# Impact of introducing therapeutic reference pricing (RP) on prescription drug claims in Australia

*For Presentation at:*

*The5th European Conference on Health Economics - London Sept 2004*

Mark Connolly, Division of Health Sciences, Curtin University (post-graduate student), Australia

## OBJECTIVE

Assess the impact of introducing therapeutic reference pricing (RP) on prescription drug claims for angiotensin-converting enzyme inhibitors (ACE-inhibitors) and calcium-channel blockers (CCBs) in Australia.

## BACKGROUND

Reference-based pricing for products within therapeutic classes was introduced in Australia in February 1998 whereby the government considered products within narrowly defined therapeutic groups to be equivalent (PBS, November 2002). Therapeutic groups affected included: ACE-inhibitors; CCBs; H2-receptor antagonists and cholesterol lowering agents. The government reimbursable rate for all drugs within each of these four therapeutic groups was set to a product with the lowest average monthly treatment cost within each of the classes. According to the policy manufacturers were given the opportunity to add a premium to the patient co-payment.

## DESIGN AND METHOD

Monthly prescription claims data for ACE-inhibitors and CCBs was obtained from the Australian Health Insurance Commission (HIC); the largest purchaser of pharmaceutical benefits in Australia. The following Pharmaceutical Benefits Scheme (PBS) patient categories have been assessed (patient co-payment on February 1998):

- General- Co-payment category ($20.00)
- General Safety Net (GSN)- Co-payment category ($3.20)
- Concessional- Co-payment category ($3.20)
- Repatriation PBS (RPBS)- Co-payment category ($3.20)
- Free Safety Net (FSN)- Non co-payment category

Monthly time-series data was plotted and the percentage change from the previous year was measured using the following (aggregates relative to month RP introduced):

$$\frac{[\text{Year X+1, } \Sigma(\text{Feb to Jan})] - [\text{Year X, } \Sigma(\text{Feb to Jan})]}{[\text{Year X, } \Sigma(\text{Feb to Jan})]} \times 100 = \%\ \text{change}$$

ACE and CCB products adding premiums from Feb-98 and the percentage cost increase faced by patients are below:

| | General | Others (not FSN) |
|---|---|---|
| Amlodipine | 14-22% | 89-139% |
| Enalapril | 10% | 63% |
| Fosinopril | 9% | 53% |
| Lisinopril | 7% | 44% |
| Perindopril | 5% | 31% |

## RESULTS

**Figure 1 Market share for ACE-inhibitors 1-year before and 2-years after introduction of therapeutic RP**

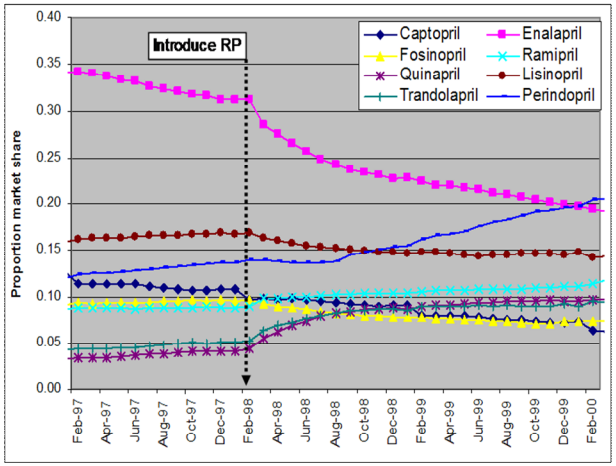


**Table 1 Aggregated annual change in prescription claims for ACE-inhibitors and CCBs†**

| | Change in ACE-inhibitor use from previous 12-months | | |
|---|---|---|---|
| | 12-months Pre-RP | 12-months Post-RP | 24-months Post-RP |
| **All ACE-inhibitors** | **7.2%** | **-0.1%** | **4.9%** |
| Captopril | -10.4% | -14.8% | -14.9% |
| Enalapril | -2.7% | -22.6% | -12.7% |
| Fosinopril | 14.2% | -10.9% | -7.5% |
| Ramipril | 11.8% | 14.5% | 12.9% |
| Quinapril | 33.8% | 98.4% | 30.0% |
| Lisinopril | 15.7% | -7.2% | -0.5% |
| Trandolapril | 37.1% | 63.1% | 21.0% |
| Perindopril | 22.7% | 9.7% | 33.1% |
| | **Change in CCB use from previous 12-months** | | |
| **All CCBs** | **10.6%** | **-4.2%** | **3.6%** |
| Amlodipine | 31.2% | -13.3% | 0.0% |
| Felodipine | -3.8% | -6.4% | 4.9% |
| Nifedipine | 1.6% | 3.8% | 0.4% |

† Products applying premiums following introduction of RP have been shaded grey

**Table 2 Aggregated annual change in prescription claims by PBS patient categories for all ACE-inhibitors, all CCBs and products adding premiums in February 1998**

| Change from previous 12-mon. | General | GSN | Concession | RPBS | FSN |
|---|---|---|---|---|---|
| | Enalapril | | | | |
| 12-mon. Pre-RP | -8.1% | 22.7% | -2.6% | 13.6% | -1.5% |
| 12-mon. Post-RP | -26.6% | -21.0% | -20.1% | -14.5% | -27.8% |
| | Fosinopril | | | | |
| 12-mon. Pre-RP | 9.1% | 53.2% | 13.4% | 33.7% | 17.8% |
| 12-mon. Post-RP | -8.8% | -12.0% | -11.1% | -4.6% | -18.1% |
| | Lisinopril | | | | |
| 12-mon. Pre-RP | 9.2% | 48.1% | 16.1% | 34.8% | 18.0% |
| 12-mon. Post-RP | -5.1% | -5.1% | -7.8% | -2.6% | -12.6% |
| | Perindopril | | | | |
| 12-mon. Pre-RP | 14.8% | 56.4% | 23.3% | 43.8% | 28.2% |
| 12-mon. Post-RP | 6.8% | 9.2% | 10.1% | 17.0% | 13.7% |
| | Amlodipine | | | | |
| 12-mon. Pre-RP | 25.1% | 63.3% | 31.7% | 51.7% | 29.0% |
| 12-mon. Post-RP | -2.9% | -1.2% | -8.0% | -6.9% | -11.2% |

The annual change in prescription claims for potential therapeutic alternatives such as angiotensin-2 antagonists (A2A), diuretics, and peripheral vasodilators are shown in Table 3.

**Table 3 Aggregated annual change in prescription claims for potential therapeutic anti-hypertensive alternatives and clusters of therapeutic alternatives**

| | 12-months Pre-RP | 12-months Post-RP | 24-months Post-RP |
|---|---|---|---|
| ACE only | 7.2% | -0.1% | 4.9% |
| Diuretics only | -6.0% | 0.3% | 6.1% |
| ACE and Diuretics † | 4.1% | 0.0% | 5.1% |
| A2A only ‡ | Incomplete | 1610.6% | 94.4% |
| ACE and A2A | 7.9% | 10.4% | 13.9% |
| ACE, A2A, and Diuretics | 4.7% | 8.3% | 12.4% |
| All Anti-Hypertensive treatment alternatives # | 5.6% | 4.1% | 9.5% |

† ACE/Diuretic fixed combinations were not introduced until May 2000.
‡ A2A products were launched in November 1997.
# Also includes anti-adrenergics, CCBs and peripheral vasodilators.

## CONCLUSIONS

- Following the introduction of therapeutic RP in February 1998 the changes in aggregated 12-month prescription claims for ACE and CCB classes were –0.1% and –4.2%, respectively.
- Following the introduction of RP for the ACE-inhibitor and CCB classes and the addition of premiums for individual products appears to have had a greater impact on FSN patient category (Enalapril, –27.8%; fosinopril, –18.1%; Lisinopril, –12.6%; amlodipine -11.3%).
- The relationship between reductions in prescription claims and the size of premiums added appears to be somewhat related; however this relationship was not conclusive (claims for perindopril increased despite adding a therapeutic premium).
- The results presented here suggest that anti-hypertensive treatment discontinuation is not likely to have occurred; rather patients may have switched to therapeutic alternatives such as A2As and diuretics (see Table 3 ACE, A2A and diuretics combined).
- The likelihood of cost savings associated with introducing therapeutic RP remains uncertain due to the likelihood of switching to more expensive therapeutic alternatives such as A2As. Furthermore, the potential costs to the overall healthcare system that may result from switching therapies have not been assessed in this study.

## REFERENCES

Schedule of Pharmaceutical Benefits, 01 May and 01 November, 2003, Copyright Commonwealth of Australia, 2003.