

Subcommittee on Evaluations & Systemic Assessments (DESA)

April 1, 2008

Discussion Items from March 31, 2008 Subcommittee Meeting

- Committee charged with designing methods to evaluate science (**Science of Science**)
- One approach initially proposed...
 - Use the history of “innovative” discoveries
 - Obtain suggestions from the committee (random selection)
 - e.g., angiogenesis, *H. pylori*, prions, B12 deficiency, nanotechnology
 - Include negative results
 - Details of the discoveries obtained by DESA
 - Computer modeling
 - Common patterns, profiles emerge

- Scrutinize patterns for...
 - To identify what creates the advances in science
 - “tipping point”
 - What “enabled the advance to proceed

“A Microarray/‘Omics’ Approach”

Another approach proposed...

Patterns, profiles approach “too open-ended”

The “Candidate Gene” Approach

- Suggest narrow unit of analysis
- Define scientific success first
- **Identify 4 known metrics of success** and apply them to current Common Fund Projects
- To determine **success** of High Risk/Innovative projects
 - faster and more cost effective
 - more frequently than regular study section
 - *Subsequently* use to identify the enabling factors or tipping factors

Narrowing the Focus of the Metrics

- **Issues of Timing**
 - Current metrics works for low risk
 - Continuum to high risk
 - Do the metrics need to change for high risk projects?

- **Issues of Novelty: Innovation/Discovery/Invention**
 - Does it change research emphasis, directions/dogma
 - Does it enable major breakthroughs
 - Does it “achieve science fiction”
 - Does it facilitate discovery, innovation, capacity-building

- **Capacity: Human/Space/Time/Equipment/Staff**

Metrics Applied to Test Case: The Common Fund

- Evaluate Highly Innovative Projects for Success
 - Does it enable a breakthrough?
 - Did it build capacity?
 - Is **NIH** doing it faster and more efficiently?
 - Value added over traditional review or metric mechanisms?
 - Impact across multiple areas?
 - Overarching goal achieved?
 -Impact human health by
 - Implementating discoveries
 - Translating basic science inventions to bedside use

Goals for Next Meeting

- Run both scenarios
- Assess each approach to determine if metrics can be identified that advance science

- “We cannot solve problems with the same thinking we used when we created them”
- ---Albert Einstein