NIH Peer Review Process

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NIH Peer Review System

Level 1
Scientific Review Group (SRG)
• Primarily non-federal scientists
• Expertise in relevant scientific disciplines and current research areas

Level 2
Institute and Center (IC)
National Advisory Councils or Boards
• Composed of both scientific and public representative chosen for their expertise
Scientific Review Group (SRG): Level 1

**Scientific Review Officer (SRO)**
- Evaluate application for scientific merit
- Recruit & assign reviewers
- Manage & document conflict of interest (COI)
- Prepare summary statements

**SRG Members**
- Chair serves as moderator of the discussion
- Declare COI
- Prepare a written critique
- Assign a numerical score
- Make recommendations (scientific/technical merit, additional review considerations & budget)
Peer Review Meeting Procedures

Applications are reviewed based on established review criteria.

Assigned reviewers summarize their critiques.

Open discussion follows.

Final scoring of overall impact scores is conducted by private ballot.
Review Criteria

- Overall Impact
- Significance
- Investigator
- Innovation
- Approach
- Environment
Significance

- How well does the application address an important problem or a critical barrier to progress in the field that the proposed project address?

- Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields.

- Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved.
Investigator

- Include how the PD/Pi's, collaborators, and other researchers are suited to the project.

- If an early stage investigator or new investigator, or in the early stages of an independent career, provide information related to your experience and training.

- For established investigators, provide an ongoing record of accomplishments demonstrating that you have advanced the field.

- Collaborative or multi-PD/PI projects, include how the investigators have complementary and integrated expertise; are their leadership approach, governance and organizational structure appropriate for the project.
Innovation

- Explain how the application challenge and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions.

- Describe any novel concepts, approaches or methodologies, instrumentation, or interventions to be developed or used in the field of research.

- Define any refinement, improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions proposed.
Approach

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

- Discuss potential problems, alternative strategies, and benchmarks for success.

- If the project is in the early stages of development, describe the strategy to establish feasibility and will particularly risky aspects be managed.

- Address the plans for 1) protection of human subjects from research risks, and 2) inclusion of minorities and members of both sexes/genders, as well as the inclusion of children, justified in terms of the scientific goals and research strategy proposed if the project involves clinical research.
Environment

- Address how the scientific environment in which the work will be done contribute to the probability of success
- Describe the institutional support, equipment and other physical resources available to the investigators adequate for the project proposed
- Include the benefit from unique features of the scientific environment, subject populations, or collaborative arrangements
Overall Impact

- Overall impact score quantifies the reviewers' assessment of a project's ability to powerfully influence its field. That assessment is made by considering the five core initial peer review criteria and any additional ones that apply.
Additional Review Criteria

- Review Criteria
  - Protections for Human Subjects
  - Inclusion of Women, Minorities, and Children
  - Vertebrate Animals
  - Biohazards
  - Resubmission
  - Renewal
  - Revision

- Review Considerations
  - Applications from Foreign Organizations
  - Select Agent
  - Resource Sharing Plans
  - Budget and Period Support
<table>
<thead>
<tr>
<th>Impact</th>
<th>Score</th>
<th>Description</th>
<th>Additional Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Impact</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>Moderate Impact</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 weaknesses</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Satisfactory</td>
<td>Some strengths but also some moderate weaknesses</td>
</tr>
<tr>
<td>Low Impact</td>
<td>7</td>
<td>Fair</td>
<td>A few strengths and a few major weaknesses</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>
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Scoring Process

Before the SRG meeting, every assigned reviewer gives a separate score for each of the 5 review criteria and a preliminary impact score.

During the meeting, those scores are used to determine which applications will be discussed.

Final impact score are assigned at the meeting by each eligible committee member.

The mean score is calculated from the members' impact scores, and multiplying the average by 10; the final overall impact score is reported on the summary statement.

Numerical impact scores are not reported for applications that are not discussed (ND) and may appear as ++ on the summary statement face page.

An application may be designated NOT Recommended for Further Consideration by the SRG if it lacks significance and substantial merit.

Applications designated as Not Recommended don't proceed to the second level of peer review.

Applicants just receiving their scores or summary statements, should consult the NIH what's next page for detailed guidance.
From the review side of things

- **Overall Impact**
  - Reviewers provide an overall impact score to reflect their assessment of the likelihood for the project to exert a sustained, powerful influence on the research field(s) involved, in consideration of the following five core review criteria, and additional review criteria (if applicable).
  - Overall Impact takes all of the criteria (including approach) into consideration and is NOT the mathematical mean of the criteria scores, but can be better or worse than any of the criteria scores.

- Much time is spent emphasizing the difference between the significance and the overall impact score.

- Significance is a score of how important the work would be if everything works (how important?)
From the review side of things

- Each submission stands alone. Comparisons with previous submissions or other proposals “in a pile” are discouraged.

- Reviewers must discuss and resolve competence issues with the SRA during the assignment phase.

- During review, applications of one mechanism are clustered together to discuss, with the best scoring discussed first. So all R01’s are discussed, best to worst based on initial scores, then R21’s, R03’s and all new investigators.

- When reviewers find the problem significant, but have approach issues, an overall impact scores of 3-4’s are given, meaning it is important to do and the applicant resubmit with better methodology.

- About half of the applications are not scored.
Advisory Council or Board
Level 2

- Advisory Council (AC)/Board of the IC performs the 2nd level of review

- AC/Board are composed of scientists from the extramural research community and public representatives

- NIH program staff review the applications, impacts scores, and summary statements against the IC’s needs

- Program staff provide a grant-funding plan to the AC/Board

- IC director makes final funding decisions based on staff and the AC/Board advice
Next Steps
Results of Peer Review

■ Step 1:
  ■ Within 30 days of the review, summary statements, reviewers’ critiques, and percentiles are available through the PI’s Commons account
  ■ Applications not discussed at the meeting will receive a summary statement with critiques and criterion scores from each of the assigned reviewers.

■ Step 2:
  ■ Program officials (POs) are the point of contact for interpretation of review and advice of the likelihood of NIH funding the application
  ■ Resubmission process
### FY13 NIAID Paylines

These payline apply to applications reviewed for the September 2012, February 2013, and June 2013 Council meetings.

<table>
<thead>
<tr>
<th>Grant Types</th>
<th>Payline</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R01 (non-new PIs)</td>
<td>8 percentile</td>
<td>Research Projects for established investigators</td>
</tr>
<tr>
<td>R01 (new PIs)</td>
<td>12 percentile</td>
<td>Research Projects for new and early-stage investigators</td>
</tr>
<tr>
<td>F31</td>
<td>30 overall impact score</td>
<td>NRSA Individual Predoctoral Fellowships to Promote Diversity in Health-Related Research</td>
</tr>
<tr>
<td>F32</td>
<td>25 overall impact score</td>
<td>NRSA Postdoctoral Fellowships</td>
</tr>
<tr>
<td>K (except K99)</td>
<td>26 overall impact score</td>
<td>Career Development Awards</td>
</tr>
<tr>
<td>R03</td>
<td>20 overall impact score</td>
<td>Small Grants</td>
</tr>
<tr>
<td>R15</td>
<td>20 overall impact score</td>
<td>Academic Research Enhancement Awards (AREA)</td>
</tr>
<tr>
<td>R21</td>
<td>20 overall impact score</td>
<td>Exploratory/Developmental Grants</td>
</tr>
<tr>
<td>T32</td>
<td>14 overall impact score</td>
<td>Institutional NRSA Training Awards</td>
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Post-Review
Fundable Score – Next Steps

- Some ICs publish paylines as part of their funding strategies to guide applicants on their likelihood of receiving funding

- Application scores can only be compared against the payline for that fiscal year (year the application will be funded)

- If the application is funded, the PI will work closely with the PO and Grant Management Officer on budgetary or administrative issues

- MUSC ORSP initiates the PIs grant account
Post-Review
Not Funded – Next Steps

- NIH receives thousands of applications so the 1st attempt is difficult, but not impossible

- There’s an opportunity to respond to the reviewers’ comments and resubmit the application
  - Seek assistance from your mentor to review the summary statement
  - Review strengths and weaknesses of the proposal
  - Develop strategy for resubmission or develop a new proposal