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*The Journal of the National Council
of University Research Administrators*

NCURA

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**The Journal of the National Council
of University Research Administrators**

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Introduction to the Special Issue

A recent trend in the university-government partnership is actively threatening the productivity of university research. At the very time that our country most needs our universities to help solve our society's most crucial challenges, the federal government is imposing an ever-increasing burden of paperwork on faculty, in turn diverting their time and energies from the very research activities that can spawn vitally needed discoveries. Simultaneously, university financial resources in place to cope with these expanding administrative responsibilities are being burdened and even debilitated by the federal government's shift of research costs onto universities. Further, it appears that federal and state governments' desire to partner with universities in a massive enterprise to increase homeland security and economic development could actually threaten the academic freedom upon which our universities are built.

The National Council of University Research Administrators (NCURA) convened a Senior Research Leadership Summit in the fall of 2008 to foster a dialogue among university chief research officers and their senior research administrators. The dialogue focused on potential solutions to the very real threats these issues pose to America's research productivity and economic security. Topics included:

- Aligning compliance obligations, resources, missions, and services to get scientists and engineers back to the bench, performing research;
- Restoring full reimbursement of research costs by effectively communicating the value of facilities and administrative costs;
- Balancing the obligations of academic freedom with those of social responsibility; and
- Alerting university presidents and trustees to the risks of underinvestment in research infrastructure and staff support.

This special issue of the *Research Management Review* commemorates and memorializes those proceedings.

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Securing the Future for American Research Universities

Robert N. Shelton
President
University of Arizona

KEYNOTE ADDRESS TO THE
NATIONAL COUNCIL OF UNIVERSITY RESEARCH ADMINISTRATORS
SENIOR RESEARCH LEADERSHIP SUMMIT

SATURDAY, NOVEMBER 1, 2008
WASHINGTON, DC

Thank you so much for the honor of talking with you today.

What a propitious time for us to be meeting this weekend, with two days left before Election Day. The outcome of this particular Election Day—nationally, regionally, and locally—has enormous implications for our future, regardless of which political candidate you may be supporting.

A feeling of great anticipation absolutely fills the air here. This is a perfect backdrop against which to have this meeting of the minds, and I could not be more delighted that our conference organizers picked Washington, DC for us to gather.

Our world, our nation, our respective states, and our universities have been operating within fragile paradigms that have, as you are keenly aware, begun to collapse around us.

The tumultuous stresses in our environment—be they stresses to our physical environment, our economic environment, our political environment, or our cultural environment—require us as university leaders to be at the forefront of providing answers, and providing them fast.

Now eight years into the 21st century, how do we transform what may be old, 20th-century mindsets and practices into ones that best enable us to meet future societal demands?

When we pick up a newspaper on any given day in the last two months we find evidence of regional factionalism, financial crises, polarizing rhetoric. How do we not become overwhelmed or paralyzed in our thinking and actions?

How indeed?

Ladies and gentlemen, no one has ever been better suited to answer questions of “how” than America’s premier research universities. And at no point in our lifetimes have we felt the call to provide humanity with those answers more urgently than right now.

Conversely, at no point in our careers have we had a tougher time sustaining our research capacities so we can find those answers.

For our part, we research universities have our own set of “how” questions to which we urgently need answers if we are to give humanity the full benefit of our potential.

How are we expected to answer bigger, more pressing challenges with fewer available dollars?

Let us not construe this question to be the whiney lament of university administrators. We *get* the financial crisis and all of its complexities because we live with it every day.

We live with the headache of meeting increased fixed costs to run our universities while our state legislatures continue divesting from our enterprises, and our students and parents push away from further tuition increases.

But the fact is that the challenges we will be asked to meet are mounting. The clock is ticking. And we are financially stretched to our limits.

In Arizona, higher education’s share of the state operating budget has shrunk from more than 16 percent to under 10 percent over the last 20 years. State dollars account for less than 33 percent of our operating budget.

Federal and private dollars, which now outnumber state dollars at The University of Arizona, have flatlined for us all. Political deadlocks have NIH, NSF, NASA, and the Department of Energy operating under a continuing resolution through the spring.

And we have no idea what the spring holds, as the economy continues to teeter, the national debt passes \$12 trillion, and the nation steels itself to face these problems and apply substantive remedies to a government that has lived well beyond its own means for far too long.

How, if we are to move quickly and respond more rapidly to challenges as they arise, can we do this under an ever-increasing burden of compliance regulations?

Of all the people involved in funding, conducting, and sharing the benefits of university research, no one is more concerned about quality and safety than we are. We understand the need for compliance to the rules of those who fund our research.

But we cannot give people, businesses, and governments the answers they want when they want them if we continue to be saddled with labyrinthine compliance rules that do little more than satisfy a distant bureaucracy's need to feel as though some sort of due diligence has been exercised.

And finally, how can we encourage robust, unfettered pursuit of scientific discovery when government leaders who are part of our funding source engage in anti-intellectual attacks on the integrity of our researchers for partisan political gain?

Attacking the pursuit of truth because it proves to be, to borrow a word—*inconvenient*—seems to have receded from the high water mark it reached earlier in this decade. But while attacks have subsided in Congress, they continue to occur in other arenas.

For The University of Arizona, the single most distasteful attack we have ever had to endure came in 2005, when a Congressman from Texas challenged the research of our own Professor Malcolm Hughes, an internationally renowned expert in using tree ring analysis to track millennia of climate patterns.

His research contributed to the growing chorus of scientific analyses that were showing that current climate fluctuations are sharply anomalous, and that the so-called hockey stick graph of temperature change can only be caused by human activity.

In other words: global climate change is real, and it coincides with humanity's use of fossil fuels.

You can just imagine how the Texas Congressman reacted to this news. Maybe you read about his crusade.

First, he produced his own research ostensibly "proving" that climate change was a hoax. That "research" was in fact bought and paid for by a Texas-based oil company.

Next, he demanded that Professor Hughes turn over every scintilla of raw data ever collected for every scholarly paper he had ever authored—even that which came from England, where Dr. Hughes was born and began his academic career.

And finally, he tried to haul Dr. Hughes in front of a congressional subcommittee to defend the assertions of his research.

This Congressman's shenanigans were stopped before he could publicly pin the scarlet "A" to Dr. Hughes' shirt, but his intentions were obvious: Destroy this professor's career as a warning to others to stop research that flies in the face of the dominant political dogma of the day.

I am proud to tell you that the epilogue to this story is positive: Dr. Hughes is still thriving, unbowed, in his research. For the excellence of that research, the Arizona Board of Regents has bestowed on him its highest honor—the title of Regents Professor.

Blatant attacks on academic freedom aside, we continue to feel more subtle, equally insidious efforts to control the free hand of research, and this has to stop.

These are “grand challenges” that we face as leaders of research enterprises. We will ask much of the governments that in turn are sure to expect much from us.

But there are some realities about our own operations that must be confronted. And these realities are driven by the central truth that academic research is not, and will not become, a growth industry. It’s just too expensive.

So we must take three steps to make a case that will be compelling in the new political reality that is taking shape in this town if we are to be heard and taken seriously.

STEP NO. 1: NO WHINING

To command the respect of our funders, federal and otherwise, we must earn back the microphone. Simply complaining about anemic funding and onerous regulatory burdens won’t cut it.

Look around. Life has been unfair to a lot of people lately, nearly all of whom are less fortunate than we. Beyond articulating the problems we have experienced, we must articulate a willingness to thrive within the new reality of a federal government buried in debt, battlefronts in Iraq and Afghanistan, and a global economy sinking into recession.

No petition of complaints will be taken seriously without the offer of solutions that match the realities of the day.

STEP 2: MAKE “INTERDISCIPLINARY” REAL THROUGH INNOVATION AND COLLABORATION

“Interdisciplinary” is a word that is overused and under-enacted. It is in danger of going the way of “sustainability,” a word so hackneyed by every university wishing to cash in on its cachet that it has become meaningless.

Let’s revive “interdisciplinary” and give it some real meaning and depth.

The traditional approach to winning research dollars—tackling issues apropos of single disciplines, pursued by individual professors or even individual institutions—is fast moving toward extinction.

Grant trends are rapidly shifting away from awards to individual scientists and toward awards to centers of excellence.

Those universities that can move quickly to form centers of excellence that respond to critical societal needs, and have the willingness to share the money, control, and credit with other institutions, are increasingly winning grant competitions.

So we have got to get better at teaming up. Widen the scope of our ambitions. Move quickly. Form, de-camp and re-form to fit the needs of our communities.

And we should bear in mind that with the necessity of sharing the dollars, credit, and control of our research, we will also share in the joy of common discovery.

The University of Arizona has the good fortune of about three decades of an interdisciplinary approach to our research, but not because we were particularly prophetic in the 1970s.

Rather, this way of life was the natural cultural evolution of a university that had been a quiet, informal desert institution at which intellectuals came to pursue their interests, free from decades or centuries of entropy that bogged down other universities.

You might say we were interdisciplinary before being interdisciplinary was cool—certainly before it was lucrative.

All that has changed in recent years, as a paucity of resources has forced everyone to innovate. This approach led us to create an interdisciplinary center of excellence in the biosciences that includes disciplines across 11 of our 18 colleges.

The BIO5 Institute includes faculty from basic sciences, agriculture, engineering, pharmacy, medicine, and now many more areas. Its mission is as easy to articulate as it is daunting to fulfill: to treat disease, feed humanity, and preserve livable environments.

Its building is designed like none other, with no detail spared to ensure people, laboratories, and offices engage in regular “intellectual collisions” that produce a truly silo-free environment of discovery.

Earlier this year, BIO5 leaders won a \$50 million NSF award to lead a consortium in creating the iPlant Collaborative—a joint endeavor with Cold Spring Harbor Laboratories, Arizona State University, the University of North Carolina at Wilmington, and Purdue University.

The charge: create an unprecedented cyberplatform to unify the world’s various stripes of plant scientists to address the grand challenges of plant life on earth. The grant includes the expectation of quick and big advances in this arena, and it holds the potential of another \$50 million grant for five additional years if we accomplish this goal.

The message from the NSF was obvious: change the game by working across disciplines and institutional boundaries to achieve bigger, quicker wins, and you win the grant.

The University of Arizona team combines the talents of our luminaries in plant sciences, management information systems, and mathematics. But the BIO5 building itself was a star performer. The very design of the building was cited by the NSF Director as an attribute that set The University of Arizona apart from every other competitor, and ultimately helped to win the grant.

Of course, this gives me a tremendous amount of pride as the UA president, but it also makes me look anew at our research facilities and at the very organizational structure of our university and ask myself— how we can replicate this success across other disciplines?

We can't afford to just keep building funky buildings that change the work culture of our research faculty, though that would be fun, wouldn't it?

We have got to find new ways of working with what we have to adapt to this new reality.

And we have to look at each other less as competitors and more as collaborators.

STEP 3: LOOK, AND LISTEN, TO THE PRIVATE SECTOR

We all work with the business organizations with which we share a community or some other common interest. In Tucson, we enjoy a broad and deep relationship with Raytheon, which headquarters its missile systems there and hires more engineers from The University of Arizona than from any other university.

In Raytheon we have a collaborator in research, economic development, and workforce development—it all ties together.

As you can imagine, this relationship is the exception for us, and not the rule. Sadly, such is the case at most universities, I suspect.

As America's universities are finally recognized by the political class as the engines of economic development that you and I always knew they were, it is important that we lead the way toward forming deeper ties with the business sector that nonetheless make sense for educational and research enterprises.

It does not make sense to partner with businesses if those partnerships only enhance a single profit margin. But it does make sense to do so if those partnerships advance an industry, a community, or the student body we are educating to join the workforce.

In Tucson, Raytheon is iconic as a manufacturer of guided missiles, but our association with this company is not an exercise in smart bomb development.

Leaving aside all of the obvious partnership opportunities between Raytheon and the UA, the depth and breadth of our relationship has led us to some fascinating arenas of discovery.

Without stealing our own thunder, let me tip my hand just a little and say that we are preparing to announce next month a Raytheon collaboration involving, of all things, the fight against skin cancer.

Given that southern Arizona is second only to Queensland, Australia for the incidence of skin cancer, this is a relationship that has borne fruit in an exciting and quite unexpected way.

The same is true about our relationships with Arizona's mining companies. They and the communities that exist nearby them have articulated to us—and sometimes to anyone who will listen—what they need to secure a responsible future for mining in Arizona.

The modern mining conversation in Arizona is often a pitched battle between rural communities struggling to recreate the booming economies that copper mining created a century ago, and modern communities dead set against new mining that brings with it environmental degradation, voracious consumption of precious groundwater, and enormous scars on our beloved landscape.

Through a lot of conversation, listening, and creative thinking, we have found a third way.

Later this month we will announce a major research partnership with Arizona mining companies that holds the very real promise of revitalizing this industry for the 21st century in a way that will provide safer, higher-skill jobs than rural communities have ever seen, minimize the environmental impact on mining operations, and minimize or even eliminate the need to use potable water in the leaching process.

Combined with this effort will be the creation of a new STEM training center at the Biosphere 2, which we now operate, which will give our schools the boost they need to prepare students for the high-skill, safer, and cleaner jobs to be created in this new era of mining.

We will be one of just three universities in the world with the portfolio of research and development capacities we are about to announce.

Again, each of you surely has an example just like this percolating at your university, and you should. But I'm willing to bet that for all of us, these examples are the exception and not the rule with respect to our interactions with the business sector.

And as we bind these logical ties between our institutions and industry, we must include a robust student component. We can and must be their bridge to the workforce, and we can be a very reliable bridge when we approach our business relationships with an eye toward one of the things our business partners want—a steady pipeline of highly skilled workers.

Let me recap our three steps.

- Step 1: No whining
- Step 2: Innovate and collaborate
- Step 3: Connect more deeply with the business sector

This is our roadmap for establishing a credible new relationship with a government that is headed into largely uncharted waters in the coming years.

If we demonstrate, with competence, confidence, and consistency, that we are doing these three things as we respond to the call to deliver answers to a world full of worrisome questions, we will be ideally positioned for even the most uncertain future.

Our mighty research engines are showcases for the best of what humanity has to offer itself and this world. In our laboratories, and inside some impressive minds, the most puzzling riddles and the most maddening mysteries of the universe are giving up their secrets to our scholars.

They reveal cures for disease, solutions for environmental conundrums, the origins of our universe, the complexities of the human mind, and the complex beauty of the order of life on Earth.

For years—long before the general public tuned in—we have been hard at work on some of the greatest questions and most alarming problems that loom in our future. I fervently believe that the public and the body politic have caught up with us and are paying attention to what we have been saying about disease, climate change, and the future of an ever more crowded and globalized planet.

What we have always felt implicitly is what we are now hearing explicitly, in language that is clearer and more urgent: It is the call to serve humanity. It is that same call that drew us into our line of work in the first place, many years ago when we were undergraduates.

And in hearing that very clear call to serve, we find ourselves, once again, stirred to find a way to do what we have dedicated our lives to doing—serve as the wellspring of answers to humanity's challenges.

Balancing the Burden of Compliance and Faculty Support

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ABSTRACT

The National Council of University Research Administrators hosted its first Senior Research Leadership Summit in November 2008; here, the authors report on one of the solution sessions that focused on the struggles universities face as they attempt to balance their vital compliance and stewardship obligations and responsibilities while trying to enhance the research productivity of an already overburdened faculty and staff. The main drivers of research productivity, the faculty, are facing increasing pressure to spend more time responding to compliance initiatives mandated by the government or required by their institutions. Institutional resources that used to be available for faculty support are now being shifted to manage these ever-expanding compliance requirements. This article reviews the issues that session participants identified as responsible for adding to this burden, and summarizes the solutions proposed during the Summit. Solutions were identified in three areas: federal strategies; institutional strategies; and strategies that involve collaboration between federal and academic institutions. Participants concluded that it is time for universities to act to reduce this burden by proposing constructive solutions to this problem, and through collaborative action with each other and federal agencies.

INTRODUCTION

The National Council of University Research Administrators (NCURA) hosted its first Senior Research Leadership Summit on November 1, 2008 in Washington, DC. The attendees, comprising teams representing the academic and administrative research leadership of 35 institutions, were drawn to the Summit by the opportunity to discuss concerns and solutions to the

increasingly complex and financially challenging issues surrounding research compliance. Each institutional team participated in this interactive day-long session in order to share ideas and strategies designed to address the threat to research productivity posed by an ever-increasing burden of paperwork, a constant stream of new regulations, the increased institutional costs of supporting these expanding administrative burdens, and some core challenges to the principles of academic freedom. This article focuses on the struggles universities face as they attempt to balance their vital compliance and stewardship obligations and responsibilities while trying to enhance the research productivity of an already overburdened faculty and staff.

BACKGROUND

Academic research programs' unique role at universities includes developing new knowledge, disseminating that knowledge through education and publication, and creating innovative ideas and products that benefit society. Universities with a strong and vibrant research enterprise contribute to the economic development of their communities by creating new technologies and industries that enhance the competitiveness and global scientific leadership of the United States. The vital role of academic research programs in both economic development and global competitiveness is clearly recognized in the new American Recovery and Reinvestment Act where significant funds are being made available for federal agencies to support academic research. Yet, the key drivers of successful academic research programs, the faculty, face increasing pressures to spend more and more time on administrative activities. Faculty must respond to compliance initiatives promulgated by the government or required by their institution, and are mandated to oversee an increasing number of paperwork and reports. This problem is compounded by the fact that institutions, which aspire to invest in developing, enhancing, or supporting faculty research programs, must increasingly shift dollars, administrative time, and technology systems to managing, auditing, and reporting on ever-expanding compliance requirements.

IDENTIFICATION OF THE ISSUES

The NCURA Senior Research Leadership Summit participants attempted to identify the issues contributing to the burden of compliance. Clearly, there has been a steady increase in both the number and complexity of compliance regulations and policies that institutions and faculty must manage. Most experienced research administrators are familiar with these changes. A quick survey of such new regulations from the last ten years includes but is not limited to the following:

- Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (select agents and toxins);
- Federal Information Security Management Act (2002);
- National Institutes of Health (NIH) Data Sharing Policy (2003);
- Federal Funding Accountability and Transparency Act (Subrecipient Reporting 2006);
- Code of Business Ethics and Conduct (FAR – 2008);
- Homeland Security Chemical Facilities Anti-Terrorism Standards (2008); and
- NIH Public Access Policy (2008).

In addition to new regulations, universities have experienced increased scrutiny and oversight of existing regulations including but not limited to:

- Effort Reporting;
- Conflict of Interest;
- Federal Policy for the Protection of Human Subjects, to include mandatory training and registrations of IRBs; and
- Subrecipient Monitoring.

These changes do not even reflect the proposed changes that are still under discussion, such as the National Science Foundation's (NSF) consideration of mandatory Responsible Conduct of Research education, and NIH Conflict of Interest rules. Regulations are developed and implemented for a number of appropriate reasons, including furthering protections of the confidentiality and safety of human research participants, attempts to improve safety for individuals engaged in university-based research, national security issues, and in response to the infrequent, but often high-profile, failures of universities to adequately monitor or implement certain key research functions. However, each of these new oversight and auditing activities add to the faculty and institutional compliance burden, with resultant decreases in faculty productivity and consumption of institutional resources.

The Federal Demonstration Partnership (FDP) has taken an important step toward assessing and measuring the impact of these compliance and administrative responsibilities upon faculty. The FDP report, *A Profile of Federal-Grant Administrative Burden among Federal Demonstration Partnership Faculty: A Report of the Faculty Standing Committee of the Federal Demonstration Partnership* (Decker et al., 2007) indicates that 42% of faculty time spent on federally-sponsored research was actually spent administering the project (not including proposal writing). Top administrative burdens included: submitting grant progress reports, hiring personnel, managing project revenue, purchasing equipment and supplies, engaging in IRB responsibilities, and training and evaluating personnel and students. According to the FDP survey, faculty respondents identified the burden as not only arising from the government agencies but also from institutional policies, procedures, and other strategies developed to respond to these compliance initiatives.

Timothy Mulcahy, Vice President for Research at the University of Minnesota, further explored the impact of institutional policies on the faculty compliance burden during the plenary session of the Summit (Mulcahy, 2008). His analysis suggests that universities often make decisions that reflect their concerns about public and community relationships, institutional risk tolerance, economic status, and the internal culture of service and faculty support. These factors color the ways in which compliance and administrative programs are implemented, and may result in additional burdens that go beyond the external regulations or agency requirements.

Regardless of the source of the compliance directives, reducing faculty burden almost certainly will require a financial commitment by the institution, sponsoring agencies or both. The FDP survey suggests that, too often, this support is not forthcoming. The combination of increased regulations, complex institutional compliance policies, and a lack of funds to help faculty implement these regulations and policies leads to the inescapable conclusion that faculty are

being diverted from their core mission of research, adversely affecting both individual and institutional research productivity.

SOLUTIONS

Senior Summit participants participated in Solution Sessions to share ideas, suggestions, and successful strategies for reducing the compliance burden. These ideas were reported to participants and are summarized below.

As a first step, academic institutions need to focus on creative and collaborative solutions to these difficult problems and redirect their efforts from complaints about the current regulatory environment. As Robert Shelton, President of the University of Arizona, explained during his Summit keynote address (Shelton, 2009), universities must earn back their voice in this arena by clearly articulating the academic community's commitment to ethical research and the stewardship of funds while better defining the problems and proposing solutions that reflect the realities of the academic community. This message needs to be communicated to a number of different audiences, including the federal government, the public who supports the research enterprise through their tax dollars and via their participation in research studies, and university faculty members. Faculty need to understand that universities recognize their burden and, more importantly, are committed to helping them manage their burden by organizing, simplifying, and reducing the steps necessary to complete those compliance responsibilities (Decker et al., 2007).

If universities accept the premise that they too add to the compliance burden of faculty, and that academic institutions must reach out to federal agencies to aid in the formation and implementation of new regulations, now is the time to act. During the Summit's Solution Sessions, the participants identified a number of potential solutions that can be summarized into three categories: federal, institutional, and collaborative strategies.

1. Federal Strategies

Universities and their scientific and professional associations must continue to work with federal agencies to decrease the administrative burden of federal compliance initiatives. Academic and administrative leaders should take an active role in shaping agency policy by responding to requests for comments on new regulations, engaging in demonstration projects, and working with national associations to propose creative non-regulatory alternatives to potential and existing problems in the conduct of research. The FDP is one national association that has accepted this challenge by beginning to address the issues raised in the faculty burden survey; many other effective organizations work to enhance the university-government partnership. An important and ongoing element of that discussion is the increasing cost of compliance. One of the important findings of the FDP survey was the strong desire of many faculty members to be allowed to charge project management support directly to their grants. This should be considered as a mechanism to address issues around both the cost and effort of administration and compliance. This change will require action by federal agencies to modify OMB Circular A-21 or other costing policies to allow such project support.

2. Institutional Strategies

Universities should take greater care in identifying institutional and individual compliance risks and creating the programs to effectively manage those risks. It may not be feasible, practical, or desirable to develop compliance programs that attempt to eliminate all risk since it is almost impossible to anticipate all scenarios stemming from potential problems. In order to best assess risk and determine an appropriate level of institutional response, Summit participants suggested working with university leadership to clarify and understand the intent and terms of each new regulation. Once that step is completed, Summit participants identified other key steps to developing and implementing effective compliance programs:

- Early and frequent communication with faculty impacted by any new compliance initiative should be a standard practice. Faculty need to be engaged in the discussions to help them understand the new compliance issues in the context of the basic premises of the ethical conduct of research, the objectivity of research data, and the stewardship of sponsored funds. These issues resonate with faculty, and will drive their commitment to good practices as they manage their research projects. Key in these communications with faculty should be an effort to understand the impact of the new compliance program on faculty research and a vigorous attempt to identify any and all opportunities to make the implementation more efficient.
- Institutions should review their existing policies, procedures, and practices and look for opportunities to integrate any new compliance requirements into existing systems, tools, and processes; avoiding duplicate, redundant, or unnecessary work is critical. Universities are frequently tempted to build processes within a compliance program that will gather data useful to the administrative needs of the organization. While recognizing that this is a valid need, the downstream benefits from this type of data collection activity need to be carefully assessed and weighed against the increase in faculty time and effort that will be added to the compliance process.
- In today's extraordinarily restrictive fiscal environment, it is understandable that institutions are reluctant to add new resources for each new compliance regulation. However, institutions need to explore opportunities to alleviate this cost burden while providing better support to faculty. By developing strategies that are faculty-driven, the institution might be able to save time and energy and reduce frustration levels. Many institutions are developing information system applications that provide a faculty portal to multiple compliance requirements using a single password. Other places are enhancing these portals to help faculty create individually tailored compliance profiles and "to do" lists based on their specific research and associated compliance requirements. Some of the new electronic tools provide better support to faculty for identifying funding sources and collaborators, developing proposals, and managing project finances and intellectual property support. While not specifically related to managing compliance, these tools help faculty with their overall research tasks and send the message that institutions are willing to support the research enterprise. Universities may wish to explore collaborations on these systems in order to improve the value of these tools as well as reduce the costs.

- Another way in which institutions can reduce the faculty burden is by taking steps to harmonize their institutional policies to provide more consistent and clear messages to faculty about their compliance responsibilities, thereby avoiding confusion, duplication, redundancies, and time spent shopping for answers. Institutions may wish to explore developing compliance systems used by a variety of compliance offices that collect and share commonly required data elements, such as demographic information, grant titles, etc. These systems could include compliance offices outside the research enterprise. Taken to its extreme, such harmonization might result in more coordinated monitoring and internal audit visits that would reduce the time faculty spend in responding to the various offices that need to assess the status of their compliance programs. Put simply, institutions need to be constantly vigilant about the burdens of compliance and must always be looking for opportunities to eliminate unnecessary and redundant tasks.

Underlying many of these initiatives is an administrative culture that focuses on faculty service and support. One idea discussed at the Solution Sessions was the development of specific services to help faculty address their individual needs. This concept might be implemented in a variety of ways. The FDP faculty burden survey team suggested that faculty need more project management support to help facilitate these administrative and compliance tasks; this approach functionally decentralizes compliance expertise and brings it directly to where the faculty live. Another option is the creation of a concierge service to help investigators identify what compliance requirements are necessary for their specific projects and then facilitate the completion of those tasks. These ideas create new challenges for institutions because of added costs and shifting risk from a central oversight area; this solution requires clearly defined roles and accountability.

Perhaps the most important step institutions can take to enhance faculty service and support is to build clear expectations among the various compliance offices that they will be evaluated on their service to faculty. All of the strategies discussed thus far—assessing risk, providing clear messages, avoiding duplicate and unnecessary work—unravel quickly if the front-line staff are not also focused on answering faculty questions, providing them with more efficient ways to help navigate the maze of compliance requirements, and helping faculty understand why, sometimes, the answer is “NO”.

Institutions often believe that a rapid response to a new compliance initiative is essential, but without careful analysis of the risk, the impact on the faculty and administrative staff, and the identification or creation of the appropriate tools to successfully implement the new policy, the university will only add to an already heavy compliance load and to its own costs.

Finally, just as institutions need to re-establish their voice and seek federal support to reduce the burden of compliance, they also need to demonstrate their willingness to be accountable for their actions. Dr. Shelton reminded the Summit participants that faculty who demonstrate high levels of accountability and personal responsibility need to be supported and defended by their institutions during external audits or investigations but faculty who are outliers and fail to comply with regulations or institutional policies need to be appropriately managed (Shelton, 2009).

3. Institutional and Federal Collaborative Strategies

The solutions discussed above may seem daunting at first, especially for an institution with limited resources, but collaborations with other organizations may help mitigate the burden. While it is true that all institutions have different cultures and approaches to these types of regulations, it is time to set aside those differences and begin to form effective partnerships. For example, why can't universities collaborate on technological solutions, sharing the ideas, development, and costs? Organizations like the FDP should be encouraged to pilot programs with the federal government to test the ideas of a project manager or concierge service—gathering the data, measuring the outcomes, and assessing the impact on efficiency. Universities and their national associations need to discuss with the regulatory agencies safe ways for universities to share best practices without creating the risk of new audits or investigations. Can an organization like NCURA host an electronic posting board that provides information on the regulations and examples of institutional compliance responses? This electronic posting board could identify common problems with program implementation that could be brought to the attention of regulators who in turn are committed to partnering with universities to solve these implementation issues efficiently.

Another idea that merits further exploration is the concept of regional solutions to the compliance burden. Can universities continue to individually shoulder the responsibility and costs for developing new administrative structures to support compliance? Or is there an opportunity to share these costs and structures among a consortium of universities? How would partner universities assess the risk and define accountability, and how would the federal government deal with these consortia and effectively implement their audits and oversight responsibilities?

CONCLUSION

The first step in solving a problem is to recognize its existence. The FDP survey and the experiences of the university teams attending the NCURA Senior Summit confirm that although the faculty burden of compliance continues to grow, the faculty voice is being heard. For the most part, the solutions proposed at the Senior Summit are complex because they involve fundamental changes in how universities view risk, and the nature of their compliance relationships with both the faculty and the regulatory agencies. For these reasons, real change will require federal agencies and universities to work together to ensure that all partners keep focused on the shared goal of growing the quality and the productivity of our academic research enterprise. It is time for academic institutions to work within the framework of organizations like the FDP, Council on Governmental Relations (COGR), NCURA, and faculty scientific and professional associations so we avoid duplication and redundancy, and to begin a concerted effort to put our faculty back to work at what they do best—innovative and life-changing research.

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Facilities and Administrative Issues: Paying for Administration while Under the Cap, Maximizing Recovery, and Communicating Value

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ABSTRACT

Doing more with less has become the mantra of research administration. Even when an institution is fortunate enough to negotiate an increased Facilities and Administrative (F&A) rate, the victory is bittersweet because researchers feel they must bear the burden of increased overhead costs as a reduction of the funds available to cover direct costs. While communicating the value of F&A to researchers is critically important, we are increasingly called upon to justify those costs to external constituents, including sponsors, legislators, and taxpayers. University administrators must be armed with information to advocate for increased research funding to adequately fund the costs of research and reduce the administrative burden on our researchers. An important aspect of that knowledge is an understanding of how the recovery of indirect costs reduces that administrative burden and thus maximizes the intellectual capital at the nation's universities.

INTRODUCTION

Perhaps no other category of funding for the research enterprise is more misunderstood, maligned, and generally resented than indirect costs, even though without the recovery of those costs, the infrastructure for research could not be sustained on college and university campuses. Facilities and Administrative (F&A) costs are often referred to by principal investigators as the overhead "tax" on research that is grudgingly added by researchers to budgets as mandated by their institutions and as allowed by sponsors. That general disdain extends beyond our campus perimeters to sponsoring agencies and even Congress. In a study conducted by Cole (2007) that assesses faculty perspectives on the research administration system, the most overwhelming positive response to a list of probes on improving relationships between faculty and

administration relative to research administration revealed that almost 68% of faculty requested that a significant portion of the indirect costs recovery be returned directly to the college, department, and principal investigator.

As a prelude to its 50th annual meeting, the National Council of University Research Administrators (NCURA) hosted its first Senior Leadership Summit, convening representatives from 35 research institutions on November 1, 2008 in Washington, DC. Teams composed of the chief research and chief research administration officers participated in a day-long forum, including plenary and breakout sessions addressing the topic, *Aligning Services, Resources and Institutional Mission to Enhance Faculty Research Productivity and Competitiveness*.

Teams of facilitators led interactive sessions on specific issues, including F&A costs. The facilitators set the stage for the discussion by framing the challenges faced by research institutions that are dealing with the increasing burden and cost of research compliance in a era of capped administrative costs, and additional restrictions on F&A costs recovery collectively driving the “do more with less” culture. The thrust was to emphasize good practices, to arrive at potential solutions, and to devise an action plan for the path forward. This article describes the discussions among participants in sessions on the topic of F&A costs recovery.

BACKGROUND

The first acknowledgment that commercial cost principles were not easily applicable to colleges and universities that were organized and operated in a significantly different manner than commercial entities came with the publication of the *Explanation of Principles for Determination of Costs Under Government Research and Development Contracts with Educational Institutions* or “Blue Book” by the Office of Naval Research in 1947. That document served as the basis for OMB Circular A-21 (The White House, 2000). Prior to issuance of Circular A-21, federal agencies maintained their own cost recovery policies. A White House (2000) study documented the analysis by the Office of Science and Technology Policy of F&A costs at universities and chronicled the history of policies related to the recovery of F&A under federally sponsored research. The Office of Management and Budget’s issuance of OMB Circular A-21 in 1958 represented a government-wide effort to harmonize cost principles across federal sponsoring agencies.

A-21 provided the definitions for direct and indirect costs and set standards for accountability, documentation, and consistent treatment of costs. Over the years, A-21 has undergone numerous revisions and clarifications relative to F&A costs, most notably:

- 1979—Established Modified Total Direct Costs (MTDC) as the basis for calculating indirect costs
- 1982—Made allowable interest costs directly associated with debt resulting from buildings and equipment supporting research
- 1986—Established fixed allowances for departmental administration
- 1991—Implemented the 26% cap on the administrative portion of the indirect costs rate
- 1993—Aggregated seven cost categories into Facilities and Administration and required disclosure of cost accounting practices

- 1996—Major revisions to A-21 resulted in references in A-21 as indirect costs were replaced by F&A costs, implemented the requirement for filing DS-2 Disclosure Statements, raised the threshold for capitalizing equipment from \$500 to \$5,000, and mandated that the F&A rate in effect at the time of the award was in effect for the life of the award
- 1998—Adjusted the utility costs recovery to 1.3% in lieu of special cost studies (The White House, 2000)

Congressional interest in F&A costs has not waned since the late 1980s when allegations of overcharging the federal government by universities through indirect costs recovery were publicized. Those initial inquiries resulted in the 26% cap on the administrative component of F&A costs. Between 1995 and 1997, the House Committee on Science again sought ways to increase the amount of funding supporting direct costs by reducing allocations for indirect costs by 10%. The Senate Committee on Labor and Human Resources did not support that reduction and instead focused their concerns on the disparity among rates paid by federal sponsors of university research compared to the rates paid by non-federal sponsors (The White House, 2000).

The RAND Science and Technology Policy Institute compiled and analyzed data for the Office of Science and Technology Policy, providing options for consideration by Congress that included establishing a database containing information on research F&A costs to be implemented and maintained by the federal government using MTDC as the basis for comparison (The White House, 2000).

During the almost 20 years since the imposition of the 26% cap on administrative costs, most research institutions have far exceeded that threshold and thus are making significant cost commitments in support of federally funded research. The White House study (2000) estimated the underrecovery by universities at that time to be between \$.7 and \$1.5 billion based on negotiated F&A rates. Adding insult to injury, appropriations language implemented in November 2007 for FY 2008 federal appropriations limited reimbursement of indirect costs by the Department of Defense (DoD) to 35% of a grant's total value (Kramer, 2008). This equates to an MTDC-based rate of approximately 53.8%. Under such restrictions, indirect costs exceeding that amount are unallowable and those costs must be borne by the institution as well as the administrative costs associated with the additional accounting and recordkeeping needed for compliance (Kramer, 2008). Kramer (2008) cited an analysis of National Science Foundation (NSF) expenditures data conducted by the American Association for the Advancement of Science (AAAS) in asserting "Universities themselves have become the second largest source of support for on-campus research, providing 20%, or \$9.3 billion, of all funding for FY 2006" (p. 32). The Council on Government Relations (COGR) estimated that \$3 billion of this cost-sharing is attributable to the underrecovery associated with the cap on administrative costs. Universities are not alone in their frustration. John Marburger, Director of the White House Office of Science and Technology Policy under the President George W. Bush Administration and former president of the State University of New York at Stony Brook, stated, "If the indirect recovery rates are set too low, the universities have to put some of their tuition or endowment dollars into the pot. If you have to pay a dollar of your own money [for every \$3 in grant money], you can only afford a limited amount of that kind of work" (Marburger, as quoted in Munro, 2007, p. 58).

DISCUSSION

Leaders at the NCURA Senior Summit explored the issue of indirect costs with the goal of developing an action plan to address what many perceive to be a significant threat to the research enterprise. The dialogue revolved around several themes: a) the need to educate legislators, the public as well as our own governance, senior administration and faculty about indirect costs; b) the debilitating effects of the administrative cap coupled with the rising burden of compliance; c) identifying good practices; and d) developing systematic methods of calculating the cost of conducting research to make the concept of indirect costs more understandable and transparent.

Most participants believed that science has lost its allure with Congress over the past decade and that U.S. competitiveness has been weakened as a result. Scientists in Congress and our “science superstars” (researchers on our campuses conducting transformational science who are also adept at conveying their science in “lay” terms) need to be engaged as partners in promoting the value of research and in educating legislative staff. Governors could be valuable allies and many are already proponents because they understand the linkage with economic development.

There was consensus that research administration units have been “efficienced to death” in the face of exponentially increasing compliance burdens that are estimated to have doubled over the past two decades while resources have not kept pace. Participants pointed out that universities not only suffer from the underrecovery resulting from the administrative cap but must also endure the “double whammy” when the concomitant cost sharing is included in the institutional organized research base for its indirect costs calculation and, in effect, drive the calculated rate downward. There was widespread agreement that the cap on administrative costs needs to be eliminated or at least raised to 30% or more and that institutions, particularly researchers, might gain greater benefit from being able to direct-charge administrative costs as suggested by the Federal Demonstration Partnership (FDP) as a conclusion from their Faculty Burden Survey (Decker et al., 2007).

The faculty committee of the FDP conducted a nationwide survey of researchers engaged in federally funded research which demonstrated definitively that researchers spend 42% of their research time on federally sponsored projects in the performance of administrative tasks associated with compliance and reporting requirements (Decker et al., 2007). Participants in the discussions urged further study to recalibrate the burden in a manner so as to disaggregate by disciplines. The ability to direct-charge administrative support would reduce, but not fully eliminate, the administrative burden on faculty.

In 2007, Congress imposed a limit of 35% of total direct costs (TDC) on the recovery of F&A costs on contracts funded by DoD agencies. While most institutions represented at the Senior Summit were not affected by the DoD cap on indirect costs, underrecovery of indirect costs is not uniquely a product of the administrative cap. Many federal agencies such as the U.S. Departments of Agriculture (USDA) and Education (ED), as well as state agencies and foundations, limit or prohibit the recovery of indirect costs. While industry sponsors may push back on reimbursing indirect costs, institutions remain stalwart, insisting on full recovery of the costs of research funded by for-profit sponsors. Many believe accounting systems employed by universities should allow for flexibility to bill industry using “loaded” labor rates that are more easily correlated to

industry models of budgeting. Some institutions charge industry sponsors their “uncapped” rate or other premiums to ensure full recovery of costs.

All agreed that indirect costs are not well understood by internal or external constituents and many have formal educational programs for legislators as well as researchers and institutional administrators. Land-grant institutions need to educate their agricultural experiment station directors on the topic. Many believe we should engage leaders of the science societies, such as the Federation for Societies of Experimental Biology (FASEB), in educating our researchers on the value of full indirect costs recovery. Some institutions have formal programs for informing legislative staff about policies, the impact of increasing regulatory burden, and the burgeoning cost of compliance. While the FDP Faculty Burden Survey provides evidence of the administrative burden that depletes the time our researchers have to devote to their science, more concrete documentation of the full cost of research compliance is needed; participants urged COGR to continue their efforts to longitudinally assess the costs of compliance at their member institutions through their annual survey. The goal is for researchers and administrators to speak with one voice.

When asking the federal government to either support direct charging of administrative support or raise the cap to accommodate indirect support to researchers, universities must examine their own policies and practices. Often, the vice president/chancellor for research does not control how indirect costs recovery is reinvested into the infrastructure supporting research. Senior administrators, faculty, and sponsors do not fully understand or trust that indirect costs truly support the costs of research. Using indirect costs recovery to fund administrative support as a component of start-up funding for new faculty, rewarding full recovery of costs in returning indirect costs recovery directly to researchers, and reallocating center support to directly support administrative costs are ways universities can alleviate the burden. Providing training support for administrative staff through professional development leading to certification can reassure federal agencies that their investment in administrative support is well placed.

While research universities depend on research for critical infrastructure, by definition, research is not a profit-making enterprise for universities. Some universities have set up research administration units as separate entities, such as research foundations. While some fear questions regarding whether tuition is being used to support the deficit in research costs recovery, others believe that research programs add value to the educational experience of students, especially graduate students, and therefore defend the perception or actual subsidy of research from tuition costs. Universities must be prepared to educate legislators, the public, and internal constituents.

RECOMMENDATIONS

The discussion was designed to make concrete suggestions for a plan of action that should be pursued aggressively.

1. In light of the recent recommendation by the National Science Board (NSB) (2009) that the administrative cap be revisited, the federal government should consider raising or eliminating the cap on the administrative component of the F&A rate. The NSB (2009) recognized that the result would “likely enhance the ability of

institutions to strategically and flexibly plan, invest in, and conduct research projects and programs and promote equity among grantee institutions in NSF funding competitions” (p. 2). In addition, restrictions imposed by federal agencies, especially USDA and ED, and the requirement of including cost-sharing in the institutional base should be reconsidered.

2. Universities should pursue reinstatement of direct charging of administrative support for research. This will serve researchers well by reducing the time they must spend on administrative tasks and would provide a cost-effective strategy for federal sponsors.
3. Universities must do their part to address the deficit by ensuring non-federal sponsors, including state agencies, pay a fair share of indirect costs and explore ways to ensure transparency in how indirect costs are reinvested into the research infrastructure.
4. Universities should employ accounting systems that accommodate alternate ways to charge and allocate costs to projects, especially those funded by industry, and to also collect systematically all costs associated with research.
5. Researchers and administrators must speak with one voice in representing the value of and need for indirect costs and the exigent need for increased recovery. Educating Congress and legislative staff members on the practices associated with funding research must be a priority.

“Federally sponsored research is fundamentally a partnership between the Federal Government and institutions performing the research” (NSB, 2009, p. 1). As such, it is imperative for both partners to come together and reach agreement on how to maximize research time and ensure proper stewardship of the investment made by our federal sponsors for the benefit of research and the United States’ positioning for global competitiveness.

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The FDP Faculty Burden Survey

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ABSTRACT

To better understand the administrative burdens placed on faculty who perform research, the Faculty Standing Committee of the Federal Demonstration Partnership (FDP) invited 23,325 full-time faculty members who were Principal Investigators (PI) or Co-Principal Investigators (Co-PI) on active federally funded research grants to participate in a web-based survey that contained questions on the nature, size, and impact of the administrative tasks associated with their research projects. The responses of the 6,081 faculty respondents show that the administrative burden on faculty is very significant: 42% of the time spent by an average PI on a federally funded research project was reported to be expended on administrative tasks related to that project rather than on research. This administrative burden does not stem from one or a few exceptionally onerous tasks, but instead reflects the cumulative effect of the many administrative burdens imposed by different funding agencies, different offices within agencies, auditing and accrediting agencies, and academic institutions. The lack of institutional assistance contributes to the administrative workload of the faculty. Many burdens are remarkably constant across funding agencies, universities, disciplines, and faculty subgroups. The report documents the negative effect reported for these administrative burdens on the productivity of researchers, the careers of young faculty members, and the training of students.

INTRODUCTION

Every research administrator has probably heard her or his faculty members complain that the administrative burdens associated with their research are excessive, are often redundant or unnecessary, and decrease their productivity and compromise their ability to do science and teach their trainees. While it might be easy to dismiss this as “the usual faculty whining”, these complaints are based firmly in reality.

Virtually everyone involved in research, including the researchers, understands that research involves both administrative tasks intrinsic to the research itself and essential to ensuring the validity of the research findings, integrity of the research process, and appropriate expenditure of

research funds. Problems, and indeed disasters, can result when carelessness, naïveté, and/or malevolence compromise the safety, ethical, scientific, or fiscal integrity of research projects. The research enterprise must therefore strive to find a balance by establishing oversight processes that adequately protect the integrity of the research but minimize the costs and loss of productivity associated with that protection.

WHAT IS THE FDP?

The Federal Demonstration Partnership (FDP) was created in 1988 to address this problem. Sponsored by the National Academies, the FDP is a cooperative initiative among federal agencies and academic institutions that receive federal funds to support research. The purpose of the FDP is to reduce the administrative burdens associated with federally-sponsored research grants and contracts. The FDP currently has 120 academic members, ranging from large research universities to emerging research institutions. Private and public schools, statewide college systems, medical schools, and health-oriented campuses are all represented. Nine federal agencies are currently members. Five organizations interested in research administration (National Council of University Research Administrators [NCURA], Council on Governmental Relations [COGR], Society of Research Administrators [SRA], Association of Independent Research Institutes [AIRI], and American Association of State Colleges and Universities [AASCU]) are also affiliated with the FDP. The full list of members may be found on the FDP website.¹

The FDP is unique in that each institutional member designates three official representatives: an administrative representative, a technical representative, and a faculty representative. All are encouraged to participate actively in the three meetings held by the FDP each year and in the FDP activities occurring between meetings. The FDP offers a unique venue for faculty members to interact with university administrators and federal agency representatives, to discuss faculty issues related to research administration, and to identify issues and problems that span scientific disciplines, funding agencies, and institutions. Past FDP successes include streamlining the terms and conditions for National Institutes of Health (NIH) grants, developing the “expanded authorities”, piloting increased budget flexibility on NIH grants, and ending the requirement that NIH study section members get individual DUNS numbers and register as government contractors with Central Contractor Registry (CCR). However, many problems and issues remain. The Faculty Burden Survey (Decker et al., 2007) was an important step in identifying and attacking these problems. A summary of the survey findings and a full report on the survey, which includes details of the survey techniques, responses, analyses and conclusions, can be found on the FDP website.¹

THE FDP SURVEY

All 99 of the research institutions that were FDP members in 2005 were invited to participate in this survey. The survey was reviewed and approved by the Institutional Review Board (IRB) at Northwestern University, the PI’s institution. To allow reviews of the survey by IRBs at the participating institutions, the FDP administrative representatives at each participating FDP school submitted the IRB protocol for review (or determination of exemption) at his/her school. The first lesson from the survey was the degree of difficulty involved in the IRB process: some schools could not complete their IRB reviews in time to participate in the survey. Others decided not to

participate. The 73 institutions that agreed to participate in the survey identified 23,325 full-time faculty members who were PIs or Co-PIs on active federally-funded research grants. Invitations, links to the web-based survey and reminders were sent to these individuals in fall 2005. At the close of the survey, 6,081 valid responses had been received.

The survey posed a series of multiple-choice questions about the respondents' academic positions, research roles, area of research, other academic activities, and institutions, in order to obtain demographic information on the responders. They were then asked a series of multiple-choice questions about the nature of their academic activities and time spent on those activities. The respondents next answered more detailed multiple-choice questions about their federally-sponsored research, including area of research activities, time spent on research and related administrative activities, and magnitude of the burden of 25 specific administrative tasks associated with research. The survey also requested descriptions of the level of administrative support received for each of these administrative tasks. In addition, the survey included opportunities for free-form verbal comments so that responders could expand on or explain their responses or provide additional information. Hundreds of comments were received. These verbal comments were used to develop some of the conclusions presented in the survey report. Respondents were assured that their responses and comments would remain anonymous and would not be linked to named institutions. Survey results therefore reflect the information provided by full-time faculty members identified by their participating FDP institutions as engaged in federally-sponsored research, who confirmed via their responses their engagement in such research, and who chose to respond to the survey.

All responders had federal grants: 90% were PIs on at least 1 grant and 10% were Co-PIs; 44% reported multiple roles on different projects. As expected from the general demographics of academic researchers, most identified themselves as male (68%), white (77%) and from large research institutions that offered an array of doctoral programs and included a medical school (71%). Most were in the sciences, although a wide spectrum of disciplines was represented (Figure 1). The rank and status of the respondents included: 22% assistant professors, 24% associate professors, and 54% full professors. Most responders (67%) were tenured; 22% were on the tenure track but not yet tenured. The remainder were either in non-tenure-track positions or at institutions that do not have tenure. Most responders (64%) did not hold administrative roles; those who did were department chairs, center directors, associate deans or faculty administrators. These PIs were supported by a wide range of federal agencies: 49% reported NIH, 32%, National Science Foundation (NSF), and 11%, Department of Defense (DoD) funding; 48% reported funding from other federal agencies (many were supported by more than one agency). The median level of federal funding (total direct cost dollars as PI or Co-PI) increased with increasing rank from \$150,000 for assistant professors to \$260,000 for full professors.

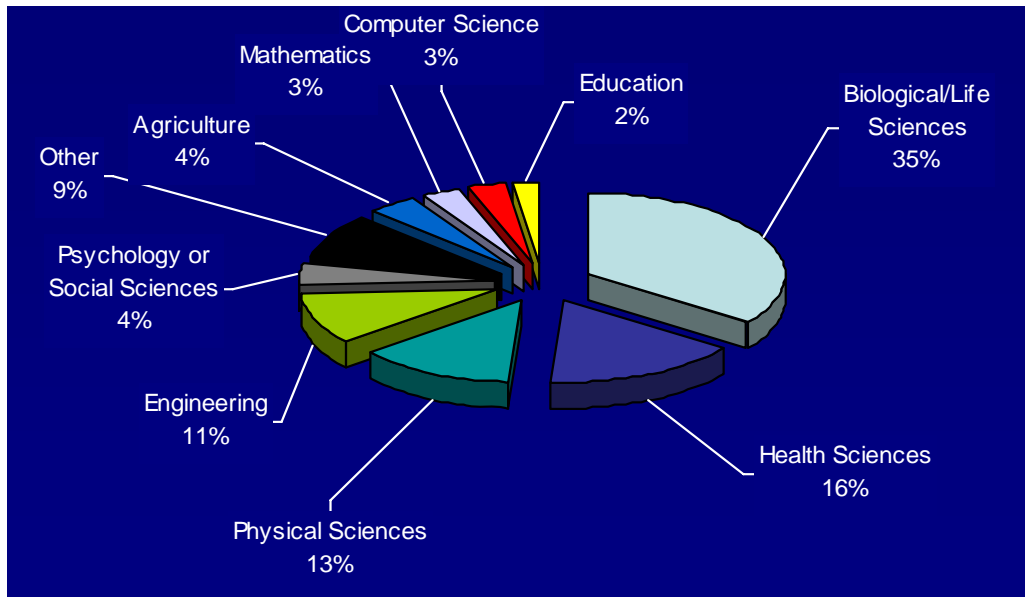


Figure 1. Areas of Responders' Discipline (Decker, 2008; data from Decker et al., 2007)

The respondents reported spending an average of 58% of their time on research (44% actively conducting research plus an additional 14% mentoring students and postdocs who were performing research). Their remaining time was spent on teaching (20%), professional service (e.g., grant and manuscript reviews, work with professional societies, and work on compliance committees) (8%), other service (e.g., clinical, departmental and university service) (11%), and other duties (3%). The survey focused on the time that these faculty devoted to their federally sponsored research and on the administrative burdens associated with those federally sponsored research projects.

Findings from the FDP Survey

For their federally-funded research projects, the faculty were asked to estimate the percentages of their time devoted to research (including mentoring of trainees performing research on the project, designing studies, active research, data analysis, writing and publishing papers, and presenting research results), pre-award activities (including budget preparation, applying for and obtaining regulatory approvals, protocol development, and preparing safety/security plans) and post-award activities (including purchasing supplies and equipment, managing personnel, complying with regulations, monitoring safety/security, and writing reports for the funding agencies). The most important finding is that, on average, faculty reported spending 42% of the time allocated to their federally-sponsored research projects on administration activities related to those projects, rather than actual research activities. This means that the time available for these PIs to perform research and to guide young researchers working on the project was only 58% of the time funded by the agency. The direct cost of this administrative burden is high. If our respondents spent 42% of the time supported by their grants on administrative tasks, one can estimate from their reports of the total time spent on this research, and published data on typical faculty salaries for the period, that

a total of \$97,000,000 in PI/Co-PI salary support was actually spent on administering these grants, rather than on research (Decker, 2008).

Remember that this survey considered only project-related, grant-funded administration performed by the responding PIs and Co-PIs. It did not include administrative tasks performed by other faculty supported by the grant, laboratory staff and trainees supported by the grant, institutional administrative staff, or the PI under support from other funding sources. Moreover, it does not consider other research-related administrative tasks that are not project-specific and therefore cannot be charged directly to federal grants. It therefore excludes writing and submitting new and competitive renewal applications, service on study sections, service on institutional compliance committees (IRB, Institutional Animal Care and Use Committee [IACUC], safety committees, etc.) and attending general research-related administrative training sessions.

The remaining questions in the survey examined 25 specific administrative burdens to assess their impacts on the faculty responders. Faculty members ranked each burden on a scale ranging from 1 (none) to 5 (a great deal). The survey also asked faculty members to describe the level of administrative support received for each of these administrative tasks, with 5 possible rankings ranging from 1 (none) to 5 (complete assistance, someone else does this for me). The numerical scores for each of the 25 potential burden categories were analyzed to determine the average magnitude of each burden for all respondents and also for only those respondents who reported incurring the specific burden. The data were also analyzed to determine how the 25 burdens varied for different funding agencies, for different institutions, for different areas of research, and by the rank, gender and ethnicity of the faculty members. The survey findings are summarized here; the details can be found in the FDP report (Decker et al., 2007).

Greatest Administrative Burdens. Averaged across all respondents, including those who reported no burden in a specific area, the top administrative burdens (in order of decreasing average magnitude) were:

1. Grant progress report submission
2. Personnel hiring
3. Project revenue management
4. Equipment and supply purchases
5. IRB protocol approvals and training
6. Training personnel and students
7. Personnel evaluations

However, if human subjects or animals were used in the research, then IRB or IACUC became the #1 administrative burden for that investigator. When only those who responded that they had some burden in a specific area were included in calculating the size of that burden, the burdens that received the highest ratings were:

1. IRB protocols and training
2. IACUC protocols and training
3. Training personnel and students
4. Grant progress report submission

5. IRB compliance issues
6. IACUC compliance issues
7. Personnel hiring
8. Project revenue management
9. Health Insurance Portability and Accountability Act (HIPAA) compliance
10. Subcontracting and collaborations
11. Safety planning and monitoring
12. Equipment and supply purchases

This ranking shows the importance of those administrative burdens that are most closely associated with the performance of the research in determining the total administrative burden on faculty.

Variations in Administrative Burdens. Some burdens were remarkably consistent across all funding agencies, all types of academic institutions, all research disciplines, and all faculty demographics. For example, the mean burden for grant progress reports was 3.32, and the extremes of the values for all subcategories examined were 2.94 and 3.51. The burden of this task was similar for all agencies, all universities, and all faculty subgroups. In contrast, some burdens varied dramatically. The average burden for patents and copyright applications was only 1.46, implying that most respondents reported no burden (a value of 1); however, the mean burden level assigned by engineering faculty was 3.58.

Many tasks, such as progress reports, personnel hiring, and project revenue management, were uniformly burdensome across all funding agencies. Other burdens varied significantly with the funding agency (Table 1). Some agency-to-agency variation reflects differences in the research disciplines funded by different agencies. For example, administrative tasks associated with human subjects' protection rose to the top of the list of onerous burdens for those agencies frequently funding research with human subjects. Other agency-to-agency differences, such as those seen for effort reporting, subcontracting, and purchasing (Table 1), may suggest areas in which the good practices of some agencies might be used as models to improve procedures at other agencies.

The burdens associated with some tasks varied by faculty demographics (Table 2). Some of this variation reflects inherent differences in the tasks associated with specific disciplines. For example, the three tasks related to the protection of human subjects were all rated as highly burdensome by researchers working in psychology, the health sciences, and the social sciences, but were less burdensome to those whose research was in other areas. Patents and copyrights were a large burden primarily for engineers. Other variations according to discipline may reflect differences in the requirements and procedures of the federal agencies funding research in different areas.

Table 1. Variation in the Severity of Specific Burdens by Funding Agency

Funding Agency with High Burden	Administrative Burden
The top three overall burdens were the same across all funding agencies	Grant progress report submissions Personnel hiring Project revenue management (all but DOC)
DoD, DOE, DOI, EPA, NASA, USDA	Equipment and supply purchases
EPA, ED, DOC, DOI	Subcontracting and collaborations
ED, HHS, NIH	IRB protocol approvals and training
HHS, NIH	IRB compliance issues
HHS	HIPAA compliance
DOC, NIH	IACUC protocols and training
DOI	Cost accounting
NIH	Training personnel and students
USDA	Time and effort reporting

Note: The burdens shown are those for which an average burden ≥ 2.7 was reported by the respondents receiving funding from that agency (data from Decker et al., 2007).

Overall, junior faculty and non-tenured faculty reported significantly greater administrative burdens than senior faculty (Table 2). In addition, women and minority faculty members reported significantly greater administrative burdens than other faculty subgroups (Table 2). These reports may in part reflect a lower level of institutional support for the research efforts of junior faculty, non-tenured faculty, women, and minority faculty, because respondents in these PI subgroups also reported lower levels of administrative support for their research from their institutions. This finding agrees with those in other reports which show that levels of institutional support and administrative support often vary by academic rank, ethnicity and gender (National Academy of Sciences, 2007).

Many administrative burdens, such as grant progress reports, varied remarkably little across different schools. Other administrative tasks exhibited greater variation from institution to institution (Figure 2). Faculty at medical schools reported more burdens and a greater cross-section of burdens than faculty at other types of institutions. Faculty at emerging research institutions (schools receiving less than \$10 million/year in federal funding) reported greater administrative burdens, reflecting the lack of institutional support for research at these schools. Faculty at private and public universities appeared to have different spectrums of burdens. Faculty at public institutions reported significantly greater burdens related to financial administration than faculty at private institutions, while faculty at private institutions reported greater burdens for administrative tasks closely associated with the research process (IRB, IACUC, HIPAA, laboratory safety, chemical inventories, Conflict of Interest [COI]).

The implications of some variations between schools are unclear. For example, the variation in IRB-related burdens shown in Figure 2 could reflect the development and implementation at some schools of streamlined procedures for submitting and reviewing IRB protocols, or it could simply

reflect differences in the spectrum of research occurring at the different schools (e.g., invasive, potentially high-risk medical protocols at some institutions, contrasting with a predominance of low-risk survey studies at other schools). Because the IRB protocol under which the Faculty Burden Survey was performed required institutions to remain unidentified, in order to protect faculty from potential retribution, specific schools cannot be identified and contacted to examine the basis for these variations.

Sources of Administrative Burdens. There is no single reason for the administrative burden on the faculty—the cumulative burden comes from many sources. The faculty recognized and commented on the fact that some administrative burdens are inherent in the research process and could never be eliminated. Other administrative burdens result directly from federal regulations. Additional burdens are created by differences in the interpretation or implementation of these regulations by different federal agencies, and sometimes even by different offices within individual agencies. Universities increase the burden by adding other requirements and by using non-optimal approaches to implement administrative tasks. Universities often appear to be driven to “go beyond the regulations” by audits, fears of audits, and the differing interpretations of different auditors (different auditors from the same agency as well as auditors from different agencies). Even more burdens are derived from the requirements of local and state governments, the requirements of accrediting agencies such as the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC) and the Association for the Accreditation of Human Research Protection Programs (AAHRPP), the actions of advocacy groups, and the activities of other external agencies.

Variations in the requirements and procedures of different institutions multiply the burdens for PIs of projects such as multi-center clinical trials and multi-component research projects that span different institutions. The distinct requirements of the Veterans Affairs (VA) system create considerable duplication of compliance efforts and greatly increased burdens for those PIs whose research projects involve patients and/or facilities at a VA hospital as well as its affiliated university.

Some of the burden borne by faculty members results from a lack of institutional support. Faculty reported very low levels of institutional support across all administrative tasks, with only financial tasks reaching average scores as high as “some assistance”. Faculty reported the most assistance with issues such as payroll, budget transfers, cost accounting, cost sharing agreements, and project revenue management. They reported the least assistance with administrative activities closely related to their research, such as COI monitoring, grant progress reports, patent and copyright applications, intellectual property applications, and burdens related to the use of human subjects or animals. The effect of the lack of institutional support is illustrated by the ranking on personnel evaluations: faculty ranked this as the seventh most burdensome task, and also noted receiving the second lowest level of assistance in performing this task (between “no assistance” and “very little assistance”). Variations in institutional support by discipline, institution, faculty rank, ethnicity, and gender were evident in both the numerical ratings and faculty comments.

Table 2. Variation in Severity of Some Specific and Highly Variable Burdens by Faculty Subgroup

Burden	Faculty Subgroup(s) Ranking Burden as Large
IRB protocols and training	Psychology Social Science Education Private schools Medical institutions Not on tenure track On tenure track, not tenured No tenure system Women Underrepresented minorities Assistant professors Associate professors Faculty with administrative roles
IRB compliance issues	Clinical faculty Health sciences Psychology Education Medical institutions Not on tenure track No tenure system Women
HIPAA compliance issues	Clinical faculty Health Sciences Medical institutions
Patent and copyright applications	Engineering
Subcontracting and collaborations	Engineering Education
Training personnel and students	Biomedical/life sciences Medical Institutions Asian/Pacific Islanders Underrepresented minorities On tenure track, not tenured Assistant professors
IACUC protocols and training	Biomedical/life sciences Medical Institutions
Safety training, planning, and monitoring	Biomedical/life sciences Asians/Pacific Islanders

Note: Faculty subgroups shown are those for which the average ranking for that subgroup was ≥ 2.7 . Data from Decker et al. (2007).

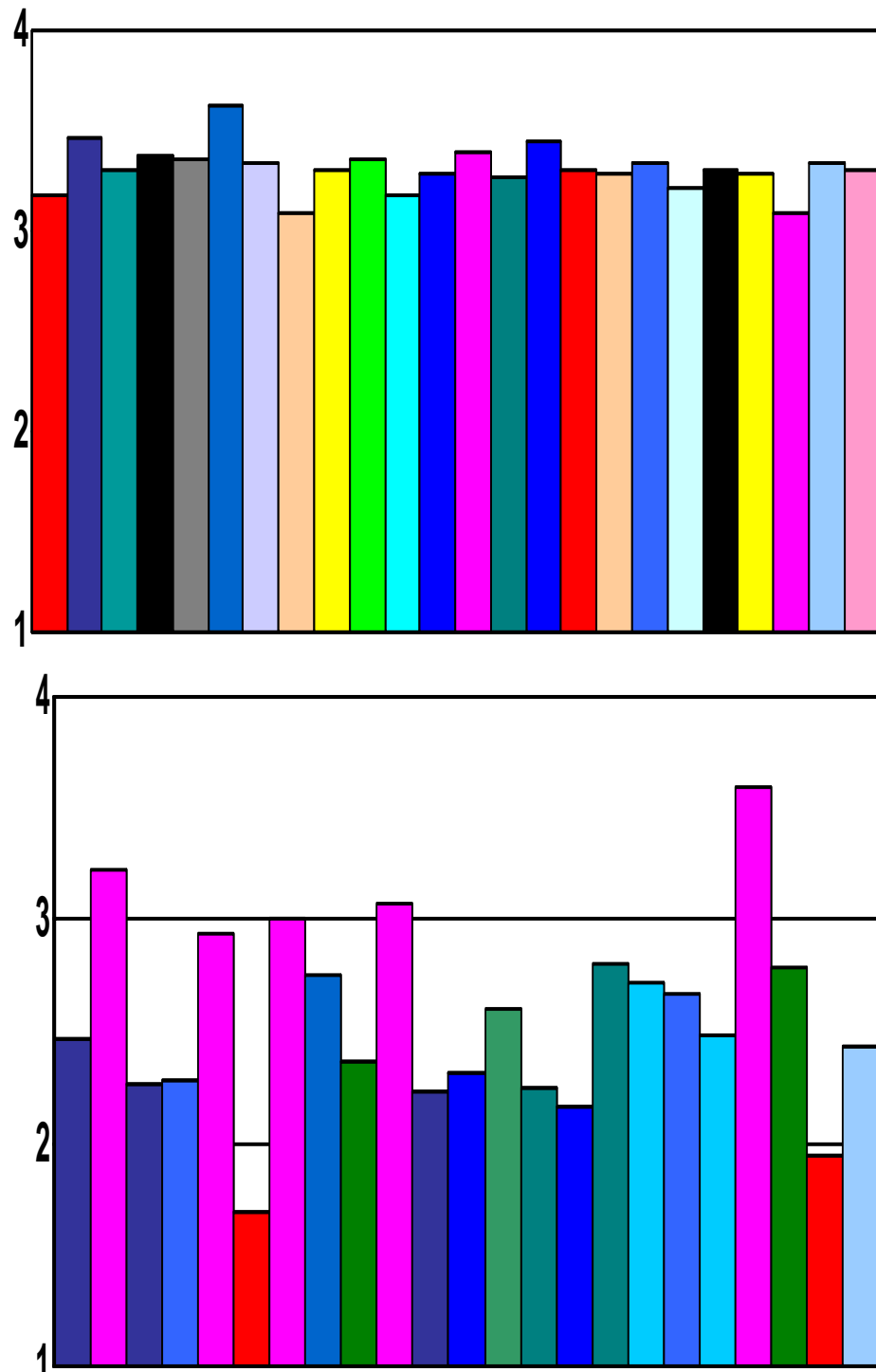


Figure 2. Variation across Schools in Average Burden Reported for Grant Progress Report Submissions (top) and for IRB Protocol Approvals and Training (bottom)

Note: There is little variation between schools in the burden associated with progress reports, but large variation for IRB protocols. 1 = “no burden”. 5 = “a great deal”. Averages shown include those who reported no burden for the specific task. Bars represent different schools (only schools with more than 100 respondents are shown). Redrawn from Decker et al. (2007).

An overwhelming 97% of the faculty reported that some of the time they spend managing federal grants could be conducted effectively by administrative personnel. It should be noted that these individuals would not be secretaries, but rather highly trained project managers with expertise in the area of the research. With more support for project management, 65% of the faculty believed they could devote at least 3–4 additional hours per week to research and 20% felt they could spend an additional 7 hours or more to research each week. Many faculty (75%) would be willing to allocate direct costs from their grants to pay for such assistance if this were allowed.

While the ultimate responsibility for the oversight of a research project rests with the PI, many routine administrative tasks could be performed equally or even more effectively by others working under the PI's supervision. The possibility of and mechanisms for allowing more delegation of these routine administrative tasks to project managers and other appropriate administrative personnel should be explored by universities and funding agencies. There are significant cost savings, as well as efficiencies, to be gained through such delegation, because the staff salaries would generally be much lower than the salaries of the faculty now performing these tasks. Discussion of this possibility is currently a focus of activity at the FDP.

Overall, 84% of the faculty reported that the administrative burdens associated with their research had increased in recent years. This reflects multiple factors, including the increase in the complexity of the documentation associated with federal compliance mandates in areas such as financial management, animal care and use, COI, and human subjects' protection as well as a general decrease in the secretarial and administrative support available to university faculty.

A hidden factor contributing increasingly to the administrative burden on faculty is the expanding use by both universities and federal agencies of web-based administrative systems. Many of these require the PI to personally log onto password-protected systems on a regular basis to retrieve information about their research projects and to enter routine, repetitive information about those projects. These systems transfer to the PI routine information-management tasks that were once delegated to others. The poor performance and unreliability of all-too-many of these web-based systems needlessly add to the faculty's administrative burden. The impact of these web-based systems also extends to areas of faculty burden not covered in the Faculty Burden Survey. The systems now used by many agencies for the submission of grant applications require action from the PI at critical moments during the submission process and do not allow delegation. Most web-based grant review systems require reviewers to personally download the applications to be reviewed and to personally upload their numerical scores and reviews, and do not allow delegation of these time-consuming information-transmission tasks to an assistant.

These "improved" web-based systems have benefits to funding agencies and universities, but they also require faculty members to perform data entry and retrieval tasks personally, in those physical locations where fast, reliable, secure Internet connections, and high-speed computers are available. Non-optimized user interfaces, the use of incomprehensible administrative terms and coding systems, slow processing of information by central servers, system failures, and connection failures all produce major, and unnecessary, burdens for faculty using these systems. The costs of the increased involvement of faculty in routine information management tasks, including the resulting decrease in faculty productivity, should be considered whenever funding agencies and academic institutions assess the cost/benefit ratios associated with the use of web-based systems for grant submission and review, compliance reporting, or project management.

The number of occasions on which “training” is cited as a burden by faculty respondents to this survey should likewise raise cautionary flags. In this context, “training” does not include the critical faculty activities of teaching, mentoring, and guiding their trainees as they perform their research. It includes only the compliance training courses and certifications needed to satisfy compliance requirements. While everyone would agree that appropriate training in many areas is needed to ensure the safe and responsible conduct of research, the author suspects that virtually all researchers can readily identify areas in which their own training and certification requirements long ago passed the point where they added value and became merely continuing, annoying burdens. Similarly, maintaining the training, retraining, certification, and re-certification records of the research team has become a major burden for PIs. Considerations of the need for additional training modules and for annual retraining sessions should give greater regard to the costs of the faculty’s time and to the true educational value of the “training”, and should acknowledge that the benefits derived from a yearly retraining module decrease every year that the researcher retakes the identical module. We must ask ourselves when retaking an annual course ceases to be “training” and instead becomes only “administrivia” that satisfies a compliance requirement but provides no educational or practical benefit.

CONCLUSION

In conclusion, the FDP Faculty Burden Survey shows that faculty members who serve as PIs on federally-sponsored research report that they actually spend 42% of their federally-funded research time performing administrative tasks related to that research. This does not result from any single readily-identifiable and unreasonable burden that might easily be reduced or eliminated. Rather, the pressure comes from many sources, producing “the death of a thousand cuts”. Solving this problem will therefore require a coordinated effort from government agencies, auditing and accrediting agencies, universities, and researchers.

Real and very significant costs are associated with the administrative burdens on faculty. These costs are divided among the stakeholders in the research enterprise. The federal sponsors pay some: 42% of the salaries they pay to PIs and Co-PIs through their grants actually pays for time spent by the PIs on performing administrative tasks directly associated with those projects. Reducing these administrative tasks would allow researchers to perform more research with the effort funded by the grants. This would be a valuable outcome in a time of limited federal resources. The universities bear some costs because the efforts of their faculty are diverted from other, more meaningful, teaching and research activities in order to perform data entry and data retrieval tasks. Society bears a cost when the efforts of talented, highly educated scientists and physicians are diverted from research and teaching to perform routine administrative tasks. The faculty themselves bear the cost of excess administrative burdens that impact their lives and families.

Because the administrative burdens on women and on minority faculty members are greater and the level of administrative support for these faculty members is lower, as described above, administrative burdens have disproportionate impacts on women and minorities and thus create barriers to improving diversity in the scientific workforce. The administrative burdens also disproportionately impact junior faculty, thereby discouraging these young researchers from remaining in academia and endangering the future academic workforce. The administrative

burdens also divert faculty time from their trainees and affect the training of future scientists. In this survey, 62% of the respondents felt that students were less likely to pursue academic careers now than in the past. The faculty comments noted multiple reasons for this, but to quote one faculty member during a discussion of this problem at an FDP meeting, “They’ve seen what we *really* do and they don’t want to do that.”

There is great gain to be obtained from reducing or eliminating unnecessary administrative burdens, especially those burdens that can be minimized by streamlining cumbersome procedures, harmonizing duplicative requirements, or reducing onerous administrative burdens associated with activities that pose only minimal risk. Potential gain could be derived from identifying and replicating best practices at different funding agencies and at different academic institutions. Potential gain would stem from harmonizing the requirements of different funding agencies, different auditing and accrediting agencies, different academic institutions, and different offices within agencies and universities. The negative impacts of non-optimal web-based systems that require the PI to perform routine data entry and retrieval tasks should be considered. The real educational value of training and retraining modules and the costs of the time required to take them should be considered in determining whether their cost/benefit ratios are reasonable. Savings could also accrue from providing faculty with adequate administrative support for their research projects.

In a time of limited resources, efforts to reduce unnecessary expenses associated with research and to improve the productivity of the research enterprise should be a top priority for everyone involved in research and research administration. Reducing the administrative burden on the faculty who perform research would accomplish both goals.

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ENDNOTE

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