The limits of ‘Quality Adjusted Life Years’ (QALY) and ‘tonnes of CO$_2$-equivalent’ as regulatory devices

Dr Declan Kuch, Dr Georgia Miller, A/Prof Matthew Kearnes
Research Fellow, Humanities and Languages, University of NSW
Overview

• Research on development of new drugs.
• Book project: ‘Cultural Economy of Precision Medicine’
• Intersecting histories of public knowledge: scientists and economists as arbiters of value
  – Stakes 1: is ‘scientists discovers, economists apply, publics engage’ a viable settlement with expertise? Do subjects pre-exist their framing in scientific debates?
  – Stakes 2: respective places of sentiments and rationality in understanding an economy
Jasanoff this morning

Facts and structure are not starting point for thinking about politics, but end points.

‘Reason is achieved not attained.’
• 19thC onwards: Civil scientists key to framing modern pollution problems that then allow regulation
  • ‘Regulatory Capitalism’ (Braithwaite et al; Jessop)
• Ozone hole: allowed scientists to frame problem boundaries: clarify source of problem and calculate costs for responsible parties (CFC ➔ HFC/HCFC)
• Acid Rain: permit trading allowed flexibility in pollution problems in USA
• UNFCCC: offset provisions between countries and CDM ‘baseline and credit’ scheme
• ‘Least cost abatement’ as key justification. Tensions with civic decision-making and national authority.

Source: Kuch (2015)
First UNFCCC Carbon Offsets: ‘Activities Implemented Jointly’

1995 to 2001

Share of AIJ Projects by Gas Type

- CO$_2$: 77%
- CH$_4$: 19%
- N$_2$O: 4%
UNFCCC offsets issued by gas type (Feb 2015)

CERs Issued to February 2015

- **N₂O**: 18%
- **HFCs, PFCs, SF₆**: 35%
- **CH₄ reduction, Coal mine/bed**: 10%
- **All other projects**: 37%

2005 to 2015
PBS: From Universal Access to Economic Calculation

1944: Goal of universal access to all efficacious medicine – not realised until 1960


2000: National Medicines Policy formalises pursuit of both health and industrial development objectives
- Further international economic analyses of health reforms
- ‘Pro-curial frame’
Pathway for Access to New Medicines in Australia

From Department of Health (2015)
TAXING TIMES...

The special co-payment formula contains a "price signal," that will discourage visits to the doctor!

And at the low price of just two middies, it won't discourage visits to the doctor!

THE SPIN DOCTOR WILL BE WITH YOU SHORTLY, DEAR...
Cost Effectiveness Assessment: How?

• Clinical and cost: compared to existing therapies
• PBAC guideline: incremental cost per QALY gained
  – Is it worth $x to achieve additional benefit compared to existing therapy
• Australia does not apply a formal incremental cost effectiveness ratio (ICER) threshold (unlike some EU jurisdictions)
Difficult social questions

• PBS spend on new cancer drugs rapidly accelerating compared to other areas
• 17% of $ expenditure but only 1% of PBS scripts
• Widespread efficacy concerns
New Cancer Drugs and the PBS

• Growth in new drugs, particularly for late-stage cancer, that are developed and marketed with a companion diagnostic test for a biomarker

• Examples of such ‘codependent technologies’ include:
  - trastuzumab (Herceptin) and HER2 testing for breast cancer
  - cetuximab and K-RAS mutation testing for metastatic colorectal cancer
  - gefitinib and EGFR testing for lung cancer

• Proponents claim such treatment is potentially more clinically and cost-effective
Breast cancer publics

- Very high survival rates: 96% of patients will be alive five years after diagnosis (cancer.org.au)
- Vocal advocates for further research, care and financial support
- The cost-effectiveness of trastuzumab was estimated to be $180,910/Quality Adjusted Life Year (QALY) gained based on the best available information in 2001 (Parkinson n.d.)
Herceptin in Australia

- Registered with the TGA in 2000
- Trial results published in 2005,
- Media campaign to subsidize it for the roughly 2000 Australian women it’s suitable for.
  - “Desperate, sick women in double jeopardy because of callous government/incompetent bureaucracy”
- Cost went from $1000 per dose to $30.
- Cost to taxpayer of $470m (MacKenzie, Chapman et al)
<table>
<thead>
<tr>
<th>Jasanoff &amp; Simmet (2017) on public facts:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Climate Policy (offsets)</strong></td>
</tr>
<tr>
<td>“They are embedded in prior choices of which experiential realities matter,”</td>
</tr>
<tr>
<td>produced through processes that reflect institutionalized public values, arbiters of which issues are open to democratic contestation and deliberation, and</td>
</tr>
<tr>
<td>vehicles through which polities imagine their collective futures</td>
</tr>
</tbody>
</table>
Discussion/Conclusions

• Climate and health decisions not ‘pure science’ applied
  – Science not simply, discretely prior to economics
• Expert narrative about an issue conjures subjects: (deserving carbon offset or PBS recipients)
• Economization through rationality alone is doomed. Need historical sensitivity.
Team members

Assoc Prof Matthew Kearnes
Chief Investigator

Dr Declan Kuch
Research Fellow

Dr Georgia Miller
Research Associate