

Predictors of Generic Thyroid Hormone Utilization among the Commercially Insured

Matthew Daubresse, MHS, DrPH (student)

ISPE Mid-Year Meeting

Baltimore, MD

April 12th, 2016



JOHNS HOPKINS

BLOOMBERG SCHOOL
of PUBLIC HEALTH

Funding source

- Cooperative agreement between FDA and JHU
- Grant #U01FD005267

Objective

- Characterize trends in generic drug use at a class-level
- Identify predictors of generic drug use within those classes

Investigational team

- Jodi B. Segal, MD, MPH
- Sonal Singh, MD, MPH
- Robert J. Romanelli, PhD, MPH
- Chia-Ying Lee, MHS
- Mischka Moechtar, MHS



JOHNS HOPKINS
UNIVERSITY

Background

- In 2013, generic drugs represented 86% of all prescriptions filled in the U.S.
- Branded drugs only accounted for 14% of all prescriptions filled, yet made up 71% of all prescription drug spending (\$233 billion)¹
- Cost savings from generic drugs in 2013 reached \$239 billion²
 - Small increase in overall generic utilization would result in substantial cost savings



¹ Aiken M. Use and shifting costs of healthcare: A review of the use of medicine in the U.S. in 2013. April 2014.

² Generic Pharmaceutical Association. 2014 Generic Drug Savings in the U.S. report.



Methods: Characterizing trends

- Data are from the Truven Health Analytics: MarketScan Commercial Claims and Encounters databaseTM
- Therapeutic classes were identified using RedBookTM
- Prioritized and selected 27 classes:
 - drugs with narrow therapeutic indices
 - high overall utilization
 - historically low generic drug use in the literature
 - high rates of coupon³ use for branded products
- Serial cross-sectional design
- Calculated the GUR and GSR in each class across fourteen 7-day windows between August 2010 and November 2013

³ IMS Health Integrated Promotional Services, 2010-2012

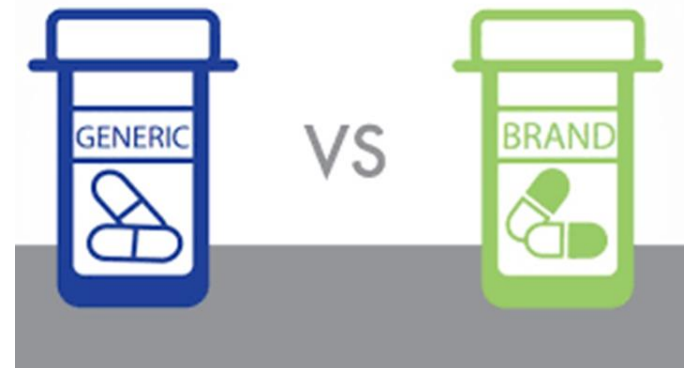


Methods (cont'd)

$$GUR = \frac{(\text{Multisource generic product} + \text{Single source generic product})}{(\text{Multisource branded product, generic available} + \text{Multisource branded product, no generic available} + \text{Single source branded product} + \text{Multisource generic product} + \text{Single source generic product})}$$

$$GSR = \frac{(\text{Multisource generic product} + \text{Single source generic product})}{(\text{Multisource branded product, generic available} + \text{Multisource generic product} + \text{Single source generic product})}$$

GSR (aka “Generic Efficiency Rate”)



Methods: Identifying predictors

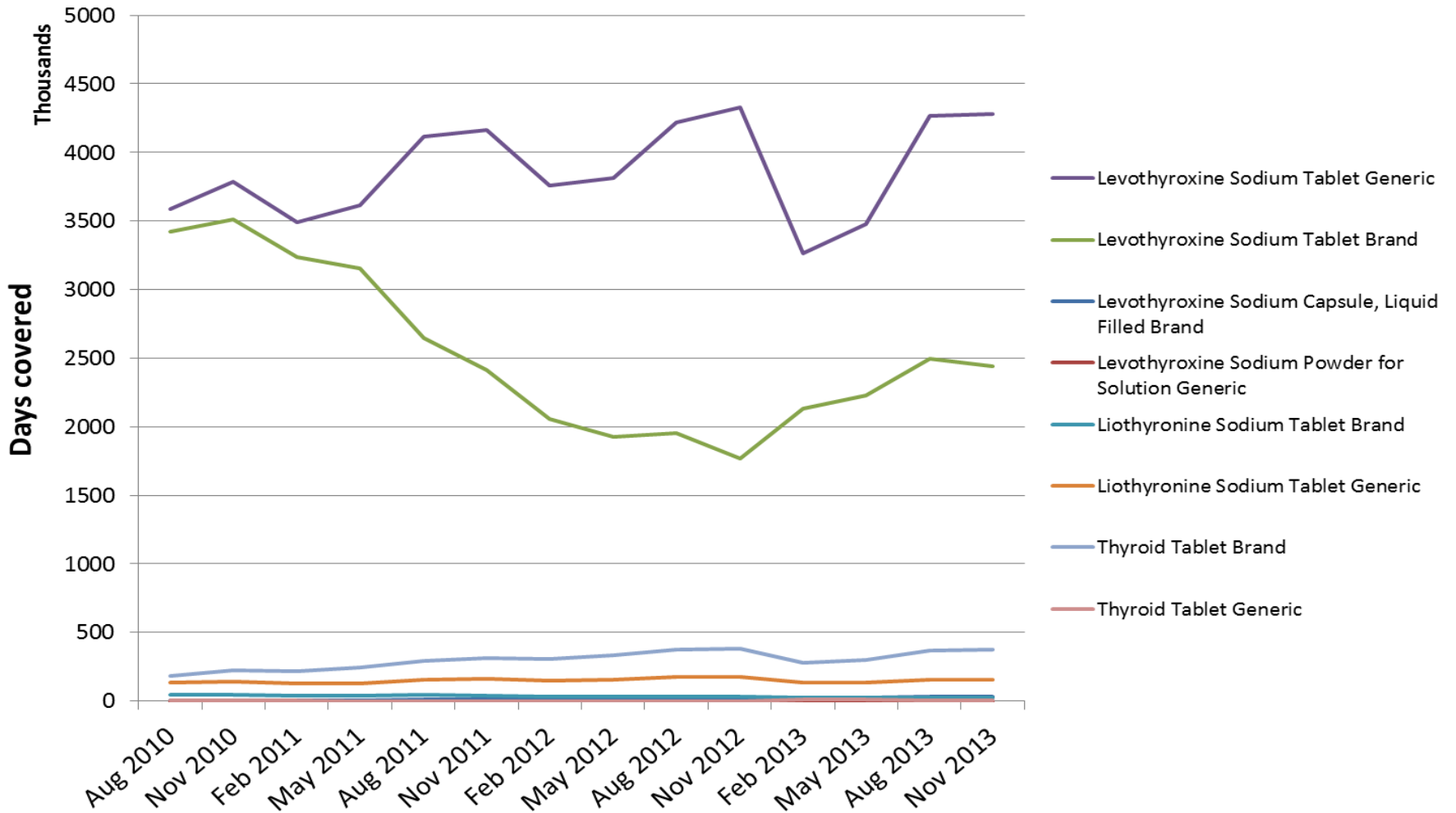
- Used data from most recent 7-day window (November 2014)
- Patient-level analysis
 - If patient had more than 1 thyroid Rx during the window, used earliest Rx
 - Few switches from brand to generic or vice versa
- Outcome: Generic vs. Branded fill (GUR)
- Fixed effects logistic regression model accounting for geographical clustering of patients.
- Predictors included:
 - sex, age, plan type, number of active prescriptions, days supply, copay, use of mail-order services, comorbidity index score, new vs. refill prescription, state substitution laws, state consent laws

³ IMS Health Integrated Promotional Services, 2010-2012



Results

Days covered by branded and generic thyroid products



Results: Predictors of generic thyroid hormone utilization

Predictor	Odds Ratio (95% CI)
Male gender	1.40 (1.39 to 1.43)
Number of active prescriptions	1.04 (1.03 to 1.04)
31-90 days supply vs. 0-30 days supply (ref)	2.04 (2.01 to 2.07)
Retail pharmacy vs mail-order fills (ref)	9.63 (9.49 to 9.78)
Health Maintenance Organization vs. fee-for service coverage (ref)	1.59 (1.52 to 1.66)
Additional comorbidities	1.16 (1.14 to 1.18)
Mandatory state substitution laws	1.50 (1.43 to 1.58)

Other included covariates: age, copay, new vs. refill prescription, state consent laws



Limitations

- Data from commercially insured individuals, perhaps not generalizable to publicly insured.
- Examined 27 therapeutic classes
- Data does not include other important patient information such as race and SES
- Unable to nest patients or prescriptions within providers
- Predictors of generic utilization vary across classes



Conclusions

- Despite high levels of overall utilization, rates of generic substitution and utilization varied widely across classes.
- GSR and GUR were typically driven by a single product.
- Increasingly important for payers, providers and patients to encourage the use of safe, effective and low cost generic alternatives, when available.
- Predictors of generic utilization could play a role in the development of cost-saving strategies designed to increase generic drug use.



Questions?

