Science of Science Management

October 2-3, 2008

If You Don't Discern, You Can Not Learn

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OPASI

Division of Evaluation and Systematic Assessments (DESA)

Inform strategic planning, and coordinate assessments and evaluations of the NIH research agenda in order to provide essential information for decision making and reporting performance

–**Systemic Assessments Branch (SAB)**

Responsible for organizational level required performance reporting
system assessments
strategic planning

–**Evaluation Branch (EB)**

Responsible for distributing 1% set-aside to conduct specific evaluations

Role in OPASI

–Provide performance feedback to foster program improvement
–Advance assessment approaches that enhance eco-system science productivity

If You Don't Discern You Can Not Learn

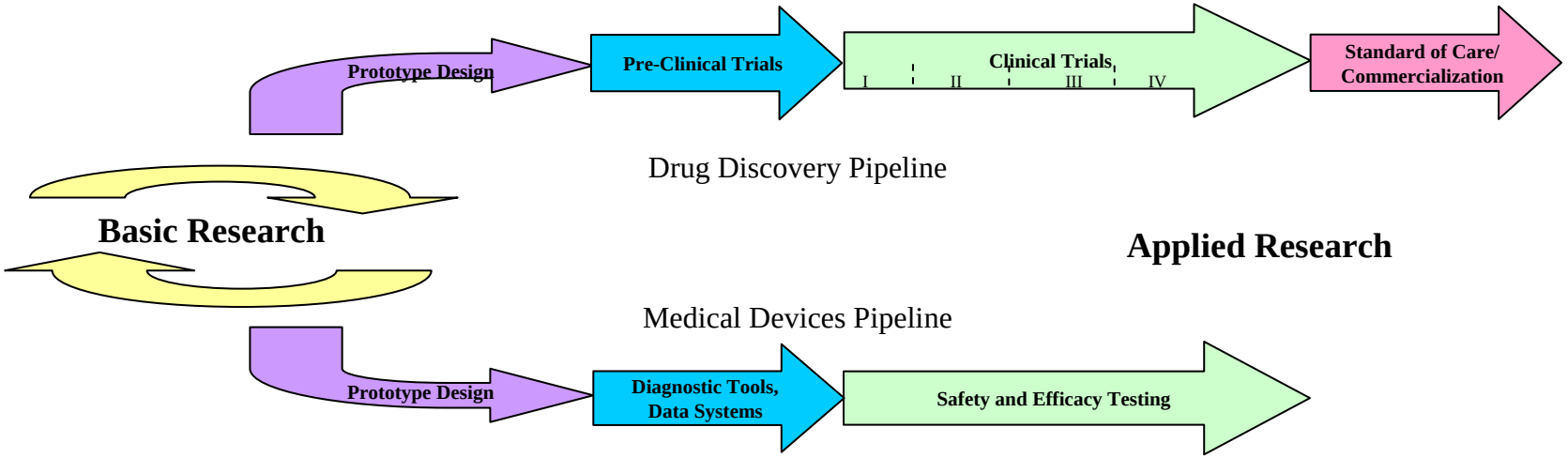
Discern

- Valid from Anecdotal
- Fact from Fiction
- Evidence from Practice

Learn

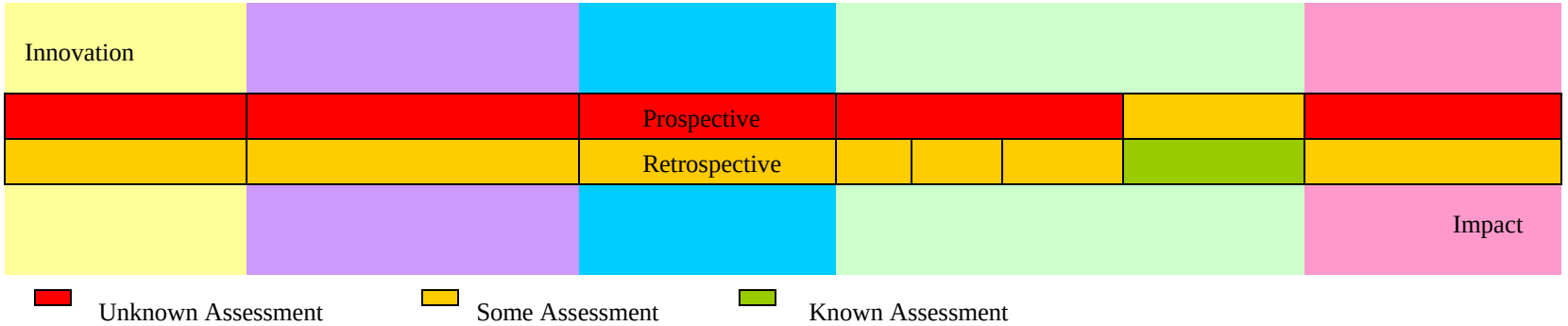
How and when to intervene (or not)

Science Discovery Process



Science Discovery Continuum to Practice

Science Assessment



Science is a Continuum

…..From Discovery to Practice

There are many unknowns

- Time
- Cost
- Products

Science Challenges to Traditional Evaluation

- High Risk Research
- Innovation
- Systems/Large Initiatives
- Impact Assessment

Increased Accountability & Demands

- Organizational performance?
- Managerial performance?
- Impact of science results?
- Health benefits per dollar?
- Set priorities with limited resources
- Depict science results in understandable (lay) language

Insufficient Resources for Discernment

- Methodologies
- Approaches
- Measures
- Tools
- Best Practices

Emergent Field of Study to Enhance Discernment

- Systemic & Systematic approach to unravel answers
- Infrastructure to support science of science management research
- Incremental findings to establish a process for determining validity

Vision to Action

- Culture change of the global science eco-system
  - Incorporation of science management research (NIH)
  - Appropriate assessments of science performance (Field)
  - Realistic utilization of science findings (Stakeholders)
- Clarity and consistency in defined terms
- Methods to transition findings from discovery to utilization
- Infrastructure and funding sources

If we discern, we learn

- What informs decision making & supports scientific planning
- How to assess without inhibiting innovation
- How adaptable assessments reflect scientific paths; yet, depicts performance
- What best practices to use for assessing diverse scenarios of science management
- When and where to intervene in a scientific field, and when to get out of the way
- Who can best foster knowledge generation
- How to disseminate findings for utilization
- How to assess large science initiatives

International Activities

- European Union
  - US-EU Match Network
  - Cordis FP6/FP7
- Germany (DFG)
  - Performance Indicators
- Norway
  - Intellectual Property Rights
- Japan
  - Grants-in-Aid for Scientific Research

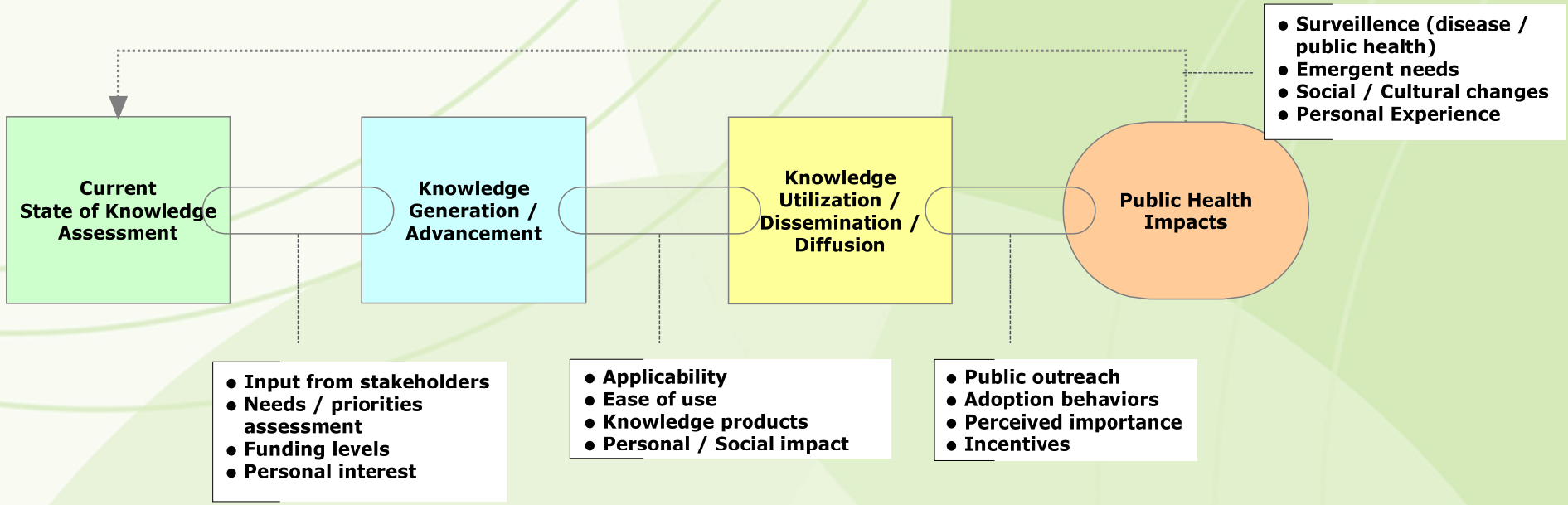
Federal Activities

- NSF
  - SciSIP
  - TPAC
- OSTP
  - Science of Science Policy - Marburger
  - Roadmap
  - Literature Synthesis
- NIST
  - ATP
  - TIP
- DOE

Meeting Assumptions

- Science Management should be assessed
- NIH conducts research for the benefit of public health
- Use what is known as a baseline, not as a comfort zone

Meeting Conceptual Model of Science Research



Meeting Objectives

- Foster Cross-talk and Collaborations among Assessment Experts
- Create Cross-talk among Assessment Experts and Scientists
- Initiate Science of Science Management Pilot Data

Meeting Structure by Areas of Expertise	Current State of Knowledge Assessment	Knowledge Generation/ Advancement	Knowledge Utilization/ Dissemination/ Diffusion	Public Health Impact
IC Director / Chair	Lawrence Tabak, NIDCR	Nora Volkow, NIDA	Thomas Insel, NIMH	Paul Sieving, NEI
Evaluation / Assessment	David Wilson George Mason, Associate Professor, Dept of Public and International Affairs	Scott Stern Northwestern University, Associate Professor, Kellogg School of Management	William Trochim Cornell University, Professor, Dept of Policy Analysis and Management	Doris Rubio University of Pittsburgh, Associate Professor of Medicine, Biostatistics, and Nursing
Knowledge Discovery / Management	Mary Kane Concept Systems Incorporated, President	Katy Börner Indiana University, Associate Professor of Information Science and Informatics	Jason Owen-Smith University of Michigan, Assistant Professor, Sociology and Organizational Studies	Nate Osgood University of Saskatchewan, Assistant Professor, Dept of Computer Science
Systems / Modeling/ Policy	Adam Jaffe Brandeis University, Dean of Arts and Sciences and Fred C. Hecht Professor in Economics	Susan Cozzens Georgia Institute of Technology, Director Technology Policy and Assessment Center	Lynne Zucker University of California-Los Angeles, Professor of Sociology & Policy Studies	Daniel Sarewitz Arizona State University, Director of the Consortium for Science, Policy and Outcomes
Scientists	Michael Darby University of California-Los Angeles, Professor of Money and Financial Markets	Edward Roberts (keynote) Massachusetts Institute of Technology, Professor of Management of Technology / Founder and Chair MIT Entrepreneurship Center	Fiona Murray Massachusetts Institute of Technology, Associate Professor, Management of Technology, Innovation and Entrepreneurship	Harold Pincus Columbia University, Professor, Dept of Psychiatry
Scientists	James Wong COPR, Hitachi Global Storage Technologies, Senior Product Strategist	Gilbert Omenn University of Michigan, Professor of Internal Medicine, Human Genetics and Public Health	Michelle McMurry Aspen Institute, Director, Health, Biomedical Science and Society Initiative	Ernst Berndt Massachusetts Institute of Technology, Professor of Applied Economics
Council of Councils Members	Lenworth Johnson University of Missouri, Professor of Ophthalmology & Neurology	Arthur Kleinman Harvard University, Professor of Medical Anthropology	Edwin Flores Chalker Flores LLP, Founder	Phyllis Wise University of Washington, Provost and Executive Vice President
P&E Officers	Kathie Reed NIA, Director, Office of Planning, Analysis, and Evaluation	Kevin Callahan NIAID, Director, Office of Strategic Planning and Financial Management	Della Hann NIMH, Director, Office of Science Policy and Program Planning	Lori Mulligan NCRR, Director, Office of Science Policy
NIH Scientists	Alan Koretsky NINDS, Senior Investigator, Laboratory of Functional and Molecular Imaging	Susan Gottesman NCI, Senior Investigator, Biochemical Genetics	David Lipman NLM, Director, NCBI; Senior Investigator	Ronald Germain NIAID, Senior Investigator, Lab Immunology
NIH Scientists	Robert Star NIDDK, Director, Division of Kidney, Urologic and Hematologic Diseases	Mark Guyer NHGRI, Director, Division of Extramural Research	Anita Linde NIAMS, Director, Office of Science Policy and Planning	Clifford Lane NIAID, Senior Investigator, Division of Clinical Research
NIH Scientists	Richard Suzman NIA, Director, Division of Behavioral and Social Research	Richard Fabsitz NHLBI, Deputy Chief, Epidemiology Branch	Stephen Marcus NCI, Scientist, Tobacco Control Research Branch	Richard Fisher NEI, Associate Director for Science Policy and Legislation
NIH SOSM Working Group	Christie Drew NIEHS, Health Scientist Administrator, Program Analysis Branch	Nancy Jones NIAID, Planning and Evaluation Specialist, Strategic Planning and Evaluation Branch	Patty Mabry OD, Office of Behavioral and Social Sciences Research	Susan Daniels NIAID, Health Scientist Administrator, Office of Scientific Coordination and Program Operations
Observrvers	Luci Roberts (OPASI)	Joni Rutter (NIDA)	Christina Clark (COPR)	Genevieve R Dealmeida-Morris (NIDA)

Pre-meeting Activities

- NIH working group input
- Field Specific Conference Calls
  - Identified state of field
  - Assessment of challenges
- Theme Specific Conference Calls
  - Selection of overarching guiding questions
  - Construct discussion
- NIH scientist/staff participant conference calls

Meeting Information

October 2, 2008	2:00 PM – 5:00 PM
October 3, 2008	8:00 AM – 12:30 PM
	12:30 PM – 3:45 PM (closed session)

Videocast

- http://videocast.nih.gov
- Will be archived for viewing after the meeting

Website

http://nihperformance.nih.gov/ScienceofScienceOverview.htm

Expected Outcome

Development of 4 concepts that can be tested to provide pilot data for science of science management research and field advancements

Assessment - Evaluation

(various sources especially Dan Apple 1998)

Assessment	Evaluation
Reflective: Internally Defined Criteria/Goals	**Prescriptive**:Externally Imposed Standards
Diagnostic: Identify Areas for Improvement	**Judgmental**: Arrive at an Overall Grade/Score
Flexible: Adjust As Problems Are Clarified	**Fixed**: To Reward Success, Punish Failure
Absolute: Strive for Ideal Outcomes	**Comparative:** Divide Better from Worse
Cooperative: Learn from Each Other	**Competitive:** Beat Each Other Out

Summary of Differences

Dimension of Differences	*Assessment*	*Evaluation*
Timing	**Formative**-Ongoing to improve learning	**Summative**-Episodic often final quality gauge
Focus of Measurement	**Process-Oriented**-ongoing tools, experiences & activities	**Product-Oriented**-results (outcome/ output), including judgment of processes
Relationship Between Administrator and Recipient	**Reflective**-internal collaborator	**Prescriptive**-external arbitrator
Findings-Uses	**Diagnostic** improvements	**Judgmental**-Merit / value
Modifiability of Criteria, Measures	**Flexible**-adaptive	**Fixed**-predetermined standards
Standards of Measurement	**Descriptive**-used to understand & to improvement	**Comparative**-used to divide better from worse
Relation Between Objects	**Cooperative** enhancements	**Competitive**-ranking / achievements

Appreciation

NIH Science of Science Working Group

Stephen Marcus	NCI	Christie Drew	NIEHS
Richard Fabsitz	NHLBI	Patty Mabry	OBSSR
Kathie Reed	NIA	James Onken	OER
Richard Suzman	NIA	Carole Christian	OPASI
Susan Daniels	NIAID	Timothy Hays	OPASI
Nancy Jones	NIAID	**Alan Krensky**	OPASI
John McGowan	NIAID	Luci Roberts	OPASI
Louise Rosenbaum	NIAMS	James Schuttinga	OPASI
Genevieve deAlmeida -Morris	NIDA	Karen Silver	OPASI
		Betsy Wilder	OPASI

Appreciation

Special thanks to the Systemic Assessment Branch staff

Ken Ambrose

Kerry Goetz

Kathryn Law

Evelyn Botchway

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Chuck Lynch & Ken Ambrose 2008