A Gentle Introduction to NIH Grant writing for Population Scientists

Tim Bruckner
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Outline

• Why NIH / Pop Dynamics Branch?
  • Is my work “health-y” enough?
• How to match grant to study section / agency
• Which mechanism? R03, R21, R01
• Timeline—from idea to submission
• Practical Tips & Resources
• Panel of NIH Reviewers (Greg Duncan, Candice Odgers)
Why NIH / Pop Dynamics Branch? It fits much of CPIP

• exclusively devoted to funding population dynamics research
  • https://www.nichd.nih.gov/about/org/der/branches/pdb
  • fertility, pregnancy outcomes, mortality and morbidity (especially maternal, infant, child, adolescent, and young adult mortality and morbidity), migration, population distribution, population stratification (including disparities based on race, ethnicity, sex/gender, and age), nuptiality, family demography, population growth and decline, and the causes and consequences of demographic change.

• Priorities
  • Disparities in infant and maternal health
  • Health, Disease, and Development Across the Lifespan
  • Contraceptive Use and Non-Use / unintended pregnancy
Why NIH

• NICHD funding line is ~12%, but greater for
  • Early Stage Investigators (PhD within last 10 years)—up to 17%
  • New Investigators (no previous R01)

• Peers evaluate your work, and you get feedback (vs. RWJF)
  • Grant can set groundwork for research agenda and collaboration

• If work relates to other NIH branches, funding line may be more generous:
  • Ex: NIA (for Alzheimers and Dementia: ~30%)
  • Search: NIA 2021 funding line, etc.—they are updated throughout the year
Examples of Grants funded by NICHD

• NIH Reporter is your friend:
  • https://reporter.nih.gov/
  • Search by topic, researcher, institution
  • Ex: George Farkas

• Results:
  • Title and Summary of Project
  • Investigators
  • Funding Agency
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<table>
<thead>
<tr>
<th>Project Number</th>
<th>Principal Investigator(s)/Project Leader(s)</th>
<th>Organization</th>
<th>Fiscal Year</th>
<th>Admin IC</th>
<th>Funding IC</th>
<th>FY Total Cost by IC</th>
</tr>
</thead>
<tbody>
<tr>
<td>5P01HD076816-05</td>
<td>LUDWIG, JENS, MAYER, SUSAN E, POLLACK, HAROLD, ALEXANDER</td>
<td>UNIVERSITY OF CHICAGO</td>
<td>2018</td>
<td>NICHD</td>
<td>NICHD</td>
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<td>5P01HD076816-04</td>
<td>LUDWIG, JENS, MAYER, SUSAN E, POLLACK, HAROLD, ALEXANDER</td>
<td>UNIVERSITY OF CHICAGO</td>
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<td>NICHD</td>
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<td>LUDWIG, JENS, MAYER, SUSAN E, POLLACK, HAROLD, ALEXANDER</td>
<td>UNIVERSITY OF CHICAGO</td>
<td>2016</td>
<td>NICHD</td>
<td>NICHD</td>
<td>$1,503,642</td>
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<td>5P01HD065794-05</td>
<td>FARKAS, GEORGE ANDREW</td>
<td>UNIVERSITY OF CALIFORNIA-IRVINE</td>
<td>2015</td>
<td>NICHD</td>
<td>NICHD</td>
<td>$151,035</td>
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<tr>
<td>5P01HD076816-02</td>
<td>LUDWIG, JENS, MAYER, SUSAN E, POLLACK, HAROLD, ALEXANDER</td>
<td>UNIVERSITY OF CHICAGO</td>
<td>2015</td>
<td>NICHD</td>
<td>NICHD</td>
<td>$1,423,125</td>
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</tbody>
</table>
Match Grant to Study Section and NICHD (or other agency)

- **What is Study Section?**
  - Your peers who score your grant (NIH does NOT score grants)
  - These peers tend to get speaker invitations!

- **NIH Matchmaker, within NIH Reporter:**
  - [https://reporter.nih.gov/matchmaker](https://reporter.nih.gov/matchmaker)
  - Ex: sex ratios and male/female differences in survival
    - Insert abstract into matchmaker
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  • Ex: sex ratios and male/female differences in survival
    
    Insert abstract into matchmaker
Healthy transitions from mid-life to early older age: biomedical follow-up of 1958 Birth Cohort Study members at age 60

Principal Investigator(s)/Project Leader(s): GOODMAN, ALISSA, BATTY, DAVID
Organization: UNIVERSITY COLLEGE LONDON
Fiscal Year: 2020
Admin IC: NIA
Institute/Center: NIA
Cost: $323,254

Age, period, and cohort effects on gender differences in alcohol use and alcohol use disorders in 47 national, longitudinally-followed cohorts

Principal Investigator(s)/Project Leader(s): KEYES, KATHERINE, MARGARET, JAGER, JUSTIN Q
Organization: COLUMBIA UNIVERSITY HEALTH SCIENCES
Fiscal Year: 2020
Admin IC: NIAAA
Institute/Center: NIAAA
Cost: $380,139

ACL-LIFE Life History Interview and Validation

Principal Investigator(s)/Project Leader(s): BURGARD, SARAH A.
Organization: UNIVERSITY OF MICHIGAN AT ANN ARBOR
Fiscal Year: 2021
Admin IC: NIA
Institute/Center: NIA
Cost: $573,303

Demographic models and hypothesis testing of delayed effects on adult mortality

Principal Investigator(s)/Project Leader(s): PALLONI, ALBERTO B.
Organization: UNIVERSITY OF WISCONSIN-MADISON
Fiscal Year: 2019
Admin IC: NIA
Institute/Center: NIA
Cost: $214,695

Enhancing Retrospective Life History Data in the Health and Retirement Study - Renewal

Principal Investigator(s)/Project Leader(s): SMITH, JACQUI
Organization: UNIVERSITY OF MICHIGAN AT ANN ARBOR
Fiscal Year: 2020
Admin IC: NIA
Institute/Center: NIA
Cost: $1,337,775
SSPA and SSPB: The 2 Study Sections that likely match

- Center for Scientific Review:
  - [https://public.csr.nih.gov/](https://public.csr.nih.gov/)
  - Search for SSPA or SSPB

- The Social Sciences and Population Studies (SSPA & SSPB) Study Section reviews social, behavioral, and economic applications focused on health and well-being across the life course, health disparities, demographic processes, and economic and policy influences on health.

- Disciplines commonly represented include sociology, social epidemiology, demography, economics, public health, geography, and human development and family studies.
SSPA and SSPB: Who serves on these study sections?

• Names from March 2021 roster (all publicly available)
  • Michael Oakes (Epid, Minnesota)
  • Debra Umberson (Soc, UT Austin)
  • Jill Suitor (Soc, Purdue)
  • Kathleen Harris (Soc, UNC)
  • Kathleen Cagney (Soc, U Chicago)
  • Marianne Bitler (Econ, UC Davis)
  • Kelly Musick (Policy, Cornell)
  • Kyle Crowder (Soc, UW)
  • Lawrence Berger (Social Work, U Wisc)
  • Susan Busch (Health Policy, Yale)
  • Gilbert Gee (Public Health, UCLA)
## Which Mechanism? (Research only)

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>Funding (Direct)</th>
<th>Duration</th>
<th>Specific Aims &amp; Research Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>R01</td>
<td>Up to $500k /yr</td>
<td>Up to 5 years</td>
<td>13 pages</td>
</tr>
<tr>
<td>R21</td>
<td>$275k total</td>
<td>2 years</td>
<td>7 pages</td>
</tr>
<tr>
<td>R03</td>
<td>$100k total</td>
<td>2 years</td>
<td>7 pages</td>
</tr>
</tbody>
</table>
Which Mechanism? (Research only)

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>Type of Project</th>
<th>Lead Time</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>R01</td>
<td>Large; includes non-UCI colleagues</td>
<td>~2 mths if disciplined</td>
<td>“can’t miss” application with preliminary data</td>
</tr>
<tr>
<td>R21</td>
<td>Mini-R01; small team</td>
<td>1.5 mths</td>
<td>High risk, high reward (but not really risky)</td>
</tr>
<tr>
<td>R03</td>
<td>Pilot project</td>
<td>1 mth</td>
<td>Good idea, requires minimal data cost &amp; time effort</td>
</tr>
</tbody>
</table>
### Which Mechanism? (Research only)

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>Due Dates (standard)</th>
<th>Details</th>
</tr>
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<tbody>
<tr>
<td>R01</td>
<td>June 5, Oct 5, Feb 5</td>
<td>Ambitious for 1st timers</td>
</tr>
<tr>
<td>R21</td>
<td>June 16, Oct 16, Feb 16</td>
<td>small team, GSR/Postdoc &amp; summer salary, and data, for 2 yrs</td>
</tr>
<tr>
<td>R03</td>
<td>June 16, Oct 16, Feb 16</td>
<td>Same effort as R21, but 36% the $</td>
</tr>
</tbody>
</table>

• My suggestion: start with R21 (and to a lesser extent, R03)
Don’t be discouraged by forms upon forms

• R01
  • Could be up to 200 pages; but really, only **13 pages are for research**
  • Much of the rest can be modified from other documents, other faculty, your department, etc.
    • This takes time, but is not intellectually taxing

• R21 & R03 have much less administrative overhead
  • If you have a good template to work from, much of the administrative sections go quickly

• My thoughts:
  • Use CPIP resources; see examples of other grants that scored well; modify admin templates from pre-award staff
Timeline

- Tell pre-award staff you will submit to NIH (your department or Dan Paley dpaley@uci.edu)

- Ensure that there is an active program announcement (search “NIH parent R01 no clinical trial”)
  - R01: PA-20-185
  - R21: PA-20-195
  - R03: PA-20-200
  - There are also special calls—you can search for these

- Solidify research team (especially non-UCI collaborators)
  - Budget and subawards require planning and extensive documentation
Timeline

2 months → 1 month → 2 weeks

- Have a very solid Specific Aims page (1 page, single spaced)
  - Circulate it to colleagues for feedback
  - Mock study section (Red Team review)—CPIP can help

- Get non-UCI documents from collaborators
  - Biosketch
  - Letter of Support
Timeline

- Have a very solid Research Statement
  - 12 pages for R01
  - 6 pages for R21, R03

- Work closely with pre-award staff to compile the other 15-20 documents
  - Templates and examples from past submissions
Timeline

2 months → 1 month → 2 weeks

• Submit draft of entire proposal to SPA
  • They review everything but the science

• You are free to continue to work on refining the science up until the due date
Timeline

- Final checks; read through all pieces
- SPA clicks “submit”; make sure pre-award staff and SPA officer are on same page, and in constant contact with you
Practical Tips for the Scientific Sections

• Imagine that non-expert reviewers have little time and even less patience!

• Refine your “high level” pitch; give full details only if space permits
  • Repetition is OK— in fact, I encourage it

• Significance and Approach (study design, data) tend to drive scores
  • Is the idea/question important? Can you feasibly address the question?

• Read others’ grants to learn how to structure the narrative
  • CPIP can give you examples
Final Tips

- Start now. Do not leave grant to the last minute
  - Better to wait a cycle and submit 3 months later, than to submit an unpolished proposal

- The first NIH submission is the most work, but...
  - The 2nd through 25th take much less time

- CPIP financial incentive for R01, R21, or R03 grants submitted to NICHD Pop Dynamics Branch may be up to $5k in research funds
Resources

• For Scientific pieces (Specific Aims and Research Statement)
  • CPIP (Dan Paley can give you examples from past submissions)

• For Pre-Award administrative and budget assistance
  • Either your home dept or school, or CPIP pre-award staff in Social Sciences (Dan Paley, dpaley@uci.edu)

• For NIH / SSPA questions
  • Dr. Suzanne Ryan, Scientific Review Officer (https://public.csr.nih.gov/StudySections/DABP/PSE/SSPA)

• For Tips on what study section looks for
  • Greg and Candice
Now . . . to Candice and Greg

- Perspectives from Study Section