Introduction to Enhanced Peer Review

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Scientific Review Officer
OBJECTIVES

• To make you aware of the enhanced PEER REVIEW process

• To assist you in the preparation of your application

• To help you understand how the scientific merit of your application is determined
Assignment of Study Section

- Referral officer determines appropriate study section for your application using guidelines
- Nursing and Related Clinical Sciences study section (NRCS)
- Assigns application to NIH Institutes or Centers best suited to fund it
<table>
<thead>
<tr>
<th>WHERE REVIEWED</th>
<th>APPLICATIONS REVIEWED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center for Scientific Review</td>
<td>• Research Projects (R01, R21, R03)</td>
</tr>
<tr>
<td>(CSR)</td>
<td>• AREA (R15)</td>
</tr>
<tr>
<td></td>
<td>• Small Business Innovation Research (R41, R42, R43, R44)</td>
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<tr>
<td>NINR (Office of Review)</td>
<td>• Pre- and Post-doctoral Fellowships (F31, F32, F33)</td>
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<tr>
<td></td>
<td>• Career Development Awards (K01, K22, K23, K24, K99/R00)</td>
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<td></td>
<td>• Institutional Training Grants (T 32)</td>
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<td>• Special Initiatives (RFAs)</td>
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</tbody>
</table>
Initial Review of Application

- **Scientific Review Group (SRG):** First level of review
- Independent outside reviewers
- Evaluate scientific merit
- **Scientific Review Officer (SRO) manages the process**
Roles of the Scientific Review Officer (SRO)

- Assign review responsibilities
- Manage SRG meetings
- Prepare Summary Statements
Confidentiality and COI

- All materials, discussions, documents
- All questions referred to Scientific Review Officer (SRO)
- Review is closed to the public
- Program staff may observe
- Reviewers in conflict not in the room

Make recommendations:

- Scientific and technical merit
- Budget and project duration
- Judge human subjects, vertebrate animals, biohazards
- Resource Sharing Plans
- Other administrative factors

✓ Provide written critiques
✓ Overall Impact scores

Study Sections do not make funding decisions!
Enhanced Review Criteria: R Awards

Overall Impact
- Assessment of the likelihood for the project to exert a sustained, powerful influence on the research field(s) involved

Criteria for evaluating research applications
- Significance
- Investigator(s)
- Innovation
- Approach
- Environment
Does the project address an important problem or a critical barrier to progress in the field?

If the aims are achieved, how will scientific knowledge, technical capability, and/or clinical practice be improved?

How will completion of the aims change the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field?
Are the PD/PIs, collaborators, and other researchers well suited to the project?

If Early Stage Investigators or New Investigators, do they have appropriate experience and training?

If established, have they demonstrated an ongoing record of accomplishments that have advanced their field(s)?

If the project is multi-PD/PI, do the investigators have complementary and integrated expertise; are their leadership approach and organizational structure appropriate for the project?
<table>
<thead>
<tr>
<th>Scored Review Criteria</th>
<th>Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the application challenge and seek to shift current research or clinical practice paradigms by using novel concepts, approaches, instrumentation, or interventions?</td>
<td></td>
</tr>
<tr>
<td>Are the concepts, approaches, instrumentation, or interventions novel to one field or novel in a broad sense?</td>
<td></td>
</tr>
<tr>
<td>Is a refinement, improvement, or new application of concepts, approaches, instrumentation, or interventions proposed?</td>
<td></td>
</tr>
</tbody>
</table>
**Scored Review Criteria**

**Approach**

Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project?

Are potential problems, alternative strategies, and benchmarks for success presented?

If the project is in the early stages, will the strategy establish feasibility and will particularly risky aspects be managed?
Will the environment in which the work will be done contribute to the probability of success?

Are the institutional support, equipment and other resources available to the investigators adequate for the project proposed?

Will the project benefit from unique features of the scientific environment, subject populations, or collaborative arrangements?
<table>
<thead>
<tr>
<th>Core Review Criteria</th>
<th>Addressed in these sections of the Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significance</td>
<td>Research Strategy</td>
</tr>
<tr>
<td></td>
<td>a. Significance</td>
</tr>
<tr>
<td>Investigator(s)</td>
<td>Biosketch</td>
</tr>
<tr>
<td></td>
<td>Personal Statement</td>
</tr>
<tr>
<td>Innovation</td>
<td>Research Strategy</td>
</tr>
<tr>
<td></td>
<td>b. Innovation</td>
</tr>
<tr>
<td>Approach</td>
<td>Research Strategy</td>
</tr>
<tr>
<td></td>
<td>c. Approach</td>
</tr>
<tr>
<td>Environment</td>
<td>Resources</td>
</tr>
<tr>
<td></td>
<td>Environment</td>
</tr>
</tbody>
</table>
Other Criteria: Factored into Impact Score

- Protection of Human Subjects
- Vertebrate Animal Welfare
- Inclusion of Women, Minorities and Children
- Biohazards
Other Criteria: NOT Factored into Impact Score

- Budget
- Foreign Institution
- Resource sharing
- Other
Overall Impact

• Assessment of the likelihood that the fellowship will enhance the candidate’s potential for, and commitment to, a productive independent research career in a health-related field.

Criteria for evaluating research applications
• Fellowship Applicant
• Sponsors, Collaborators and Consultants
• Research Training Plan
• Training Potential
• Institutional Environment and Commitment
Overall Impact

- Assessment of the likelihood for the candidate to maintain a strong research program, taking into consideration the criteria below in determining the overall impact/priority score.

Criteria for evaluating research applications
- Candidate
- Career Development Plan
- Research Plan
- Mentors, Consultants and Collaborators
- Environment and Institutional Commitment
• The application should not be summarized
• Reviewers write evaluative statements
• Comments should be in a bulleted format
• Short narratives are also acceptable
OVERALL IMPACT SECTION

<table>
<thead>
<tr>
<th>Overall Impact</th>
<th>Write a paragraph summarizing the factors that informed your Overall Impact score.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text, not bullets.</td>
<td>Need to justify comments and score, not cut and paste from comments.</td>
</tr>
</tbody>
</table>

SCORED REVIEW CRITERIA SECTIONS: The five review criteria, Significance, Investigators, Innovation, Approach, Environment, with a separate score for each.

1. **Significance**
   - Strengths
     - 
   - Weaknesses
     - 

• Applications scored on each review criterion using a scale of 1-9.
• Determine a score for the overall impact of the application using 1-9 scale.
• The Overall Impact Score should not be the average of the criterion scores
<table>
<thead>
<tr>
<th>Impact</th>
<th>Score</th>
<th>Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Impact</td>
<td>1</td>
<td>Exceptional</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Outstanding</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Excellent</td>
</tr>
<tr>
<td>Moderate Impact</td>
<td>4</td>
<td>Very Good</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>Low Impact</td>
<td>7</td>
<td>Fair</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Marginal</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Poor</td>
</tr>
</tbody>
</table>
# Scoring Example for an Application

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Rev. 1</th>
<th>Rev. 2</th>
<th>Rev. 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Impact Score</td>
<td>5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Significance</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Investigator</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Innovation</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Approach</td>
<td>6</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Environment</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Average score: 3  2.5  2.4
Deriving Final Overall Impact Score

- Applications receive an overall impact score from each eligible panel member.
- Assigned reviewers give range
- Panel Votes according to the range (voting outside the range is allowed)
- SRO calculates the final score

EXAMPLE: Three reviewers scores: 5, 1, 2
Seven other reviewers on panel vote within range of 1-5:
(1, 2, 3, 2, 2, 3, 1 = 14 total score)
Calculate final score: \( \frac{14 + 8}{10} = 2.2 \)

Final score 2.2X\( \)10 = 22

Scores will thus range from 10 to 90
• Summary statement is the official record of the evaluation and recommendations made by study sections

• Summary statement from New Investigators are prepared within 10 days of the review meeting

• All remaining summary statements are due within 30 days of the review meeting
Three sections in the Summary Statement

• Front page
• Body (shown in the next two slides)
• Roster
• 1R01NR012345-01 Fonda, Jane
• New Investigator
• Resume or Summary of Discussion
• Description (provided by applicant)
• Public Health Relevance
• Critique 1
• Critique 2
• Critique 3
THE FOLLOWING RESUME SECTIONS WERE PREPARED BY THE SCIENTIFIC REVIEW OFFICER TO SUMMARIZE THE OUTCOME OF DISCUSSIONS OF THE REVIEW COMMITTEE ON THE FOLLOWING ISSUES:

PROTECTION OF HUMAN SUBJECTS (Resume): ACCEPTABLE

INCLUSION OF WOMEN, MINORITIES AND CHILDREN PLAN (Resume): ACCEPTABLE

COMMITTEE BUDGET RECOMMENDATIONS: The budget was recommended as requested

SCIENTIFIC REVIEW OFFICER’S NOTE:
What is a Percentile?

- Percentile indicates a relative rank, generally within a Scientific Review Group.
- Percentile ranks your application relative to the other applications reviewed by your study section at its last 3 meetings.
• To counter a phenomenon called “score creep”

• Study sections may score either more harshly or more favorably

• Percentiles rank application relative to others scored by the same Study Section
Why Percentiles?

- Percentiles spread out scores across all possible rankings
- Percentiles enhance fairness to applicants
Percentile (formula)

\[
P = \frac{K - 0.5}{N} \times 100 \quad \text{and} \quad \frac{20 - 0.5}{200} \times 100 = P_{10}
\]

- \( P \), percentile value
- \( K \), numerical rank of the priority score
- \( N \), number of applications in the base
Questions
“There is no amount of Grantsmanship that will turn a bad idea into a good one… but there are many ways to disguise a good idea”.

Dr. William Raub
Past Deputy Director, NIH