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by Stephen P Hoffert

PROFESSION

Proposal Writing Specialists Offer Suggestions For Success

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The odds of writing a successful grant proposal are long these days. The Office of Extramural Research of the National Institutes of Health reports that the number of competing grants applications rose sharply—from 20,406 to 25,510—between 1985 and 1994. But the number of awards actually decreased from 6,752 in 1985 to 6,474 in 1994. Now more than ever, researchers applying for grants face intense competition.

Professionals who help researchers write grant proposals say there are several things to do to improve your chances of winning funding. They point out some common mistakes that are easily corrected and greatly improve the quality of the proposal. Moreover, investigators who want to hone their grant proposals can find help from several sources.

Grant proposal writing specialists identify several pitfalls that can reduce an applicant's chances of getting funded. Investigators—especially those who are less experienced—often provide too ambitious a proposal and fail to provide enough evidence that they can complete the research project, according to Janet Rasey, a professor of radiation oncology and director of the research funding service at the University of Washington.



FIVE ENTIRE DAYS: Janet Rasey, director of the research funding service at the University of Washington, estimates that an NIH grant proposal takes on average 120 hours of writing time.

"First and foremost, [funding agencies] want to fund research projects that can deliver results," Rasey says. "While reviewers may be impressed with the scientific ambition of the investigator, no one wants to fund an enormous project that cannot be completed on time and within the budget constraints." In such cases, she suggests breaking such projects down into several more simple and focused projects.



REFINEMENT: NIAID's Stanley Oaks says investigators must take time to hone their grant applications in these competitive times.

But merely having a proposal that can be completed given certain time and budget constraints does not guarantee funding. Rasey says proposal writers must provide ample evidence that the research team is qualified to complete the project and has some experience with the investigation to be done. The best ways to establish research credentials and to gain the confidence of reviewers is to provide the preliminary data that inspired the project or suggested the hypothesis.

Investigators often make the mistake of providing incomplete biographical sketches of key collaborators and specialists who will work on the project, according to Stanley C. Oaks, scientific review administrator at the National Institute of Allergy and Infectious Diseases. "While the failure to provide

this information will not automatically doom the proposal, it makes it difficult to determine if the research team is qualified to do the work and if a conflict of interest exists," he says. "In today's funding climate, you need to take every measure you can to prove the credentials of your research team."

One common problem in a grant proposal is a poorly focused and written research plan, according to Liane Reif-Lehrer, president of Erimon Associates, a Boston-area grant-writing consulting firm. Despite their extensive education, many investigators are unaware that a disregard for precise language can lead to miscommunication with dire consequences for the grant proposal. For example, Reif-Lehrer relates one case in which a researcher wrote "lightly anesthetized animals" in a proposal to convey to reviewers that he would treat animals humanely. But some reviewers misinterpreted this to mean that the animals would not be adequately anesthetized and, therefore, were being mistreated. The application was returned without review based on ethical considerations, she explains.

"In my experience reviewing grants for an NIH study section, I have seen proposals rejected because the investigator did not clearly convey the purpose, plan, and significance of the proposed research project," Reif-

Lehrer says.

According to Rasey, these problems could be caught and remedied if the writer would take time to circulate the proposal to colleagues and mentors. "Many scientists are afraid of receiving criticism from scientists close to them," she says. "But these are the people who are really qualified to judge if your research proposal is realistic, if the budget is fair, and if your work makes a significant contribution to scientific knowledge. It is better to hear criticism from peers than from a grant committee also handing you a rejection notice."

Many resources exist that can help make the process of writing a grant proposal much easier for scientists. While they cannot replace the one part inspiration and 99 parts perspiration that make great research, they can offer tips to help increase the chance of winning funds.

Matchmaking

The first step in obtaining a grant is to find a funding source that is interested in your research project, according to Liane Reif-Lehrer, president of Erimon Associates, a Boston-area grant proposal writing consulting firm. "It does not matter if you idea is brilliant," she explains. "If the funding agency is not interested in the research, your proposal will not be funded."

A variety of Internet sources can help you locate an appropriate source of funding. The *Federal Register* and *Catalog of Federal Domestic Assistance*, both considered encyclopedias on federal funding sources, can be accessed on the Internet, respectively, at www.access.gpo.gov and www.gsa.gov.

Stanley C. Oaks, scientific review administrator at the National Institute of Allergy and Infectious Diseases, suggests that investigators competing for National Institutes of Health grants carefully decide which branch of NIH would be most interested in the research project. This requires determining which particular study section of the various NIH branches handles your research area. A complete list of study sections and a history of NIH-sponsored research is found on the Computer Retrieval of Information on Scientific Projects (CRISP) database. Both can be accessed at www.pnl.gov/nss/nih.html.

Read The Book

A number of books detailing the grantwriting process also are available. *The 'How To' Grants Manual: Successful Grantseeking Techniques for Obtaining Public and Private Grants* (Phoenix, Ariz., Oryx Press, 1995) by David G. Bauer, director of educational

resource planning at the University of Alabama, Birmingham, is now in its third edition. The 248-page book assists investigators in writing applications and redefining grant proposals to expand their base of possible funding sources. The book comes in three parts, two of which are devoted exclusively to finding private and public funding sources.

More general advice on getting funded is found in *A Ph.D. Is Not Enough: A Guide To Survival In Science* (Reading, Mass., Addison-Wesley Publishing, 1993), by Peter J. Feibelman, a physicist at Sandia National Laboratories. In it, Feibelman provides a chapter on general strategies for writing grant proposals. "Most books on grantwriting tend to be technical and focus on the nuts and bolts of grantwriting," Feibelman says. "I wanted to provide something more philosophical which will help young scientists learn what it means to be part of the scientific community."

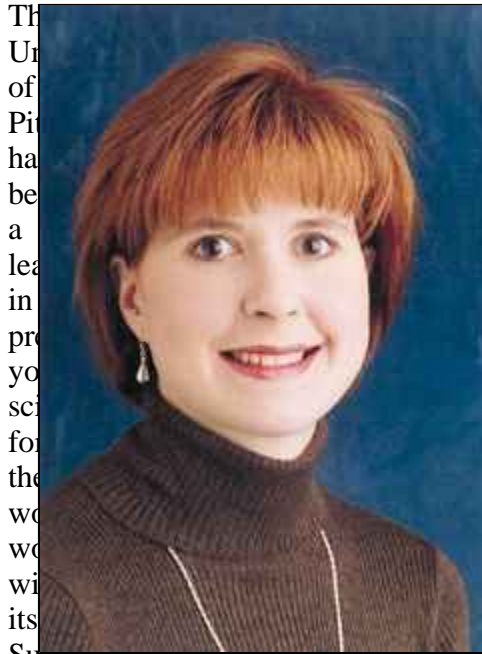
See The Movie

But Erin Woods, a grant proposal writing consultant based in Stevens Point, Wis., notes that books on proposal writing sometimes exceed 200 pages and may be too detailed for beginners. In order to provide investigators with more streamlined and interactive instruction, she developed a series of videos and instructional material for writing grants, spotting funding trends, and developing long-term research strategies. Reif-Lehrer also offers a video, *Getting Funded: It Takes More Than Just a Good Idea*, and book, *Grant Application Writer's Handbook* (Boston, Jones and Bartlett Publishers, 1995). Information on Reif-Lehrer's products can be obtained by calling (800) 832-0034. For information on Woods's video, call (800) 341-9757.

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Finding time to revise a grant proposal is often difficult for investigators already engaged in research and saddled with university teaching loads. Rasey estimates that a typical NIH grant proposal requires at least 120 hours of writing. "Of course, this is just an estimate for the time you will spend actually writing the proposal," she notes. "You can't begin the proposal 120 hours before the deadline. You need to work months in advance if you want to circulate the draft and improve it."

In hopes of improving investigators' proposals and easing their workloads, many large research universities provide in-house reviewing services through their offices of research administration. The University of Michigan, which led United States academic institutions in research expenditures in 1993, provides a staff of more than 40 grant specialists in its division of research development and administration. The University of Washington, which ranked in the top 10 in research expenditures, provides similar support for researchers through its research funding service.



SPREADING THE WORD: Beth Fischer, codirector of the University of Pittsburgh's Survival Skills and Ethics Program, helps to coordinate a "trainer-of-trainers" program on grantsmanship and professional skills for scientists.

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than 12 years ago within the department of neuroscience, the program provides intensive training for new faculty and graduate students on how to write successful grant proposals. Funding from the National Science Foundation and the National Institute of Mental Health has led to the creation of the "Trainer-of-Trainers" program, in which participants from other universities are prepared to start their own professional development and grantsmanship programs. Since 1995, representatives from large research institutions like the George Washington University Medical Center and the University of California, San Diego, have attended, according to the program's codirector, Beth A. Fischer.

Erin Woods, a proposal writing consultant based in Stevens Point, Wis., has begun a program in which students are instructed on grantsmanship through an interactive video and practice by writing real proposals for various conservation groups in the Midwest. "Seminars can be highly rhetorical and difficult to absorb for beginners," Woods says. "My training focus has turned more to interactive tools like videos, where students are more in control of the pace of instruction."



TOOL FOR NOVICES: Proposal writing consultant Erin Woods says beginning proposal writers tend to benefit from more interactive training.

Despite the number of available programs that teach basics, the best way to learn about grant writing is through experience. "Proposal writing is a practical skill," Reif-Lehrer says. "Until you have to write a proposal on which your professional survival depends, it is hard to integrate all of the advice you are given."

Although investigators at large institutions often can enlist the help of their research administration departments when revising grant proposals, smaller schools often lack these services, forcing researchers to seek outside help.

However, budget cutbacks and resulting staff shortages in research administration departments have likely increased demand for outside help with proposal writing at larger universities, according to Reif-Lehrer, a former biomedical researcher at Harvard Medical School

and Schepens Eye Research Institute in Boston.



CAREFULLY CHOSEN WORDS: Liane Reif-Lehrer, a Boston-area consultant and former researcher, advises proposal writers to use precise language because miscommunication can be fatal for the proposal.

Christine Kahan Black, a grant proposal specialist at the University of Michigan's Division of Research Development and Administration, notes that some investigators at large research universities with in-house proposal writing services also may turn to outside consultants to give their grant proposals a competitive edge. "It is not uncommon to find highly skilled and intelligent researchers who are insecure [about] their ability to write a proposal," Black explains. "They may have trouble with writing, feel insecure about their command of English, or simply lack the time to give a serious effort. Researchers in such predicaments might seek out a consultant to help them level the playing field or even get an advantage over the competition."

Consultants typically will proofread, comment on, and suggest revisions to a proposal. The cost of such services varies, but most reputable consultants charge a single upfront fee,

according to Black. She says researchers should avoid consultants who charge a percentage of the grant award amount. But help from writing specialists often is not enough to improve crucial areas of the grant proposal. "Proposal writers and editors simply cannot help to determine if the experimental question or the scientific method used is sound or adequate for the research proposal," Black says. "Science has become too specialized to expect a grant editor to have all of this background knowledge. This is why the researcher much rely on the expertise of a mentor or more experienced colleague to provide a critique of the proposal."

Reif-Lehrer agrees that advice and criticism from peers about the accuracy of scientific content and clarity of presentation is extremely valuable. "Although it is not my responsibility as a consultant to comment on scientific content, my experience as a researcher sometimes lets me provide advice on certain scientific issues within the proposal," she says. "Not all writing consultants have this capability. The bottom line is that if you don't have a good idea and you have not checked out the science with a colleague or mentor knowledgeable in your field, a proposal writing consultant is a waste of time and money. If you have checked out the scientific content with carefully chosen peers, a writing consultant can make all the difference in the world."

Increased competition for funding has driven up the quality standards for grant applications, according to Stanley C. Oaks, scientific review administrator at the National Institute of Allergy and Infectious Diseases (NIAID). Even minor mistakes may leave peer reviewers with the impression that the investigator is careless and not qualified to do the project. Listed below are some of what Oaks describes as the most common mistakes found in grant applications submitted to NIAID. A complete list is found at NIAID's Web site, www.niaid.nih.gov.

- *Failure to indicate if research projects use animal or human subjects:* In multiple-component research projects in which different investigators prepare different sections of an application, each author must take care to specify if experimental subjects are human or animal.
- *Failure to list all key collaborators and their degrees:* Many applications list only senior investigators working on the project, failing to include other key professional research staff, collaborators, and consultants. This makes it difficult to readily determine potential reviewer conflicts of interest. A more comprehensive list also makes it easier for peer reviewers to determine who is involved in the research project.
- *Failure to address gender, minority, and ethnic group inclusion in studies with human subjects:* All National Institutes of

Health applications for experiments involving human subjects must discuss if gender, racial, or ethnic differences are relevant to the research question. In multiple-project studies, this question must be addressed in each subsection of the application.

- *Failure to include biographical sketches for all key investigators, collaborators, and consultants on the project:* The omission of this information makes it difficult for reviewers to judge the qualifications of the investigators and determine if the research project can be successfully completed.
- *Failure to provide an adequate rationale for the research project:* All NIH grant applications now must include a discussion of how the research will address a problem or a gap in scientific knowledge. The rationale statement is essential for the review committee to establish the significance and need for the research project.
- *Failure to discuss how data will be analyzed or interpreted:* This is an area that is often overlooked or underemphasized, particularly in applications that involve clinical research.

Oaks notes that careless errors within the application can frustrate reviewers and keep them from appreciating the significance of the proposed research. "It may sound silly, but neatness really does count," he says. "A tight and clean grant application tends to portray you as a precise and careful scientist."

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