanize or remove an animals from a study in the interest of animal welfare at any time. Attempts will be made to reach an agreement with the PI and research staff when these decisions must be made.

References