

# 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