

TRANSLATIONAL MEDICINE
a.k.a. how to develop innovations and
save patients lives

CLAUDIA MONACO M.D., PH.D.
READER & CONSULTANT CARDIOLOGIST

KENNEDY INSTITUTE OF RHEUMATOLOGY
IMPERIAL COLLEGE LONDON, UK

Research ← **TRANSLATIONAL RESEARCH** → **Healthcare**

Translational medicine is a branch of medical research that attempts to more directly connect basic research to patient care

LEARNING OUTCOMES

- To outline the fundamental mechanisms involved in the pathogenesis of vascular disease and other conditions relevant to Surgery and Anaesthesia
- To comprehend the principles and modalities of study design
- To select and illustrate an hypothesis for research in the biomedical field
- To conceive novel approaches to research with a translational value

WHY IS IT IMPORTANT?

- Improvements in healthcare
- Evaluation of cost-effectiveness
- Involvement in clinical trials

- BSc project
- Interview skills
- Team work
- Research involvement
- Academic career intentions

TYPES OF FUNDING AGENCIES

- Government funds (Medical Research Council)
- Private Foundation: philanthropic organization, charities (British Heart Foundation, Stroke Association)
- Corporate/Pharmaceutical Companies (GSK): driven by bottom line — how can it help business?

THE BASICS OF STUDY DESIGN

If only one question could be answered by the project, what would that question be?

YOUR GRANT APPLICATION - I

1. **Applicants: the team!!!!**
2. **Title of project:** The title should not be generic, but should relate to the proposed research.
3. **Abstract of research:**
 - no more than 200 words
 - Aims, Background, Methods and Expected outcomes of the project.

YOUR GRANT APPLICATION - II

4. PROPOSED RESEARCH PROGRAMME

- a) Background of the project (1 page max)
- b) Purpose of proposed investigation
- c) Plan of investigation
- d) Expected outcome(s) of the project

This section should not exceed 2 pages.

YOUR GRANT APPLICATION - III

4. PROPOSED RESEARCH PROGRAMME

- a) **Background**
 - ❖ Explain the *NEED* for research in the area
 - ❖ Details of the *PAST AND CURRENT RESEARCH*
 - ❖ *RATIONALE* for the project
 - ❖ Added *VALUE* of your research to what is already known

YOUR GRANT APPLICATION - III

4. PROPOSED RESEARCH PROGRAMME
b) Purpose of proposed investigation

- ❖ *HYPOTHESIS*
- ❖ *OBJECTIVES*

WHAT IS A HYPOTHESIS?

"... a hypothesis is a statement whose truth is temporarily assumed..."
Albert Einstein 1918

WHAT IS A HYPOTHESIS?

- From the ancient Greek, *hypotithenai* meaning "to suppose".
- A **provisional idea** whose merit needs evaluation in order to either confirm or disprove it.
- Based on previous observations or on extensions of scientific theories.
- It might predict the outcome of an experiment in a laboratory setting or the series of event taking place in the pathogenesis of a disease.

AIMS AND OBJECTIVES

- AIM: general goal you want to achieve

- OBJECTIVES : aims formulated exactly and quantitatively as to time-frames and magnitude of effect – “targets” , “measurable” , “deliverables”

YOUR GRANT APPLICATION - IV

4. PROPOSED RESEARCH PROGRAMME

c) Plan of investigation

- ❖ *General experimental approaches*
- ❖ *It is not necessary to describe each experiment!*
- ❖ *Identify facilities or resources you will need access to.*
- ❖ *Predictions of the feasibility of the proposed research, the numbers of patients to be recruited (where applicable) and the recruitment strategy.*
- ❖ *Does the project requires ethical approval?*

YOUR GRANT APPLICATION - V

4. PROPOSED RESEARCH PROGRAMME

d) Expected outcome(s) of the project

- ❖ *Unmet needs in the health service*
- ❖ *Future purpose of the research findings in relation to disease prevention, treatment, or care*

Your grant application - VI

5. REFERENCES

- ❖ *High Impact Factor Journal*
- ❖ *Key references are provided, but expand*
- ❖ *Library search*
- ❖ *Critique*

YOUR GRANT APPLICATION - VII

5. LAY SUMMARY

- ❖ *No more than 150 words*
- ❖ *Understood by any member of the general public*

**AVOID THE USE OF ACRONYMS
OR COMPLEX MEDICAL JARGON !!!**

THE TEAM

- Team leader
- Team spokesperson
- Team “scribe”
- Team “librarian”
- ALL team members to participate to brainstorming, grant writing, reference searching and in the PowerPoint presentation!

- ALL team members to participate to the discussion session!!

WHAT MAKES A SUCCESSFUL PROPOSAL?

- . Sound scientific hypothesis
- . Unmet clinical needs
- . Well-conceived, well-planned project
- . Clear and comprehensible writing

WHY PROPOSALS FAIL [1/2]

- Deadline not met
- Guidelines not followed *exactly*
- Nothing NOVEL, or intriguing
- Proposal was not absolutely clear
- Proposal was not absolutely complete

WHY PROPOSALS FAIL [2/2]

- Poor literature review
- Unsuitable method of study
- Poor writing
- Not sustainable
