

Office of Educational Research (OER)

Guide to Proposal Development

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Why do we seek funding for our research studies? Independent funding allows us to the freedom to direct our time and effort toward what is most interesting and important to us.

Life cycle of research. The life cycle of a research study typically includes the following activities:

1. Plan
2. Develop proposal
3. Write proposal
4. Obtain internal review from colleagues
5. Submit grant application
6. Revise grant application
7. Resubmit grant application
8. Implement research study
9. Disseminate results
10. Archive study

The four key ingredients. Every successful endeavor requires 1) goals, 2) knowledge, 3) skills, and 4) resources.

1. Goals. As the Roman philosopher Seneca said in the mid-1st century A.D., “If a man does not know what port he is sailing for, no wind is favorable to him.” Goal setting helps to ensure that a researcher sets course for destinations of importance and interest.
2. Knowledge. Perhaps the most useful tool for synthesizing knowledge in a particular area of research is the conceptual framework. From Wikipedia: “A **conceptual framework** is used in research to outline possible courses of action or to present a preferred approach to a system analysis project. The framework is built from a set of concepts linked to a planned or existing system of methods, behaviors, functions, relationships, and objects. A conceptual framework might, in computing terms, be thought of as a relational model.”
3. Skills. Professional, organizational, and communication skills are critical to the success of any endeavor. A Gantt chart (timeline that shows task assignments) can help with organization. The following are possible communication strategies: meet and communicate regularly with OER, hold regular team meetings, communicate regularly with advisors, make meeting records (with action plans), set up a project extranet.
4. Resources. It takes a village to conduct research. The OER can help researchers build needed supports for their research programs.

Why do proposals get rejected? The following reasons and percentages of occurrence are taken from a study published in JAMA¹:

1. Nature of problem (18%)
 - a. It is doubtful that new or useful information will result from the project (14%).
 - b. The basic hypothesis is unsound (3.5%).
 - c. The proposed research is scientifically premature due to the present inadequacy of supporting knowledge (0.6%).
2. Approach to problem (39%)
 - a. The research plan is nebulous, diffuse and not presented in concrete detail (8.6%).
 - b. The planned research is not adequately controlled (3.7%).
 - c. A more thorough statistical treatment is needed (0.7%).
 - d. The proposed tests require more individual subjects than the number given (0.7%).
 - e. Greater care in planning is needed (25.2%).
 - i. The research plan has not been carefully designed (11.8%).
 - ii. The proposed methods will not yield accurate results (8.8%).
 - iii. The procedures to be used should be spelled out in more detail (4.6%).
3. Competence of investigators (38%)
 - a. The applicants need to acquire greater familiarity with the pertinent literature (7.2%).
 - b. The problems to be investigated are more complex than the applicants realize (10.5%).
 - c. The applicants propose to enter an area of research for which they are not adequately trained (12.8%).
 - d. The principal investigator intends to give actual responsibility for the direction of a complex project to an inexperienced co-investigator (0.9%).
 - e. The reviewers do not have sufficient confidence in the applicants to approve the present application, largely based on the past efforts of the applicants (6.8%).
4. Research environment (4.8%)
 - a. The investigators will be required to devote too much time to teaching or other non-research duties (0.9%).
 - b. Better liaison is needed with colleagues in collateral disciplines (0.4%).
 - c. Requested expansion on continuation of a currently supported research project would result in failure to achieve the main goal of the work (3.5%).

¹ Theodore A. Kotchen, MD; Teresa Lindquist, MS; Karl Malik, PhD; Ellie Ehrenfeld, PhD. NIH Peer Review of Grant Applications for Clinical Research. *JAMA*; 2004;291:836-843.

The Office of Education Research (OER) encourages COE faculty to heed the advice of Eleanor Roosevelt and “**Learn from the mistakes of others. You can’t live long enough to make them all yourself.**” The following is a suggested timeline and checklist for proposal development. OER has many resources to facilitate proposal development designed to maximize funding success and minimize stress.

Easy Proposal Planning PLUS

One Year and Earlier

- Contact OER and identify other internal resources
- Make a long range career plan
- Schedule devoted time for proposal development
- Identify initial idea for proposal
- Get and learn how to use EndNote
- Focus research area for proposal and identify relevant literature
- Assemble advisory group
- Assemble research team
- Read “The Grant Application Writer’s Workbook” (available in OER office)
- Refine the main idea for proposal
- Name the proposal
- Develop conceptual framework and representative illustration or figure
- Identify two to four possible funding agencies
- Find the mission, application process, review criteria, and relevant program officer or organizational contact for each funding agency
- Identify and research the competition
- Identify and meet with statistician (if research has quantitative or program evaluation component)
- Conduct preliminary work with research team then present and submit findings for publication

Nine Months and Earlier

- Obtain application forms and instructions to applicants for each of the projected funding agencies for which you plan to submit a proposal
- Read the instructions to applicants and highlight relevant information
- Determine format requirements for font size and type, page limits, margins, etc.
- Prepare a glossary of abbreviations, acronyms, and technical terminology that you may use
- Identify critical dates and prepare a Gantt chart for application writing and submission process

- Develop specific aims for proposal and present to research team, advisory group, and statistician for expansion of ideas and internal review
- Write the Overview/Executive Summary of grant application and present to research team, advisory group, and statistician for expansion of ideas and internal review
- Write the Significance paragraph of grant application and present to research team, and advisory group for expansion of ideas and internal review

Six to Nine Months Before Proposal is Due

- Decide on project personnel
- Decide on whom to ask for letters of support
- Identify internal (i.e., department, college, and institution) proposal submission procedures and obtain necessary forms and critical dates
- Determine submission date (earliest date to satisfy all submission procedures)
- Develop project and analysis (evaluation) plans with statistician
- Choose instruments for study measures, send out for internal review, and revise as needed
- Collaborate with statistician on writing statistical considerations portion of proposal (specific aims formulated statistically, study design, sample size justification (i.e., power analysis), statistical methods, and data management plan)
- Write Projected Approach/Plan of Work section of grant application and present to research team, advisory group, and statistician for expansion of ideas and internal review

Four to Six Months Before Proposal is Due

- Ask project personnel for updated NIH Biosketches
- Ask for letters of support
- Collaborate with relevant fiscal personnel to develop budget and write budget justification
- Write Background/Needs Assessment section of grant application and present to research team and advisory group for expansion of ideas and internal review
- Write Preliminary Studies/Previous Experience section of grant application and present to research team and advisory group for expansion of ideas and internal review

Two to Four Months Before Proposal is Due

- Document qualifications of project personnel
- Obtain NIH Biosketches
- Obtain Letters of Support
- Obtain additional forms needed from project personnel (such as Conflict of Interest statements)
- Put NIH Biosketches into same format
- Write Adequacy of Resources section
- Fill out personnel loading chart (if required)
- Write Budget and Budget Justification section

Six to Eight Weeks Before Proposal is Due

- Design face page of application
- Write Abstract and send for internal review
- Prepare Appendices
- Write Table of Contents
- Send complete application for review

Two to Six Weeks Before Proposal is Due

- Obtain all required signatures
- Make necessary number of copies

The Submission Day

- Send final versions to relevant parties