

**Seeking Grant Funding  
and  
Writing Grant Proposals**

Manuscript for: Research Center for Excellence in the Radiologic Sciences.

## **Introduction**

Grants are financial support that facilitate research in certain fields or disciplines. Sponsors use grant money to encourage research in their specific areas of concern. Billions of dollars are dispersed each year in the form of research grants. Indeed, grant seeking has become so central a component of modern medical and scientific research that many institutions employ full-time personnel whose sole job is to identify sources of grant money and prepare grant applications and proposals. Many researchers, however, still prepare their own applications. Once they are familiar with grant seeking, most people find the application process more time consuming than difficult.

This introduction to grant seeking describes how to identify grant sponsors, how to prepare a well-researched grant application and how grant applications are reviewed.

## **The Basics**

The first step for any research endeavor is to know your topic thoroughly, and grant seeking is no exception. Grant sponsors expect explicit evidence of your command of the field in which you propose new research. Unlike art or literature, certain conclusions and new ideas in science and medicine are inevitable. If you have thought of a promising area of research or hypothesis, it is likely that others have already considered, or studied, your idea.

Thoroughly searching the medical literature and familiarizing yourself with what has been done and what needs to be done in a given field always should be the first step in planning research. You will convey this mastery of a body of research in your proposal.

Recruiting colleagues to create a study team has advantages and disadvantages. Advantages include increased expertise, particularly if there are components of the research for which you are not well suited or qualified. Disadvantages include the delays associated with multiple work schedules, personality conflicts and disagreements about procedure. Most sponsors require résumés or curricula vitae for each team member listed in a proposal. If you decide to create or join a study team, assigning the most experienced team member the role of lead investigator may help your group's chances of being awarded a grant. In some cases, this may be the person with the greatest number of relevant publications.

After reviewing the history and scientific literature related to your research idea and, if necessary, assembling a study team, you must identify likely sponsors and develop an application strategy. An application strategy involves considerably more than filling out an application. A successful strategy includes three fundamental steps:

1. Finding a Sponsor: Identify an appropriate grant sponsor.
2. Research and Preproposal Contact: Starting with the sponsor's Web site and printed material, study their funding patterns, values, institutional goals and background. Seek advice from key personnel at the grant-sponsoring institution and past grant recipients, and evaluate your own qualifications and research plans in light of the sponsoring institution's current goals and granting priorities.

3. Grant Writing: Prepare a well-written and carefully reasoned grant proposal.

Each step is equally crucial for success. Submitting a well-prepared proposal for a brilliant research idea to the wrong sponsor will lead to failure just as surely as submitting a poorly prepared proposal to the right sponsor. More grant proposals are rejected because they are poorly written than because the proposed projects are poor ideas.

### **Time Management**

One of the most common mistakes made by new grant seekers is underestimating the time required to research and complete a proposal. Pay particular attention to deadlines and realistically assess the time you can devote to grant preparation and the time required. Do not procrastinate. Rushed proposals inevitably contain errors and weaknesses that could be caught with sufficient time to review and revise your application.

Every step in grant seeking involves delays, such as the lag time between requesting and receiving interlibrary loans or simply waiting for replies from the sponsoring institution. Budget your time carefully and realistically, with the goal of completing your proposal well before application deadlines. A good rule of thumb is that researching and writing your first grant proposal will require at least twice as much time as first estimated.

## **Step One: Identifying A Sponsor**

### **Types of Sponsors**

Generally speaking, there are two kinds of grant proposals: those directed to government agency sponsors and those directed to private sponsors. Private sponsors include wealthy families, foundations, professional associations, philanthropic organizations and, less frequently, corporations or industry associations.

Government sponsors usually operate under much stricter instructions than do private sponsors. Government grant proposals are correspondingly longer and significantly more detailed and extensive, commonly consisting of hundreds of pages. Luckily, most government agencies offer manuals, online advice and contact personnel who answer applicants' questions. Private foundation or corporate sponsor proposals are usually much shorter and are known as "letter proposals."

### **Finding Sponsors**

There is no single clearinghouse for federal government grant information, but the *Catalog of Federal Domestic Assistance* is available on the World Wide Web from the Superintendent of Documents at <http://aspe.os.dhhs.gov/cfda/>. Many private granting institutions maintain Web sites. These can be located using a search engine such as Yahoo! <http://www.yahoo.com/> or AltaVista <http://www.altavista.com/> by typing in the keywords "research grant" and the specific area of research. Meta-search engines, such as Dogpile <http://www.dogpile.com/> or Google <http://www.google.com/>, are available for more efficient searching. Meta-search engines simultaneously search several individual search engines such as Yahoo! and Alta Vista.

Online centers or “gateways” for grant seekers also are available, with articles, advice, compilations of data on granting institutions and links to granting institutions’ Web sites. One such gateway site is The Foundation Center at <http://fdncenter.org/>. Another is the Council on Foundations at <http://www.cof.org/>.

As quick and convenient as Web searches seem, however, their results can be far from exhaustive. U.S. federal government agencies are required to maintain an online presence, but of the tens of thousands of private grant sponsors and foundations around the world, fewer than 5 percent currently do so. Most academic and hospital libraries maintain print and CD-ROM collections of grant-seeking resources that you should consult even if online leads seem promising. Trade journals and professional newsletters often contain announcements for grants as well.

An additional resource for identifying sponsors is tax records. Private sponsors must file IRS 990-PF (“Private Foundations”) paperwork each year, and they are available from the IRS upon request. These tax returns list recent grant recipients and can aid in assessing the likelihood of your proposal being favorably received by a particular sponsor. The Foundation Center maintains online archives of tax records for many granting institutions at <http://fdncenter.org/searchzone/990search.html>.

### **Multiple Grant Proposal Submissions**

It is wise to identify as many suitable sponsors as possible and to submit your proposal to all sponsors simultaneously. There is an ethical obligation to disclose in a cover letter to each sponsor that a similar proposal has been submitted elsewhere, and doing so will not reduce your chances of being awarded funding.

## **Step Two: Research and Preproposal Contact**

As soon as promising sponsors are identified, you should e-mail, call or write for application materials and guidelines. Request a copy of any checklists used by reviewers in evaluating proposals and, if available, an explanation of how points are awarded during proposal evaluations. If not available on the sponsor's Web site, also request a list of previous grant recipients and the institution's past proposal reviewers. Not all sponsors will make this material available, but asking is never inappropriate. Possessing this information will significantly improve your ability to tailor your proposal to a specific sponsor's needs. This is because granting organizations have different sponsor "cultures," or unwritten rules that influence grant-seeking success with that organization. The key to understanding a sponsor's culture is contact with those who know the organization best: key personnel, past reviewers and past grant recipients.

### **Contacting the Program Officer**

Program officers are your "cultural informants" about the sponsor institution; they will help you understand the cultural landscape and unwritten rules of the granting institution. Once you have carefully studied program guidelines, program officers can help you evaluate whether their organization is an appropriate one for your project proposal. These individuals are often a valuable source of details not available in sponsors' printed or online material. Do not treat them as mere administrative "gofers"; show an interest in the overall mission of the sponsor organization and ask their advice for preparing grant proposals.

When initially contacting a sponsor's program officer, it is best to do so by mail or e-mail, following up as needed by phone or e-mail. Write to request grant information and the names and contact information for past grant recipients and proposal reviewers. If past recipients' and reviewers' names are not available, ask for more general information such as reviewers' educational backgrounds. This will help you gauge your audience and tailor your proposal to the likely level of expertise of those who will evaluate your ideas.

After initially requesting information by mail or e-mail, calling the program officer with follow-up questions or requests for clarification will provide an opportunity for him or her to become familiar with you. Explain that you have studied their guidelines carefully and that you have further questions. Offer to e-mail these or to schedule a time to call back to ask your questions; program officers are often very busy and will have to schedule even short (five or 10-minute) phone calls.

When given the opportunity to discuss your questions with the program officer, it is important to avoid asking questions addressed in the application materials or on the sponsor's Web site. Begin the discussion with a brief outline of your research objectives and then ask your questions. Early in the conversation, ask for their opinion about whether your project idea is compatible with the sponsor's current granting priorities. Sometimes you can modify research objectives to better address a sponsor's current concerns. If the program officer believes that your idea and the sponsor's goals are not a good fit, ask whether there is a way to modify your research objectives for a better match.

Many sponsors have unannounced grant programs or additional money that has not been committed to specific projects. If the grant you've identified does not seem a

good match for your research ideas, ask the program officer whether there are other sources of funding for which your project idea may qualify.

Ask which mistakes are made most commonly by applicants and what kind of information is most often omitted from applications that the sponsor would prefer to see included.

Additional appropriate questions include the current budget and the average projected allocation to each funded proposal; the ratio of applications to grant awards; whether special preferences exist, such as preference for applicants from specific regions or types of institutions; and whether the program allows previous grant recipients to apply for additional support. Some sponsors will not award more than one grant to the same researcher(s). On the other hand, many sponsors give priority to requests to continue previously funded projects. Ask how many new awards will be granted compared with continuing awards for previously funded projects. Also, be sure to ask what percentage of grants are awarded to unsolicited proposals. Some sponsors rarely fund new, unsolicited applications but do not advertise this fact in their application materials.

Many sponsors offer a checklist to applicants upon request; if none is included in the application materials, call and request one. Reviewers use checklists in their initial screening of applications, and checklists are an invaluable source of information for grant seekers. Follow the checklist very closely in preparing your proposal, using section headers verbatim to ease the initial review process.

Ask whether the panel of reviewers will include individuals without a technical knowledge of your research area, because the expertise of reviewers will affect your proposal writing strategy.

Finally, ask whether the program officer or other sponsor personnel would be willing to review a draft proposal and offer suggestions for improvement or, alternatively, whether they would evaluate an outline or summary of your proposal. Though few sponsoring institutions advertise this service, many are more than happy to review draft applications because this improves the quality of the applications they receive. Applicants who take advantage of this assistance enjoy markedly increased odds of having their grant proposals funded. However, only request a review of your draft proposal if there is at least a month remaining before the program applications' deadline.

### **Contacting Past Grant Recipients**

Contact one or two past recipients by e-mail or phone as early as possible to ask questions that will help you evaluate the match between your research and the sponsor's needs and to plan your application strategy. Past recipients can be identified using granting institutions' tax records if their names are not available from the sponsor.

If a grant was awarded to a group of researchers, locate the person who prepared the group's proposal, the project director or the senior researcher. When contacting previous recipients, introduce yourself and explain that you are applying for a grant they were previously awarded. Ask which individuals at the sponsoring institution were especially helpful and what recommendations they would make about applying for the grant. For example, many sponsors review a draft proposal and make helpful suggestions to improve the final, submitted proposal. Find out whether previous recipients took

advantage of such services. Ask if they visited the granting institution prior to submitting a proposal and, if so, with whom they met and whether they believe the visit played a major role in winning the grant.

Additional questions for previous recipients should include the level or extent of funding (that is, how much of the money requested was granted), whether reviewers objected to particular types of expenses in the proposal budget and how much documentation and detail was requested to justify the proposal budget.

### **Contacting Past Reviewers**

Past reviewers' names often can be obtained upon request. If a list of past reviewers is not included in application materials or on the sponsor's Web site, call the program officer and ask whether such a list is available. Contact past reviewers by phone or e-mail, introduce yourself and explain that you are interested in applying for the grant in question and would like to ask them a few questions. Do not presume to take their time at this point; offer to arrange a time to discuss the matter or to correspond with them by e-mail. Be prepared, however, to succinctly and quickly list your questions then, if the reviewer offers to help when you first call.

Contacting past reviewers helps you learn how the proposal evaluation works. A critical issue is how much time is devoted to the preliminary evaluation of each proposal; do reviewers typically spend five minutes on each proposal or an hour? The answer will help you gauge what level of detail and what length you should shoot for when preparing your proposal. For example, if reviewers only have a few minutes for the initial proposal review, it will pay to keep your sentences short and simple.

It is valuable to learn whether reviewers employ specific scoring. Some aspects of a proposal typically will receive greater scrutiny and weigh more heavily in final decisions than other aspects. Discovering which portions of a proposal are most important allows you to concentrate on those areas, increasing your odds of receiving a grant. Ask reviewers what they were asked to look for in proposals and exactly how points were awarded to each part of the proposal.

Politely ask reviewers how they were chosen and the level of detail reviewers expect of proposals. Reviewers without specific expertise in your field often will require broader, less detailed descriptions of proposed research, while experts in your field often will put a premium on technical details and better understand a limited amount of jargon. For example, radiologist reviewers are more likely to understand technical radiological terms than sociologist reviewers.

Ask whether reviewers evaluated proposals in a formal panel review, that is, sitting with other reviewers and evaluating stacks of proposals within in a set amount of time, or whether the sponsor sent proposals to the reviewers' offices. When reviewers receive applications in the mail, they usually have more time to devote to evaluations than is the case in panel reviews. Depending on how many proposals each reviewer is asked to evaluate, it is usually best to prepare very well-documented proposals for mailed reviews and to concentrate on overall clarity and readability of proposals for panel reviews. Of course, if each reviewer must evaluate hundreds of applications, succinct, to-the-point proposals will stand a better chance of receiving favorable reviews.

Reviewers also can warn you about common applicant errors. Ask specifically what mistakes were encountered most often in proposals. Common errors include failing

to number a proposal's pages, neglecting to follow format requirements such as spacing rules and miscalculating budget items.

In some cases, members of a sponsor's staff review applications after the reviewer's evaluations. Ask whether the sponsor follows this practice. Many professional proposal writers believe that the more discretion sponsor staff has in accepting or overriding reviewers' recommendations, the more important personal contact is between applicants and sponsor personnel, both staff officers and other key staff identified by previous grant recipients.

### **In-House Contacts at Your Institution**

Many sponsors require that a grant be funded through and managed by a research institution (a hospital, institute or university, for example) rather than an individual. At some universities, it is possible to establish a research institute within an existing department for research funding purposes.

It is important that you understand your institution's rules before submitting your proposal. Discuss the matter with your department chairman or grants department before preparing your proposal.

### **The Review Process**

The review process begins with an initial screening, at which time proposals lacking required information typically are dropped from consideration. Some granting organizations provide a copy of the checklist used for screening with the application, but if they do not, you should call the program officer to ask for one.

A subsequent and more thorough screening ensures that the scope of the proposed research falls within the mandate reviewers are authorized to fund. Many proposals are discarded during the initial screenings. To avoid wasting the sponsor's time, it is critical to pay attention to every last detail when preparing your proposal.

If the proposal contains all required information and falls within the sponsor's scope, the panel of reviewers will evaluate your qualifications and prior research experience. The appropriateness of the facilities available to you for conducting the proposed research also will be assessed and finally, your budget will be examined.

### **Step Three: Writing the Proposal**

Once you have identified an appropriate sponsor and talked with the sponsor's program officer, past grant recipients and past reviewers, you are ready to apply what you have learned. Before you begin writing the proposal, carefully review the application guidelines.

Outline your proposal, incorporating what you have learned from the guidelines and your discussions. If you have a copy of the checklist that will be used by reviewers, use the topics listed as section headings or subheadings wherever possible, in bold type. Headings are a quick index of your proposal's contents. This will ease the initial screening of your proposal for completeness and will help a reviewer avoid missing a required content item.

*First impressions matter.* A first impression of disorganization or lack of professionalism can negatively bias reviewers' assessments of a proposed project's

overall merit. Careless presentation can render your entire grant-seeking effort a lost cause even before reviewers begin to consider your ideas. Be sure to check your proposal for spelling and grammar mistakes and have a colleague critique your draft. It is also a good idea to let a finished proposal sit for a few days before reviewing and re-editing it. People often don't recognize errors when immersed in a manuscript, and sometimes mistakes become glaringly obvious after a break.

Whether your proposal is destined for a private sponsor or a government sponsor, several rules apply: a proposal must be complete, accurate, clear and logically organized. Even in preparing a full proposal, be concise. Padding essays may have helped you reach the assigned length with college essays, but will be resented by beleaguered reviewers. When preparing a shorter proposal, repetition will hamper your ability to convey all the information reviewers need in subsequent sections.

### **Audience**

From your discussions with the program officer and past reviewers, you have an idea of the review panel's level of expertise. Gauge the level of detail and amount of technical jargon in your proposal accordingly. It is important not to insult your reviewers by assuming too low a level of expertise, but it's equally important not to confuse less expert reviewers.

If both technical experts and nonexperts serve as reviewers, employ a mixed strategy in writing your proposal, introducing key ideas and sections in nontechnical terms for nonexpert reviewers and then following up with details that will satisfy expert reviewers' concerns.

## **Completeness**

Do not leave reviewers asking critical questions about your research plans or why the proposed project is important and relevant to the sponsor's goals. Always offer and be prepared to provide documentation for any claim about the existing medical literature or the state of a given field of research.

One common complaint by reviewers is that applicants' rationales or ideas are inadequately developed and that arguments are either unsupported by documented sources or are written with the implicit assumption that the reviewers are familiar with the relevant scientific literature. Unless you know exactly who will sit on the review panel and their level of expertise, such assumptions are inappropriate and dangerous.

Simply asserting facts is insufficient. Justify assertions and provide supporting documents, such as appendices, footnotes or endnotes and a supporting bibliography, as stipulated by program officers and application guidelines. In letter proposals, such documentation should be abbreviated; do not use more than one or two endnotes, for example.

## **Clarity and Tone**

A well-organized and persuasive proposal should convey not only nuts-and-bolts information, but also your competence and excitement about the proposed study. These are conveyed explicitly, such as in the "Objective" section of your application. But these qualities also are communicated throughout your proposal by the tone of urgency and enthusiasm of your narrative.

The proposal should be professional in every regard, but it is not a research paper for the medical literature. Do not hesitate to use the active voice and personal pronouns;

while passive-voice documents convey objectivity and scientific precision, too dry a presentation communicates a lack of enthusiasm.

Very limited use of widely known jargon from the field is always acceptable and may convey your competence. Avoid assuming, however, that reviewers will be familiar with the details of the particular body of research to which you intend to contribute.

Word choice should be closely scrutinized. Be sure you're not using an obscure meaning for a word that may convey misuse to reviewers. Some reviewers have commented that word repetition becomes tiresome and annoying, particularly in longer proposals. Use synonyms wherever possible.

Sentence structure matters. Faced with the limitations of a letter proposal, you will quickly learn to spot unnecessarily lengthy phrases and to use simple words and sentences. (For example, "Our study will..." is better than "This will be a study that will...") At all times avoid tangential information and stay focused on the central points to be conveyed.

### **Minding the Details**

Make sure you observe word and page limits, and if the proposal is submitted on paper rather than on disk or via e-mail, that the paper type, font type and size, spacing rules and margins conform to the sponsor's guidelines. If the guidelines do not specify type style, use a standard typeface such as Arial, Courier or Times Roman, as these are considered the least distracting, easiest fonts to read. Twelve-point type is the minimum type size you should use.

Some guidelines specify where on each page the page number is to be placed. If this is not the case, number pages either in the upper right-hand corner or centered at the bottom of the second page and each subsequent page. Do not number the first page.

Proofread your proposal repeatedly, and ask others to do the same. It is useful to check for specific issues each time you reread your manuscript. Read once to make sure that you convey everything you set out to convey; read again with an eye toward catching problems with your narrative's flow; check grammar, matching tenses in verbs and nouns and punctuation in a third reading; and so forth. Recalculate all budget items and totals. Finally, read (and ask others to read) for overall clarity and appearance.

### **Letter Proposals**

Public sponsors almost always require full proposals, which can range from 10 or 20 pages to several hundred pages in length. These are discussed briefly after this section.

Private sponsors almost always prefer short or "letter" proposals. In rare cases, letter proposals are used to evaluate your overall concept for suitability, and you will subsequently be invited to prepare an extended, more detailed proposal. Even when applying to government sponsors, it is a good idea to prepare a letter proposal at the outset, because a program officer can evaluate and comment on this before you invest the time required for a full-length proposal.

Letter proposals rarely exceed four pages, putting a premium on clear and succinct presentation. New grant seekers often mistakenly believe that the abbreviated format of letter proposals eases preparation of a proposal. They quickly learn that it is

more challenging to anticipate and address reviewers' concerns in very few words than it is to present ideas and background material at length.

In most cases, a letter proposal contains seven critical components, of which you may subhead the third through the seventh in bold type:

1. Summary
2. Sponsor rationale
3. Research problem and objectives
4. Methods (“Solution”)
5. Credentials and facilities (“Capability”)
6. Budget
7. Conclusion

Each component will be described in turn, below.

## **Summary**

The summary should introduce who you are, what you want to study, how much money you are requesting and why a sponsor should give it to you, all in one or two sentences. In the first sentence of the summary, you should identify yourself, your credentials, how much money you want and the benefits of the proposed research to your field and, more importantly, the sponsor's mission. (See letter proposal example.)

When you finish your summary, ask yourself whether you have identified who you are, described your goals and communicated your expertise or credentials for the proposed research. Your résumé will convey your expertise as well, but sponsors also will be concerned with the suitability of your research facilities.

**Rationale**

This section is where your research into a sponsor's background and funding patterns will pay off. The goal of the rationale section is to describe why your research should appeal to this particular sponsor. Explain why the sponsor's mission is a good match for your proposed research by citing relevant funding patterns or previous grants.

**Problem and Objective**

Briefly explain the current need for your proposed research. Document that need but avoid excessive use of statistics.

**Solution**

Summarize your research objectives and how the proposed project would address the problem introduced in the previous section.

**Credentials/Capability**

This is the single most important component of a letter proposal. Explain how you, your team and your institution are uniquely suited to address the stated problem. For example, if you have access to a special patient population for the proposed research, emphasize this fact. This section is where you should mention key publications or previous research in the field, even if the sponsor has requested a résumé or curriculum vitae for each team member.

## **Budget**

Based on your research, you should have an idea of how much money typically is awarded by this sponsor. Ask for a specific dollar amount and summarize how the money will be used. Check and recheck your calculations!

If you are submitting multiple proposals to different sponsors, you must say so in this section. Doing so will not harm your chances of receiving a grant.

## **Conclusion**

Identify the team member who can provide more details if needed and his or her phone number and e-mail address, and thank the sponsor for their time and consideration.

## **Government Proposals**

Because public sponsors disperse taxpayer money, their requirements are more stringent and precise. What's more, application protocols and proposal structure for public sponsors vary widely from agency to agency. Luckily, however, public sponsors provide detailed manuals and other printed and online material to help you with every step of their application process. In addition, many universities and hospitals offer classes on how to seek government grants.

Despite variations, all full proposals follow this broad outline:

1. Cover Letter
2. Title Page
3. Abstract
4. Introduction

5. Problem (Need)
6. Objectives
7. Methods
8. Evaluation
9. Dissemination
10. Budget

The precise content and detail of each section will vary depending on the sponsor involved and you should study and follow application materials closely.

### **Success and Rejection**

Patience is a virtue. A sponsor's decision can take weeks or months, and it is bad form to pester the program officer for an answer.

Regardless of whether your proposal is funded or rejected, upon learning of the decision, you should prepare a letter of thanks to the program officer and any other individuals who assisted you in preparing the proposal. Separately, ask the program officer whether you can obtain copies of reviewer comments.

If your proposal is funded, you usually will be sent, along with a letter of congratulations, a list of deadlines for research and financial reports. Most sponsors require that you submit regular reports describing the progress of your research and disclosing how your grant money is being spent. Contact the program officer to discuss these deadlines, as it is critical to submit these reports regularly and on time. If your proposal was submitted through a hospital or university, you should contact the financial department, research department or your department chairman to discuss institutional

disclosure rules. If the grant is made to your institution rather than to you personally, as is often required in academic settings, you will need to meet with the appropriate institutional personnel to discuss how purchase orders and other dispersals are to be made against your grant balance.

Like any skill, your grant seeking intuition will improve with experience. Every grant seeker must contend with periodic rejections. In addition to asking for reviewers' comments, take the opportunity to ask what you could do to improve the proposal. Rejection of a proposal should be taken as a learning opportunity; ask whether you should revise the proposal and resubmit it for consideration the following year. Even if you are not encouraged to do so, you can make good use of reviewers' comments and the program officer's advice when you submit your proposal to other potential sponsors.

Good luck!

Figure 1. SAMPLE LETTER PROPOSAL

25 August 2001

Mr. Jerome Walcott, Director  
Walcott Mental Health Foundation  
1000 A Street  
New York, NY 10010

Dear Mr. Walcott:

The Pediatric Brain Imaging Institute (PBII) at Mesa Hospital invites your investment in a \$50,000 special research project to identify neuroanatomical correlates of childhood schizophrenia.

We are encouraged by the Walcott Foundation's support for pioneering research that advances the understanding of mental illness in children. Nearly 60 percent of your grant awards in the past five years have been invested in pediatric neuropsychological research. We share the Walcott Foundation's commitment to this critical but often neglected area of medical inquiry.

**The Problem: (Hippocampus Volume and Childhood Schizophrenia.)** Brain imaging studies of adult patients with schizophrenia reveal below-average hippocampal volumes compared with healthy controls. Hippocampal volume reductions, particularly when more pronounced in the left hemisphere hippocampus than the right, often predict the severity of major cognitive impairment among adult schizophrenics, including low IQ, memory defects and hallucinations. Brain imaging studies of pediatric patients with childhood onset schizophrenia (COS), a rare subtype of schizophrenia in which full-blown psychosis occurs before adolescence, suggest that reduced hippocampal volumes are common in this population as well, but less pronounced than reductions observed among adult patients with schizophrenia. However, existing studies of COS hippocampal volumes only report unilateral data (that is, volume measurements from either the right or the left hippocampus only.) Despite the potential prognostic value of knowing the relationship between right/left hippocampal volume asymmetries and the severity of symptoms in COS patients, this matter has yet to be studied.

**The Solution: The Childhood Schizophrenia Hippocampus Imaging Study.** We propose to undertake a magnetic resonance imaging (MR) and computer volumetric study of bilateral hippocampal volumes in children with COS and age-matched healthy controls over the course of six months. The study's outcome will be an improved understanding of the hippocampal correlates of COS, improved diagnostic and prognostic precision in pediatric neuropsychology and data with which to compare COS and adult-onset schizophrenia and determine whether COS is a subtype of schizophrenia or a distinct disease. Using our state-of-the-art brain MR facilities and experienced pediatric neuroimaging staff, we will generate MR images of volunteers' right and left

hippocampuses and will use NIH-developed image software for volumetric measurements and total brain volume.

**PBII Credentials: Experience, Facilities and a Unique Study Population.** Personnel at the Pediatric Brain Imaging Institute at Mesa Hospital are specially trained and our equipment is specifically configured for pediatric brain research. Lead investigator, Dr. Carina Rees, has published several papers on volumetric analyses of pediatric brain MR images. The PBII also has an unusually well-suited patient population for the study of childhood onset schizophrenia; we are a nationally recognized center for the diagnosis and treatment of COS with more than fifty COS patients currently associated with our program.

**Budget Request: \$50,000 Payable Over Six Months.** Given the Walcott Foundation's dedication to advancing the understanding of childhood psychiatric diseases, we are requesting a grant of \$50,000. This money will be used for access to and operating costs associated with PBII's MR facilities.

By investing in the PBII Childhood Schizophrenia Hippocampus Imaging Study, the Walcott Foundation will help further our basic understanding of childhood-onset schizophrenia.

Dr. Carina Rees, neuroimaging program director at Mesa Hospital's Pediatric Brain Imaging Institute, will be happy to answer any questions or requests for further information. We also invite you to visit our facilities and see our research first hand. Dr. Rees may be reached at (505) 555-1525.

Thank you for your time and consideration.

Sincerely,

Primary Researcher on Team (Preferably a senior, well-known researcher)

Enclosures:

Attachment One: IRS Nonprofit Certification

Attachment Two: CVs and Résumés for Team Participants