Enhancing Peer Review at NIH

Cheryl A. Kitt, Ph.D.
Deputy Director, CSR

National Institutes of Health
U.S. Department of Health and Human Services
Scientific Review Process

_Dual Review System for Grant Applications_

First Level of Review
CSR or Institute Review
_Scientific Review Group (Study Section)_

Second Level of Review
NIH Institute/Center Council
<table>
<thead>
<tr>
<th>Neuroscience, Development and Aging</th>
<th>AIDS, Behavioral and Population Sciences</th>
<th>Basic and Integrative Biological Sciences</th>
<th>Physiological and Pathological Sciences</th>
<th>Translational and Clinical Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain Disorders &amp; Clinical Neuroscience</td>
<td>Biobehavioral &amp; Behavioral Processes</td>
<td>Biological Chemistry &amp; Macromolecular Biophysics</td>
<td>Endocrinology, Metabolism, Nutrition &amp; Reproductive Sciences</td>
<td>Cardiovascular and Respiratory Sciences</td>
</tr>
<tr>
<td>Molecular, Cellular &amp; Developmental Neuroscience</td>
<td>Risk, Prevention &amp; Health Behaviors</td>
<td>Bioengineering Sciences &amp; Technologies</td>
<td>Immunology</td>
<td>Surgical Sciences, Biomedical Imaging and Bioengineering</td>
</tr>
<tr>
<td>Integrative, Functional &amp; Cognitive Neuroscience</td>
<td>Epidemiology &amp; Population Sciences</td>
<td>Cell Biology</td>
<td>Infectious Diseases &amp; Microbiology</td>
<td>Musculoskeletal, Oral And Skin Sciences</td>
</tr>
<tr>
<td>Emerging Technologies &amp; Training in Neuroscience</td>
<td>Healthcare Delivery &amp; Methodologies</td>
<td>Genes, Genomes &amp; Genetics</td>
<td>Digestive, Kidney &amp; Urological Systems</td>
<td>Oncology 2 – Translational Clinical</td>
</tr>
<tr>
<td>Biology of Development &amp; Aging</td>
<td>AIDS &amp; Related Research</td>
<td>Oncology 1 – Basic Translational</td>
<td></td>
<td>Vascular and Hematology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interdisciplinary Molecular &amp; Training</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Get Your Application to the Right Study Section!

- Review CSR Integrated Review Group (IRG) and Scientific Review Group (Study Section) Guidelines to Identify a Home for Your Application.

- Submit a Cover Letter!
Enhancing Peer Review

“Fund the best science, by the best scientists, with the least administrative burden…”

Elias Zerhouni, MD, Former Director, NIH
Amended Applications:

*To speed the funding of meritorious science and minimize reviewer burden:*

- As of January 25, 2009, all original new applications (i.e., never submitted) and competing renewal applications are permitted only a *single amendment (A1)*.
Balanced and Fair Reviews Across Career Stages and Scientific Fields

- **New Investigator (NI):**
  - PD/PI who has not yet competed successfully for a substantial NIH research grant
    - For multiple PD/PIs—all PD/PIs must meet requirements for NI status

- **Early Stage Investigator (ESI):**
  - PD/PI who qualifies as a New Investigator AND is within 10 years of completing the terminal research degree or is within 10 years of completing medical residency (or equivalent)

- Applies only to R01 applications
- New Investigators/Early Stage Investigators will be clustered together for review
- New Investigators/Early Stage Investigators Apply Now!!!
Enhanced Review Criteria

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

• **New Core Criteria Order:**
  - Significance
  - Investigator(s)
  - Innovation
  - Approach
  - Environment

  *Review criteria enhanced and expanded and each scored from 1-9*
Scoring

To improve the transparency of the scoring process:

• Score applications on *five review criteria using a scale of 1-9*.

• Preliminary *overall impact score using 1-9 scale*.

• Discussed applications will receive an overall score from each eligible (i.e., without conflicts of interest) panel member and these scores will be averaged to one decimal place, and multiplied by 10. The 81 possible *priority scores will thus range from 10-90*.

• Percentiles will be reported in whole numbers.

• **All applications will receive scores:**
  
  - *Not Discussed* applications will receive initial criterion scores from the three assigned reviewers
## Scoring Descriptions

<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>
Critiques

To improve the quality of the critiques and to focus reviewer attention on the review criteria:

- *Electronic template for critiques* that will prompt for strengths and weaknesses for each criterion.
- Summary statement are *shorter* and more focused.
- Discussed applications only have a *summary of* the panel’s *discussion* at the meeting.
- *ALL applications will be scored* and receive critiques
  - *Not discussed* applications will receive *criterion scores* only
Template-Based Critiques

• The objective is to write evaluative statements and to discourage summarizing the application.
• Comments will be in the form of bullet points or if necessary short narratives.

1. Significance

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Please limit text to ¼ page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
What Happens at the Study Section Meeting?

Discuss applications *in order* of average preliminary score:

**Why:**
- Concern - variation of scores during different times of the meeting.
  - One recommendation was to recalibrate scores at the end of the meeting

**Solution:**
- Recalibrate dynamically throughout meeting.

**Requirement:**
- Reviewers must participate in entire meeting.
- Discuss ~ 50% of applications
- SRO then asks if there are any other applications panel wishes to discuss
- The remaining applications will not be discussed (applications receive criterion scores only)
Final Scores

• Discussed applications receive an overall score from each eligible (i.e., without conflicts of interest) panel member and these scores will be averaged to one decimal place, and multiplied by 10. The priority scores will thus range from 10-90.

• Percentiles are reported in whole numbers.
SUMMARY

Enhancing Peer Review Implementation Timeline

January 2009 Due Dates (for potential FY2010 funding)


May 2009 Review Meetings (for potential FY2010 funding)

1. 9-Point Scoring System
2. Enhanced Review Criteria
3. Formatted Reviewer Critiques
4. Scoring of Individual Review Criteria
5. Clustering of New Investigator Applications During Review

January 2010 Due Dates (for potential FY2011 funding)

1. Shorter Applications for R01s and Other Mechanisms
2. Restructured Applications to Align with Review Criteria
kittc@csr.nih.gov

301-435-1112