

How to Write Specific Aims for Different Grant Agencies

Panelists:

- **Joan Lappe, PhD, RN, FAAN**, College of Nursing
- **Jason Bartz, PhD**, School of Medicine; Department of Medical Microbiology & Immunology
- **Rebecca Murray, PhD**, College of Arts & Sciences; Department of Cultural & Social Studies
- **Sonia Rocha-Sanchez, MS, PhD**, School of Dentistry; Department of Oral Biology

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Specific Aims

- Outline the key steps to meet your objectives that address a critical need for the research you propose.
- Are the most important part of any grant proposal.
- Tell the reviewers how you will test the parts of your central hypothesis or attain your overall objective.
- Need to be in full agreement with your central hypothesis/overall objective.
- Include outcomes that are the “deliverables” of your proposed project; these need to be clear, concise, measurable variables

Specific Aims Page

- Gap in knowledge
- Statement of need
- Overall objective
- Central hypothesis
- Specific aims
- Expected outcomes



Perfecting your aims is a challenge!

- Consider the grant proposal as your “sales presentation,” and the specific aims as your primary selling points.
- The aims need to be “brief, informative, attention-getting ‘headlines’ that will attract a reviewer’s attention and pique their interest.”

The Grant Application Writer’s Workbook. Robertson, J, et al, 2021

Lessons Learned

1. Strive for clear, concise, measurable outcomes; these are the “deliverables” of your project.
2. Establish dedicated time and space to think and write
3. Set timelines
4. Find a mentor
5. Ask colleagues to read and critique your aims
6. Participate in a mock review

Resources

The Grant Application Writer's Workbook: Robertson, J; Russell, S, & Morrison D.

<https://www.grantcentral.com/workbooks/>

Versions:

- NIH
- NSF
- USDA-NIFA
- Any Other Agency

The websites are helpful with links for writing schedules and an interactive outline for building your grant application.

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Jason Bartz, PhD, School of
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Specific aims page

Importance

- This is the first thing a reviewer will likely read
 - Who is your audience?
- This is the blueprint for the grant
- If the aims page is unclear or if the reviewer does not understand why this is important and what you are doing, you are sunk.
- This will take 90% of your effort on the grant

“A strong Specific Aims section is essential to a strong NIH grant application. It is the most important section related to the writing of your Research Plan, in our opinion, because, as noted earlier, it becomes the template or master plan for that part of the application. If this section works well, the rest of the Research Plan will be much easier to write.” - The Grant Application Writer’s Handbook



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Specific aims page

Nuts and bolts

- 1 page
- 0.5" Margins
- 11pt Arial font
- Left justify
- Use spaces between paragraphs
- Write in short declarative sentences
- Use the active voice
- Report the details that matter, every word should tell

Instructions for PHS 398 Research Plan Component - Specific Aims Section: "State concisely the goals of the proposed research and summarize the expected outcome(s), including the impact that the results of the proposed research will exert on the research field(s) involved. List succinctly the specific objectives of the research proposed, e.g., to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop new technology."



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Specific aims page

General organization

Introductory paragraph

- Opening Sentence
- Current Knowledge
- Gap in Knowledge
- Statement of Need

What, Why, Who Paragraph

- Long-Term Goal
- Overall Objective
- Central Hypothesis
- Rationale

Flow of logic

Specific Aims “Paragraph”

Payoff Paragraph

- Expected Outcomes
- Generality Regarding Positive Impact



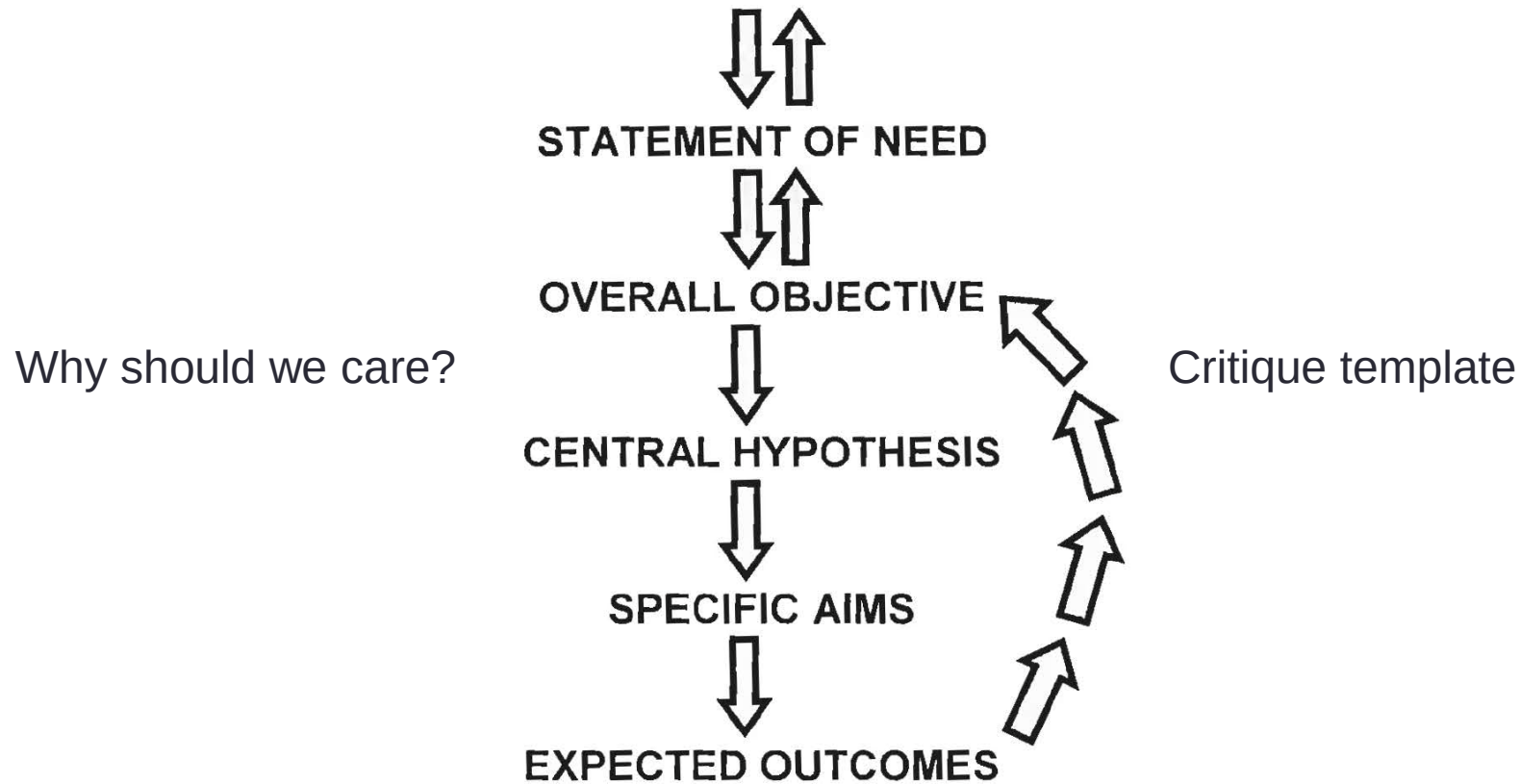
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Specific aims page

General organization

LINEAR PROGRESSION FOR A STRONG SPECIFIC AIMS SECTION

GAP IN KNOWLEDGE / LACK OF SOMETHING



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Rebecca Murray, PhD,
College of Arts & Sciences;
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Social Studies



- Specific Aims is particular in name, but universal for (most) applications
- DOD, NIJ, State/Local Grants, Foundations
 - Called different things, but similar concepts
 - Overall Problem – Gaps in Solving – Unique Solution – Impact (back to problem)
- Even more critical for multi-disciplinary research

Grant writing / Grant selling (both are important!)

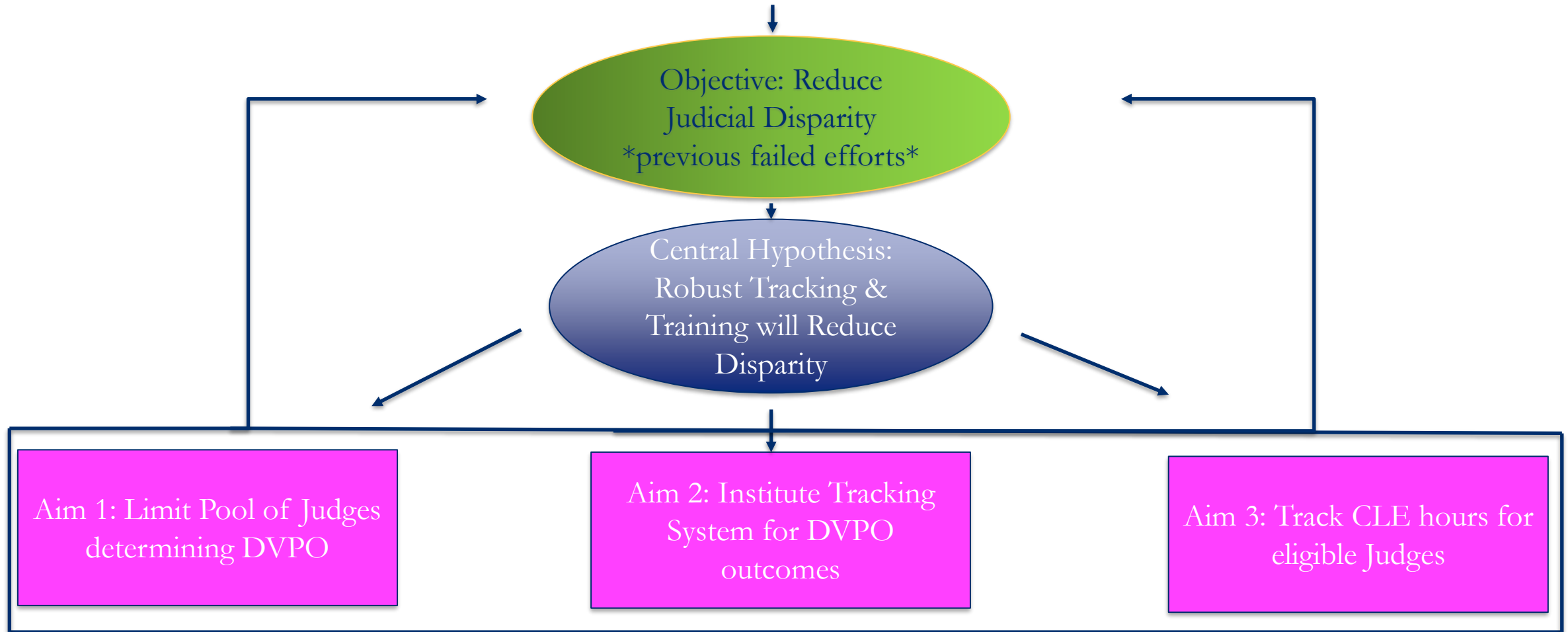
- Expertise Important
- Concrete, obtainable objectives
- Unique methodology
- Tied to appropriate prior research
- Excitement Important
- Objectives in vernacular
- Understandable methodology
- Tied back to 'big picture'



Importance of Visualization

- Flow chart
 - How specific aims flow from larger goal
 - Keep specific aims on same “plane”
 - Not dependent on one another
 - Not wildly different in complexity
- Other Diagrams may help for later
 - Process oriented (who does what and why)
 - Data flow
 - Swim lane

CRITICAL PROBLEM:
Judicial disparity in Granting Domestic Violence Protection Orders (highlight problematic outcomes)



**Sonia Rocha-Sanchez, MS,
PhD, School of Dentistry;
Department of Oral Biology**



What does a reviewer expect to see on your SA page?

Possible Components	Issues Briefly addressed
Introductory Paragraph	- Educate reviewer by summarizing important knowledge
Significant Problem (a.k.a., Solving problem aligned with the sponsor's mission)	- Identifies knowledge gap or critical need - Identifies problem created by the need that you plan to solve
Rationale paragraph: What, Why, Who	- Overall goal addressed by the project - Identified knowledge gap

What does a reviewer expect to see on your SA page?

Cont.

Possible Components	Issues Briefly addressed
Present solution to the problem that successfully addresses identified need	- Present central hypothesis or statement of need - Explain why you are pursuing this project - Describe unique qualifications and research environment
Specific Aims	- Aims logically flow to tell the story of the proposed study - Aims consistent with the central hypothesis - Aims support overall project goal - Aims related, but not dependent on the success of another aim
Overall Impact Paragraph (a.k.a., Pay out paragraph)	- Statement of innovation - Specific expectations to be fulfilled by the project

A Few Tips To Consider

- Start by setting the context; funnel down to the problem and solution
- Create a solid hypothesis with a strong scientific premise
- The aims should collectively set the grounds for testing the central hypothesis or accomplish the objective
- Use 2 - 4 realistic aims over 2 – 5 years funding period
- Be mindful of the resources available for you
- Discuss your aims with colleagues
- Write, discuss, revise...repeat
- Avoid “over-ambitious” or “incremental” aims
- Conclude with an impact statement or expected outcome
- Use *italic*, **bold**, underline to emphasize key points, but don't overdo it! Be consistent throughout the application
- Gain the reviewers' confidence while convincing them that your proposal is important to support!

Consider Word Choice

Strong verbs	Descriptive verbs
Determine	Describe
Identify	Compare
Develop	Correlate
Evaluate	Explore
Define	Investigate
Systematically adapt...	Study
Assess the feasibility and acceptability	Observe
Dissect	
Implement	

Questions & Answers

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Link to survey: https://blueq.co1.qualtrics.com/jfe/form/SV_40n341Lisd62r8G