



How to prepare a Grant winning Project



Dr. Anjan Adhikari
Associate Professor
Department of Pharmacology
R G Kar Medical College & Hospital
Kolkata

Learning objectives

- What is Research Proposal ?
- What is a Good Research Proposal ?
- What is Research Grant ?
- Why should apply for a Grant?
- How should click for Grant?

What is Research Proposal

A research proposal is an outline of proposed project that is designed to-

- Define a clear question
- Approach to answering the question
- Highlight its originality and/or significance
- Explain how it adds to, develops (or challenges) existing knowledge/literature in the field
- Persuade potential funders/funding agencies of the importance of the work

&


- Why you are the right person to undertake it

What is Research Proposal

- ⌘ Research proposals may vary in length, but generally speaking, a proposal should be no more than 2,500 words, or 5 pages in length; 2-3 pages is normally sufficient.

What is Research Proposal

- ⌘ Potential funding agencies use research proposals to assess the quality and originality of ideas, skills in critical thinking and the feasibility of the research project.
- ⌘ Think very carefully about the scope of your research and be prepared to explain how you will complete it within the proposed fund and relevant timeframe.



✎ Research proposals are also used to assess expertise of the researchers in the area in which they want to conduct research, their knowledge of the existing literature and how the project will enhance it.

Before making a formal application

- ✎ Discuss the proposal informally with friends/guide/teachers/resource persons, to ensure its originality and other issues and to gain input on the design, scope and feasibility of the project.

Before making a formal application

- ✎ Truly, it is an opportunity to communicate one's passion in the subject area and to make a persuasive argument about what the project can accomplish
- ✎ Although the proposal should include an outline, it is also an opportunity to establish the attention of readers and convince them of the importance of the project

Points to be evaluated

- Why are you are interested to do a research project ?
- What type of research work, you want to do ?
- Why this type of research work ?
- Are you confident enough to do the study ?
- Whether you are adequately qualified, trained & experienced to conduct such type of research work ?
- What is your aims & objectives in the study ?
- What is the rationale behind this project ?
- How do you anticipate you will achieve the project aims?
- Is it feasible to do the work in your institution ?

Points to be evaluated

- ⌘ What do you need (identify any special equipment, software or material)
- ⌘ Do you require particular resources?
- ⌘ Do you need assistant ? What type ? For how long ?
- ⌘ Will travel or fieldwork be required? If so: where to, how long and at what intervals?
- ⌘ What is the time frame of the project ? Is it feasible to do the work in due time ?

Points to be evaluated


⌘ **What are the different methods/processes/procedure required in the project ?**

Points to be evaluated

- **Does the proposed project involve animals or humans (diseased or healthy) ?**
- **Does this project involve other ethical issues or safety implications?**

Points to be evaluated

- Can you access necessary data or expertise?
- What are the steps to be taken to provide credibility to your research data ?
- How will you evaluate the data ?
- How will you interpret the resultant data ?
- What should be the ideal statistics ?
- Is there any statistician in your team ?
- **Are there barriers or pitfalls in your study ?**



✿ This is important & necessary for the investigators to familiarize themselves with existing knowledge about the research problem and to find out whether or not others have investigated the same or similar problems

Significance of the study

- ⌘ Be clear that, this research will refine, revise or extend existing knowledge in the area under investigation
- ⌘ How will it benefit the concerned stakeholders?
- ⌘ What could be the larger implications of this research study?

Points to be evaluated

- ⌘ Do you need financial support ?
- ⌘ Have you evaluated the financier ?
- ⌘ Who are your prospective funding agencies ?
- ⌘ Do you know about them adequately ?
- ⌘ Do you clearly understand their aims and objectives ?
- ⌘ What are their priorities ?
- ⌘ Do you believe in the objectives of the funding agencies ?

Then, start structuring Research Proposal

- ⌘ The following elements are crucial in a good research proposal
- ⌘ Each item aligns to a section in the research proposal template

Details of Research Proposal

- Title
- Abstract
- Key words
- Introduction / Background / Rationale and hypothesis
- Goals or objectives of proposal
- Materials & Methods
- Variables
- Ethical Issues
- Other regulatory issues
- Expected Results
- Statistics
- Significance and/or Impact of this proposal
- References
- Appendices

Title

- Should be Informative/Descriptive but Concise/Catchy
- Try to include important 'key words'
- This will relate the proposal to relevant potential learners
- A Good/ Catchy/Concise & Effective title not only prick's the readers interest, but also predisposes him/her favorably towards the proposal
- It also gives reviewer a general sense of what you are investigating
- **It also attracts funding agencies**

Title

- Often titles are stated in terms of a functional relationship, because such titles clearly indicate the independent and dependent variables
- The title may need to be revised after completion of writing of the protocol to reflect more closely the sense of the study

Abstract/Project Summary

- ✿ It is a brief summary of approximately 250-300 words
- ✿ It should include the main research question, the rationale for the study, the hypothesis (if any) and the method
- ✿ Descriptions of the method may include the design, procedures, the sample and any instruments that will be used

Abstract/Project Summary

- ✧ It should stand on its own, and not refer the reader to points in the project description
- ✧ This section should provide a summary of proposed research intelligible to a reader who is not a specialist in this field
- ✧ Summarize the aims, significance and expected outcomes of the research

Key words

- ⌘ Keywords define the field, subfield, topic, research issue, etc. that are covered by the article.
- ⌘ **The purpose of keywords in a research paper is to help other researchers find your paper when they are conducting a search on the topic.**
- ⌘ Keywords make your paper searchable and ensure that you get more citations.

Key words

- ✧ Most electronic search engines, databases, or journal websites use keywords to decide whether and when to display your paper to interested readers.
- ✧ Thus, it is important to include the most relevant keywords that will help other authors find your paper.

Details of Research Proposal

- ❧ Be sure to establish a solid and convincing framework for your research in this section. This should include the following sub-sections

Introduction

- It provides background information, to establish a framework for the research, so that readers can understand how it relates to other research
- It begins with a statement of the research problem in precise and clear terms
- It describe the problem systematically, to reflect its importance, its priority in the country and region and **to point out why the proposed research on the problem should be undertaken.**
- It clarifies - why the research needs to be done and what will be its relevance.

Introduction

- It is essential basis for the construction of a research proposal (research objectives, hypotheses, methodology, work plan and budget etc)
- It is an integral part of selecting a research topic
- It will guide and put into sharper focus the research design being considered for solving the problem
- **It also facilitates peer review of the research proposal by the funding agencies**

Introduction

- It is necessary to provide the context and set the stage for the research question in such a way as to show its necessity and importance
- It is very important - thorough and critical review of the literature and by personal communication with experts

Introduction

- It helps in clear understanding of the problem proposed for research and may lead to refining the statement of the problem, to identify the study variables and conceptualize their relationships, and in formulation and selection of a research hypothesis
- So, it ensures understanding of the research problem
- It gives due credit to those who have laid the groundwork for good proposed research

Introduction

- In a proposal, the literature review is generally brief and to the point
- Justify the project from a review of literature on the topic, discuss the texts which are most important to the project, demonstrate understanding of the research issues, and identify existing gaps in the literature that the research is intended to address
- The literature selected should be pertinent and relevant
- Against this background, rationalize the proposed study and clearly indicate why it is worth doing

Aims & Objectives

- ⌘ **A clear statement that demonstrate why this project is significant and what impact it will have**

Aims & Objectives


- This is usually one paragraph telling the reviewer everything they need to know about this research proposal
- Build up the background towards answering a specific question that is unknown
 - ⌘ Structure the background to go from broad information to specific information
 - ⌘ Connect preliminary data to background

Aims & Objectives

- Objectives are the goals to be achieved by conducting the research
- Are of two types- 'general' and 'specific'
- The general objective of the research is what is to be accomplished by the research project
- The specific objectives relate to the specific research questions, the investigator wants to answer through the proposed study and may be presented as **primary and secondary objectives**

Objectives

- This provides the opportunity to gain the reviewers interest and excitement about this proposal
- It should contain why this research is important, hypothesis, and objectives
- **Should state the innovation of this proposal**

- 
- **Rationale and Hypothesis - clearly state the hypothesis or number of hypotheses that will be addressed in the proposal**
 - **Give a rationale why this hypothesis is important to investigate**
 - **Too many objectives or over-ambitious objectives cannot be adequately achieved by the implementation of the protocol**

Objectives

- ⌘ What do you want to know, prove, demonstrate, analyze, test, investigate or examine?
- ⌘ List your aims in a logical sequence, e.g.-
 - ⌘ The aim of this project is to:
 - ▶ Provide an outline of a research proposal
 - ▶ Enable a prospective student to prepare a research proposal

Significance and Impact

- ✧ Chance to impress the reviewer on the importance of what are proposing
- ✧ Give a sense of future directions for this research
- ✧ Innovativeness of the proposal
- ✧ Impact on the field and/or on the disease being studied should be stated
- ✧ **Make links between the proposed research and the objectives of the funding agencies**



Materials & Methods

Methodology

- ✧ Plan to tackle the research problem
- ✧ It should contain sufficient information to determine whether the methodology is sound
- ✧ Methodological steps to answer every question or to test every hypothesis illustrated in the Questions/hypotheses section
- ✧ Involvement of biostatistician during the planning stage to resolve the methodological issues before submitting the proposal

Methodology

- ✧ **Research design:** single most important decision the investigator has to make
- ✧ Whether descriptive, analytical, experimental, operational or a combination of these depend on a number of considerations, but this choice must be explained in relation to the study objectives

Methodology

- ✧ Criteria for inclusion or selection?
- ✧ Criteria for exclusion?
- ✧ Sampling procedure to ensure representativeness and reliability of the sample and to minimize sampling errors?
- ✧ Use of controls in study ?

Methodology

- ✧ Control groups are necessary in all analytical epidemiological studies, in experimental studies of drug trials, in research on effects of intervention programmes and disease control measures and in many other investigations
- ✧ Some descriptive studies (studies of existing data, surveys) may not require control groups
- ✧ What are the criteria for discontinuation?

Methodology

- **Sample size-** information and justification
- Principles underlying the estimation should clear
- **Calculation of sample size** has been made easy by computer software programmes
- A larger sample increases the cost and duration of the study and will be unethical if it exposes human subjects to any potential unnecessary risk
- A smaller sample size can also be unethical as it exposes human subjects to risk with no benefit to scientific knowledge

Methodology


- ⌘ **What about Randomization ?**
- ⌘ **What about Blinding ?**

Methodology

- ⌘ **Interventions-** description must be given of the drugs or devices
- ⌘ If they are in phases of experimentation or are already commercially available but used for other indications, information must be provided on available **pre-clinical investigations in animals and/or results of studies already conducted in humans** (in such cases, approval of the drug regulatory agency in the country is needed before the study)

Methodology

- ⌘ **Ethical issues - Ethical considerations apply to all types of health research**
- ⌘ **Must address this important issue**

- 
- ⌘ Ethical issues are also very important for animal research
 - ⌘ Must consider the welfare of experimental animals
 - ⌘ **Must follow CPCSEA rules and regulation**

Methodology

⌘ **Conflict of Interest** - another vital issue, wherein the researchers should furnish a statement regarding the same

Informed consent form

- ✧ A consent form, where appropriate, must be developed and attached to the proposal
- ✧ It should be written in the prospective subjects' mother tongue and in simple language which can be easily understood by the subject.
- ✧ The use of medical terminology should be avoided as far as possible
- ✧ Special care is needed when subjects are illiterate

Informed consent form

- ✧ It should explain why the study is being done
- ✧ Why the subject has been asked to participate
- ✧ Should describe, in sequence, what will happen in the course of the study, giving enough detail for the subject to gain a clear idea of what to expect
- ✧ It should clarify whether or not the study procedures offer any benefits to the subject or to others, and explain the nature, likelihood and treatment of anticipated discomfort or adverse effects, including psychological and social risks, if any.

Informed consent form

- ✧ Where relevant, a comparison with risks posed by standard drugs or treatment must be included
- ✧ If the risks are unknown or a comparative risk cannot be given it should be so stated
- ✧ It should indicate that the subject has the right to withdraw from the study at any time without, in any way, affecting his/her further medical care
- ✧ It should assure the participant of confidentiality of the findings

Research setting

- ✧ The research setting includes all the pertinent facets of the study, such as the population to be studied (sampling frame), the place and time of study

Study instruments

- ⌘ Instruments are the tools by which the data are collected
- ⌘ For validated questionnaires/interview schedules, reference to published work should be given and the instrument appended to the proposal
- ⌘ For new questionnaire which is being designed specifically for this study the details about **preparing, pre-coding and pretesting of questionnaire** should be furnished and the document appended to the proposal

Study instruments

- ✎ Descriptions of other methods of observations like medical examination, laboratory tests and screening procedures is necessary- for established procedures, reference of published work cited
- ✎ But for new or modified procedure, an adequate description is necessary with justification for the same

Collection of data

- ⌘ A short description of the protocol of data collection must be a part of good protocol
- ⌘ This minimizes the possibility of confusion, delays and errors

Data analysis

- ✧ The description should include the design of the analysis form, plans for processing and coding the data
- ✧ Choice of the statistical method to be applied to each data
- ✧ What will be the procedures for accounting for missing, unused or spurious data

Monitoring, supervision and quality control

- ✧ Detailed statement about all logistical issues to satisfy the requirements of Good Clinical Practices (GCP), protocol procedures, responsibilities of each member of the research team, training of study investigators, steps taken to assure quality control (laboratory procedures, equipment calibration etc)

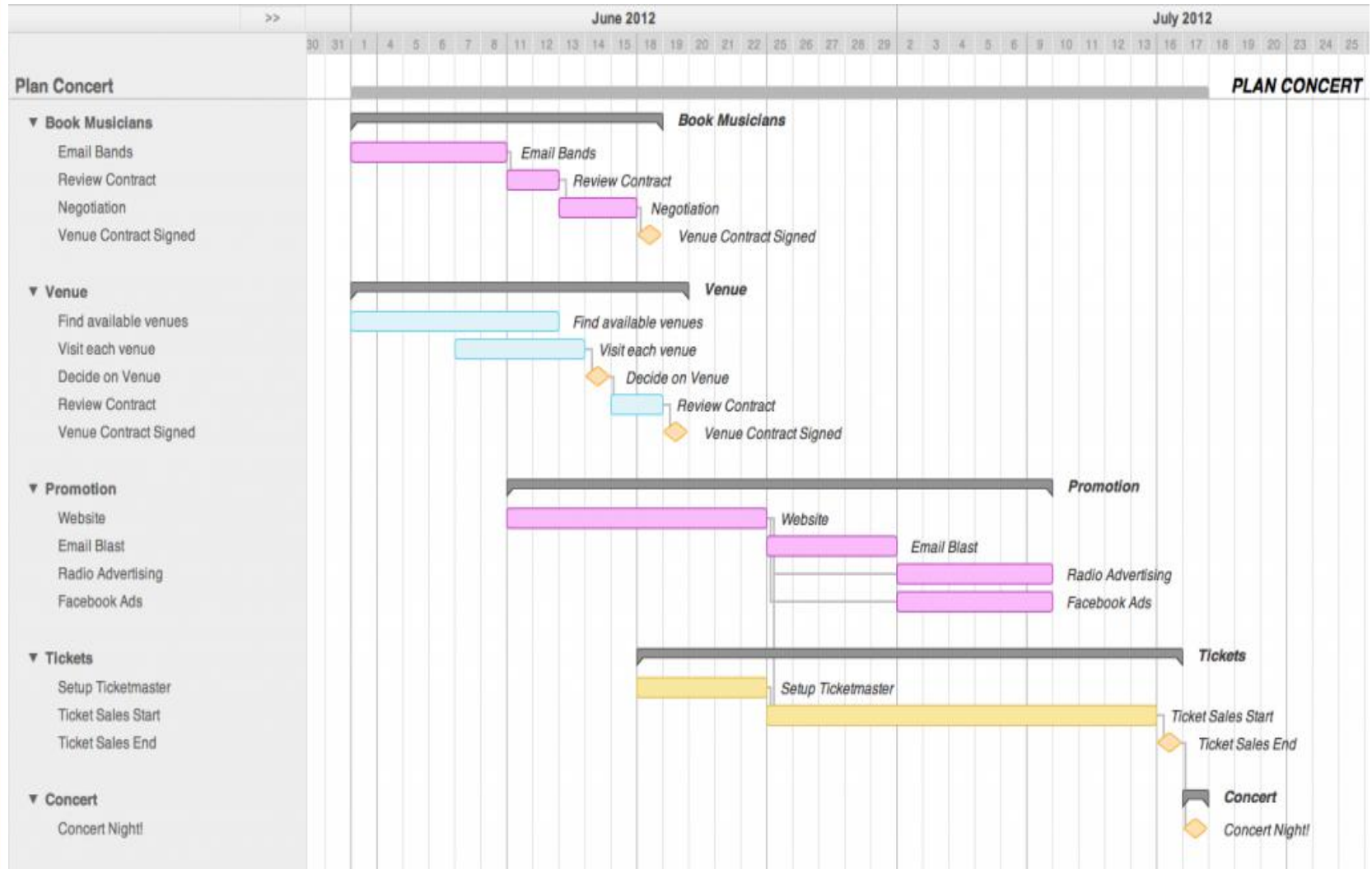
Research Plan and Timeline

☞ Provide a weekly/monthly/quarterly outline of how you will complete the work within the time scheduled

Gantt chart

- ⌘ An overview of tasks/proposed activities and a time frame for the same
- ⌘ Put weeks, days or months at one side, and the tasks at the other
- ⌘ Indicate the period in which the task will be performed to give a timeline for the research study

Gantt chart




Budget

- ⌘ Indicate the budget plan in detail
- ⌘ Indicate how will the study be financed
- ⌘ Proposal of budget with item wise/activity wise breakdown with time
- ⌘ Justification for all the item

References

- ✧ **References Cited/Bibliography of Planned Reading**
- ✧ The proposal should end with relevant references on the subject in standard form
- ✧ For web based search include the date of access for the cited website



References should provide the reader with a good sense of your grasp on the literature and how you can contribute to it

Be sure to reference texts and resources that you think will play a large role in your searching objectivity, framing rationality and justification, analysis, in addition to planned reading

Appendixes

- ⌘ Appropriate appendixes in the proposal
- ⌘ Interview protocols
- ⌘ Sample of informed consent forms
- ⌘ Cover letters sent to appropriate stakeholders
- ⌘ Official letters for permission to conduct research
- ⌘ Questionnaires
- ⌘ Permission in writing from the copyright holder or proof of purchase of the Questionnaires

Applicant's CV


- ▶ Short, informative, structured
- ▶ List all projects/awards/etc. especially awards directly related to your research
- ▶ Follow the format, if provided by the funding agencies
- ▶ Try to provide importance on the points related with the proposed study and the issues related with the objectives of funding agencies
- ▶ List all publications in the last five years-
 - Abstracts are an easy way to show productivity
 - Give impact factors for publications and citations if any
 - Give ranking of journal in the field of research if possible

Dissemination of the study results

- ✧ Proposal for methods of sharing the findings of the study with peers, practitioners, participants and the funding agency

Possible Pitfalls

- ⌘ Weaknesses in the research proposal designing and writing
- ⌘ Make sure that research idea, question or problem is clearly stated, persuasive and addresses a demonstrable gap in the existing literature
- ⌘ Ensure that the proposal demonstrates an understanding of research methods and research approaches
- ⌘ Also clear the understanding that the research methods identified are appropriate to the research question(s) identified
- ⌘ Ensure that the scope of project is reasonable, and remember that there are significant limits to the size and complexity of a project that can be completed in time



Passion for the subject matter shines through in the structure and arguments presented within the proposal

Remember that

- ⌘ **Reviewers/experts/scientists/readers may not be experts in your field**
- ⌘ **So, it is up to you to make your project and subject matter engaging to all**

Thank you

dradhikarianjankolkata@gmail.com



☞ **Wish you a Happy learning !!!**