

Introduction

Animal experimentation is an issue that raises controversy whenever it is discussed. It has been the center of controversy for almost two decades. Animal rights activists have held hundreds of protests on this issue. The pro-experimentation lobby opposes any new regulation of the field.

However, one of the most controversial issues about animal experimentation is the direction in which it is going. No one seems to know if animal experimentation is increasing or decreasing. Are more animals being experimented on today than five years ago, or are fewer animals imprisoned in laboratories? Definitive answers to these questions are difficult to obtain. Accuracy is difficult because reporting requirements do not currently cover many of the most commonly used species. Therefore, we are left with a very incomplete picture.

Reports issued by the USDA/APHIS (the government agency charged with enforcing the Animal Welfare Act) on an annual basis are difficult to assess. While they seem to indicate trends, these trends are often fraught with uncertainty. The exclusion of commonly used species (rats, mice, birds, etc.) is one concern. Additionally, there seems to be a constant problem with reporting. Many labs simply seem not to file the necessary forms in time for their statistics to be included in this report. In the five-year period between 1996 and 2000 there was not a single year when all facilities reported. In that period, an average of 58 facilities per year did not report. If these non-reporting labs are facilities that experiment on 300 animals per year, then this is not particularly significant. If they happen to be labs that experiment on 50,000 animals a year, then the statistics could change dramatically.

Where does that leave us? Unfortunately, nowhere. No other reports provide data which give a picture that is any better. Therefore we have undertaken a different method of assessing the direction of animal experimentation.

Unfortunately, it is not possible to assess every aspect of animal experimentation. Private labs are often not particularly forthcoming with information, and government agencies can take months to turn over documents.

The National Institutes of Health (NIH) is the largest single funding agency for animal experimentation in the U.S. The CRISP (Computer Retrieved Information on Scientific Projects) database catalogues every project that the NIH (and some other parts of the Department of Health and Human Services) funds via a grant, whether it involves animals or clinical research. Evaluation of this database should give us a good indication of animal experimentation within the NIH and, by generalization, throughout the rest of the government. This can then potentially be generalized to represent animal experimentation as a whole. However, the CRISP system deals only with NIH grants. NIH research contracts are not part of this system. However, it is believed that trends in the contract system would closely resemble trends in the grant system.

Audit Scope and Methodology

This evaluation is based on searches of the CRISP system for the following terms: mouse, rat, macaca (Latin species name for macaque monkeys), saimiri (Latin species name for squirrel monkeys), dog, cat, rabbit, guinea (to bring up grants involving guinea pigs without using the potentially confusing term pig), and hamster. While these terms will not give us an exhaustive picture, they should certainly suffice to provide a good measure of trends because these are often the most commonly used species in animal experimentation. Certain species were purposely not counted in totals in an effort to allow for potential duplication. The tendency here has been to be conservative, and avoid overstating the situation. However, trends in these other species will be listed as well for completeness. But overall trends are based on the species names listed above.

Searches run on these terms will bring up a list of all NIH-funded grants using these animals. This will not give us any information on specific animal use numbers, but it should reveal the number of different experiments that the NIH funds which utilize these species.

This system will not yield a foolproof measure of animal experiments. The results are from only one government agency. This evaluation totally ignores any experiments within the National Science Foundation, the United States Department of Agriculture, National Aeronautics and Space Administration, the Department of Defense, and many other governmental agencies. This examination also ignores privately funded experiments. This brief investigation is meant to give only trends in the most general terms. However, there is no real reason to believe that other entities, whether public or private, are moving in any other direction.

Audit Findings

In general the trend appears to be towards an increase in animal experimentation. The total of all of the National Institutes of Health-funded projects involving the listed animals (macaca, saimiri, rat, mouse, dog, cat, guinea pig, hamster& rabbit,) for fiscal 2001 is 29,441. This means that there are literally tens of thousands of different animal experiments funded by the NIH every year. The total for 1997 (a five-year span) is 24,891. The increase from 1997 to 2001 is 4,550 new grants, or an increase of 18.3%. The 1992 total is 21,448. Using this number we now have a ten-year span to examine. This shows an increase of 7,993 projects or 37.3%. This trend does not involve dollars spent or animals used. It examines only the actual number of grants awarded by the NIH.

The numbers of projects involving dogs, cats, rabbits, guinea pigs, and hamsters have all decreased. The down side of this is that the experiments using macaque monkeys, squirrel monkeys, chimpanzees, baboons, rats, and mice have all increased, in some cases dramatically. Mouse projects have increased by almost 51% over the last five years, and by 127% since 1992. Chimpanzee experiments have increased by 81.3% in the last ten years. Baboon protocols have increased by 82% in the last ten years. Other species have seen slower increases over the last ten years with macaque monkey experiments increasing by 50% and squirrel monkey projects going up by a mere 36%.

We may be able to come up with a very general approximation of how much the NIH spends on animal experiments every year. The NIH publishes average dollar amounts per grant. For the year 2000, the average grant was \$291,502. For 2000, there were 29,855 projects listed from our searches. This gives us a potential total of more than \$8,7 billion. There are another 651 projects involving species that were not mentioned above. However, for a final estimate we should be conservative. The use of the CRISP system introduces a potential for duplication in the searches discussed above (i.e. the same grant could use more than one species and therefore show up in the totals multiple times). This can be counteracted to some degree by the non-inclusion of the 651 projects listed above. And, again, to be conservative, I would estimate that the NIH spends \$8 – \$8.5 billion a year on animal experiments. This estimate is also on the conservative side because it does not include a component for the indirect costs associated with all NIH grants.

If specific institutions are examined in the same way, we can arrive at estimates for the funding received for specific laboratories from the NIH for the performance of animal experimentation. Many facilities receive well over \$100 million a year for the performance of animal experiments, with funding amounts for some labs approaching \$200 million (please see Appendix A for funding estimates for specific facilities). Thirty facilities were examined for NIH annual funding estimations; 56.7% of the facilities examined received over \$100 million a year from the NIH for performing animal experiments.

This finding of a significant increase in the number of grants funded by the National Institutes of Health leads to several questions. Perhaps the most important of these questions deals with the issue of duplication. Are all of these research projects necessary? Are any of these grants redundant? Are those researchers who are being trusted by the NIH to perform medical research defrauding the American taxpayer?

While it is not within the scope of this audit to answer questions of this nature, certain conclusions can be drawn from a relatively limited number of additional searches that have been run using the CRISP system.

In order to deal with this potential for duplication within the NIH grant system some basic searches were performed via the CRISP system. Three species were used: rats, mice and macaque monkeys (chosen to illustrate both ends of the evolutionary scale). The results of these searches were very disturbing. There are currently (for fiscal 2001) 171 separate projects that examine neural information processing in macaque monkeys. Since neural information processing could still be a potentially large area, the topic was refined further.

Visual neural information processing in macaque monkeys brought up 123 separate projects within the CRISP system, 286 projects study cocaine in rats, 109 projects study cocaine in mice, and 55 projects study cocaine in macaque monkeys. This is a total of 450 projects studying cocaine in three different species (please see Appendices B – F for specific grant listings). If we use the average grant amount posted by the NIH on their website (\$291,502), this gives us an estimated total of \$131,175,900 annually spent on addiction research in only three species of animals.

It must also be noted that some of these grants have been in existence for decades. Specifically, several of the grants in the area of neural information processing in macaque monkeys have been in existence for over 30 years, with one reaching 38 years of age. This type of information spawns several further questions. If this area has been studied by dozens of researchers for decades, why are new grants continually appearing in this field? If decades of study have not garnered worthwhile information, why are more grants being approved? If the decades-old grants are not sufficient to examine the field, necessitating new grants, why do the old grants continue to be renewed?

From a monetary point of view this kind of duplication is potentially catastrophic. The hundreds of millions of dollars that the NIH spends every year to fund medical research using animals may well be going into a bottomless pit of duplication that accomplishes nothing other than funneling hundreds of millions of tax dollars into the coffers of nationally known laboratories.

We may be told that this funding system is well supervised and that the system does not allow for waste. However, animal based experimentation potentially brings hundreds of millions of dollars into many U.S. laboratories on an annual basis. In light of the fact that these institutions receive so much federal funding, it is highly likely that duplicative experimentation is funded on a regular basis. Many of the people that evaluate these projects are part of the animal experimentation system themselves. We may be dealing with a good ol' boys network where "I'll approve your research if you'll approve mine." There may be far too little independent oversight, with far too many of the individuals involved in the approval process having a vested interest in the outcome of any decision regarding the validity of a project.

At the facility level, the membership of Institutional Animal Care & Use Committees (which is responsible for institutional protocol approval) are heavily weighted with people who either perform animal experiments or individuals who otherwise have a vested interest (affiliated veterinarians) in the performance of animal experimentation. Do they have any real motivation for declining to approve a project? It appears that the only real motivation may be to approve every project because each additional grant brings more money into the laboratory.

Summary

In summary, it appears that the current system for grant approval has been constituted in such a way as to provide for the approval of almost any grant for an animal experimentation project, with few motivations for a project to be disapproved. The individuals involved in the approval process often have a vested interest in approving grants, with little or no incentive to disapprove grants.

The existing system has led to a steady climb (29,441 projects in target species, a 37.3% increase) in the number of animal experimentation projects funded by the NIH over the last ten years. A conservative estimate of the current annual expenditure for animal based experimentation as it is funded by the National Institutes of Health exceeds \$8.5 billion.

56.7% of the facilities examined receive more than \$100 million annually for the performance of animal experimentation (see Appendix A for individual facility totals). Since laboratories have a monetary interest in performing as much experimentation as possible, duplication is rampant in the NIH grant system.

Several specific areas of experimentation were examined to study the issue of experimental duplication. More than 170 separate projects study neural information processing in macaque monkeys, with 123 of these studying visual neural information processing. Additionally, 450 NIH grants study cocaine in rats, mice or macaque monkeys potentially using more than \$131 million annually (see appendices B – F for actual grant listings). Experimental duplication is evidently very high, leading to the waste of hundreds of millions in federal tax dollars, and the unnecessary deaths of tens of thousands of animals.

A radical restructuring of the NIH grant approval system, and the Institutional Animal Care & Use Committee system is necessary to prevent further waste of federal tax dollars and animal lives.

Recommendations

Congress should commission a General Accounting Office audit of the National Institutes of Health grant system, also correlating research contracts data, to examine the issue of duplication within the system.

The NIH grant approval system, on the agency level, as well as the facility level, must be overhauled to put more community representation on Institutional Animal Care & Use Committees (IACUC) for all facilities that receive NIH funding, and all IACUC meetings must be open to the public.

The CRISP system must be overhauled so that all grant abstracts include a full abstract, funding amount, species names, etc. This will allow for a higher degree of accountability within the NIH.

Specific limits must be developed to prevent excessive duplication and redundancy within the NIH system.

All branches of the federal government that perform animal-based experimentation should be required to maintain an internet accessible database of all funded projects to prevent inter-agency project duplication.

Appendix A

Facility name	Approximate NIH Funding Total For Animal Experiments Fiscal 2001
<u>Arizona</u>	
University of Arizona, Tucson	\$ 44,599,806
<u>Alabama</u>	
University of Alabama, Birmingham	\$ 95,904,158
<u>California</u>	
University of California, Davis	\$ 69,430,280*
University of California, San Francisco	\$166,156,140
University of California, Los Angeles	\$134,090,920
University of California, San Diego	\$137,005,940
University of Southern California	\$ 57,425,894
Scripps Research Institute	\$109,021,748
Stanford	\$107,272,736
The Salk Institute	\$ 29,441,702
<u>Colorado</u>	
University of Colorado	\$ 98,819,178
<u>Connecticut</u>	
Yale	\$166,447,642
<u>Florida</u>	
University of Florida, Gainesville	\$ 60,340,914
<u>Georgia</u>	
Emory University	\$118,185,010*
<u>Kentucky</u>	
University of Kentucky	\$ 54,802,376
<u>Illinois</u>	
Northwestern	\$ 67,628,464
University of Chicago	\$ 66,170,954
<u>Indiana</u>	
Indiana University/Purdue	\$ 58,591,902
<u>Maryland</u>	
Johns Hopkins University	\$185,978,276
<u>Massachusetts</u>	
Harvard	\$104,589,794*

<u>Michigan</u>	
University of Michigan	\$170,237,168
<u>Minnesota</u>	
University of Minnesota	\$ 90,074,118
<u>Missouri</u>	
Washington University	\$165,864,638
<u>New York</u>	
University of Rochester	\$ 60,049,412
Columbia University	\$ 99,110,680
<u>North Carolina</u>	
Wake Forest University	\$ 45,765,814
Duke University	\$107,564,238
<u>Ohio</u>	
Case Western Reserve University	\$ 95,612,656
<u>Oregon</u>	
Oregon Health Sciences University	\$109,629,091*
<u>Pennsylvania</u>	
University of Pennsylvania	\$211,338,950
University of Pittsburgh	\$113,977,282
<u>Tennessee</u>	
Vanderbilt	\$103,774,712
<u>Texas</u>	
Baylor	\$137,297,442
<u>Virginia</u>	
Medical College of Virginia	\$ 41,976,288
<u>Washington</u>	
University of Washington, Seattle	\$157,994,084*
<u>Wisconsin</u>	
University of Wisconsin, Madison	\$102,849,673*

*Note: for these facilities, the amounts derived from grants associated with the species macaca and saimiri have been replaced with the fiscal 1999 totals for primate experimentation contained in progress reports for the Regional Primate Research Centers associated with these universities.