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Disclosures

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Background

- Branded levothyroxine and escitalopram are commonly used among Medicare populations with alternative generics available.
- Some groups of patients (different age, sex, race/ethnicity subgroups) have unique considerations that may affect their generic substitution patterns.

Objective

- To analyze generic substitution patterns overall and in subgroups (by age, sex, and race) of Medicare beneficiaries.

Methods

- Study population (n=5 million) included a 5% random sample of fee-for-service Medicare administration claims data plus oversampled data in southern states (Alabama, Mississippi, and Louisiana) in 2013-2015.
- Two new user cohorts (washout period of 6 months) of fee-for-service Medicare beneficiaries who initiated oral brand or generic levothyroxine (n=32,083; 33.2% brand users) or escitalopram (n=23,076; 11.7% brand users), were included.
- Mutually exclusive outcomes included and were recorded using pharmacy claims data in up to 12 months of follow-up period:
 - substitution (brand to generic or vice versa)
 - therapeutic switch (switch to another drug in the same therapeutic class)
 - discontinuation (treatment gap>90 days)
 - death/loss of follow up.
- Descriptive analyses (Chi square tests) were used to compare:
 - proportions of brand and generic new users switching to different outcomes (P<0.0001)
 - proportions of brand new users switching to outcomes among subgroups (by age, sex, and race, all P<0.0001).

Results

Table 1. Frequencies of new users and outcomes

Drug	New Users		Outcomes (n, %)				
	Type	N (%)	Non-switch	Substitution	Therapeutic Switch	Discontinue	Death/Loss of Follow Up
Levothyroxine (n=32083)	Brand	10642 (33.17)	5271 (49.53)	2029 (19.07)	147 (1.38)	2185 (20.53)	1010 (9.49)
	Generic	21441 (66.83)	11459 (53.44)	2494 (11.63)	192 (0.90)	4412 (20.58)	2884 (13.45)
Escitalopram (n=23076)	Brand	2709 (11.74)	393 (14.51)	555 (20.49)	843 (31.12)	665 (24.55)	253 (9.34)
	Generic	20367 (88.26)	4751 (23.33)	670 (3.29)	6786 (33.32)	6117 (30.03)	2043 (10.03)

Table 2. Proportions of outcomes by age, sex, and race among levothyroxine new users (n=32083)

Drug	New Users		Outcomes (%)				
	Type	N (%)	Non-switch	Substitution	Therapeutic Switch	Discontinue	Death/Loss of Follow Up
Age	≥ 65	28628 (89.23)	53.69	14.02	1.00	19.99	11.31
	<65	3455 (10.77)	39.39	14.76	1.56	25.27	19.02
Sex	Male	10623 (33.11)	50.57	13.91	0.58	20.54	14.39
	Female	21460 (66.89)	52.93	14.19	1.29	20.57	11.02
Race	White	29165 (90.90)	53.36	14.31	1.08	19.80	11.46
	Non-white	2918 (9.10)	40.06	11.99	0.86	28.14	18.95

Table 3. Proportions of outcomes by age, sex, and race among escitalopram new users (n=23076)

Drug	New Users		Outcomes (%)				
	Type	N (%)	Non-switch	Substitution	Therapeutic Switch	Discontinue	Death/Loss of Follow Up
Age	≥ 65	19740 (85.54)	23.78	5.46	31.02	30.05	9.69
	<65	3336 (14.46)	13.49	4.44	45.11	25.48	11.48
Sex	Male	7216 (31.27)	22.08	5.03	30.83	29.34	12.72
	Female	15860 (68.73)	22.39	5.44	34.07	29.41	8.69
Race	White	21012 (91.06)	23.07	5.49	33.24	28.94	9.27
	Non-white	2064 (8.94)	14.39	3.49	31.25	33.96	16.91

Summary of Findings

- Overall, about half of brand and generic levothyroxine users stayed on their original treatment during follow-up period.
- Higher proportions of brand levothyroxine users encountered substitution (19.07% vs. 11.63%) and therapeutic switch (1.38% vs. 0.90%) compared to generic users (P<0.0001, **Table 1**).
- Overall, 14.5% of brand and 23.3% of generic escitalopram users stayed on original treatment.
- Higher proportion of brand escitalopram users encountered substitution (20.49% vs. 3.29%) compared to generic users but higher proportion of generic escitalopram users discontinued treatment (30.03% vs. 24.55%) compared to brand users (P<0.0001, **Table 1**).
- Among brand levothyroxine new users, younger beneficiaries (<65 vs. ≥65) were more likely to discontinue treatment (25.27% vs. 19.99%). Females were more likely to encounter therapeutic switch (1.29% vs. 0.58%). Racial minorities (vs. white) were less likely to substitute (11.99% vs. 14.31%) but more likely to discontinue (28.14% vs. 19.80%) (**Table 2**).
- Among brand escitalopram new users, younger beneficiaries were less likely to substitute (4.44% vs. 5.46%) but more likely to encounter therapeutic switch (45.11% vs. 31.02%). Females were more likely to encounter therapeutic switch (34.07% vs. 30.83%). Racial minorities were less likely to substitute (5.49% vs. 3.49%) but more likely to discontinue treatment (33.96% vs. 28.94%) (**Table 3**).

Conclusions

- Although with alternative generics available, significant proportions of Medicare patients treated with levothyroxine still initiated brand products. The adoption of generic escitalopram among Medicare patients was comparative to the overall average generic usage in the country.
- Different generic substitution and therapeutic switch patterns observed in subgroups of Medicare beneficiaries ascertain the need to closely monitor treatment outcomes among these subgroups.
- Next step is to examine patient-level, provider-level, and product-level factors that might impact generic treatment initiation and substitution within these drug products.