

# Animal Care Users' Handbook

## UNIVERSITY ANIMAL CARE

[www.ahsc.arizona.edu/uac](http://www.ahsc.arizona.edu/uac)

THE UNIVERSITY OF  
**ARIZONA**

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## TO THE USER:

The University of Arizona's Animal Care and Use Program encompasses all animals used by the University for research, testing, education, and other purposes. The Program reports administratively to the Vice President for Research and is composed of three main branches: the [Institutional Animal Care and Use Committee \(IACUC\)](#), [University Animal Care \(UAC\)](#), and members of the University community who use animals.

The Institutional Animal Care and Use Committee's membership and responsibilities are defined by federal law and local policy and will be briefly delineated in this handbook. A separate IACUC Handbook is available. The IACUC oversees the entire Program, advising the Vice President for Research on issues related to animal care and use and making recommendations for change to the Vice President and the Director of University Animal Care. Often users view the IACUC and UAC as synonymous; however, each is autonomous. UAC is under the purview of the Committee in much the same way users are. It is UAC's responsibility to carry out the Program for the IACUC and the Vice President for Research, providing support to the research and teaching programs of the University through acquisition and care of animals used by the University community. In simple terms, IACUC is the regulatory arm of the Program and UAC is the administrative.

The last component is you, and the many others like you, who participate in the use of animals. Without you, there would be no Program.

The use of animals in research and teaching is a privilege carrying with it unique professional and moral obligations to ensure that animals are treated humanely and in accordance with the policies of the University of Arizona, the regulations of the Animal Welfare Act, and other laws and policies of the federal government and additional agencies. The University of Arizona is dedicated to achieving and maintaining the highest standards of excellence in its Animal Care and Use Program. The faculty and staff of University Animal Care recognize and commit to meeting their responsibilities to ensure that these high standards are translated into provision of outstanding husbandry and medical care to all animals at the University. In turn, every person using animals, whether investigator, technician, student, or instructor, must be aware of and abide by **their attendant obligations to assure that animals utilized by the University's programs are used in a humane manner.**

**This handbook is intended to serve as a reference source for you regarding the regulations, policies, and standards affecting animal use. The handbook also provides the user of University Animal Care with information about UAC, thus assisting you in the day-to-day conduct of research and educational programs involving animals.**

# Directory

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**1.0**  
**LAWS, POLICIES, AND STANDARDS RELATING TO THE**  
**HUMANE CARE AND USE OF ANIMALS**

**1.1. NATIONAL**

**1.1.1. Animal Welfare Act**

[The Animal Welfare Act](#) of 1966 and its amendments regulate the transportation, purchase, sale, housing, care, handling, and treatment of animals used in research and teaching, for exhibition, and sold by commercial enterprises as pets. The Act specifically includes dogs, cats, nonhuman primates, guinea pigs, hamsters, rabbits, wild animals (excluding birds and cold-blooded), and any other warm blooded animals that the Secretary of Agriculture determines are being used or are intended for use for research, experimentation, testing, teaching, exhibition purposes, or as pets. Farm animals used in biomedical research are subject to the provisions of the Animal Welfare Act. Historically, the Secretary has not regulated rats, mice and birds; however, animal advocates have won a lawsuit against the USDA which requires USDA to cover these species. The Congress, to date, has not enacted this requirement and these species remain unregulated

The Animal Welfare Act is administered by the United States Department of Agriculture (USDA), specifically, the Animal Care branch (AC) of the Animal and Plant Health Inspection Service. Research facilities are subject to unannounced inspections by USDA personnel and are required to furnish annual reports that include, besides other information and assurances, the common names and numbers of animals used listed by procedures involving (a) no pain or distress (routine procedures which produce only momentary pain, such as injections are included in this category), (b) pain or distress for which appropriate anesthetic, analgesic or tranquilizing drugs were used, and (c) pain or distress for which the use of appropriate drugs would adversely affect the procedures, results, or interpretation of the research. The report must certify that anesthetic, analgesic, and tranquilizing drugs were used appropriately during research and testing and that the principal investigator has considered alternatives to painful procedures.

Noncompliance with USDA standards for the humane handling, treatment, and transportation of animals may lead to substantial fines and/or suspension of animal research activities.

**1.1.2. Public Health Service Policy on Humane Care and Use of Laboratory Animals**

[The Public Health Service \(PHS\) Policy on Humane Care and Use of Laboratory Animals](#) incorporates the changes in the Public Health Service Act (PHS Act) mandated by the Health Research Extension Act of 1985, Public Law 99-158. The PHS Policy requires that each institution receiving PHS funds for research involving animals submit detailed information regarding the institution's program for the care and use of animals (including farm animals, mice, and rats) to the Office of Laboratory Animal Welfare (OLAW). This information is in the form of an Animal Welfare Assurance which is updated annually and must be resubmitted at least once every five years. Significant changes in existing assurance status or problems encountered in implementing this policy must be reported immediately to the OLAW.

The Public Health Service requires institutions to use the [Guide for the Care and Use of Laboratory Animals](#) "The Guide" as a basis for developing an institutional program for activities involving animals.

### **1.1.3. U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Teaching, Research, and Training.**

[The U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training](#) were developed by the Interagency Research Animal Committee (IRAC). These principles are consistent with guidelines that have been adopted for laboratory animal care and use at the University of Arizona.

### **1.1.4. Guide for the Care and Use of Laboratory Animals.**

In 1962, NIH contracted with the National Academy of Sciences Institute for Laboratory Animal Resources to develop what is now called the [Guide for the Care and Use of Laboratory Animals](#), or simply "The Guide." The Guide underwent its sixth revision in 1996. The Guide's purpose is to help scientific institutions in using and caring for laboratory animals in ways judged to be professionally appropriate. The [Guide for the Care and Use of Laboratory Animals](#) is also used by the [Association for the Assessment and Accreditation of Laboratory Animal Care International \(AAALAC\)](#) as a basis for its accreditation of institutions.

### **1.1.5. Association for the Assessment and Accreditation of Laboratory Animal Care International**

[AAALAC](#) provides voluntary peer review and awards accreditation of laboratory animal care facilities and programs which meet its rigid standards. AAALAC judges animal care by the standards set forth in the [Guide for the Care and Use of Laboratory Animals](#), the Animal Welfare Act, and other publications. Representatives of AAALAC perform triennial inspections to each accredited institution to ensure continuing compliance with standards. The Public Health Service (PHS) accepts AAALAC accreditation as the best means of proving conformance with PHS Policy requirements for animal care and use.

### **1.1.6. Good Laboratory Practice Act**

[Good Laboratory Practice \(GLP\)](#) regulations pertain to nonclinical laboratory studies done in support of applications for research or marketing permits for products regulated by the Food and Drug Administration (FDA). The GLP regulations, as they apply to the use of animals, address such issues as construction and maintenance of facilities, quarantine and isolation, disease diagnosis and treatment, animal identification, caging and routine care, sanitation, and documentation requirements.

### **1.1.7. Controlled Substances Act**

Potentially addictive or habituating drugs for human or animal use are classified under this law. Examples of controlled substances include barbiturates and narcotics. The Department of Justice, Drug Enforcement Administration (DEA), enforces this law and requires appropriate security and record management of these substances.

### **1.1.8. American Veterinary Medical Association Panel on Euthanasia**

The [AVMA Panel on Euthanasia \(2001\)](#) is the prime reference for methods of animal euthanasia. These methods of euthanasia are considered acceptable by both the PHS Policy and the Animal Welfare Act.

### **1.1.9. Guide for the Care and Use of Agricultural Animals in Agriculture Research and Teaching**

The "Ag guide" was developed by a consortium of professional animal, dairy and poultry scientists, agricultural engineers and veterinarians and serves as a primary reference on the care and use of the major agricultural animal species used in simulated or actual agricultural production settings.

## 1.2. INSTITUTIONAL

### 1.2.1. Institutional Animal Care and Use Committee

By mandate of the [Animal Welfare Act](#) and [PHS Policy](#), each institution using animals must have a committee to oversee animal care and use. Information regarding the University's IACUC can be found at the following website: <http://www.iacuc.arizona.edu> or by contacting the IACUC office (621-9305) to obtain a copy of the University of Arizona [IACUC Handbook](#), which outlines the University of Arizona's IACUC functions, responsibilities, and Policies.

#### 1.2.1.1. Reporting Deficiencies in Animal Care and Treatment

Complaints or concerns regarding the care and use of research animals or charges of animal abuse should be directed to the Attending Veterinarian (Director of UAC, 626-6702), the Chair of the IACUC, or any IACUC member either verbally or in writing. To obtain the phone number of the current IACUC chairperson, please call the IACUC Coordinator at 621-9305. The IACUC has a formal procedure for investigating complaints. This procedure is found in the [IACUC Handbook](#).

**Employees who bring legitimate concerns to the attention of the University regarding animal care and use are protected under the Animal Welfare Act and by State Whistle Blower's Laws from retribution by their employer or the University.**

### 1.2.2. Security

#### 1.2.2.1. Entrance into Animal Facilities

Entrances to animal facilities are secured at all times. The main entrance to the AHSC facility is room 1182. There are two additional entrances into the animal facility-- through the College of Pharmacy and through Life Sciences North. Individuals using the AHSC facilities will need keys to the first door of the double entrance doors, a security card access to the second door of the double entrance doors, and keys to individual animal rooms. The main entrance to the Central Animal Facility building is located on the southeast corner of the building. Individuals with animals housed in the CAF will need a security card access to the first door of the double entrance doors at CAF, a key to the second door of the double entrance doors at CAF, keys to the second door of the double entrance doors at CAF, a key to the elevator, and keys to individual animal rooms. For the Veterinary Science/Microbiology (VSM) building research staff will need security card access to the entrance to VSM, a key to the elevator, and keys to individual animal rooms. Access to the Primate Research Facility must be cleared through the Assistant Director of UAC (626-2055).

**Access to the animal facilities is restricted to those individuals who are listed as participants in IACUC approved protocols.**

**KEY ISSUE PROCEDURE:** Keys and access cards to animal facilities can only be obtained through UAC. If keys and/or security access cards for the entrance and individual animal room keys are needed, a request for access form, which may be found on the UAC web site (<http://www.ahsc.arizona.edu/uac>), must be used. The form must be copied onto the departmental letter head of the requesting individual. UAC must have the copy with the original signatures.

To receive keys, the investigator or technician comes to room 1128 AHSC or 114 CAF with the form requesting keys and security access cards. UAC issues a key card to the person, signs the key desk authorization slip(s), and attaches a memo from UAC to the Facilities Maintenance key desk requesting key(s)/card for the individual. Keys and card access **cannot** be obtained in any other manner. University Animal Care handles security card authorization activation.

When a technician, a student and/or investigator is no longer employed by the department, please notify Animal Care. Return all keys to the key desk where they were originally picked up. **For the security of the facilities and animals, it is imperative to return keys and cards of individuals who leave or terminate employment.**

**If keys or cards are lost, missing, or stolen, please immediately notify UAC so that measures can be taken to protect the facilities and animals.**

Please contact Assistant Director of Facilities (626-2055) for key access and any questions.

#### **1.2.2.2. Visitors**

In an effort to protect research animals and minimize any possibility of disease transmission, visitors who are HIV+, have AIDS or other immunocompromised persons, family members and especially children, are discouraged from entering the animal facilities. All visitors must have prior approval of UAC. For admission of visitors into the AHSC facility, please contact the office at 626-6702. For admission to main campus facilities, contact the Central Animal Facility Office at 621-1330. Visitors will be asked to sign a guest book and required to wear a visitor's badge before entering a facility. Authorized personnel must accompany visitors/guests at all times while they are in the animal facilities.

#### **1.2.2.3. Photographs or Videotapes of Research Animals**

Photographic equipment and associated personnel can be detrimental to the animals' health and well-being. Bright lights can affect the animals' photo-period and cause retinal damage in some species. Noise from personnel and equipment can disturb the animals and cause stress-related reactions. For all of these reasons, the use of still and video cameras is not allowed in the animal rooms except in certain circumstances. These exceptions are:

- C For research purposes. Research staff are urged to carefully consider all possible interpretations of pictures of research animals taken for documentation or publication.
- C Documentation requirements by USDA representatives.
- C Documentation by UAC personnel.
- C Public or University media representatives may, on occasion, be allowed access to facilities for photographic purposes. UAC reserves the right to select animal rooms and specific animals for photography purposes to minimize contamination of clean facilities and disruption of research projects.
- C No public access will be provided to areas housing nonhuman primates due to the possibility of transmission of zoonotic diseases between humans and nonhuman primates.

**ALL PHOTOGRAPHS OR VIDEOTAPES TAKEN IN THE ANIMAL HOLDING FACILITY MUST BE APPROVED BY THE DIRECTOR AND THE PRINCIPAL INVESTIGATOR.**

#### **1.2.2.4. Threats Related to Animal Use**

Threats, whether written or verbal, should be immediately reported to UMC Security (694-6533), or U of A Campus Police, main office (621-8273). You can also dial 911. **If the threat indicates a bomb or is a direct threat to your life or the life of others, call 911 immediately. In cases of bomb threats, all individuals should leave the building. Be sure to secure doors to offices, laboratories, and animal facilities.**

If you are approached by anyone who appears to be confrontational concerning animal use, you should not try to have a conversation with them. Be polite, but do not argue your case for animal research. Walk away from the individual, go to the nearest building, office, laboratory or emergency phone box and call the police, security, or 911. If the individual attempts to follow you or is belligerent, get to the nearest phone, dial 911 and leave the receiver off the hook. This indicates to the police that it is a serious emergency and the response will be faster. The police can locate you from the telephone call alone.

If you are moving animals through the building or outside and someone confronts you, follow the same procedure. If the individual demands the animals, the safest response you can have is to turn over the animals. Then call 911. Always remember to look carefully at the individual so that you can give a description to the police. If the individual has a vehicle, try to remember the make, model, color, and licence plate number.

Security/police personnel will provide information to you if you have been threatened so that you will know what further steps to take. Security/police will take action as needed. Once police have arrived, the Director of UAC should also be informed.

#### **1.2.2.5. Demonstrations**

In the event of a demonstration related to animal use at the University, employees should avoid the area where the demonstration is being conducted, avoid confrontation with the demonstrators, and follow the directions of Security or other personnel in charge of the area. The Office of News and Public Information will coordinate communications with the media.

#### **1.2.2.6. Break-ins**

Anyone discovering a break-in of animal housing or use areas will immediately inform the security or police unit in charge, and inform the Director of UAC. **The area should not be cleaned or otherwise disturbed without the permission of the Security personnel in charge of investigation of the incident.**

#### **1.2.2.7. Fire or Fire Alarms**

In the event of a fire or fire alarm, The University of Arizona requires all occupants of University buildings to **EVACUATE** the building via the closest exit or stairs. The animal facilities are located on the ground floor, so proceed directly out of the building. **DO NOT USE THE ELEVATORS.**

If you have first hand knowledge of the fire or the area it is located in, report these details to the U of A Police Dept. (621-8273) **after you have evacuated.**

If you are involved in a laboratory procedure, shut down the experiment and exit **as soon as possible** via the nearest exit. As you leave **close all doors**, including those propped open.

Remain outside the building until the “all clear” is announced over the fire alarm system by the UAPD personnel, the floor monitor, or other designated personnel.

It is important that you never enter a building if you hear the fire alarm siren or see the fire alarm strobes flashing. A fire or other emergency could be in progress and you may be putting yourself in danger. It is also very important not to re-enter a building you have evacuated until the “all clear” is announced.

### **1.2.2.8. Other**

If you see suspicious individuals near your office, laboratory, or facility, or see suspicious vehicles outside of research buildings or animal facilities, you should call security or the police and notify them of your observations. Office, laboratories, and animal room doors should be immediately secured.

### **1.2.3. Pets in Animal Facilities, Laboratories, or Offices**

Federal Laws and policies require that all areas where animals are housed must meet specific standards, and that these areas be inspected and approved for animal housing by the IACUC. Therefore, it is not permissible for animals to be housed in offices or laboratories, unless so reviewed and approved by the IACUC.

Pet animals may be brought into the facility when the purpose is for inclusion into research protocols. These animals must be cleared through the UAC office, and released to the University during the period of study.

### **1.2.4. Movement of Animals**

#### **1.2.4.1. Removal from Animal Facilities to Buildings Connected to Animal Facilities**

Except during quarantine periods, animals may be moved to laboratory buildings directly connected to the animal facilities. Small animal cages (rabbits and smaller) must be completely covered with a clean cloth sheet or large towel, or the like (investigator must provide covering). Additionally, rodents which will be returning to the facility **must be** transported in microisolator cages to prevent unnecessary exposure to pathogens. Larger animals are to be moved in transport cages, with cage entrance covered.

In the AHSC, animals are not to be moved on public-use elevators. The northeast elevator in the College of Medicine building has been designated for animal use. This elevator is accessed from the east side and the elevator will not stop on floors two and three. The southeast elevator in Life Sciences North has been designated for animal transport. Sarver Heart Center researchers can use the College of Medicine elevator.

#### **1.2.4.2. Removal from Animal Facilities to Buildings not Connected to Animal Facilities**

**For movement of animals between the CAF and COM animal facilities**, delivery must be arranged through UAC 24 business hours in advance. Arrangements for deliveries can be made by calling 626-4511. Unless specific IACUC approval has been granted, animals cannot remain outside the animal facilities for longer than 23 hours.

For movement of small animals from the CAF or COM to the researcher's lab (one way trip), the animals can be carried, covered, between the facilities, or delivery can be arranged as listed above. During inclement weather, the animals can be transported by personal vehicle. The animals must be placed in the cab of the vehicle so that they are not exposed to extremes of heat or cold. Do not place in the trunk of the vehicle or in the bed of a truck.

The transportation of animals between the U of A campus and off campus locations must be arranged in advance with UAC by calling 626-4511. This includes the pick up and delivery of animals to/from the airport.

Individuals working in the Biomedical Research Laboratory buildings should move animals by vehicle. If animals must be transported by hand or on carts, animals should be moved as unobtrusively as

possible, at times of low activity, such as before 8:00 A.M. and after 5:00 P.M.

#### **1.2.4.3. Removal of Animals from the Institution**

Federal law has strict accounting standards which require records of final disposition of animals used by an institution. Animals may not be removed from the University without clearance through UAC. Persons adopting animals must sign a release form in order to obtain an animal.

#### **1.2.5. Housing of Animals in Research Laboratories**

Unless specific IACUC approval has been granted, animals cannot be removed from the animal facilities for 24 hours or longer. When IACUC approval has been granted, all WARM BLOODED animals must be cared for by UAC to ensure compliance with applicable regulatory requirements. Cold-blooded animals may be cared for by the research team, but must be housed in compliance with regulatory standards. Please contact UAC (626-6706 at AHSC, or 621-1621 at CAF) to obtain information on applicable standards. **UAC reserves the right to assume management of any animal housing area that is found to be noncompliant.**

#### **1.2.6. Experimental Procedures in Animal Housing Areas**

Painful or stressful procedures may not be conducted in most animal rooms, as such procedures stress other animals in the room. To assist researchers, procedure rooms are available in each facility and animals may be taken to these rooms or to research laboratories. Please contact facility supervisors to obtain information on available procedure rooms (AHSC 626-6706, CAF/VSM 621-1621). All procedure and necropsy rooms must be reserved in advance. Blackboards for this purpose are located in the vicinity of each room.

Procedures can be conducted in rooms where laminar flow work benches are provided (microisolation rooms). Procedures may be conducted in the laminar flow hood, as long as the hood is turned on and functioning properly. Separate anterooms to animal housing rooms may also be used for animal procedures.

Animals cannot be taken from clean barrier rooms and returned without going through a three-week quarantine, unless barrier procedure rooms are used and animals are transported in MI caging.

#### **1.2.7. Animal Surgery**

All survival surgery performed in animals must be done under aseptic conditions.

##### **1.2.7.1. Survival Rodent Surgery**

Survival surgery on rodents may be carried out in investigator laboratories if aseptic techniques are followed. Caps, masks, and sterile gloves must be worn and sterile instruments, supplies and drapes must be used. In addition, in accordance with NIH guidelines, there must be an animal prep area separate from the surgery area. This is to keep hair and dirt from clipping and prepping the animal away from the area in which a sterile procedure is to be performed. Generally, the surgery area should be in a separate room, or hood dedicated to surgery. If these are not available, an individual area of a room may be dedicated to surgery, and **must not** be used for other purposes.

[AAALAC](#) requires that all instruments must be sterilized, either by heat, gas, or chemical means. Use of only disinfecting agents such as alcohol, povidone iodine, etc., is **not** acceptable. Sterilants kill all microorganisms, with the possible exception of some parasitic life forms, while disinfectants have a much lower level of effectiveness. Acceptable methods of sterilization include steam, gas, glass bead, and chemical agents. Chemical agents include phenols, glutaraldehyde, and chlorine dioxide.

Glutaraldehyde is mutagenic, phenols are corrosive and both require special disposal procedures. Chlorine dioxide has a short sterilizing useful life (one day) and is corrosive to metals. All agents require rinsing with sterile solutions prior to tissue contact. Glass bead sterilizers will sterilize only the portion of the instrument placed in the beads. The following standards have been reviewed and approved by our IACUC:

1. It is recommended that all instruments used in survival rodent surgeries be steam or gas sterilized (this can be done by UAC's Experimental Surgery Laboratory for a fee) prior to each surgery or group of surgeries (biological indicators monitoring sterilizer efficiency are advisable).
2. Instruments must be kept on sterile nonporous towels during use.
3. Instruments must be cleaned of blood and debris by brushing or wiping with sterile water and gauze sponges between surgeries.
4. If contamination has occurred, instruments must be placed in a chemical agent or a glass bead sterilizer for the appropriate period of time for the method used to be effective (or the pack replaced by a new one).
5. If a chemical agent is used, instruments must be rinsed with sterile water or saline before being used on the next animal.
6. Surgical gloves and blades should be changed between each animal and/or after contamination.
7. Following surgery, all instruments must be thoroughly cleaned and preferably placed in an ultrasonic cleaner and rinsed.

#### **1.2.7.2. Non-Rodent, Major Survival Surgery and Multiple Survival Surgeries**

Major surgery is defined as surgery which invades a body cavity or results in physiological or anatomical alteration of the surgical subject. **All major surgery in rabbits and species higher on the phylogenetic scale is to be performed in the dedicated survival surgery areas within UAC.**

The Public Health Service Policy and the Animal Welfare Act prohibit the performance of more than one major surgery on an animal with the animal surviving. This is known as Major Multiple Survival Surgery. There is provision for these surgeries with adequate scientific justification by the Principal Investigator with approval by the IACUC.

#### **1.2.7.3. Euthanasia, Anesthesia, Analgesia**

Federal laws and policies require the use of methods to relieve pain and distress for animals experiencing these adverse reactions. Euthanasia procedures are outlined in the [American Veterinary Medical Association Panel on Euthanasia](#), and must be adhered to unless specifically exempted in the IACUC review process. Anesthesia and analgesia procedures have been established for animals at the University. University veterinarians can assist researchers in selection of these agents.

The veterinarians, surgery laboratory staff, animal health technicians, and animal care personnel monitor the use of anesthetics and analgesics. Observation of anesthetic technique, depth of anesthesia, apparent level of pain, as well as physiological parameters, are the means by which anesthesia and analgesia are monitored. If animals are observed to be in pain at any time, the investigator will be contacted and the use of analgesics discussed. **If the investigator determines that analgesics cannot be used, the Veterinarian will decide whether the animal can continue on study, or must be euthanatized.**

### **1.2.8. Use of Biohazardous Materials/Radioisotopes**

Special procedures must be followed when using radioisotopes, hazardous substances, or biohazards. In order to use radioactive substances in the animal facilities, the user must be a current approval holder, licensed by the University or College of Medicine Radioisotope Committee and by the [Radiation Control Office](#). Approval holders who wish to use radioisotopes in animals must also have IACUC approval for use of radioactive substances in animals. Once all approvals are obtained, the user should contact the animal facility supervisor at the facility they wish to use. The supervisor will ascertain if room and cage space is available for the study. The Supervisor then will sign the "Facilities Authorization" form which should be filled out by investigator and forward it to Radiation Control for their approval. The form is returned to UAC and the investigator is given a start date. The Approval Form is posted on the door of the radioactive room throughout the experiment. Cage cards must have the appropriate biohazardous materials/radioisotopes stickers. These may be obtained from husbandry supervisors at both buildings.

For hazardous chemicals, such as carcinogens, the user must file an animal protocol with the IACUC and complete a [Hazardous Agents Form](#). The IACUC submits the form to [Risk Management](#) for approval, which must be obtained prior to the IACUC's review and approval of the animal protocol. Once all approvals are obtained, the user contacts the animal facility supervisor for room assignment. In a similar manner, projects utilizing biohazards must be reviewed by the IACUC. Additionally, the user must file a [Memorandum of Understanding](#) (look under IBC forms) in the [Institutional Biosafety Committee](#) website. All approvals must be in place before work with biohazards can be initiated.

The UAC staff and appropriate personnel oversee rooms in UAC where animals containing hazards are housed and all procedures performed in these animals. Protocols and precautionary measures for each study must be provided by the Principal Investigator and posted within each animal room. Additionally, appropriate identification of hazards must be placed on the outside door of each affected room.

### **1.2.9. Use of Specialized Equipment or Animal Rooms**

It is advisable for all studies where specialized equipment or rooms are necessary (such as access to radioisotope rooms, fume hoods, or biocontainment facilities) to contact UAC to discuss needs before submitting protocols to the IACUC or other committees. In this way, the user can ensure that the needed animal housing space and/or specialized equipment will be available. For assistance at the AHSC, contact the Director (626-6702) or Assistant Director (626- 2055); for the CAF, contact the Associate Director (626-1330) or Supervisor (621-1621.)

### **1.2.10. Occupational Health and Safety**

The PHS requires that each institution provide reasonable protection for employees and visitors from risks associated with contact with animals or animal tissues or products. Under standards outlined in the [Guide for Care and Use of Laboratory Animals](#), The University of Arizona's occupational health and safety program includes hazard identification, risk assessment, personnel training, personal hygiene, facilities and procedures monitoring, personal protection, and medical evaluation and preventive medicine. The animal component, called the [Animal Hazards Program](#), is administered by the IACUC. Personnel included are those involved in the direct care of animals and their living quarters and those individuals who have direct contact with animals (live or dead), their viable tissues, body fluids or wastes. The assessment of risk is determined by frequency of contact, intensity of exposure, hazards associated with animals being handled, hazardous properties of agents used in research, the susceptibility of individual employees, the hazard-control measures available, and the occupational history of individual employees. Major emphasis is placed on laboratory supervisor responsibility and subordinate training. An Occupational Health Clinic staffed with an occupational health physician and nurse provides medical care for university employees and students. To participate in the Animal Hazards Program, call 621-1929

### **1.2.11. Viral-free Mandate for Mice**

In 1997 the IACUC in consultation with UAC and the research community, established a long-term plan to prevent viral contamination of University mouse colonies. As a result of the Viral-free Plan, all mice must be housed in microisolators or ventilated rack systems.

## 2.0

### UNIVERSITY ANIMAL CARE

Animal Care at the University is centralized under the Office of the Vice President for Research through the unit University Animal Care (UAC). UAC is responsible for overseeing all procurement, veterinary care, and husbandry of animals used by the University.

#### 2.1. Administrative Structure and Organization

**Personnel:** The administrative structure of UAC is diagramed on the following page. The Director of UAC oversees the entire program and reports directly to the Vice President for Research. The Program is then administrated through several branches of UAC.

##### 2.1.1. Facilities Services

Facilities Services is the section of UAC which oversees animal husbandry, animal procurement and supplies and the physical operation of the animal facilities. The section is headed by the Assistant Director of Facilities, who is assisted by Husbandry, Purchasing Coordinator and Maintenance Supervisors. At the AHSC, there is one husbandry Supervisor who oversees animal husbandry for the AHSC campus. The south campus Supervisor is based at the CAF. The Maintenance Supervisor, Purchasing Coordinator and Breeding Supervisor are located at the AHSC, but carry out their duties in all UAC facilities.

Each animal room has an assigned animal technician who provide daily care for the animals. For most rooms, two individuals participate in room care—one technician is responsible for weekday care; a second technician provides weekend servicing. Please check with the Supervisor of the facility you are using to meet your animal room technician. Facilities Services has several hearing impaired employees. These individuals communicate through the use of a TTY telephone. Should you need to contact a deaf employee, please call the appropriate UAC front office and leave a message for the employee. He or she will call you back through the TTY service.

*Animal care technicians are the backbone of the animal care program and should be considered as important members of each researcher's team. Because these individuals have daily contact with their assigned animals, they are often the first to recognize changes in research animals.*

##### 2.1.1.1. Standard Operating Procedures

SOPs are used for all husbandry practices. Investigators may request copies of SOPs for their animal rooms by contacting the Assistant Director, Facilities at 626-2055.

##### 2.1.1.2. Animal Room Documentation

Individual Room Assessment Sheets are posted for each room. The data collected in the daily assessment includes high/low room temperature, humidity, procedures performed in the room each day, and numbers of animals found sick or dead. Many investigators find the assessment sheet a helpful documentation for G.L.P. studies. Copies of sheets can be obtained by contacting the Facility Supervisor.

##### 2.1.1.3. Facility Maintenance

UAC facility maintenance personnel are responsible for assuring that cages, other equipment and the physical building are in good repair. If any investigator notes a problem with cages, needed room

repairs, or other facility maintenance problems, please report concerns to the Maintenance Supervisor (pager 793-6489).

#### **2.1.1.4. Operating Hours/Weekend and Holiday Care**

Facilities Services operating hours are 7:00 A.M. to 4:30 P.M. Monday through Friday. Lunch shifts are split so that there will be personnel in the facilities during all hours of operation. On weekends and holidays a crew of three or more people is present to service rooms and check for sick/dead animals. An Animal Technician Senior is in-charge, and the Assistant Director or a supervisor is on call. Veterinarians are on-call nights, holidays and weekends.

#### **2.1.1.5. Animal Purchasing Office Ph: 626-4511**

The Animal Purchasing Office is located in the AHSC. Prior to placing an order, it is advisable to call the Animal Purchasing Coordinator to discuss the strain of animals needed and the choice of vendors. UAC maintains lists of approved vendors for each species, and a selection can be made from any of these. **NO ORDERS CAN BE PLACED UNTIL THE PROTOCOL HAS BEEN APPROVED BY THE INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE (IACUC)**

UAC uses special Animal Purchase Order Forms, and these can be obtained in room 1128. Animal orders are due by 5:00 P.M. each Tuesday for delivery the following week. Late orders are only accepted until Wednesday at 5:00 P.M. for delivery the following week. It is always advisable to place orders as far in advance of the date needed as possible to assure availability of space and animals.

Harlan Sprague Dawley is the primary source of rabbits, rats and mice, as Harlan ships by climate-controlled van. Freight charges are levied on these animals. For all other vendors, there is a significant shipping charge associated with animal delivery. Carton and water kit/water substitutes charges vary from vendor to vendor. UAC can usually provide you with an estimate of cost for delivery, but actual costs are not known until the invoice from the vendor is received.

UAC receives price lists from vendors which state, "Prices are subject to change without notice." Therefore, we cannot guarantee that any estimated price is what will, in fact, be charged by the vendor. Anyone is welcome to contact the vendor directly regarding prices. However, we suggest that if you are able to commit a vendor to a firm price, you note the name of the vendor contact who confirmed the price on your Animal Purchase Order Form for future reference.

When an order clearly states a preference for a particular vendor, we abide by the preference. We cannot take the responsibility for ordering from a different vendor, even for a lower price, because we run the risk of going against the investigator's wishes. If the order states "any vendor" or words to that effect, then we will seek the lowest price available.

##### **2.1.1.5.1. Import/Export of Animals**

The ordering investigator is responsible for all charges incurred in the export/export of animals. This includes the cost, if any, of the animals and shipping. Other costs incurred are per diem during quarantine and testing, the cost of the diagnostic tests and any treatment rendered. An approximate price quote for the complete order is available upon request by calling 626-4511.

Fees and charges, if any, for consultation services to locate/research a specific strain, knock-out or transgenic animal for an investigator have, not been determined at this point.

**INVESTIGATORS WHO DO NOT FOLLOW PROPER ORDERING PROCEDURES MAY BE CHARGED PENALTIES. ANIMALS ARRIVING WITHOUT PROPER PAPERWORK MAY BE EUTHANATIZED OR RETURNED TO THE SHIPPER.**

**2.1.2. Comparative Medicine**

The Division of Comparative Medicine includes Biotechnology Support Services, Pathology Services, and the academic and research activities of UAC faculty. The head of the Division can be contacted by calling 621-1330.

**2.1.2.1. Biotechnology Support Services**

The Biotechnology Support Services (BSS) includes the sections of Clinical Care and Experimental Surgery. BSS serves as a resource for the entire University of Arizona University Animal Care Program. Responsibilities of BSS include monitoring the health and well-being of all University laboratory animals, providing instruction and assistance for handling and performing procedures on laboratory animals, and assisting with or performing experimental surgical preparations for investigators.

**2.1.2.1.1. Clinical Care Phone: 626-5015**

**2.1.2.1.1.1. Hours of Operation:** 7:00 a.m. to 5:00 p.m. Monday through Friday. Weekends and evenings a veterinarian is on-call.

**2.1.2.1.1.2. Treatment of Animals**

The Clinical Care staff or veterinarians make daily rounds of all facilities to assure the continued maintenance of good health in all animal colonies. If sick or injured animals are found, the animal health technician or veterinarian will attempt to reach the investigator, prior to initiating treatment. In emergency situations, the veterinarians will provide immediate care to stabilize the animal, and then notify the investigator.

Treatment programs for animals are determined in consultation with the investigator. Advice is provided to the investigator on whether the condition, or treatment of a condition could impact the research results. In cases where treatment will alter the results, the veterinarian and investigator will make a determination whether the animal can be left untreated.

If the animal is in significant pain or distress, the veterinarian will recommend immediate use or euthanasia.

**2.1.2.1.1.3. Euthanasia of Animals in Pain or Distress**

The Clinical Care staff makes every attempt to work with the investigator to assure that experimental results are not affected by treatment of an animal. Federal law mandates, however, that the veterinarian in charge has the responsibility to provide humane care and alleviate suffering. In some instances, this will mean that animals must be euthanized despite the effect on the outcome of the research.

**2.1.2.1.1.4. Fees for Services**

Treatments of diseased animals are provided on a recharge basis for the time and for supplies used. There is no charge for the veterinarians assistance. A price list of non-controlled drugs, supplies, and specific treatments is available from the UAC/AHSC office, 626-6702.

#### **2.1.2.1.1.5. Technical Support**

BSS can also provide technical expertise to perform animal procedures (gavage, blood collection, etc.) for investigators, if desired. There is a fee for technical support, which is intended to supplement and assist investigators' technicians rather than replace them.

If assistance is needed before or after normal operating hours, or if assisting an investigator causes an employee to work more than a 40-hour week, the investigator is required to pay time-and-a-half.

#### **2.1.2.1.1.6. Pharmacy and Supply**

UAC maintains a stock of commonly used supplies and non-controlled pharmaceuticals which are necessary in the maintenance of an animal facility. Investigators may purchase these on a recharge basis. For information on what is available, call the BSS Supervisor (626-7304) or the Animal Health Technologist (AHSC 626-5015).

##### **2.1.2.1.1.6.1. Controlled Substances**

UAC is not allowed to sell controlled substances. UAC controlled substances may be administered only by UAC staff, such as in the surgery or in the maintenance of animal health.

#### **2.1.2.1.2. Experimental Surgery      Phone: 626-7304**

**2.1.2.1.2.1. Hours of Operation:** 7:00 - 4:30 p.m. Monday through Friday.

##### **2.1.2.1.2.2. Services**

Each of the individuals in the surgery section has a background and interest in experimental surgery. The personnel, facility and equipment are available to assist any investigator at the University with surgical procedures. Scheduling for these services can be done by calling the Experimental Surgery Laboratory at 626-7304 as much in advance of the project as possible.

The first step in setting up a surgery is to assure that your project has been reviewed and approved by the IACUC. Once IACUC approval has been obtained, the investigator should come to the surgery laboratory and obtain an "Investigator Needs Form." This form should be filled out prior to scheduling in order to enable the Surgery staff to assure that personnel, supplies and equipment necessary for your project will be available.

When a surgery is scheduled at the AHSC, it is anticipated that the services of at least one of the area personnel will be available. Investigators or research technicians may perform procedures themselves, or may request to have the surgery personnel perform the procedures for them. At the CAF, if assistance is needed, this should be arranged in advance when scheduling the use of the suite.

At the AHSC, first priority in scheduling is given to teaching activities as mandated by the College of Medicine. Research and service activities are given second priority, but there is generally not a conflict between the two.

The AHSC surgery facilities are available for all laboratory animal species with the exception of adult farm animals. The CAF surgery facilities are suitable for major procedures in rodents and rabbits.

Personnel from the surgical service are also available to come to Campus Agricultural Centers to perform surgery. These can be scheduled in the same manner as discussed above and are performed in conjunction with the Farm Animal Attending Veterinarian.

#### **2.1.2.1.2.3. Charges for Services**

There is a charge for packs, medications, instruments, equipment, and supplies that are used during the procedure. A charge for room use, clean up of the facility, and to cover prep room supplies such as caps, masks, disinfectants, etc., as well as for personnel time, is also levied. A price list can be obtained by calling 626-7304.

#### **2.1.2.1.2.4. Investigators' Responsibilities**

PHS, AAALAC, and The Good Laboratory Practices Act require that the surgical team initiate Anesthesia and Surgery Records and Post Operative Animal Treatment Forms. These can all be obtained from Experimental Surgery Personnel.

#### **2.1.2.1.2.5. Training**

Investigators using the Experimental Surgery must familiarize themselves with and be knowledgeable about proper attire for the surgery area and understand aseptic and surgical techniques in the animal species to be utilized. This information can be obtained through the surgery laboratory, and is also provided in the IACUC training sessions.

#### **2.1.2.1.2.6. Post-Operative Care**

Prior to surgical procedures, the investigator should discuss the surgical program and postoperative care with the veterinary surgeon or other Experimental Surgery personnel. Assistance with post-op care is available upon request, but the establishment of post-op care and record keeping should be initiated by the investigator. The following post-op guidelines are recommended by UAC:

1. Place animal on towel and covered in a clean, dry cage without bedding. Animals can get bedding such as sawdust in their mouths and incisions while recovering from anesthesia and run the risk of aspirating it.
2. Covering with a towel as well as being in a warm environment (i.e., warm room or supplemental heat) are very important as the animal loses body heat from surgical procedures and from anesthesia. There should be **NO DRAFTS** on the animal.
3. Remove food and water bowls from cages that the animal could fall into or injure itself on while going through the unsteadiness of recovery.
4. Under no circumstances should an animal recovering from anesthesia and surgery be placed with awake animals or animals recovering from an earlier surgery. Cannibalism could occur.
5. Small animals that have gone through surgery at the same time and will recover in the same time frame can recover in cages together but in reduced numbers.
6. Rabbits and larger animals should recover in a clean, dry cage by themselves with a towel beneath them and one to cover them (if not already mobile).
7. Check post-op animals frequently and turn them from one side to the other keeping them covered until they regain their righting reflex and ambulation.
8. Check incision periodically and assess need for analgesics and administer if indicated.
9. When recovered make usual food and water available and return to normal bedding.
10. Continue to check incision site, sutures and healing.

Information and blank record forms can be obtained from the surgery laboratory. For assistance with post-op care problems contact the surgery laboratory at 626-7304.

#### **2.1.2.1.2.7. NPO of Animals**

All NPO'ed animals must have an NPO sticker posted on their cage with the date of NPO, investigator's name, and UAC's animal identification number. For all dogs, cats, non-human primates, and larger animals, NPO's must be requested at least 48 hours prior to the NPO date through the Biotechnology Support Services (BSS) Senior Research Specialist, College of Medicine, Rm. 1224 (626-7304). **To meet GLP standards, all NPO requests must contain the specific animal identification number of the animal to be NPO'ed.** If NPO's are canceled, the investigator needs to cancel with **both BSS and** with the Animal Care Supervisor. For smaller animals (rabbits, rodents, and non-mammals), researchers may NPO their own animals or request BSS to handle the NPO. UAC assumes no responsibility for mistakes made when investigators NPO their own animals.

#### **2.1.2.1.2.8. Radiology      Phone 626-7304**

The AHSC facility has a radiology room which is equipped with a General Electric stationary, X-ray unit with image intensification capability. Film processing capability is not available within the AHSC facility. Cassettes are taken to UMC for processing. The radiology room is equipped with a number of x-ray viewers and positioning aids. The equipment is available to all animal research and teaching programs of the University on a fee for service basis. Equipment is operated by the staff of the Experimental Surgery Laboratory or qualified investigators or technicians.

The safety of the room is monitored by Radiation Control by in-room film badges and periodic testing. The equipment is maintained quarterly by the Radiological Engineering service of University Medical Center.

Use of the radiology equipment can be scheduled by calling the Experimental Surgery Laboratory at 626-7304.

#### **2.1.2.2. Pathology Services**

Pathology Services includes the UAC Diagnostic Laboratory and Quality Assurance Unit. Pathology Services is overseen by the Chief of Pathology Services, who is assisted by medical technologists and research technicians.

##### **2.1.2.2.1. Diagnostic Laboratory      Phone 626-7661**

UAC maintains a complete in-house diagnostic laboratory with capabilities to perform hematology, serum chemistry, serology, microbiology, parasitology, histology, virology, and molecular diagnostic assays. Electron microscopic evaluations are performed by the Arizona Veterinary Diagnostic Laboratory. UAC uses the University of Missouri Research Animal Diagnostic Laboratory, local veterinary clinical pathology laboratories, and other, similar laboratories for supplemental and confirmatory testing as needed. The laboratory processes all animals/samples submitted for the animal health and environmental microbiologic monitoring programs and performs diagnostic necropsies on animals that die spontaneously.

The laboratory supports the research activities of investigators on a fee for service basis. Available tests and price lists can be obtained by contacting the laboratory at 626-7661 or visiting the UAC website at <http://www.ahsc.arizona.edu/uac>.

The laboratory is available to researchers on a fee for service basis. Available tests and price lists can be obtained by contacting the laboratory at 626-7661. The laboratory is currently located in the Central Animal Facility.

#### **2.1.2.2.2. Quality Assurance Unit**

##### **2.1.2.2.2.1. Health Surveillance of Colonies**

###### **2.1.2.2.2.1.1. Rodents**

Sentinel animals are housed in each rodent room and tested quarterly for common viruses, *Mycoplasma pulmonis*, and parasites (mice and rats are tested twice each quarter for corona virus, mouse parvo virus, and pinworms). Comprehensive necropsies are performed semi-annually and include comprehensive serology screens, parasitology, and histology of selected target tissues. Sentinels are screened annually for respiratory and enteric bacterial pathogens (during one of the comprehensive necropsies). Reports of all test results are posted in each facility and are summarized on UAC's listserv Animal.Scoop. Positive results are immediately reported to the Chief of BSS, investigators are notified, and appropriate steps are taken to quarantine the animals and eliminate the disease. Follow-up testing is performed and posted in each facility.

###### **2.1.2.2.2.2. Environmental monitoring**

Quarterly environmental microbiological surveys are performed. Replicating organism direct agar contact (RODAC) plates or swab samples are used to assess sanitization procedures for animal rooms, cage washing areas, surgery, necropsy, laboratories, etc. Drinking water sources are cultured bi-weekly for bacterial pathogens. Autoclave efficacy is monitored monthly with biological indicators, and with each load by temperature sterilization strips. If inadequate sanitization or sterilization is observed, steps are taken immediately to identify and correct the underlying cause.

A log sheet is kept for each room, and the temperature is recorded daily. Humidity and lumens of light are checked quarterly and recorded. Any deviation from normal is reported to the UAC maintenance Supervisor, and the Facilities Management unit is called in to adjust the temperature, humidity, or lights. Light timers are also checked daily to assure proper function. Room logs are also used to record any other environmental problem, such as insects, broken equipment, etc. Problems are reported to one of the supervisors or to the UAC maintenance Supervisor for correction.

###### **2.1.2.2.2.3. Food Monitoring**

All feed is checked upon arrival to assure that no outdated feed is received. The oldest milling date is always used first, and in no instance can feed with a milling date greater than 90 days be used. Feed infested with vermin is immediately disposed of and all containers cleaned and washed. Plastic cards are attached to the food barrels in the animal rooms. The card will state the milling date, date the food was placed in the barrel and type of food in the barrel. A sample of each type of feed is tested twice a year for pathogenic bacteria. Feed companies are required to furnish data on nutrient content, chemical contaminants, etc.

###### **2.1.2.2.2.4. Water Quality**

Deionized water is used in most rodent rooms. The following rooms at AHSC have delivered or reverse osmosis (RO) watering available: 1205, 1206, 1208, 1209, 1210, 1211, 1212, 1257,

1259, 1260, 1261, 1265, 1266, 1267 and 1268. For all microisolator rooms, water is autoclaved. Water is checked bi-weekly for coliform organisms. Chlorinated water is supplied for all rodent rooms at CAF. Facilities Management monitors the quality of all source water used in the animal facilities.

### **2.1.3. UAC Quality Assurance Program**

Ensuring the quality of animals begins before an animal is ordered and continues until the animal has completed its stay in the animal facilities. All sub-units of UAC participate in maintaining quality assurance, with various portions of the quality assurance program being overseen by Pathology Services, Biotechnology Support Services, and Facilities Services.

#### **2.1.3.1. Vendor Surveillance**

In order to obtain healthy animals and maintain the health of animals held in its facilities, UAC monitors the quality and health status of all animals received. Vendor lists can be obtained from the Animal Purchasing Office (626-4511). Selection is as follows:

##### **2.1.3.1.1. Dogs**

***Approved-Source Dogs:*** Most dogs are purchased from licensed laboratory breeders and dealers who provide health records, vaccination for major diseases, deworming, and a minimum one month conditioning period. Upon arrival, a physical exam is performed on each dog, a fecal sample is checked for endoparasites, and animals are treated for parasites as indicated. A blood sample may be obtained for a CBC, serum chemistries, and Babesia and Ehrlichia spp. serology, depending on the length of stay and/or type of research project. Conditioned dogs are given a minimum 72 hour acclimation period after arrival to UAC.

***Dogs obtained from local animal shelters and non-approved sources:*** are quarantined for 14 days. Upon arrival, a physical exam is performed on each dog, a fecal sample is checked for endoparasites, and animals are treated for parasites, as indicated. Unhealthy animals are treated or euthanatized. Dogs are dipped for external parasites and administered routine vaccinations for distemper, parvovirus, hepatitis, leptospirosis, parainfluenza, coronavirus, rabies, and adenovirus. A blood sample may be obtained for a CBC, serum chemistries, and Babesia and Ehrlichia spp. serology, depending on the length of stay and/or type of research project.

##### **2.1.3.1.2. Cats**

Cats obtained from licensed dealers must arrive with a valid health report. Cats which come from vendors who do not have feline leukemia virus (FeLV) and feline infectious peritonitis (FIP) negative colonies are checked for these diseases, and cats which test positive are euthanatized. For all cats, physical exams are performed, appropriate vaccinations given, a fecal sample analyzed for endoparasites, and cats are treated for parasites, as indicated. Cats determined to be free of infectious disease are then taken to a permanent housing room.

Cats obtained from local animal shelters are quarantined for 14 days. Upon arrival, these cats are given a physical exam and serological tests for FeLV, feline immunodeficiency virus (FIV), and FIP are performed. Cats positive for FeLV, FIV, and FIP are either euthanatized or used acutely, prior to leaving quarantine. The remaining cats are vaccinated for panleukopenia, rhinotracheitis, calicivirus, and leukemia. Fecal samples are checked for endoparasites, and cats are treated for parasites if indicated.

#### **2.1.3.1.3. Rabbits**

Only SPF rabbits are used. Upon arrival, rabbits are inspected for evidence of disease. If problems are found, the shipment is rejected, and the vendor is removed from the approved list.

#### **2.1.3.1.4. Rodents**

**Approved Sources:** Vendors with certified viral antibody free (VAF)/mycoplasma-free colonies are the primary sources of animals and these suppliers are placed on the Approved Source list. Incoming mice and rats which are going into the clean barrier or which will be used as sentinels are quarantined for 21-days, after which they are tested for Sendai virus, coronaviruses, PVM, parvovirus, Mycoplasma pulmonis, potentially pathogenic bacteria, and endo- and ectoparasites. If positive results are detected for any of these infectious agents, the shipment is rejected or, in the case of valuable animals, rederivation is considered.

**Non-approved Sources (NAS):** With the increase in specialized rodents, such as transgenics and knockouts, more animals are being requested from vendors who do not fall into the Approved Source category. Contact the Purchasing Office (626-4511) for a copy of the guidelines concerning NAS shipments. NAS must be coordinated by the UAC Animal Purchasing Office for entrance to the University of Arizona facilities. For these animals, as much information as possible is obtained on their health status. The animals are then shipped to the NAS Quarantine facility where they remain in isolation cubicles for a minimum of 21 days, after which a comprehensive necropsy profile is performed on the sentinel rodent. If animals are found to be free of disease, they may be moved to the AHSC or CAF rodent rooms. If contaminated, rederivation is performed, the animals are housed in the CAF ABSL-2 Barrier under strict isolation for the duration of the research study, or the animals are euthanatized.

#### **2.1.3.1.5. Nonhuman Primates (NHP)**

Only macaques that are Hepatitis B, STLV1, SIV, SRV, and Cercopithecine herpesvirus 1 (Herpes B)-virus negative are purchased. NHP are vaccinated for measles and Hepatitis A by the vendor. Complete health reports are required prior to approving the animal shipment. NHP are quarantined for six weeks following arrival into UAC facilities, or until all animals have passed three consecutive negative TB tests which are administered at two week intervals. All animals that test positive for TB are euthanatized. A CBC, serum chemistry panel, fecal cultures, and, fecal parasitology are performed and animals are treated for infection/infestation as necessary. Macaques are tested for Cercopithecine herpesvirus 1, simian retrovirus and simian immunodeficiency virus.

#### **2.1.3.1.6. Pigs**

Pigs are given a physical exam upon arrival and pigs with obvious clinical signs of illness are rejected and returned to the supplier.

#### **2.1.3.1.7. Other Species**

Appropriate diagnostic tests and examinations are performed as needed.

### **2.1.3.2. Housing by Health Status**

Animals are housed by health status and, in general, by vendor. Six levels of health status are maintained in the facility, designated A (most clean) through F (contaminated). Letter designations are posted on each animal room door and updated weekly. Lists of all rooms with designations are found on central bulletin boards and by the supervisor's office at the COM and CAF facilities.

Personnel may descend the alphabet when going to more than one animal room per day, but not move up the alphabet. (I.E., you can move from A to B to C, etc., but not from C to B to A.)

**Please observe special instructions on animal room doors**, such as wearing protective clothing.

#### **2.1.3.3. Isolation**

Rooms where outbreaks of highly contagious disease occur are individually isolated and access limited.

#### **2.1.3.4. Shoe Covers**

To minimize spread of infection through the facilities, all individuals entering the facilities are required to put on shoe covers. Additionally, disinfectant spray bottles are located outside of each animal room.

**Before entering and upon leaving each animal room, the bottoms of the shoe covers must be sprayed with disinfectant.**

#### **2.1.4. Farm Animal Care – (pending)**

#### **2.1.5. Business Services                      Phone: 626-6702**

The UAC Business Office is located in the College of Medicine, Room 1126, phone 626-6702. All questions relating to per diem rates, billing etc. should first be directed to the staff of the Business Office.

#### **2.1.5.1. Billing Information**

##### **2.1.5.1.1. Billing Period**

The University Animal Care billing period is from the 21st of each month to the 20th of the following month, with the exception of the period from June 21 to June 30, which currently is included with the May 21 through June 30 bills. Any animal purchases, per diem and special services charges are billed to your account for the current billing period. In some instances, prior billing period charges can be included in the current billing period.

##### **2.1.5.1.2. Billing Methodology**

Investigators are billed from vendor invoices for animal purchases. University Animal Care, therefore, cannot bill investigators until the invoice from the vendor is received.

Charges to investigators are equal to vendor charges for the animals and any carton charges, water kits, shipping, freight or handling charges. In addition, University Animal Care adds any applicable sales taxes and 10% handling fee. Due to revisions in federal guidelines for billing for animal facility services, the handling fee will be eliminated as of July 1, 2002.

Per diem charges are calculated from the data on animal census sheets kept for each animal room. Each day when the animal care technicians service the rooms, they record the number of animals in the room for each investigator for that day, and indicate the reason for any changes in balance from the previous day. Changes could be brought about by receiving or using animals, termination of animals, or transferring animals to another room or another account. If the technician servicing the room does not know why the number of animals has decreased or increased, it is recorded as an adjustment. UAC is currently installing a bar-coded cage card system, which will allow animal census to be recorded electronically. Implementation is scheduled on or after July 1, 2002.

The total number of care days by species and type of housing, as well as corresponding per diem calculations are summarized at the bottom of the monthly invoice for each FRS account.

#### **2.1.5.1.3. Posting to F.R.S.**

The information presented on the bill is posted in summarized form to the FRS account specified on the invoices. The total charge for animal purchases is posted to object code, 5120. Total per diem charges, are posted to object code, 4130. Special service total charges, are posted to object code, 4290. If you have a credit on your invoice, it will be posted to FRS separately. This means that instead of seeing the total charge from Item #18 or Item #29 on your invoice, you will see the total expenses on one line in F.R.S., and the total credits on another line. If you add the expense and the credit together, it will equal the total on your UAC invoice.

Also referenced on the FRS report are the UAC invoice number and the billing date, to help you tie your FRS reports to the UAC invoice you receive in Campus mail.

You can quickly identify charges from our department on your FRS report by the batch reference code "UAC" which has been assigned to our department.

#### **2.1.5.2. Changing Your Account Number**

If you should need to change account numbers due to funding changes or expiring accounts, it is necessary to submit an Interdepartmental Billing Form (IBF), or a memo with the proper signatures. On the IBF, or memo, specify the old account number, the new account number, the effective date of the change and any specific animal orders or species that are to be switched. If per diem charges are to be transferred to a new account, include the room numbers and species that are to be changed. Be sure that the IBF or memo is signed by an authorized account representative for the new account. Send the IBF, or memo, to UAC, College of Medicine, Rm. 1126, attention: Business Office.

Please be aware that UAC will gladly make corrections for any errors that we may have inadvertently made.

#### **2.1.5.3. Animal Inventory Procedures**

Inventories of animals currently in-house are maintained on a daily basis by use of a standard count sheet. One count sheet is prepared for each investigator account for each animal room. Therefore, if an investigator has animals being charged to more than one account in any given room, there will be a separate count sheet for each account and type of cage.

The inventory count sheet is updated each day for all activity on each account, recording receipts, deaths, room transfers, usage by investigators, and other necessary adjustments. For purposes of calculating per diem charges, if an animal leaves the facility before the inventory count is updated for the day (usually in the morning), the investigator is not charged per diem for the animal for that day. Similarly, if the animal is not removed until after the inventory is taken for that day, per diem will be charged for that animal.

When an animal is removed from the facility, its cage card can be kept by the investigator, or turned in to the UAC main office (AHSC, room 1126; CAF room 114). The cage card is then kept for one month. After the month elapses, the cage card is thrown away.

Investigators need to carefully review their animal inventories each month to assure that UAC inventories match their records. One problem we often encounter is animals remaining in the facility after a study is complete. These unneeded animals take up valuable space and investigator accounts

continue to be billed. It is the investigator's responsibility to see that unneeded animals are euthanized or otherwise disposed of. UAC staff may be requested to perform euthanasia and are happy to assist in finding homes or other uses for unneeded animals. Please contact a supervisor for assistance.

#### **2.1.5.4. Per Diem Rate Policies**

The rates are based on an extensive cost study performed by University Animal Care. The rate calculations comply with federal costing guidelines, and are subject to audit by the Department of Health and Human Services, the U of A's cognizant federal agency. The U of A Controller's Office is responsible for ensuring that the rates are in compliance with all pertinent regulations. University Animal Care and the Financial Services Office are jointly responsible for defending the rates, if audited.

The rates reflect compliance with both the Federal Animal Welfare Act and Public Health Service Policy, relating to the care and maintenance of animals, which have often resulted in higher per diems. For example, the regulations stipulate housing sizes and limit the number of animals allowed for the various types of housing.

It is important to remember that our per diem rates reflect a 41.0% "subsidy" from institutional state funds and indirect cost reallocations.

UAC provides a number of services free to customers, including research planning and veterinary consultations.

## **2.2. Other University Animal Care Policies**

### **2.2.1. Animal-Related Policies**

#### **2.2.1.1. Environmental Enhancement Plan for Macaca Mulata (Rhesus Macaques)**

In compliance with Federal Rules (USDA, 1991, section 3.81), each nonhuman primate user must have a detailed environmental enhancement plan. Generally, this consists of a variety of toys, cage additions, and foraging devices to provide stimulation for the monkey. In addition, perches, viewing windows, and grooming ports may be used.

**Exceptions:** Monkeys that have received surgical implants are singly housed to prevent damage to the device.

**None of the monkeys are exempt from the Environmental Enrichment Program.**

#### **2.2.1.2. Euthanasia of animals left in necropsy**

Room 1220 COM and room 252 CAF are the necropsy rooms. Rodent euthanasia is covered in the per diem rates, thus UAC euthanizes rodents without direct charge. For all other species, researchers are recharged for supplies used. Investigators may terminate their own animals after they have been trained on the operation of the CO<sub>2</sub> chamber. Please see the facility supervisor for instruction.

Once an animal has been placed into a necropsy room it may not be retrieved and once again placed in a regular animal room as the health status of these animals is no longer known. **At no time are animals to be taken out of this area and utilized for experimentation.**

### **2.2.1.3. Radios in Animal Facilities**

No radios are allowed in the animal rooms, surgery rooms, or procedure rooms. Radios are permitted in offices only. The only exception is for animal rooms in which radios or sound systems are used as “white noise” to decrease barking and increase production in rodent colonies and decrease rodent cannibalization.

### **2.2.1.4. Rodent Breeding**

**Background:** With a growing number of investigators utilizing breeding colonies to develop/obtain appropriate animal models, it has become increasingly difficult not only to assure that all animals are being managed appropriately, but also to accurately account for animal numbers. Additionally, if individual litters are not weaned in a timely manner, production of the breeding colony can be drastically affected by overcrowding, cannibalism, and a general deterioration of cleanliness in individual pans housing multiple unweaned litters. University Animal Care has established breeding colony SOPs which assure breeding colony maintenance that is reasonably expected to avoid these problems. In an effort to address these issues the following standards have been established:

**Policy:** Ideally, investigators should utilize the services of University Animal Care to maintain their breeding colony. However, in the event an individual investigator wishes to maintain their own colony, and they have received authorization to do so during IACUC review of their breeding protocol, they must assure that litters are weaned in a timely and age appropriate manner (19-28 days depending on strain). That is, prior to or immediately after the birth of a new litter by the same dam. If UAC personnel find a new litter in a pan, they will separate the older litter and the investigator will be recharged for technician time.

Harem breeding: No more than two females shall be housed together AND allowed to litter in a pan (cage). A maximum of three females can be mated with a male in a pan. However, one female must be removed from the pan before the other females begin to litter. No more than one litter will be allowed per pan. (See following Enforcement Policy)

#### **Enforcement:**

1. UAC personnel will intervene as necessary to enforce the standards of the policy and the investigator will be recharged for services as appropriate.
2. The IACUC will be notified of policy violations.
3. Investigators who repeatedly violate the policy and allow their cages to become overcrowded (more than one litter per pan at a time) will be required to go to single breeding pair housing and will be responsible for the accompanying costs of doing so.

### **2.2.1.5. Wire-bottom Caging**

**Background:** AAALAC’s Council on Accreditation recommended that institutions review their use of wire-bottom caging for rodents and limit to only those cases where scientifically justified. .

**General Policy:** Wire-bottom caging is discouraged for general use. Assignment of animals to wire-bottom cages will be at the discretion of University Animal Care with input from the investigator. Any animals that are put in wire-bottom cages will be monitored for foot lesions.

**Exceptions:** Due to specific aspects of research projects, some investigators request and are allowed to use wire-bottom caging. Some examples are listed below:

- Toxicology Studies: Eliminates the ingestion of bedding
- Diabetes Studies: Prevents animals from laying in urine soaked bedding
- Special Diets: Allows for the collection of “wasted” feed.
- Survival Surgery: Assures that bedding won’t contaminate surgical sites.
- Metabolic Studies: Allows for collection of feces.

## **2.2.2. Human-related policies**

### **2.2.2.1. Animal Bites**

All mammalian-species animal bites must be reported to the Assistant Director, extension 626-2055 or the South Campus Supervisor, 621-1621. UAC contacts the Pima County Animal Control Center, and quarantines the animal for a specified period of time. At the end of the quarantine period, Animal Control sends a report to the bite victim, informing them whether the animal passed the quarantine and is negative for rabies. Bite victims should also report to The Occupational Health Clinic for treatment of wounds and examination by a physician.

### **2.2.2.2. Clothing**

As laboratory animals carry diseases or allergens which may cause illness in man or other animals, it is prudent to wear some form of protective clothing while in the animal facility. A lab coat, coveralls, or scrub suit can provide adequate protection.

Shoe covers should be worn at all times while in the animal facilities and discarded before leaving. Shoe covers are available in each facility. Special protective clothing is required in all primate rooms. Instructions will be posted on each door, and must be followed.

If working with known biological or other hazards, you should check with risk management, or UAC personnel for additional precautions.

### **2.2.2.3. Eating**

No food or drink is allowed in the animal rooms, laboratories, or hallways. Food in closed containers may only be taken into facility offices or break rooms for consumption.

### **2.2.2.4. Precautions for Handling Nonhuman Primates**

**Prior** to handling nonhuman primates, personnel **must** contact a UAC supervisor to discuss the special precautions for handling these species. Required nonhuman primate restraint, safety precautions and human health status are discussed in UAC's standard operating procedures manual.

### **2.2.2.5. Smoking**

No smoking is allowed in CAF and the AHSC complex. This includes all animal facilities, offices, break rooms, the College of Medicine and University Medical Center.

### **2.2.2.6. Supplies**

Animal Care provides shoe covers and gloves for use while in the animal facility. Food and bedding are provided for animals under the care of UAC personnel. Animals housed in satellite facilities which are cared for by individual investigators must be recharged for animal-related supplies as they are not being inventoried. At no time are investigators allowed to take containers of food and bedding from the main animal facilities unless it has been cleared through the UAC management. All bedding and

food are accounted for and factored into per diem costs. Stainless steel carts belonging to UAC may be used by investigators while in the animal facility. At no time does this equipment leave the facility. Animal Care **does not** provide sheets to cover animals, clothing (other than special clothing required by specific animal rooms), lab coats, drugs, reagents, chemicals, blood collection and microbiological supplies for free. These items may be purchased if necessary, but they will be marked-up to cover administrative costs. UAC also does not provide cages, bedding, food, water bottles and containers to private animals.

### **2.3. Updates and Information on Animal Care and Use**

The ANIMAL RESEARCH TASK FORCE, a committee appointed by the President of the University and the Southwest Association for Education in Biomedical Research (SwAEBR), a non profit organization of which the university is a contributing member, disseminate information concerning the benefits of animal research to the community and public representatives. UAC has extensive information and videotapes concerning public relations, animal rights, the benefits of animal research, local research, and other topics. For further information, or to borrow any of these materials, call 621-3931.

ANIMAL SCOOP is UAC's listserv where information regarding changes in policies, disease information updates and other information is provided to researchers. To subscribe, please call 626-6702.

### **3. Appendices**

- 3.1. Facility Maps and Descriptions (Appendix not published on our website)
- 3.2. Methods of Animal Identification
- 3.3. Space Requirements for Housing Animals
- 3.4. Cage Types Available
- 3.5. American Association for Laboratory Animal Science
- 3.6. Standard Operating Procedures for Animal Care
- 3.7. Cage/Pen/Room Sanitation Schedule
- 3.8. Who to Contact for Commonly Asked Questions

## APPENDIX 3.2.

### Methods of Animal Identification

#### ANIMAL IDENTIFICATION

The development of the Biomedical Sciences and the increasing use of animals for experimentation necessitated establishing identification systems suitable for various species of animals. Identification of animals in research is a very important factor in any experimental procedure. Many methods now exist for the marking of animals used in research.

For humane purposes all methods that will cause severe pain should be applied while animals are under general anesthesia, otherwise, a local anesthetic should be used. This will apply particularly to tattooing and here possible to branding.

#### Animal Identification

**ALL ANIMALS MAY BE IDENTIFIED BY INJECTABLE TRANSPONDER.**

SPECIES	TYPE OF MARKER	WHERE APPLIED
Dogs	Collars w/tags, engraved Tattoo, (forceps or electric)	Around neck comfortably. Inner surface of ear.
Cats	Collars w/tags, engraved Neck bands	Around neck comfortably Around neck comfortably
Guinea Pigs	Dye Coded Ear Studs Coded Wing Clips Punched, coded Natural markings	Fur Close to head in ears Close to head in ears As required in ears Chart & records accordingly
Hamsters	Tattoo (forceps or electric) Punches, coded	Inner surface of ears As required in ears
Mouse	Dye Tattoo (forceps or electric) Punched, coded	Fur Inner surface of ears As required in ears
Rats	Dye Tattoo (forceps or electric) Punches, coded	Fur Inner surface of ears As required in ears
Rabbits	Dye Ear tags (clips, wing) Ear studs leg bands	Fur Close to head in ears Close to head in ears Above hock rear legs

<b>SPECIES</b>	<b>TYPE OF MARKER</b>	<b>WHERE APPLIED</b>
Monkeys	Tattoo (forceps or electric Chains, or bands, w/coded tags or discs	Adults, below clavicle (collar bone), forehead, lips. Young, on inner thigh Around waist comfortably
Frogs	Bead, w/nylon thread Punched, coded	On skin above dorsal sac In web of feet
Turtles	Filing Paint Punched, coded	Outer edges of carapace in code Back of carapace In feet
Fish	Natural markings Clips Isolation	Chart & record accordingly Dorsal, or ventral fins, sometimes the tail Individually housed
Ferrets	Dyes Tattoo Punches	Fur Inner surface of ears Coded in ears
Pigs (swine)	Tattoo Punched Ear studs Ear clips	Inner surface of ears Coded in ears Close to head in ears Close to head in ears
Sheep	Tattoo Punches Ear studs Ear clips Collars, w/discs, engraved	Inner surface of ears Coded in ears Close to head in ears Close to head in ears Around neck comfortably
Goats	Same as for sheep	Same as for sheep
Chickens	Wing bands Wing clip Leg band Leg ring	Around wing above radial close to body (must not hamper activity) Anterior (front) edge of wings Closely but comfortably around legs Closely but comfortably around legs
Pigeons	Leg band also wing clips Leg ring	Same as for chicken Same as for chicken
Birds (all kinds)	Leg bands Wing clips	Closely but comfortably around legs Same as for chicken

<b>SPECIES</b>	<b>TYPE OF MARKER</b>	<b>WHERE APPLIED</b>
Ducks	Wing clips Leg bands Leg rings Punches	Same as for chicken Same as for chicken Same as for chicken Coded to web of feet
Geese	Same as for ducks	Same as for ducks
Swans	Same as for ducks	Same as for ducks
Cattle	Punches Tattoo Collars, w/discs, engraved, and bells Natural colors Branding  Ear clips	Coded in ears Inner surface of ears, lips or tongue Comfortably around neck Chart & record accordingly Dorsal section of shoulders & hips on either side Coded in ears, close to head
Horses	Same as for cattle	Same as for cattle

In addition to the animal itself being identified, a cage card must also accompany each animal or, in the case of rodents, frogs, etc., each pan or cage of animals. University Animal Care uses computer-generated plastic-like cards. Each card must be completed in full. Where one or more animals are confined in a pan or pen the card shall have the number of animals and any distinctive physical features, marks, tattoos or tags attached to those animals.

**APPENDIX 3.3.**

**MINIMUM SPACE RECOMMENDATIONS FOR LABORATORY ANIMALS**

<b>WEIGHT ANIMAL</b>	<b>TYPE OF Gram</b>	<b>FLOOR AREA/ANIMAL HOUSING</b>	<b>HEIGHT <sup>a</sup></b>		<b>in.</b>	<b>cm</b>
			<b>in<sup>2</sup></b>	<b>cm<sup>2</sup></b>		
Mice	< 10	Cage	6.0	38.71	5	12.70
	10-15	Cage	8.0	51.62	5	12.70
	15-25	Cage	12.0	77.42	5	12.70
	>25	Cage	15.0	96.78	5	12.70
*Rats	<100	Cage	17.0	109.68	7	17.78
	100-200	Cage	23.0	148.40	7	17.78
	200-300	Cage	29.0	187.11	7	17.78
	300-400	Cage	40.0	258.0	7	17.78
	400-500	Cage	60.0	387.12	7	17.78
	>500	Cage	70.0	451.64	7	17.78
*Hamster	<60	Cage	10.0	64.52	6	15.24
	60-80	Cage	13.0	83.88	6	15.24
	80-100	Cage	16.0	103.23	6	15.24
	>100	Cage	19.0	122.59	6	15.24
*Hamster	< 5 weeks	Cage	10.0	64.52	5.5	13.97
	5-10 weeks	Cage	12.5	81.25	5.5	13.97
	> 10 weeks	Cage	15.0	97.50	5.5	13.97
*Guinea Pigs	<350	Cage	60.0	387.12	7	17.78
	>350	Cage	101.0	651.65	7	17.78
+Guinea Pigs	<350	Cage	60.0	387.12	6.5	16.51
	>350	Cage	90.0	385.0	6.5	16.51
	Breeders	Cage	1,080.0	1,170.0	6.5	16.51
	<b><u>kg</u></b>		<b><u>ft</u></b>	<b><u>m</u></b>		
*Rabbits	<2	Cage	1.5	0.14	14	35.56
	2-4	Cage	3.0	0.28	14	35.56
	4-5.4	Cage	4.0	0.37	14	35.56
	>5.4	Cage	5.0	0.46	14	35.56

**APPENDIX 3.3. (Cont.)**

**MINIMUM SPACE RECOMMENDATIONS FOR LABORATORY ANIMALS**

	<u>Category</u>	<u>Lbs.</u>	<u>in<sup>2</sup></u>	<u>cm<sup>2</sup></u>		
+Rabbits	Groups	3-5	144	936		
		6-8	288	1,872		
		>9	432	2,808		
	Indiv.	3-5	180	1,170		
		6-8	360	2,340		
		9-11	540	3,510		
		>12	720	4,680		
	Nursing Female	3-5	576	3,744		
		6-8	720	4,680		
		9-11	864	5,616		
		>12	1,080	7,020		
		<u>kg</u>		<u>ft<sup>2</sup></u>	<u>m<sup>2</sup></u>	<u>in</u>
*Cats	<4	Cage	3.0	0.28	24	60.96
	>4	Cage	4.0	0.37	24	60.96
+Cats	Adult	Cage	2.5			
Not more than 12 unconditioned cats shall be housed in the same primary enclosure.						
*Dogs	<15	Pen/run	8.0	0.74		
	15-30	Pen/run	12.1	1.12		
	>30	Pen/run	24.0	2.23		
	<15	Cage	8.0	0.74	32	81.28
	15-30	Cage	12.1	1.12	36	91.44
	>38	Cage	c		c	

+ Dogs

The height of each cage shall be sufficient to allow the occupant to stand in a comfortable position. Each dog shall be provided a minimum square footage of floor space equal to the mathematical square of the sum of the length of the dog in inches, as measured from the tip of its nose to the base of its tail, plus 6 inches, expressed in square feet (length of dog in inches +6) x (length of dog in inches +6) = required area in square inches/144 = required square feet of floor space. Not more than 12 adult unconditioned dogs shall be housed in the same primary enclosure.

**APPENDIX 3.3. (Cont.)**

**MINIMUM SPACE RECOMMENDATIONS FOR LABORATORY ANIMALS**

WEIGHT ANIMAL	TYPE OF kg	FLOOR AREA/ANIMAL HOUSING	HEIGHT <sup>a</sup>			
			ft	m	in.	cm
*Nonhuman						
Primates						
Group 1	<1	Cage	1.6	0.15	20	50.88
Group 2	1-3	Cage	3.0	0.28	30	76.20
Group 3	3-10	Cage	4.3	0.40	30	76.20
Group 4	10-15	Cage	6.0	0.56	32	81.28
Group 5	15-25	Cage	8.0	0.74	36	91.44
Group 6	>25	Cage	25.1	2.33	84	213.36
+Nonhuman						
Primates						
Each primate shall be provided with a minimum floor space equal to an area of at least three times the area occupied by such primate when standing on four feet.						
Pigeons	-	Cage	0.8	0.074	e	
*Quail	-	Cage	0.25	0.023	e	
*Chickens	<0.25	Cage	0.25	0.023	e	
	0.25-0.5	Cage	0.50	0.046	e	
	0.5-1.5	Cage	1.00	0.093	e	
	1.5-3	Cage	2.00	0.186	e	
	>3	Cage	3.06	0.285	e	
*Sheep & Goats						
1-4/pen	<25	Pen	10.0	0.93	-	
	25-50	Pen	15.0	1.39	-	
	>50	Pen	20.0	1.86	-	
5/pen	<25	Pen	8.5	0.79	-	
	25-50	Pen	12.5	1.16	-	
	>50	Pen	17.0	1.58	-	
5/pen	<25	Pen	7.5	0.70	-	
	25-50	Pen	11.3	1.05	-	
	>50	Pen	15.0	1.39	-	
*Swine						
1-4/pen	<25	Pen	6.0	0.56	-	
	25-50	Pen	12.0	1.11	-	
	50-100	Pen	24.0	2.23	-	
	100-200	Pen	48.0f	4.46	-	
	>200	Pen	60.0f	5.57	-	

**APPENDIX 3.3.** (Cont.)

**MINIMUM SPACE RECOMMENDATIONS FOR LABORATORY ANIMALS**

WEIGHT ANIMAL	TYPE OF kg	FLOOR AREA/ANIMAL HOUSING	HEIGHT <sup>a</sup>			
			ft	m	in.	cm
*Swine 5/pen	<25	Pen	6.0	0.56	-	-
	25-50	Pen	10.0	0.93	-	-
	50-100	Pen	20.0	1.86	-	-
	100-200	Pen	40.0	3.72	-	-
	>200	Pen	52.0	4.83	-	-
>5/pen	<25	Pen	6.0	0.56	-	-
	25-50	Pen	9.0	0.84	-	-
	50-100	Pen	18.0	1.67	-	-
	100-200	Pen	36.0	3.34	-	-
	>200	Pen	48.0	4.46	-	-

+ Warm-blooded animals other than dogs, cats, rabbits, hamsters, guinea pigs, nonhuman primates and marine mammals.

Enclosures shall be constructed and maintained so as to provide sufficient space to allow each animal to make normal postural and social adjustments with adequate freedom of movement.

\* U.S. Department of Health and Human Services  
Public Health Service  
National Institutes of Health  
*Guide for the Care and Use of Laboratory Animals*, Table 2-1, 1996

+ Animal and Plant Health Inspection Service  
U.S.D.A.  
"Animal Welfare Act"

a From resting floor to the cage top

b Space recommendations are comparable to the current regulations of the Animal Welfare Act.  
Mothers with litters require more.

(c) These recommendations may require modification according to the body confirmation of individual animals and breeds. Some dogs, especially those toward the upper limit of each weight range, may require additional floor space or cage height to ensure compliance with the regulations of the Animal Welfare Act.

(d) The designed groups are based on approximate sizes of various non-human primate species used in biomedical research. Examples of species included in each groups are:

- |         |  |
|---------|--|
| Group 1 | Marmosets, tamarinds, and infants of various species.  |
| Group 2 | Capuchins, squirrel monkeys, and similar species.      |
| Group 3 | Macaques and African species.                          |
| Group 4 | Male macaques and large African species.               |
| Group 5 | Baboons and non-brachiating species larger than 15 kg. |
| Group 6 | Great apes and brachiating species.                    |

(e) Sufficient head room must be provided for birds to stand erect.

(f) Space recommendation is not applicable to sows housed in gestation or farrowing stalls.

**APPENDIX 3.4.**

**CAGE TYPES AVAILABLE**

<b><u>Species</u></b>	<b><u>Cage Type</u></b>	<b><u>Specifications</u></b>
Cat	Breeding	1 female w/ litter
Cat	Regular	1 cat per cage
Dog	Cage	1 dog per cage
Dog	Room with bedding	1-6 dogs per room
Dog	Run with floor mats	1-2 dogs per run
Ferrets	Opossum cage with bedding	1 per cage
Frogs	Plastic rat pan	1-5 per pan
Frogs	Tank	15-30 per tank
Goat	Room with bedding	1-3 per room
Guinea Pig	Cage with bedding	1-6 per cage
Hamster	Pan with bedding	1-5 per pan
Mice	Microisolator (bedding) pan	1-5 per pan
Poultry	Brooder	1-20 per brooder
Poultry	Cage	1 per cage
Quail and Birds	Cage	1 per cage
Rabbit	Double size cage (large rabbits)	1 per cage
Rabbit	Single size cage (small rabbits)	1 per cage
Rat	Double hanging wire-bottom cage	1-5 per cage
Rat	Pan with bedding	1-5 per pan
Rat	Micro isolator wire-bottom cage	1-5 per cage
Rat	Micro isolator (bedding) pan	1-5 per pan
Sea Animals	Aquaria 10 gallon	1-10 per aquaria
Sheep	Room with bedding, run with bedding	1-3 per room/run
Snake	Aquaria	1-30 per aquaria
Swine-mini	Room with bedding, Cage (dog)	1-3 per room 1 per cage
Swine-regular	Room with bedding, Cage (dog)	1-3 per room 1 per cage
Swine	Dog Cage	1 per cage
Turtles	Tank, Pool	1-15 per tank/pool

### APPENDIX 3.5.

#### **AMERICAN ASSOCIATION FOR LABORATORY ANIMAL SCIENCE**

AALAS has an Animal Technician Certification Program which serves two main purposes. It provides a mechanism for developing standards of competence for people who work in the field of laboratory animal science and it recognizes people who work in the field of laboratory animal science and it recognizes people who meet and exceed these standards by awarding them certification at three different levels: Assistant Laboratory Animal Technician, Laboratory Animal Technician, and Laboratory Animal Technologist.

The Arizona Branch of AALAS welcomes researchers to participate in our local branch activities. The Branch has regularly scheduled meetings and sponsors an annual fall symposia where research papers and other informative presentations are given. If you are interested in joining the Arizona Branch or wish to obtain more information about their activities, please call 621-3931.

## APPENDIX 3.6.

### STANDARD OPERATING PROCEDURES FOR ANIMAL CARE

Standard Operating Procedures for husbandry practices are available for investigators to review. Investigator may request copies of specific SOPs by calling the Assistant Director, Facility Services (626-2055). SOP's detail such things as cage changing frequency, types of bedding used for individual species, food variety, sanitation methods, etc. SOPs are written for adult animals maintaining a steady weight. Investigators may be required to write SOPs for their specific protocol. An investigator's SOP will always supersede UAC SOPs. All investigator-generated SOPs must be given to the manager so they can be put in the department's format. SOPs state what is included in base care for per diem charges. The following information gives a summary of Standard Operating Procedures:

#### FEEDING

Mice, rats, hamsters, guinea pigs are fed pelleted feed ad libitum. The cage hopper has food in it at all times, but only contains enough food to last till the next day. This is to prevent feed wastage. Guinea pigs are given cabbage 3 times a week as an extra source of Vitamin C.

Rabbits receive 100 grams of food daily.

Snakes are fed night crawlers once a week and fresh water fish once a week. Xenopus are fed frog diet twice a week and liver one time a week. Depending on the species, Rana frogs are fed crickets two to three times weekly and infant rodents are fed to the larger species once a week. Turtles are fed fresh water fish twice a week.

Dogs are fed dry food once a day. The amount fed is based on the animal's weight. Mother dogs and puppies receive Science Diet Canine Growth, and P/D canned food in increasing amounts as pups grow. Dogs that have had surgery and are anorectic may receive P/D or baby food.

Cats are fed dry food ad lib. Pregnant cats are fed ½ can of C/D can food in addition to the dry food. Queens with litters receive three fourths of a can of C/D and one scoop of Kitten Milk Replacer (KMR). At four weeks, kittens are fed on sixth of a can of C/D to help in the weaning process.

Pigs receive pig food twice daily. The amount varies with the weight of the animal. Sheep and goats are fed pellets and hay daily.

Ferrets receive dry ferret chow ad lib.

Chickens are fed 1 bowl of lay crumble daily.

Primates are fed between 6 - 10 biscuits twice a day and one-half to one cup of fruits and vegetables twice a day.

**IF ANIMALS ARE YOUNG AND NEED TO GROW, THE INVESTIGATOR MUST WRITE A SOP DETAILING THE NEW FEED REGIME. ALL ANIMALS ARE FED A MAINTENANCE DIET UNLESS OTHERWISE DIRECTED.**

**APPENDIX 3.6.** (Cont.)

**STANDARD OPERATING PROCEDURES FOR ANIMAL CARE**

**BEDDING**

Sani-Chips are used as a direct bedding for rats and mice and for cat litter boxes.

Aspen is used for Guinea Pigs, snakes and hamsters.

Screened baled shavings are used as direct bedding for dogs and pigs in runs.

Deotized cage boards are used as indirect bedding under hanging rat racks.

Rabbits do not have bedding in the excreta pans except during holidays when aspen is used as indirect bedding.

Deotized cage boards are used as indirect bedding under suspended rat cages and as direct bedding in breeding cat cages.

### APPENDIX 3.7.

#### **CAGE/PEN/ROOM SANITIZATION SCHEDULES**

<u>Type</u>	<u>Frequency</u>
Solid bottom cages	once a week
Cage tops	once every two weeks
Suspended	once a week
Cage racks/shelves	once every two weeks
Cage pans	Daily except holidays
Large Animal Pens/Runs/Rooms	once every week
Micro isolator tops	once every two weeks
Feeders/bowls/crocks	daily to weekly, depending on species
Water bottles changed	one to three times a week

Rooms are swept and mopped daily with germicidal cleaner. Every month, animals are moved and the room is disinfected and fogged with Clidox, a chemical sterilant. Lights are dusted with a brush or vacuumed once a week or as needed. Corridors are swept and mopped daily. A floor machine is used on the floors four times a week.

Mops are rinsed daily and changed when they become dirty or once a month, whichever is sooner. Mop buckets are hosed out daily in the animal room and run through cage washer once a month. Each animal room has a dedicated mop, mop bucket, broom, etc. This is to keep down the spread of disease.

**APPENDIX 3.8.**

**WHO TO CONTACT FOR COMMONLY ASKED QUESTIONS**

<b><u>QUESTION</u></b>	<b><u>CONTACT PERSON</u></b>	<b><u>EXTENSION</u></b>
AALAS Training Program	Casey Kilcullen-Steiner	626-2055
Anesthesia/Analgesia	Dr. Donald DeYoung	621-1653
	Dr. Michael Rand	626-6705
	Olivia Maxon	626-7304
Animal Husbandry Management, AHSC & CAF	Casey Kilcullen-Steiner	626-2055
Animal Husbandry Problems, AHSC	Cheryl Johnson	626-6706
Animal Husbandry Problems, CAF	Andi Mitchell	621-1621
Animal Model to Use	Dr. Donald DeYoung	621-1653
	Dr. Michael Rand	626-6705
	Dr. Susan Sanders	626-1066
Animal Orders	Miguel Diaz	626-4511
Animal Welfare	Dr. Susan Sanders	626-1066
Assistance in Planning Studies	Dr. Donald DeYoung	621-1653
	Dr. Michael Rand	626-6705
	Dr. Susan Sanders	626-1028
Availability of cats & dogs (including orders)	Miguel Diaz	626-4511
Billings/statements/IBF	Viviana Alfaro	626-2026
Euthanasia, Techniques and Assistance	Olivia Maxon	626-7304
	Lisa Bird	626-5015
	Dr. Michael Rand	626-6705
Facility Maintenance, AHSC	Tim Ruddy	626-6702
	Casey Kilcullen-Steiner	626-2055
Facility Maintenance, CAF	Andi Mitchell	621-1621
	Tim Ruddy	626-6702
Facility/Program, Long-range planning	Dr. Susan Sanders	626-1066
IACUC Problems or Complaints	Dr. Michael Rand	626-6705
	Dr. Susan Sanders	626-1066
Investigator Certification Program	Dr. Susan Sanders	626-1028
	Linda Musgrave	621-9305
	Grace Aranda	621-3931
Key Cards, AHSC	Cheryl Johnson	626-6706
Key Cards, CAF	Andi Mitchell	621-1621
Laboratory Visits	Dr. Paula Johnson	621-3483
Laboratory Work	Jessie Loganbill	626-7661
Per Diem Rates	Mary Durham	626-7426
<b>PROTOCOLS:</b>		
Planning new studies	Dr. Michael Rand	626-6705
	Dr. Don DeYoung	621-1330
	Dr. Susan Sanders	626-1028
	Dr. Jan Nicol	626-3725
Protocol Review, Administrative Questions	Linda Musgrave	621-9305
Protocol Review, Scientific Questions	Dr. Michael Rand	626-6705
	Dr. Paula Johnson	621-3483
Radioisotope, Room Use Approval	Cheryl Johnson	626-6706
Space for Animals, Current Studies, COM	Cheryl Johnson	626-4511
Space for Animals, Current Studies, CAF	Andi Mitchell	621-1621
Space for Animals, Future Studies	Casey Kilcullen-Steiner	626-2055
	Dr. Susan Sanders	626-1066