

Cost Analysis *and* Rate Setting **MANUAL**

for **Animal
Research
Facilities**

Cost Analysis and Rate Setting Manual

for Animal Research Facilities

MISSION

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Preface

This 2000 edition of the *Cost Analysis and Rate Setting Manual for Animal Research Facilities* has been produced by the Cost Manual Revision Committee under the auspices of the Comparative Medicine area of the National Center for Research Resources (NCRR), a component of National Institutes of Health (NIH).

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To develop this 2000 edition of the manual, the committee drew upon the 1979 edition of the *Cost Analysis and Rate Setting Manual for Animal Resource Facilities* (NIH Publication No. 80-2006) and on input from NCRR's Comparative Medicine Advisory Committee and numerous other sources.

The committee expresses its appreciation to the following institutions for field testing a draft copy of this manual:

California Institute of Technology
Johns Hopkins University
Merck & Company—Merck Research Laboratories
The Milton S. Hershey Medical Center of The Pennsylvania State University
University of North Carolina-Chapel Hill
University of Pittsburgh
University of South Alabama
Yale University

The committee also wishes to thank the following organizations for their support for this project and for the valuable advice provided by their representatives:

Association of American Medical Colleges
Association of American Universities
Association of Independent Research Institutes
Council on Governmental Relations
Federation of American Societies for Experimental Biology

The manual revision committee and NIH officials also met with representatives of the Office of Management and Budget (OMB), the Department of Health and Human Services (DHHS), and the Office of Naval Research. Representatives of these organizations also participated in site visits to The Milton S. Hershey Medical Center of The Pennsylvania State University and the Johns Hopkins University. These activities culminated with DHHS, with OMB concurrence, issuing an action transmittal on *Changes in the Treatment of Research Costs Related to Animal Facilities*. This transmittal appears as Appendix 1. This change in policy

for allocation of institutional space costs related to animal research facilities enabled the manual revision committee to complete work on a desirable method for allocation of such costs.

Another committee of the Institute for Laboratory Animal Research (ILAR), at the National Academy of Sciences, on cost and payment for animal research reviewed a draft copy of this manual and endorsed the general methodology, which is based on Federal policies related to support of sponsored projects in institutions of higher education. However, the principles described here are applicable to cost accounting in animal research facilities in a variety of organizations.

Introduction

The first edition of the *Cost Analysis and Rate Setting Manual for Animal Resource Facilities* was published in 1974. Revisions in cost principles for Federal grants and contracts led to another revision in 1979. Then, further evolution of the animal research environment led the National Center for Research Resources (NCRR) at the National Institutes of Health (NIH) to appoint an expert committee to revise the 1979 manual.

This 2000 revision was prompted by:

- Increased sophistication of animal research, in particular relating to genetic technology
- An evolution from animal care to animal research in animal research facilities
- Increased regulation of the care and use of laboratory animals
- The general use of computers for calculations involved in cost analysis
- The need for greater consistency in costing and rate setting in animal research facilities

The overall goals of this revised manual are to:

- Provide a fair and consistent methodology for costing of animal research
- Enhance the quality of animal research and care
- Meet needs of animal facility users more fully
- Improve effectiveness and efficiency of animal research facility management
- Help animal facilities to become more self-sustaining
- Document requests for NIH grant and contract support

These goals relate to the cost of animal research. To address these goals, the committee had to address and resolve a number of problems or issues, such as a lack of consistency, appropriate allocation of costs, and definition of differences between actual costs and the institution's charges to sponsored projects.

A careful review of animal research costs highlighted substantial inconsistencies. The committee found major inconsistencies in what was included in animal research facilities' billing rates for services. In some institutions, all animal research facility costs are included in the direct billing rates, whereas in others significant costs are in the institutional Facilities and Administrative (F&A) (indirect) cost rate, and in still others substantial amounts are being borne (subsidized) by the institution. There were inconsistencies in differentiating between animal research facility support and institutional F&A costs. The committee concluded that institutions were attempting in good faith to comply with general guidelines, but the end results were unsatisfactory.

The committee believes that a better distinction between direct and institutional F&A costs will provide greater flexibility in supporting high-quality, productive research. In evaluating the distinctions between direct and F&A costs, the committee considered the following:

- Consistent and fair treatment of costs
- Evolution of animal facilities to become research facilities
- OMB Circular A-21
- Research quality and productivity
- Quality of animal care
- Cost containment

In recognition of these considerations, the Cost Manual Revision Committee has provided a methodology whereby certain F&A costs associated with animal research within an animal research facility are included in the institution's F&A rate, the same as for any other research laboratory. As discussed in Chapter 2, the Federal government has agreed that these costs should be included in the F&A rate.

This revised manual will assist institutions in determining the true cost of operating their respective animal research facilities, and encourage the use of cost analysis as a management tool to enhance operational efficiency and effectiveness. Potential manual users include:

- Directors and managers of animal research facilities
- Institutional administrators
- Investigators
- Sponsoring agency personnel and peer review groups
- Auditors and rate negotiators

This manual represents recommendations of the revision committee and should be applied as uniformly as possible. The committee recognizes, however, that it may not be feasible for some institutions to completely follow the recommended methodology in the manual. These institutions should be permitted to follow alternative procedures, provided they comply with applicable Federal cost principles.

Preparation for Cost Analysis

Principles

Below are the basic principles for Animal Research Facility (ARF) costing and rate setting:

1. Billing rates should be based on costs.
2. The objective should be to operate as closely as possible to a break-even basis.
3. Billing rates should be established for all services that can be specifically identified to users and involve significant activities of the ARF.
4. All costs associated with providing an animal service should be included in the total cost of each service.
5. The costs must be treated consistently as either direct or support costs.
6. The assignment of costs to cost centers and the allocation of support costs to direct cost centers should be based on beneficial relationships.
7. Billing units should logically represent the service provided.
8. All users should be charged consistently at full rates (or the revenue should be imputed).
9. Revenue and costs should be compared at least annually to identify surpluses and deficits for each service.
10. Adjustments should be made to compensate for surpluses or deficits (variances).

Getting Started

Before starting cost analysis and rate setting, it is essential to gain a perspective of the entire procedure. Therefore, before undertaking the collection of any data or doing any calculations, the study director should read this entire manual.

Overview

Basic Steps

The basic steps of cost analysis for an ARF are:

1. List all the internal costs of the ARF.
2. Identify the direct cost centers of the ARF, such as daily care of a category of laboratory animals, and the internal support cost centers, such as ARF administration.
3. Assign the internal ARF costs to the direct and support cost centers.
4. Allocate to appropriate cost centers those institutional Facilities and Administrative (indirect) costs which are required by Federal policy to be assigned to the ARF.
5. Allocate the costs of the internal support cost centers to the direct cost centers.
6. Calculate unit costs by dividing the total allocated costs of each direct cost center by the units of service provided.

Internal ARF Costs

Costs associated with the ARF must be organized into direct and internal support costs:

1. *Direct costs* are defined as costs incurred for the husbandry of animals and for other services provided by the ARF for the benefit of specific projects, for which billing rates will be established.
2. *Internal Support Costs* are defined as costs incurred by the ARF which support, but are not specifically identifiable to, direct cost centers. ARF internal support costs include costs such as internal ARF administration, animal health care, and cage washing. These costs must be allocated to the direct cost centers and included in the billing rates.

Institutional Facilities and Administrative Costs

Institutional Facilities and Administrative (F&A) (indirect) costs associated with an ARF include:

- *Space* costs include building and equipment depreciation or use allowances, interest expense associated with the construction or renovation of facilities or the acquisition of equipment, and operation and maintenance of physical plant (e.g., utilities, repairs and maintenance, security, pest control).
- *Institutional General Administration and General Expenses* include the president's office, general accounting, purchasing, and similar administrative costs.
- *Regulatory Compliance* costs include activities that are necessary for the conduct of research, but are not directly attributable to individual research projects. These activities are Federally mandated as an institutional responsibility and include review of protocols for proposed research involving laboratory animals; monitoring of approved protocols; development, provision, and certification of training to qualify individuals to perform certain types of animal procedures; employee occupational health costs; oversight of animal study areas; and advice and consultation on reduction of animal numbers, refinement of research techniques, and alternatives to animal use.

The treatment of costs related to space is governed by a specific Federal policy issued by the Department of Health and Human Services (DHHS) with concurrence of the Office of Management and Budget. Under this policy, costs associated with the following space should be included in the organized research F&A rate: (1) procedure rooms, (2) operating and recovery rooms, (3) isolation rooms, and (4) quarantine rooms directly related to research protocols, as well as (5) rooms that house animals involved in research that are not generally removed from the facility for conducting research. Institutions must document (through a space survey) the particular research projects conducted in research space included in the F&A pool. All other space costs associated with the ARF are to be allocated to the ARF. (See Appendix 1 for DHHS policy transmittal).

The DHHS policy also states "...on a case-by-case basis animal care charges may be treated like patient care costs and excluded from the allocation base used to charge F&A costs to awards." If animal care charges are excluded from the F&A allocation base, Institutional General Administration and General Expenses should be allocated to the ARF. If animal care charges are included in the F&A allocation base, Institutional General Administration and General Expenses should not be allocated to the ARF. The preferable treatment is to include the animal care charges in the F&A allocation base and not allocate General Administration and General Expenses to the ARF.

The costs of Regulatory Compliance activities performed by ARF personnel are F&A costs, and they should be recovered in the F&A rate. These costs should be segregated and adjusted out of ARF costs.

Cost Assignment, Allocation, and Development of Unit Costs

ARF costs are identified by cost center and object classification. The total ARF costs should be reconciled to the institution's financial statements, and adjusted for unallowable costs and applicable credits. Costs allocable to daily care rates and other services are thus identified and segregated. These costs, grouped by object classification, such as supplies or salaries and wages, must now be expressed as unit costs for daily care of a given species or category of animals or service. This manual provides a detailed description and study model illustration of this translation process: Chapter 3 presents methodology for assignment of costs to cost centers; Chapter 4 deals with the allocation of costs from internal support cost centers (sometimes referred to as non-revenue producing cost centers) to direct cost centers and the determination of unit costs; and Chapter 5 deals with the use of unit costs for rate setting and cost recovery and other management purposes.

Requirements

There are several requirements that must be fulfilled before cost analysis can be done. ARF cost analysis should not be attempted until these requirements are fulfilled.

1. The institution must have a basic accounting system which identifies the total costs of the ARF. ARF management should make full use of the institution's financial accounting system to separate costs into cost centers. Thoughtful establishment of cost centers in the accounting system will minimize adjustments and allow many expenses to be assigned directly to the appropriate ARF cost centers. Any cost analysis system for the ARF must involve close cooperation between an institution's fiscal and accounting staff and the ARF's administrators and managers. Consultation and agreement with institutional officials on the structure of ARF accounts and treatment of each type of cost will facilitate appropriate allocation and recovery of costs in a timely manner.
2. The study director, or individual responsible for cost analysis, must not only have an understanding of the overall cost analysis model, but must understand both the processes and operation of the animal research facility and the institutional financial system.
3. The tests of allowability of costs under this manual are: (a) costs must be reasonable, (b) costs must conform to any limitations or exclusions set forth in the applicable cost principles to which the institution is subject, (c) costs must be allocable to sponsored agreements under the principles and methods provided therein, and (d) costs must be given consistent treatment through application of those generally accepted accounting principles appropriate to the circumstances.
4. Cost analysis must (a) be appropriately documented in sufficient detail for subsequent review by the cognizant Federal agency, (b) distribute the costs to the related cost centers in accordance with the relative benefits derived, (c) be performed specifically at the institution at which the results are to be used, and (d) be reviewed periodically, updated if necessary, and used consistently.

5. This manual should be used in the costing and rate setting of ARF's except where a deviation is needed to accommodate the operation of a specific facility. Where a deviation from the specific procedures in the manual is necessary, or to accommodate a situation not addressed by the manual, the methodology should comply with the basic principles (Chapter 2, page 9).

Cost Centers

Determining the cost centers within the ARF is basic to cost analysis and rate setting. A cost center is defined as an organizational component or activity into which costs can be grouped. Each ARF cost center must be designated as a direct cost center or a support cost center. The number of cost centers chosen may range from few to many, depending on the size and complexity of the ARF and the specific types of services it provides.

Regardless of number, cost centers should be chosen to accurately reflect the essential components of the ARF. This is a most important step because it allows for accurate rates with the least required effort. A moderate number of direct and support cost centers have been chosen for illustration in the study model. They are as follows:

Direct Cost Centers

Animal Husbandry

Daily care and maintenance of animals includes activities such as observation, feeding, watering, cleaning cages, and maintaining a suitable environment, as well as related activities such as record keeping, census taking, cage changing and cleaning, sanitizing animal rooms, and initial processing and cage set-up for the animals. This cost center is broken into categories (subcenters) according to the major groups of animals maintained by the ARF. In the study model categories were specified as cats, dogs, guinea pigs, hamsters, mice in conventional cages, mice in filtered cages, poultry, primates-large, primates-small, primates-unassigned, rabbits, rabbits with litters, rats, rat production, sheep/goats, and swine. Institutions may find that fewer or more animal categories will be required. For example, an institution may wish to establish a separate category for animals maintained with non-routine husbandry techniques. If the institution breeds animals for production, separate animal categories should be established for these activities. However, animal breeding, which is an integral part of a research protocol, is not required to be broken out to a separate category.

Technical Activities

Technical activities in support of research protocols include operation and management of surgical and radiological services and technical assistance in handling, restraint, collection of samples, and administration of substances.

Internal Support Cost Centers

ARF General and Administrative

ARF general and administrative includes direction, control, and general management for the provision of ARF services and general use supplies, such as gloves, gowns, paper, pencils, etc., and the operation and maintenance of ARF trucks and vehicles. Note, however, that costs associated with coordinating and processing animal purchases are properly an institutional F&A cost and should be adjusted out.

Refuse Disposal/General Sanitation

Removal and disposal of refuse includes fees charged for refuse disposal and costs for facility sanitation, housekeeping, and maintenance over and above that provided by the institution. Note, however, that costs of disposal of hazardous wastes should be handled in a manner consistent with the handling of costs for disposal of other hazardous wastes of the institution. (Hazardous waste disposal is usually treated as an F&A cost as part of the operation and maintenance expense pool.)

Cage Washing

Cage washing includes sterilizing of animal cages, cage racks, and related activities done in designated cage washing rooms.

Laboratory Services

Laboratory services include provisions and procedures such as hematology, pathology, biochemistry, and bacteriology, for example.

Animal Health Care

Animal health care consists of veterinary medical care provided for the diagnosis, treatment, and prevention of diseases or injury of the animals. This includes costs of monitoring or disease surveillance programs. Note, however that the salary for the portion of a veterinarian's activities required for regulatory compliance, such as review of protocols or the semi-annual review of the animal care and use program, should be adjusted out. This portion of the salary should be assigned to Regulatory Compliance, an institutional F&A indirect cost.

Modification or refinement of illustrated cost centers may be required to complete individual studies, but the basic principles should be followed. Some institutions may find it advantageous to establish cost centers that differ from those illustrated in the model, thus reflecting their specific structure. Other cost centers that may be considered for an ARF include animal food and diet preparation, animal bedding, or a transportation cost center for operation and maintenance of ARF trucks and vehicles. Some institutions may wish to add separate cost centers for surgery and radiology. Others may wish to establish a cost center for initial processing and setting up animal cages rather than including these costs in animal husbandry. Still others may wish to establish additional animal husbandry categories. Some institutions may eliminate one or more cost centers, because they do not engage in that activity. The identification and description of cost centers for each facility is basic to a rational and reliable cost study. All cost centers selected should represent some significant, identifiable activity undertaken by the ARF.

Assignment of Costs to Cost Centers

Some costs can be assigned directly to cost centers; the cost of maintenance of the cage washing machines, for example, would be assigned directly to the Cage Washing cost center, or the cost of dog food would be assigned directly to the dog subcenter of the Animal Husbandry cost center. The costs associated with equipment maintenance and repair can, in most cases, be directly assigned to the cost center in which the equipment is used. For example, maintenance and repair costs of office computers and typewriters should be assigned to the ARF General and Administrative cost center, whereas those costs associated with the maintenance and repair of a cell analyzer in the diagnostic laboratory should be assigned to the Laboratory Services cost center. Other costs need to be assigned to several centers. For example, the ARF director might also serve as the facility veterinarian. In this case, his or her salary would be distributed to the ARF General and Administrative and the Animal Health Care cost centers based on effort. Since rodent food is used for several species, its cost would be proportioned among the mouse, rat, and hamster subcenters based on relative consumption. Direct assignment of a cost to its correct cost center should be done where possible, but in some cases, additional data are required to develop proportional assignment.

Allocation of Internal Support Costs

Support cost centers are those that benefit multiple direct cost centers. The allocation of costs as provided in this model recognizes that support cost centers service direct cost centers; and such allocations are needed to determine the total cost of each direct cost center. There must be a rational basis to support the allocation of each support cost center. For example, the Cage Washing cost center could be allocated to the subcenters within the Animal Husbandry cost center based on the number of cages washed.

Determination of Unit Costs

The final step in the process is to determine the total output of each direct cost center expressed as animal-care days or other service units. The total costs of each direct cost center are divided by the total output of the center to determine unit costs (total cost divided by chargeable units=unit cost).

Use of Unit Costs and Other Cost Analysis Information

Unit costs are used as a basis to set rates for cost recovery. Other information derived from the cost analysis procedure can help in the financial management of the ARF. Chapter 5 provides additional information on rate setting and other uses of cost analysis.

Data Needed for Cost Analysis

It is to the benefit of the study director to assemble most, if not all, of the needed data prior to beginning actual cost analysis computations. Each study director should make his or her own list of required information depending on the nature of the ARF. The following is a list of typical information that will be needed:

- Personnel activity reports (or other data for allocating salaries and wages to cost centers)
- A space survey to determine net assignable square feet by function (cost center) and the portion of institutional space costs to be included in the institution's F&A rates and the portion to be allocated to the ARF
- Cage washing schedules by animal category; number of cages washed by animal category
- Animal days by animal category
- Quantity of common use feeds consumed by animal category
- Quantity of bedding used by animal category
- Number of technical activities performed or time units involved in technical activities

Computational Tools

It is possible to manually carry out all of the computations required for a cost study. However, most institutions use computers to do the bulk of the computations. It is not within the scope of this manual to discuss in detail computer programming for cost analysis. Nevertheless, there are three basic approaches to computer programs for ARF cost analysis:

1. Use of generic spreadsheets: The schedules illustrated in the model are essentially spreadsheets. Therefore, generic spreadsheet programs can very well be adapted to carry out computations of the cost analysis.
2. Use of cost analysis modules provided by commercial sources of ARF computer programs: This approach may be least labor intensive, but to be satisfactory, the program must be well suited to the particular facility.
3. Writing a custom computer program for a specific ARF or group of related facilities: This approach requires the most programming expertise, but it should yield a program that best takes into account the specific features of an ARF.

Assignment of Costs to Animal Research Facility Cost Centers

Chapter 2 described various cost elements related to Animal Research Facilities (ARF) and offered some insight into defining and classifying facility costs incurred as either direct or support. After the relevant costs have been identified, the cost analyst is then ready to assign these costs to the appropriate cost centers. This chapter will present the basic methodology regarding the assignment of these costs in a reasonable and timely manner. Then Chapter 4 will describe the methods of allocating these costs from support to direct cost centers and the development of unit costs. Chapter 5 will address subsequent establishment of *per diem* rates and other service charges, and other uses of cost analysis.

The methodologies discussed in these chapters represent the standard methodologies associated with the development, assignment, and allocation of costs. It is recognized that variations exist in accounting methods and institutional practices regarding cost centers and expense categories. However, wherever possible, the standard methodologies provided herein, along with effective management decisions regarding cost centers and expense categories, are necessary so that standard accounting principles for cost accumulation are not violated.

When performing a cost analysis, it is important that the amounts used represent the actual costs for the period being examined. For example, if a cost analysis is being performed for a particular fiscal year, only the costs incurred during that fiscal period should be used. A primary source of these data is the institutional and departmental accounting records. Unit cost rates developed from these types of data represent past costs rather than future costs. These unit costs should be adjusted for anticipated increases or decreases in costs and volume of services and for over- or under-recovered costs from prior accounting periods to provide a basis for *per diem* rates and other service charges for a future period.

Listing of Expenses

The first step in performing a cost analysis is to collect cost and statistical data from institutional financial accounting records and other sources. These data are then used to prepare an initial *Listing of Expenses* where the accumulated costs are listed by major expense category. The expense categories listed must be detailed enough to allow accurate assignment of the associated costs to ARF cost centers. The detail required, however, will depend largely on the specific identification of cost centers defined for individual ARF.

Once the initial expense listing has been prepared, the total costs are then assigned to the appropriate cost centers based on one or more of the methodologies discussed below. The preparation of expense listings and subsequent assignment of costs is illustrated later in this chapter.

Assignment of Costs

The methods most often used to develop and assign costs include direct assignment and activity reports. Each of these methods provides an appropriate base which is relatively easy to compile. For example, costs for animal feed used for only one animal species or category, or a maintenance contract on a cage washing machine can be *directly assigned* to specific cost centers and/or animal categories. However, animal husbandry salary/wage costs are usually assigned to the various animal categories by using *activity reports* or room surveys where the daily activities of the animal technician staff are logged by species/animal category or other activity.

The methodologies discussed in this chapter and Chapter 4 are based largely on the use of operational data, such as the number of net assignable square feet in a facility, the number of cages processed through the cage washing facility, and the amount of feed consumed by a particular species. To produce a reliable cost analysis, these operational data must pertain to the fiscal period under study, be practical in their application, and clerically feasible to compile.

The operational data used in a cost analysis must usually be obtained before the beginning of a cost analysis procedure. The following list shows types of operational data that may be needed. This is not meant to be an all-inclusive list, but it does provide examples of the more common ones. Many of these items will be discussed throughout the next two chapters.

Examples of Operational Data Used in Cost Analyses

1. Animal days
2. Salary, wages and fringe benefits
 - Activity reports
3. Space survey (net assignable square footage)
 - Animal rooms by species
 - Rooms (or portions of rooms) housing animals that are not generally removed from the ARF for conducting research
 - Rooms (or portions of rooms) housing animals that are removed from the ARF for conducting research
 - Procedure rooms, operating and recovery rooms, isolation rooms, and quarantine rooms directly related to research protocols
 - Space occupied by other cost centers (e.g., Cage Washing and Sanitation, ARF General and Administrative, etc.)
4. Cage washing information
 - Numbers and type of cages/enclosures by animal category
 - Cage washing schedules
 - Time required for processing cages and accessories
5. Quantity and types of feed consumed per animal per day
6. Quantity and types of bedding used per animal per day
7. Number of laboratory procedures performed by type
8. Time required to perform laboratory procedures
9. Number of service units and other activities for which a fee may be assessed

Animal Days

“Animal days” data are a basic requirement in any animal research facility cost analysis, and it merits further discussion. “Animal days” is equal to the number of animals housed (by species or other category) multiplied by the number of days each species/category was housed in the facility. Simply stated, it represents one animal for one day.

This information is usually accumulated by periodic or continuous animal census taking. When taken over time, this information will yield the animal days for each species or animal category. The data may be for the actual numbers of animals or for cages or groups of animals. The decision on the units to be used is usually based on management's assessment of the most cost efficient way to collect and report these data.

Animal census may be taken several different ways depending upon the size and complexity of the facility. One method is a daily head count for each animal category housed in the facility. For large or more complex facilities a daily head count may not be feasible and a "running census" may be used. With the running census method, a beginning balance is provided for each animal category and daily additions or subtractions are noted. This running census is verified by an actual head count performed weekly or monthly. Entries are made in the "Adjust" column for error corrections or for other adjustments to the recorded counts. The final actual count (plus or minus adjustments) serves as the beginning balance for the next month. Census forms are collected at the end of each month and tallied to give animal care days for each animal category. *Figure 1* (page 20) shows a sample Animal Census Form for such a "running census" system. Another increasingly popular method is the use of bar-coded census forms and cage cards. Using a bar-code system, the cage cards are scanned on a regular (daily) basis and downloaded into a computer program. The program can then track the various census elements for the entire accounting period.

Direct Assignment

Animal facility incurred costs for some salaries and most supplies and materials can be directly assigned to specific cost centers. For example, administrative salaries can be assigned to the ARF General and Administrative cost center; animal feed used for a single species of animal can be directly assigned to the appropriate animal species/category subcenter; an annual maintenance contract for a cage/rack washer can be assigned to the Cage Washing cost center; and an annual contract for an office computer system can be assigned to the ARF General & Administrative cost center.

Activity Reports

Other animal facility incurred costs are more difficult to directly assign to specific cost centers without further supporting data. The "Activity Report" method is commonly used to determine levels of activity that can then be used as a basis for assignment of such costs. Salaries and wages for animal husbandry and health care are examples of this situation. Activity reports are used to record time required to perform the various health care, husbandry, and service tasks by veterinary staff and husbandry personnel. A record of each individual's activity is maintained for a specific period of time. Entries are made for each time block associated with a particular activity. For instance, an animal care technician would record the amount of time spent providing husbandry care for research cats, dogs, rabbits, etc. Another individual would record the time spent sanitizing cages and equipment, while yet another would record his/her time associated with animal health care (*Figure 2*, page 21).

FIGURE 1:
Animal Census Form

Department of Comparative Medicine
October , 19 99

Investigator: Smith, Roger E.
ID# 521
Protocol # 98-143-R

Animal Category: RAT Census Code: RT Building: MCRB Beginning Census: 215

Date	Rec'd	Died	Used	TransIN	TransOUT	Subtotal	Actual	Adjust	Comments
1			15			200			
2		2				198			
3			15			183	183	0	
4									
5									
6			125			58			
7	150			30		238			From 98-095-R
8									
9			25 + 15			198			
10							198	0	
11									
12									
13									
14	150		30			318			
15									
16		2				316			
17			15			301	305	+4	
18						305			
19									
20			125			180			
21	75				30	225			To 98-095-R
22									
23			15 + 30			180			
24							180	0	
25									
26			125			55			
27	150					205			
28									
29									
30			30			175	175	0	
31									

FIGURE 2:
Individual Activity Report

Name _____		Date _____	
Code	Species	Code	Species
7:00 am		1:00 pm	
7:15 am		1:15 pm	
7:30 am		1:30 pm	
7:45 am		1:45 pm	
8:00 am		2:00 pm	
8:15 am		2:15 pm	
8:30 am		2:30 pm	
8:45 am		2:45 pm	
9:00 am		3:00 pm	
9:15 am		3:15 pm	
9:30 am		3:30 pm	
9:45 am		3:45 pm	
10:00 am		4:00 pm	
10:15 am		4:15 pm	
10:30 am		4:30 pm	
10:45 am		4:45 pm	
11:00 am		5:00 pm	
11:15 am		5:15 pm	
11:30 am		5:30 pm	
11:45 am		5:45 pm	
12:00 n		6:00 pm	
12:15 pm		6:15 pm	
12:30 pm		6:30 pm	
12:45 pm		6:45 pm	

Codes		
1-Animal husbandry	5-Laboratory services	9-Transportation
2-Animal health care	6-Cage washing	10-Supervision
3-Technical activities	7-Refuse disposal	11-Other
4-Surgery/Radiology	8-Building maintenance	

Species—animal category		
CT-cat	MSF-mice, filtered	RDA-rabbits
DG-dog	PT-poultry	RBL-rabbit, litters
GP-guinea pig	PRL-primates-large	RT-rats
HM-hamster	PRS-primates-small	RTP-rat production
MSC-mice, conventional	PRU-primates-unassigned	SHG-sheep/goats
	SWN-swine	

Note: This form is reduced so that it can be copied directly onto a 3" x 5" card so the technician can easily carry it.

The activity codes do not exactly match the cost centers in the model, as one or more activities could be assigned to any given cost center.

Activity reports are also used to report the number of cages processed through a cage/rack washer, or the type and amount of bedding used for each animal category over a given time period. Such reports are also used to determine the average daily food consumption for each animal category housed in the facility. These periodic activity reports are then collated, and a summary report is made showing the relative times or other inputs associated with each animal category and other activity. The resultant data can then be used to assign the ARF costs to appropriate cost centers and subsequently allocate the costs of the ARF support cost centers to the ARF direct cost centers.

Activity reports should be performed periodically throughout the analysis period. They should cover a time period long enough to reflect normal variations in activities. The reports are then summarized for the entire accounting period and used in the cost assignment and step-down allocation procedures.

Animal Room Time Surveys

An acceptable alternative to determine assignment of personnel costs to animal husbandry categories is to use animal room or housing surveys. This method utilizes a time log (*Figure 3*, page 23) for each animal room, with ARF staff noting the time they enter and leave each animal room during the survey period, normally a two-week cycle.

The in-room service time is then calculated for each room. The time, in minutes, is divided by the number of animals in the room (from the Animal Census Form, *Figure 1*, page 20) to determine the time factor per animal for each room, as well as the ARF average time factor by animal husbandry category. The time factors calculated during the survey period are then multiplied by the accumulated animal days for each animal category during the entire cost accounting study period in order to assign labor costs to each animal category.

The resultant time factors for each animal category can easily be used to assign labor costs during times when animal populations are not expected to remain stable during the study period; e.g., populations for one animal category may be increasing as others are decreasing, or a significant portion of the husbandry labor may be seasonal, as when an outdoor facility is used during a portion of the year.

Space Survey

To comply with the Department of Health and Human Services (DHHS) policy, noted in Chapter 2, a survey of the space in the ARF must be conducted to determine the portion of space costs to be included in the institution's organized research Facilities & Administrative (F&A) rate and the portion to be allocated to the ARF. The portion allocated to the ARF should be further allocated to individual direct and support cost centers of the ARF.

As stated in the Federal policy of DHHS, costs associated with the following space should be included in the organized research F&A rate: procedure rooms, operating and recovery rooms, isolation rooms, and quarantine rooms directly related to research protocols, as well as rooms that house animals involved in research that are not generally removed from the facility for conducting research. The policy requires that institutions document, through a space survey, the particular research projects conducted in research space included in the F&A pool. All other space costs associated with the ARF are to be allocated to the ARF.

FIGURE 3:
Animal Research Facility Cost Accounting: Room Time Log

Facility _____ Room _____ Animal Category (species) _____

Date	Time entered	Time left	Initials	Extra work, e.g., weaning, separating, bleeding; note work done and time in minutes or other notes
Sun 6/23	_____ _____ _____	_____ _____ _____	_____ _____ _____	
Mon 6/24	_____ _____ _____	_____ _____ _____	_____ _____ _____	
Tues 6/25	_____ _____ _____	_____ _____ _____	_____ _____ _____	
Wed 6/26	_____ _____ _____	_____ _____ _____	_____ _____ _____	
Thurs 6/27	_____ _____ _____	_____ _____ _____	_____ _____ _____	
Fri 6/28	_____ _____ _____	_____ _____ _____	_____ _____ _____	
Sat 6/29	_____ _____ _____	_____ _____ _____	_____ _____ _____	

The survey of animal rooms must identify the rooms (or portions of rooms) used by animals that are not generally removed from the facility for conducting research, as well as the rooms used by animals that are removed from the facility for research studies. For example, if animals are removed from the facility only on an occasional basis for a special test such as an MRI, but are otherwise kept in the facility to conduct the research, the space they occupy should be classified as research space and the associated costs included in the organized research F&A rate. On the other hand, if animals are routinely removed from the facility to investigators' laboratories, the space they occupy should be classified as ARF space and the associated costs allocated to the ARF. The space used by animals not involved in research, such as a breeding colony for animal production, should also be classified as ARF space and the associated costs allocated to the ARF. Space occupied by a breeding colony that is an integral part of a research protocol should be classified as research space if the animals are not generally removed from the ARF.

As noted previously, the portion of space costs allocated to the ARF should be further allocated to the direct and support cost centers of the ARF. This should be done based on the results of the space survey. The space costs allocated to each *support* cost center should be included in the total costs of that center to be allocated to the direct cost centers as described in Chapter 4. The space costs allocated to each *direct* cost center should be included in the total costs of the cost center used to compute unit costs as described in Chapter 4.

Study Model

In the following study model, the standard methodologies presented above will be illustrated and discussed. Although the standard methodologies are used in the study model, the model itself represents a hypothetical situation and may not represent cost centers that are appropriate for any particular institution. The study model used here represents a multi-species ARF and a staff that includes a facility director, clinical veterinarian, secretarial staff, laboratory animal technician supervisors, and a number of laboratory animal technicians. The cost analysis period for the study model covers a single fiscal year. The cost centers, which were developed through a comprehensive management review of the animal care program, include the following:

ARF Support Cost Centers

ARF General & Administrative (for administrative salaries, general use supplies and other general use, not directly assignable, operational costs such as operation of ARF trucks and vehicles)

Refuse Disposal/General Sanitation (for labor, fees, and supplies for refuse disposal and facility sanitation, housekeeping, and maintenance over and above that provided by the institution)

Cage Washing (labor, chemicals, maintenance contracts, etc. for the central cage washing facilities)

Laboratory Services (diagnostic laboratory labor, supplies, and materials)

Animal Health Care (clinical veterinary care, disease monitoring, prevention, and control)

ARF Direct Cost Centers

Technical Activities (investigator assistance, technical procedures, surgery, and radiology, for example)

Animal Husbandry (labor, food, bedding, sanitation, and other supplies for animals used during the analysis period). In the study model these are further divided into subcenters for: cats, dogs, guinea pigs, hamsters, mice in conventional cages, mice in filtered cages, poultry, primates-large, primates-small, primates-unassigned, rabbits, rabbits with litters, rats, rat production, sheep/goats, and swine.

After the university/departmental financial accounting system records have been reviewed and the appropriate costs identified, a *Total Expenses by Object Classification* report (*Schedule I*, page 26) is prepared. Using the principles discussed above, the costs are then assigned to the various cost centers. This schedule also shows a number of adjustments to the amounts reported in the financial records: the actual animal procurement costs (animal purchase price plus shipping and crating charges) have been excluded from the adjusted expenses since this cost is recoverable through direct charge to the investigator; costs associated with an unallowable entertainment expense have been excluded; and the costs of regulatory compliance (e.g., costs incurred by the Institutional Animal Care and Use Committee [IACUC] and for employee occupational health care) have been excluded because these are institutional F&A costs. Costs associated with the purchase of capital equipment¹ also have been adjusted out. Within Federal guidelines each institution establishes criteria for capital and non-capital equipment. The non-capital equipment costs should be handled as a current expense. Capital equipment costs should be handled in the same manner as the institution handles any other institutionally purchased equipment. Generally these costs are recovered through the depreciation/use allowance component of the institution's F&A (indirect) cost rate. Note that the depreciation/use allowance for capital equipment used in areas where research is conducted on animals or where animals are held for research purposes (and are not generally removed from the ARF) should be included in the institutional F&A cost; whereas the depreciation/use allowance for equipment used in facility maintenance/support areas (such as washrooms, administrative offices, etc.), or in rooms housing animals that are removed from the ARF to conduct research, or in rooms housing animals not assigned to research projects should be allocated to the appropriate ARF cost centers.

Schedule I-a (page 27) is a detailed listing of salary and benefit costs. This worksheet shows each position name, the annual salary for the position, fringe benefits, and any necessary adjustments to those salary/benefit figures. Salary and benefit costs include payments for overtime and fringe benefits. An adjusted basis is determined for each position and is used for all subsequent salary/benefit calculations. Note that the director's adjusted basis is less than the reported annual basis. It has been determined that 40% of the director's total effort is spent on an externally funded research program; 20% is spent on teaching assignments; and 10% effort is devoted to IACUC activities. Therefore, only 30% of the director's total salary is assignable to the ARF. The secretary devotes 20% effort to animal purchasing. The animal purchasing service is comparable to purchasing service provided by the institution for other activities and is therefore an institutional F&A (indirect) cost. Only 80% of the secretary's salary is assignable to the ARF. The adjusted basis for the clinical veterinarian represents a 75% effort; the remaining 25% effort is devoted to externally funded research obligations.

¹ Capital equipment means equipment that has been capitalized in accordance with institutional policy. This equipment is depreciated over its useful life rather than treated as an expense at the time of purchase.

SCHEDULE I:

Total Expenses by Object Classification

Object Classification	ARF Operating Account	ARF Adjustments	Institutional Adjustments	Adjusted Total ARF Expenses
Salary & Benefits	\$ 561,573		(\$79,686)	\$481,887*
Medical Surgical				
Med/Surgical supplies	39,190			39,190
Drugs/pharmaceuticals	8,157			8,157
X-ray film/supplies	863			863
General				
Laboratory supplies	29,943			29,943
Uniforms	2,616			2,616
Animal bedding	13,246			13,246
Animal feed	23,148			23,148
Animal purchases	90,621	(\$90,621)		0
Husbandry supplies	4,800			4,800
Postage	443			443
Office supplies	7,586			7,586
Printing/copying	930			930
Sanitation supplies	16,427			16,427
Maintenance supplies	6,527			6,527
Vehicle supplies/fuel	1,164			1,164
AV/Photographic supplies	1,135			1,135
Travel				
Travel	2,500			2,500
Local travel	184			184
Workshop/Training/Seminars	950			950
Other				
Contract labor	793			793
Contract services	4,933			4,933
Entertainment/Social	935		(935)	0
Employee health care	5,125		(5,125)	0
Animal health: outside lab	2,530			2,530
Computer software	1,150			1,150
Computer system charges	2,517			2,517
Equipment/Cages maint/repair	8,400			8,400
Telephone	11,463			11,463
Membership dues	815			815
Books and subscriptions	2,484			2,484
Freight	1,691			1,691
IACUC expenses	4,560		(4,560)	0
Licenses	1,691			1,691
Minor facility alterations	8,681			8,681
Equipment				
Equipment (non-capital)	4,443			4,443
Equipment (capital)	20,024		(20,024)	0
Equipment Amortization	2,340			2,340
Institutional F&A				
Space costs	96,627			96,627
General Admin & General Exp**	89,349			89,349
TOTAL EXPENSES	\$1,082,554	(\$90,621)	(\$110,330)	\$ 881,603

* See Schedule I-a for details.

** As noted in Chapter 2, if animal care charges are excluded from the F&A allocation base, institutional General Administration and General Expenses should be allocated to the ARF. If animal care charges are included in the F&A allocation base, institutional General Administration and General Expenses should not be allocated to the ARF. The preferable treatment is to include the animal care charges in the F&A allocation base and not allocate institutional General Administration and General Expenses to the ARF. In the case of the preferred treatment this line would not be allocated to the ARF.

SCHEDULE I-a:
Salary and Benefits Detail

Position Title	Annual Salary	Fringe Benefits	Annual Basis	Adjustments*	Adjusted Basis	Adj. Basis Using Avg. Tech Salary	% Effort
Director	\$ 75,650	\$13,617	\$ 89,267	(\$62,487)	\$ 26,780	\$ 26,780	30.00%
Administrative Asst.	23,500	4,230	27,730		27,730	27,730	100.00%
Secretary	19,750	3,555	23,305	(4,661)	18,644	18,644	80.00%
Clinical Veterinarian	42,500	7,650	50,150	(12,538)	37,612	37,612	75.00%
Diagnostic Lab Tech	25,500	4,590	30,090		30,090	30,090	100.00%
Animal Health Tech	23,329	4,199	27,528		27,528	27,528	100.00%
Lab Animal Tech	23,330	4,199	27,529		27,529	27,529	100.00%
Supervisor I							
Lab Animal Tech	31,500	5,670	37,170		37,170	37,170	100.00%
Supervisor II							
Lab Animal Tech	17,627	3,173	20,800		20,800	18,158	100.00%
Lab Animal Tech	17,627	3,173	20,800		20,800	18,158	100.00%
Lab Animal Tech	17,560	3,161	20,721		20,721	18,158	100.00%
Lab Animal Tech	16,773	3,019	19,792		19,792	18,158	100.00%
Lab Animal Tech	16,284	2,931	19,215		19,215	18,158	100.00%
Lab Animal Tech	15,944	2,870	18,814		18,814	18,158	100.00%
Lab Animal Tech	14,271	2,569	16,840		16,840	18,158	100.00%
Lab Animal Tech	13,942	2,510	16,452		16,452	18,158	100.00%
Lab Animal Tech	13,942	2,510	16,452		16,452	18,158	100.00%
Lab Animal Tech	13,942	2,510	16,452		16,452	18,158	100.00%
Lab Animal Tech	13,942	2,510	16,452		16,452	18,158	100.00%
Lab Animal Tech	13,372	2,407	15,779		15,779	18,158	100.00%
Lab Animal Tech	13,372	2,407	15,779		15,779	18,158	100.00%
Facility Attendant	13,097	2,357	15,454		15,454	15,454	100.00%
Facility Attendant	13,097	2,357	15,454		15,454	15,454	100.00%
TOTALS	\$475,909	\$85,664	\$561,573	(\$79,686)	\$481,887	\$481,887	

To Schedule I-Total Expenses

NOTE: Salaries and benefits include costs of overtime and fringe benefits.

* Adjustments: 40% of the Director's total effort is spent on externally funded research, 20% on teaching, and 10% on IACUC activities. Therefore, only 30% of the Director's total salary is assignable to the ARF; 25% of the clinical veterinarian's effort is spent on externally funded research, therefore only 75% is assignable to the ARF; 20% of the secretary's effort is devoted to animal purchase which is an insitutorial F&A (indirect) cost, therefore only 80% is assignable to the ARF.

The next step in the cost analysis is to assign the listed costs to cost centers. *Schedule II* (pages 30 and 31) shows the completed assignment of costs to ARF cost centers.

Assignment of Salaries/Wages and Benefits

The first step in building *Schedule II* (pages 30 and 31) is to assign Salary/Benefits costs to the cost centers. The activity report or room survey is the basic tool used to enable proper assignment of total annual salary/wage expense to facility cost centers. These studies may be reported on either a percent-of-effort or actual-hours basis, or a combination of the two. The reports generated by such studies are usually reviewed by the director or facility manager for accuracy and to determine if any corrections may be needed.

In the model, the method used for determining the salary basis for laboratory animal technicians is the average-salary method. The average salary figure is then used for each animal technician in determining the assignable portion allocated to each Animal Husbandry subcenter or activity. This method allows for the spreading of costs over animal categories and other activities where there is a relatively wide range of salaries among the laboratory animal technicians with equal skill levels. If required skill levels are relatively equal, this method may reduce a disproportionate share of cost being assigned to a particular animal category that is serviced by an individual in a given pay grade as compared to an individual in a different pay grade caring for a different animal category. However, where more advanced skill levels are required in order to work with a particular group of animals (e.g., transgenic or barrier animals), using actual individual salaries may be more appropriate for assigning costs to Animal Husbandry subcenters.

Schedule II-a (pages 32 and 33) summarizes the assignment of salaries and benefits to the cost centers. The following examples are provided to illustrate the use of activity reports for assignment of salaries and benefits to cost centers.

Director

Schedule II-b (page 34) shows an "Activity Report Summary" for the facility director who uses a percent-of-effort basis for reporting. The facility director's responsibilities are divided among ARF cost centers for General & Administrative, Animal Health Care, and the Technical Activities, which includes surgery and radiology. Included in the ARF General & Administrative cost center is the time devoted to planning programmatic activities and to investigator consultations (not related to regulatory compliance). The director also shares the responsibilities for clinical health care and certain surgical and radiological procedures. The distribution of effort to these cost centers for these responsibilities is reflected in the activity report. The allocated salary is then transferred to each appropriate cost center in *Schedule II-a* (pages 32 and 33).

Laboratory Animal Technician Supervisor II

The Laboratory Animal Technician Supervisor II uses the actual-hours basis for reporting (*Schedule II-c*, page 35). Four one-month accounting periods are used to obtain a representative sample of the supervisor's activities for the fiscal year. These data are then converted to a percent-effort summary. This individual is responsible for overseeing the day-to-day activities of the animal facility and a variety of administrative and technical tasks. After completion of this schedule, the allocated salary is transferred to each appropriate center in *Schedule II-a* (pages 32 and 33).

Laboratory Animal Technician

This Laboratory Animal Technician reports time for animal care and other duties performed during the reporting periods. *Schedule II-d* (page 36) shows a summary of four one-month time accounting study periods for this animal technician. Task performance times were recorded for a number of activities using actual hours reported. The technician carried a pocket-sized card (see *Figure 2*, page 21) and recorded this information as the tasks were performed. It should be noted that, under this model, time spent on breaks and other non-accountable situations are not included in the technician's time accounting record. It is assumed that these times are an integral part of the technician's activities and are subsequently proportioned out to the various cost centers. After completion of this schedule, the allocated salary is transferred to each appropriate cost center in *Schedule II-a* (pages 32 and 33).

Other ARF Employees

In this study model we have illustrated the effort/activity reports for three individuals (the Director, Supervisor II, and an Animal Technician). Similar effort/activity reports should be collected from each ARF employee whose salary and benefits cannot be directly assigned to a cost center. The use of such activity reports provides for the assignment of all salaries and benefits as illustrated in *Schedule II-a* (pages 32 and 33). The totals of salaries and benefits for each cost center are transferred to Salaries and Benefits line of *Schedule II* (pages 30 and 31).

Assignment of Supplies & Materials, Food and Bedding, Other Expenses

Expenses associated with supplies and materials are usually reported by object classification. This classification simplifies the assignment of these costs to the cost centers. Many costs can be directly assigned to the appropriate cost center. The study model illustrates examples of this assignment.

Schedule II (pages 30 and 31) shows the direct assignment of many object classes of expense to cost centers. In the model, each of the expenses incurred during the year were appropriately coded to enable easy assignment to a specific cost center in which the materials were to be used. For example, various purchases of medical/surgical supplies were made throughout the period and appropriately coded. When analyzed, \$16,577 of the supplies were assigned to the Laboratory Services cost center, \$20,261 were assigned to Animal Health Care, and \$2,352 were assigned to Technical Activities.

Where expenses can be directly assigned to species/animal category subcenters, the expenses were first assigned to the Animal Husbandry cost center then further coded for the appropriate species. For example, in husbandry supplies environmental enrichment devices (cage complexities) for rhesus monkeys would be assigned to the primates-large subcenter. In a similar manner, feeder devices purchased for pigs housed in dog-type pens would be charged directly to the swine subcenter.

Some costs may be incurred in connection with more than one cost center. Such costs should be assigned to the appropriate cost centers based on operational data that measure, on a rational basis, the amount of expense incurred by that center. The study model illustrates examples of this assignment.

SCHEDULE II (PAGE 1):
Assignment of Costs to ARF Cost Centers

Object Classification	Total Adj Cost	ARF Gen/Adm	Refuse Disposal/ Sanitation	Cage Washing	Lab Services	Animal Health	Technical Activities	Animal Husbandry	Reference Schedule
Salary and Benefits	\$481,887	\$ 80,750	\$ 3,090	\$27,818	\$22,868	\$ 54,173	\$20,581	\$272,607	II-a
Med/Surgical supplies	39,190				16,577	20,261	2,352		Dir.assign.
Drugs/pharmaceuticals	8,157				8,157				Dir.assign.
X-ray film/supplies	863						863		Dir.assign.
Laboratory supplies	29,943				27,794		2,149		Dir.assign.
Uniforms	2,616		21	181	149	353	134	1,778	II-e
Animal bedding	13,246							13,246	II-f
Animal feed	23,148							23,148	II-g
Husbandry supplies	4,800							4,800	Dir.assign.
Postage	443	443							Dir.assign.
Office supplies	7,586	7,586							Dir.assign.
Printing/copying	930	930							Dir.assign.
Sanitation supplies	16,427		8,027	8,400					Dir.assign.
Maintenance supplies	6,527	1,482	5,045						Dir.assign.
Vehicle supplies/fuel	1,164	1,164							Dir.assign.
AV/Photographic supplies	1,135	1,135							Dir.assign.
Travel	2,500	2,500							Dir.assign.
Local travel	184	184							Dir.assign.
Workshops/Training	950	950							Dir.assign.
Contract labor	793			793					Dir.assign.
Contract services	4,933	1,204	2,526	611	592				Dir.assign.
Animal health: outside lab	2,530				2,530				Dir.assign.
Computer software	1,150	1,150							Dir.assign.
Computer system charges	2,517	2,517							Dir.assign.
Equip/Cage main/repair	8,400	962	4,209	1,661	1,568				Dir.assign.
Telephone	11,463	11,463							Dir.assign.
Membership dues	815	815							Dir.assign.
Books and subscriptions	2,484	2,484							Dir.assign.
Freight	1,691	1,691							Dir.assign.
Licenses	1,691	1,691							Dir.assign.
Minor facility alterations	8,681							8,681	Dir.assign.
Equipment (non-capital)	4,443	2,130						2,313	Dir.assign.
Lease purchases	2,340	2,340							Dir.assign.
Institutional F&A Space Costs	96,627	11,768	4,413	37,068	7,355	24,138	1,471	10,414	II-h
SUBTOTALS	\$792,254	\$ 137,339	\$27,331	\$76,532	\$87,590	\$ 98,925	\$27,550	\$336,987	
Institutional F&A General Admin & General Exp*	89,349	15,489	3,082	8,631	9,878	11,157	3,107	38,005	II-i
TOTALS	\$881,603	\$152,828	\$30,413	\$85,163	\$97,468	\$110,082	\$30,657	\$374,992	

To Schedule II (Page 2)

The total adjusted costs (\$881,603) are from *Schedule I*.

The figures shown for each row are by direct assignment or are from the Schedules referenced.

* If animal care charges are excluded from the F&A allocation base, institutional General Administration and General Expenses should be allocated to the ARF. If animal care charges are not included in the F&A allocation base, institutional General Administration and General Expenses should not be allocated to the ARF. The preferable treatment is to include the animal care charges in the F&A allocation base and not allocate institutional General Administration and General Expenses to the ARF.

SCHEDULE II (PAGE 2):
Assignment of Costs to Cost Centers—Animal Husbandry Detail

Object Classification	Animal Husbandry Cost	Cats	Dogs	Guinea pigs	Hamsters	Mice conv cgs	Mice filter cgs	Poultry	Primates large	Primates small	Primates unassign	Rabbits	Rabbits litters	Rats	Rats prod	Sheep/Goats	Swine
Salary and Benefits	\$272,607	\$5,599	\$42,343	\$34,038	\$21,573	\$ 9,320	\$40,856	\$1,258	\$11,815	\$ 9,266	\$2,343	\$30,115	\$3,348	\$35,337	\$ 5,891	\$ 7,671	\$11,834
Uniforms	1,778	37	276	222	141	61	268	8	77	60	15	196	22	230	38	50	77
Animal bedding	13,246	24	3,017	216	72	1,392	2,880	108		246	30		24	3,191	528	612	906
Animal feed	23,148	969	2,888	676	1,768	1,053	2,169	268	1,415	1,592	336	1,531	428	3,999	667	1,446	1,943
Husbandry supplies	4,800	198	502	109	347	207	415	52	307	151	200	325	98	1,170		309	410
Minor facility alterations	8,681		2,250				2,050							1,900			
Equipment (non-capital)	2,313			982	750				581								
Institutional F&A Space costs	10,414		2,574								3,015			1,986	2,839		
SUBTOTALS	\$336,987	\$6,827	\$53,850	\$36,243	\$24,651	\$12,033	\$48,638	\$1,694	\$14,195	\$11,315	\$5,940	\$34,067	\$3,920	\$48,394	\$9,963	\$10,088	\$15,170
Inst. General Adm & Gen Exp	38,005	770	6,073	4,087	2,780	1,357	5,485	191	1,601	1,276	670	3,842	442	5,458	1,124	1,138	1,711
TOTALS	\$374,992	\$7,597	\$59,923	\$40,330	\$27,431	\$13,390	\$54,123	\$1,885	\$15,796	\$12,591	\$6,610	\$37,909	\$4,362	\$53,852	\$11,087	\$11,226	\$16,881

The amounts shown in the Salary and Benefits line are from *Schedule II-a (Page 2)*.

The amounts shown in the Uniforms line are from *Schedule II-e*.

The amounts shown in the Animal bedding line are from *Schedule II-f*.

The amounts shown in the Animal feed line are from *Schedule II-g*.

The amounts shown in the Husbandry supplies, Minor facilities alterations, and Equipment lines are by direct assignment.

The amounts shown in the Institutional F&A Space costs line are from *Schedule II-h*.

The amounts shown in the Institutional F&A General Administration and General Expenses line are from *Schedule II-i*.

SCHEDULE II-a (PAGE 2):
**Assignment of Salary and Benefits to Species/Animal
 Category Subcenters**

Position	Adjusted Total	Cats	Dogs	Guinea pigs	Hamsters	Mice conv cgs	Mice filter cgs	Poultry	Primates large	Primates small	Primates unassign	Rabbits	Rabbits litters	Rats	Rats prod	Sheep/ Goats	Swine
Lab Animal Supervisor I	\$ 24,776	\$4,129	\$13,765						\$ 3,469	\$2,725	\$ 688						
Lab Animal Supervisor II	29,935	1,470	5,881	\$ 2,687	\$ 1,355	\$1,011	\$ 4,410	\$ 804	1,483	1,147	293	\$ 3,968	\$ 442	\$ 3,485	\$ 581	\$ 413	\$ 505
Lab Animal Tech	18,158			2,119	1,061	824	3,545							5,628	938	758	3,285
Lab Animal Tech	18,158			3,631	1,816	1,344	5,920							4,669	778		
Lab Animal Tech	18,158			2,179	1,089	799	3,541							2,801	468	3,250	4,031
Lab Animal Tech	18,158		18,158														
Lab Animal Tech	18,158			9,079	9,079												
Lab Animal Tech	18,158		4,539						6,863	5,394	1,362						
Lab Animal Tech	18,158			2,724	1,362	1,018	4,430					16,342	1,816				
Lab Animal Tech	18,158			2,360	1,180	872	3,849					4,085	454	3,501	584		
Lab Animal Tech	18,158			3,631	1,816	1,345	5,919					5,720	636	3,035	506		
Lab Animal Tech	18,158			3,631	1,816	1,344	5,919							4,669	778		
Lab Animal Tech	18,158			3,631	1,816	1,344	5,919							4,670	778		
Lab Animal Tech	18,158			1,997	999	763	3,323	454						2,879	480	3,250	4,013
TOTALS	\$272,607	\$5,599	\$42,343	\$34,038	\$21,573	\$9,320	\$40,856	\$1,258	\$11,815	\$9,266	\$2,343	\$30,115	\$3,348	\$35,337	\$5,891	\$7,671	\$11,834

The amounts in the Adjusted Total column are from *Schedule I-a*.

Calculation of the amounts in each line are illustrated for the Lab Animal Supervisor II (*Schedule II-c*) and a Laboratory Animal Technician (*Schedule II-d*).

The amounts for each Cost Center in the TOTALS line are transferred to the Salaries and Benefits line in *Schedule II (Page 2)*.

SCHEDULE II-b:

Activity Report Summary: Director

Cost Centers	Accounting Periods				% Effort	Allocated Salary
	1	2	3	4		
ARF General and Administrative					70.00%	\$18,746
Refuse Disposal/General Sanitation						
Cage Washing						
Laboratory Services						
Animal Health Care					25.00%	6,695
Technical Activities					5.00%	1,339
Animal Husbandry						
Cats						
Dogs						
Guinea Pigs						
Hamsters						
Mice in Conventional Cages						
Mice in Filtered Cages						
Poultry						
Primates—large						
Primates—small						
Primates—unassigned						
Rabbits						
Rabbits with Litters						
Rats						
Rats Production						
Sheep/Goats						
Swine						
TOTALS					100.00%	\$26,780

The TOTAL Allocated Salary is from *Schedule I-a*.

Transfer the allocated Salary in each line to the Director line of *Schedule II-a*.

Note: 40% of the Director's total effort is spent on externally funded research, 20% on teaching, and 10% on IACUC activities; therefore, only 30% of the Director's total salary is assignable to the ARF.

SCHEDULE II-c:

Activity Report Summary: Laboratory Animal Supervisor II

Cost Centers	Accounting Periods				Total Hours	% Effort	Allocated Salary
	1	2	3	4			
ARF General and Administrative Refuse Disposal/General Sanitation Cage Washing Laboratory Services Animal Health Care Technical Activities Animal Husbandry	32.00	30.00	32.00	32.00	126.00	19.47%	\$ 7,235
Cats	8.00	5.60	4.00	8.00	25.60	3.95%	1,470
Dogs	24.00	26.40	28.00	24.00	102.40	15.82%	5,881
Guinea Pigs	13.60	10.00	12.00	11.20	46.80	7.23%	2,687
Hamsters	6.80	5.20	6.00	5.60	23.60	3.65%	1,355
Mice in Conventional Cages	5.10	3.80	4.50	4.20	17.60	2.72%	1,011
Mice in Filtered Cages	22.10	16.60	19.90	18.20	76.80	11.86%	4,410
Poultry	4.00	3.00	4.00	3.00	14.00	2.16%	804
Primates—large	9.72	8.10	6.03	1.98	25.83	3.99%	1,483
Primates—small	7.56	6.30	5.94	0.18	19.98	3.09%	1,147
Primates—unassigned	1.92	1.60	1.33	0.24	5.09	0.79%	293
Rabbits	10.80	21.60	18.00	18.70	69.10	10.68%	3,968
Rabbits with Litters	1.20	2.40	2.00	2.10	7.70	1.19%	442
Rats	17.49	13.03	15.77	14.40	60.69	9.38%	3,485
Rat Production	2.91	2.17	2.63	2.40	10.11	1.56%	581
Sheep/Goats	1.80	1.80	1.80	1.80	7.20	1.11%	413
Swine	2.20	2.20	2.20	2.20	8.80	1.36%	505
TOTALS	171.20	159.80	166.10	150.20	647.30	100.00%	\$37,170

The TOTAL Allocated Salary is from *Schedule I-a*.

Transfer the allocated Salary of each line to the appropriate cost center of the Supervisor II line in *Schedule II-a*.

Based on actual hours recorded for each cost center during four one-month sample periods.

SCHEDULE II-d:

Activity Report Summary: Laboratory Animal Technician

Cost Centers	Accounting Periods				Total Hours	% Effort	Allocated Salary
	1	2	3	4			
ARF General and Administrative							
Refuse Disposal/General Sanitation							
Cage Washing							
Laboratory Services							
Animal Health Care							
Technical Activities							
Animal Husbandry							
Cats							
Dogs							
Guinea Pigs	16.80	15.90	16.50	15.90	65.10	11.67%	\$ 2,119
Hamsters	8.40	8.20	7.90	8.10	32.60	5.84%	1,061
Mice in Conventional Cages	6.30	6.50	6.30	6.20	25.30	4.54%	824
Mice in Filtered Cages	27.30	26.80	27.50	27.30	108.90	19.52%	3,545
Poultry							
Primates—large							
Primates—small							
Primates—unassigned							
Rabbits							
Rabbits with Litters							
Rats	43.20	42.86	42.94	43.89	172.89	30.99%	5,628
Rat Production	7.20	7.14	7.16	7.31	28.81	5.16%	938
Sheep/Goats	5.60	5.80	6.20	5.70	23.30	4.18%	758
Swine	25.20	25.70	24.90	25.10	100.90	18.09%	3,285
TOTALS	140.00	138.90	139.40	139.50	557.80	100.00%	\$18,158

TOTAL Allocated Salary is from *Schedule 1-a*.

Transfer the allocated Salary from each line to the appropriate cost center of the first Lab Animal Tech line of *Schedule 11-a* (Page 1 and Page 2).

Based on actual hours recorded for each cost center during four one-month sample periods.

Uniform costs are assigned based on salary assignment to all cost centers, except the ARF General and Administrative cost center (*Schedule II-e*, page 38). This is a rational basis for assignment because uniform use is approximately proportional to salary expense in all cost centers except for the ARF General & Administrative cost center, where personnel do not use uniforms. After the dollar assignment is made in *Schedule II-e*, these amounts are transferred to the Uniforms line in *Schedule II* (pages 30 and 31).

Some animal food and bedding expenses can be directly charged to animal subcenters. In certain other cases, however, it may be necessary to allocate part of the expense based on relative use or consumption. This is because a particular feed or bedding material may be used for several different animals and, therefore, cannot be directly assigned. *Schedule II-f* (page 39) illustrates the assignment of bedding costs. In this case, records were maintained of the quantities of bedding materials used for each animal category for a specific period of time (two months in this model). These data are then used to determine the proportionate share of bedding costs to be assigned to each animal species/category subcenter. When using sample periods to measure activity, care should be taken in their selection so that they are representative of the total fiscal period. Another method for determining the appropriate assignment of bedding costs might include using the number of cages processed through the washer and the amount of bedding used per cage as the basis for assignment.

As shown in *Schedule II-g* (page 40), feeds for some animals are assigned directly to the animal subcenters. However, since rodent chow and rabbit chow can be used for several different animal subcenters, the expenses have been assigned based on weighted consumption factors. If special feeds or supplements were used during the period, those costs would be directly assigned to the specific animal category in question. After the dollar assignments are made for bedding and feed, these amounts are transferred to the Animal bedding and Animal feed lines of *Schedule II* (pages 30 and 31).

Other detail reports may be generated as necessary to further assign expenses in any of the above categories to cost centers or other activities as appropriate. These detail reports are often the result of using operational data derived from special studies or from a detailed object classification. The latter is usually generated/developed within the ARF rather than from the institution's financial records system. Expenses should be listed in specific rather than generic or miscellaneous object classifications. Where this proves to be difficult, every effort should be made, through logic and reasoning, to determine a more suitable classification.

After all direct costs have been assigned to facility cost centers and animal species/category subcenters, they should be summed to determine the total direct cost for each center. The next step is to assign institutional F&A (indirect) costs allocated to the ARF to each cost center. The portion of space costs allocated to the ARF should be further allocated to cost centers based on the results of the space survey. See *Schedule II-h* (page 41). If institutional General Administration and General Expenses are allocated to the ARF, they should be further allocated to the cost centers based on modified total direct costs. See *Schedule II-i* (page 42).

Once all expenses have been assigned to the appropriate facility cost center or animal category subcenter as described and transferred back to the master schedule (*Schedule II*, pages 30 and 31), the assignment process is complete.

The allocation of the support cost centers is discussed in the next chapter.

SCHEDULE II-e:
Assignment of Uniform Costs

Assignment based on salary assignment to all cost centers except ARF General and Administrative

Cost Centers	Assignment Base	Assignment %	Dollar Assignment
ARF General and Administrative			
Refuse Disposal/General Sanitation	\$ 3,090	0.77%	\$ 21
Cage Washing	27,818	6.93%	181
Laboratory Services	22,868	5.70%	149
Animal Health	54,173	13.50%	353
Technical Activities	20,581	5.13%	134
Animal Husbandry			
Cats	5,599	1.40%	37
Dogs	42,343	10.56%	276
Guinea Pigs	34,038	8.49%	222
Hamsters	21,573	5.38%	141
Mice in Conventional Cages	9,320	2.32%	61
Mice in Filtered Cages	40,856	10.19%	268
Poultry	1,258	0.31%	8
Primates—large	11,815	2.95%	77
Primates—small	9,266	2.31%	60
Primates—unassigned	2,343	0.58%	15
Rabbits	30,115	7.51%	196
Rabbits with Litters	3,348	0.83%	22
Rats	35,337	8.81%	230
Rat Production	5,891	1.47%	38
Sheep/Goats	7,671	1.91%	50
Swine	11,834	2.95%	77
TOTALS	\$401,137	100.00%	\$2,616

Assignment Base column from TOTALS line of *Schedule II-a (Page 1 and Page 2)*.

Dollar Assignment TOTAL from *Schedule I Uniforms* line.

Transfer dollar assignment in each line to appropriate cost center of Uniforms line of *Schedule II (Page 1 and Page 2)*.

SCHEDULE II-f:

Assignment of Animal Bedding Costs

Assignment based on cost of bedding in two one-month sample periods

Assignment Base=quantity x unit price

Animal Cost Subcenters	Qty. Used	Bedding Type	Unit Price	Assignment Base	Assignment %	Dollar Assignment
Cats	1	Bags-hardwood chips	\$4.00	\$ 4	0.18%	\$ 24
Dogs	113	Bags-shavings	4.45	503	22.78%	3,017
Guinea Pigs	9	Bags-hardwood chips	4.00	36	1.63%	216
Hamsters	3	Bags-hardwood chips	4.00	12	0.54%	72
Mice in Conventional Cages	58	Bags-hardwood chips	4.00	232	10.51%	1,392
Mice in Filtered Cages	120	Bags-hardwood chips	4.00	480	21.74%	2,880
Poultry	4	Bags-shavings	4.45	18	0.82%	108
Primates—large		None				
Primates—small	193	Cageboard pads	0.21	41	1.86%	246
Primates—unassigned	22	Cageboard pads	0.21	5	0.23%	30
Rabbits		None				
Rabbits with Litters	1	Bags-shavings	4.45	4	0.18%	24
Rats	133	Bags-hardwood chips	4.00	532	24.09%	3,191
Rats Production	22	Bags-hardwood chips	4.00	88	3.99%	528
Sheep/Goats	23	Bags-shavings	4.45	102	4.62%	612
Swine	34	Bags-shavings	4.45	151	6.84%	906
TOTALS				\$2,208	100.00%	\$13,246

TOTAL in Dollar Assignment column from *Schedule I* Animal bedding line.Transfer dollar assignment in each line to the Animal bedding line of the appropriate cost center in *Schedule II* (Page 1 and Page 2).

SCHEDULE II-g:

Assignment of Animal Feed Costs

Assignment based on proportionate consumption of feeds used for more than one animal category

Assignment Base=average daily consumption × animal care days.

Feeds used for only one animal category assigned directly (assignment%=100%)

Cost Centers	Average Consumption in lbs.	Animal Care Days	Assignment Base	Assignment %	Dollar Assignment
Hamsters	0.04	82,125	3,285	18.31%	\$ 1,768
Mice in Conventional Cages	0.02	97,820	1,956	10.91%	1,053
Mice in Filtered Cages	0.02	201,480	4,030	22.46%	2,169
Rats	0.05	148,596	7,430	41.42%	3,999
Rat Production	0.05	24,766	1,238	6.90%	667
TOTAL-RODENT FEED			17,939	100.00%	\$ 9,656
Rabbits	0.33	23,725	7,829	78.14%	\$ 1,531
Rabbits with Litters	1.00	2,190	2,190	21.86%	428
TOTAL-RABBIT FEED			10,019	100.00%	\$ 1,959
Primates—large	1.25	5,256	6,570	42.33%	\$ 1,415
Primates—small	0.30	24,638	7,391	47.62%	1,592
Primates—unassigned	0.47	3,321	1,561	10.06%	336
TOTAL-PRIMATE FEED			15,522	100.00%	\$ 3,343
Feed for Other Animals Directly Assigned					
Cats				100.00%	\$ 969
Dogs				100.00%	2,888
Guinea Pigs				100.00%	676
Poultry				100.00%	268
Sheep/Goats				100.00%	1,446
Swine				100.00%	1,943
TOTAL-ALL FEED					\$23,148

TOTAL in Dollar Assignment column from *Schedule I* Animal feed line.

Transfer dollar assignment in each line to the Animal feed line of the appropriate cost center of *Schedule II* (Page 1 and Page 2).

SCHEDULE II-h:

Assignment of Institutional F&A Costs—Space Costs

Assignment based on net assignable square feet in cost centers which are to receive an allocation of Space Costs

Cost Centers	Assignment Base	Assignment %	Dollar Assignment
ARF General and Administrative	800	12.18%	\$11,768
Refuse Disposal/General Sanitation	300	4.57%	4,413
Cage Washing	2520	38.36%	37,068
Laboratory Services	500	7.61%	7,355
Animal Health	1641	24.98%	24,138
Technical Activities	100	1.52%	1,471
Animal Husbandry			
Dogs	175	2.66%	2,574
Primates—unassigned	205	3.12%	3,015
Rats	135	2.06%	1,986
Rat Production	193	2.94%	2,839
TOTALS	6,569	100.00%	\$96,627

Assignment Base column from survey of net assignable square feet space in each center which by Federal policy is to receive an allocation of space costs. The model survey indicates that 10% of the Dog space, 100% of the Primates—unassigned space, 10% of the Rat space, and 100% of the Rat Production space is used for animals not on research projects or on research projects where they are generally removed from the ARF for conducting research.

Dollar Assignment TOTAL from *Schedule I* Institutional F&A Space costs line.

Transfer dollar assignment in each line to appropriate cost center in *Schedule II (Page 1 and Page 2)*.

SCHEDULE II-i:
**Assignment of Institutional F&A
 General Administration and General Expenses**

Assignment based on total costs assigned to cost centers other than costs of institutional General Administration and General Expenses

Cost Centers	Assignment Base	Assignment %	Dollar Assignment
ARF General and Administrative	\$137,339	17.34%	\$15,489
Refuse Disposal/General Sanitation	27,331	3.45%	3,082
Cage Washing	76,532	9.66%	8,631
Laboratory Services	87,590	11.06%	9,878
Animal Health	98,925	12.49%	11,157
Technical Activities	27,550	3.48%	3,107
Animal Husbandry			
Cats	6,827	0.86%	770
Dogs	53,850	6.80%	6,073
Guinea Pigs	36,243	4.57%	4,087
Hamsters	24,651	3.11%	2,780
Mice in Conventional Cages	12,033	1.52%	1,357
Mice in Filtered Cages	48,638	6.14%	5,485
Poultry	1,694	0.21%	191
Primates—large	14,195	1.79%	1,601
Primates—small	11,315	1.43%	1,276
Primates—unassigned	5,940	0.75%	670
Rabbits	34,067	4.30%	3,842
Rabbits with Litters	3,920	0.49%	442
Rats	48,394	6.11%	5,458
Rat Production	9,963	1.26%	1,124
Sheep/Goats	10,088	1.27%	1,138
Swine	15,170	1.91%	1,711
TOTALS	\$792,254	100.00%	\$89,349

Assignment Base column from total of all costs assigned to cost centers other than costs of General Administration and General Expenses in *Schedule II*.

Dollar Assignment TOTAL from *Schedule I* Institutional F&A General Administration and General Expense line.

Transfer dollar assignment in each line to appropriate cost center of *Schedule II*.

If animal care charges are excluded from the F&A allocation base, institutional General Administration and General Expenses should be allocated to the ARF cost centers as shown in this Schedule. If animal care charges are included in the F&A allocation base, institutional General Administration and General Expenses should not be allocated to the ARF. The preferable treatment is to include the animal care charges in the F&A allocation base and not allocate institutional General Administration and General Expenses to the ARF. In the case of the preferred treatment this Schedule would not be used.

Allocation of Internal Support Costs to Direct Cost Centers and Development of Unit Costs

Allocation of Internal Support Costs to Direct Cost Centers

Prepare the step-down worksheet

The next step in the cost analysis procedure entails the allocation of costs, as developed in the previous steps, from internal support to direct cost centers.

The allocation of costs as provided in this model recognizes that certain cost centers support other cost centers. For example, Animal Research Facility (ARF) General and Administrative supports all of the other activities of the ARF. Support costs, therefore, are “stepped down” from the most general (providing a benefit or support to the broadest range of the remaining cost centers, as with ARF General and Administrative), to the most specific (such as Cage Washing and Sanitation, a narrowly defined activity benefitting only the Animal Husbandry cost center), and finally to the direct cost centers. The step-down is carried out on *Schedule III* (page 44).

Prepare the step-down worksheet by listing the cost centers in the sequence in which they are to be allocated along both the top row and the left-most column of the worksheet. Record the total expense of each center (from *Schedule II*, pages 30 and 31) in the “Total Assigned Cost” column of the worksheet.

Allocate Costs

ARF General and Administrative

Prepare a subsidiary schedule (*Schedule III-a*, Allocation of ARF General and Administrative Costs, page 45) to allocate the costs from the first cost center under consideration to the remaining cost centers. Transfer the total cost assigned to the first cost center, General and Administrative, from *Schedule III* (page 44) to the TOTAL line of the Dollar Allocation column of the subsidiary schedule. This represents the amount to be allocated to the remaining cost centers. The ARF General and Administrative cost center is allocated to the remaining cost centers on the basis of total assigned costs of each center. Using the proportion of total assigned cost distributes the ARF General and Administrative costs (which are incurred in support of each of the other cost centers) consistent with the relative expenditures for each, and represents the most logical method of allocating these costs.

Schedule III-a (page 45) is calculated by dividing the assigned costs (allocation base) of each center by the total assigned costs for all centers under consideration to determine an allocation percentage for each center. The allocation percentage is then multiplied by the total amount to be allocated to determine the dollar allocation for each cost center. The calculated allocations are then transferred back to the ARF General and Administrative column of the main step-down schedule (*Schedule III*).

The total of all costs remains unchanged, but each cost center now contains both its original assigned cost from *Schedule II* (page 30 and 31) and its allocated cost from the first internal cost center.

SCHEDULE III: Stepdown Allocation of Costs

Cost Centers	Total Assigned Cost	ARF General & Admin	Refuse Disposal/ Sanitation	Cage Washing	Lab Services	Animal Health	Final Allocated Cost
Support Cost Centers							
ARF General & Admin	\$152,828	(\$152,828)					
Refuse Disposal/General Sanitation	30,413	6,378	(\$36,791)				(\$ 0)
Cage Washing	85,163	17,859	6,356	(\$109,378)			(\$ 0)
Lab Services	97,468	20,439	1,261		(\$119,168)		(\$ 0)
Animal Health	110,082	23,085	4,139			(\$137,306)	\$ 0
Direct Cost Centers							
Technical Activities	30,657	6,429	1,329		1,896		\$ 40,311
Animal Husbandry							
Cats	7,597	1,593	631	1,320	1,405	2,447	14,992
Dogs	59,923	12,566	4,414	466	1,997	15,480	94,846
Guinea Pigs	40,330	8,457	631	23,290	197	14,220	87,125
Hamsters	27,431	5,752	631	4,869	723	7,686	47,092
Mice in Conventional Cages	13,390	2,808	694	5,254	26,113	9,413	57,672
Mice in Filtered Cages	54,123	11,350	1,261	26,855	56,835	29,339	179,763
Poultry	1,885	395	252	3,478	151	1,202	7,363
Primates—large	15,796	3,312	1,009	3,261	6,288	5,786	35,453
Primates—small	12,591	2,640	4,162	12,111	2,179	6,569	40,252
Primates—unassigned	6,610	1,386	517	1,843	1,656	2,343	14,355
Rabbits	37,909	7,950	2,901	9,533	2,333	11,825	72,451
Rabbits with Litters	4,362	915	126	1,902	23	1,429	8,757
Rats	53,852	11,293	3,405	11,825	14,181	18,442	112,998
Rats Production	11,087	2,325	487	2,907	2,389	3,744	22,938
Sheep/Goats	11,226	2,354	1,009	311	484	3,000	18,384
Swine	16,881	3,540	1,576	155	317	4,383	26,853
TOTALS	\$881,603	(\$ 0)	(\$ 0)	\$ 0	\$ 0	(\$ 0)	\$881,603
Schedule Reference:	Assigned Costs <i>Schedule II</i>	G&A Allocation <i>Schedule III-a</i>	Refuse/ Sanitation Allocation <i>Schedule III-b</i>	Cage Washing Allocation <i>Schedule III-c</i>	Lab Services Allocation <i>Schedule III-d</i>	Animal Health Care Allocation <i>Schedule III-e</i>	

The final allocated cost for each cost center is determined by adding across each row.

The costs of each support cost center are distributed in a step-wise fashion to the other centers and zeroed out.

SCHEDULE III-a:

Allocation of ARF General and Administrative Costs

Allocation based on total costs assigned to each cost center, except the ARF General and Administrative cost center.

Allocation base=assigned cost

ARF General & Administrative cost to be allocated=\$152,828

Cost Centers	Total Allocation Base	Allocation %	Dollar Allocation
ARF General & Admin	—	—	—
Refuse Disposal/Sanitation	\$ 30,413	4.17%	\$ 6,378
Cage Washing	85,163	11.69%	17,859
Lab Services	97,468	13.37%	20,439
Animal Health	110,082	15.11%	23,085
Technical Activities	30,657	4.21%	6,429
Animal Husbandry			
Cats	7,597	1.04%	1,593
Dogs	59,923	8.22%	12,566
Guinea Pigs	40,330	5.53%	8,457
Hamsters	27,431	3.76%	5,752
Mice in Conventional Cages	13,390	1.84%	2,808
Mice in Filtered Cages	54,123	7.43%	11,350
Poultry	1,885	0.26%	395
Primates—large	15,796	2.17%	3,312
Primates—small	12,591	1.73%	2,640
Primates—unassigned	6,610	0.91%	1,386
Rabbits	37,909	5.20%	7,950
Rabbits with Litters	4,362	0.60%	915
Rats	53,852	7.39%	11,293
Rat Production	11,087	1.52%	2,325
Sheep/Goats	11,226	1.54%	2,354
Swine	16,881	2.32%	3,540
TOTALS	\$728,775	100.00%	\$152,828

The dollar allocation for each Cost Center is transferred to the General and Administrative column in the main stepdown schedule (*Schedule III*).

Refuse Disposal/General Sanitation

Prepare a subsidiary schedule to calculate the allocation of Refuse Disposal/General Sanitation costs (*Schedule III-b*, page 47). Note that the total dollar amount to be allocated consists of the assigned costs plus the allocation of ARF General and Administrative costs (the sum of the first two columns in the Refuse Disposal/General Sanitation row of *Schedule III*, page 44). Refuse Disposal/General Sanitation costs consist of costs for refuse disposal, general facility sanitation, housekeeping, and maintenance over and above that provided by the institution. Such costs are incurred in relationship to space used, and thus are distributed on the basis of net assignable square feet. The allocation base for the Refuse Disposal/General Sanitation cost center consists of all space in the ARF, including space classified as organized research under the Federal policy discussed in Chapters 2 and 3. Since refuse disposal and sanitation services are provided to the activities using space classified as organized research, this space should be part of the allocation base and Refuse Disposal/General Sanitation costs should be allocated to benefitting Animal Husbandry subcenters and other benefitting cost centers on this basis. Repeat the calculation process as performed for the first subsidiary schedule. After calculation, once again transfer the dollar allocations back to the main step-down worksheet (*Schedule III*).

Cage Washing

Accumulated expenses in this category are allocated to the Animal Husbandry cost centers based on the proportion of cages washed and sterilized for each of the species/category of animals (*Schedule III-c*, page 48). Note that the amount to be allocated consists of the original assigned costs plus the ARF General and Administrative allocation and the Refuse Disposal/General Sanitation allocation. In the illustration, the proportions have been determined by multiplying the average number of cages assigned for each species/category of animal during the study period, times the average frequency of washing and/or sterilizing on a weekly basis, weighted by the labor time to break down, wash or sterilize, and reset each type of equipment. The allocated costs are then transferred back to the Cage Washing column of the step-down worksheet (*Schedule III*).

Laboratory Services

Laboratory Services are allocated on the basis of the number of tests and procedures performed. Because some tests are more complex, and therefore more costly, different factors, or weights, are assigned to different types of tests. The factors are determined based on the relative amount of labor (time) required for each test.

The number of tests performed for each of the animal categories is multiplied by the time factor for that particular test to calculate the total weighted units of laboratory services provided (*Schedule III-d*, page 49). The proportion of weighted tests by animal category is then used to calculate the dollar allocation of the cost of Laboratory Services. The allocated costs are then transferred back to the main step-down worksheet (*Schedule III*).

SCHEDULE III-b:

Allocation of Refuse Disposal/General Sanitation Cost Center

Allocation base=net assignable square feet

Refuse Disposal/General Sanitation cost to be allocated=\$36,791

Cost Centers	Total Allocation Base	Allocation %	Dollar Allocation
Cage Washing	2,520	17.28%	\$ 6,356
Lab Services	500	3.43%	1,261
Animal Health	1,641	11.25%	4,139
Technical Activities	527	3.61%	1,329
Animal Husbandry			
Cats	250	1.71%	631
Dogs	1,750	12.00%	4,414
Guinea Pigs	250	1.71%	631
Hamsters	250	1.71%	631
Mice in Conventional Cages	275	1.89%	694
Mice in Filtered Cages	500	3.43%	1,261
Poultry	100	0.69%	252
Primates—large	400	2.74%	1,009
Primates—small	1,650	11.31%	4,162
Primates—unassigned	205	1.41%	517
Rabbits	1,150	7.88%	2,901
Rabbits with Litters	50	0.34%	126
Rats	1,350	9.26%	3,405
Rat Production	193	1.32%	487
Sheep/Goats	400	2.74%	1,009
Swine	625	4.28%	1,576
TOTALS	14,586	100.00%	\$36,791

The dollar allocation for each cost center is transferred to the Refuse Disposal/General Sanitation column in the main stepdown schedule (*Schedule III*).

SCHEDULE III-C:
Allocation of Cage Washing Cost Center

Allocation based on time, number, and frequency of washing items for cost centers
 Allocation base=number in use × frequency × time
 Cage Washing cost to be allocated=\$109,378

Cost Centers	CAGES/UNITS			WATER BOTTLES			MISC. ITEMS			ALLOCATION		
	Ave. No. Used	Frequency	Time	Ave. No. Used	Frequency	Time	Ave. No. Used	Frequency	Time	Allocation Base	Allocation %	Dollar Allocation
Cats	5.0	1.00	6.50				10.0	2.00	0.50	42.5	1.21%	\$ 1,320
Dogs	0.0						15.0	1.00	1.00	15.0	0.43%	466
Guinea Pigs	50.0	1.00	15.00							750.0	21.29%	23,290
Hamsters	56.0	1.00	2.80							156.8	4.45%	4,869
Mice in Convent. Cages	89.0	1.00	1.80	9.0	1.00	1.00				169.2	4.80%	5,254
Mice in Filtered Cages	184.0	1.00	3.70	184.0	1.00	1.00				864.8	24.55%	26,855
Poultry	8.0	2.00	5.00				16.0	1.00	2.00	112.0	3.18%	3,478
Primates—large	14.0	0.50	10.00	14.0	2.00	1.00	14.0	1.00	0.50	105.0	2.98%	3,261
Primates—small	67.0	0.50	10.00	22.0	2.00	1.00	22.0	1.00	0.50	390.0	11.07%	12,111
Primates—unassigned	10.0	0.50	10.00	4.7	2.00	1.00	4.7	1.00		59.3	1.68%	1,843
Rabbits	16.0	0.50	37.50	2.0	1.00	1.00	5.0	1.00	1.00	307.0	8.72%	9,533
Rabbits with Litters	3.0	0.50	37.50	3.0	1.00	1.00	2.0	1.00	1.00	61.3	1.74%	1,902
Rats	136.0	1.00	2.80							380.8	10.81%	11,825
Rats Production	22.0	1.00	2.80	16.0	2.00	1.00				93.6	2.66%	2,907
Sheep/Goats							10.0	1.00	1.00	10.0	0.28%	311
Swine							5.0	1.00	1.00	5.0	0.14%	155
TOTALS										3,522.3	100.00%	\$109,378

The dollar allocation for each cost center is transferred to the Cage Washing column in the main stepdown schedule (*Schedule III*).

**SCHEDULE III-d:
 Allocation of Laboratory Services Cost Center**

Allocation based on time for test × number of tests for cost center
 Allocation base=number performed × time factor for each test
 Laboratory Services cost to be allocated=\$119,168

Cost Centers	NECROPSIES		H&E SLIDES		BACTERIAL CULTURES		SEROLOGY		Allocation Base	Allocation %	Dollar Allocation
	No. Performed	Time Factor	No. Performed	Time Factor	No. Performed	Time Factor	No. Performed	Time Factor			
Technical Activities	12	60	52	15	150	5	25	8	2,450	1.59%	\$ 1,896
Animal Husbandry											
Cats	2	80	35	15	226	5			1,815	1.18%	1,405
Dogs	2	110	24	15	400	5			2,580	1.68%	1,997
Guinea Pigs	1	45	10	15	12	5	25		255	0.17%	197
Hamsters	1	40	10	15			93	8	934	0.61%	723
Mice in Convent. Cages	450	35	602	15			1,120	8	33,740	21.91%	26,113
Mice in Filtered Cages	750	35	1,200	15			3,648	8	73,434	47.69%	56,835
Poultry	1	60	5	15	12	5			195	0.13%	151
Primates—large	1	120	22	15	1,535	5			8,125	5.28%	6,288
Primates—small	2	100	41	15	400	5			2,815	1.83%	2,179
Primates—unassigned	2	110	44	15	252	5			2,140	1.39%	1,656
Rabbits	9	60	90	15	225	5			3,015	1.96%	2,333
Rabbits with Litters					6	5			30	0.02%	23
Rats	85	40	486	15			954	8	18,322	11.90%	14,181
Rats Production	15	40	81	15			159	8	3,087	2.00%	2,389
Sheep/Goats	2	140	20	15	9	5			625	0.41%	484
Swine	1	140	14	15	12	5			410	0.27%	317
TOTALS	1,324	1,155	2,684	225	3,089	55	5,999	40	153,972	100.00%	\$119,168

The dollar allocation for each cost center is transferred to the Laboratory Services column in the main stepdown schedule (*Schedule III*).

Animal Health Care

Costs of Animal Health Care are allocated to the various subcenters of Animal Husbandry on the basis of total accumulated costs. Since animal health care services represent a protection of the investment made for each category of animals, which is reflected by the proportion of accumulated cost for each, this is a reasonable basis for allocation (*Schedule III-e*, page 51). Although the delivery of animal health services is typically not easily “metered,” if consistent, reliable measurements of services provided to each species/category are available, these should be used as the preferred basis for allocating animal health costs. As before, the allocated costs for Animal Health Care are transferred back to *Schedule III* (page 44).

Final Allocated Costs

The Final Allocated Costs of each of the cost centers can now be calculated by adding across each row of the step-down worksheet (*Schedule III*, page 44). Note that the costs of the ARF support cost centers have been zeroed out by the allocation process and the total allocated costs of the direct cost centers are equal to the total adjusted ARF cost. All costs have now been allocated to Direct Cost Centers (*Schedule III*).

Calculation of Unit Costs

Unit costs are now calculated by dividing the accumulated costs by the units of service provided (*Schedule IV*, page 52).

The accumulated cost of providing Technical Services, including internal support costs of the services, is divided by the number of units of services provided to determine the unit cost. In the study model, we used hours of service as the unit. In some situations standard units can be developed for services. For example, the set-up of an operating room for a surgical procedure may be valued at one unit of service. Routine support for an investigator-staffed surgery may require 1/2 unit-per-hour of operating room use. Such unit charges should be based on a survey of the average time required for the service. Incidental supplies are assumed to be included in the unit or hourly charges, but if supply use is significant, there should be an additional pass-through charge. In the study model we show that some laboratory services were preformed as technical support for investigators. In this situation a standard time (or unit) is assigned to each laboratory service based on a survey of the average time required for the service.

The accumulated cost in each of the subcenters of Animal Husbandry is divided by a measure of output of the subcenter to determine unit costs. In the study model, we used primates maintained and subsequently assigned to another research project as the output for the primates-unassigned subcenter and animals provided for investigation as the output for the rat production subcenter. The accumulated costs of each of the other subcenters of Animal Husbandry is divided by the total animal days or cage days to calculate a *per diem* cost.

SCHEDULE III-e:

Allocation of Animal Health Care Costs

Allocation based on total costs allocated to each animal category subcenter

Allocation base=accumulated cost

Animal Health Care cost to be allocated=\$137,306

Cost Centers	Total Allocation Base	Allocation %	Dollar Allocation
Cats	\$ 12,545	1.78%	\$ 2,447
Dogs	79,366	11.27%	15,480
Guinea Pigs	72,905	10.36%	14,220
Hamsters	39,406	5.60%	7,686
Mice in Conventional Cages	48,259	6.86%	9,413
Mice in Filtered Cages	150,424	21.37%	29,339
Poultry	6,161	0.88%	1,202
Primates—large	29,666	4.21%	5,786
Primates—small	33,683	4.78%	6,569
Primates—unassigned	12,012	1.71%	2,343
Rabbits	60,626	8.61%	11,825
Rabbits with Litters	7,328	1.04%	1,429
Rats	94,555	13.43%	18,442
Rats Production	19,195	2.73%	3,744
Sheep/Goats	15,383	2.20%	3,000
Swine	22,470	3.19%	4,383
TOTALS	\$703,985	100.00%	\$137,306

The dollar allocation for each cost center is transferred to the Animal Health column in the main stepdown schedule (*Schedule III*).

SCHEDULE IV:
Determination of Unit Costs

Cost Centers	Total Accumulated Costs	Number of Units	Units	Unit Cost
Technical Activities	\$ 40,311	1,251	Hours	\$32.22
Animal Husbandry				
Cats	14,992	3,650	per animal per day	4.11
Dogs	94,846	7,300	per animal per day	12.99
Guinea Pigs	87,125	54,750	per animal per day	1.59
Hamsters	47,092	82,125	per animal per day	0.57
Mice in Conventional Cages	57,672	97,820	per cage per day	0.59
Mice in Filtered Cages	179,763	201,480	per cage per day	0.89
Poultry	7,363	5,475	per animal per day	1.34
Primates—large	35,453	5,256	per animal per day	6.75
Primates—small	40,252	24,637	per animal per day	1.63
Primates—unassigned	14,355	39	per animal	368.06
Rabbits	72,451	23,725	per animal per day	3.05
Rabbits with Litters	8,757	2,190	per animal per day	4.00
Rats	112,998	156,026	per animal per day	0.72
Rat Production	22,938	1,144	per animal produced	20.05
Sheep/Goats	18,384	2,190	per animal per day	8.39
Swine	26,853	3,285	per animal per day	8.17
TOTAL	\$881,603			

Application of Unit Costs

Completion by the Animal Research Facility (ARF) of a rigorous cost determination process equips the unit's director and other institutional officials with a powerful management tool. Identifying with reasonable precision the unit costs of the ARF's services to investigators provides a basis for determining its cost recovery plan and the resulting rate structures for the ARF's direct cost centers. The cost determination process also provides the ARF's director with a vehicle for more accurate prospective budgeting of the unit, and an analytically sound basis for evaluating trends in the ARF's cost structure over time, as well as a means of comparing actual costs with projected costs. In addition, the cost analysis provides a sound basis for cost control and assessing the value of services *vis-a-vis* their cost.

Rate Setting

Policy considerations

Determination of unit costs provides the essential information to establish an ARF rate structure for cost recovery. Appropriately identified unit costs for the ARF's services, however, do not necessarily translate in a linear fashion into a rate structure. Each institution with an ARF must address several policy questions that in terms of their details differ among institutions, and impinge on the rate structure that will be adopted. Among the factors to be considered are the following:

1. A first-order consideration is whether or not the parent institution expects the ARF to be financially self-sustaining. This manual neither encourages nor discourages an institutional subsidy of the ARF, only that the issue must be addressed. An institution may decide to subsidize the ARF's operating costs in recognition of the general contributions the ARF makes to the institution over and above the specific services it renders to individual investigators. A professionally led ARF elevates the overall scientific stature of an institution by its presence and its various contributions in, for example, consultation with investigators regarding selection of animal species, and consultation with specialized instruction of investigators on techniques of animal experimentation.

Even if institutional officials recognize and acknowledge these types of tangible and intangible contributions by the ARF, at any point in time there may be practical and financial constraints on the institution's capacity to underwrite the ARF's operating costs. The circumstances of each institution inherently are different, and likely will vary over time. Thus, institutions that provided support for the ARF at one point in time might not be able to at another time. The ARF director and others responsible for rate setting practices should expect to confer periodically with institutional leadership and fiscal managers for help and guidance in striking a proper balance in the ARF's cost-recovery plan.

2. Another policy consideration revolves around the approach an institution may wish to take, should it elect to partially underwrite the ARF's operating costs. Institutions may elect to target their subsidies in certain defined areas. (Caution should be exercised, however, to not discriminate in these practices between Federally and non-Federally supported activities.) Examples include the ARF's "readiness to serve" facilities and programs, such as animal health care, surgery, and x-ray facilities. They are characterized as essential to the overall program and are used widely, but sporadically, by investigators. Their standby status tends to result in high unit costs, which in many cases would prove to be prohibitive if passed along directly to investigators. As one way to influence investigators' behavior, relative to making appropriate

use of such centralized expertises and facilities, the rate structure for these services may be set below their actual unit costs by application of institutional resources toward discounted rates.

ARFs tend to be intense in their use of both fixed and movable equipment, and the regulatory milieu they confront creates ceaseless demands for replacement and upgrading of essential equipment. Institutions may elect, therefore, to direct any subsidies they can provide toward these categories of ARF costs.

3. Institutions vary substantially in terms of configuration of their ARFs, their overall organizational structure, and the evolutionary state of their ARFs. Based upon the magnitude of the institution's research enterprise and the peculiarities of its physical plant arrangements, one may find a fully centralized ARF where all species are housed and maintained in one location, or in contrast, a geographically dispersed, multi-site ARF. Even in ARFs that are geographically decentralized, the ARF director is expected to exercise formal control and oversight of all the institution's laboratory animal sites.

Among the policy issues that must be confronted, especially in institutions with decentralized laboratory animal facilities, is the degree of uniformity or lack thereof in the rates charged to investigators across the institution. If the ARF's cost determination process embraces fully all the institution's animal facilities and programs, there customarily is a strong case to be made for a uniform rate structure to be applied to all investigators' projects, irrespective of location. To do otherwise (i.e., to use variable rates) would mean that investigators in one sector of the institution are cross-subsidizing otherwise similarly situated investigators elsewhere in the institution. Such arrangements may subject an institution to internal and external criticisms, possibly including audit disallowances based upon inequitable recharge systems by the ARF.

4. Whatever cost recovery philosophy or approach that an institution and its ARF may adopt, it necessarily will require adjustments from time to time in order to achieve a financially stable ARF enterprise. The existence of a rigorous cost determination system will assist the ARF director in estimating both the frequency and magnitude of any rate adjustments that are judged to be warranted. As a practical consideration, the rates charged to users are assessed predominantly against sponsored programs that customarily operate with prospectively determined annual budgets. The implication of this generalization is that it is impractical to adjust ARF rates upward on any more frequent basis than once annually. Furthermore, the effective date for prospective changes in the rate structure must take into account that relatively long lead time is required for most investigators with extramurally sponsored projects to incorporate the new rates into their direct expenses budget.

Another institutional policy decision, therefore, must address both the frequency and timing of any adjustments to the rate structure. This decision may be heavily influenced by internal institutional considerations—e.g., some fairly abrupt institutional financial exigency that diminishes its capability or willingness to subsidize the ARF's operating costs. Failure or inability, however, to afford investigators adequate time and opportunity to increase or otherwise adjust their project budgets to meet the new rate structure may either compromise the success of the research projects in question, or make it impossible for the ARF to actually realize the incremental receipts anticipated from the rate adjustment, or both. Either eventuality could pose severe financial difficulties for both the ARF and its institution.

Determination of net animal cost rates

Once the ARF and its institution have made decisions about the foregoing policy matters, a broad policy framework will have been established for the ARF's financial characteristics. Reaching closure at a point in time about the ARF's rate structure commonly requires an iterative process, whereby all the major factors are weighed, assessed, and the inevitable tradeoff and options explored. Beginning with the ARF's overall cost determination and derivation of the unit costs associated with its direct cost centers, those setting rates must offset ARF's total operating costs by any institutional funds that can be made available to underwrite the ARF. All users should be charged according to a uniform rate structure.

Rate setting in the ARF context understandably involves a series of key assumptions and best estimates. Major cost factors may change materially with little advance warning, and anticipated utilization of services by investigators may prove with time to be wide of the mark. It thus may occur that from year to year the ARF's rate structure yields receipts that are substantially more or less than the costs actually incurred during the defined time interval.

As a general rule the receipts generated over time from the ARF's rate structure, in the aggregate, should not exceed the allowable costs actually incurred to operate the ARF. In any single year, however, a material gain or loss can occur which may be carried forward into a subsequent fiscal period. It should be noted that predetermined institutional support cannot be considered a loss and cannot be carried forward on this basis. Should a material gain or loss occur, ARF management is obligated to reexamine the prevailing rates and adjust them upwards or downwards, as appropriate.

If there is a difference between the revenue and the actual costs of the fiscal year covered by the rate, an adjustment is needed. This difference is "carried forward" as an adjustment to the rate computation of a future year(s). The rate should be based on estimated costs (plus or minus the carry-forward adjustment from a prior year). The carry-forward adjustment cannot be made for the fiscal year immediately following the year covered by the rate because the rate for the following year will have been established before the amount of the carry forward adjustment is known. Consequently, the adjustment will generally be made in the second or third years. Over time an institution may not charge more than costs. *Schedule V* (page 56) illustrates how the carry forward can be applied to the projection of unit costs for a future fiscal period. *Schedule V* also illustrates how institutional support can be applied. In the example, the institution decided to provide support to partially offset deficits in the rat breeding, dogs, and guinea pigs categories so that the rate increase for these animal categories could be ameliorated.

No matter what institutional support is provided to the ARF, users often feel that animal care fees are too high. Cost analysis will provide a basis of explaining to users how fees are determined and what cost elements are covered by fees. Better understanding of animal resource management can be expected to alleviate such criticism. Cost analysis also can justify user requests for reimbursement of animal costs from sponsors of research.

**SCHEDULE V:
Projection of Unit Rates to a Future Fiscal Period**

Cost Centers	Total Accumulated Costs	Number of Units	Unit Costs	Actual Rate	Actual Recovery	Expense Carried Forward	Future Projected Expense	Institutional Support	Carry Forward + Expense - Inst. Support	Projected Unit Cost
Technical Activities Animal Husbandry	\$ 40,311	1,251	\$32.22	\$25.00	\$ 31,275	\$ 9,036	\$ 32,000		\$ 41,036	\$ 32.80
Cats	14,992	3,650	4.11	4.00	14,600	392	15,000		15,392	4.22
Dogs	94,846	7,300	12.99	9.00	65,700	29,146	87,000	\$20,000	96,146	13.17
Guinea Pigs	87,125	54,750	1.59	1.50	82,125	5,000	88,000	3,000	90,000	1.64
Hamsters	47,092	82,125	0.57	0.60	49,275	(2,183)	46,000		43,817	0.53
Mice in Conventional Cgs.	57,672	97,820	0.59	0.65	63,583	(5,911)	64,000		58,089	0.59
Mice in Filtered Cages	179,763	201,480	0.89	0.95	191,406	(11,643)	200,000		188,357	0.93
Poultry	7,363	5,475	1.34	1.50	8,213	(849)	7,700		6,851	1.25
Primates-large	35,453	5,256	6.75	7.00	36,792	(1,339)	37,000		35,661	6.78
Primates-small	40,252	24,637	1.63	1.75	43,115	(2,863)	42,000		39,137	1.59
Primates-unassigned	14,355	39	368.06	400.00	15,600	(1,245)	16,000		14,755	378.32
Rabbits	72,451	23,725	3.05	3.00	71,175	1,276	72,000		73,276	3.09
Rabbits with Litters	8,757	2,190	4.00	4.00	8,760	(3)	8,700		8,697	3.97
Rats	112,998	156,026	0.72	0.70	109,218	3,780	112,000		115,780	0.74
Rat Production	22,938	1,144	20.05	20.00	22,880	58	27,000	1,000	26,058	22.78
Sheep/Goats	18,384	2,190	8.39	8.00	17,520	864	18,000		18,864	8.61
Swine	26,853	3,285	8.17	8.00	26,280	573	26,000		26,573	8.09
TOTALS	\$881,603				\$857,516	\$24,087	\$898,400	\$24,000	\$898,487	

Budgeting

A record of past spending, especially when it is broken down according to the various services or cost centers of an ARF, provides the basis for budgeting or projecting costs for future fiscal periods. The ARF director should examine the costs of each service and then adjust them for price changes, anticipated increases or decreases in service provided, and any unusual expenses in order to arrive at a new budget. A budget based on sound cost accounting and reasoning is much easier to justify than one based on incomplete data and general estimates.

Cost Control

The cost-finding procedure, and its statistical by-products, can be useful in controlling costs. A comparison of actual costs with budgeted costs and a statistical measure of the services being rendered might reveal areas where costs can be reduced. When the results of a cost-finding procedure are understood by managers and staff of an animal facility, a desirable cost consciousness tends to develop.

Another use of cost analysis is to measure the cost of an activity against its value and to compare the cost of alternative ways to provide the service. This may lead to organizational adjustments, the elimination of certain services, or the addition of new services.

The costs of one ARF can be compared with those of others. When facilities compared are similar and use similar cost-finding procedures, substantial benefits can be derived from such comparisons. If one ARF is able to provide certain services at considerably less cost than others, the other facilities would doubtless find it instructive to determine how it is done. It is important to keep in mind that any difference among costs of ARFs indicates only that a difference exists, not that one is necessarily better. Further analysis must be undertaken to determine whether the difference is due to inefficiency, lack of cost control, design of physical plant, variations in standards of service, geographic location, difference in wage rates, related to the specific uses to which research animals may be put, or to some other reason. The purpose of comparing costs among ARFs (or among different time periods in the same facility) is to note differences and to find areas where investigation into the cause of these differences might prove rewarding.

Text of Department of Health and Human Services Policy on Animal Research Facility Costs

OGAM Action Transmittal U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Office of Grants and Acquisition Management (OGAM)
Office of the Assistant Secretary for Management and Budget
Room 517D–Hubert H. Humphrey Building
200 Independence Ave. S.W.
Washington, D.C. 20201

Action Transmittal—External

Transmittal No.: OGAM AT 2000-1

Date: November 15, 1999

To: Federal Grantees and Awarding Agencies

Subject: Changes in the Treatment of Research Costs Related to Animal Facilities

Regulation: OMB Circulars A-21, A-122 and Appendix E, 45 CFR Part 74

Applicability: Federal Grantees and Awarding Agencies

Effective Date: Upon Issuance for All Newly Submitted Proposals for Facilities and Administrative Cost Rates.

Purpose and Background: Office of Management and Budget Circulars and HHS regulations provide guidance on the treatment of specialized service facilities, including animal facilities, if material in amount. The animal care facilities of research institutions are required by OMB and Departmental regulations to be charged directly to Federal grants on a fee-for-service basis. This fee normally consists of both the direct costs and the allocable share of indirect costs (also known as Facilities and Administrative (F&A) costs) of the service. The purpose of this OGAM Action Transmittal is to clarify what facilities costs are to be considered part of the fee (and charged directly) and what portion should be treated and charged as an F&A cost. This clarification is required because, in recent years, the sophistication of animal research has caused more of this animal research to be conducted within the confines of these facilities. Since most non-animal research takes place in office or laboratory space (which is included as part of the F&A cost), an inequity exists.

Action: Based on the changing nature of research conducted in these facilities, we are changing our methodology to include a certain portion of animal facility costs in the institution's F&A rates. This includes procedure rooms, operating and recovery rooms, isolation rooms, and quarantine rooms directly related to research protocols, as well as rooms that house animals involved in research that are not generally removed from the facility for conducting research. Notwithstanding this policy change, institutions must continue to document (through a space survey) the particular research projects conducted in research space included in an F&A pool.

In addition, to avoid potential over-allocation of F&A costs, on a case-by-case basis animal care charges may be treated like patient care costs and excluded from the allocation base used to charge F&A costs to awards.

To summarize, this Action Transmittal establishes a methodology for grantee organizations to account properly for costs of animal facilities.

Authorizing Official:

Terrence J. Tychan
Deputy Assistant Secretary for
Grants and Acquisition Management

APPENDIX 2

Recapitulation of Schedules I, II, III, IV, and V

Note: The numbers in the Schedules may appear to not calculate exactly due to computer rounding.

SCHEDULE I:

Total Expenses by Object Classification

Object Classification	ARF Operating Account	ARF Adjustments	Institutional Adjustments	Adjusted Total ARF Expenses
Salary & Benefits	\$ 561,573		(\$79,686)	\$481,887*
Medical Surgical				
Med/Surgical supplies	39,190			39,190
Drugs/pharmaceuticals	8,157			8,157
X-ray film/supplies	863			863
General				
Laboratory supplies	29,943			29,943
Uniforms	2,616			2,616
Animal bedding	13,246			13,246
Animal feed	23,148			23,148
Animal purchases	90,621	(\$90,621)		0
Husbandry supplies	4,800			4,800
Postage	443			443
Office supplies	7,586			7,586
Printing/copying	930			930
Sanitation supplies	16,427			16,427
Maintenance supplies	6,527			6,527
Vehicle supplies/fuel	1,164			1,164
AV/Photographic supplies	1,135			1,135
Travel				
Travel	2,500			2,500
Local travel	184			184
Workshop/Training/Seminars	950			950
Other				
Contract labor	793			793
Contract services	4,933			4,933
Entertainment/Social	935		(935)	0
Employee health care	5,125		(5,125)	0
Animal health: outside lab	2,530			2,530
Computer software	1,150			1,150
Computer system charges	2,517			2,517
Equipment/Cages maint/repair	8,400			8,400
Telephone	11,463			11,463
Membership dues	815			815
Books and subscriptions	2,484			2,484
Freight	1,691			1,691
IACUC expenses	4,560		(4,560)	0
Licenses	1,691			1,691
Minor facility alterations	8,681			8,681
Equipment				
Equipment (non-capital)	4,443			4,443
Equipment (capital)	20,024		(20,024)	0
Equipment Amortization	2,340			2,340
Institutional F&A				
Space costs	96,627			96,627
General Admin & General Exp**	89,349			89,349
TOTAL EXPENSES	\$1,082,554	(\$90,621)	(\$110,330)	\$ 881,603

* See Schedule I-a for details.

** As noted in Chapter 2, if animal care charges are excluded from the F&A allocation base, institutional General Administration and General Expenses should be allocated to the ARF. If animal care charges are included in the F&A allocation base, institutional General Administration and General Expenses should not be allocated to the ARF. The preferable treatment is to include the animal care charges in the F&A allocation base and not allocate institutional General Administration and General Expenses to the ARF. In the case of the preferred treatment this line would not be allocated to the ARF.

SCHEDULE I-a:
Salary and Benefits Detail

Position Title	Annual Salary	Fringe Benefits	Annual Basis	Adjustments*	Adjusted Basis	Adj. Basis Using Avg. Tech Salary	% Effort
Director	\$ 75,650	\$13,617	\$ 89,267	(\$62,487)	\$ 26,780	\$ 26,780	30.00%
Administrative Asst.	23,500	4,230	27,730		27,730	27,730	100.00%
Secretary	19,750	3,555	23,305	(4,661)	18,644	18,644	80.00%
Clinical Veterinarian	42,500	7,650	50,150	(12,538)	37,612	37,612	75.00%
Diagnostic Lab Tech	25,500	4,590	30,090		30,090	30,090	100.00%
Animal Health Tech	23,329	4,199	27,528		27,528	27,528	100.00%
Lab Animal Tech	23,330	4,199	27,529		27,529	27,529	100.00%
Supervisor I							
Lab Animal Tech	31,500	5,670	37,170		37,170	37,170	100.00%
Supervisor II							
Lab Animal Tech	17,627	3,173	20,800		20,800	18,158	100.00%
Lab Animal Tech	17,627	3,173	20,800		20,800	18,158	100.00%
Lab Animal Tech	17,560	3,161	20,721		20,721	18,158	100.00%
Lab Animal Tech	16,773	3,019	19,792		19,792	18,158	100.00%
Lab Animal Tech	16,284	2,931	19,215		19,215	18,158	100.00%
Lab Animal Tech	15,944	2,870	18,814		18,814	18,158	100.00%
Lab Animal Tech	14,271	2,569	16,840		16,840	18,158	100.00%
Lab Animal Tech	13,942	2,510	16,452		16,452	18,158	100.00%
Lab Animal Tech	13,942	2,510	16,452		16,452	18,158	100.00%
Lab Animal Tech	13,942	2,510	16,452		16,452	18,158	100.00%
Lab Animal Tech	13,942	2,510	16,452		16,452	18,158	100.00%
Lab Animal Tech	13,372	2,407	15,779		15,779	18,158	100.00%
Lab Animal Tech	13,372	2,407	15,779		15,779	18,158	100.00%
Facility Attendant	13,097	2,357	15,454		15,454	15,454	100.00%
Facility Attendant	13,097	2,357	15,454		15,454	15,454	100.00%
TOTALS	\$475,909	\$85,664	\$561,573	(\$79,686)	\$481,887	\$481,887	

To Schedule I-Total Expenses

NOTE: Salaries and benefits include costs of overtime and fringe benefits.

* Adjustments: 40% of the Director's total effort is spent on externally funded research, 20% on teaching, and 10% on IACUC activities. Therefore, only 30% of the Director's total salary is assignable to the ARF; 25% of the clinical veterinarian's effort is spent on externally funded research, therefore only 75% is assignable to the ARF; 20% of the secretary's effort is devoted to animal purchase which is an institutional F&A (indirect) cost, therefore only 80% is assignable to the ARF.

SCHEDULE II (PAGE 1):

Assignment of Costs to ARF Cost Centers

Object Classification	Total Adj Cost	ARF Gen/Adm	Refuse Disposal/ Sanitation	Cage Washing	Lab Services	Animal Health	Technical Activities	Animal Husbandry	Reference Schedule
Salary and Benefits	\$481,887	\$ 80,750	\$ 3,090	\$27,818	\$22,868	\$ 54,173	\$20,581	\$272,607	II-a
Med/Surgical supplies	39,190				16,577	20,261	2,352		Dir.assign.
Drugs/pharmaceuticals	8,157				8,157				Dir.assign.
X-ray film/supplies	863						863		Dir.assign.
Laboratory supplies	29,943				27,794		2,149		Dir.assign.
Uniforms	2,616		21	181	149	353	134	1,778	II-e
Animal bedding	13,246							13,246	II-f
Animal feed	23,148							23,148	II-g
Husbandry supplies	4,800							4,800	Dir.assign.
Postage	443	443							Dir.assign.
Office supplies	7,586	7,586							Dir.assign.
Printing/copying	930	930							Dir.assign.
Sanitation supplies	16,427		8,027	8,400					Dir.assign.
Maintenance supplies	6,527	1,482	5,045						Dir.assign.
Vehicle supplies/fuel	1,164	1,164							Dir.assign.
AV/Photographic supplies	1,135	1,135							Dir.assign.
Travel	2,500	2,500							Dir.assign.
Local travel	184	184							Dir.assign.
Workshops/Training	950	950							Dir.assign.
Contract labor	793			793					Dir.assign.
Contract services	4,933	1,204	2,526	611	592				Dir.assign.
Animal health: outside lab	2,530				2,530				Dir.assign.
Computer software	1,150	1,150							Dir.assign.
Computer system charges	2,517	2,517							Dir.assign.
Equip/Cage main/repair	8,400	962	4,209	1,661	1,568				Dir.assign.
Telephone	11,463	11,463							Dir.assign.
Membership dues	815	815							Dir.assign.
Books and subscriptions	2,484	2,484							Dir.assign.
Freight	1,691	1,691							Dir.assign.
Licenses	1,691	1,691							Dir.assign.
Minor facility alterations	8,681							8,681	Dir.assign.
Equipment (non-capital)	4,443	2,130						2,313	Dir.assign.
Lease purchases	2,340	2,340							Dir.assign.
Institutional F&A Space Costs	96,627	11,768	4,413	37,068	7,355	24,138	1,471	10,414	II-h
SUBTOTALS	\$792,254	\$137,339	\$27,331	\$76,532	\$87,590	\$ 98,925	\$27,550	\$336,987	
Institutional F&A General Admin & General Exp*	89,349	15,489	3,082	8,631	9,878	11,157	3,107	38,005	II-i
TOTALS	\$881,603	\$152,828	\$30,413	\$85,163	\$97,468	\$110,082	\$30,657	\$374,992	

To Schedule II (Page 2)

The total adjusted costs (\$881,603) are from *Schedule I*.

The figures shown for each row are by direct assignment or are from the Schedules referenced.

- * If animal care charges are excluded from the F&A allocation base, institutional General Administration and General Expenses should be allocated to the ARF. If animal care charges are not included in the F&A allocation base, institutional General Administration and General Expenses should not be allocated to the ARF. The preferable treatment is to include the animal care charges in the F&A allocation base and not allocate institutional General Administration and General Expenses to the ARF.

SCHEDULE II (PAGE 2):
Assignment of Costs to Cost Centers—Animal Husbandry Detail

Object Classification	Animal Husbandry Cost	Cats	Dogs	Guinea pigs	Hamsters	Mice conv cgs	Mice filter cgs	Poultry	Primates large	Primates small	Primates unassign	Rabbits	Rabbits litters	Rats	Rats prod	Sheep/ Goats	Swine
Salary and Benefits	\$272,607	\$5,599	\$42,343	\$34,038	\$21,573	\$ 9,320	\$40,856	\$1,258	\$11,815	\$ 9,266	\$2,343	\$30,115	\$3,348	\$35,337	\$ 5,891	\$ 7,671	\$11,834
Uniforms	1,778	37	276	222	141	61	268	8	77	60	15	196	22	230	38	50	77
Animal bedding	13,246	24	3,017	216	72	1,392	2,880	108		246	30		24	3,191	528	612	906
Animal feed	23,148	969	2,888	676	1,768	1,053	2,169	268	1,415	1,592	336	1,531	428	3,999	667	1,446	1,943
Husbandry supplies	4,800	198	502	109	347	207	415	52	307	151	200	325	98	1,170		309	410
Minor facility alterations	8,681		2,250				2,050					1,900		2,481			
Equipment (non-capital)	2,313			982	750				581								
Institutional F&A Space costs	10,414		2,574								3,015			1,986	2,839		
SUBTOTALS	\$336,987	\$6,827	\$53,850	\$36,243	\$24,651	\$12,033	\$48,638	\$1,694	\$14,195	\$11,315	\$5,940	\$34,067	\$3,920	\$48,394	\$9,963	\$10,088	\$15,170
Inst. General Adm & Gen Exp	38,005	770	6,073	4,087	2,780	1,357	5,485	191	1,601	1,276	670	3,842	442	5,458	1,124	1,138	1,711
TOTALS	\$374,992	\$7,597	\$59,923	\$40,330	\$27,431	\$13,390	\$54,123	\$1,885	\$15,796	\$12,591	\$6,610	\$37,909	\$4,362	\$53,852	\$11,087	\$11,226	\$16,881

The amounts shown in the Salary and Benefits line are from *Schedule II-a (Page 2)*.

The amounts shown in the Uniforms line are from *Schedule II-e*.

The amounts shown in the Animal bedding line are from *Schedule II-f*.

The amounts shown in the Animal feed line are from *Schedule II-g*.

The amounts shown in the Husbandry supplies, Minor facilities alterations, and Equipment lines are by direct assignment.

The amounts shown in the Institutional F&A Space costs line are from *Schedule II-h*.

The amounts shown in the Institutional F&A General Administration and General Expenses line are from *Schedule II-i*.

SCHEDULE II-a (PAGE 1):
Assignment of Salary and Benefits to Facility Cost Centers

Position Title	Adjusted Total	ARF Gen/Adm	Refuse Disposal/ Sanitation	Cage Washing	Lab Services	Animal Health	Technical Activities	Animal Husbandry	Reference Schedule
<i>Director</i>	\$ 26,780	\$18,746				\$ 6,695	\$ 1,339		II-b
Administrative Assistant	27,730	27,730							
Secretary	18,644	18,644							
Clinical Veterinarian	37,612	5,642				28,208	3,762		
Diagnostic Lab Tech	30,090				\$22,868		7,222		
Animal Health Technician	27,528					19,270	8,258		
Lab Animal Supervisor I	27,529	2,753						\$ 24,776	
<i>Lab Animal Supervisor II</i>	37,170	7,235						29,935	II-c
<i>Laboratory Animal Tech</i>	18,158							18,158	II-d
Laboratory Animal Tech	18,158							18,158	
Laboratory Animal Tech	18,158							18,158	
Laboratory Animal Tech	18,158							18,158	
Laboratory Animal Tech	18,158							18,158	
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Laboratory Animal Tech	18,158							18,158	
Laboratory Animal Tech	18,158							18,158	
Laboratory Animal Tech	18,158							18,158	
Laboratory Animal Tech	18,158							18,158	
Facility Attendant	15,454			\$15,454					
Facility Attendant	15,454		\$3,090	12,364					
TOTALS	\$481,887	\$80,750	\$3,090	\$27,818	\$22,868	\$54,173	\$20,581	\$272,607	

See Page 2 for Animal Husbandry Category Detail

The amounts shown in the Adjusted Total column are from *Schedule I-a*.
 Calculation of amounts in each line is illustrated for the Director (*Schedule II-b*);
 the Supervisor II (*Schedule II-c*); and a Laboratory Animal Tech (*Schedule II-d*).
 The amounts for each Cost Center in the TOTALS line are transferred to the Salaries and Benefits line in *Schedule II*.

**SCHEDULE II-a (PAGE 2):
 Assignment of Salary and Benefits to Species/Animal
 Category Subcenters**

Position	Adjusted Total	Cats	Dogs	Guinea pigs	Hamsters	Mice conv cgs	Mice filter cgs	Poultry	Primates large	Primates small	Primates unassign	Rabbits	Rabbits litters	Rats	Rats prod	Sheep/ Goats	Swine
Lab Animal Supervisor I	\$ 24,776	\$4,129	\$13,765						\$ 3,469	\$2,725	\$ 688						
Lab Animal Supervisor II	29,935	1,470	5,881	\$ 2,687	\$ 1,355	\$1,011	\$ 4,410	\$ 804	1,483	1,147	293	\$ 3,968	\$ 442	\$ 3,485	\$ 581	\$ 413	\$ 505
Lab Animal Tech	18,158			2,119	1,061	824	3,545							5,628	938	758	3,285
Lab Animal Tech	18,158			3,631	1,816	1,344	5,920							4,669	778		
Lab Animal Tech	18,158			2,179	1,089	799	3,541							2,801	468	3,250	4,031
Lab Animal Tech	18,158		18,158														
Lab Animal Tech	18,158			9,079	9,079												
Lab Animal Tech	18,158		4,539						6,863	5,394	1,362						
Lab Animal Tech	18,158											16,342	1,816				
Lab Animal Tech	18,158			2,724	1,362	1,018	4,430					4,085	454	3,501	584		
Lab Animal Tech	18,158			2,360	1,180	872	3,849					5,720	636	3,035	506		
Lab Animal Tech	18,158			3,631	1,816	1,345	5,919							4,669	778		
Lab Animal Tech	18,158			3,631	1,816	1,344	5,919							4,670	778		
Lab Animal Tech	18,158			1,997	999	763	3,323	454						2,879	480	3,250	4,013
TOTALS	\$272,607	\$5,599	\$42,343	\$34,038	\$21,573	\$9,320	\$40,856	\$1,258	\$11,815	\$9,266	\$2,343	\$30,115	\$3,348	\$35,337	\$5,891	\$7,671	\$11,834

The amounts in the Adjusted Total column are from *Schedule I-a*.

Calculation of the amounts in each line are illustrated for the Lab Animal Supervisor II (*Schedule II-c*) and a Laboratory Animal Technician (*Schedule II-d*).

The amounts for each Cost Center in the TOTALS line are transferred to the Salaries and Benefits line in *Schedule II (Page 2)*.

SCHEDULE II-b:

Activity Report Summary: Director

Cost Centers	Accounting Periods				% Effort	Allocated Salary
	1	2	3	4		
ARF General and Administrative					70.00%	\$18,746
Refuse Disposal/General Sanitation						
Cage Washing						
Laboratory Services						
Animal Health Care					25.00%	6,695
Technical Activities					5.00%	1,339
Animal Husbandry						
Cats						
Dogs						
Guinea Pigs						
Hamsters						
Mice in Conventional Cages						
Mice in Filtered Cages						
Poultry						
Primates—large						
Primates—small						
Primates—unassigned						
Rabbits						
Rabbits with Litters						
Rats						
Rats Production						
Sheep/Goats						
Swine						
TOTALS					100.00%	\$26,780

The TOTAL Allocated Salary is from *Schedule I-a*.

Transfer the allocated Salary in each line to the Director line of *Schedule II-a*.

Note: 40% of the Director's total effort is spent on externally funded research, 20% on teaching, and 10% on IACUC activities; therefore, only 30% of the Director's total salary is assignable to the ARF.

SCHEDULE II-c:

Activity Report Summary: Laboratory Animal Supervisor II

Cost Centers	Accounting Periods				Total Hours	% Effort	Allocated Salary
	1	2	3	4			
ARF General and Administrative Refuse Disposal/General Sanitation Cage Washing Laboratory Services Animal Health Care Technical Activities Animal Husbandry	32.00	30.00	32.00	32.00	126.00	19.47%	\$ 7,235
Cats	8.00	5.60	4.00	8.00	25.60	3.95%	1,470
Dogs	24.00	26.40	28.00	24.00	102.40	15.82%	5,881
Guinea Pigs	13.60	10.00	12.00	11.20	46.80	7.23%	2,687
Hamsters	6.80	5.20	6.00	5.60	23.60	3.65%	1,355
Mice in Conventional Cages	5.10	3.80	4.50	4.20	17.60	2.72%	1,011
Mice in Filtered Cages	22.10	16.60	19.90	18.20	76.80	11.86%	4,410
Poultry	4.00	3.00	4.00	3.00	14.00	2.16%	804
Primates—large	9.72	8.10	6.03	1.98	25.83	3.99%	1,483
Primates—small	7.56	6.30	5.94	0.18	19.98	3.09%	1,147
Primates—unassigned	1.92	1.60	1.33	0.24	5.09	0.79%	293
Rabbits	10.80	21.60	18.00	18.70	69.10	10.68%	3,968
Rabbits with Litters	1.20	2.40	2.00	2.10	7.70	1.19%	442
Rats	17.49	13.03	15.77	14.40	60.69	9.38%	3,485
Rat Production	2.91	2.17	2.63	2.40	10.11	1.56%	581
Sheep/Goats	1.80	1.80	1.80	1.80	7.20	1.11%	413
Swine	2.20	2.20	2.20	2.20	8.80	1.36%	505
TOTALS	171.20	159.80	166.10	150.20	647.30	100.00%	\$37,170

The TOTAL Allocated Salary is from *Schedule I-a*.

Transfer the allocated Salary of each line to the appropriate cost center of the Supervisor II line in *Schedule II-a*.

Based on actual hours recorded for each cost center during four one-month sample periods.

SCHEDULE II-d:

Activity Report Summary: Laboratory Animal Technician

Cost Centers	Accounting Periods				Total Hours	% Effort	Allocated Salary
	1	2	3	4			
ARF General and Administrative							
Refuse Disposal/General Sanitation							
Cage Washing							
Laboratory Services							
Animal Health Care							
Technical Activities							
Animal Husbandry							
Cats							
Dogs							
Guinea Pigs	16.80	15.90	16.50	15.90	65.10	11.67%	\$ 2,119
Hamsters	8.40	8.20	7.90	8.10	32.60	5.84%	1,061
Mice in Conventional Cages	6.30	6.50	6.30	6.20	25.30	4.54%	824
Mice in Filtered Cages	27.30	26.80	27.50	27.30	108.90	19.52%	3,545
Poultry							
Primates—large							
Primates—small							
Primates—unassigned							
Rabbits							
Rabbits with Litters							
Rats	43.20	42.86	42.94	43.89	172.89	30.99%	5,628
Rat Production	7.20	7.14	7.16	7.31	28.81	5.16%	938
Sheep/Goats	5.60	5.80	6.20	5.70	23.30	4.18%	758
Swine	25.20	25.70	24.90	25.10	100.90	18.09%	3,285
TOTALS	140.00	138.90	139.40	139.50	557.80	100.00%	\$18,158

TOTAL Allocated Salary is from *Schedule 1-a*.

Transfer the allocated Salary from each line to the appropriate cost center of the first Lab Animal Tech line of *Schedule II-a* (*Page 1* and *Page 2*).

Based on actual hours recorded for each cost center during four one-month sample periods.

SCHEDULE II-e:
Assignment of Uniform Costs

Assignment based on salary assignment to all cost centers except ARF General and Administrative

Cost Centers	Assignment Base	Assignment %	Dollar Assignment
ARF General and Administrative			
Refuse Disposal/General Sanitation	\$ 3,090	0.77%	\$ 21
Cage Washing	27,818	6.93%	181
Laboratory Services	22,868	5.70%	149
Animal Health	54,173	13.50%	353
Technical Activities	20,581	5.13%	134
Animal Husbandry			
Cats	5,599	1.40%	37
Dogs	42,343	10.56%	276
Guinea Pigs	34,038	8.49%	222
Hamsters	21,573	5.38%	141
Mice in Conventional Cages	9,320	2.32%	61
Mice in Filtered Cages	40,856	10.19%	268
Poultry	1,258	0.31%	8
Primates—large	11,815	2.95%	77
Primates—small	9,266	2.31%	60
Primates—unassigned	2,343	0.58%	15
Rabbits	30,115	7.51%	196
Rabbits with Litters	3,348	0.83%	22
Rats	35,337	8.81%	230
Rat Production	5,891	1.47%	38
Sheep/Goats	7,671	1.91%	50
Swine	11,834	2.95%	77
TOTALS	\$401,137	100.00%	\$2,616

Assignment Base column from TOTALS line of *Schedule II-a (Page 1 and Page 2)*.

Dollar Assignment TOTAL from *Schedule I Uniforms* line.

Transfer dollar assignment in each line to appropriate cost center of Uniforms line of *Schedule II (Page 1 and Page 2)*.

SCHEDULE II-f:
Assignment of Animal Bedding Costs

Assignment based on cost of bedding in two one-month sample periods
 Assignment Base=quantity × unit price

Animal Cost Subcenters	Qty. Used	Bedding Type	Unit Price	Assignment Base	Assignment %	Dollar Assignment
Cats	1	Bags-hardwood chips	\$4.00	\$ 4	0.18%	\$ 24
Dogs	113	Bags-shavings	4.45	503	22.78%	3,017
Guinea Pigs	9	Bags-hardwood chips	4.00	36	1.63%	216
Hamsters	3	Bags-hardwood chips	4.00	12	0.54%	72
Mice in Conventional Cages	58	Bags-hardwood chips	4.00	232	10.51%	1,392
Mice in Filtered Cages	120	Bags-hardwood chips	4.00	480	21.74%	2,880
Poultry	4	Bags-shavings	4.45	18	0.82%	108
Primates—large		None				
Primates—small	193	Cageboard pads	0.21	41	1.86%	246
Primates—unassigned	22	Cageboard pads	0.21	5	0.23%	30
Rabbits		None				
Rabbits with Litters	1	Bags-shavings	4.45	4	0.18%	24
Rats	133	Bags-hardwood chips	4.00	532	24.09%	3,191
Rats Production	22	Bags-hardwood chips	4.00	88	3.99%	528
Sheep/Goats	23	Bags-shavings	4.45	102	4.62%	612
Swine	34	Bags-shavings	4.45	151	6.84%	906
TOTALS				\$2,208	100.00%	\$13,246

TOTAL in Dollar Assignment column from *Schedule I* Animal bedding line.

Transfer dollar assignment in each line to the Animal bedding line of the appropriate cost center in *Schedule II (Page 1 and Page 2)*.

SCHEDULE II-g:
Assignment of Animal Feed Costs

Assignment based on proportionate consumption of feeds used for more than one animal category

Assignment Base=average daily consumption × animal care days.

Feeds used for only one animal category assigned directly (assignment%=100%)

Cost Centers	Average Consumption in lbs.	Animal Care Days	Assignment Base	Assignment %	Dollar Assignment
Hamsters	0.04	82,125	3,285	18.31%	\$ 1,768
Mice in Conventional Cages	0.02	97,820	1,956	10.91%	1,053
Mice in Filtered Cages	0.02	201,480	4,030	22.46%	2,169
Rats	0.05	148,596	7,430	41.42%	3,999
Rat Production	0.05	24,766	1,238	6.90%	667
TOTAL-RODENT FEED			17,939	100.00%	\$ 9,656
Rabbits	0.33	23,725	7,829	78.14%	\$ 1,531
Rabbits with Litters	1.00	2,190	2,190	21.86%	428
TOTAL-RABBIT FEED			10,019	100.00%	\$ 1,959
Primates—large	1.25	5,256	6,570	42.33%	\$ 1,415
Primates—small	0.30	24,638	7,391	47.62%	1,592
Primates—unassigned	0.47	3,321	1,561	10.06%	336
TOTAL-PRIMATE FEED			15,522	100.00%	\$ 3,343
Feed for Other Animals Directly Assigned					
Cats				100.00%	\$ 969
Dogs				100.00%	2,888
Guinea Pigs				100.00%	676
Poultry				100.00%	268
Sheep/Goats				100.00%	1,446
Swine				100.00%	1,943
TOTAL-ALL FEED					\$23,148

TOTAL in Dollar Assignment column from *Schedule I* Animal feed line.

Transfer dollar assignment in each line to the Animal feed line of the appropriate cost center of *Schedule II* (Page 1 and Page 2).

SCHEDULE II-h:

Assignment of Institutional F&A Costs—Space Costs

Assignment based on net assignable square feet in cost centers which are to receive an allocation of Space Costs

Cost Centers	Assignment Base	Assignment %	Dollar Assignment
ARF General and Administrative	800	12.18%	\$11,768
Refuse Disposal/General Sanitation	300	4.57%	4,413
Cage Washing	2520	38.36%	37,068
Laboratory Services	500	7.61%	7,355
Animal Health	1641	24.98%	24,138
Technical Activities	100	1.52%	1,471
Animal Husbandry			
Dogs	175	2.66%	2,574
Primates—unassigned	205	3.12%	3,015
Rats	135	2.06%	1,986
Rat Production	193	2.94%	2,839
TOTALS	6,569	100.00%	\$96,627

Assignment Base column from survey of net assignable square feet space in each center which by Federal policy is to receive an allocation of space costs. The model survey indicates that 10% of the Dog space, 100% of the Primates—unassigned space, 10% of the Rat space, and 100% of the Rat Production space is used for animals not on research projects or on research projects where they are generally removed from the ARF for conducting research.

Dollar Assignment TOTAL from *Schedule I* Institutional F&A Space costs line.

Transfer dollar assignment in each line to appropriate cost center in *Schedule II (Page 1 and Page 2)*.

SCHEDULE II-i:

**Assignment of Institutional F&A
General Administration and General Expenses**

Assignment based on total costs assigned to cost centers other than costs of institutional General Administration and General Expenses

Cost Centers	Assignment Base	Assignment %	Dollar Assignment
ARF General and Administrative	\$137,339	17.34%	\$15,489
Refuse Disposal/General Sanitation	27,331	3.45%	3,082
Cage Washing	76,532	9.66%	8,631
Laboratory Services	87,590	11.06%	9,878
Animal Health	98,925	12.49%	11,157
Technical Activities	27,550	3.48%	3,107
Animal Husbandry			
Cats	6,827	0.86%	770
Dogs	53,850	6.80%	6,073
Guinea Pigs	36,243	4.57%	4,087
Hamsters	24,651	3.11%	2,780
Mice in Conventional Cages	12,033	1.52%	1,357
Mice in Filtered Cages	48,638	6.14%	5,485
Poultry	1,694	0.21%	191
Primates—large	14,195	1.79%	1,601
Primates—small	11,315	1.43%	1,276
Primates—unassigned	5,940	0.75%	670
Rabbits	34,067	4.30%	3,842
Rabbits with Litters	3,920	0.49%	442
Rats	48,394	6.11%	5,458
Rat Production	9,963	1.26%	1,124
Sheep/Goats	10,088	1.27%	1,138
Swine	15,170	1.91%	1,711
TOTALS	\$792,254	100.00%	\$89,349

Assignment Base column from total of all costs assigned to cost centers other than costs of General Administration and General Expenses in *Schedule II*.

Dollar Assignment TOTAL from *Schedule I* Institutional F&A General Administration and General Expense line.

Transfer dollar assignment in each line to appropriate cost center of *Schedule II*.

If animal care charges are excluded from the F&A allocation base, institutional General Administration and General Expenses should be allocated to the ARF cost centers as shown in this Schedule. If animal care charges are included in the F&A allocation base, institutional General Administration and General Expenses should not be allocated to the ARF. The preferable treatment is to include the animal care charges in the F&A allocation base and not allocate institutional General Administration and General Expenses to the ARF. In the case of the preferred treatment this Schedule would not be used.

SCHEDULE III: Stepdown Allocation of Costs

Cost Centers	Total Assigned Cost	ARF General & Admin	Refuse Disposal/ Sanitation	Cage Washing	Lab Services	Animal Health	Final Allocated Cost
Support Cost Centers							
ARF General & Admin	\$152,828	(\$152,828)					
Refuse Disposal/General Sanitation	30,413	6,378	(\$36,791)				(\$ 0)
Cage Washing	85,163	17,859	6,356	(\$109,378)			(\$ 0)
Lab Services	97,468	20,439	1,261		(\$119,168)		(\$ 0)
Animal Health	110,082	23,085	4,139			(\$137,306)	\$ 0
Direct Cost Centers							
Technical Activities	30,657	6,429	1,329		1,896		\$ 40,311
Animal Husbandry							
Cats	7,597	1,593	631	1,320	1,405	2,447	14,992
Dogs	59,923	12,566	4,414	466	1,997	15,480	94,846
Guinea Pigs	40,330	8,457	631	23,290	197	14,220	87,125
Hamsters	27,431	5,752	631	4,869	723	7,686	47,092
Mice in Conventional Cages	13,390	2,808	694	5,254	26,113	9,413	57,672
Mice in Filtered Cages	54,123	11,350	1,261	26,855	56,835	29,339	179,763
Poultry	1,885	395	252	3,478	151	1,202	7,363
Primates—large	15,796	3,312	1,009	3,261	6,288	5,786	35,453
Primates—small	12,591	2,640	4,162	12,111	2,179	6,569	40,252
Primates—unassigned	6,610	1,386	517	1,843	1,656	2,343	14,355
Rabbits	37,909	7,950	2,901	9,533	2,333	11,825	72,451
Rabbits with Litters	4,362	915	126	1,902	23	1,429	8,757
Rats	53,852	11,293	3,405	11,825	14,181	18,442	112,998
Rats Production	11,087	2,325	487	2,907	2,389	3,744	22,938
Sheep/Goats	11,226	2,354	1,009	311	484	3,000	18,384
Swine	16,881	3,540	1,576	155	317	4,383	26,853
TOTALS	\$881,603	(\$ 0)	(\$ 0)	\$ 0	\$ 0	(\$ 0)	\$881,603
Schedule Reference:	Assigned Costs <i>Schedule II</i>	G&A Allocation <i>Schedule III-a</i>	Refuse/ Sanitation Allocation <i>Schedule III-b</i>	Cage Washing Allocation <i>Schedule III-c</i>	Lab Services Allocation <i>Schedule III-d</i>	Animal Health Care Allocation <i>Schedule III-e</i>	

The final allocated cost for each cost center is determined by adding across each row.

The costs of each support cost center are distributed in a step-wise fashion to the other centers and zeroed out.

SCHEDULE III-a:

Allocation of ARF General and Administrative Costs

Allocation based on total costs assigned to each cost center, except the ARF General and Administrative cost center.

Allocation base=assigned cost

ARF General & Administrative cost to be allocated=\$152,828

Cost Centers	Total Allocation Base	Allocation %	Dollar Allocation
ARF General & Admin	—	—	—
Refuse Disposal/Sanitation	\$ 30,413	4.17%	\$ 6,378
Cage Washing	85,163	11.69%	17,859
Lab Services	97,468	13.37%	20,439
Animal Health	110,082	15.11%	23,085
Technical Activities	30,657	4.21%	6,429
Animal Husbandry			
Cats	7,597	1.04%	1,593
Dogs	59,923	8.22%	12,566
Guinea Pigs	40,330	5.53%	8,457
Hamsters	27,431	3.76%	5,752
Mice in Conventional Cages	13,390	1.84%	2,808
Mice in Filtered Cages	54,123	7.43%	11,350
Poultry	1,885	0.26%	395
Primates—large	15,796	2.17%	3,312
Primates—small	12,591	1.73%	2,640
Primates—unassigned	6,610	0.91%	1,386
Rabbits	37,909	5.20%	7,950
Rabbits with Litters	4,362	0.60%	915
Rats	53,852	7.39%	11,293
Rat Production	11,087	1.52%	2,325
Sheep/Goats	11,226	1.54%	2,354
Swine	16,881	2.32%	3,540
TOTALS	\$728,775	100.00%	\$152,828

The dollar allocation for each Cost Center is transferred to the General and Administrative column in the main stepdown schedule (*Schedule III*).

SCHEDULE III-b:

Allocation of Refuse Disposal/General Sanitation Cost Center

Allocation base=net assignable square feet

Refuse Disposal/General Sanitation cost to be allocated=\$36,791

Cost Centers	Total Allocation Base	Allocation %	Dollar Allocation
Cage Washing	2,520	17.28%	\$ 6,356
Lab Services	500	3.43%	1,261
Animal Health	1,641	11.25%	4,139
Technical Activities	527	3.61%	1,329
Animal Husbandry			
Cats	250	1.71%	631
Dogs	1,750	12.00%	4,414
Guinea Pigs	250	1.71%	631
Hamsters	250	1.71%	631
Mice in Conventional Cages	275	1.89%	694
Mice in Filtered Cages	500	3.43%	1,261
Poultry	100	0.69%	252
Primates—large	400	2.74%	1,009
Primates—small	1,650	11.31%	4,162
Primates—unassigned	205	1.41%	517
Rabbits	1,150	7.88%	2,901
Rabbits with Litters	50	0.34%	126
Rats	1,350	9.26%	3,405
Rat Production	193	1.32%	487
Sheep/Goats	400	2.74%	1,009
Swine	625	4.28%	1,576
TOTALS	14,586	100.00%	\$36,791

The dollar allocation for each cost center is transferred to the Refuse Disposal/General Sanitation column in the main stepdown schedule (*Schedule III*).

SCHEDULE III-C:
Allocation of Cage Washing Cost Center

Allocation based on time, number, and frequency of washing items for cost centers
 Allocation base=number in use × frequency × time
 Cage Washing cost to be allocated=\$109,378

Cost Centers	CAGES/UNITS			WATER BOTTLES			MISC. ITEMS			ALLOCATION		
	Ave. No. Used	Frequency	Time	Ave. No. Used	Frequency	Time	Ave. No. Used	Frequency	Time	Allocation Base	Allocation %	Dollar Allocation
Cats	5.0	1.00	6.50				10.0	2.00	0.50	42.5	1.21%	\$ 1,320
Dogs	0.0						15.0	1.00	1.00	15.0	0.43%	466
Guinea Pigs	50.0	1.00	15.00							750.0	21.29%	23,290
Hamsters	56.0	1.00	2.80							156.8	4.45%	4,869
Mice in Convent. Cages	89.0	1.00	1.80	9.0	1.00	1.00				169.2	4.80%	5,254
Mice in Filtered Cages	184.0	1.00	3.70	184.0	1.00	1.00				864.8	24.55%	26,855
Poultry	8.0	2.00	5.00				16.0	1.00	2.00	112.0	3.18%	3,478
Primates—large	14.0	0.50	10.00	14.0	2.00	1.00	14.0	1.00	0.50	105.0	2.98%	3,261
Primates—small	67.0	0.50	10.00	22.0	2.00	1.00	22.0	1.00	0.50	390.0	11.07%	12,111
Primates—unassigned	10.0	0.50	10.00	4.7	2.00	1.00	4.7	1.00		59.3	1.68%	1,843
Rabbits	16.0	0.50	37.50	2.0	1.00	1.00	5.0	1.00	1.00	307.0	8.72%	9,533
Rabbits with Litters	3.0	0.50	37.50	3.0	1.00	1.00	2.0	1.00	1.00	61.3	1.74%	1,902
Rats	136.0	1.00	2.80							380.8	10.81%	11,825
Rats Production	22.0	1.00	2.80	16.0	2.00	1.00				93.6	2.66%	2,907
Sheep/Goats							10.0	1.00	1.00	10.0	0.28%	311
Swine							5.0	1.00	1.00	5.0	0.14%	155
TOTALS										3,522.3	100.00%	\$109,378

The dollar allocation for each cost center is transferred to the Cage Washing column in the main stepdown schedule (Schedule III).

SCHEDULE III-d:
Allocation of Laboratory Services Cost Center

Allocation based on time for test × number of tests for cost center
 Allocation base=number performed × time factor for each test
 Laboratory Services cost to be allocated=\$119,168

Cost Centers	NECROPSIES		H&E SLIDES		BACTERIAL CULTURES		SEROLOGY		Allocation Base	Allocation %	Dollar Allocation
	No. Performed	Time Factor	No. Performed	Time Factor	No. Performed	Time Factor	No. Performed	Time Factor			
Technical Activities	12	60	52	15	150	5	25	8	2,450	1.59%	\$ 1,896
Animal Husbandry											
Cats	2	80	35	15	226	5			1,815	1.18%	1,405
Dogs	2	110	24	15	400	5			2,580	1.68%	1,997
Guinea Pigs	1	45	10	15	12	5	25		255	0.17%	197
Hamsters	1	40	10	15			93	8	934	0.61%	723
Mice in Convent. Cages	450	35	602	15			1,120	8	33,740	21.91%	26,113
Mice in Filtered Cages	750	35	1,200	15			3,648	8	73,434	47.69%	56,835
Poultry	1	60	5	15	12	5			195	0.13%	151
Primates—large	1	120	22	15	1,535	5			8,125	5.28%	6,288
Primates—small	2	100	41	15	400	5			2,815	1.83%	2,179
Primates—unassigned	2	110	44	15	252	5			2,140	1.39%	1,656
Rabbits	9	60	90	15	225	5			3,015	1.96%	2,333
Rabbits with Litters					6	5			30	0.02%	23
Rats	85	40	486	15			954	8	18,322	11.90%	14,181
Rats Production	15	40	81	15			159	8	3,087	2.00%	2,389
Sheep/Goats	2	140	20	15	9	5			625	0.41%	484
Swine	1	140	14	15	12	5			410	0.27%	317
TOTALS	1,324	1,155	2,684	225	3,089	55	5,999	40	153,972	100.00%	\$119,168

The dollar allocation for each cost center is transferred to the Laboratory Services column in the main stepdown schedule (*Schedule III*).

SCHEDULE III-e:

Allocation of Animal Health Care Costs

Allocation based on total costs allocated to each animal category subcenter

Allocation base=accumulated cost

Animal Health Care cost to be allocated=\$137,306

Cost Centers	Total Allocation Base	Allocation %	Dollar Allocation
Cats	\$ 12,545	1.78%	\$ 2,447
Dogs	79,366	11.27%	15,480
Guinea Pigs	72,905	10.36%	14,220
Hamsters	39,406	5.60%	7,686
Mice in Conventional Cages	48,259	6.86%	9,413
Mice in Filtered Cages	150,424	21.37%	29,339
Poultry	6,161	0.88%	1,202
Primates—large	29,666	4.21%	5,786
Primates—small	33,683	4.78%	6,569
Primates—unassigned	12,012	1.71%	2,343
Rabbits	60,626	8.61%	11,825
Rabbits with Litters	7,328	1.04%	1,429
Rats	94,555	13.43%	18,442
Rats Production	19,195	2.73%	3,744
Sheep/Goats	15,383	2.20%	3,000
Swine	22,470	3.19%	4,383
TOTALS	\$703,985	100.00%	\$137,306

The dollar allocation for each cost center is transferred to the Animal Health column in the main stepdown schedule (*Schedule III*).

SCHEDULE IV:
Determination of Unit Costs

Cost Centers	Total Accumulated Costs	Number of Units	Units	Unit Cost
Technical Activities	\$ 40,311	1,251	Hours	\$32.22
Animal Husbandry				
Cats	14,992	3,650	per animal per day	4.11
Dogs	94,846	7,300	per animal per day	12.99
Guinea Pigs	87,125	54,750	per animal per day	1.59
Hamsters	47,092	82,125	per animal per day	0.57
Mice in Conventional Cages	57,672	97,820	per cage per day	0.59
Mice in Filtered Cages	179,763	201,480	per cage per day	0.89
Poultry	7,363	5,475	per animal per day	1.34
Primates—large	35,453	5,256	per animal per day	6.75
Primates—small	40,252	24,637	per animal per day	1.63
Primates—unassigned	14,355	39	per animal	368.06
Rabbits	72,451	23,725	per animal per day	3.05
Rabbits with Litters	8,757	2,190	per animal per day	4.00
Rats	112,998	156,026	per animal per day	0.72
Rat Production	22,938	1,144	per animal produced	20.05
Sheep/Goats	18,384	2,190	per animal per day	8.39
Swine	26,853	3,285	per animal per day	8.17
TOTAL	\$881,603			

SCHEDULE V:
Projection of Unit Rates to a Future Fiscal Period

Cost Centers	Total Accumulated Costs	Number of Units	Unit Costs	Actual Rate	Actual Recovery	Expense Carried Forward	Future Projected Expense	Institutional Support	Carry Forward + Expense - Inst. Support	Projected Unit Cost
Technical Activities	\$ 40,311	1,251	\$32.22	\$25.00	\$ 31,275	\$ 9,036	\$ 32,000		\$ 41,036	\$ 32.80
Animal Husbandry										
Cats	14,992	3,650	4.11	4.00	14,600	392	15,000		15,392	4.22
Dogs	94,846	7,300	12.99	9.00	65,700	29,146	87,000	\$20,000	96,146	13.17
Guinea Pigs	87,125	54,750	1.59	1.50	82,125	5,000	88,000	3,000	90,000	1.64
Hamsters	47,092	82,125	0.57	0.60	49,275	(2,183)	46,000		43,817	0.53
Mice in Conventional Cgs.	57,672	97,820	0.59	0.65	63,583	(5,911)	64,000		58,089	0.59
Mice in Filtered Cages	179,763	201,480	0.89	0.95	191,406	(11,643)	200,000		188,357	0.93
Poultry	7,363	5,475	1.34	1.50	8,213	(849)	7,700		6,851	1.25
Primates—large	35,453	5,256	6.75	7.00	36,792	(1,339)	37,000		35,661	6.78
Primates—small	40,252	24,637	1.63	1.75	43,115	(2,863)	42,000		39,137	1.59
Primates—unassigned	14,355	39	368.06	400.00	15,600	(1,245)	16,000		14,755	378.32
Rabbits	72,451	23,725	3.05	3.00	71,175	1,276	72,000		73,276	3.09
Rabbits with Litters	8,757	2,190	4.00	4.00	8,760	(3)	8,700		8,697	3.97
Rats	112,998	156,026	0.72	0.70	109,218	3,780	112,000		115,780	0.74
Rat Production	22,938	1,144	20.05	20.00	22,880	58	27,000	1,000	26,058	22.78
Sheep/Goats	18,384	2,190	8.39	8.00	17,520	864	18,000		18,864	8.61
Swine	26,853	3,285	8.17	8.00	26,280	573	26,000		26,573	8.09
TOTALS	\$881,603				\$857,516	\$24,087	\$898,400	\$24,000	\$898,487	

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