Grant Writing
Robert Joseph Taylor
Covered Topics

- Basic Issues
- Grants and Career
- Do’s and Don’t
- Getting Started
- Types of Funding
- Grants for Junior Investigators
- R01 Grants
- Specific Aims
- Significance

- Preliminary Studies
- Methods and Design
- Time Line
- Finished Proposal
- Review Panel
- Reviewer’s Like
- Common Problems
- Revised Applications
Basic Questions/Issues

1. You can never learn too much about grant writing, it is always changing and evolving.

2. The more exposure to the techniques of grant writing, the easier it gets.
Basic Questions/Issues

• 2. How is NIH different from NIMH?
Basic Questions/Issues

3. How is NIH different from NIMH?

- NIMH is one of the 27 NIH institutes.
- Cancer, Eye, Aging, Child Health, Dental
Basic Questions/Issues

4. When a grant is funded, who are the funds awarded to?

- Investigator, Chair of Department, Dean, Regents of University.
Basic Questions/Issues

• 5. Who Reviews Grant Applications?
  • NIH Staff?
  • NIH PhD Staff? Others?
Basic Questions/Issues

6. You can never attend too many grant writing workshops.

Don’t pay a lot of money for a grant writing workshop, the more you pay the lower the quality.
Basic Questions/Issues

• 7. Listen to people who have expertise.
• Don’t rely upon a N of 1.
Basic Questions/Issues

- 8. What is the difference between Direct and Indirect Costs?

- 9. What is meant by percent effort, summer salary, and buying out of a class?
Grants and Career

Grants should be beneficial

1) Should not hinder writing journal articles.

- Grants should help you write articles, which should help you get tenure. Grants should not hinder articles (i.e., with a lot of data collection) and thus hurt getting tenure.
2) Should be matched to the stage of your career
Grants and Career

3) Should be in your area of expertise (try not to chase money)
Grants and Career

- Can you get tenure without writing a grant proposal.
Grants and Career

• Can you get tenure without writing a grant proposal.

• It depends
Grants and Career

• Yes, if
• A) you are in an area that does not get NIH funding
• B) you are at a school/department that does not have a culture of funding
Grants and Career

- Maybe NO, if
- A) you are in an area that does get NIH funding
- B) you are at a school that does have a culture of funding
- C) you fit the profile of a person who should have NIH funding
Help from Colleagues

- Research is highly interdisciplinary and no one person can do it all.
- Colleagues are essential for
  - ideas
  - techniques that you do not know
  - suggesting funding sources
Do’s and Don’ts

• Give yourself enough time
• a) There may be sections that may be re-written or eliminated if you have time
• b) Have other sets of eyes look it over
• Proof Carefully, so not to make silly mistakes
Do’s and Don’ts

• Oversee all of the aspects of your proposal.
• Don’t leave town before the proposal is submitted.
• If you turn in your proposal late then be around until it is submitted.
Do’s and Don’ts

• Start with an outline following the suggested organization of the application.

• Be complete and include all pertinent information.
Do’s and Don’ts

• Include enough background information to enable an intelligent reader to understand your proposed work.
Do’s and Don’ts

- Use a clear and concise writing style so that a non-expert may understand the proposed research.
Do’s and Don’ts

• Be organized and logical. The thought process of the application should be easy to follow. The parts of the application should fit together.
Do’s and Don’ts

- Use sub-headings, short paragraphs, and other techniques to make the application as easy to navigate as possible.
Do’s and Don’ts

• Use the active, rather than passive, voice.
• For example, write "We will develop an experiment,"
• not "An experiment will be developed."
Do’s and Don’ts

- Use diagrams, figures and tables, and include appropriate legends, to assist the reviewers to understand complex information.
Do’s and Don’ts

• If you are not a good writer, seek help.
Possible Do

• It is a good idea to have an independent expert provide an objective critique of your application.

• If possible, arrange for neutral third-party reviewers.
Getting Started
Writing a Grant Proposal

• Expertise and Publications
Getting Started

• Collect Proposals
Getting Started

- Conceptualize proposals 3-4 months ahead of time.
Getting Started

- Determine to what Agency/Foundation you wish to submit your proposal.
• Contact the relevant Agency or Foundation Program Officer.
• Utilize the Internet and University resources, such as DRDA.
Getting Started…

• Find out how DRDA can help you prepare your proposal.
• Determine realistic submission timelines.
Getting Started

• 7) University Resources
  – a) Find out about how they can help you
  – b) Submission time lines
  – c) indirect costs
  – d) human subjects
  – e) NIH human subject certification (PEERRS)
  – e) fringe benefits rates
  – f) subcontracts
Web Resources

- foundationcenter.org
- nih.gov
- nsf.gov
- http://www.research.umich.edu/
Types of Funding

- grants
- cooperative agreements
- Contracts
- Loan Repayment
The NIH Loan Repayment Programs (LRPs) encourage promising researchers and scientists to pursue research careers by repaying up to $35,000 of their qualified student loan debt each year.
Types of Funding

- NIH-Requested Research
- Program announcements (PAs) Requests for applications (RFAs).

- Unsolicited Research
Grants for Junior Investigators

- Individual Pre-Doc
- Individual Post-Doc
- K-Award
Individual Pre-Doc

- Receive Support for up to 5 years
- Fellows receive 12 month stipend
- $4,200 research/insurance allowance
- 60 percent of tuition costs up to $16,000
- Negotiate with University for coverage of remaining tuition
Individual Post-Doc

- Up to 3 years of funding
- Fellows receive 12 month stipend
- Institutions receive $7,850 institutional allowance
K-01 Award

• Independent Scientist Award
• Develop the career of the funded scientist
• 5 yrs; 75% effort (or 9 person months).
Predoctoral and Post-Doctoral (F Awards)

- Before submitting a proposal, applicant must identify a sponsoring institution, and an individual who is willing to serve as a sponsor.
- Grants are given to the institution (U of M) not the individual (Robert Taylor).
K and F Awards

- Major Emphasis is on research training
- and broadening scientific competence
K and F Review Criteria

- Past Academic and Research Record
- Training Environment
- Publication Record
- Applicant’s Research Plan
K and F Review Criteria

• Applicant’s Training Plan—Beyond regular degree requirements
  – Extra statistics courses
  – Specialized Methods Classes

• Sponsor’s – Mentor’s Qualifications
  – Track record of Publications, NIH funding, placing students
  – Sponsor has time available
R-03 Small Grants

• 2 years of funding
• $50,000 per year
• Grant proposal is shorter than regular R01 (7 vs. 13 pages)
  • (1 page aims, 6 research plan)
• Mostly reserved for Junior Investigators or people changing careers
R-03 Small Grants

- Pilot or feasibility studies
- Secondary analysis of existing data
- Small, self-contained research projects
- Development of research methodology
- Development of new research technology
R-21

Exploratory/Developmental

- Two Years
- Up to $275,000 direct costs
- Proposal is shorter (7 pages)
- Encourage exploratory and developmental research projects by providing support for the early and conceptual stages of these projects
R-21 Evaluation

- conceptual framework,
- the level of innovation
- potential to significantly advance our knowledge or understanding.
- less emphasis on methodological details
- Less emphasis on traditional indicators used in evaluating R01 applications
R 34

- Exploratory Development grants for MH Intervention and Services Research
- Up to 3 years of Funding
- $450,000
- No single year exceeding $225,000
- Non-renewable
- 13 pages (12 Research Plan)
R 34

- Funds Three types of Grants
- 1. Development and Pilot Testing of New or Adapted Interventions
- 2. Adaptation and Pilot Testing for Effectiveness
- 3. Innovative Services Research
• This is a regular research grant
  – 1) Cover Page
  – 2) Abstract
  – 3) Public Health Relevance Paragraph
  – 4) Key Personnel
  – 5) Table of Contents
  – 6) Appendix
  – 7) Budget
Budget

- 1) Yearly and summer salary for investigators
- 2) Salary for research assistants and data analysts
- 3) Research Costs, Interviewer costs, Travel for interviewers, Data Entry, Recruitment/Publicity
Budget

• 4) Supplies, Equipment, Duplication, Postage, Printing Questionnaires, Telephone, Hosting, Books
• 5) Consultant Costs
• 6) Travel
• 7) Sub-Contracts
• 8) Budget for entire Project
Budget

• You can ask for 5 but most grants are for 3 years
• Watch budget administrators. They like to load up budgets
• Do not Under Budget, this could cause the grant to not get funded
• Small Reductions in Budget will not impact the review of the proposal
Budget Issues

• Special Permission --$500,000 in one year
• Need to ask more than 6 weeks ahead of the submission
Budget Issues

- Modular Format
- Less than $250,000 in each year of the grant
- Budget is formatted in $25,000 increments
Budget Issues

- University Contributions
- -- Important for training grants
- Indirect Cost Reduction
- Expect Cuts in the Budget
• Budget or Personnel Justification
• Biographical Sketches –
  – Limit 15 publications
  – Bio-paragraph (written specifically for proposal)
• Other Support
• Resources and Environment
Bio-Paragraph
(Personal Statement – Training Grant)

Robert Joseph Taylor, MSW, Ph.D., is the Sheila Feld Collegiate Professor of Social Work and a Faculty Associate with the Program for Research on Black Americans at the Institute for Social Research. Consistent with the goals of this application, a major aspect of Dr. Taylor’s career has been the mentoring of doctoral students and junior faculty. Most of the students and faculty have been African American. His former students and post-docs have received tenure at several major universities including: Wisconsin (Sherill Sellers), Chicago (Waldo Johnson), Penn State (Rukmalie Jayakody), University of Southern California (Karen Lincoln), NYU (Jacqueline Mattis), Vanderbilt (Tony Brown), and Wayne State (R. Khari Brown). Additionally as part of his role of director of the Investigator Core of the NIA funded Michigan Center for Urban African American Aging Research he has conducted summer workshops for junior faculty and advanced doctoral students. He also has conducted numerous workshops on navigating the academy for junior faculty. Professor Taylor has published extensively in two major areas, informal social support networks and religious participation. He has been Principal Investigator of several grants from the National Institute on Aging which examine the role of religion in the lives of Black and White elderly adults. He has been Co-Principal Investigator with James Jackson on several grants from the National Institute of Mental Health on the correlates of mental health, mental illness and mental health service utilization among Black Americans including the only major national studies of Black Americans (The National Survey of Black Americans and the National Survey of American Life). Robert Joseph Taylor has been selected as one of the 250 Highly Cited researchers in the General Social Science Category by ISIHighlyCited.com (Creators of the Citation Index and Current Contents). The selection of a researcher is based on the total number of citations received by that individual as recorded in the ISI database between 1981-1999.
• Front pages -- in general
  – Don't underestimate the amount of time the front pages can consume.
  – The front pages can easily take anywhere from 25 to 75 pages depending upon the size of the research team.
• Specific Aims
• Research Strategy
  – Significance
  – Innovation
  – Approach
    • Progress Report /Preliminary Studies
    • Research Design and Methods
• Human Subjects
• References
Specific Aims

- 1 page
- The Aims briefly state the major objectives of the grant
- There are usually about 3-6 specific Aims
- The Aims shape the structure of the proposal
1. To assess mental health and mental disorders among diverse racial/ethnic populations.  
   a) We will continue to explore intra- and inter-group racial and ethnic differences in the levels of physical, social, and psychological impairments associated with individuals who meet DSM-IV criteria for different mental disorders and identify psychiatric co-morbidity. The extent to which criteria for impaired status and functioning influence differentially the nature and interpretation of psychiatric symptoms and diagnostic classification also will be considered.
1. Select and nurture a minimum of 15 pilot research projects over the five year grant period and participate in the development of investigator initiated applications as part of this process. At least fifteen pilot investigators will enter into a mentoring program of the MCUAAAR. Pilot investigators will conduct their research, under the guidance of the investigator core, and substantial input from all cores. Pilot investigators will receive specific mentoring for manuscript preparation and grant submissions. Each pilot investigator will be invited to attend the MCUAAAR summer research training workshop, and will be supported to attend the GSA annual scientific meeting and submit presentations for that meeting based on their pilot work.
Specifically, the proposed research has the following aims:

1. To examine the correlates of organizational (e.g., religious service attendance, membership), nonorganizational (e.g., frequency of prayer, reading religious materials, watching religious television broadcasts) and subjective religiosity (e.g., attitudes about the importance of religion, self-rated religiosity).
Hypotheses

- Older African Americans and older Afro Caribbeans will have higher levels of religious participation than older whites. These differences will not change substantially when controlling for socio-economic status.
Hypotheses

• Older African Americans and older Afro Caribbeans will have a greater likelihood of being official members of their place of worship.
Sample Specific Aims

This is a proposed expansion of our previous R01 (Grant # MH58299) showing significant reduction in internalizing risk following a randomized trial of a brief 11-session 6-week universal intervention (STJ) provided during a first-quarter middle school elective period. We documented significantly improved proximal (attendance, behavior) and distal outcomes (grades, behavior and depressive symptoms) in a high risk primarily African American low-income urban sample. We documented that effects lasted over a two-year assessment period without further intervention and are mediated via change in self-concept. These findings are important because the intervention is theoretically grounded, brief and very low cost and produces positive change in an extremely high risk sample of youth in a school district in which enrollment drops across grades such that twice as many students are enrolled in 8th as in 12th grade. High school failure or drop out is a risk factor for depression and other internalizing and externalizing mental illness including conduct and substance use disorders.

In the current proposal we include broader diagnostic assessment to document the effectiveness of this intervention in reducing mental illness in low income African American, Hispanic, and white youth.

Specifically we will examine the:
Sample Specific Aims

- **Direct effect** of STJ on proximal (through the 8th grade) and distal outcomes (after the transition to high school and through 11th grade (Figure 1).
- **Mediating role of possible selves** on the relationship between STJ and outcomes (Figure 2).
- **Moderating role of “fixed risk” factors** (race-ethnicity, gender, prior academic success, 8th grade neighborhood context) on STJ effects (Figure 3).
- **Mediated moderation effect of social identity** as an explanation for possible (gendered) race-ethnicity differences in the effects of STJ (Figure 4).
- **Cost and cost effectiveness of STJ** using cost and benefit to schools.
Sample Specific Aims

Figure 1: Direct Effects
- STJ
- Academic Outcomes (Grades, Effort, Attendance)
- Mental Health Outcomes (CESD, CIDI)
- Possible Selves Outcomes (Academic Balance, Academic Plausibility PS, Feared Off-Track PS)

Figure 2: Mediated Effects
- STJ
- Possible Self Outcomes
- Academic Outcomes
- Mental Health Outcomes

Figure 3: Moderated Effects
- STJ
- Academic Outcomes
- Mental Health Outcomes
- Possible Self Outcomes
- Gender, Race, Prior Academic Success
- Neighborhood Context

Figure 4: Mediated Moderation Effects
- STJ
- PS
- Mental Health and Academic Outcomes
- Social Identity
- Race - Ethnicity and Gender
Study Aims & Hypotheses
Example – Substance Abuse

Aim 1

To characterize individual, familial, and environmental factors from infancy through adolescence that increase or decrease drug involvement in adolescence. The design of the study permits the prospective examination of the unique and joint effects of individual, familial, and environmental factors on increased drug use opportunities and actual drug use.
• **Hypothesis 1.a:** Youth who experience a greater number of risk factors at each infancy, early, middle childhood, and adolescence will have higher alcohol and tobacco exposure opportunities. In turn, youth with higher exposure opportunities will have higher relative risks of actual alcohol and tobacco use.

• **Hypothesis 1.b:** Youth who experience a greater number of risk factors at each infancy, early, middle childhood, and adolescence will have higher exposure opportunities to other drugs (e.g., marijuana) and to multiple drugs (e.g., polysubstance use), independent of their exposure to, and actual use of, alcohol and tobacco. However, the relative risks of other drug use and of multiple drug use will be higher among those who have had greater opportunities to use alcohol and tobacco, and who have actually used alcohol and tobacco.
Specific Aims of the proposal are:

1) Develop, refine, and pilot test a culturally sensitive, non-stigmatizing, Work-related, Cognitive-Behavioral Treatment (WCBT) for social anxiety disorder. We seek an intervention that has both clinical effectiveness and high acceptance within a socio-economically deprived target population.

2) Conduct a randomized trial of WCBT+usual vocational services versus usual vocational services alone, using existing facilities and staff of an established vocational rehabilitation service (JVS). We will test the ability of the intervention to reduce social anxiety symptoms and improve employment success.

3) Prepare an NIMH RO1 proposal for full-scale testing of the intervention that emerges from this development and preliminary testing phase.
Significance

• Not a literature review
• It should be as thorough and as up-to-date as possible
• Attack weaknesses in the present literature
• You may want to include some theory in this section
Significance

- May want to include Hypotheses
- Use sub-titles
- Present a conceptual model that will guide theory and analysis
- Too Specific/ Too General
Significance

- Public health benefit – better service to more people
- Could inform major innovations in how the condition in question is understood and treated
Significance

• Could make a huge impact on an understudied issue
• Question to consider: “Should we spend our limited resources on this project at the expense of another”
Basic Conceptual Model of Stress, Social Support, and Health and Well-Being

Social Integration (Church and Family)
- Network size
- Frequency of interaction

Enacted and Perceived Support (Church and Family)
- Frequency of help
- Amount of help
- Satisfaction with help

Stressors
- (e.g., family, financial, and health problems)

Health/Well-being
- Psychological well-being
- Depressive symptoms
- Self-rated health
- Physical health impairment

Religious Involvement
- Organizational
- Non-organizational
- Subjective
- Denomination

Social Location
- Gender
- Age
- SES
- Marital Status
FIGURE 1: THE ROLE OF STRESSORS, PSYCHOLOGICAL AND SOCIAL RESOURCES IN MENTAL HEALTH AND HELP-SEEKING

A
RACE
ETHNICITY
SES
GENDER & OTHER FACTORS

B
STRESSORS
Acute Life Events
Chronic Stressors
Race-related Stressors
-prejudice
-discrimination
Physical Illnesses

C
PSYCHOLOGICAL RESOURCES
John Henryism
Mastery
Efficacy
Self/System Blame
Self Esteem

D
SOCIAL RESOURCES
Informal Support
Religious Involvement

E
MENTAL HEALTH
Disorder
Distress
Impairment

F
HELP SEEKING
Informal
Professional
Intervention Example

Social Anxiety

- Interview Avoidance*
- Poor Interview Performance*
- Lowered Educational Achievement
- Limited social networks for getting job leads*
- Limited social relationships on the job*

Unemployment
Innovation

• novel concepts,
• approaches
• methods
Innovation

- People want to be interested and excited
- Want to fund new, innovative project
- Innovative intervention, access to treatment, mechanism of action, use of technology, etc.
Approach- Preliminary Studies

- Establishes the credibility of the investigators
- Paragraph on the research background of investigators (depending upon space)
- Present findings of papers that you have previously done
- Include work of the research team (team work is especially important)
Preliminary Studies

• Statement about Investigators changes as the level of experience increases.
• Junior Investigators discuss major articles
• Senior Investigators may discuss honors, awards and general contribution.
Preliminary Studies

• Original data collection put in information on:
  – 1) Instrument Development
  – 2) Focus Group Results
  – 3) Results of Pilot Studies
  – 4) Results of Pretests
Research Design and Methods

• Secondary Analysis Grant
  – Describe the datasets that you are using and why you are using them
  – Describe the measures
  – Describe the limitations of the datasets and measures
Research Design and Methods

• Primary data collection
  – Describe the sampling procedures, sampling frame, respondent recruitment procedures
  – Small sample -- power analysis (or statistical power)
• Proposed Analysis
  – Utilize the most sophisticated techniques possible
  – Be Specific
  – Present Equations
  – Present Analysis Models
Consultants

• Add Consultants that Strengthen Proposal

• Statistical Consultants for Special Analysis Issues (time series, 3-generation data)
RO1

- Time line or sequence of activities
- Human Subjects
  – See PHS Booklet for better description of Human Subjects
- Human Subjects section is very detailed even for studies using secondary data. It can be time consuming.
RO1

- Page Length -- Font
- All Graphs and Tables should be included in the body of the proposal
- Because of electronic submission—use color graphs and tables
**Time Line**

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Planning</strong></td>
<td><strong>Screening Protocol for Telephone Survey and Intervention Study</strong></td>
<td><strong>Screening for Culture and Defective Coping</strong></td>
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</tr>
<tr>
<td><strong>Planning</strong></td>
<td><strong>“The Telephone Survey of Mental Health Services Use”</strong>&lt;br&gt;(Cliff Broman, Ph.D.)</td>
<td><strong>Project 1 Analyses and Dissemination</strong></td>
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</tr>
<tr>
<td><strong>Planning</strong></td>
<td><strong>Community Based Focus Groups to develop the Mental Health Curriculum; Focus Group Analysis</strong></td>
<td><strong>Intervention Development and Pretesting</strong></td>
<td><strong>“The Emotional Stress in Everyday Life Intervention Study”</strong>&lt;br&gt;(Cleopatra Caldwell, Ph.D.)</td>
<td><strong>Project 2 Analyses and Dissemination</strong></td>
</tr>
<tr>
<td><strong>Planning</strong></td>
<td><strong>Focus Groups</strong>&lt;br&gt;Focus Group Analysis</td>
<td><strong>Analysis &amp; Creation of the Item Pool</strong>&lt;br&gt;Pilot Testing</td>
<td><strong>“Defective Coping in African Americans”</strong>&lt;br&gt;(Laura Kohn-Wood, Ph.D.)</td>
<td><strong>Project 3 Analyses and Dissemination</strong></td>
</tr>
<tr>
<td><strong>Planning</strong></td>
<td><strong>“Diagnosis and Culture”</strong>&lt;br&gt;(Cheryl Munday, Ph.D.)</td>
<td></td>
<td><strong>Project 4 Analyses</strong></td>
<td></td>
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Study Timeline – Substance Abuse

Projected Start Date: 12/01/06. Yr. 1, 12/06–11/07: 1st 3 months, preparation and copying of measures, hiring and training of staff. Interviews to begin in April 2007. PI to travel to Chile for 3 months to train interviewers, set up data collection, data entering activities and to oversee day-to-day implementation of project (3/07-5/07). In 8/07 & 11/07, PI will travel to Chile for 2 weeks each. Yr. 2, 12/07–11/08: Continue data collection, begin data analysis using data from earlier waves in relation to Study Aim 1. PI to have same travel schedule as in Yr 1. Yr. 3, 12/08–11/09: Continue data collection and analysis under Aim 1. Begin analysis for Aim 2. PI to have same travel schedule as Yrs.1-2. Yr 4, 12/09–11/10: Continue data collection and analysis under Aims 1-2. Begin analysis for Aim 3. PI to have same travel schedule as Yrs.1-3. Yr. 5, 12/10–11/11: Complete data collection/entering, & analysis re. Aims 1-3. Write final report. Plan to submit proposal for an early adulthood continuation follow-up study. Project End date: 11/30/11.
## Research Plan Timeline

<table>
<thead>
<tr>
<th>Phase 1 (9 months):</th>
<th>6 Months</th>
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<th>6 Months</th>
<th>6 Months</th>
<th>6 Months</th>
<th>6 Months</th>
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<tbody>
<tr>
<td>Review existing treatment manuals, interview consumers and staff, produce initial group leader and participant manuals, produce WCBT adherence measure, group leader training</td>
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<table>
<thead>
<tr>
<th>Phase 2 (6 months):</th>
<th>6 Months</th>
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<tbody>
<tr>
<td>Pilot WCBT intervention, refine group leader and participant manuals, refine WCBT adherence measure</td>
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</tbody>
</table>

<table>
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<tr>
<th>Phase 3 (21 months):</th>
<th>6 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct trial of WCBT +vocational rehabilitation versus vocational rehabilitation as usual, follow-up assessment</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Initial Preparation of R01</th>
<th>6 Months</th>
</tr>
</thead>
</table>
Overall Structure

- Proof Reading
- Consistency (Terms)
- Models
Special Issues of Intervention Grants

1. Recruitment
2. Inclusion criteria
3. Exclusion criteria (dementia, various illnesses)
Submitting Proposals

- Proposals must be submitted through Grants.Gov
Grants.Gov

- Proposals are submitted electronically
- Proposals with mistakes will be returned
• Notification
  – a) First is that they received your proposal and which panel will review the proposal
  – b) The priority score and percentile rank
  – c) The pink sheets (summary statements) will be provided next
Review Panel

• Reviewers are asked to address these 5 issues
  – (1) Significance: Does this study address an important problem?
Review Panel

- 2) Approach: Are the conceptual framework, design, methods, and analyses adequately developed, well-integrated, and appropriate to the aims of the project?
- 3) Innovation: Does the project employ novel concepts, approaches or method?
Review Panel

- 4) Investigator: Is the investigator appropriately trained and well suited to carry out this work?
- 5) Environment: Does the scientific environment in which the work will be done contribute to the probability of success?
Review of K Award

- 1) Candidate
- 2) Career Development Plan
- 3) Research Plan
- 4) "Mentor"
- 5) Institution
Review Panel

- Reviewers are Real People
- Overworked
- Proposal may be out of their field
- Fatigue and Eye Strain
Reviewers Like

- Think-Write like a Scientist
- Good Ideas
- Focused Writing
- Analysis that tests your Hypotheses
- Investigators that have the background and experience to do the work
Reviewers Like

- A strong record of Productivity
- To be Taught Something New
- To be Excited about the Project
Reviewers Like

• An Organizational System that is easy to Navigate both on hard copy and on a computer screen
Common Problems in Proposals

- Lack of new or original ideas
- Diffuse, superficial or unfocused research plan
- Failure to sufficiently indicate how data will be analyzed
- Absence of a discussion of potential obstacles
Common Problems in Proposals

• Unrealistically large amount of work
• Budget is too small for the amount of work proposed
Common Problems in Proposals

- Pilot data or relevant preliminary studies is not provided. This is critical for intervention studies.
- Pilot data indicates that the researcher may not be taking the right approach.
- Qualitative methods not fully developed.
Common Problems in Proposals

- K and F Awards
  - No clear training program
  - Training program is inconsistent with the proposed research plan
Written Reviews

• Reviews are evaluations of the current product
• Reviews provide bullet points
• Unlike Journal Reviews
  – No Tutoring
  – No Suggestions for Improvement
Review Panel

- The upper half of applications are tentatively identified prior to the study section meeting
- The lower half are triaged from review
- Only the upper half are reviewed/discussed
- Only the upper half receive a score
Review Panel

- All Individual Pre and Post-Doctoral proposals are discussed (none are triaged)
- All K awards are discussed
The SRO chooses the review panel.

They choose which reviewers are the primary and secondary reviewers.

Once the scores for a proposal are submitted then the SRO tallies them up.

They score between 1 and 9.

9 is worse and 1 is the best.
# Scoring Anchors

<table>
<thead>
<tr>
<th>Impact</th>
<th>Score</th>
<th>Descriptor</th>
<th>Additional Guidance on Strengths/Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>1</td>
<td>Exceptional</td>
<td>Exceptionally strong with essentially no weaknesses</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Outstanding</td>
<td>Extremely strong with negligible weaknesses</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Excellent</td>
<td>Very strong with only some minor weaknesses</td>
</tr>
<tr>
<td>Medium</td>
<td>4</td>
<td>Very Good</td>
<td>Strong but with numerous minor weaknesses</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Good</td>
<td>Strong but with at least one moderate weakness</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Satisfactory</td>
<td>Some strengths but also some moderate weaknesses</td>
</tr>
<tr>
<td>Low</td>
<td>7</td>
<td>Fair</td>
<td>Some strengths but with at least one major weakness</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Marginal</td>
<td>A few strengths and a few major weaknesses</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Poor</td>
<td>Very few strengths and numerous major weaknesses</td>
</tr>
</tbody>
</table>
Scoring Anchors

<table>
<thead>
<tr>
<th>Impact</th>
<th>Score</th>
<th>Descriptor</th>
<th>Strengths/Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Impact</td>
<td>1</td>
<td>Exceptional</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Outstanding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Excellent</td>
<td></td>
</tr>
<tr>
<td>Moderate Impact</td>
<td>4</td>
<td>Very Good</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Poor</td>
<td></td>
</tr>
</tbody>
</table>

**Non-numeric score options:** NR = Not Recommended for Further Consideration, DF = Deferred, AB = Abstention, CF = Conflict, NP = Not Present, ND = Not Discussed
Non-numeric score options:

- NR = Not Recommended for Further Consideration
- ND = Not Discussed
- DF = Deferred
Not Discussed (ND)

- These applications are unanimously judged by the peer review committee to be less competitive
- These applications do not receive a numerical impact/priority score
- These applications do receive individual criterion scores
Not Recommended for Further Consideration (NRFC)

- NRFC for an application occurs by majority vote of the peer reviewers.
- NRFC occurs in the following scenarios:
  - Application lacks significant and substantial merit.
  - Application presents serious ethical problems in the protection of human subjects from research risks.
Not Recommended for Further Consideration (NRFC)

- NRFC-scored applications do not proceed to the second level of peer review (National Advisory Council/Board) because they cannot be funded.
- The NRFC is a serious committee recommendation that is substantially different from Not Discussed (ND).
Scientific Review Officer

- The scores that are reported to the investigators are between 90 and 10.
- A Percentile score is also provided.
- This is the basis for funding.
- The lower the percentile the higher the odds of funding.
• Triaged proposals (Not Discussed) do not receive a priority score or a percentile.
• The SRA combines the reviews of the primary and secondary reviewers.
• These are the reviews (pink sheets) that are sent to the primary investigator.
Revised Application

• If you have a proposal that was not funded you may want to consider revising the proposal.

• Revise based upon the critique made by the reviewers.
Revised Application

- Write an introduction which notes all of the changes that you have made in the revised application. (no more than 1 page)
- Justify changes that you did not make.
- Reviewers are annoyed when their advice or comments are ignored.
Revised Application

- Revise the budget and budget justification appropriately.

- Update relevant materials (letters, biosketches)
Revised Application

• All of the changes that you have made should be made in italics or otherwise clearly made separate from the other text (bold, underline).

• Submit the proposal like a new proposal.

• Only 1 resubmission is allowed.
Final Slide

- After all of this work you get funded and the hard work begins.