HMRF Briefing and Grant Skills Training Workshop:

Writing a grant application (Applicant's perspective)

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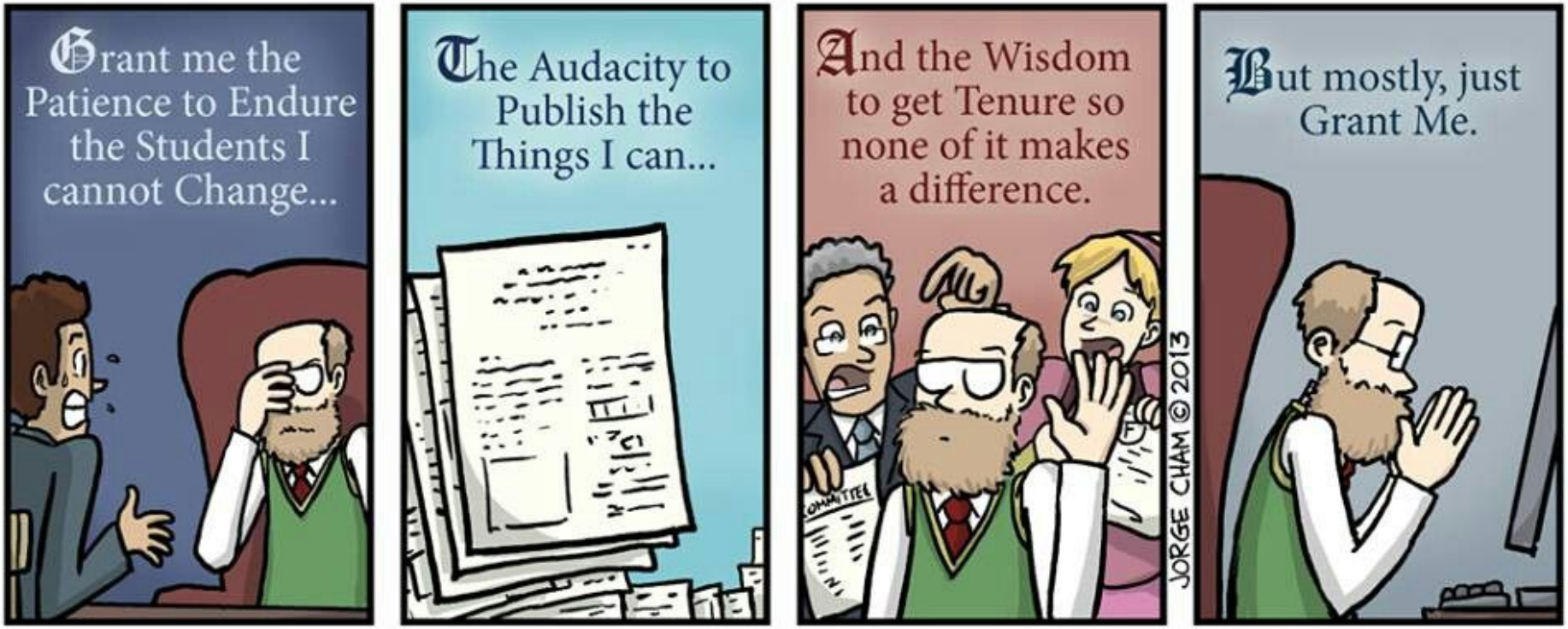
A Professor's Prayer



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My previous applications as PI

Call Year	Ref. No.	Project Title	Status
2013	02131816	Identifying the genetic causes underlying prenatally-diagnosed structural congenital anomalies (SCAs) by whole-exome sequencing (WES)	Closed (FR published)
2014	03142556	Genetic diagnosis of fetuses with cystic hygroma using Whole Exome Sequencing (WES)	Rejected
2015	04152136	Identification of germline mutations in paediatric cancer predisposition genes – a pilot study exploring feasibility, acceptability, and impact on clinical outcome of children with cancer	Rejected
2016	05162986	Evaluating the Analytical Validity and Clinical Utility of Whole-Genome Sequencing for Cytogenetically Balanced Chromosomal Abnormalities in Prenatal Diagnosis	Closed (FR published)
2017	06172806	Evaluating the diagnostic impact and cost-effectiveness of rapid whole-exome sequencing for critically ill neonates and infants in Hong Kong	In progress
2018	07182426	Translation and Validation of Client Service Receipt Inventory (CSRI) in Patients with Rare Genetic Diseases in Hong Kong	In progress
2019	08191966	Socio-Economic Burden and Health-Related Quality of Life in Patients with Rare Diseases in Hong Kong and in the Asia Pacific Region	In progress

Assessment Criteria

(updated for the 2021 Open Call)

- Originality
- Relevance to the fund and thematic priorities
- Significance of the research questions
- Quality of scientific content
- Credibility of design and methods
- Applicability to local context
- Translational potential / value

Highlights

- Addresses thematic priorities
  - Review the Scope and Theme (and subthemes) of the year
    1. Infectious Diseases
    2. Primary Healthcare and Non-communicable Diseases
    3. Mental Health
    4. Cancer
    5. Implementation Science
- Good track record (as a whole project team)
- Supported with pilot data

Checklist

- Make use of the referee's assessment form as a checklist
  1. Originality and Impact
  2. Research Questions, Aims, and Hypotheses
  3. Subjects and Subject Methodology
  4. Outcomes and Data Analysis
  5. Research Capability
  6. Budget
  7. Ethical and Safety Considerations
  8. Overall Comments and Conclusion (Strengths & Weaknesses)

Originality and Impact

What is the importance of the proposed research in terms of its ***originality*** and ***potential impact*** in the area under study?

Is the proposed work original and important and will it ***influence practice***?

- **Significance / importance** of the research topic
  - Does it address the thematic priorities?
  - What are the **implications**?

Example: Funded HMRF project (2017)
Evaluating the diagnostic impact and cost-effectiveness of rapid whole-exome sequencing for critically ill neonates and infants in Hong Kong

Example: Funded HMRF project (2019)
Socio-economic burden and health-related quality of life in patients with rare diseases in Hong Kong and in the Asia Pacific region

Originality and Impact

What is the importance of the proposed research in terms of its ***originality*** and ***potential impact*** in the area under study?

Is the proposed work original and important and will it ***influence practice***?

- One of the key assessment criteria is "***Originality***".
- In depth literature search
  - Novelty / originality
  - Relevance to the **Hong Kong** context
  - What is **lacking** in literature?
- Sometimes it is important to learn from other strong research teams around the world.

Example: Funded HMRF project (2019)
Socio-economic burden and health-related quality of life in patients with rare diseases in Hong Kong and in the Asia Pacific region

Originality and Impact

What is the importance of the proposed research in terms of its ***originality*** and ***potential impact*** in the area under study?

Is the proposed work original and important and will it ***influence practice***?

- **Not completely original** – similar projected in other centres
- As long as you can ***prove the significance / importance of the project in the Hong Kong setting*** (e.g. clinically effective, cost-effective) and the ***feasibility of achieving the outcomes***, then you still have a chance to get your project funded!

Example: Funded HMRF project (2017)
Evaluating the diagnostic impact and cost-effectiveness of rapid whole-exome sequencing for critically ill neonates and infants in Hong Kong

Research Questions, Aims and Hypotheses

How ***specific***, ***clearly expressed*** and ***realistic*** are the research questions, aims and hypotheses?

- Identify the research gap
- ***Precise***, ***clear***, and ***realistic*** research question(s), objectives & hypotheses
- You may want to list out the research question(s), **objectives & hypotheses** in **point forms** to ensure that the reviewers will be able to see them and tick off from their checklist.

Example: Funded HMRF project (2017)
Evaluating the diagnostic impact and cost-effectiveness of rapid whole-exome sequencing for critically ill neonates and infants in Hong Kong

Example: Funded HMRF project (2019)
Socio-economic burden and health-related quality of life in patients with rare diseases in Hong Kong and in the Asia Pacific region

Subjects and Study methodology

Is the proposed design and methodology appropriate for the study?

Are ***sample sizes*** clear, justified, adequate and realistic?

Are any ***preliminary data*** available?

How feasible is the ***proposed timeframe***?

- Make sure the proposed methodology is clearly and well written
- Providing ***preliminary data*** proves ***feasibility*** of research project & has a higher chance that your study will be funded!
- **Sample size calculation**

Example: Funded HMRF project (2017)
Evaluating the diagnostic impact and cost-effectiveness of rapid whole-exome sequencing for critically ill neonates and infants in Hong Kong

Example: Funded HMRF project (2019)
Socio-economic burden and health-related quality of life in patients with rare diseases in Hong Kong and in the Asia Pacific region

Subjects and Study methodology

Is the proposed design and methodology appropriate for the study?

Are ***sample sizes*** clear, justified, adequate and realistic?

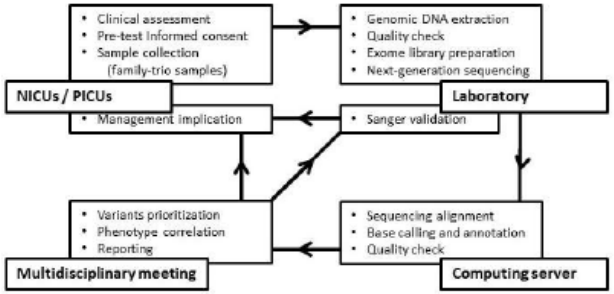
Are any ***preliminary data*** available?

How feasible is the ***proposed timeframe***?

- Present a **clear thought process** (flow chart), show that you have planned the project and provide a **feasible proposed timeframe**, with some data or reasoning to support

Example: Funded HMRF project (2017)

Evaluating the diagnostic impact and cost-effectiveness of rapid whole-exome sequencing for critically ill neonates and infants in Hong Kong



Example: Funded HMRF project (2019)

Socio-economic burden and health-related quality of life in patients with rare diseases in Hong Kong and in the Asia Pacific region

Outcomes and Data analysis

Are the ***primary*** and ***secondary outcomes*** clearly defined?

Have ***potential problems*** been anticipated and addressed?

Is the ***statistical/analytical design*** appropriate and clearly explained?

- Clear **outcome measures** (achieve the objectives)
- **Potential issues** e.g. subject recruitment; potential bias
- **Contingency plan**; suggest solutions
- That is why pilot data will be helpful – to show the potential problems and how you have dealt with it
- Provide **details on your statistical/analytical analyses**

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Example: Funded HMRF project (2019)
Socio-economic burden and health-related quality of life in patients with rare diseases in Hong Kong and in the Asia Pacific region

Research Capability

Research team's ***expertise*** and ***track record*** (incl. PI / project team members / collaborators)

Existing facilities of the Institution where the research will be conducted

- Show that you have **a strong research team**
  - Invite senior colleagues (with good track record)
  - Invite colleagues with specialised skills / expertise
- Show that the existing **facilities / manpower** are strong enough to ensure feasibility of project

Example: Funded HMRF project (2017)
Evaluating the diagnostic impact and cost-effectiveness of rapid whole-exome sequencing for critically ill neonates and infants in Hong Kong

Example: Funded HMRF project (2019)
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Budget

Is the request for research personnel, consumables, equipment and overall budget ***justified*** and ***reasonable***?

- Make sure you provide **details** regarding your **budget breakdown**
  - Budget you are requesting for;
  - Budget you are NOT requesting for (you may wish to provide a letter of support to show that it has been supported by another party e.g. provided by the Department; make sure to be careful while you write this as reviewers pay close attention on duplicate funding application)

Example: Funded HMRF project (2017)

Evaluating the diagnostic impact and cost-effectiveness of rapid whole-exome sequencing for critically ill neonates and infants in Hong Kong

Ethical and Safety considerations

Is the proposed research ***ethically sound***?

Any safety or ethical issues from the proposed research. Whether these have been ***adequately addressed*** in the proposal?

Has ***ethical approval*** been sought?

- Show that you have considered all **safety and ethical issues** and how will they be addressed
- If possible, get ***IRB ethics approval*** prior to the HMRF application

Review panel categories.

Response to reviewers' comments

- **Point by point** response to **ALL comments** from GRB and ALL reviewers (just like how you respond to reviewers' comments in a point-by-point manner during manuscript submission)
- Pay close attention to actions required by PA

Start early!!!

Spend plenty of time to plan, invite co-investigators and collaborators, & discuss and critically review the proposal over and over again (use the assessment form as a checklist)!

GOOD LUCK !