Public and decision-maker preferences for pharmaceutical funding: An Australian Discrete Choice Experiment

Jennifer Anne Whitty
BPharm (Hons), GradDipClinPharm

School of Medicine
Griffith Health
Griffith University

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ABSTRACT

A number of countries including Australia appoint a group of decision-makers who are largely responsible for making recommendations on which pharmaceuticals will be subsidised by public funds. Whilst cost-effectiveness is of key relevance to their recommendations, there is limited information on the relative importance of the components of cost-effectiveness, or on other criteria that may be of value. In addition to health gain, the public value criteria such as those concerned with fairness and equity considerations. The public are the payers and beneficiaries of any public health system, and procedural justice supports the consideration of their views. In the Australian context, this leads to the question of whether public funding decisions for subsidising pharmaceuticals in Australia are consistent with the preferences of society. It is this broad question that is addressed by this thesis.

A review of the literature revealed there are many criteria that may be important to pharmaceutical funding decisions, and these have been explored empirically to varying degrees for public and decision-maker preferences. Most of the evidence relating to pharmaceutical funding originates from outside of Australia. Both the public and decision-makers agree that clinical effectiveness is important to the decision; although, evidence on the relative importance of the individual components of effectiveness (survival, quality of life (QoL) and chance of success) to social preferences is limited. Further, severity of illness also appears relevant to both groups, although most evidence for this defines severity of illness in terms of QoL rather than expected survival. In some cases, evidence exists to support the importance of a criterion in either the public or decision-makers, whilst that criterion has not been (well) explored in the other group. One notable example is the lack of evidence showing cost-effectiveness to be important to the public, despite its relevance to pharmaceutical decision-making bodies.

The research in this thesis focuses on the relative importance of cost, the components of effectiveness, and uncertainty (decision-makers only) to the preferences of Australian public and decision-makers, for different severity of illness scenarios. A Discrete Choice Experiment (DCE) was developed and used to elicit and compare
Australian public and decision-maker preferences. For the purposes of this study, preferences were elicited from an Australian population sample and from members of the Pharmaceutical Benefits Advisory Committee and its Economics Subcommittee. Data analysis utilised a mixed logit framework. The public and decision-maker marginal rate of substitution and willingness-to-pay for attributes was estimated and compared across scenarios and between respondent groups.

The findings of this research suggest that the preferences of the Australian public are largely consistent with the stated preferences of Australian decision-makers, and are broadly consistent with pharmaceutical funding decisions in Australia. The public and decision-makers were willing to trade between survival and QoL; and, both consider cost-effectiveness to be important to the decision. Further, the initial severity of illness was important, with both the public and decision-makers willing to pay more for the treatment of severe illness when described in terms of both a short life expectancy and poor QoL with current treatment. However, this trend was stronger in the public. For decision-makers, the importance of uncertainty also differed according to the severity of the illness. Several differences were observed between public and decision-maker preferences, suggesting that the public may place a greater value on QoL gains and on the treatment of moderate anxiety/depression than decision-makers.

The findings of this thesis have implications for government policy, the pharmaceutical industry, and for society. They provide insights into the distributive framework for pharmaceutical decision-making, support procedural justice, broadly support a number of pharmaceutical funding policies in Australia, and allow marketers to tailor their pharmaceutical offerings so that they are more likely to appeal to the public and relevant funding bodies. The implications for researchers who may consider further exploring preferences or using similar techniques in future studies are also discussed. In particular, the findings support the inclusion of an “opt out” option in the DCE, the use of public funds as a payment vehicle in the DCE, and the use of mixed logit analysis to accommodate the significant heterogeneity observed for both the public and decision-maker preferences. Research limitations and future research opportunities are highlighted, with many opportunities for future research detailed. This is the first use of a DCE to consider the stated preferences of the Australian public or decision-makers for the public funding of pharmaceuticals, and is the first occasion where the
stated preferences of a group of decision-makers have been compared to those of the population to whom their funding recommendations apply. This study sets the foundation for future research on the relative importance of criteria to decisions, the contexts that impact on the criteria of importance, and the extent to which decision-making for pharmaceuticals in Australia is consistent with the preferences of society.
DECLARATION

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

............................................

Jennifer Whitty
31st March 2008
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<table>
<thead>
<tr>
<th>ABSTRACT</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
</tr>
<tr>
<td>AMCP</td>
<td>Academy of Managed Care Pharmacy (US)</td>
</tr>
<tr>
<td>ARIA</td>
<td>Accessibility/Remoteness Index of Australia</td>
</tr>
<tr>
<td>ASC_N</td>
<td>Alternative specific constant associated with the “neither” alternative in the DCE models</td>
</tr>
<tr>
<td>ATAGI</td>
<td>Australian Technical Advisory Group on Immunisation</td>
</tr>
<tr>
<td>AUD</td>
<td>Australian dollars</td>
</tr>
<tr>
<td>COST</td>
<td>Incremental cost (attribute/variable for DCE models)</td>
</tr>
<tr>
<td>CV</td>
<td>Contingent Valuation</td>
</tr>
<tr>
<td>DCE</td>
<td>Discrete Choice Experiment</td>
</tr>
<tr>
<td>DoHA</td>
<td>Department of Health and Ageing</td>
</tr>
<tr>
<td>DQTC</td>
<td>Drug Quality and Therapeutics Committee (Ontario)</td>
</tr>
<tr>
<td>DTC</td>
<td>Drug and Therapeutics Committee or formulary committee</td>
</tr>
<tr>
<td>DUSC</td>
<td>Drug Utilisation Subcommittee (of the PBAC)</td>
</tr>
<tr>
<td>DVA</td>
<td>Department of Veterans’ Affairs</td>
</tr>
<tr>
<td>ESC</td>
<td>Economics Subcommittee (of the PBAC)</td>
</tr>
<tr>
<td>EVI</td>
<td>Extreme value type 1 distribution</td>
</tr>
<tr>
<td>HTA</td>
<td>Health Technology Assessment</td>
</tr>
<tr>
<td>ICER</td>
<td>Incremental Cost Effectiveness Ratio</td>
</tr>
<tr>
<td>IIA</td>
<td>Independence from irrelevant alternatives</td>
</tr>
<tr>
<td>IID</td>
<td>Independently and identically distributed</td>
</tr>
<tr>
<td>LFN</td>
<td>Läkemedelsförmånsnämnden or the Swedish Pharmaceutical Benefits Board</td>
</tr>
<tr>
<td>LYG</td>
<td>Life Years Gained</td>
</tr>
<tr>
<td>MCO</td>
<td>Managed Care Organisation</td>
</tr>
<tr>
<td>MNL</td>
<td>Multinomial Logit</td>
</tr>
<tr>
<td>MRS</td>
<td>Marginal rate of substitution</td>
</tr>
<tr>
<td>MXL</td>
<td>Mixed Logit</td>
</tr>
<tr>
<td>NICE</td>
<td>National Institute for Health and Clinical Excellence (UK)</td>
</tr>
<tr>
<td>OMEP</td>
<td>Orthogonal main effects plan</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
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</tr>
<tr>
<td>PBAC</td>
<td>Pharmaceutical Benefits Advisory Committee</td>
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<td>PBPA</td>
<td>Pharmaceutical Benefits Pricing Authority</td>
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<tr>
<td>PBS</td>
<td>Pharmaceutical Benefits Scheme</td>
</tr>
<tr>
<td>PTO</td>
<td>Person Trade-Off</td>
</tr>
<tr>
<td>PI</td>
<td>Pharmacoeconomic Initiative (British Columbia)</td>
</tr>
<tr>
<td>QALY</td>
<td>Quality Adjusted Life Year</td>
</tr>
<tr>
<td>QoL</td>
<td>Quality of life</td>
</tr>
<tr>
<td>QoLE1</td>
<td>Effects coded variable in the models representing the best level of the QoL attribute</td>
</tr>
<tr>
<td>QoLE2</td>
<td>Effects coded variable in the models representing the middle level of the QoL attribute</td>
</tr>
<tr>
<td>RP</td>
<td>Revealed preference</td>
</tr>
<tr>
<td>RPBS</td>
<td>Repatriation Pharmaceutical Benefits Scheme</td>
</tr>
<tr>
<td>RPRC</td>
<td>Repatriation Pharmaceutical Reference Committee</td>
</tr>
<tr>
<td>SG</td>
<td>Standard Gamble</td>
</tr>
<tr>
<td>SP</td>
<td>Stated preference</td>
</tr>
<tr>
<td>SUCCESS</td>
<td>Chance of success (attribute/variable for DCE models)</td>
</tr>
<tr>
<td>SURVIVAL</td>
<td>Survival if pharmaceutical is successful (attribute/variable for DCE models)</td>
</tr>
<tr>
<td>TGA</td>
<td>Therapeutic Goods Administration</td>
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<tr>
<td>TTO</td>
<td>Time Trade-Off</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
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<tr>
<td>UNCERTAINTY</td>
<td>Effects coded variable in the models representing a “high” level of uncertainty in the chance of success</td>
</tr>
<tr>
<td>US</td>
<td>United States</td>
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<tr>
<td>USD</td>
<td>United States dollars</td>
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<tr>
<td>VAS</td>
<td>Visual Analogue Scale</td>
</tr>
<tr>
<td>WTA</td>
<td>Willingness-to-accept</td>
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<tr>
<td>WTP</td>
<td>Willingness-to-pay</td>
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