Basics in Grantsmanship – MIR 510

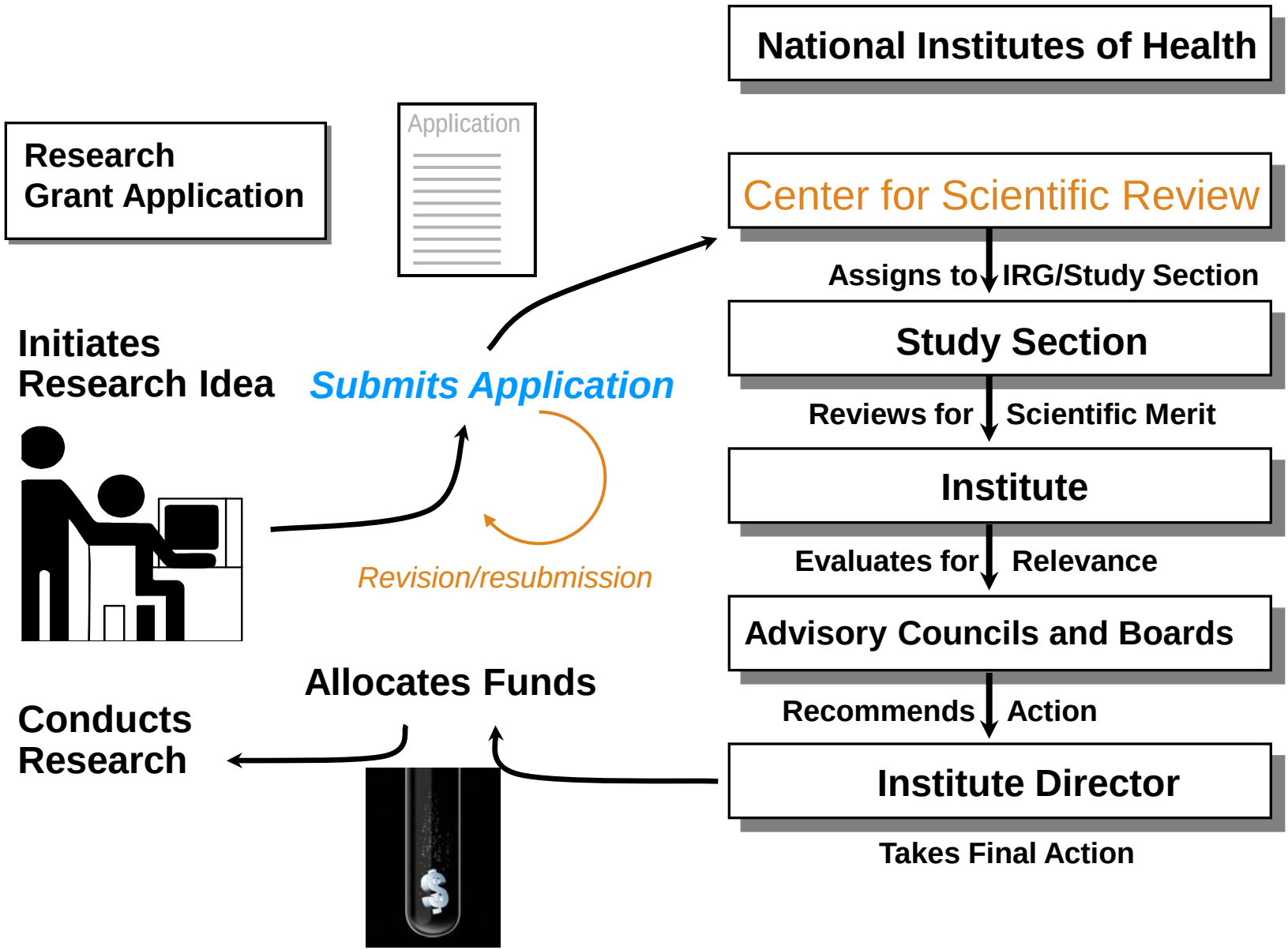
Session 3 – The Good, The Bad, and The Ugly of The Peer Review Process

October 14, 2016

Session 2 – Review Process

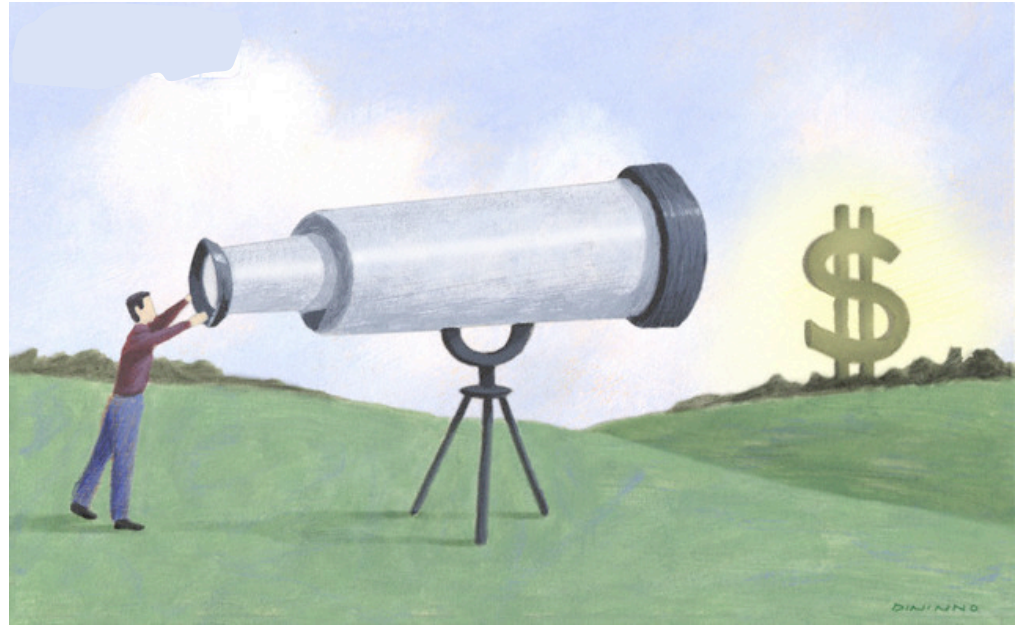
- Discuss review process
- Watch 15’ video of study section meeting; watch how dynamics can change during live review at committee meeting
- Review handout on guidelines for study section review; emphasize importance of getting significance, impact, innovation up front in review criteria
- Assign reviewers for mock study section

NIH Peer Review Process



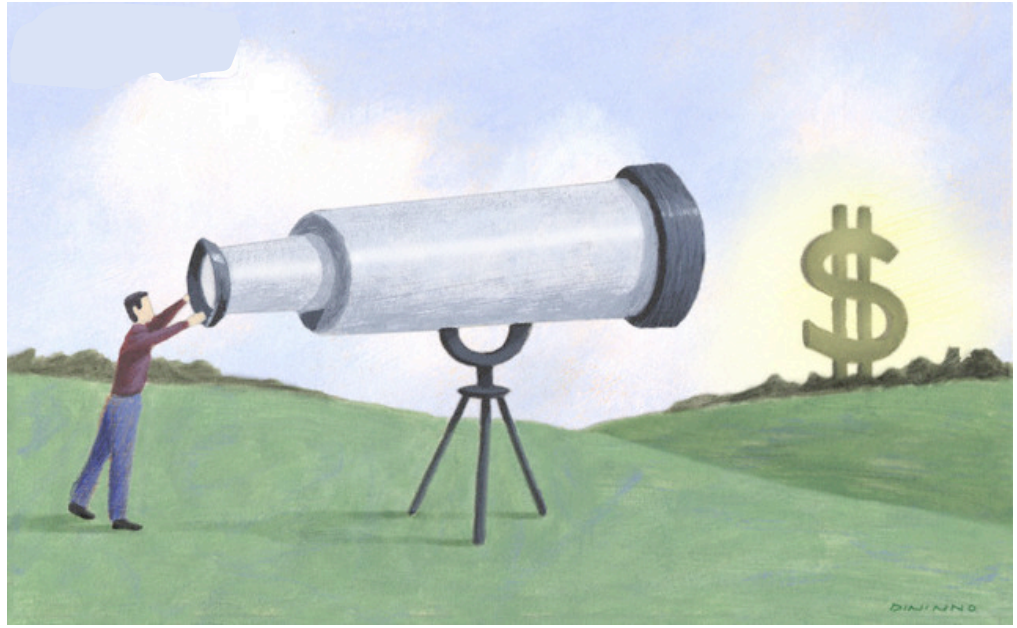
Goals for Enhanced Peer Review

- Clearer understanding of basis of application ratings
- Improve quality and transparency of peer review process
- *More emphasis on scientific impact and less emphasis on technical details*



Goals for Enhanced Peer Review

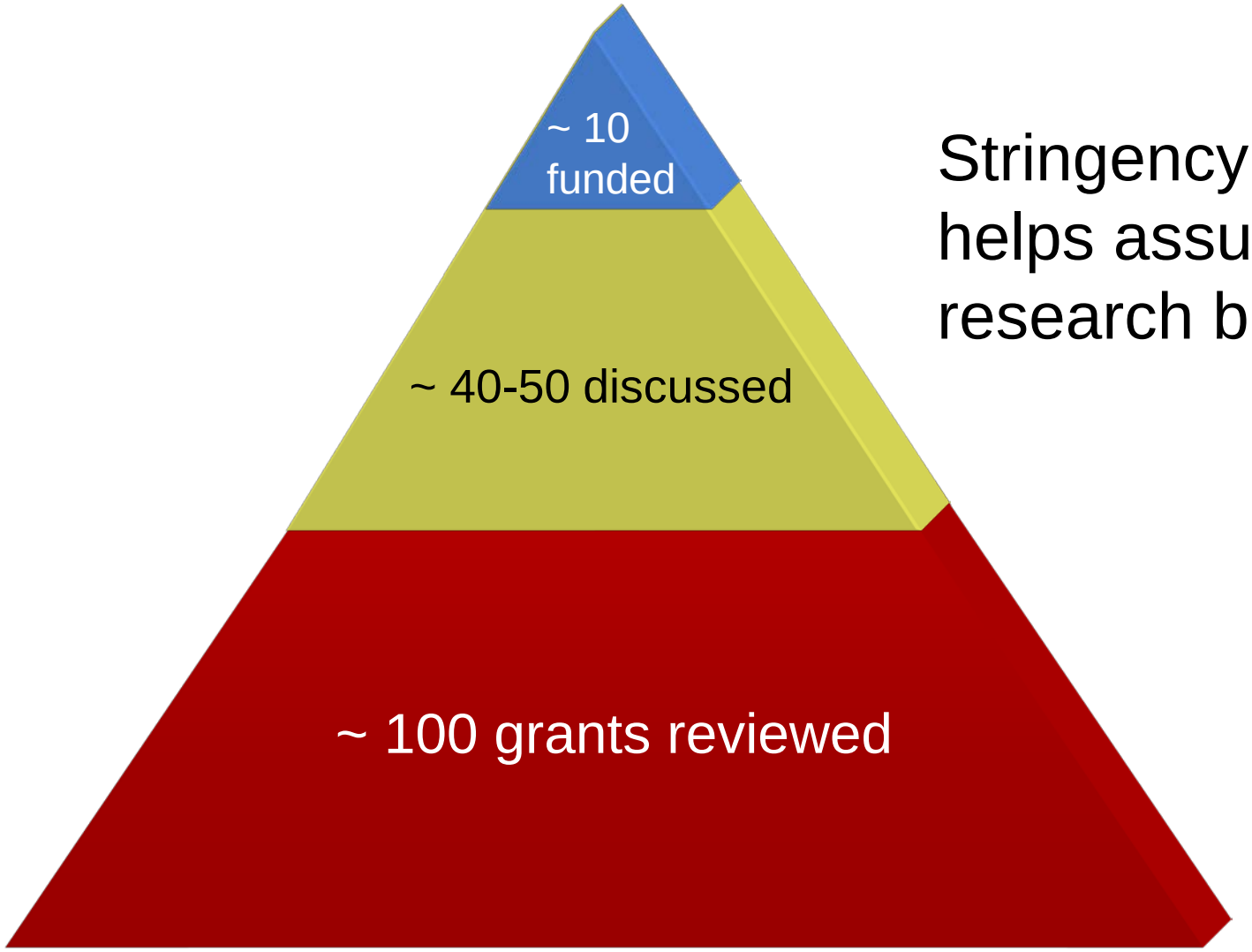
- Concise and well-focused critiques that *evaluate* rather than describe the application
- Use of the full scoring scale



CSR Study Sections

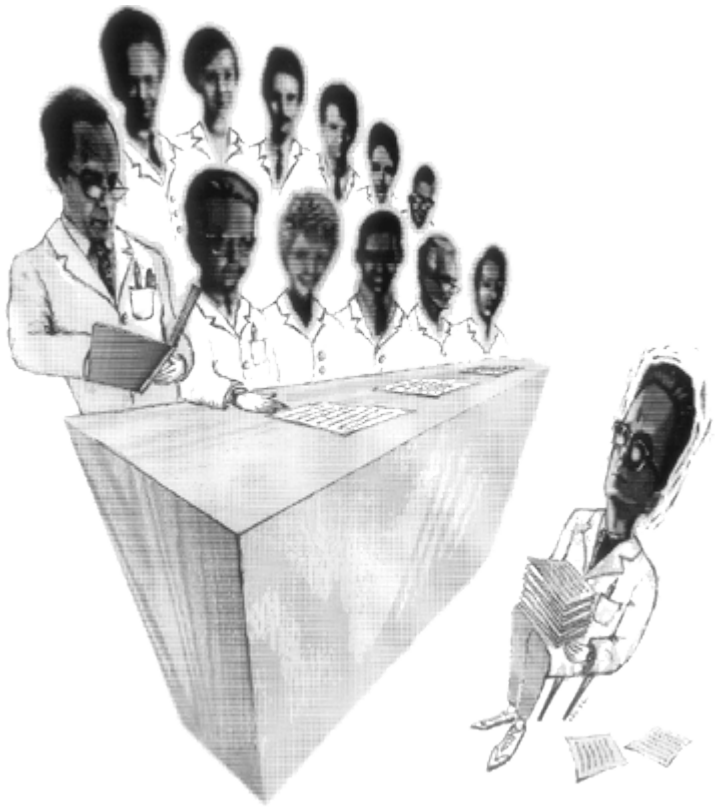
- Each CSR standing study section has 12- 28 regular members who are primarily from academia
- Ad Hoc members
- CSR standing study sections convene face-to-face meetings 3 times per year

Typical Cycle of CSR Study Section



Stringency of *peer review* helps assure legitimacy of research being conducted

Criteria for Selection of Peer Reviewers



- Active and productive researchers
- Demonstrated scientific expertise
- Mature and impartial judgment
- Work effectively in a group context
- Breadth of perspective
- Interest in serving
- Diversity of gender, ethnicity and geography

Pre-Meeting Activities - Reviewers

- Reviewers receive applications and assignments *6-8* weeks prior to meeting
  - ✓ Identify conflicts of interest
  - ✓ Generally assigned between *6-12* applications
  - ✓ Write critiques prior to the meeting
- Post preliminary scores and critiques
- Read written critiques of other reviewers a few days before the meeting

What Happens at Study Section Meeting

- Closed Meeting
- Orientation
  - Conflict of Interest (professional, personal, financial)
  - Confidentiality (protect applicant's ideas & reviewers)
  - Roles of the persons present
    - **Chair and other Reviewers**
    - **Program Officers (Observers)**
    - **SRO**
- Application by Application review (ideally ~15-20 min per grant)

Review of Each Application

- Chair introduces the application
- Chair polls the assigned reviewers to provide preliminary impact scores using scale 1-9 (no criterion scores)

Overall Impact (Review Template)

DESCRIPTION (The primary reviewer may enter brief non-evaluative description):

Overall Impact:

- **Peer reviewers assign an overall impact score to reflect their assessment of the likelihood of the project to exert a sustained, powerful influence on the research field, in consideration of the five standard review criteria and applicable additional review listed below.**
- **An application does not need to be strong in all categories to be judged likely to have a major scientific impact.**

Overall Impact Paragraph: paragraph justifying overall impact score. The text should not be a simple restatement of the evaluative summary provided for the other review criteria.

Significance Criterion Score versus Overall Impact Score

The Significance criterion – Assumes success

Assuming that all the aims are successful, does the project address a problem or critical barrier to progress in the field or have the ability to improve knowledge, technical capability, or clinical practice in a major (1-3), moderate (4-6) or minor (7-9) way?

Overall Impact – can be influenced by all 5 criteria (significance, investigator, innovation, approach, environment) weighted based on reviewer's judgment

The high (1-3), medium (4-6) or low (7-9) likelihood that a project will have a sustained and powerful influence on the science

Evaluation Score (1-9 scale)

Overall Impact:
The likelihood for a project to exert a sustained, powerful influence on research field(s) involved

Overall Impact	High	Medium	Low
Score	1 2 3	4 5 6	7 8 9

Evaluating Overall Impact:
Consider the 5 criteria: significance, investigator, innovation, approach, environment (weighted based on reviewer's judgment) and other score influences (e.g. human subjects)

e.g. Applications are addressing a problem of high importance/interest in the field. May have some or no technical weaknesses.

e.g. Applications may be addressing a problem of high importance in the field, but weaknesses in the criteria bring down the overall impact to medium.

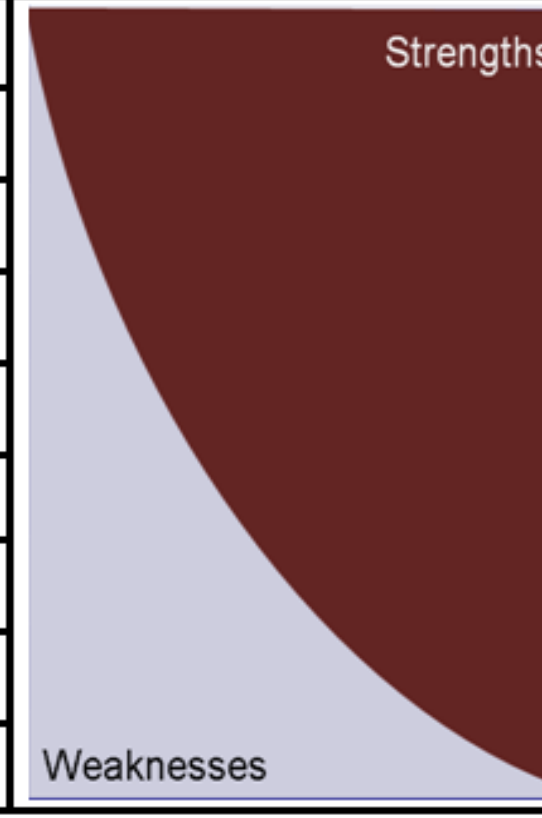
e.g. Applications may be addressing a problem of moderate importance in the field, with some or no technical weaknesses

e.g. Applications may be addressing a problem of moderate/high importance in the field, but weaknesses in the criteria bring down the overall impact to low.

e.g. Applications may be addressing a problem of low or no importance in the field, with some or no technical weaknesses.

5 is a good medium-impact application, and the entire scale (1-9) should always be considered.

Evaluation Score (1-9 scale)

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

Minor: An easily addressable weakness that does not substantially lessen the impact of the project
Moderate: A weakness that lessens the impact of the project
Major: A weakness that severely limits the impact of the project

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

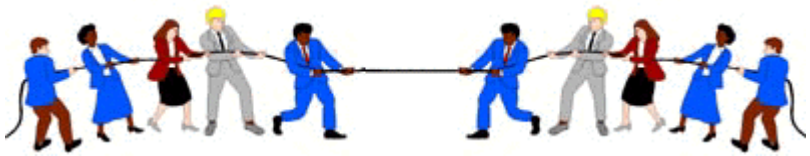
Review of Each Application

- R1 provides critique - discussion of *significance*, scientific and technical merit (strengths and weaknesses)
  - Based on OVERALL IMPACT & 5 review criteria

- ✓ Significance
- ✓ Investigator
- ✓ Innovation
- ✓ Approach
- ✓ Environment

Review of Each Application

- R2, R3, R4 provide additional comments
- Chair opens the discussion to the panel
- Additional review criteria will be discussed (vertebrate animals, biohazard)



Review of Each Application

- Chair polls the assigned reviewers for final scores, and asks for the entire panel to score

- Budget, data sharing, model organism discussed

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Inside the NIH Grant Review Process

- CSR has developed a video of a mock study section meeting to show how NIH grant applications are reviewed.

http://www.csr.nih.gov/video/video.asp

"It's not perfect, but it's the only peer review system we have."

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Review of Research Projects

- Order of review criteria

  IMPACT – score driving

  - ✓ Significance
  - ✓ Investigators
  - ✓ Innovation
  - ✓ Approach
  - ✓ Environment

Important: *In the Approach section reviewers are instructed to provide a more global, less "itemized" assessment of the strengths and weaknesses of the research plan.*

Guidelines for Writing Critiques

- Use bulleted points to make concise and well-focused comments. DO NOT provide fragmented sentences or single words as comments. Provide complete sentences.
- Critiques must be specific to the Aims of Projects.
- Must write major strengths/weaknesses that influenced the criterion /overall impact scores.

Critique Template:
Overall Impact

Overall Impact: Reviewers provide an overall impact score that reflects their assessment of the likelihood for the project to exert a sustained, powerful influence on the research fields(s) involved, in consideration of the five scored review criteria, and additional review criteria. An application does not need to be strong in al categories to be judged likely to have major scientific impact.

Reviewers provide a paragraph justifying their Overall Impact score. The text should not be a simple restatement of the evaluative comments provided for the other review criteria. Remember that these statements provide guidance to the applicant on the major strengths/weaknesses that drove the score.

Critique Template:
Scored Review Criteria

- Reviewers consider each of the five review criteria in the determination of scientific and technical merit, and give a separate score for each.

- An application does not need to be strong in all categories to be judged likely to have major scientific impact. For example, a project that by its nature is not innovative may be essential to advance a field.

Critique Template:
Scored Review Criteria

1.Significance: Does the project address an important problem or a critical barrier to progress in the field? If the aims of the project are achieved, how will scientific knowledge, technical capability, and/or clinical practice be improved? How will successful completion of the aims change the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field?

Strengths

-
-

Weaknesses

-
-

Critique Template:
Scored Review Criteria

2. Investigator(s): 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 collaborative or multi-PD/PI, do the investigators have complementary and integrated expertise; are their leadership approach, governance and organizational structure appropriate for the project?

Strengths

-
-

Weaknesses

-
-

Critique Template:
Scored Review Criteria

3. Innovation: Does the application challenge and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions? Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense? Is a refinement, improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions proposed?

Strengths

-
-

Weaknesses

-
-

Critique Template:
Scored Review Criteria

4. 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 of development, will the strategy establish feasibility and will particularly risky aspects be managed?

Strengths

-
-

Weaknesses

-
-

Critique Template:
Scored Review Criteria

5. Environment: Will the scientific environment in which the work will be done contribute to the probability of success? Are the institutional support, equipment and other physical 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?

Strengths

-
-

Weaknesses

-
-

Critique Template for F30/F31 NRSA NIH Predoctoral Fellowships:

Scored Review Criteria

OVERALL IMPACT SCORE

1. **Fellowship Applicant**
2. **Sponsors, Collaborators, and Consultants**
3. **Research Training Plan**
4. **Training Potential**
5. **Institutional Environment and Commitment to Training**

See handouts and instructions/guidelines at NIH website along with example critique:

http://public.csr.nih.gov/ReviewerResources/SpecificReviewGuidelines/Pages/default.aspx

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Session 3 – Mock Study Section

March 13, 2015 (2 hr)

- Review of assigned grants from NIAID/NIH materials (2 grants).
- Students split into two groups – each group assigned one grant to review in detail and will complete an evaluation following current 9-point evaluation criteria. Students should also look at second grant but do not need to complete written evaluation for this grant.

Session 3 – Mock Study Section

March 4, 2016 (2 hr)

- At class, students from each group will be selected to function as the primary, secondary and tertiary reviewer. Other students will function as the review committee.
- After completion of the mock study section for each grant, there will a discussion of the official NIH study section summary statements.

NIH Grantsmanship Resources

OER (Office of Extramural Research)

Website: http://enhancing-peer-review.nih.gov/index.html

Contains detailed information on the Enhancing Peer Review effort

NIH Grantsmanship Resources

James T. Snyder, PhD
Scientific Review Officer
Immunology Review Branch
Scientific Review Program,
DHHS, NIH, NIAID, DEA