Presentation for the American Evaluation Association:

Performance Measurement for Research Improvement

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November 2008
OVERVIEW

- Accountability within the Federal government
- EPA/ORD progress in performance measurement
- Performance management and improvement
Accountability within the Federal Government

GPRA
PART
PMA
Agency
Federal Government

Government Performance and Results Act of 1993 (GPRA)
http://www.whitehouse.gov/omb/mgmt-gpbra/gplaw2m.html

Program Assessment Rating Tool (PART)
http://www.whitehouse.gov/omb/part/

President’s Management Agenda (PMA)
http://www.whitehouse.gov/results/
EPASStat Quarterly Report

http://www.epa.gov/performance/

- Quarterly performance improvement tool focused on key measures critical to managers in EPA

- A more limited number of measures than GPRA/PART, focused on outputs and outcomes (often by organization, not just program/media)

- Important to EPA receiving the 2007 Presidential Award for Management Excellence
EPA/ORD Progress in Performance Measurement
ORD Research Programs

- **Office of Research and Development (ORD) Mission:**
  - Produce relevant, high quality research products that are used to make scientifically-sound decisions to improve human health and the environment
  - Approximately $540 million research portfolio

- **Multi-Year Research Plans:**

  | Clean Air Research Plan | Endocrine Disruptors Research Plan |
  | Drinking Water Research Plan | Global Change Research Plan |
  | Water Quality Research Plan | Human Health Research Plan |
  | Land Research Plan | Ecological Research Plan |
  | Human Health Risk Assessment Plan | Safe Pesticides/Safe Products Research Plan |
Logic Model for ORD Research Planning and Management
Developing a Balanced Suite of Measures

- Measuring across the logic model to complement evaluation:
  - **Annual Measures**: Focus on outputs (performance)
  - **Biennial Measures**: Focus on outputs/outcomes (quality, relevance)
  - **Long-Term Measures**: Focus on outcomes (quality, relevance, performance)
  - **Efficiency Measures**: Focus on inputs/outputs (performance)
Annual Output Measures

- ORD programs track % on-time completion of research milestones by long-term goal
- Strengths: measurable, useful planning and communication tool, demonstrates progress toward long-term outcomes
- Weaknesses: milestones must evolve with research, challenge to ensure ambitiousness, not direct reflection of meeting client/partner needs

% of Key Research Management Objectives On Schedule
EPA Labs and Research Centers (EPASstat—3rd Qtr FY 2008)

<table>
<thead>
<tr>
<th>Laboratory/Milestones</th>
<th>Q4Q7</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Exposure Research Lab (NERL)</td>
<td>100%</td>
<td>100%</td>
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<tr>
<td>National Health &amp; Environmental Effects Lab (NHEERL)</td>
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<tr>
<td>National Risk Management Lab (NRMRL)</td>
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<td>National Center for Computational Toxicology (NCCT)</td>
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<tr>
<td>National Center for Environmental Assessment (NCEA)</td>
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<td>100%</td>
<td>96%</td>
<td>92%</td>
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<tr>
<td>National Center for Environmental Research (NCER)</td>
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<td>95%</td>
<td>89%</td>
<td>89%</td>
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<tr>
<td>National Homeland Security Lab (NHSRC)</td>
<td>100%</td>
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<tr>
<td>Immediate Office of the Assistant Administrator (IOAA)</td>
<td>NR</td>
<td>100%</td>
<td>67%</td>
<td>67%</td>
</tr>
</tbody>
</table>
ORD programs conduct bibliometric and decision citation analyses as well as partner surveys, tracking % citation rates and % partner satisfaction

Strengths: measurable; demonstrate quality, relevance, use

Weaknesses: costly, challenge to bridge time lag between research and citation/use, difficult to interpret and identify meaningful targets

- ORD spends approximately $250k annually in contract support for these performance analyses
Bibliometric and Decision Analyses

- Assess the extent to which ORD research is cited in academic journals and regulations/decisions
- Examine 10-year range of publications/products (>1,000) for each program
- Decision analysis piloted at the start of 2008 using web search tools and a software program that automates the process
  - 23% of ORD publications are highly-cited and published in high-impact journals
  - Decision citation rates range between 0-20% for programs analyzed to date
Partner Surveys

- Piloted in late 2005, but initiated systematically for all programs at the beginning of 2008
- Serve both to inform impact evaluations AND to guide program management/improvements

- >55% of partners report that ORD research impacts decisions that improve human health and environment
- >85% of partners are satisfied with scientific support provided by ORD
- Two-thirds of partners are not satisfied with communication and involvement in science planning
Long-Term Outcome Measures

- As part of each program evaluation, ORD’s Board of Scientific Counselors (independent expert panel) assigns a qualitative rating and provides a summary assessment of progress for each long-term goal (LTG).
- **Strengths**: focused on relevance, quality, and effectiveness/impact; adds clarity to evaluation reports.
- **Weaknesses**: adds one more aspect to evaluation/peer review, challenge to ensure ratings are meaningful, challenge to ensure focus on content of ratings and progress.
Long-Term Outcome Measures—Methodology

ORD Program Rating Categories:

- **Exceptional**: Program is addressing the right questions, meeting all/ exceeding some of its goals, science exceeds expectations for quality and speed.
- **Exceeds Expectations**: Program is addressing the right questions meeting all of its goals, science is competent or better and exceeds expectations for either quality or speed.
- **Meets Expectations**: Program is addressing the right questions, meeting most of its goals, science is competent or better and timely.
- **Not Satisfactory**: Program is failing to meet a substantial fraction of its goals, the questions being addressed are inappropriate or insufficient to meet the intended purpose, or the science is of low quality.
## Long-Term Outcome Measures—Baselines

<table>
<thead>
<tr>
<th>ORD Research Program(s)</th>
<th>Rating(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe Pesticides/Safe Products</td>
<td>Exceeds Expectations (LTG 1); Meets Expectations (LTGs 2 &amp; 3)</td>
</tr>
<tr>
<td>Human Health Risk Assessment</td>
<td>Meets Expectations (LTGs 1 &amp; 3); Exceeds Expectations (LTG 2)</td>
</tr>
<tr>
<td>Science and Technology for Sustainability</td>
<td>Exceeds Expectations (LTG 2); Meets Expectations (LTG 3)</td>
</tr>
<tr>
<td>Human Health, Ecological</td>
<td>Meets Expectations (progress rating only)</td>
</tr>
<tr>
<td>Endocrine Disrupting Chemicals, Clean Air, Drinking Water, Global Change</td>
<td>Exceeds Expectations (progress rating only)</td>
</tr>
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Efficiency Measures

- ORD has a variety of **process measures** used to manage resources more efficiently

- **Strengths**: focus on inputs relative to outputs

- **Weaknesses**: difficult for research, “right measure” challenge for a diverse mission/organization, must be balanced with measures of quality and relevance

- EPA has engaged the National Academy of Sciences and other Federal agencies in ongoing dialogue to determine the best approach for assessing efficiency
Performance Management and Improvement
Interpreting Data and Setting Meaningful Targets

- Annual/Biennial/Efficiency Measures:
  - Need trend data
  - Must conduct benchmarking
  - Focus on entire suite of measures

- Long-Term Measures:
  - Collect baseline data
  - Must conduct benchmarking
  - Focus on content rather than ratings/scores
Steps Toward Improvement

- Leverage performance data, especially survey and evaluation feedback:
  - Respond to input from partners and stakeholders
  - Address recommendations from experts and peer reviewers

- Incorporate performance data/feedback into science policy:
  - Establish linkages between performance and budgeting
  - Explore/develop tools to inform science investments and decisions
Linking Mission/Success with Accountability

- Establish concrete mechanisms to hold senior leaders accountable for performance
- Must focus on a limited number of measures that are strategic
- Capture all aspects of organizational performance, not just traditional outputs/outcomes
- ORD is implementing a scorecard in 2009 that provides a strategic framework for measuring success and ensuring accountability:
  - Customers (impact decisions and science)
  - Financial (increase % of resources for core mission)
  - Internal (improve management of operations)
  - Learning/Growth (improve staff effectiveness)
### ORD Strategic Plan

| Goal 1: Support the Agency's Mission |
| Goal 2: Be a High-Performing Organization |
| Goal 3: Be a Leader in the Environmental Research Community |
| Goal 4: Integrate Environmental Science and Technology to Solve Environmental Problems |
| Goal 5: Anticipate Future Environmental Issues |

### ORD Management Multi-Year Plan

- Goals: 1) Provide Exceptional Administrative Services; 2) Attract, Develop and Retain a Talented, Diverse Workforce; 3) Design, Evaluate & Communicate Programs Effectively

### ORD Scorecard

#### Customers:
1) Increase quality, relevance, timeliness and use of cutting edge research to inform decisions
2) Increase communication with and responsiveness to clients

#### Financial:
1) Improve planning and management of resources
2) Increase organizational efficiencies

#### Internal:
1) Improve decision-making and leadership
2) Increase the effectiveness of operations

#### Learning/Growth:
1) Strengthen capacity of current workforce
2) Increase collaborations to leverage knowledge and experience of others

### EPAStat
- Key measures for senior leadership

### Multi-Year Research Plans/GPRA/PART
- Annual Measures
- Biennial Measures
- Long-term Measures
- Efficiency Measures
More Information

- More Information:
  - [http://es.epa.gov/ncer/publications/bibliometrics/](http://es.epa.gov/ncer/publications/bibliometrics/)
  - [http://www.epa.gov/osp/bosc/](http://www.epa.gov/osp/bosc/)

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