

## Reprint 1987: Research Administration in a Time of Change

Edward N. Brandt

### Foreward

If you removed the dates and the referenced NIH increased funding, this article rings as true today as it did thirty years ago. The world's universities continue to serve as an unparalleled knowledge generator, solving some of our most difficult questions. Yet, as the pace of research seemingly quickens each year, and correspondingly its administration, it is useful to turn back the clock and see from where we came.

As the author suggested, we, as research administrators, focused considerable time and attention to the issues of protecting researcher time, promoting interdisciplinary research, determining efficient facilities use and sharing, creating effective accounting systems, and planning the growth of our research enterprises. Yet, our field is ever expanding into other areas, such as information security and scientific misconduct. Thirty years ago, the thought of a multi-faceted class of professionals dedicated to the efficient and effective management and administration of research would be an unrealized dream of a stalwart few, yet, here we are.

I wonder what the next thirty years will look like and, when we arrive, what Journal article will we look back upon and realize that the path forward was laid out before us the entire time.

— Tim Linker, JRA Editor-in-Chief

**Abstract:** *The field of biomedical research has undergone several changes in recent years. These include increased funding, the rapid development in scientific knowledge which speeds up the obsolescence of equipment, facilities and knowledge and the growing complexity of scientific problems. Research administrators can take steps to address these changes such as encouraging interdisciplinary research, making optimum use of resources and developing accounting systems for resources.*

Change. It is a very small word...only six letters...and yet, the meanings connoted arouse great emotions, including fear, anxiety, and occasionally great enthusiasm. Like all people, those of us involved in biomedical research are full of paradoxes. We deal in change virtually every day. New discoveries, new insights into biological processes, and scientific advances are the life blood of our activities. Yet, change that is not under our control is strongly resisted. Unfortunately, there is a lot of that.

Let me just review a few of the changes going on in the world around us.

First, the last 5 years [1981-1986] have seen massive increases in funding for biomedical research. Indeed, the NIH budget alone has risen over 50% in the past 5 years. That amounts to nearly \$2.5 billion more funds available than in 1981. Yet, at the same time, we have seen competition for those funds also increase dramatically. In fact, at a higher rate. As a consequence, the

percentage of submitted proposals deemed to be of scientific merit that are funded drops each year and is now at about 25%. This competition forces investigators to spend a great deal more time developing proposals and creates increased pressures to produce quickly.

Second, the rapidity of advances in scientific knowledge and understanding leads to more rapid obsolescence of equipment, facilities, people, and knowledge. Such changes lead to a greater need for some flexible funding to maintain up-to-date scientific equipment and facilities as well as the ability to send faculty on sabbaticals for retooling of their skills.

Third, scientific problems are becoming more complex...demanding more and more interdisciplinary efforts. Yet, most of our institutional reward systems, including promotions, tenure and pay increases, are based upon individual efforts, not team efforts. Since most of our people have grown up in such reward systems, they have little or no experience in interdisciplinary research and, therefore, are reluctant to engage in it. Yet, that is where the action is.

Fourth, various components of our society are demanding greater accountability via regulation of what we do. Hence, all of us are involved in adapting to new regulations with respect to human experimentation, legal efforts to restrict animal experimentation, more rigidity in personnel rules, and similar steps. These efforts, of course, detract from the research activities.

Fifth, we are seeing new arrangements for biomedical research, including joint ventures with profit-making corporations and, indeed, corporations being developed by universities. These new arrangements have caused us to re-examine our concepts of conflicts of interest, communication of research results, and other aspects of the research environment.

Sixth, a new phrase has been added to our lexicon, namely, scientific misconduct. Whether the increased frequency is real or apparent, it has become a problem that must be faced. I first became involved with this while in Washington, and cases began to surface. At first, most of us felt that we were only seeing a few aberrant cases, but as the situation became more public, I was stunned at the number of investigations we were forced to undertake largely due to reports from scientists in academic institutions. Some of the more prestigious medical journals in the world have found it necessary to retract publications. Now, most academic institutions have policies in place to deal with something that was virtually unheard of 10 years ago. Those that don't have such policies should develop them. The reported occurrences have called into question the whole concept of peer review of scientific research. At least one journal now requires signed verification of the involvement of co-authors, and a conference will soon be held to explore better ways to ensure that articles published in our journals are valid reports.

Yet, some still say that scientific misconduct is not a problem; rather, a few people are making too much of a few instances. One can only wonder how many cases constitute a problem - one? - two? - three? - more? The acceptance of scientific results by the public is based upon credibility, and I would argue that one case is too many. It is our responsibility to initiate the steps necessary to prevent more.

Other things could be added to this list. The point is that the research environment is undergoing great change and that change is leading to confusion, uncertainty, and confrontation. An

enormous amount of creative energy is being wasted in this environment.

The fundamental question is, what can we do about it? In my opinion, persons charged with the responsibility of administering and leading research endeavors - whether they be in universities, research institutes, or industry - must become aggressive in their efforts. I would suggest the following.

First, we must not lose sight of the fact that our research enterprise is built on brains and hard work. Those individuals who have the talent and expertise to advance our knowledge must be given the opportunity to do so with a minimum amount of interference. We must find ways to protect them from all of these outside pressures while, at the same time, insisting that they be accountable in their efforts. That is difficult but essential.

Second, we must structure our programs to encourage interdisciplinary research. That means taking a fundamental look at our reward systems and providing whatever training and incentives are required to accomplish this. There is no set way to do this. Indeed, there are many ways to accomplish it. For example, one can have a loose collection of investigators, each of whom is working on their own research but who meet periodically to evaluate what is going on, to explore new directions for this research, and to see how their results fit together. At the other extreme is the formation of a team which makes assignments to each of the members to accomplish a goal.

The important message is that whatever the research problem, it now encompasses more than one discipline. Consider AIDS, heart disease, trauma, or any other modern problem in medicine. None of them are strictly biochemical, physiological, or the sole province of any one discipline.

Third, we must make maximum use of our resources. In my judgment, that means joint use of research equipment and other components of our facilities. When I first became heavily involved in research in the 1950s, I maintained my own animals in my own facilities, had all of my own research equipment, handled my own grants, and in short, had a totally independent operation. I was involved in computers with my own grant and my own computing equipment. Now, however, we share animal resources which are staffed by people trained in the management of research animals, and we depend heavily on central libraries, central computer facilities, and a host of other things. Yet we still insist that our laboratories be completely equipped even if we only use the equipment an hour or so a day. I have no doubt but that the funding agencies which are already taking steps to end this practice will end it. We need to be ahead of them so that we can influence their policies and directions to benefit our situation. If we do not develop our own approaches to these problems, we will have solutions imposed upon us.

Fourth, we must develop very effective accounting systems dealing with our resources. We need to know the age and repair history of all research equipment, especially the more expensive items; the training levels and experiences of technicians so that they can be transferred into places where they can be more productive; complete knowledge of research space, including air handling, electrical, and other aspects; and so forth. In that way, we can begin to predict replacement and upgrading costs for the future and begin to make the necessary plans to allocate our research accordingly.

Finally, we need to become experts at strategic planning for research. Most institutions will not be capable of developing research enterprises in all areas. The question is, which areas shall each institution develop? By developing great expertise in a few areas, we will make greater contributions than simply trying to cover the waterfront. That seems obvious but I know of very few institutions that do this sort of planning well. Again, during my time in Washington, I saw institutions that had numerous grants that were approved and unfunded in a wide variety of areas. Many of these grants were not funded because the reviewers felt that there was not an adequate critical mass or not enough of a commitment from the institution to warrant the allocation of funding to a particular proposal. Some institutions interpret this as a bias, but as a taxpayer, I found it a prudent way to solve research problems. After all, you have to realize that the NIH and ADAMHA and other granting agencies are not in the business of sustaining institutions. They are in the business of stimulating and funding the solution to health problems that plague Americans. That is their mission, and our society has wisely chosen to do this by involving a wide variety of institutions rather than simply developing governmental laboratories as is done in many other countries. Hence, federal funding agencies are held accountable on that basis and not on the criteria of whether a particular university was able to develop a biochemistry department.

This is the most exciting time in medicine that I have ever seen. Not only are we faced with great change in the scientific environment, we are also seeing great change in the health care environment. Let me remind you that academia is responsible for most of these changes. If we had not been so successful in advancing medical science, we would not be faced with the kinds of problems that we now face. Given the choice, I will accept the present situation. I have no doubt but that we can deal with the current problems. One approach is to just muddle along and hope to survive. That, however, does the country no good, our faculties no good, our students no good, and most of all, it does no good for those people whose hard-earned tax dollars are being spent in the hope that the results will improve their quality of life.

Effective research administration is important, indeed vital, if this country is to have a strong, productive medical research program. That we will cope with the current stress, I have no doubt, but each of us must participate

### **Editor's Note**

This article, originally published in the Fall 1987 issue of the SRAI Journal and was subsequently reprinted in Fall of 1997, is based on a presentation at the Northeast Section meeting of the Society of Research Administrators International in Baltimore, Maryland, May 1987.