Medication refill persistence: Does prescription cost-sharing matter?

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Objective

- To investigate the influence of prescription cost-sharing on medication refill persistence by using two antihypertensive therapeutic classes: ACEs (angiotensin converting enzyme inhibitors) and ARBs (angiotensin II receptor blockers)

Methods

- A retrospective observational cohort study
- Data Source:
  - A Midwest commercial insurer's medical and pharmacy administrative claims data supplemented with public files

Methods (Cont'd)

- Subjects
  - New users of ACEs or ARBs
    - Individuals who started treatment with ACE or ARB single agents between January 1 and June 30, 2004 with no ACE or ARB single agents or combinations dispensed in the six months preceding the index date
  - Inclusion criteria:
    - Continuous enrollment
    - No health group, benefit, or cost-sharing change
    - Having at least 28 days supply totally
    - Age$\geqslant$18 on the index date
    - No long-term care after the index date
    - No diagnosis of dementia

Methods (Cont'd)

- Measures of refill persistence
  - Total gap (total number of days without ACEs or ARBs) during the first six months of treatment
  - Proportion of days covered (PDC) less than 80% during the first six months of treatment
    - PDC=(180-Total gap)/180
  - Number of days to the first gap of more than 15 days from the index date until the end of 2004

Methods (Cont'd)

- Behavioral model of health services use (Andersen, 1995)
  - Predisposing characteristics
  - Enabling resources
  - Need factors
- Statistical analyses
  - The Tobit model
  - Logistic regression
  - Survival analysis
- STATA 8.0 (StataCorp, College Station, TX)

Results - Descriptive

- N=1,549
- Per 30 day average cost-sharing:
  - $12.26 ± $7.49 ($0.00 - $42.62)
- Refill persistence
  - Total gap: 47 days ± 52 days (0 – 152 days)
  - PDC<80%: n=679 (43.8%)
  - Time to the first gap of more than 15 days:
    - n=910 (58.8%)
    - 163 days ± 109 days (7 – 365 days)

Results – The Tobit Model

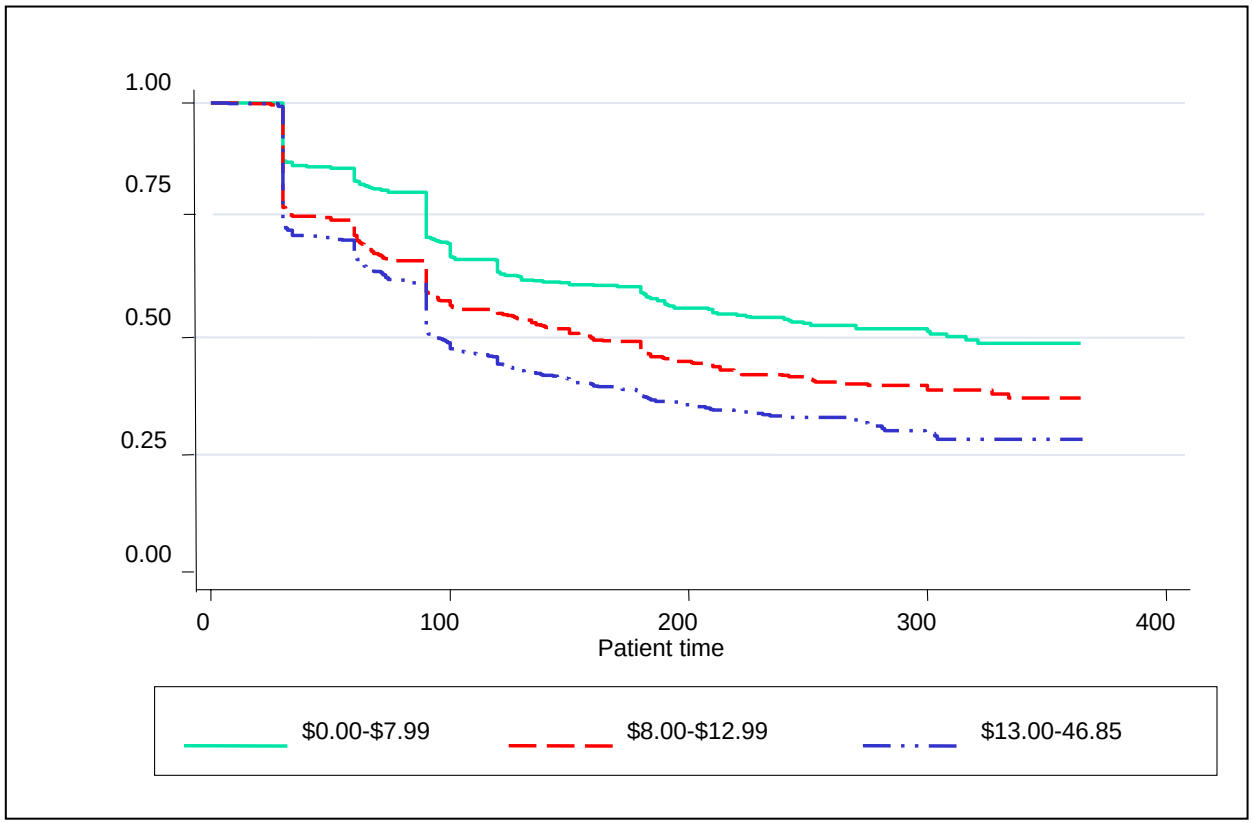
Significant Variables	Transferred Coefficient	*P*	95% CI
Per 30 day average cost sharing	0.027	0.001	[0.011, 0.043]
Age	-0.014	0.002	[-0.023, -0.005]
% of pop. reporting White only	-1.428	0.004	[-2.399, -0.457]
1-3 unique medications in prior 6 months	-0.361	0.030	[-0.686, -0.036]
Mail-order service at some time	-0.958	<0.001	[-1.271, -0.646]
Yearly out of pocket maximum	-0.410	0.002	[-0.669, -0.151]
Pseudo R^2	0.031		

Results – Logistic Regression

Significant Variables	OR	*p*	95% CI
Per 30 day average cost sharing	1.025	0.005	[1.007, 1.042]
Age	0.981	<0.001	[0.972, 0.990]
% of pop. reporting White only	0.140	<0.001	[0.047, 0.413]
Rural	1.428	0.021	[1.056, 1.931]
1-3 unique medications in prior 6 months	0.643	0.011	[0.457, 0.904]
Mail-order service at some time	0.557	0.001	[0.400, 0.775]
Diagnosis of dyslipidemia	0.782	0.029	[0.627, 0.976]
Pseudo R^2	*0.069*		

Results - Survival Analysis

- Kaplan-Meier survival estimates by cost-sharing tertiles



Results - Survival Analysis (Cont'd)

- Cox proportional hazards model

Significant Variables	HR	*P*	95% CI
Per 30 day average cost sharing	1.017	0.001	[1.007, 1.027]
Age	0.991	0.001	[0.985, 0.996]
% of pop. reporting White only	0.416	0.003	[0.232, 0.746]
1-3 unique medications in prior 6 months	0.724	0.001	[0.593, 0.883]
Mail-order service at some time	0.715	0.001	[0.586, 0.871]

Discussion

- Regardless of measures of refill persistence and statistical models, prescription cost-sharing consistently was found to significantly and negatively impact refill persistence.

- Following transformation of the cost-sharing coefficient in each model, a $10 increase in per 30 day average cost-sharing was associated with a 27.0% increase in total gap, a 27.1% increase in the odds of being non-persistent, and an 18.5% increase in the risk of having a gap of more than 15 days.

Discussion (Cont'd)

- Due to sampling errors, the significance patterns of the control variables were not exactly the same, but comparable.
- Total gap may be a more objective and informative measure of medication refill persistence.
- The influence of prescription cost-sharing on medication refill persistence may be underestimated, especially for low-income patients.

Limitations

- Administrative claims data
- Selection bias
- Observational study
- Generalizability
- Potential underestimation of persistence
- Potential misinterpretation of non-persistence
- Measurement errors

Conclusions and Policy Implications

- Prescription cost-sharing has a significant and negative influence on medication refill persistence.
- Payers may improve member clinical outcomes through lowering prescription cost-sharing for chronic diseases.
- Although zero dollar member cost-sharing for selected chronic conditions may be financially difficult for some plans to implement, a starting point may be a zero dollar or near zero dollar cost-sharing for generics.

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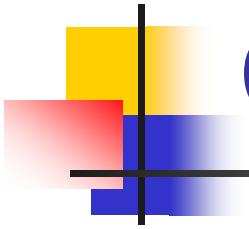

Questions and Comments?