Measuring Technical Progress in Research Quickly: Feasibility Study in Medical Research  
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Why the Need for Quick Evaluations of Research Programs?

- Fiscal crisis of the state: lack of money for major entitlements
- Declining competitiveness of the U.S. and decrease in tax revenue
- Growing unemployment and new needs
- Republicans propose cutting research by 20%

Obstacles to Quick Evaluations

- Projects make incremental progress
- Many projects last for many years
- Actual benefits not available for many years
- Metrics of technical progress not necessarily easily understood
- Stages in the natural history of disease

Solutions for Overcoming Obstacles

- Evaluate programs not projects
- Assume an equilibrium in starts/ends
- Measure potential benefits over a number of years
- Connect metrics to measures that are easily understood: percent increase in duration of life; percent decrease in cost of care
- Metrics for prevention, intake and assessment, treatment, and post-treatment / rehabilitation / long-term care

Methods Used

- Chose six morbidities, three each in NCI and NIA
- All research projects funded in 2006-8 and finished before 2009
- Selected projects involving human subjects
- Accumulate measures for five years
- Identify research articles reporting positive results of clinical trials or observational studies and also reporting indicators

Findings: annual costs and benefits

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<thead>
<tr>
<th></th>
<th>Melanoma</th>
<th>Colorectal Cancer</th>
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<tbody>
<tr>
<td>Increase in 5 year survival</td>
<td>7,465</td>
<td>3,412</td>
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<tr>
<td>Potential benefits</td>
<td>179</td>
<td>1,147</td>
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<tr>
<td>Cost of research program</td>
<td>106</td>
<td>777</td>
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<tr>
<td>Potential net benefit</td>
<td>73</td>
<td>370</td>
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Lessons Learned

- Pilot was successful, but:
- Research assistants need more training - subject matter expertise
- Better estimates could be achieved with a more sophisticated simulation model of the natural history of disease
- Longer time period better - 5 years to match length of grants and main outcome indicator

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