Good Principles and Practical Considerations in Value Assessments
This program is promotional, presented on Amgen’s behalf, and has been reviewed consistent with Amgen’s internal review policies.
## Speakers

<table>
<thead>
<tr>
<th>Name</th>
<th>Title and Affiliations</th>
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<tbody>
<tr>
<td><strong>Adrian Levy, PhD</strong></td>
<td>Professor and Head of the Department of Epidemiology and Community Health, Dalhousie University, Centre for Clinical Research</td>
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<tr>
<td><strong>Andrew Briggs, DPhil</strong></td>
<td>Visiting Investigator, Center for Health Policy and Outcomes, Department of Epidemiology and Biostatistics, Memorial Sloan-Kettering Cancer Center, William R Lindsay Chair of Health Economics, Health Economics &amp; Health Technology Assessment, Institute of Health &amp; Wellbeing, University of Glasgow</td>
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<tr>
<td><strong>Martin Zagari, MD</strong></td>
<td>Vice President, Global Health Economics, Amgen Inc.</td>
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</table>
Symposium Goals

Share our perspectives and opinions on the evolving value assessment in the US

Discuss good practices at the methodology level

Discuss overall what future looks like in the US and the role of health economists
Adrian Levy, PhD

Professor and Head of the Department of Epidemiology and Community Health
Dalhousie University
Centre for Clinical Research
Health Technology Assessment: A Brief History

- **HILL BURTON ACT**
  - Promoting Use of Health Technologies
  - 1946

- **REGIONAL MEDICAL PROGRAM**
  - 1965

- **1st PANEL ON COST-EFFECTIVENESS IN HEALTH AND MEDICINE**
  - 1996

- **2nd PANEL ON COST-EFFECTIVENESS IN HEALTH AND MEDICINE**
  - 2016

- **1972-1974**
  - Office of Technology Assessment

- **2010-2017**
  - Value Frameworks (E.G. AHA/ACC, BLUE CROSS, DRUG ABACUS, ICER, ASCO, NCCN)
Purposes of HTA

- Containing costs
- Increasing efficiency
- Improving equity of access

HTA in Other Countries vs US Value Frameworks

HTA

- Preference for randomized trial data
- Lifetime modeling approach
- Value defined in terms of incremental cost-effectiveness
- Based on QALYs – quality adjusted life years
- Identified willingness-to-pay thresholds
- Largely focused on newly approved medications
- Often use a societal perspective

US Value Frameworks

- Little – if any – agreement on any of these items
- Not even on what is meant by “value”
HTA in Other Countries vs US

- HTA in the US
  - various organizations doing HTA
    - different sets of guidelines
  - perspective: payer (vs societal)
  - no standards for source of utilities
  - many more insurers/payers
  - less consensus on ethical approach
  - less governmental involvement – HTA not legally required
## Willingness to Pay Thresholds

<table>
<thead>
<tr>
<th>Country</th>
<th>Incremental Cost per QALY Gained</th>
</tr>
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<tbody>
<tr>
<td><strong>Canada</strong></td>
<td>CDN $50,000 per QALY</td>
</tr>
<tr>
<td><strong>England/Wales</strong></td>
<td>£30,000 per QALY</td>
</tr>
<tr>
<td><strong>Australia</strong></td>
<td>Not fixed; Chair of PBAC on record as AUS $50,000 per outcome ‘on the high side’</td>
</tr>
</tbody>
</table>
| **Institute for Clinical and Economic Review (ICER)** | ▪ Therapies with cost per QALY ranging from USD $50,000 to $100,000 are considered high care value (if no other substantial benefits exist)  
                          ▪ USD $100,000 to $150,000 if they are offer substantial other benefits. |
| **American College of Cardiology/ American Heart Association (ACC/AHA)** | ▪ High value: < USD $50,000 per QALY  
                          ▪ Intermediate value: USD $50,000 to $150,000 per QALY  
                          ▪ Low value: > USD $150,000 per QALY |
| **Blue Cross in Washington State** | Tier 1: Highly cost-effective: USD $10,000 per QALY  
                          Tier 2: Cost-effective: USD $10,000 to <$50,000 per QALY  
                          Tier 3: Somewhat cost-effective: USD $50,000 to $150,000 per QALY  
                          Tier 4: USD > $150,000 or insufficient evidence |

US Value Frameworks

- Adversarial stance taken by stakeholders
  - Special interests are not adequately addressed
- Contrast between HTA and CER/personalized medicine
  - Average effects versus individualized treatment
- Accurate cost information is hard to come by
  - Red book does not reflect what insurers pay
US Value Frameworks

• Methods
  – similar to those used by other HTA agencies

• Limitations relate to data
  – real world effectiveness and safety, utilities, heterogeneity/sub-groups

– Why? What gets reviewed? How?

➤ Many issues around HTA in the US remain to be clarified
Andrew Briggs, DPhil

Visiting Investigator
Center for Health Policy and Outcomes
Department of Epidemiology and Biostatistics
Memorial Sloan-Kettering Cancer Center

William R Lindsay Chair of Health Economics
Health Economics & Health Technology Assessment
Institute of Health & Wellbeing
University of Glasgow
Value Frameworks: The Devil in the Detail

Andrew Briggs
(with some help from Winston Churchill)

Gentlemen,

We have run out of money

Now we have to think
Concept Paper

- Results of a workshop
- Supported and facilitated by Grayling
- Funded by Eli-Lilly

PERSPECTIVES ON VALUE IN CANCER CARE

http://www.cancernurse.eu/communication/allnews_869_perspectives_on_value_in_cancer_care_concept_paper.html
Value Attributes x Framework Heat Map

Darker shades indicate more highly valued components and lighter shades indicate less highly valued components.

http://www.cancernurse.eu/communication/allnews_869_perspectives_on_value_in_cancer_care_concept_paper.html
Value Attributes x Stakeholder Heat Map

Darker shades indicate more highly valued components and lighter shades indicate less highly valued components.

http://www.cancernurse.eu/communication/allnews_869_perspectives_on_value_in_cancer_care_concept_paper.html
“A set of methods and approaches to aid-decision making, where decisions are based on more than one criterion, which make explicit the impact on the decision of all criteria applied and the relative importance attached to them”

Devlin & Sussex
Incorporating Multiple Criteria in HTA
OHE 2010
Reflections on MCDA for HTA

• MCDA originally designed to help committees make decisions

• While extension to HTA seems intuitive, the ‘devil is in the detail’

• Application to HTA requires careful consideration of:
  • Independence of criteria
  • Scoring that involves ‘sacrifice’

• Economists use a particular form of MCDA
Treacle and Smallpox: Two Tests for Multicriteria Decision Analysis Models in Health Technology Assessment

Alec Morton, BSc, MSc, PhD*
Department of Management Science, University of Strathclyde Business School, Glasgow, UK

ABSTRACT

Multicriteria decision analysis (MCDA) is rightly receiving increasing attention in health technology assessment. Nevertheless, a distinguishing feature of the health domain is that technologies must actually improve health, and good performance on other criteria cannot compensate for failure to do so. We argue for two reasonable tests for MCDA models: the treacle test (can a winning intervention be incompletely ineffective?) and the smallpox test (can a winning intervention be for a disease that no one suffers from?). We explore why models might fail such tests (as the models of some existing published studies would do) and offer some suggestions as to how practice should be improved.

Keywords: decision analysis, health technology assessment, multicriteria decision analysis, preferential independence.

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ISPOR ANNOUNCES ESTABLISHMENT OF NEW INITIATIVE ON VALUE ASSESSMENT FRAMEWORKS

Posted on May 5, 2016

ANNOUNCEMENT

Princeton, NJ—May 5, 2016—The International Society for Pharmacoeconomics and Outcomes Research (ISPOR) announced today that it is embarking on the planning phase of a new Initiative on Value Assessment Frameworks.
Second US Panel

- Important and timely update to original Panel
- Update is incremental rather than fundamental
- Ultimate importance may depend on the extent that reporting standards are adopted by journals
- Important emphasis on QALYs as a legitimate metric for health benefits
Many forms of Government have been tried, and will be tried in this world of sin and woe.

No one pretends that democracy is perfect or all-wise.

Indeed it has been said that democracy is the worst form of Government except for all those other forms that have been tried from time to time....
Many forms of outcome have been tried, and will be tried in this world of sin and woe.

No one pretends that a QALY is perfect or all-wise.

Indeed it has been said that CUA is the worst form of evaluation except for all those other forms that have been tried from time to time....
Principles for Developing Value Frameworks

• Should be generic not disease specific
• Should measure health in QALY terms
• Value beyond health attributes should be demonstrated by preparedness to sacrifice health
• Should pass the ‘Treacle’ and ‘Smallpox’ tests
• Should be patient-centered?
Martin Zagari, MD

Vice President
Global Health Economics
Amgen Inc.
# Similarities and Differences of Various Value Frameworks in the US

<table>
<thead>
<tr>
<th>Framework</th>
<th>Stated Goals of Value Frameworks</th>
<th>Intended Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCO</td>
<td>“To assist physicians &amp; patients in assessing value of a new drug for cancer ...oncologists can share decision making with their patients”¹</td>
<td>![Image]</td>
</tr>
<tr>
<td>NCCN</td>
<td>“To allow physicians to effectively collaborate with their patients to truly identify optimal treatment based on what is most important to the patient”²</td>
<td>![Image]</td>
</tr>
<tr>
<td>Memorial Sloan Kettering Cancer Center</td>
<td>“it lets the user combine this information, based on the idea that a drug’s value can be broken up into its parts, which releases an Abacus Price”³</td>
<td>![Image]</td>
</tr>
<tr>
<td>ICER</td>
<td>“The reports support the goal of getting excellent drugs to market quickly at a price that is affordable to patients and the health system”⁴</td>
<td>![Image]</td>
</tr>
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Effective Features and Challenges with Emerging Frameworks in the US

- Methods: Established vs untested
- Perspective: Comprehensive vs narrow
- Patient-centeredness: Include cost/benefits relevant to patients
- Inputs: Range and quality of the evidence
- Outputs\(^1\): Net Health Benefit score, Abacus price, Price benchmark, Evidence block

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Good Practice to Incorporate Real World Evidence

Multiple national and international clinical and research organizations endorse the use of real world data in the evaluation of new technologies.
# Limitation of Clinical Trial Data to Inform Real World Disease Burden

<table>
<thead>
<tr>
<th>Patients(^1)</th>
<th>Randomized Controlled Trials</th>
<th>Highly Selected</th>
<th>Observational Studies</th>
<th>Include those who may be excluded from RCTs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting(^1)</td>
<td>Tightly controlled and monitored results</td>
<td>Real-world conditions, with greater variation in practice and patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outcomes</td>
<td>Often focus on time-to-first event</td>
<td>Looks at all relevant events(^2)</td>
<td></td>
<td></td>
</tr>
</tbody>
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Observed Real World CV Event Rates are ~2-3x Incident Event Rates in Clinical Trials

CV Event Rates* Reported in Clinical Trials and Real-World† CV Event Rates1-3

<table>
<thead>
<tr>
<th>Event Rate per 100 Patient-years</th>
<th>Incident (Time-to-first) Event</th>
<th>All Observed Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTTC(^1)</td>
<td>4.5</td>
<td></td>
</tr>
<tr>
<td>IMPROVE-IT(^2)</td>
<td>4.8</td>
<td></td>
</tr>
<tr>
<td>IMPROVE-IT(^2)</td>
<td>8.8</td>
<td></td>
</tr>
<tr>
<td>Real-world(^3)</td>
<td>12.3</td>
<td></td>
</tr>
</tbody>
</table>

*CV events evaluated in this comparison included MI, UA, IS, coronary revascularization (coronary artery bypass graft or percutaneous coronary intervention), or CV-related death.\(^1,2\)
†Real-world event rates are based on an analysis of patients in the CPRD database between 2004 and 2011. Patients were included the analysis based on eligibility criteria for the Repatha® CV Outcomes Study.\(^2\) CPRD, Clinical Practice Research Datalink; CV, cardiovascular; MI, myocardial infarction; IS, ischemic stroke; UA, unstable angina.

A Few Practical Considerations…

Timing of the assessments: Early and fast vs availability of data

Use of list price vs net price or assumptions when not known

Consider the broad impact of health interventions
Today’s and tomorrow’s health economists will help shape the future!