Association of authorized generic marketing with prescription drug spending on antidepressants from 2000 to 2011

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Disclosures

• This project was not funded, but was indirectly supported by grants U01FD005272-01 (FDA), R01GM097618-04 (NIH/NIGMS), and FDABAA-13-00119 (FDA).

• In the past 3 years, Richard Hansen has received consulting funds from Daiichi Sankyo and has provided expert testimony for Allergan and Boehringer Ingelheim. No other authors declare a potential conflict of interest.

Self Assessment Questions:
Which of the following is not a true statement about brand and authorized generic drugs?

A. they are approved through bioequivalence studies
B. they may be packaged in different ways
C. they share the same NDA number
D. they have the same active and inactive ingredients

Learning Objectives

• [To understand differences between authorized and independent generic drugs and how the presence of an authorized generic is related to drug prices.]

INTRODUCTION

• Generic medicines help control healthcare costs
  • Saved $1.2 trillion in healthcare, 2003-2012¹
  • Saved $8 to $10 billion/year for consumers²-⁴
• Brand price 4 times higher than generic price, 2008³
  • More consumers choose generic drugs¹

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Target Audience: Pharmacists
ACPE#: 0202-0000-16-008-L04-P
Activity Type: Knowledge-based
INTRODUCTION

- Authorized generics decrease drug price?
  - Decrease wholesale price 15% (brand) \(^7\)
  - Decrease wholesale price 16% (generics) \(^8\)
- Gaps in existing research
  - Short term effects
  - Limited empirical research with single drug examples

Objectives

- To empirically evaluate the association of authorized generic marketing with drug spending
- Our study
  - 2000 to 2011: products with or without authorized generics
  - Antidepressants: one of most commonly used (U.S. and worldwide) \(^9\)
  - Antidepressants: clinical effects have been well studied and found to be similar among existing second-generation drugs \(^10\) \(^11\)

METHODS

- Data
  - Medical Expenditure Panel Survey (MEPS)
  - Prescription drug data
  - Years 2000 to 2011
- Payment sources and amount
  - Self-payment
  - Private insurance payment
  - Public payment

### Methods

- Analysis
  - Sample weights, variance estimations, payment adjusted to 2009 dollars
  - Multiple linear regression
    \[
    \text{Payment} = \text{intercept} + \alpha_1 \text{generic type} + \alpha_2 \text{time} + \alpha_3 \text{selfpay} + \alpha_4 \text{privatepay} + \text{time dummies} + \epsilon
    \]
  - SAS version 9.3

### Drugs WITH Authorized Generics

<table>
<thead>
<tr>
<th>Name</th>
<th>Strength</th>
<th>Generic Year</th>
</tr>
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<tbody>
<tr>
<td>Citalopram</td>
<td>10mg</td>
<td>2005</td>
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<tr>
<td>Citalopram</td>
<td>20mg</td>
<td>2005</td>
</tr>
<tr>
<td>Citalopram</td>
<td>40mg</td>
<td>2005</td>
</tr>
<tr>
<td>Buproprion SR</td>
<td>150mg</td>
<td>2004</td>
</tr>
<tr>
<td>Buproprion SR</td>
<td>300mg</td>
<td>2007</td>
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<tr>
<td>Paroxetine</td>
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<td>2003</td>
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<tr>
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<td>20mg</td>
<td>2003</td>
</tr>
<tr>
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<td>2003</td>
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<tr>
<td>Paroxetine</td>
<td>40mg</td>
<td>2003</td>
</tr>
<tr>
<td>Sertraline</td>
<td>25mg</td>
<td>2006</td>
</tr>
<tr>
<td>Sertraline</td>
<td>50mg</td>
<td>2006</td>
</tr>
<tr>
<td>Sertraline</td>
<td>100mg</td>
<td>2006</td>
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### Drugs WITHOUT Authorized Generics

<table>
<thead>
<tr>
<th>Name</th>
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<td>Buproprion SR</td>
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<tr>
<td>Buproprion SR</td>
<td>200mg</td>
<td>2005</td>
</tr>
<tr>
<td>Buproprion XL</td>
<td>150mg</td>
<td>2007</td>
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<tr>
<td>Buproprion XL</td>
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<td>2007</td>
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<td>Paroxetine CR</td>
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<tr>
<td>Mirtazapine</td>
<td>30mg</td>
<td>2003</td>
</tr>
<tr>
<td>Mirtazapine</td>
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<tr>
<td>Mirtazapine Soltab</td>
<td>15mg</td>
<td>2004</td>
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<td>Mirtazapine Soltab</td>
<td>30mg</td>
<td>2004</td>
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<tr>
<td>Mirtazapine Soltab</td>
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<td>2004</td>
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RESULTS
Antidepressant utilization patterns

RESULTS
Antidepressants payment details

RESULTS
Price change during generic marketing year

RESULTS
Multiple Linear Regression Model

<table>
<thead>
<tr>
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<th>Parameter Estimate</th>
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<th>Variable</th>
<th>Parameter Estimate</th>
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<td>&lt;.0001</td>
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<td>&lt;.0001</td>
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<tr>
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<td>&lt;.0001</td>
<td>drug dummies</td>
<td>Yes*</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

sumpay = intercept + a1 Authorized Generic + a2 time + a3 selfpay + a4 public + a5 private + timedummies + drug dummies + error

DISCUSSION

Our Finding

- Authorized generics decrease drug price
  - brand (-$9.49), generic (-$4.49)
- Authorized generics have lasting effect
  - 180 days and longer
- Multiple linear regression models tell a slightly different story than the unadjusted data

DISCUSSION

Research Limitations

- MEPS data:
  - Yearly time points
  - Not directly distinguish authorized generics from independent generics
  - Inherent limitations in the sampling strategy and data collection approaches
- Our research:
  - Only for antidepressant market
  - Over a fixed period of historical time

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CONCLUSIONS

• Authorized generics associated with lower total payments
  – for both brand and generic drugs

• Price reduction
  – generic price decrease two-fold greater than brand drugs

• Authorized generics are a welcome addition to the market
  – for both payers and patients

Key Points

• Authorized generics are associated with lower total payments for both brand and generic drugs

Self Assessment Questions:
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Reference


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