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Committee on Science, Space, and Technology
Subcommittee on Research and Technology
The Honorable Barbara Comstock, Chairwoman
Subcommittee on Oversight
The Honorable Darin LaHood, Chairman

Written Testimony
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Examining the Overhead Cost of Research

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Good Morning Subcommittee Chairwoman Comstock, Ranking Member Lipinski, Subcommittee Chairman LaHood, Ranking Member Beyer and members of the Research and Technology and Oversight Subcommittees. My name is Jim Luther. I am the Associate Vice President for Finance and Research Costing Compliance Officer at Duke University. I also serve as the Board Chair for the Council on Governmental Relations, an association of 190 of the Nation's major research universities, medical centers and research institutes. I would like to start by expressing my appreciation for this opportunity to discuss the federal-university research partnership and how universities are reimbursed for the costs of conducting federally funded research.

Federal-University Partnership

Academic institutions have been working in partnership with the Federal Government for decades to advance national security, health and prosperity, beginning in 1945 when Vannevar Bush, then Director of the White House Office of Scientific Research and Development published his seminal work, *Science, the Endless Frontier: A Report to the President on a Program for Postwar Scientific Research*. Bush's report argued that universities, as the engines of discovery, were essential to advancing the national agenda; in the *Endless Frontier*, Bush stated: "It is only colleges, universities, and a few research institutions that devote most of their research efforts to expanding the frontiers of knowledge." This partnership -- which has allowed for significant cost efficiencies where the government is unbound from maintaining its own facilities and personnel -- has yielded tremendous results. The United States leads the world in scientific innovation, which has led to significant economic benefits and job growth, advances in human health and defense, and an improved quality of life for all Americans. This investment in university-based research serves the dual function of:

- Generating ground-breaking discoveries that are the foundation for technological and medical breakthroughs; and,
- Training the next generation of scientist, engineers, and entrepreneurs.

The value of this young and readily available "research labor force" cannot be underestimated. Universities recruit, educate and professionally prepare the next generation of researchers, solidifying the United States' position as a world leader in research for generations to come.

Federal Funding and Reimbursement of Research Costs

The Federal Government contributes over fifty percent of funding for academic research. These funds include the "direct costs" of personnel, supplies, and equipment, as well as the facilities and administrative (F&A) costs that represent critical research infrastructure. F&A costs cannot be viewed separately from direct costs; together they represent the total cost of performing research. If direct costs are thought of as "gas" for the research engine, F&A reimbursements represent "oil" -- the research engine requires both.

Research institutions provide the physical infrastructure where research is conducted (i.e. facilities -- the "F" in F&A). This includes construction and maintenance of specialized facilities and laboratories which support diverse research, such as the study of serious and potentially lethal agents, advanced robotics, and critical vaccines. F&A costs also provide key operations infrastructure such as utilities, high-speed data processing, libraries, depreciation, radiation and chemical safety, and other facility related activities.

The administrative (i.e. the "A" in F&A) component includes those costs related to administrative and compliance activities required to conduct federally sponsored research, including human and animal research review boards, financial reporting and purchasing, training and education, managing potential conflicts of interest, financial management, including accountability for research time charged to federal

awards, and the personnel and related costs to comply with other federal, state, and local requirements. It is as basic as turning on the lights and as complex as supporting the disposal of biohazardous materials like anthrax. With federally supported research, the institution takes on the responsibility and risk, and provides both the facilities and compliance support necessary for the investigator to conduct research.

How is F&A Determined and What are the Safeguards?

F&A costs are tightly regulated and audited by the government to ensure that the government funds only that portion of F&A costs, including the costs of research space, that are attributable to the performance of federally funded research. Federal regulations prescribe the methodology for developing the F&A proposal reviewed by federal agencies. These regulations define the “cost buckets” and allocation methodologies for every item on an institution’s general ledger. Further, each negotiating team from Health and Human Services or the Office of Naval Research (the two cognizant government agencies responsible for determining university F&A rates) have detailed guidance documentation that drive a consistent oversight, review and negotiation process.

F&A rates are established for each institution in accordance with federal requirements mandated by the Office of Management and Budget. It is expected that rates will vary by region and institution. These variances occur for two major reasons:

1. Construction, renovation, utility costs and wages/cost of living vary significantly by region; and perhaps more importantly,
2. F&A rates vary depending upon the types of research that are conducted at an institution and the facilities necessary to conduct the research. Certain types of research are much more F&A intensive than others. For example, an institution that primarily does social science or observational research is likely to have a lower F&A rate than a biomedical research institution engaged in cutting-edge genomic research.

Institutions with higher than average F&A rates typically support facility intensive types of research that may include:

- Biocontainment laboratories that support immunology, virology, and microbiology research involving dangerous biological pathogens and select agents;
- Cord blood bank and stem cell transplant facilities;
- Animal facilities, which are also heavily subsidized by universities;
- Utility intensive technology buildings that require specialized HVAC systems, cold rooms, warm rooms, and air & water filtering systems;
- IT intensive imaging requirements that utilize petabytes of information;
 - These costs are increasing logarithmically given that big data science is now becoming the norm for all labs.
- Translational Cell Therapy facilities that supports cell and tissue-based therapeutic products research which are built to FDA specifications; and,
- Resources to support genomic, proteomic, and metabolomics analysis and sequencing.

Some have suggested that universities build advanced laboratories unnecessarily, deriding them as “fancy”; this characterization is wrong. These are state of the art facilities necessary to conduct cutting edge research and do so in a safe and responsible manner. We as a nation cannot afford to conduct research with dangerous pathogens, for example, in facilities that do not meet necessary standards for safety. Where advanced facilities are not needed we often make do with dated research space and I would invite members of these subcommittees to tour the Duke campus to see both our advanced, cutting-edge

facilities as well as the substantial research space for which the university has deferred renovations. Further, with respect to proposals for flat rates, a flat rate could not adequately reimburse research-intensive universities that provide the necessary labs and facilities for the types of biomedical and facility intensive research described above.

Once F&A rates have been officially approved by the appropriate federal agency, it is incumbent on the university to accurately apply these costs. Duke University has dedicated offices charged with reviewing and applying F&A rates. Duke also requires specific training in the budgeting and expenditure processes, and regularly monitors F&A charges to ensure compliance. Costs charged to federal agencies are then audited annually by independent audit firms hired by the institution to comply with federal requirements and subject to additional federal agency and inspector general audits.

F&A Rates and Foundations

Comparisons have been drawn between F&A rates allowed on awards from non-federal sources, primarily foundations, and the federal government. Private foundations and charitable organizations, which contribute about 6% of all academic research funding, a relatively small contribution when compared with the role of the Federal Government and academic institutions, often do place limitations on F&A reimbursement. Research institutions accept these awards when such sponsors support mutual research and service aims for which funding opportunities are limited or that may be aimed at solving issues at the state and local level, for example, improving corn production or providing services to solve local problems. This support is provided in a very strategic and focused manner that develops synergies between a foundation and a university that has the infrastructure to support the research, and eventually the entrepreneur and business that will leverage the outcomes. Likewise, foundation funding can be used to augment federal funding. The Gates Foundation, for example, has enabled and provided funding for AIDS vaccine research at Duke when National Institute for Allergy and Infectious Diseases funding has waned; a synergistic partnership that WILL lead to an AIDS vaccine.

With respect to reimbursement, F&A rates charged to non-federal sponsors, such as foundations, are not expected to comply with federal accounting rules and therefore rates are often charged to the entire contract amount versus the lesser “modified” amount used for federal awards, which excludes certain costs. Foundations also often categorize and pay grant-related expenses very differently than the federal government does. For example, foundations often categorize some items as direct expenses that federal rules require to be counted as F&A expenses. And most universities would not accept an award that requires significant infrastructure unless foundations agreed to pay those costs directly.

It is worth noting that a number of federal programs, such as NIH career and training awards, also place limitations on F&A reimbursement (restricted to 8%) with the rationale that these programs are less F&A intensive than others, and the total dollar amount of these grants is far more than total foundation funding. Most federal awards, however, are F&A intensive and even full reimbursement at the negotiated rate does not cover the costs. Further, universities are typically not reimbursed at this rate. A November 2014 article in *Nature* on F&A costs found that “the data support administrators’ assertions that their actual recovery of indirect costs often falls well below their negotiated rates.” Overall, the average negotiated rate is 53%, and the average reimbursed rate is 28%. Research universities are never fully reimbursed for their F&A outlays; in sharp contrast to private industry that is not subject to the same limitations and can include a profit factor. In fact, colleges and universities are the only entities not fully reimbursed for the administrative costs of conducting federal research.

Universities Contributions to Federally Funded Academic Research

F&A costs on Federal awards have remained relatively constant for the past two decades. At NIH for example, approximately 28% of all expenditures are attributable to F&A costs. This stability has been maintained, despite ever-increasing federal regulations and reporting requirements.

Universities are committed partners in our Nation's research enterprise, committing more than 24% of their own funds towards higher education research & development activities—\$16.7 billion in FY15 according to federal data. This commitment and partnership is being challenged, however, by a number of factors, among them declining state and federal funding and increasing regulations.

Federal funding doesn't fully cover F&A costs apportioned to federal studies. This is due, in part, to a cap on administrative costs put in place for research universities in 1991, but also to a significant increase in federal requirements that have and will necessitate additional infrastructure and staff. The National Academies report, *Optimizing the Nation's Investment in Academic Research*, noted that in the 1990s the federal government promulgated approximately 1.5 new or substantially changed federal research regulations and policies per year while in the last decade that number increased to 5.8 per year. Between January 2016 and 2017, at least nine new or substantially changed federal regulations and requirements were promulgated. The topic of increasing regulatory burden was the focus of my testimony to this Committee eight months ago along with the Government Accountability Office, the National Academies, and George Mason University. All stakeholders agreed with the key conclusions of the National Academies report, the National Science Board report [Reducing Investigators' Administrative Workload for Federally Funded Research](#) and the Federal Demonstration Partnership [Faculty Workload Surveys](#) and that;

- the regulation of research continues to steadily increase;
- there is a lack of standardization across agencies; and,
- federally funded research could be regulated much more efficiently.

Costly new requirements which are not yet implemented, such as data sharing, data protection, and data storage, and a new requirement to use a single institutional review board for multisite research stand to further increase total unreimbursed costs. As nearly all universities are over the administrative cap, all new costs associated with complying with these regulations are borne by the university. While F&A costs incurred by universities have increased, the rate of reimbursement for those costs generally has not. Of the \$16.7 billion in university contributions to academic research in FY15, \$4.8 billion was attributable to unreimbursed F&A costs and over \$1.3 billion to cost sharing.

F&A costs are the real cost of doing research. Without these critical infrastructure costs, research universities and research institutions could not be viable partners in the nation's research enterprise. I conclude with a simple example from Duke. However, this could be true at Harvard, or the University of Illinois, or at George Mason University. With respect to research space, when the Duke School of Medicine contemplated a new mid-size building several years ago, the foundation of our analysis was the impact on the science conducted at our institution. As we proceeded to financial analysis we determined the new facility would increase Duke's institutional costs by approximately \$10 million per year even after accounting for F&A recovery. This is due to faculty start-up costs (the cost of an average lab start-up over 3 years is approximately \$1.5 to \$2 million of institutional funding), on-going faculty research support staff, subsidized animal operations and components of the building which are not designated as research. In short, the decision to construct new buildings is entirely focused on the criticality of the science and the ability to meet ever-changing technology and laboratory needs and not the fact that the federal government may reimburse a portion of the building costs, as new construction will always represent a net loss to the institution.

Summary

The Nation's research institutions are active partners in research, providing the facilities, equipment and research personnel necessary to perform federally funded research. We fund one quarter of academic research, with the Federal government funding over half, in a partnership that has made the U.S. scientific enterprise the envy of the world and this country the global leader in science and innovation. Declines in state funding for public universities, increasing regulations and reporting requirements, and federal F&A reimbursements that do not fully cover costs jeopardize this partnership. Any reduction in federal funding, including funding for research infrastructure, will result in less research, slower scientific progress, fewer medical treatments, fewer jobs, and likely fewer universities conducting research and undergraduates and graduate students educated in a research setting. Stable and consistent funding of the entire spectrum of research infrastructure and activities is necessary to maintain our standing. We need to remain at the forefront of innovation and continue to fully support our nation's research enterprise.