

“As Long As You’re Up Get Me a Grant”

**An introduction to the fine art of
grant writing**

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as long as you're up get me a Grant's



What I'll Cover:

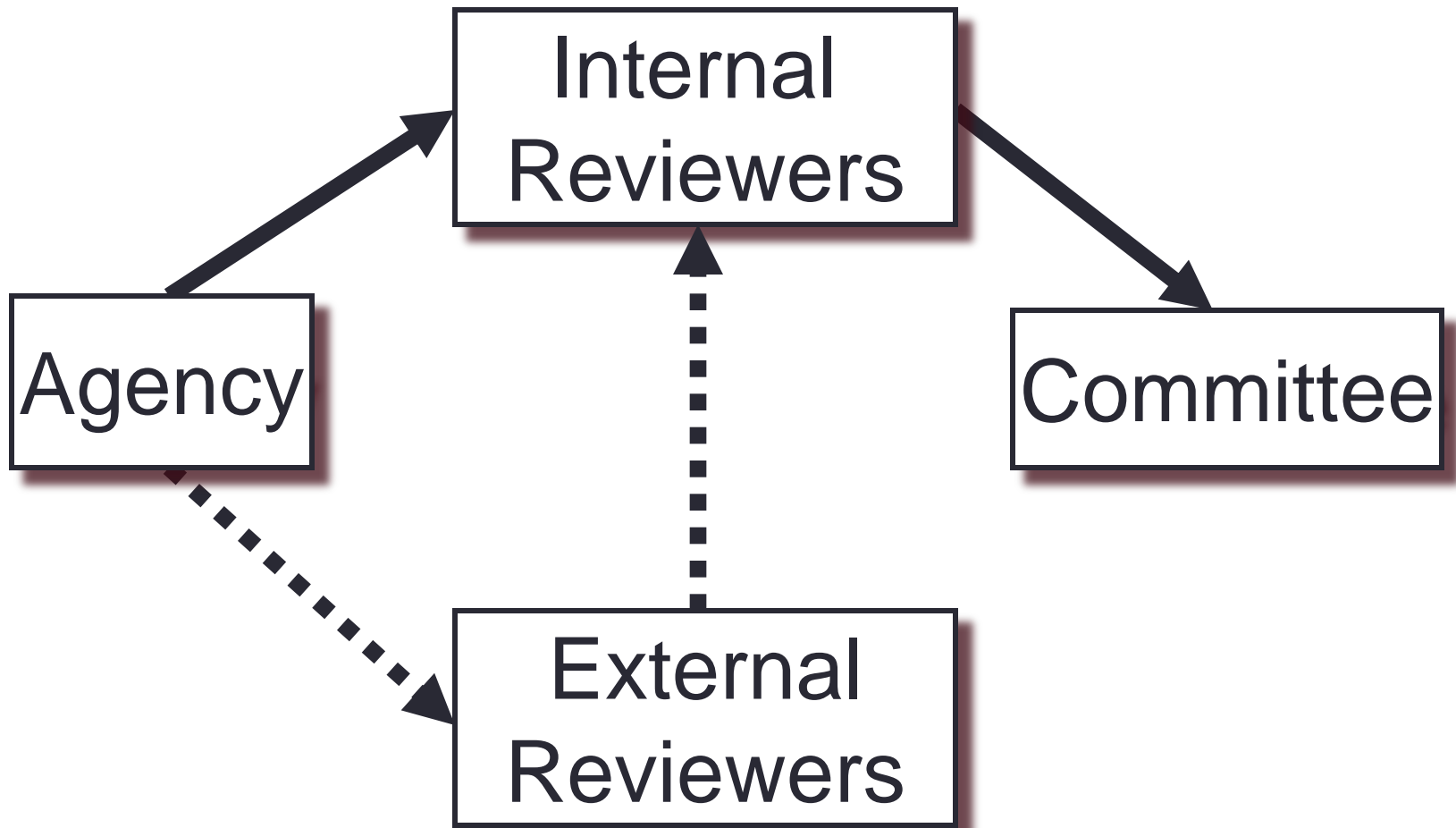
- The purposes of a proposal
- The grant review process
- The parts of a grant
- Packaging the grant
- Dealing with rejection

The Purposes of the Proposal:

- Overt: What you *will* do
- Covert: What you *can* do
 - Awareness of problems
 - Awareness of alternatives
 - Why you're doing what you're doing
 - Ability to handle data

THE REVIEW PROCESS

The Way It Was at CIHR:



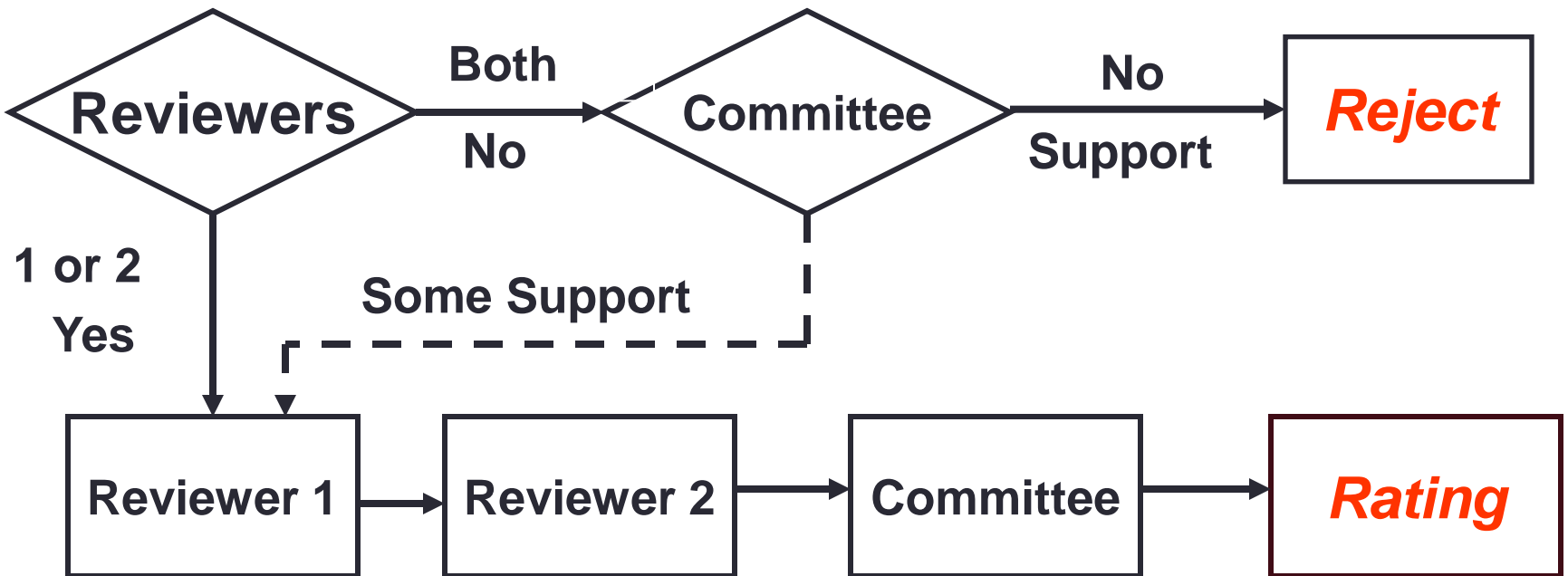
External Reviewers:

- Zero to five people
- Experts in:
 - Content area (significance)
 - Methodology (design, statistics, scales, etc.)

Internal Reviewers:

- Two committee members
 - May have been at 0 to 20 meetings
 - Responsible for reviewing 6-10 grants
 - *May not have content expertise*
- One reader

The Way It Was:



THE REVIEW PROCESS

The Way It Will Be

The New Schemes

- Two new schemes:
 - Foundation scheme – supports *people*
 - Project scheme – supports *ideas*
- Designed to reduce cost and effort of review process
- Different review process for each scheme
- Has been delayed twice (so far)

Foundation Scheme

- Provides long-term support at all stages of research career:
 - Established researchers based on previous record – 7-year grants
 - New/early investigators (no more than 5 years in 1st academic appointment) with excellent training and early-career productivity – 5-year grants (separate stream)
- Funding between \$50,000 and \$1.5 million / year
- One competition / year
- Portable
- *Project leader cannot be PI on project grant, can be collaborator*

Foundation Scheme

- Three-stage review process
 - Stage 1 – focus on caliber of applicant
 - Done remotely
 - 5 reviewers (2 academic, 2 knowledge users, 1 randomized)
 - 10-20 applications/reviewer
 - Stage 2 – integrate applicant with quality of program of research
 - Done remotely
 - 5 reviewers (2 academic, 2 knowledge users, 1 randomized)
 - 10-20 applications/reviewer
 - Stage 3 – discussion of “grey zone” applications
 - Those with large variance in ratings at Stage 2
 - Face-to-face meeting
 - Interdisciplinary committee, different people from Stages 1 and 2

Foundation Scheme – Stage 1

- Used for matching expert reviewers to individual applications.
- Maximum of 3500 characters (approx. 1 page).
- Illustrates applicant(s) research experience and vision of research program by describing:
 - Overall focus of research career;
 - Nature of experience and expertise;
 - Important collaborations established;
 - Vision or direction of research program.

Foundation Scheme – Stage 1

- Project leaders:
 - widely recognized in their field
 - can establish and direct major projects or programs of research
 - have significantly advanced knowledge and/or its translation into improved health care, health systems, and/or health outcomes
 - have, trained others in research and/or other health-related non-academic fields
 - productive
- ***Applicants will be evaluated based on what is expected for their career stage and area of research.***

Foundation Scheme – Stage 2

- Application will consist of four parts:
 - 1. Summary (1 page)
 - 2. Quality of program
 - 2.1 Research concept (3 pages)
 - 2.1 Research approach (2 pages)
 - 3. Quality of Expertise, Experience, and Resources
 - 3.1 Expertise (~ 3 pages)
 - 3.2 Mentorship and Training (~ 2 pages)
 - 3.3 Support Environment (~ 1 page)
 - 4. Budget (1/2 page)

Foundation Scheme – Stage 3



Project Scheme

- Support ideas “with the greatest potential for important advances in health-related knowledge, the health care system, and/or health outcomes.”
- Duration 1 to 5 years
- Funding ~\$25,000 to \$750,000 / year
- Two competitions / year
- Project leader may hold multiple grants (may change) but only 1 submission / calendar year during transition
- Not renewable

Project Scheme

- Two-stage review process:
 - Stage 1
 - Reviewed remotely
 - 5 reviewers
 - Stage 2
 - “Grey zone” applications
 - Face-to-face meetings

Schedule

	Launch Date	Application Deadline	Funding Release Date	Number
Project Scheme 1	Winter	Spring	Summer	~940
Project Scheme 2	Summer	Fall	Winter	
Foundation Grant	Summer	Fall	Spring	1 st - 200 2 nd - 270 114 Annually

Potential Advantages

- Longer-term funding
- Less time spent on applications that will be rejected
- Better match of reviewers to grants
- Clearly defined review criteria
 - Decrease variability
 - Increase transparency

THE PARTS OF THE PROPOSAL

The Parts of the Proposal:

- Summary
- Progress Report
- Introduction
- Procedures
- Data Analysis
- Relevance
- KT Plans
- Budget
- Appendices

Summary:

DON'T SKIMP!

**It may be the only part
some committee members
read.**

It may be best to write this last.

Summary:

Break the summary into subheadings:

- Background
- Objectives
- Hypotheses
- Research Plan

Progress Report:

- Not only progress on this grant!
- Relevant research over past 3-5 years
- Brief summary of work, with references
- Describe earlier work only if relevant
- Tie the work together -- show a theme
- Tell an interesting story of your work leading to present application

Introduction:

1. The objectives should be clear and up front
 - A grant is not a novel
 - Don't keep readers waiting to find out what it's about
 - First sentence should be, "The purpose of this study is to ..."

Introduction:

2. The literature review should be:

- Up to date
- Comprehensive, but not exhaustive
- Balanced
- About 3-4 pages; 20-40 references

Introduction:

3. The problem must be significant

- The worst thing is not “There are some problems with the method” but “How can I stay awake while reading this?”

Hypotheses:

- State them early
- Be explicit
- Be succinct
- *Don't* phrase as a null hypothesis

Methods (Design):

1. Is the design clearly specified?
2. Is it the most rigorous one possible? If not, give the reason.
3. Are there appropriate control groups?
4. Are potential confounders recognized?

Methods (Subjects):

1. Is the sample representative?
2. Are inclusion/exclusion criteria given; are they necessary and sufficient?
 - Biases?
 - Filters?
3. Is the sample size:
 - Justified? – state effect size, alpha, and beta
 - Available? – provide flow of patients

Methods (Procedure):

- Are they described in sufficient detail?
- Are the DVs fully described?
 - Do you have too many?
 - Multicollinearity.
 - Participant burden.
- Do the measures relate to the hypotheses?
- Is the time-line realistic?

Methods (Data Analysis):

1. Are the *exact* statistical tests described?

How Not to get a grant:

Say:

“The data will be entered using Excel Version 8.2, and analyzed using SPSS/PC for Windows, Version 22, running on a Mac under OS X Maverick. Univariate and multivariate procedures will be used.”

Too much irrelevant stuff; no relevant information

Methods (Data Analysis):

2. Does each analysis relate to a hypothesis; does each hypothesis relate to an analysis?

Tying Analyses to Hypotheses:

“To test the first hypothesis (the Experimental group will show a greater reduction in anxiety over time), we will use a Group x Time repeated measures ANOVA. The hypothesis will be supported if there is a significant interaction.”

Methods (Data Analysis):

3. Are the assumptions of the tests met?

- Normality
- Linearity
- Interval property
- Etc.

Methods (Data Analysis):

4. How will you handle missing data?
 - Imputation
 - HLM
 - Do *not* use LOCF

Relevance:

- Is it relevant for this agency?
- Is relevance explained in lay terms?

Knowledge Translation Plans:

- Now mandatory for all grants (even basic sciences)
- Grants have been killed for poor KT plans
- Includes:
 - Synthesis (e.g., meta-analyses, consensus conference)
 - Dissemination (summaries for stakeholders; educational sessions with patients, practitioners, and/or policy makers; media; etc.)
 - Exchange (interactions between knowledge users and researchers)
 - Application of knowledge
- Read their Web pages!

Budget:

1. Is money allocated for:
 - Staff (with benefits)
 - Supplies
 - Postage
 - Long distance calls
 - Printing
 - Travel for subjects
 - Travel to conferences
2. Have all expenses been justified?
3. Are all categories allowed?

Budget:

- You can't be too detailed.
- Use real names and salaries for RAs and students, if possible.
- Provide time estimates for each person.
- Be realistic regarding time and money.

Budget:

- Don't pad the budget (too much)
- Realize that CIHR will claw back 15-25% of the budget – plan for this

Time Line:

- Be realistic
- Be sure to include time for:
 - Recruiting staff
 - Training staff
 - Recruiting subjects
 - Analyzing data
 - Writing up results
- Provide a table

Time Line:

	2014												2015											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Recruit staff	■																							
Train staff		■	■																					
Recruit subjects				■	■	■	■	■	■	■	■	■												
Follow-up										■	■	■	■	■	■	■	■	■	■	■				
Analyze data																				■	■	■	■	
Write papers																					■	■	■	■

Appendices:

- Copies of questionnaires and scales
- Institutional approval for:
 - Human ethics
 - Animal care
 - Radiation protection
 - Biohazards
 - Investigational drugs
- Support from collaborators/agencies
- Letters from consultants

PACKAGING THE PROPOSAL: SUBSTANCE:

Authorship:

- Who should be on a grant?
- Most studies require many skills:
 - Content expertise
 - Methodology
 - Statistics
 - Genetics
 - Economics
 - Other

Authorship:

Single authorship reserved for those who:

Are brilliant and polymaths

Think they're brilliant and polymaths

Have more chutzpah than brains

Have a schizoidal personality disorder

Very few single-authored grants are approved

Authorship:

But:

Do not include the immediate world

Co-Is must be seen as adding to the project

Don't list people who only provide patients

Pilot Studies:

- A double-edged sword:
 - Enough to show project is feasible
 - Enough to show you know the field
 - **Not** so much that it looks like you don't need money

Packaging the Proposal:

- When in doubt, read the instructions:
 - Page limit
 - Line spacing
 - Font size
 - Appendices

Packaging the Proposal:

- Neatness and spelling *do* count
- There are only two official languages
 - Medicalese and Nursing are not among them

“Manifestations of speeding up of human field rhythms are coordinate with higher frequency environmental field patterns. Radiation increments of widely diverse frequencies are common household accompaniments of everyday life. Atmospheric and cosmological complexity grows.”

“For example STEAM will be used to shim a Voxel several times larger than where the pathology is believed to be located followed by an SI experiment.”

Language:

- Remember – not all reviewers or readers have content expertise
 - Do not avoid technical terms, but define them
 - Use example of *Scientific American*
 - Aim for the intelligent but ignorant reader
 - Keep abbreviations and acronyms to a minimum – the reader will forget them

Know the Agency:

- What do they fund?
- Whom do they fund?
- How much do they fund?

WRITING THE GRANT

Writing the Grant:

How much time will it take?

- Use your most pessimistic estimate
- Multiply by 2
- If you've written fewer than five, multiply by 3
- Add a month

Writing the Grant:

Three people should read it:

- Someone who knows the field well
- Someone who doesn't know the field at all
- Someone who know the agency

What Works; What Doesn't

What Works:

 Good design

 Innovative

 Tied to theory

What Doesn't:

 Poor design

 Same old thing

 Data mining

Other Things That Don't Work:

- “Nobody has ever looked at this before!”
 - There may be a reason – nobody cares
- “This has never been studied in Canada”
 - May be OK for things that are different in Canada (e.g., health care system)
 - Doesn't make sense for things that are the same (e.g., physiological processes)

What Pisses Me Off:

- Over-use of bold and italics
 - I'm bright enough to figure out what's important
- Telling me how unique and original the grant is
 - It rarely is
- Remember – the reviewer must be your advocate; don't piss him/her off

DEALING WITH REJECTION

Dealing with Rejection:

- Be prepared for it
- About 15% of grants are funded
- It's a crap-shoot, even for good proposals

Dealing with Rejection:

- Get reviewers' comments if not sent
- Write letter in response to them
- Edit letter
- Throw letter away
- Put comments on shelf for one month
- Don't write a second letter

Dealing with Rejection:

Remember:

- Reviews written before committee meeting
- May be discrepancy between reviews and letter
- Sometimes grant rejected for lack of funds; not because of content
- Most reviewers are intelligent
- If reviewers missed something, it may not have been clear or may have been buried

Dealing with Rejection:

- The committee doesn't have the previous reviews, but it does have a collective memory (and some reviewers keep previous reviews)
- In resubmission:
 - Don't ignore criticisms
 - Build on positive comments
 - Address negative ones
 - Don't be aggressive or defensive
 - Use your two pages well; spell out *exactly* how you changed the proposal

GOOD LUCK!
