

## Editorial

# Per Diem Rates and True Costs: Apples and Oranges

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Across the country and the world research institutions are struggling to meet research costs for facilities, personnel, administrative overhead, regulatory oversight and so on. Recovering costs for supporting animal based research is among the most daunting of these challenges. As a case in point, genetic engineering has spawned an enormous increase in mouse populations. These invaluable rodents require a better-defined health status, because they often have immunologic or reproductive deficits that require intensive (and expensive) veterinary care. The resulting incremental costs must be recovered from grants or institutional sources that are currently ill prepared to deal with them. Additional regulatory burdens from federal agencies for overseeing animal welfare also strain overtaxed animal resource budgets. Nevertheless, resource directors are repeatedly confronted by investigators with the question, "Why do my per diems cost so much?"—usually accompanied by a reference to other institutions that have lower rates. This question reveals a confusion of terms. A per diem rate is a *rate* charged to recover the costs (in part, or whole) of a defined group of services. In the business world a rate, or price, is based on costs that are incurred to create or deliver a product or service. For an investigator who must pay these rates, a per diem is a cost, and s/he tends to assume that it represents the actual cost for the delivery of services. This is rarely the case. Most per diem rates are not fully loaded; that is, they do not reflect the full institutional costs for supporting animal research. How can this be?

Some institutions have an imperfect understanding of their actual costs, because they fail to carry out the appropriate analyses. The federal government publishes guidelines (1) for developing per diem rates. Such institutions may base per diems on checkered historical data that are simply a best guess or, even worse, are based on surveys of rates at other institutions where operating conditions may differ significantly.

One difficulty in developing realistic cost analyses is that the components contributing to animal-related research costs often reside in various institutional units with different financial reporting lines. The resulting bundling of costs fails to identify costs fully and accurately—especially costs for labor and regulatory compliance. For example, an institutional veterinarian's salary might be in the unit responsible for compliance, but salaries for the clinical veterinary staff might be in the animal facility budget. Unless both are captured in the animal care costs, the institution is subsidizing some animal-related research

costs. Thus, overlapping organizational and financial reporting lines make it difficult to accurately identify total animal research costs.

On the other hand, some institutions *choose* to include only portions of actual operating costs in per diem rates by subsidizing some services. If investigators know there is a subsidy, and often they do not, they still may not have a choice in what is subsidized and what is not. In the absence of factual, comprehensive data, users tend to believe that colleagues who use other species are being subsidized at his/her expense.

Subsidy policy and designation of an animal resource as a "specialized facility" are two important variables in creating differences in per diem rates among institutions. A recent survey among Midwestern research universities indicated that subsidies to animal resource programs ranged from 10%-76% among participating institutions. Similar findings have been reported in other studies (2). To further complicate matters some animal research facilities have been designated as "specialized facilities" under the Office of Management and Budget's Circular A-21, J 44. A "specialized facility" is *required* to recover its costs (including facility costs) from its users. Before the "specialized facility" rule was fully implemented, animal research costs at many institutions were included in the indirect cost base. Incorporating these costs into a larger indirect cost pool generally reduced the portion of animal facility costs charged back to investigators, although it may have slightly increased indirect costs to investigators who did not use research animals. In most institutions in which animal facility costs were charged directly back to the users, per diem rates rose dramatically when the "specialized facility" rule was implemented. Facility costs may be a greater issue for private institutions that have to recover at least a portion of construction and renovation costs from independent sources, than they are for public institutions whose facility construction costs are usually borne by taxpayers.

Another important variable in determining costs is whether a resource program is located and managed centrally or at multiple sites and with varying degrees of autonomy. Significant savings usually result from centralized programs with limited sites. Fewer sites reduce costs for transportation, personnel supervision, support areas such as washing centers (which increase facility costs for specialized facilities), and spread all fixed costs over a broader base. Centralized programs also may have more uniform management and compliance. Centralization can have even more impact on the financial bottom line in regions where construction costs are high. However, investigators may resist centralized facilities if they reduce convenience.

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Animal resource programs are labor intensive. Therefore, personnel costs are an important component of resource budgets and vary widely among institutions in different labor markets. Staffing levels depend on the number of sites to be serviced, the types of animals that are being housed, the type of research being done, and the services that are provided. It is intuitive that the staffing for a research program emphasizing large animal surgery will differ significantly from one that primarily utilizes small rodents. Many facilities have benefited financially from hiring paraprofessionals such as veterinary technologists or professional business managers to provide sophisticated technical or administrative services. For many years, the husbandry staff in animal research programs consisted primarily of relatively unskilled individuals. With the requirement for more demanding animal husbandry, housing, health care and regulation, some animal facility managers have found that having fewer highly skilled employees yielded better results for productive research teams. The use of high-end mechanical equipment such as robots for irksome tasks such as cage washing can foster staff professionalism if an institution has the means for initial capital investment. The types of caging used and whether the institution places microbiological barriers physically at the cage level or the facility level also contribute to differences in labor and facility costs.

Finally, the methodology used for cost calculations and what is included in per diem rates varies widely. Some institutions opt for an all-inclusive rate with few options. Per diem rates at these institutions include costs for facilities, caging, animal husbandry, sanitation, maintenance, veterinary care, administrative activities (purchasing, billing, etc.) and so forth. This approach has an advantage for investigators in identifying and planning for animal-related costs of their research. Other institutions prefer to include in their rates only husbandry (food, bedding, sanitation) and bill all other items individually. The latter may provoke user complaints about being “nickled and dimed” to death. Examples of costs that might be billed separately are: 1) Caging may be charged separately or purchase of animal cages may be included in individual grants, or a surcharge may be assessed to cover cage replacement; barrier caging for rodents may incur separate fees. 2) Veterinary care may be charged for each animal; drugs and supplies may be billed individually. 3) Processing purchases of animals may be billed separately. 4) Microbiological monitoring may be billed separately. 5) A set-up or first day fee may be charged for newly arriving animals. 6) Care of animals in research with a biohazardous component may incur a surcharge.

Even when per diem rates are comprehensive, other variables, such as the mode in which rates are defined, may create significant differences in unit costs. For example, charging a cage rate may produce a different cost than charging a per capita rate. A rate of \$0.60/mouse cage has the same financial impact as a rate of \$0.15/mouse if there are four adult mice in each cage. But, a breeding cage containing fewer adult mice, results in a different per capita cost. Additionally, thorny issues can arise in attempting comparisons in the way institutions identify species that benefit from or generate specific costs, and how they apportion such costs. Calculations for some costs are relatively simple. It is practical, for example, to count the number of mouse and rabbit cages that were washed per unit time and assign corresponding labor costs using as the denominator the numbers of cages washed. By contrast, assigning costs for rubber gloves or regulatory compliance, or the facility manager’s salary is less quantifiable and these may have to be allocated. Two strategies that have been used to deal with such issues are to allocate costs based on the number of care days, i.e., the annual census for that species or the amount of space occupied by that species. These measures can be effective, but will create inequities if applied inappropriately. Thus, an institution must make its decisions about the appropriate denominator to use in its calculations after careful thought about equity across all relevant species, and this approach must be consistent.

Developing a thoughtful, comprehensive cost analysis for animal-related infrastructure is a major obligation of research institutions and must meet federal accounting standards. Analyzing and developing appropriate rates for animal care can be complex, and every effort must be made to avoid inequities. Equally important, valid inter-institutional comparisons of rates depend on a thorough understanding of the factors and variables that contribute to the compared rates. Those who compare per diems among institutions without full understanding of their component parts will likely gather an imperfect and misleading harvest.

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## References

1. Cost Analysis and Rate Setting Manual for Animal Research Facilities NIH Publication No. 00-2006.
2. Committee on Cost of and Payment for Animal Research, Institute for Laboratory Animal Research, National Research Council. Strategies That Influence Cost Containment in Animal Research Facilities, National Academy Press, 2000.