Budget Impact Analysis Methods
Development for QUERI Projects

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• No disclosures
Project goal

• To produce a white paper that advances the methodological base for using budget impact analysis (BIA) methods in Quality Enhancement Research Initiative (QUERI) projects

• Particular focus: to develop guidance for estimating the cost of implementation of evidence-based interventions
CyberSeminar objectives

• To explain the purpose of a budget impact analysis (BIA)
• To provide examples of BIA methods that highlight key elements that can be applied to Quality Enhancement Research Initiative (QUERI) projects
• To offer recommendations for applying BIA methods to better fit the needs of QUERI implementation projects
Poll question: What is your primary role where you work? (pick one answer)

• Clinician
• Operations
• Research
• Other
Poll question: Have you ever worked on a study that included a budget impact analysis? (pick one answer)

- Yes
- No
- Don’t know
- Haven’t worked on a research project
Project rationale

• What is QUERI?
  – The VA Quality Enhancement Research Initiative (QUERI) was launched in 1998 as part of a system-wide transformation aimed at improving the quality of healthcare for Veterans

• Why is BIA important to QUERI?
  – QUERI implements research findings and innovations into routine clinical practice
  – Key issue for many implementation frameworks is cost or budget impact
What is budget impact analysis (BIA)?

- BIA is a type of economic evaluation that is used to assess the expected short-term changes in expenditures for a health care organization or health care system after adopting a new intervention (Sullivan et al 2014)
- BIA results provide essential information for health care administrators and payers about the affordability of new interventions
- BIA results can be used for budget or resource planning
BIA versus CEA

• Cost-effectiveness analysis (CEA) is commonly used when comparing the costs and health benefits of a new intervention to another intervention
  – BIA doesn’t require a comparison intervention
  – BIA typically involves comparison to existing practice

• BIA & CEA should be conducted when reasonable evidence of potential efficacy or effectiveness of an intervention exists
  – BIA doesn’t require effectiveness data

• BIA can be conducted alone or alongside a CEA
BIA versus CBA

• Cost-benefit analysis (CBA) identifies the net monetary benefits (or costs) associated with an intervention
• Return on investment (ROI) analysis is a type of CBA that reports net benefit or net cost as a percentage
• BIA is usually more appropriate than CBA because
  – Stakeholders are most interested in short-term costs of the intervention
  – BIA can be conducted without explicitly considering all of the economic benefits of the intervention being adopted
Key BIA elements

• Most valuable when an intervention is being translated from research into practice or scaled out
• Involves estimating costs associated with
  – Interventions
  – Changes in staffing and use of technology
  – Changes in the number of patients receiving the new (or already existing) intervention
• Also involves estimating short-term savings
• End result: determining the total expenditures associated with adopting a new intervention
• Always conducted from the perspective of the organization that will be paying for the intervention
## What costs where?

<table>
<thead>
<tr>
<th>Audience</th>
<th>Type of analysis</th>
<th>What costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients, providers, payers, policy makers</td>
<td>Cost identification</td>
<td>Intervention costs</td>
</tr>
<tr>
<td>Payers, providers, policy makers</td>
<td>Budget impact</td>
<td>Above plus: Implementation costs VA utilization</td>
</tr>
<tr>
<td>Payers, policy makers, society</td>
<td>Cost-effectiveness, cost-utility</td>
<td><em>All Above plus:</em> Non-VA utilization, Travel costs, Caregiver costs, Indirect costs/overhead</td>
</tr>
</tbody>
</table>
White paper methods

• PubMed search to identify published BIAs in VA settings
  – “budget impact analysis” & “US Department of Veteran Affairs” yielded only 2 references
  – Added more search terms (e.g., budget case analysis, cost savings, economic evaluation), identifying 68 papers

• Inclusion criteria
  – BIA was main or complementary component to a CEA
  – Paper was original research (i.e., not a review article)

• Papers included in review = 23
  – All published between 2008 and 2013
  – 9 were conducted within the VA
Review process

- International Society for Pharmacoeconomics and Outcomes Research (ISPOR) Task Force created methodological guidelines for developing/reviewing BIAs (Mauskopf et al 2007; Sullivan et al 2014)
  - We developed a review template based on these guidelines
    - Analytic framework
    - Inputs and data sources
    - Reporting format
    - Inclusion of implementation costs
- Each study independently assessed by 2 reviewers for inclusion of key BIA elements; discrepancies resolved in later meeting
- Team met weekly to discuss key elements & identify recommendations for implementation BIA
## Key BIA elements from review template

<table>
<thead>
<tr>
<th>Section</th>
<th>Model recommendations</th>
<th>Key aspects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Analytic Framework</strong></td>
<td>Choice of computing framework</td>
<td>Simple cost calculator using spreadsheet software or simulation model</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Uncertainty &amp; scenario analyses</td>
<td>Present one-way sensitivity or scenario analyses</td>
</tr>
<tr>
<td><strong>Data Sources and Inputs</strong></td>
<td>Ranges &amp; alternative values for uncertainty &amp; scenario analyses</td>
<td>Provide ranges &amp; alternative values</td>
</tr>
<tr>
<td><strong>Reporting Format</strong></td>
<td>Output</td>
<td>Display components of budget impact</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Graphical &amp; tabular display</td>
<td>Present table with disaggregated outputs</td>
</tr>
<tr>
<td><strong>Implementation Costs</strong></td>
<td>Costs related to implementation of program/intervention</td>
<td>Report time, materials, &amp; space costs associated with establishing &amp; maintaining intervention</td>
</tr>
</tbody>
</table>
Example of key BIA elements

  - What would be the impact on a VA facility’s budget of expanding HIV testing from 2% of patients to 15% of patients?
  - Built a simulation model using data from their implementation project
Budget Impact Analysis of HIV Testing in the VA Healthcare System (Anaya et al., 2012)
Another example of key BIA elements

- Liu et al 2009 – “Organizational Cost of Quality Improvement for Depression Care”
- Purpose: to measure the organizational costs associated with implementing Translating Initiatives in Depression into Effective Solutions (TIDES), a QUERI-funded quality improvement effort to improve depression care in the VA
Liu et al 2009: Organizational Cost of Quality Improvement for Depression Care (cont’d)

• Tracked costs associated with implementation activities
  – Time spent in meetings
  – Time spent developing training materials
  – Time spent communicating by email
  – $ of informatics tools (clinical reminder software & programming)

• Cost of all participants who directly participated in design or implementation
  – Included those who led or participated in training or educational sessions
  – Excluded staff who only referred patients to the depression care model
### Table 2: Person Counts, Estimated Person Hours and Costs*

<table>
<thead>
<tr>
<th>Participants</th>
<th>Individuals Participating in TIDES</th>
<th>Total Person Hours</th>
<th>Total Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>Person Counts</td>
<td>%</td>
</tr>
<tr>
<td>Technical Expert Team</td>
<td>33</td>
<td>42</td>
<td>66</td>
</tr>
<tr>
<td>M.D. and Ph.D. investigators</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical partners</td>
<td>67</td>
<td>86</td>
<td>34</td>
</tr>
<tr>
<td>Senior leaders from regions and medical centers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local leaders and clinical staff</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Care managers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All participants</td>
<td>100</td>
<td>128</td>
<td>100</td>
</tr>
<tr>
<td></td>
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</tr>
</tbody>
</table>

*The ranges in parentheses are based on sensitivity analyses.

TIDES, Translating Initiatives in Depression into Effective Solutions.
Barriers to conducting BIA

• Requires specialized skill set plus familiarity with VA system
  – Relatively few VA investigators have this skill set
  – University-based health economists often lack experience with VA processes & data sources

• Data collection for BIA can be very resource intensive

• BIA results can be difficult to publish in peer-reviewed journals due to generalizability concerns
Key recommendations

• There exists a significant opportunity to use BIA to inform the implementation/scale out of interventions within VA

• QUERI supports VA implementation of evidence-based interventions into clinical practice
  • BIA should be a component of QUERI-supported projects to assess costs associated with implementation

• Find a health economist early in the process via the Health Economics Resource Center (HERC) experts list: http://www.herc.research.va.gov/resources/experts.asp?search=%25

• Develop additional capacity to support BIA
  • Develop data collection templates
  • Develop other templates to facilitate BIA calculations
Conclusions

• Successfully implementing evidence-based practices also depends upon understanding economic consequences
• Analyses of budget impact within implementation studies are fairly rare but are of great interest to decision-makers
• It’s critical to increase awareness about existing guidelines and methods for conducting budget impact analysis
References


