

Successful Strategies for Small Grant Funding for Advanced Practice Nurses

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Abstract

Obtaining grant funding in order to answer clinical questions is a professional goal of many advanced practice nurses (APNs). Unit- or service-based APNs may be called on to design and implement studies which investigate clinical questions, either as principal investigators, or as mentors to staff nurses. This article identifies potential sources for small grant funding, provides a review of essential components of grant proposal preparation, and describes successful strategies for obtaining grant funding for small-scale clinical inquiry and pilot work.

INTRODUCTION

Identification of questions for research is a daily occurrence for nurses in clinical practice. Developing the aptitude to derive and respond to research issues in the clinical setting is a role responsibility of advanced practice nurses (APNs). Unit- or service-based APNs may find themselves called on to design and implement studies which investigate clinical questions, either as principal investigators, or as mentors to staff nurses. Packaging ideas into a research proposal is key to discovering ways for improving patient outcomes, as well as for increasing the professional development of staff who become involved.

This article highlights successful strategies which may be employed by APNs who are interested in assuming a researcher role in their practice, while pursuing grant funding for small-scale clinical inquiry.

SOURCES OF FUNDING

The type of funding organization and its purposes determine the types of grant proposals it will support. Categories of funding organizations include governmental, independent or private foundations, corporate foundations, and community foundations. Other types of funding may be awarded via endowments from professional organizations, philanthropic bequests, and proprietary or industry-supported research allocations. Applications for governmental (federal) funding usually are undertaken at the pre-doctoral or doctoral level, and are not the focus of this article.

FINDING A MATCH

Health care organizations, academic medical centers, and schools of nursing frequently have seed money which is available on a competitive basis for start-up costs for beginning researchers, or for pilot or feasibility studies. Professional specialty nursing organizations often allocate a set amount of dollars for selected specific areas of investigation, e.g., pain management for oncology patients, respiratory management for critically ill patients, identification and restoration of patients' nutritional deficiencies, improvement in care of nursing home elderly, measurement of quality of life for persons diagnosed with HIV, or health informatics utilization. Notices of availability of these types of funding are found in professional publications of nursing and health organizations.

Conferring with the clinical chief of nursing service, or an institutional research administrator, is helpful when investigating the availability of institutional monies, or when soliciting advice on how to carry out the study of a clinically relevant practice problem. For those APNs affiliated with an academic medical center, the dean of research, faculty members engaged in research, or staff from the office of research and project administration may be able to provide guidance in seeking funding. If working in a community facility or agency, applying for funding via a professional nursing organization, community agency, or medical society is a practical and effective means for obtaining research support.

MAKING THE INTERNET CONNECTION

The Internet provides numerous links to announcements of government and foundation funding for health care research, with further links to small grant funding information for nursing professionals. Examples of websites for potential funding sources are listed in Table 1.

Table 1: Examples of Websites with Links to Potential Funding Sources

- Sigma Theta Tau International
<http://www.stti.iupui.edu/research>
- American Association of Critical Care Nurses
<http://www.aacn.org>
- American Nurses Association
<http://www.nursingworld.org>
- National League for Nursing <http://www.nln.org>
- National Institute for Nursing Research
<http://www.nih.gov/ninr>
- Association of Operating Room Nurses
<http://www.aorn.org/clinical>
- Emergency Nurses Association <http://www.ena.org>
- Society of Critical Care Medicine
<http://www.sccm.org/grants>

CHECKING ELIGIBILITY CRITERIA

In some instances, membership in a professional nursing or health-care related organization is necessary for establishing eligibility for an application for funding. It may be necessary to attend national organization meetings for a pre-determined number of years before applying. Sustaining active memberships in more than one chapter of a professional organization is permissible, and may be advantageous when seeking small grant funding. Community foundations often require that an applicant lives within a specified geographic area, or that the area of proposed study meets strictly circumscribed guidelines, e.g., relating to health care of women and children, or care of the elderly. However, many funding organizations require only that the individual researcher present a convincing case for funding of a particular project. 2

STAYING AHEAD OF THE CURVE

Discovering the “hot” topics, or preferred funding interests

of professional organizations helps to save time and effort in grant proposal preparation. Some funding organizations identify not only the areas which are of interest and potentially fundable, but also will categorize areas in which further investigation is discouraged. This does not mean that it is impossible to find funding for a specific clinical question. However, it pays to do a thorough literature search to ascertain whether or not the question already has been exhaustively researched, and will help to design a study which puts a new spin on an old problem.

Table 2: Essential Components of Grant Proposals

- A. Abstract
- B. Specific aims
 1. Describe the study purpose
 2. State long-term objectives
 3. State hypotheses/research questions
 4. Present theoretical framework or rationale
 5. State long-term goals or present usefulness
- C. Background and Significance
 1. Document previous empirical work
 2. Critically analyze existing literature
 3. Explicate gaps in literature
- D. Prior Research Experience
 1. Describe pilot work, if applicable
 2. Demonstrate prior experience in research at any level
 3. Characterize clinical expertise
 4. Describe past professional presentations
 5. Attach copies of prior publications, if available
- E. Research Methods
 1. Design
 2. Setting and Sample
 3. Intervention, if applicable

4. Variables and Measurement
5. Procedures
6. Data Analysis
7. Time Line
8. Human Subjects

F. Appendices

1. Budget
2. Biosketches
3. Related support
4. Resources and Environment
5. Letters of support
6. Instruments
7. Literature cited

GETTING STARTED

Essential components of grant proposals are illustrated in Table 2. Funding agencies define the maximum number of pages that may be used to contain all elements of a grant proposal. Small grant applications usually are limited to five to ten pages, excluding appendices. Appendices include the proposed study budget, and biosketches of the investigator, co-investigators, consultants, and mentors. Study instruments and literature cited also are contained in an appendix, as are descriptions of institutional resources and environment, letters describing related support, or previously-obtained funding, and letters of support from nursing and/or medical administration, and faculty sponsors, as applicable. Being mindful of time requirements also is necessary for success in funding. ³ Grant applications may be due in May or September, with notification of awards and disbursement of funds approximately three to four months later. Applying for funding after a short-term research project is underway is not always feasible. Reviewers may not look favorably on study timelines which appear to terminate close to the time that funding would be available for disbursement. Counting on reimbursement of already-expended personal monies is not realistic, as grant funding is intended to be used prospectively.

WHAT DO REVIEWERS LOOK FOR?

Research grant review is a process in which content and research experts are asked to evaluate a proposal based on the potential for augmenting knowledge, and on scientific merit.⁴ Ideally, this process also facilitates improvements in patient care.⁵ The grant application is scored on several different qualifying factors; criteria for acceptance and awards vary among organizations. In general, reviewers will check to see that the application is complete and adheres to all required guidelines. Organization, writing style, and expertise of the researcher also are considered. Feasibility factors of the study, related to overall significance, originality, and scientific merit, as well as achievable sample size, proposed timeline, and available resources, are considered.^{4, 6}

The experienced and competent reviewer will deliver an objective critique which addresses both positive and negative features of the proposal. Strengths are highlighted, while suggestions for areas for improvement are presented in a nonjudgmental manner.⁴ Professional growth and improvement in patient care are outcomes of the review process.

THE BROTHER-IN-LAW PRINCIPLE AND THE GRANDMOTHER PRINCIPLE

A professor of research design once said that in all efforts, a wise researcher first applies the brother-in-law principle to the study design, and later utilizes the grandmother principle when interpreting the study results. If a researcher is unable to explain, in understandable terms, the study and its intended outcomes to his or her brother-in-law, it may be that while the complexity of design is acceptable, the language is too complicated.

Similarly, when the study has been completed, the researcher explains the results to his or her grandmother. If the grandmother says, “I could have told you that would happen”, the study probably was over-designed, or may not have needed to be carried out at all. Understanding the state of the art and being sure that a contribution is being made is a foremost consideration of research (Robert Cole, personal communication, February 12, 1998).

Keeping these principles in mind while preparing a grant application helps to maintain language at an understandable level, to streamline study design, and to avoid replication of prior efforts by other researchers.

CONDENSING ESSENTIAL ELEMENTS

Given the limited number of pages permitted to adequately contain all of the above information, creative page arrangement becomes necessary. Grant preparation instructions will specify whether the font size should 10 or 12 points, and whether the narrative should be double- or single-spaced. In order to avoid rejection, without review, of a grant proposal, it is crucial that the investigator interprets and adheres to these guidelines as literal rules. Margins usually are not addressed in page specifications. Maximizing space by setting page margins to 0.5 inches at both sides, as well as top and bottom, is permissible. Study instruments, with reliability and validity information, are best described in a table or appendix. The study timeline may be illustrated graphically. “Bulleting” or “dot-pointing” hypotheses and research helps to conserve space, and draws the reader’s eye. An example of a table depicting organization of the data collection process, noting variables, instruments, and data collection timepoints, is illustrated in Figure 1. Applying the word-processing technique of wrapping text, rather than leaving un-utilized white space on either side of a table or figure, also helps to conserve space on a page.

Figure 1: Organization of the Data Collection Process 12

Figure 1

Data Collection	Variable	Adm to ICU	1 month post D/C	3 months post D/C
Predictors	Age	✓		
	Frailty	ADL		
	Gender	✓		
	Illness Severity	APS of APACHE II		
	Comorbidity	Charlson Index		
Outcome	Function	SF-36	SF-36	SF-36

STEP BY STEP

1. Abstract

The proposal abstract should be short, with components arranged in the order of a scientific abstract for publication, as applicable: Background, Objective, Design, Sample and Setting, Intervention, Measurements, Methods, Outcome Measures, and Significance for Practice. An abstract for a grant proposal will not contain Results or Conclusions.

If the abstract is lengthy, too much material on background

and significance may have been included. 7 Usually, the abstract for a small grant proposal need not be on a page separate from the body of the proposal; however, individual grant guidelines will provide specific instructions.

2. Specific Aims

This section incorporates explanations of the study purpose, the long-term objectives, hypotheses or research questions, and a description of the long-term usefulness of the project. 7 The theoretical basis or rationale may be included in this section. Each of these components should be clearly labeled, and may be bulleted or dot-pointed. One-sentence paragraphs not only are acceptable in a grant proposal, but also are a means for sustaining the reviewer’s interest, and condensing narrative flow.

3. Background and Significance

In this section, the investigator convinces the reviewer that the proposed research is important, that there is a potential benefit for a specific population, or that practice will improve. Existing literature is used to support this premise. A literature review for a small grant application needs to be brief, yet comprehensive. Research reviews, as found in the Annual Review of Nursing Research, provide a valuable example of a framework for both critically analyzing and reporting a wide range of relevant findings. Identification of gaps in the literature supports the case for carrying out new research.

4. Prior Research Experience

If the investigator has already done previous pilot work related to the proposed research topic, a strong argument can be made for extending the research, or for implementing a related intervention. If this is the investigator’s first experience as an independent researcher or principal investigator, a description of prior experience in research at any level increases credibility. This prior experience may include completion of a master’s research thesis, or literature review, subject recruitment, and data collection for a unit-based clinical trial or nursing study, as well as participation in research utilization. Emphasis on individual clinical expertise, as well as experience in professional presentations, and publications, and scholarly awards or honors, helps to characterize one’s competence. Copies of professional publications, including abstracts, should be attached in an appendix. The researcher needs to persuade the reviewers that he or she is capable of carrying out the proposed research.

5. Research Methods

The explanation of the study design and methods is the heart and soul of the research proposal. Tables depicting the variables to be measured and the proposed study time line will help to conserve space, and often are easier for the reviewer to interpret than lengthy narratives. An explanation of the criteria for identifying potential study subjects (sample), and a description of the location (setting) from which study subjects will be recruited, e.g., inpatient unit, community setting, senior center, may be placed into a two-column bulleted format (Table 3).

Figure 2

Table 3: Sample and Setting

Sample	Setting
Patients admitted to an ICU with length of stay ≥ 12 hours	Surgical ICU
Males or Females	Medical ICU
Age ≥ 65 years	Neuro ICU
Mixed diagnoses	CVICU

Reviewers are interested in seeing a sample size justification, via demonstration of a sample size calculation,⁸ or power analysis.⁹ County census bureaus, local health departments, and utilization review departments of medical centers are able to provide anonymous demographic data sets which will support the premise that these particular types of study subjects exist, and where they may be found. These demographics can be summarized in two to three sentences, and provide evidence that the desired target population is available, and that the proposed sample size is attainable.

Theoretical or empirical clarification of a proposed intervention, with a chronological explanation of how this intervention will be carried out, is essential. The reviewer will need enough information to determine whether or not the intervention can bring about the intended effect.⁷

The procedure section incorporates a detailed description of how an individual study subject will be identified, approached, and enrolled in the study. Whether the investigator or a research assistant will solicit individual participation is necessary information for the reviewers. This information may be conveyed in five to six sentences.

Plans for data analysis for a quantitative study include descriptions of both proposed means for data management, and statistical analyses for testing hypotheses and answering research questions. For a qualitative study, the intended analytic approach, and plans for categorizing and classifying

data are described.

Institutional review boards (IRB) will provide individual researchers with guidelines for ensuring protection of human subjects. Templates for informed consent forms are available from the IRB, and incorporate all elements of what a potential study subject needs to know in order to make an informed decision on participation in a study. These components encompass potential risks and benefits, and the likelihood of occurrence of untoward events. An explanation of the possibility of adverse outcomes, and plans for compensation, are included. Incentives for participation, and an anonymity/confidentiality statement are necessary components of the informed consent procedure.

If a study is being carried out in a community setting, e.g., a senior center, or by mail, e.g., mailings sent to a specific population of interest, and the research project is not directly affiliated with a university or academic medical center setting, the process of obtaining consent for participation may be less formalized. When subject participation involves verbal completion or return of a mailed questionnaire or survey, the actual completion or return of the filled-out study instrument represents the study subject’s consent to participate. It is prudent, in all cases, to provide an informational letter with identifying details, such as the investigator’s name and office telephone number, to all study subjects.

6. Appendices

Guidelines for grant proposals usually specify which necessary components of the proposal may be included in an appendix. Appendices are appropriately used as repositories for additional essential information, including the study budget, biographical sketches of the investigators and consultants, explanations of related support, information on resources and environment, letters of support, institutional review board approval, the study consent, and study instruments. Copies of professional publications also may be included in an appendix.

Agency-specific guidelines and limitations should be examined prior to preparing a grant budget. Some agencies will allow only \$25/hour for statistical consultation; others do not pay indirect costs, such as capital expenses including lights, heat, and telephone use. Funding agencies frequently do not cover computer costs. The more specific a budget is, the more likely it will be well received by the reviewers. Expenses such as copying, postage, printer paper and

envelopes, hourly rates for hiring and training data collectors, audio tapes for recording and transcription, and mileage or transportation costs to data collection sites usually are allowable. Vague statements about “related software” or “state-of-the-art file management systems” are best avoided.

Often, a researcher may apply for more than one grant over a period of several months, and the potential for overlap among budgets needs to be clearly addressed in each proposal. It is helpful to include copies of proposed budgets for other grants for which applications have been submitted, so that reviewers can understand what is needed overall to facilitate implementation and completion of the project. The budgets may overlap in listing of expenses. A first step is to devise a budget for the agency with the largest allowable budget. For the smaller allowable budgets, select the most essential items to be funded. Most agencies will ask if this proposal has been submitted elsewhere, and the researcher can make a statement that the budget will be negotiated if more than one agency funds the research. If the largest budget was funded, and it is adequate to do the research, a smaller grant should be declined. However, the fact that the award was offered still may be listed on a researcher’s curriculum vitae, as “declined”. Reviewers for funding sources with small amounts of money often are concerned about whether the money available will be adequate to cover the research. The researcher includes a statement that other sources of funding have been solicited, and also specifies how a potential funding shortfall will be met (e.g., personal investment; School of Nursing seed money; alumni funding) (Jean Johnson, personal communication, February 10, 1996). An example of a small grant budget is included in Table 4.

Figure 3

Table 4: Budget Justification 11

Copying	96 subjects x 4 questionnaires each = 384 questionnaires 384 questionnaires x 4 double-sided pages = 1536 pages 1536 pages x .03/page	46.08
Supplies	Large envelopes x 2 mailings x 96 subjects = 192 envelopes plus 192 Return envelopes = 384 envelopes 384 envelopes X .22 Letterhead paper, pens for enclosure File folders 400 @ \$5.00 per 100 File cabinet with lock for data storage Computer discs (25) for data storage	84.48 100.00 20.00 313.00 15.00
Postage	.55 postage for 192 mailings .55 postage for 192 return mailings Stamped postcards for follow-up 192 x .25 =	105.60 105.60 48.00
Telecommunications	Monthly charge for pager \$12.00 x 12 months = (calls from nursing or medical staff related to new patient admissions)	144.00
Total		\$981.76

Biosketches are condensed curriculum vitae collected from each investigator, and from consultants. Funding agencies will specify what types of information are to be included, e.g. education, professional experience, prior research experience, previous grants awarded, publications, and honors. Data-based publications are clearly noted as such.

Related support includes any previously awarded grants, or federal pre- or post-doctoral fellowship monies that have been awarded. If the investigator is a student, extramural sources of support such as professional nurse traineeships and monetary awards for academic honors or scholarships that are directly related to the study topic, e.g., a monetary award for a prize-winning poster or paper, are mentioned.

The Office of Research and Project Administration of academic medical centers, as well as other health care institutions, often have “boilerplate” information available on resources and environment, including descriptions of laboratory facilities, access to clinical sites, library resources, office space, and computer facilities. This information is standardized and set into a template which may be copied and pasted into a grant proposal in the appropriate section.

Letters of support are solicited from administrators of the sites where the research is expected to be carried out, as well as from persons in positions of nursing leadership, and from medical directors, as applicable. Consultants, faculty members familiar with the research, and mentors also may be asked to provide letters of support for the project. These indicators of support are necessary documentation, which are given to the IRB of an academic medical center in order to demonstrate that persons other than the investigator have evaluated the research plan. After examination of this evidence of outside review, the IRB will assign a number or other identifying feature to the study, and will provide a document that states that the research may commence.

A copy of the study consent is included in an appendix, as well as copies of all study instruments. References, or literature cited, may be noted in a manner in which most space is conserved. Numbering of references in text, and in a reference list at the end of the proposal, rather than spelling out authors' names and year of publication in the narrative text, saves a substantial amount of line space.

THE GRANT PROPOSAL AS A LEGAL DOCUMENT

The funded grant proposal should be regarded as a binding legal document. The funding agency has a right to expect that a project will proceed as described in the proposal, and the investigator expects that the financial support promised will be available. The investigator usually files progress reports, with details of study progress and disclosure of funding distribution, every six months, until the project is completed.¹⁰ Some funding agencies require that a small grant project be finished within one year of funding. If this requirement cannot be met, the investigator must apply for an extension, with an explanation of reasons for delay in completing the project, and a projected date of conclusion. Alterations in the study design must be made in agreement with the funding agency. The investigator usually is asked to sign an agreement, which states the funding agency will be acknowledged in all future publications and presentations that may result from this research.

CONVERGING PATHS

"Clinical research" describes more than bench top basic science.

Studies that have a potential to result in improved patient care and outcomes, and are carried out in a clinical setting, also qualify as clinical research. A multidisciplinary approach to identifying patient needs reveals additional

perspective on researchable questions.

APN presence on the front lines of patient care affords opportunities to interact with biomedical and pharmaceutical company representatives, who may have access to funding for studies with high clinical relevance. One means for gaining research experience is via professional participation with multi-site industry-sponsored clinical trials. These trials may involve testing of new formulations of medications, or studying investigational devices for patient care. Industry-sponsored clinical investigations usually are prospectively designed and ready for implementation by researchers at a clinical site. In other instances, a biomedical company representative may request that an APN with expertise in a particular area develop a proposal for testing a new device. Proprietary funding for carrying out a trial may be provided, following proposal review and approval.

A unit-based or service-based APN may have an opportunity to participate as project coordinator for a clinical trial. In this role, the APN collaborates with the site principal investigator (PI), who may be a doctorally-prepared nurse, or an attending physician, in order to implement the study. Because the APN typically has daily contact with a specific cadre of patients, e.g., on a surgical in-patient unit, or in a surgical ambulatory setting, there is an opportunity to both identify prospective study subjects, and to follow these subjects over a period of time.

The APN who is project coordinator for a study that is being carried out on one nursing unit, or with patients specific to one service, may be responsible for assembling a study team of data collectors from among nursing staff, and for coordinating data collection, and record-keeping. In collaboration with the PI, the project coordinator develops the informed consent, according to IRB guidelines. The project coordinator also may supervise the progress of the Clinical Site Agreement (CSA), which is developed by the legal department of the biomedical company, and negotiated with the PI, and the institutional Office of Research and Project Administration.

The biomedical company designates one of their own employees, often a nurse, as a study monitor. This person is responsible for establishing the study at the clinical site, training the data collectors and other study team members in the use of the study instruments and intervention, and following the progress of the study. The project coordinator and the study monitor interact very closely, sometimes on a daily basis, by telephone. The study monitor makes

scheduled visits to the site for the duration of the study, in order to oversee adherence to the study protocol and informed consent procedures, and examines records for completeness of data. In collaboration with the PI, the project coordinator is responsible for making a decision to discontinue the study, and notifying the study monitor, if adverse events occur.

A caveat with industry-sponsored studies is that the study design needs to be examined closely by the PI, in order to check for methodological flaws, or procedures that may be risky to study participants. The best interests of both patients and investigators are protected in this way.

An APN may start out as a project coordinator in order to gain research experience, and after gaining expertise, will be ready to assume a PI role on a subsequent study. Involvement in industry-sponsored studies provides a meaningful opportunity for APNs to obtain significant research experience prior to undertaking an autonomous research effort. The “lived experience” of participating in an industry-sponsored clinical trial, from negotiating research responsibilities, to examination of study design, to writing the informed consent, to implementing interventions, to managing data collection and record-keeping, is beneficial preparation for writing grant proposals for small grant funding in one’s own area of interest.

SUMMARY

This article is a review of essential elements for preparation of a small grant. Keys to success in this enterprise are brevity, clarity, and a realistic budget. If a grant application is not funded on the first try, the reviewers’ comments will indicate strong recommendations for areas for improvement.

Participation in industry-sponsored clinical trials is a significant means for gaining tangible research experience, and provides a sound basis for future individual research efforts. APNs have the potential to be leaders in conducting clinically based research which will make a difference in patient outcomes. Developing research aptitude, competing for small grant funding, and carrying out patient-centered research are essential steps to improving the health of those entrusted to our care.

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