Outcomes Associated with a State-Level Health Policy Change for the Atypical Antipsychotics Class of Drugs within the Georgia Medicaid Schizophrenic Population

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Presenter Disclosures

Matthew Perri III, Ph.D.

(1) The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose.
No discussion of off-label uses.

Introduction

Schizophrenia

- Affecting about 1% of the U.S. population, men and women alike, usually by about the early to mid 20's.
- Wide array of problems - broadly categorized into positive, negative and cognitive symptoms.
- Treatment:
  - Typical or first generation antipsychotics (FGAs)
  - Atypical or second generation antipsychotics (SGAs)
- Drug choice?
  - Drug response heterogeneity
  - Trial-and-error treatment process
  - Population vulnerability: diminished autonomy, Increased risk for suicide
  - Open access?

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Utilization, Prior Authorization and Spending on SGAs

- SGAs are extensively marketed and expensive medications
- State Medicaid programs were responsible for over half of all antipsychotic drug spending in 2001[1]
- US Medicaid pharmaceutical spend for SGAs was greater than $5.5 billion in 2005[2]
- Some 23 state Medicaid programs had some kind of PA policy in place for SGAs in 2005 - 2006.[3]
- GA implemented a PA policy on 9/1/2004 which allowed for grandfathering all current SGA patients.

[1]Frank and Conti 2003
[2]Law et al, 2008
[3]Polinski et al., 2007

GA PA Program

- September 1, 2004
- Three agents became non-preferred with PA
  - Olanzapine
  - Aripiprazole
  - Olanzapine/fluexotine combination
- Current patients grandfathered
- PA requirements:
  - Verification of clinical appropriateness
  - Trial of a first generation antipsychotic agent
  - New and continuing prescriptions for other agents did not require a PA (ziprasidone, rispiradone, clozapine and olanzapine injection)

Primary Research Question

Has limiting immediate access to some atypical antipsychotics negatively impacted schizophrenic patients within the Georgia Medicaid Program?

Methodology

Data and Methods

- Data Source
  - Georgia Department of Community Health and Department of Human Resources
- Study design:
  - Interrupted time-series study using segmented regression analysis
  - 34 month study: 14 months pre and 20 months post intervention
- Study population:
  - Continuously eligible adults
  - Adults (18 – 65 years of age)
  - Schizophrenic diagnosis
  - Atypical antipsychotic
- Study period:
  - 07/01/2003 to 04/31/2006 (Policy Intervention = 09/01/2004)

Data and Methods

- Dependent Variables
  - Physician office visits
  - Emergency room visits
  - Hospitalizations
  - Length of stay
    - All cause
    - Issue with psychiatric office visits

Statistical Analysis

- Segmented regression with time series analysis
  - SR Model[1]

$$Y_t = \beta_0 + \beta_1(\text{time}) + \beta_2(\text{intervention}) + \beta_3(\text{post-time}) + \varepsilon_t$$

  - Where:
    - *Yt* is the mean monthly value for the dependent variable at time *t*
    - time is the time in months from the start of the study period
    - intervention represents the policy period for time *t* (0 or 1)
    - post-time is the time in months since the policy was implemented
    - ε_t is the error term at time *t*

[1]Wagner, Soumerai, Zhang and Ross-Degnan, 2002

Statistical Analysis

- Segmented regression parameter estimates:
  - β_0 → baseline level of the dependent variable
  - β_1 → baseline trend of the dependent variable
  - β_2 → level change after the policy (immediate impact)
  - β_3 → trend change after the policy
- Time series analysis of residuals to model residual autocorrelations present in the data.

[1]Wagner, Soumerai, Zhang and Ross-Degnan, 2002

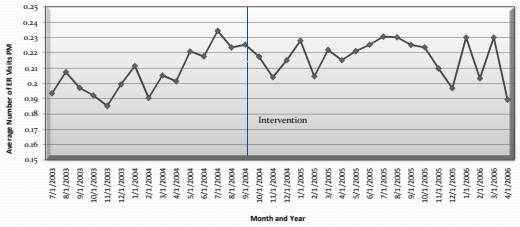
Results

Overview of Results

- 12,120 individuals meeting the study criteria
  - 9,042 with at least one ER visit
  - 10,801 with at least one office visit
  - 5,496 with at least one hospital admission
- Total claims:
  - 166,360 office visits (99201-5, 99211-15, 99241-5, 99271-75)
  - 65,315 emergency room visits
  - 13,563 hospital admissions
  - *Plus: 58,977 psych office visits from CPT codes 90801-05 and 90862*

Emergency Room Visits

Average Number of ER Visits PMPM



Emergency Room Visits

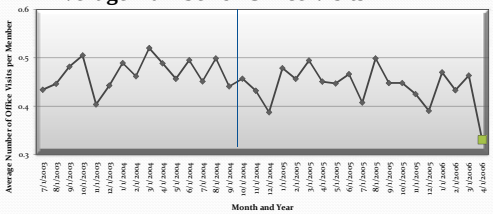
- Segmented Regression Analysis

Full Model	Parsimonious Model
Model Fit: F = 6.67 (0.0014)	**Model Fit:** F = 10.32 (0.0004)
Parameter Estimates: $\beta 0$ = 0.1394 (<0.0001) $\beta 1$ = 0.0019 (0.0025) $\beta 2$ = -0.0007 (0.9067) $\beta 3$ = -0.0022 (0.0027)	**Parameter Estimates:** $\beta 0$ = 0.1396 (<0.0001) $\beta 1$ = 0.0018 (0.0002) $\beta 3$ = -0.0021 (0.0019)

•Residual analysis and tests for autocorrelation were not significant (White test, ACF plots, DW).

Office Visits

Average Number of Office Visits PMPM



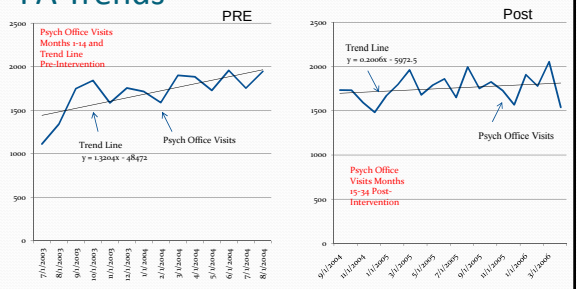
Segmented Regression Analysis
Model not significant

Full Model	Full Model
Outlier	No Outlier
Model Fit: F = 2.73 (0.0614)	**Model Fit:** F = 2.43 (0.0844)

Psych Office Visits: Graphic Analysis

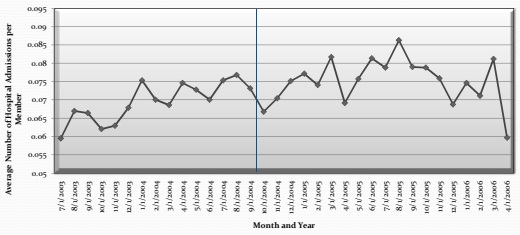
Utilization of Psych Office Visits 7/1/2003 to 4/30/06

Psych Office Visits: Pre PA and Post PA Trends



Hospital Admissions

Average Number of Hospital Admissions PMPM



Hospital Admissions

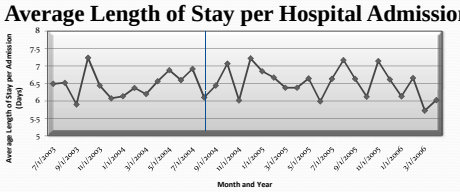
Segmented Regression Analysis

Full Model	Parsimonious Model
Model Fit: F = 6.22 (0.0021)	**Model Fit:** F = 9.58 (0.0006)
Parameter Estimates: β0 = 0.0278 (<0.0001) β1 = 0.0005 (0.0052) β2 = -0.0004 (0.7938) β3 = -0.0005 (0.0128)	**Parameter Estimates:** β0 = 0.0279 (<0.0001) β1 = 0.0005 (0.0002) β3 = -0.0005 (0.0111)

- Residual analysis and tests for autocorrelation were not significant (White test, ACF plots, DW).

Length of Stay

Average Length of Stay per Hospital Admission



Segmented Regression Analysis
Model not significant →

Full Model
Model Fit: F = 0.88 (0.4615)

Discussion

The Policy and ER Visits

- GA Medicaid PA for SGAs was associated with a significant decline in post-policy trend for the average number of ER visits PMPM

Absolute difference:

$AD_{(Month\ 34)}$ = [(0.1396 + 0.0018*34 – 0.0021*20) - (0.1396 + 0.0021*34)]
= -0.042 or 509 visits / month

Relative difference:

$RD_{(Month\ 34)}$ =
$(AD_{(Month\ 34)}$ / [(0.1396 + 0.0021*34)] =
[-0. 042 / (0.1396 + 0.0021*34)] * 100 = -20.92%

The Policy and Hospital Admits

- GA Medicaid PA program was associated with a significant decline in post-policy trend for the average number of hospital admissions PMPM.

Absolute difference:

$AD_{(Month\ 34)} = [(0.0279 + 0.0005*34 - 0.0005*20) - (0.0279 + 0.0005*34)]$
$= -0.010$ or 121 admissions / month

Relative difference:

$RD_{(Month\ 34)} = (AD_{(Month\ 34)} / [(0.0279 + 0.0005*34)] = [-0.010 / (0.0279 + 0.0005*34)] * 100 = -22.27\%$

PA and Office Visits / LOS

- No significant changes noted as a result of the implementation of the GA Medicaid PA program.
- Psych office visits must be evaluated statistically to determine the full impact of the PA policy.

Conclusions

- Significant declines in post policy trend:
  - Average number of ER visits PMPM
  - Average number of hospital admits PMPM
- Results provide evidence for the utility of PA in mental health – contrasts with most of the published literature

Limitations

- Psych office visits not in the current statistical models.
- Patient population was Medicaid, continuously eligible, schizophrenia diagnosis with a history of SGA.
- A declining trend was noted and this is not sustainable, so what does the future hold?
- Impact on other mental health conditions necessary (e.g. Bipolar, impact on children and the elderly)