



Essentials of the Research Plan

A research plan is the main part of a grant application and describes a principal investigator's proposed research. It describes the essential elements of a research plan.

The research plan gives a principal investigator the opportunity to discuss proposed research, stating its importance and how it will be conducted. Applications are reviewed using [AHRQ's Peer Review Criteria](#).

The research plan should be written to address the following questions:

- What do you intend to do?
- Why is the work important?
- What has already been done?
- How are you going to do the work?

A typical research plan has these required elements:

- [Specific Aims.](#)
- [Research Strategy.](#)
- [Resources.](#)
- [Biographical Sketch.](#)
- [Research Support.](#)
- [Preliminary Studies and Progress Reports.](#)

Specific Aims

The Specific Aims section is a one-page formal statement of the objectives and milestones of a research project in a grant application. The purpose of this document is to clearly and concisely describe what the proposed research intends to accomplish.

The Specific Aims section should—

- State concisely the goals of the proposed research.
- Summarize the expected outcome(s), including the impact that the results of the proposed research will exert on the research field(s) involved.

List succinctly the specific objectives of the research proposed (e.g., to test a stated hypothesis, create a novel solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress field, or develop new technology).

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Research Strategy

The Research Strategy section has three subsections:

Significance.

Innovation.

Approach.

Significance

The Significance subsection will—

Explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses. Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice or more broad fields.

Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that define the field will be changed if the proposed aims are achieved.

State whether there is a strong scientific premise for the project.

Innovation

The Innovation subsection will—

Explain how the application challenges and seeks to shift current research or clinical practice paradigms.

Describe any novel theoretical concepts, approaches or methodologies, instrumentation or intervention(s) to be developed or used, and any advantage over existing methodologies, instrumentation or intervention(s).

Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation or interventions.

Approach

The Approach subsection will—

Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Unless addressed separately, it will include how the data will be collected, analyzed, and interpreted as well as resource sharing plans as appropriate.

Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims. Describe any strategy to establish feasibility, and address the management of any high risk aspects of the project work if the project is in the early stages of development.

Point out any procedures, situations, or materials that may be hazardous to personnel and precautions to be taken. A full discussion on the use of select agents should also be included, if applicable..

When creating the Research Strategy—

Address Significance, Innovation, and Approach for each Specific Aim individually or address Significance, Innovation, and Approach for all of the Specific Aims collectively if the applicant has multiple Specific Aims.

Include, as applicable, the following information as part of the Research Strategy, keeping within the three subsections listed above: Significance, Innovation, and Approach.

State whether the investigators presented strategies to ensure a robust and unbiased approach, as appropriate, for the work proposed.

State whether the investigators presented adequate plans to address relevant biological variables, such as gender, race, and ethnicity, in human subjects.

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Resources

The Resources section will—

Identify the facilities to be used (laboratory, clinical, animal, computer, office, other). If appropriate, indicate capacities, pertinent capabilities, relative proximity and extent of availability to the project. Describe only the resources that are directly applicable to the proposed work.

Provide any information describing the other resources available to the project (e.g., machine shop, electronics) and the extent to which they would be available to the project.

Describe how the scientific environment in which the research will be done contributes to the probability of success (e.g., institutional support, physical resources, and intellectual support). In describing the scientific environment the work will be done, discuss ways in which the proposed studies will benefit from unique features of the scientific environment or subject populations or will employ useful collaborative arrangements.

For early stage investigators, describe institutional investment in the success of the investigator, e.g., resource classes, travel, training; collegial support such as career enrichment programs, assistance and guidance in the supervision of trainees involved with the early stage investigators' project and availability of organized peer collegial support, such as administrative management and oversight and best practices training; and financial support such as protected time for research with salary support.

If there are multiple performance sites, describe the resources available at each site.

Describe any special facilities used for working with biohazards or other potentially dangerous substances. No information about select agents must be described in the Research Plan.

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Biographical Sketch

The Biographical Sketch section should contain the following elements—

Personal statement. Briefly describe why your experience and qualifications make you particularly well-suited for the role (e.g., PD/PI, mentor) in the project that is the subject of the application.

Positions and Honors. List in chronological order previous positions, concluding with the present position. List honors. Include present membership on any Federal Government public advisory committee.

Peer-reviewed publications. Applicants should limit the list of selected peer-reviewed publications or manuscripts to no more than 15.

Applicants should not include manuscripts submitted or in preparation. The individual may choose to include select publications based on recency, importance to the field, and/or relevance to the proposed research. When citing articles that fall under the Public Access Policy, were authored or co-authored by the applicant and arose from AHRQ support, provide a PubMed Central reference number (e.g., PMCID234567) for each article. If the PMCID is not yet available because the applicant submits articles directly to PMC on behalf of their authors, indicate "PMC Journal—In Process." Select for a [list of the journals](#).

Citations that are not covered by the Public Access Policy but are publicly available in a free, online format may include PMCID numbers along with the full reference (note that copies of publicly available publications are not accepted as appendix material.)

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Research Support

The Research Support section should—

List both selected ongoing and completed research projects for the past 3 years (Federal or non-Federally supported). Begin with the projects that are most relevant to the research proposed in the application.

Briefly indicate the overall goals of the projects and responsibilities of the key person identified on the Biography Sketch. Do not include number of person months or direct costs.

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Preliminary Studies and Progress Reports

The preliminary results section describes prior work by the investigators relevant to the proposed project. Preliminary results can be an essential part of a research grant application and help to establish the likelihood of success of the proposed project.

For new applications—except for Exploratory/Development Grants (R21, R33), Small Research Grants (R03), Research Enhancement Award Grants (R15), and Phase I Small Business Research Grants (R41/R43)—discuss the preliminary studies, data, and/or experience pertinent to this application.

Early Stage Investigators should include preliminary data.

For renewing or revised applications, provide a progress report that—

- Provides the beginning and ending dates for the period covered since the last competitive review. Summarize the specific aims of the previous project period and the importance of the findings, and emphasize the progress toward their achievement.
- Explains any significant changes to the specific aims and any new directions including changes resulting in significant budget reductions.

Lists publications, manuscripts accepted for publication, patents, and other printed materials.

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For additional information, visit—

[AHRQ Grant Tips for Applicants.](#)

[AHRQ Announces Changes to Peer Review Processes, Evaluation Review Criteria, and New Application Forms and Applications.](#)

[Implementing Rigor and Transparency in NIH & AHRQ Research Grant Applications.](#)

[Details of Application Changes for Research Grants and Cooperative Agreements \(for due dates on or after January 2010\) \(PDF, 105 KB\).](#)

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