Characteristics of Australian PBAC Submissions using RWE

RWD233

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INTRODUCTION

In health technology assessment (HTA), the use of real-world evidence (RWE) is gaining attention as a complementary or alternative approach to traditional randomised controlled trial (RCT) data, particularly in settings where RCTs may be impractical or ethically challenging (Makady et al., 2017; Sherman et al., 2016). As healthcare systems increasingly face pressure to make timely and cost-effective decisions, understanding how RWE is utilised in reimbursement processes becomes critical (Franklin et al., 2019; Sherman et al., 2016).

OBJECTIVE

The objective of this study was to analyse characteristics of submissions to the Australian Pharmaceutical Benefits Advisory Committee (PBAC) in which the treatment effect is measured using RWE compared to those which are based on more traditional evidence (specifically randomised controlled clinical trial evidence).

METHODS

Method of Data Extraction

- An Excel database was created based on all major submissions to the PBAC between March 2020 and March 2025 where the PBAC decision relied upon a cost-utility analysis (CUAs, n=378).
- Relevant variables were extracted such as the submission decision, of which 326 submissions had a decision of either a recommendation or rejection, and type of evidence (randomised evidence vs RWE) to compare with other submission components such as the incremental cost-effectiveness ratio (ICER), rarity of disease and economic model reliability.
- Randomised evidence was defined as evidence with a randomised component (i.e., RCTs) while RWE was defined as any non-randomised evidence (Makady et al., 2017).
- Data extraction/review of PSDs was split randomly amongst and conducted by 5 experienced Health Technology Assessment consultants.
  - Extracted data was reviewed by a second consultant (for double checking/conflict resolution and data cleaning).

Method of Data Analysis

- The data were analysed on Excel and R software to capture descriptive statistics (e.g., distribution of PBAC outcomes [recommended and rejected], proportion of submissions with life-threatening or rare diseases, etc.).
- Summary statistics were used to analyse and compare recommendations and rejections by the PBAC in submissions that were and were not based on RWE.

RESULTS

Overall, 16.0% (52/326) of submissions were based on RWE and less than half of those (23/52) were recommended by PBAC. Submissions recommended on the basis of RWE were more likely to be for rare conditions (78% versus 43% across all submissions), paediatric conditions (30% versus 12%) or previously considered (74% vs 70%); **Table 1/Figure 1**.

Submissions based on RWE were more commonly considered to have a high risk of bias (96% compared to 19%) and were less relevant/applicable (57% vs 72%); **Table 1/Figure 1**. Despite this and having lower economic model validity (11% vs 30%), RWE submissions were recommended at a higher incremental cost per QALY ratio ($207,000 compared to $79,000 in those recommended based on randomised evidence); **Table 2/Figure 1**. They did however, have a smaller annual budget impact (approximately $14 million versus over $36 million per annum); **Table 2**.

While the 'Standard' reentry pathway (i.e., the default pathway for resubmissions, and typically the longest) was suggested for both randomised and RWE rejected submissions, submissions with RWE in fact used 'Early' reentry pathways more (i.e., the pathway by which remaining issues could be easily resolved and typically takes shorter than 'Standard' resubmissions) as compared with submissions with randomised evidence; **Table 2**.

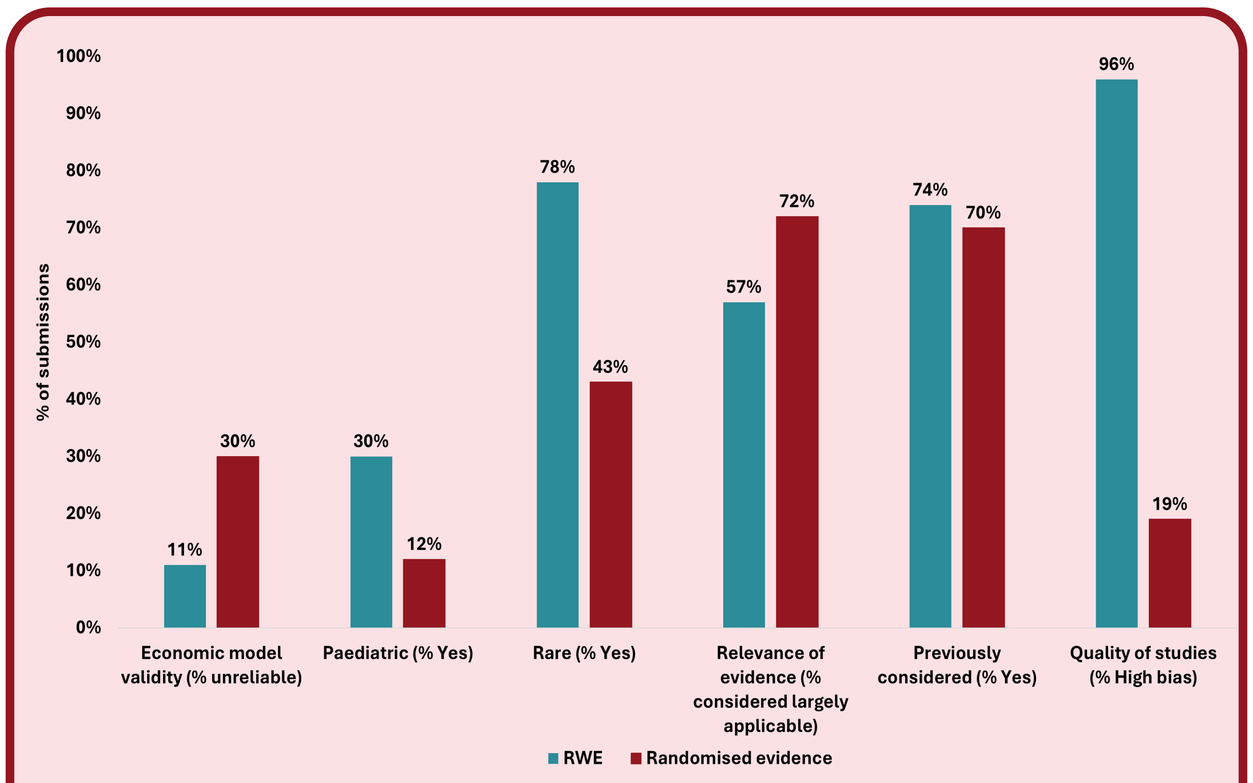

Figure 1: RCT versus RWE in Recommended PBAC submissions

Abbreviations: RWE = real world evidence.

Table 1: Characteristics of Australian PBAC submissions by outcome and evidence base

	All (n = 326)	Randomised Recommended (n = 131)	Randomised Rejected (n =143)	RWE Recommended (n = 23)	RWE Rejected (n = 29)
Rare (%Yes)	145 (44.5%)	56 (42.7%)	54 (37.8%)	18 (78.3%)	17 (58.6%)
Life threatening (%Yes)	138 (42.3%)	62 (47.3%)	56 (39.2%)	5 (21.7%)	15 (51.7%)
Paediatric (%Yes)	41 (12.6%)	15 (11.5%)	13 (9.1%)	7 (30.4%)	5 (17.2%)
Co-dependent (%Yes)	26 (8.0%)	10 (7.6%)	13 (9.1%)	1 (4.3%)	2 (6.9%)
Previously considered (%Yes)	161 (49.4%)	91 (69.5%)	45 (31.5%)	17 (73.9%)	5 (17.2%)
Average number of considerations	1.50	3.68	3.42	20.1	0.38
Average number of consumer comments	17.45	17.70	39.77	16.09	4.52
Relevance of evidence (% considered largely applicable)	193 (59.2%)	94 (71.8%)	73 (51%)	13 (56.5%)	13 (44.8%)
Efficacy: Sponsor claim (%Superior)	319 (97.9%)	128 (97.7%)	140 (97.9%)	23 (100%)	28 (96.6%)
Efficacy: PBAC agrees (%Yes)	269 (82.5%)	126 (96.2%)	109 (76.2%)	20 (87.0%)	14 (48.3%)
Safety: Sponsor claim (% non-inferior)	154 (47.2%)	65 (49.6%)	59 (41.3%)	15 (65.2%)	16 (55.2%)
Safety: PBAC agrees (%Yes)	220 (67.5%)	100 (76.3%)	95 (66.4%)	14 (60.9%)	11 (37.9%)
Clinical significance (%Yes)	265 (81.3%)	126 (96.2%)	120 (83.9%)	10 (43.5%)	8 (27.6%)
Quality of studies (%High bias)	101 (31.0%)	25 (19.1%)	30 (21.0.%)	22 (95.7%)	24 (82.8%)
Economic model validity (% unreliable)	125 (38.3%)	14 (10.7%)	79 (55.2%)	7 (30.4%)	25 (86.2%)
RSA proposed by Sponsor (%Yes)	151 (46.3%)	73 (55.7%)	56 (39.2%)	13 (56.5%)	9 (31.0%)
RSA proposed by PBAC (%Yes)	100 (30.7%)	56 (42.7%)	31 (21.7%)	10 (43.5%)	3 (10.3%)
Mean incremental cost per QALY	$132,072	$79,429	$141,285	$207,272	$265,000
Mean annual cost to government (highest cost)	$50,803,859	$36,311,475	$74,347,826	$14,130,434	$28,035,714
Most common re-entry suggested for next submission	Standard	N/A	Standard	N/A	Standard
Most common re-entry pathway used (if resubmission)	Standard	Standard/Early	Standard	Standard	Standard/Early

Abbreviations: ICER = incremental cost-effectiveness ratio, QALY = Quality-adjusted Life Year, n = number, NA = not applicable, PBAC = Pharmaceutical Benefits Advisory Committee, PBS = Pharmaceutical Benefits Scheme, RSA = Risk Sharing Arrangement, RWE = real-world evidence.

CONCLUSIONS

This study highlights the evolving role of RWE in PBAC decision-making and its nuanced acceptance within the Australian reimbursement landscape. RWE is more commonly used in submissions for rare or severe conditions where a tolerance for bias and inapplicability in the evidence base is observed. While a higher willingness to pay is seen for submissions using RWE, a smaller budget impact is also associated, explained by the submissions for rare and/or severe conditions typically using RWE; suggesting a greater tolerance for uncertainty when clinical need is high.

While these results are based on a limited sample size, which may introduce sampling bias, this research may guide manufacturers on optimising RWE to enhance HTA submission impact. Future research should explore how the quality, design, and source of RWE influences decision-making.

References

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Abbreviations: CUAs = cost-utility analyses, ICER = incremental cost-effectiveness ratio, n = number, PBAC = Pharmaceutical Benefits Advisory Committee, PBS = Pharmaceutical Benefits Scheme, PSD = Public Summary Document, RCT = randomized controlled trial, RWE = real-world evidence.