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# Proposal Writing Guide

## for prospective PhD students

in the Faculty of Medicine and Health Sciences

Tygerberg Doctoral Office

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# Contents

# 1. Proposal development for doctoral research in the FMHS

Developing a doctoral proposal can be a daunting task, best approached one step at a time. Before you start, you should have complete clarity about the central, overarching research question that you wish to motivate in your proposal. While a healthy supervisory relationship is the bedrock of a successful and effective doctoral journey, the doctoral student must demonstrate an ability to take a leading role in driving the proposal and research process. This may be a challenge to an apprentice researcher. The ideal way to drive this process, is to produce regular written manuscripts on which your supervisor/s can provide feedback. Project manage your doctoral research project, and enable your supervisors to promote you effectively, by predetermining the deadlines on which you will produce a full draft manuscript including the chapters of your dissertation.

The first of these manuscripts is the doctoral research proposal or protocol. Write a tight proposal, typically at Calibri or Cambria 11pt font, with 6pts spacing after each paragraph - between 10 and 20 pages (excluding the cover page, compulsory list of references, and any annexures). Succinctly describe your proposed project, why it is important, how you will execute it, and what the scientific community will learn from it. Avoid details that do not pertain directly to your research question or hypothesis. The proposal or protocol will be evaluated based on its scope, clarity, feasibility, and novelty. The principal goals of your proposal is to convince the reader that you will learn something new, by means of rigorous scientific methodology. The secondary goals are to convince your audience that you will accomplish this with the resources at your disposal and in the necessary time frame. Make every effort to discuss your proposal with your supervisors and provide drafts well ahead of due dates so that you have time to incorporate comments in advance of the review process.

To assist students in preparation for the protocol review process, the Tygerberg Doctoral Office has compiled the feedback from a series of PhD proposal review panels conducted in the SU Faculty of Medicine and Health Sciences in the recent past. Alongside the guidance of your academic department and supervisors, do heed this advice. Otherwise, the formal review panel may, during your proposal review, send you back to the drawing board. We trust that you will find this document helpful and wish you all the best with the development of your proposal.

# 2. Pointers for the entire proposal

## 2.1 Information to include

- Every proposal should include the following sections:
  - An **introduction** providing the research rationale,
  - The research question and objectives,
  - A literature review,
  - A methodology section,
  - A consideration of **ethical concerns**,
  - A projected **timeline** for all phases,
  - A comprehensive project budget,
  - The anticipated chapters of the dissertation and other expected **outputs**,
  - A conclusion, and
  - A **reference list** of all cited works
- All claims must be substantiated with appropriate references
- The novelty of the study should be highlighted, in other words, explain how your primary research will generate new knowledge
- Indicate the intended format of your PhD – publication, conventional or hybrid.

## 2.2 Writing and terminology

Writing should be done in a way that allows the reader to follow and understand the written information easily, and that is appropriate to the academic context.

- Use an accessible but precise scientific writing style
- Write in concise, focused, and grammatically sound sentences
- Write in focused, logically flowing, and well-structured paragraphs and sections
- Define new or specialised terms early in the protocol, to avoid confusion
- Subject/scientific nomenclature should be used consistently
- Include a glossary, if necessary
- Read widely and create an annotated library of relevant, indexed articles
- Develop your summary and paraphrasing skills together with meticulous referencing
- Avoid using “etc.”; rather be specific
- Use of the words such as ‘very’ or ‘proved’ is imprecise and superfluous
- Be sure to use the appropriate wording for research, such as “patient” versus “client”
- Avoid contractions - write out words in full such as “did not” rather than “didn’t”
- Write out acronyms and abbreviations in full at the first use
- **Be consistent** with terminology and the representation of timeframes, ages of participants, reimbursement amounts, investigators etc. throughout the proposal and in the synopsis.
- Use standard abbreviations and be consistent with these throughout
- Define abbreviations – if there are many, it is ideal to have a table of abbreviations
- Using the first person is perfectly acceptable and is preferred, however, do not use first person reference in the Informed Consent Form
- Use specific explanations and definitions, avoiding vague phrases such as “a long time”
- The purpose of any table in the document needs some explanation and contextualising for the reader to make sense of the content
- Include references for definitions

## 2.3 Editing and technical aspects

- Include a cover page indicating your name and surname, SU number, the name of your PhD programme as per the SU Calendar, and the proposed title of your dissertation
- Number pages for ease of reference
- Use an automated table of contents
- Ensure the contents page and page numbers align, by updating after any revisions
- Insert a section break after the table of contents, so that the text begins on page 1
- Ensure that tables are labeled correctly
- Be sure not to use English UK and English US interchangeably
- Always run an electronic spelling and grammar check before submitting your document
- Proof your language
- Avoid starting a sentence with a number or writing out the number in text
- In the body of the proposal, use 1.5 line spacing with 6pt spacing after each paragraph
- Block quotations, footnotes, and bibliographies: single spacing *within* each entry but 6pt or so spacing *between* each entry
- Single spacing may be used in the Table of contents, list of tables, list of figures or illustrations, and in lengthy tables
- If bacteria are mentioned, the names of the bacteria need to be italicised
- Where Genus names are mentioned, these need to start with a capital letter
- The synopsis should be limited to two pages

# 3. Pointers for each section of the proposal

## 3.1 Title, Introduction, research question/s and objectives

- Choose a concise and descriptive title
- The title, research question, aims and objectives of the study should be well aligned
- Use the same terminology in the title and in the protocol, to avoid confusion
- The rationale for the study should be clearly explained, with a focus on the gaps in existing knowledge systems, the scientific value, and impact of the study
- Include the hypothesis, where relevant
- Explain how your aims/objectives will address the research question or main hypothesis
- Metrics of success should be defined for each objective
- The scope and objectives should be suited to a study of about 18 months - avoid being over ambitious

## 3.2 Training, experience, and collaborators

- Indicate your individual contribution to the study, as the researcher – with which processes and phases will you be involved?
- Indicate whether or not you have the necessary knowledge and skills required for the aspects in which you will be involved, and whether training will be required to carry out specific tasks
- Ensure that the supervisory panel appointed has the adequate knowledge and experience to contribute meaningfully to the study
- Ensure that those involved with the study, such as data collectors and research assistants, have the necessary skills to carry out the tasks assigned to them
- Make sure that all investigators and co-investigators involved in the study have been listed, and their CVs appended
- Where applicable, attach the declaration and CV of a research assistant on the project

## 3.3 Literature review

- Show how your study overlaps with or complements other publications on the subject
- Make use of the most up to date literature
- If using grey literature, describe the process of obtaining it
- Use of publications in different languages - how will you investigate the content of these?
- Include the outline of search terms – this should be presented using the string of words that would need to be searched
- For systematic reviews, ensure that the search strings are checked by an expert
- The literature review should be condensed into 2 to 5 pages

## 3.4 Methodology

- Indicate what type of study design has been selected
- Explain why each methodological decision is the best option for your research question
- State where the research will be conducted and describe the research site or setting
- Clearly indicate the intended timelines for each phase of the study
- Disclose clearly that certain parts of the study have already been conducted
- Be clear about who will be doing what at which stages of the study
- A schematic presentation or flow diagram is helpful in case of an experimental protocol

### 3.4.1 Study sample

- Justify the sample and selection with citations
- Provide a detailed explanation of how participants will be recruited or cases selected
- Name and justify the criteria for all decisions on inclusion and exclusion
- Be specific with inclusion/exclusion criteria, for example, if participants age range is 11 to 14 years old, then indicate the last date of evaluation is the day before turning 15
- Provide and justify the projected sample size and your calculation thereof
- Show that your sample size is adequate for answering the research question
- Highlight possible biases and clearly explain how bias in your study will be mitigated
- Explain how you will deal with possible distorted results due to small sample size
- Account for attrition and show how you estimate the expected attrition rate
- Provide a justification for selected biomarkers, where applicable
- Provide motivation with references why ethnicity specifically is an important demographic factor to collect in this study if you are doing so. Often it is confounded by socio-economic factors (income, residential area, etc.) which could be more meaningful factors to include.
- Indicate when the study samples will be taken
- Discuss the process of sample collection
- Where relevant, state how samples/materials will be transported, including administrative requirements, such as a material transfer agreement (MTA)
- If specific cell types will be used in a cell culture study, do clarify if these are animal, patient, or commercial
- It may be helpful to draft a flow diagram that illustrates the process of participant selection and how this relates to each of the objectives

#### 3.4.1.1 Clinical component

- Clearly indicate how long treatment will be administered, if applicable
- If making use of blinding, how will it be performed: this should be explained in detail
- If there is a placebo arm, the derivation of the placebo should be explained
- What will be the plan should a participant experience an adverse event during the study? What is the referral plan?
- Is there an exit/death management strategy?

#### 3.4.1.2 Animal component

- Please contact the animal research unit for advice on your project and draft proposal
- Demonstrate that animal research is scientifically sound and suitable for the question
- Clearly indicate how long treatment will be administered, if applicable
- The number and sex of animals should be justified, as applicable

### 3.4.2 Research instrument/s

- Ensure that data collection tools including questionnaires, have been validated
- Where interviews are conducted with both adults and children, the same interview schedule cannot be used for both

### 3.4.3 Data collection and data quality

Data collection should also be clearly explained in the research proposal:

- Mention the type of data that will be collected
- State which data collection methods will be used
- State who will collect the data or conduct interviews
- Consider the practical implications of data collection methods
- Acknowledge the limitations of your data collection methods
- Ensure that all sources/sites of data collection are listed
- State how the data will be checked for accuracy
- Consider piloting interviews or other instruments before actual fieldwork is done
- If working with children, consider various situations that may arise during the enrolment and data collection process and discuss how these situations can be handles, if they arise

#### 3.4.3.1 Using data from a larger or different study

If the research uses secondary data or it is from a larger study, indicate:

- Exactly how you are involved in the larger study
- How does the PhD study fit in with the larger study
- Which parts of the study have already been done and what is still needed
- Indicate the database or data source that will be used
- Ensure that you have the necessary permission to access the data you will use for your study
- Include the letter(s) requesting and granting the necessary permission

### 3.4.4 Data analysis

- Clearly describe the type of analysis to be used for your data
- Do you have a theoretical underpinning through which the analysis will be conducted?
- Clearly state your position and how this may impact bias
- The analysis plan needs to be precise and speak to exactly what will be analysed, which measures will be used, and why
- In the analysis strategy, state which variables that will be used, this include identifying the control variables
- Indicate how the confounding variables will be controlled for in the analysis
- Include a statement on how you intend to investigate variability and determine confidence intervals
- Consult a statistician, biostatistician and other appropriate experts as necessary, and indicate that such expertise will be used

## 3.5 Ethical considerations

### 3.5.1 The imperative of ethical research

Ethics forms the cornerstone of health research, playing a pivotal role in safeguarding the dignity, autonomy, and well-being of individuals involved. Adherence to ethical principles ensures that research is conducted responsibly, with informed consent from participants, minimized risks, and respect for human rights. Ethical oversight fosters trust between researchers, participants, and the broader community, essential for the advancement of scientific knowledge and the development of effective healthcare interventions.

The earliest medical researchers, dating back to ancient civilizations such as Mesopotamia, Egypt, and Greece, laid the foundation for ethical inquiry (Lloyd, 2010). These pioneering scholars, including Imhotep, Hippocrates, and Galen, approached medical research with a profound sense of ethical responsibility towards their patients and communities. Guided by ideals of beneficence, non-maleficence, and respect for autonomy, they emphasised the importance of compassionate care, empirical observation, and the Hippocratic Oath. Their commitment to ethical conduct in research and medical practice set a timeless precedent for subsequent generations.

Yet, these values have not been upheld universally. During the Holocaust, egregious ethical transgressions occurred during medical experimentation conducted on prisoners in concentration camps. Nazi physicians conducted procedures without regard for the well-being or dignity of the subjects, often resulting in extreme suffering and death. These included testing methods of sterilisation, exposure to infectious diseases, and brutal surgical procedures, conducted without informed consent or ethical oversight. The exploitation of vulnerable individuals for the advancement of pseudoscientific ideologies demonstrated the catastrophic costs of unethical research. Similarly, apartheid-era South Africa witnessed discriminatory policies that denied basic healthcare rights to black communities, perpetuating health disparities. Unethical medical experiments, such as forced sterilisations and testing of dangerous drugs on vulnerable populations, exacerbated the dehumanisation of marginalised communities.

Health researchers, like individuals in any profession, can be tempted to bend ethical rules. The desire to make groundbreaking discoveries or to achieve high-profile outcomes may lead researchers to cut corners. The competitive nature of academia and the pressure to publish can create fertile ground for ethical lapses, such as selective reporting of data or overlooking potential conflicts of interest. Motivations may include the pursuit of professional recognition, financial gain, or pressure to produce favorable results for funding purposes. However, succumbing to these temptations undermines the integrity of research and jeopardizes the well-being and trust of research participants and the broader community.

Thus, it is imperative for researchers – including doctoral students - to remain vigilant, uphold ethical principles, and prioritise the integrity and rigor of research. Below, find some of the important ethical considerations to clarify in your draft proposal.

### 3.5.2 Ethical considerations to clarify

Concerning ethics, several factors need to be clarified in the proposal, which must include:

- A conflict-of-interest statement with respect to you as the doctoral student and researcher
- A conflict-of-interest statement regarding other possible conflicts, such as a supervisor signing off as co-investigator and HOD
- A conflict-of-interest statement in industry-sponsored trials, to clarify the role and input that the company has; and contact information or documentation from the sponsor
- Patient information pamphlet to explain the study in detail, the recruitment and protection of the participant from therapeutic coercion
- A statement on the risk and benefits to each patient/participant
- An explanation of how the privacy of the participants and their data will be ensured
- A description of the approach to storing data, how data security will be ensured, and how long data will be stored
- An ethical motivation of the inclusion and exclusion of participants based on demographic criteria such as self-reported or ascribed age, sex, gender, sexual preference, race, ethnicity, language, religion, or geography
- Evidence of permission to use copyright material and intellectual property of others
- Where your study is part of a larger study, all valid ethics approvals for the larger study and a discussion of whether the approval covers the entirety of the procedures described in the protocol; and attach as annexure the original, approved proposal
- If this is a collaborative study with other institutions, a Memorandum of Understanding (MOU) / collaborative agreement and the intellectual property agreement
- A discussion of any potential bias

### 3.5.3 Consent

- Describe the informed consent process in your methodology
- Include a copy of the Informed Consent Form (ICF) in your protocol
- Ensure that language is at a suitable level for participants to understand
- How will illiterate participants be assisted to ensure informed consent?
- The ICF should make provision for participants to be allowed to ask questions or clarify anything they do not understand
- Ensure that the ICF are available in appropriate languages
- The ICF should indicate the time allocation that will be expected from the participants
- Ensure consent is available to re-use existing samples from completed studies, if this may be required at a later stage
- If studies involve children, indicate who will give consent on their behalf
- Argue for a waiver of informed consent where appropriate
- Please ensure that all participant information leaflets or consent forms contain the following information:
  (i) Names and contact details of the principal investigator and supervisors;
  (ii) Clear explanation of the potential benefits of the study;
  (iii) All foreseeable risks and how they will be minimised;
  (iv) Who will have access to the data to be collected;
  (v) How you will protect privacy and the confidentiality of participants' information;
  (vi) Participants should enter the study voluntarily and may withdraw at any time.

### 3.5.4 Animal component 

- Account and budget for suitable animal care for the full life cycle of the study, from breeding to conclusion, after hours and on public holidays included
- If using animals, will they be housed alone or in groups/cage?
- Where applicable, provide a statement that all SA veterinary regulations will be complied with
- All persons performing any (para)veterinary procedures must be authorised by the SAVC
- How will animals be anaesthetised/euthanised, if applicable?
- How will euthanasia of the animal be confirmed?
- A person responsible for euthanasia should be adequately trained in this procedure before carrying it out

### 3.5.5 Data Management and Confidentiality 

- Justify the approach to storing the data, how data will be secured, and how long data will be stored
- Indicate how any identifying data will be protected
- Indicate how long transcripts/other data will be stored after the study is completed
- Where relevant, prepare a separate application for the long-term storage of SUDI material for the purposes of your ethics application

Note: The SU ICT division recommends that SU researchers only store research data only on SU-vetted cloud storage, ie the institutional MS OneDrive cloud or MS Teams. Researchers who need advice on setting up their MS OneDrive or MS Teams storage may log a request at the Research ICT service desk for guidance on Research Data Management solutions at IT: https://servicedesk.sun.ac.za/jira/plugins/servlet/theme/portal/22.

## 3.6 Results

- Include a discussion around the generalisability (or lack thereof) of the results to populations other than the study population
- Briefly describe the findings chapters that can be expected in the dissertation
- Additional outputs: Please indicate the number of expected publications and possible findings/topics that might be described in these publications
- Feedback: Will feedback be given to the participants or community?

## 3.7 Budget and funding 

- Indicate all sources of funding and whether they have already been secured or not
- Ensure that your budget, figures, and calculations are detailed and accurate
- If the study will be in a different country, budget in the currency of that country
- Account for all costs (also any research assistants or compensation of participants)
- Where compensating participants:
    - Indicate how a re-imbursement amount is calculated
    - Clarify how participants will be compensated for their time, for example with cash, vouchers, meals, etc
    - If interviews with participants are longer than one hour then they should be compensated for their time in accordance with NHREC guidelines
- When research involves animals, budget for a laboratory animal technician
- PhD students are exempted from paying HREC fees – but only if the project is non-sponsored

## 3.8 Conclusion

The conclusion may contain a concise, executive / high-level summary of the research rationale, methodology, anticipated results, outputs, and timeline, with an overarching emphasis on the expected knowledge contribution and impact of the study.

## 3.9 References

- Use Harvard / author-date style referencing
- Referencing should be standardised using a single approach to the use of capital letters, spacing, punctuation, abbreviation, and italicisation, throughout
- Ensure that citations and references are meticulous and complete
- When citing more than one reference from a single author, use chronological order

## 3.10 Appendices

- Include all the relevant appendices such as the consent or information document, questionnaire, any previous ethics approval letters, and a hospital clearance letter
- Number the appendices in the order in which they appear in the proposal
- Where applicable, all Data and Material Transfer agreements

# 4. Similarity report 

Avoid plagiarism. Give appropriate credit to other authors in every instance where you use their words or ideas. On submission, the proposal will need to be accompanied by a Turnitin similarity report with a similarity score of no more than 15%. It is recommended that you use the Turnitin sandbox of the SU Postgraduate Office, at this link. On this platform, your proposal need not be uploaded to the Turnitin repository. This approach will avoid inflating your similarity score once you submit your dissertation for examination. This process does not remove the ultimate responsibility on each researcher and doctoral student to ensure that they have presented their own ideas with integrity, and credited all others, wherever appropriate.

# 5. Next steps

Write a full, rough draft of your proposal as soon as possible, and submit this to your supervisor with a request for timely feedback. Once you have addressed all comments as comprehensively as possible, and proofread the revised document meticulously, resubmit it to your supervisor. Request timely feedback and ask when they expect you to be ready for a review panel.

Across Stellenbosch University, students are expected to complete a proposal review process within one semester, in order to submit, at the conclusion of semester 1, a formal application for ethics approval to one of the Research Ethics Committees within Stellenbosch University. This allows about two months for the completion of the ethics process, including modifications. Tip: **Please see our Ethics Process Guide, designed to help you streamline your ethics application.**

Once a formal ethics approval letter bearing the name of the doctoral student has been received, this document must be submitted to the Tygerberg Doctoral Office at tyg-phd@sun.ac.za. As soon as such ethics approval has been submitted, you may commence with your research. From this point onwards, the study should be completed within two years, and the dissertation should be submitted for examination in the latter part of year 2 or the early part of year 3. Meanwhile, your supervisor will be required to complete regular progress reports, with the expectation that you continue to make concrete progress toward writing and submitting a full dissertation. 

Compiled by Chanelle Windvogel, Marifa Muchemwa, Brigitta Kepkey, and Liela Groenewald
**Tygerberg Doctoral Office**
Office 1073, Clinical Building, Tygerberg Campus
Faculty of Medicine and Health Sciences
Stellenbosch University
Franci van Zijl Ave, 7505 Cape Town
PO Box 241, 8000 Cape Town
November 2022
Contact us:
**www.sun.ac.za/fmhsdoctoraloffice**
Email **tyg-phd@sun.ac.za**
Tel 021 938 9813