



Factors Influencing Prescription Drug Trend within Medicare

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(ARS Response Card: Channel 41)

Disclosure

“I, Sharon Frazee and Michael Looney, are employees of Express Scripts, Inc. which provides Medicare drug benefit management services. The research presented herein was funded solely by Express Scripts, Inc.”

Learning Objectives

- Analyze pharmacy cost and utilization trends in a Medicare population compared to those in a commercially insured population
- Identify the physician characteristics associated with a higher Generic Fill Rate

Express Scripts Research 25 Year Proven History

- First Drug Trend Report
- Annual Outcomes Conference
- Over 70 Peer-Reviewed Articles
<http://www.express-scripts.com/research/research/>
- Award-Winning Research



Challenging Intuition with Science

“Implementation of 3-tier copayments will lead to increased medical costs.”

Effect of a Three-Tier Preferred Pharmacy Benefit and Other

BRENDA MOTHERAL, RPh, MBA, PhD, and

BACKGROUND. In response to rising prescription drug costs, plan sponsors are increasingly implementing three-tiered pharmacy benefits. **OBJECTIVE.** This study examined the effect of a three-tiered pharmacy benefit on pharmaceutical utilization and expenditures, medical service utilization, and use of other medical services in a population of continuously enrolled, commercially insured enrollees of a preferred provider organization (PPO).

RESEARCH DESIGN. A quasi-experimental design with comparison group design was used. The pre- and postperiods were each 12 months.

SUBJECTS. The intervention group included enrollees whose employer moved from the PPO's two-tier benefit to a three-tier benefit (n = 6881). The comparison group included enrollees whose employer remained under the PPO's two-tier benefit (n = 13,279).

FORMULARY/BPM

Clinical and Financial Outcomes Associated With a Proton Pump Inhibitor Prior-Authorization Program in a Medicaid Population

Thomas Delate, PhD; Douglas E. Mager, BS; Jagat Sheth, PhD; and Brenda R. Motheral, PhD

Objective: To examine the clinical and financial outcomes associated with a proton pump inhibitor (PPI) prior-authorization policy.

Study Design: Interrupted time-series analyses of antisecretory prescription drug claims. Separate 6-month retrospective cohort analyses were conducted to estimate the clinical and financial effects of the policy.

Patients and Methods: More than 1.2 million Medicaid enrollees, with subgroup analyses of 5965 continuously eligible, potential antisecretory medication users. Measures included antisecretory drug expenditures, proportions of patients with at least 1 gastrointestinal diagnosis and gastrointestinal-related ambulatory and inpatient medical service visit, and subsequent gastrointestinal-related and total medical service expenditures.

Results: There was a 90.9% decrease in PPI per-member-per-month expenditures and a 223.2% increase in histamine₂-receptor antagonist (H₂A) per-member-per-month expenditures in the month immediately following the implementation of the policy ($P < .001$ for both). A greater proportion (80.7%) of prior-authorization eligible enrollees who received a PPI had at least 1 diagnosis for a gastrointestinal condition than enrollees who received an H₂A (64.1%) or no antisecretory drugs (48.4%) ($P < .001$ for both). Two-part, finite mixture regression analyses indicated that the enrollees

of drug cost containment.⁹ Prior authorization restricts the use of specific medications by requiring an advance approval by the Medicaid program or its agent for the drug before dispensing to qualify for reimbursement.¹⁰ High-cost drugs that have a history of inappropriate use and effective drugs for which there are lower costing therapeutic equivalents typically are placed in PA programs.¹¹ Prior authorization is designed to allow patient access to essential pharmacotherapies while promoting cost-effective prescription drug use.

States may require PA for any drug 6 months after Food and Drug Administration marketing approval.¹¹ It is estimated that more than 40 states and the District of Columbia have some type of drug PA policy.⁴ Notwithstanding the widespread use of these programs, limited empirical evidence exists on their effects. The available evidence suggests that such programs reduce drug expenditures without incurring increased medical services use¹⁰; however, only 3 retrospective evaluations of

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Follow-Up Study of Prescription Drug Utilization, Pharmaceutical Expenditures, and Costs

Motheral, RPh, MBA, PhD, and

ACT

suggested that 3-tier prescription drug copayments without affecting the use of other services after implementation. Assessment of the effect of a 3-tier copayment system on medical cost for 30 months after implementation of a preferred-provider organization

Background

- Nationwide there are over 47 million (and growing) Medicare beneficiaries¹
- 29 million Medicare beneficiaries enrolled in Part D²
- Prescription medications represent 12% of Medicare spending
- January 2011 – first of the Baby Boomers turned age 65
- Express Scripts manages benefits for over 2 million Medicare beneficiaries (57% MADP, 28% PDP, 15% Other (EGWP, Secondary to Part D and PACE))

¹ Kaiser Family Foundation: State Health Facts 2011 <http://www.statehealthfacts.org/comparemaptable.jsp?yr=200&typ=1&ind=290&cat=6&sub=74&sortc=1&o=a>

² Kaiser Family Foundation: The Medicare Prescription Drug Benefit November 2011. Available at <http://www.kff.org/medicare/upload/7044-12.pdf>

Express Scripts Medicare Trend: 2010 - 2011

Therapy Class	Utilization Trend	Cost Trend	Total Trend
Diabetes	5.0%	5.4%	10.7%
High Blood Pressure	2.9%	-15.4%	-12.9%
High Cholesterol	4.4%	-0.2%	4.2%

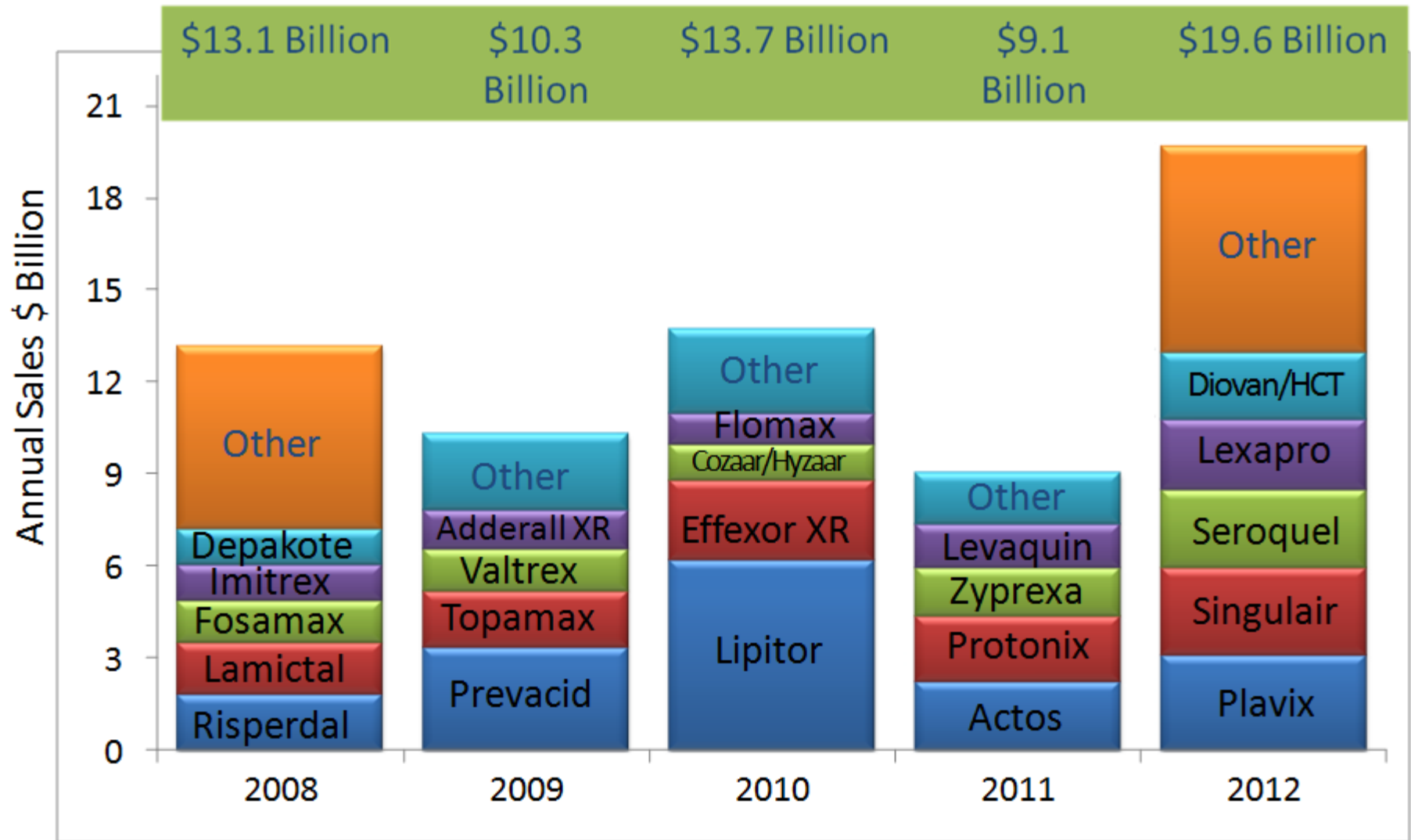
Medicare Trend vs. Commercial Trend - Traditional

Therapy Class	Medicare Trend			Commercial Trend		
	Utilization	Cost	Total	Utilization	Cost	Total
Diabetes	5.0%	5.4%	10.7%	-0.6%	7.5%	7.0%
High Blood Pressure	2.9%	-15.4%	-12.9%	-0.6%	-9.0%	-9.5%
High Cholesterol	4.4%	-0.2%	4.2%	-1.6%	4.1%	2.5%

Medicare Cost trend is lower than Commercial Cost Trend

Generic medications played a key role

Generic Pipeline: More Than \$65 Billion Over Five Years



Cost Differential – Brand vs. Generic

Therapy Class	Brand vs. Generic Average Cost/Rx Differential	GFR
Diabetes	\$95.65	47%
High Blood Pressure	\$85.17	91%
High Cholesterol	\$113.51	76%
All Drugs	\$117.57	79%

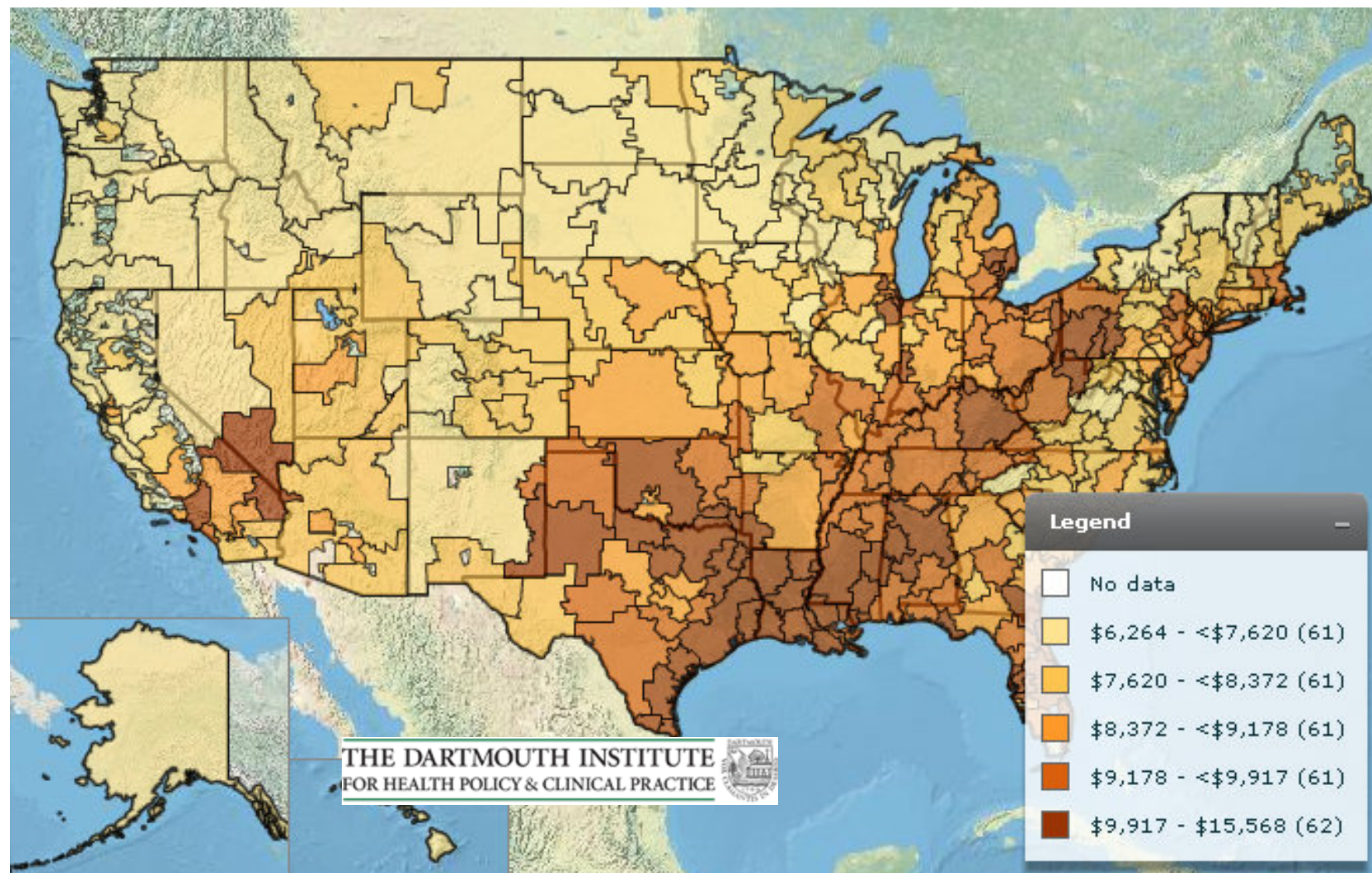
Top 10 Traditional Medications Ranked by PMPY Cost 2011

Drug	Therapy Class
PLAVIX	BLOOD MODIFYING
ADVAIR DISKUS	ASTHMA
LIPITOR	HIGH BLOOD CHOLESTEROL
SEROQUEL	MENTAL/NEURO DISORDERS
CRESTOR	HIGH BLOOD CHOLESTEROL
ACTOS	DIABETES
SPIRIVA	COPD
OMEPRAZOLE	ULCER DISEASE
JANUVIA	DIABETES
SIMVASTATIN	HIGH BLOOD CHOLESTEROL

Top Medications by Disease Category: Ranked by PMPY Utilization - 2011

Diabetes	High Blood Pressure	High Blood Cholesterol
METFORMIN	LISINOPRIL	SIMVASTATIN
GLIPIZIDE	AMLODIPINE	LOVASTATIN
GLIMEPIRIDE	ATENOLOL	PRAVASTATIN
ONE TOUCH ULTRA TEST STRIPS	METOPROLOL TARTRATE	LIPITOR
GLYBURIDE	ENALAPRIL	CRESTOR

Geographic Variation



Source: <http://www.dartmouthatlas.org/>

What influence do prescriber geographic and demographic characteristics have on **generic prescribing patterns**?

Methodology

Research Question	What observable characteristics impact prescriber generic fill rate?
Sample	<ul style="list-style-type: none">Express Scripts Internal DataPatients with at least 1 claim for Rx for diabetes, hypertension, dyslipidemiaPrescriber criteria: Age 23-80; ≥ 30 Rx claims in U.S.; legally authorized to prescribe in U.S.
Methods	<ul style="list-style-type: none">Dependent variable: 30 day adjusted disease specific prescriber generic fill rateAdherence was measured using the medication possession ratio (MPR)Prescriber geographic info matched on 3 digit zip census infoMultivariate Least Squares regression

Results

National Sample	<ul style="list-style-type: none">■ Hypertension = 139,093 prescribers■ Lipids = 94,057 prescribers■ Diabetes = 50,605 prescribers
Key Factors	<ul style="list-style-type: none">■ Age■ Gender■ Medicare Penetration■ Physician Household Income■ Census Region■ Prescriber Specialty

ANTIHYPERTENSION MODEL

Hypertension

Prescriber GFR, Multivariate Least Squares Regression

Variable	Coefficient	SE	p-value
Age 21-34	Reference Category		
Age 35-44	-1.56	0.18	<.0001
Age 45-54	-2.04	0.18	<.0001
Age 55-64	-2.27	0.18	<.0001
Age 65+	-3.15	0.21	<.0001
Female	0.53	0.08	<.0001
Rural	1.61	0.09	<.0001

Hypertension – Cont'd

Prescriber GFR, Multivariate Least Squares Regression

Variable	Coefficient	SE	p-value
Medicare Patients Seen: 0% (Commercial Only)	Reference Category		
0% < Pct. Of Patients in Medicare ≤20%	-0.25	0.08	0.002
20% < Pct. Of Patients in Medicare ≤40%	1.78	0.13	<.0001
40% < Pct. Of Patients in Medicare ≤60%	3.08	0.15	<.0001
60% < Pct. Of Patients in Medicare ≤80%	4.23	0.17	<.0001
80% < Pct. Of Patients in Medicare ≤100%	6.16	0.18	<.0001

Hypertension – Cont'd

Prescriber GFR, Multivariate Least Squares Regression

Variable	Coefficient	SE	p-value
Average Household Income Less Than or Equal to \$20,000	Reference Category		
Average Household Income Between \$20,000 and \$40,000	-1.67	0.23	<.0001
Average Household Income Between \$40,000 and \$60,000	-2.52	0.23	<.0001
Average Household Income Between \$60,000 and \$80,000	-4.03	0.24	<.0001
Average Household Income Between \$80,000 and \$100,000	-5.44	0.28	<.0001
Average Household Income Greater than \$100,000	-6.55	0.38	<.0001

Hypertension – Cont'd

Prescriber GFR, Multivariate Least Squares Regression

Variable	Coefficient	SE	p-value
East North Central (IN, IL, MI, OH, WI)	Reference Category		
New England (CT, ME, MA, NH, RI, VT)	1.78	0.14	<.0001
Mid Atlantic (NY, NJ, PA)	-6.73	0.12	<.0001
West North Central (IA, KS,MN, MO, NE, ND, SD)	0.41	0.15	0.0048
South Atlantic (DE, DC, FL, GA, MD, NC, SC, VA, WV)	-3.83	0.11	<.0001
East South Central (AL, KY, MS, TN)	-2.60	0.15	<.0001
West South Central (AR, LA, OK, TX)	-6.42	0.14	<.0001
Mountain (AZ, CO, ID, NM, MT, UT, NV, WY)	-0.75	0.16	<.0001
Pacific (AK, CA, HI, OR, WA)	-3.40	0.13	<.0001

Hypertension – Cont'd

Prescriber GFR, Multivariate Least Squares Regression

Variable	Coefficient	SE	p-value
Internal Medicine	Reference Category		
Nurse Practitioners	1.26	0.15	<.0001
Physician Assistant	0.67	0.18	0.0002
Family Doctor	1.47	0.089	<.0001
Geriatric	2.36	0.19	<.0001
Specialist	1.54	0.09	<.0001
ER Physician	0.82	0.19	<.0001

ANTIHYPERLIPIDEMIA MODEL

Hyperlipidemia

Prescriber GFR, Multivariate Least Squares Regression

Variable	Coefficient	SE	p-value
Age 21-34	Reference Category		
Age 35-44	-1.67	0.37	<.0001
Age 45-54	-2.15	0.37	<.0001
Age 55-64	-2.45	0.37	<.0001
Age 65+	-3.64	0.43	<.0001
Female	2.02	0.15	<.0001
Rural	1.96	0.19	<.0001

Hyperlipidemia – Cont'd

Prescriber GFR, Multivariate Least Squares Regression

Variable	Coefficient	SE	p-value
Medicare Patients Seen: 0% (Commercial Only)	Reference Category		
0% < Pct. Of Patients in Medicare <=20%	0.81	0.16	<.0001
20% < Pct. Of Patients in Medicare <=40%	6.06	0.24	<.0001
40% < Pct. Of Patients in Medicare <=60%	10.54	0.28	<.0001
60% < Pct. Of Patients in Medicare <=80%	15.61	0.32	<.0001
80% < Pct. Of Patients in Medicare <=100%	19.94	0.35	<.0001

Hyperlipidemia – Cont'd

Prescriber GFR, Multivariate Least Squares Regression

Variable	Coefficient	SE	p-value
Average Household Income Less Than or Equal to \$20,000	Reference Category		
Average Household Income Between \$20,000 and \$40,000	-0.06	0.48	0.9063
Average Household Income Between \$40,000 and \$60,000	-1.58	0.48	0.001
Average Household Income Between \$60,000 and \$80,000	-4.03	0.50	<.0001
Average Household Income Between \$80,000 and \$100,000	-5.91	0.56	<.0001
Average Household Income Greater than \$100,000	-6.99	0.73	<.0001

Hyperlipidemia – Cont'd

Prescriber GFR, Multivariate Least Squares Regression

Variable	Coefficient	SE	p-value
East North Central (IN, IL, MI, OH, WI)	Reference Category		
New England (CT, ME, MA, NH, RI, VT)	11.66	0.27	<.0001
Mid Atlantic (NY, NJ, PA)	-10.29	0.23	<.0001
West North Central (IA, KS, MN, MO, NE, ND, SD)	2.07	0.28	<.0001
South Atlantic (DE, DC, FL, GA, MD, NC, SC, VA, WV)	-4.34	0.22	<.0001
East South Central (AL, KY, MS, TN)	-1.19	0.30	<.0001
West South Central (AR, LA, OK, TX)	-6.31	0.27	<.0001
Mountain (AZ, CO, ID, NM, MT, UT, NV, WY)	2.89	0.31	<.0001
Pacific (AK, CA, HI, OR, WA)	0.52	0.26	0.0456

Hyperlipidemia – Cont'd

Prescriber GFR, Multivariate Least Squares Regression

Variable	Coefficient	SE	p-value
Internal Medicine	Reference Category		
Nurse Practitioners	-1.59	0.33	<.0001
Physician Assistant	-1.47	0.39	0.0002
Family Doctor	1.60	0.16	<.0001
Geriatric	2.33	0.35	<.0001
Specialist	-7.85	0.18	<.0001
ER Physician	0.81	0.35	0.023

DIABETES MODEL

Diabetes

Prescriber GFR, Multivariate Least Squares Regression

Variable	Coefficient	SE	p-value
Age 21-34	Reference Category		
Age 35-44	-1.16	0.45	0.0102
Age 45-54	-1.05	0.45	0.0197
Age 55-64	-0.68	0.46	0.1396
Age 65+	-0.53	0.53	0.3123
Female	2.49	0.18	<.0001
Rural	1.47	0.22	<.0001

Diabetes – Cont'd

Prescriber GFR, Multivariate Least Squares Regression

Variable	Coefficient	SE	p-value
Medicare Patients Seen: 0% (Commercial Only)	Reference Category		
0% < Pct. Of Patients in Medicare <=20%	0.20	0.22	0.3664
20% < Pct. Of Patients in Medicare <=40%	3.32	0.29	<.0001
40% < Pct. Of Patients in Medicare <=60%	5.57	0.33	<.0001
60% < Pct. Of Patients in Medicare <=80%	6.87	0.34	<.0001
80% < Pct. Of Patients in Medicare <=100%	7.84	0.37	<.0001

Diabetes – Cont'd

Prescriber GFR, Multivariate Least Squares Regression

Variable	Coefficient	SE	p-value
Average Household Income Less Than or Equal to \$20,000	Reference Category		
Average Household Income Between \$20,000 and \$40,000	-1.78	0.55	0.0012
Average Household Income Between \$40,000 and \$60,000	-2.33	0.55	<.0001
Average Household Income Between \$60,000 and \$80,000	-3.79	0.58	<.0001
Average Household Income Between \$80,000 and \$100,000	-4.18	0.69	<.0001
Average Household Income Greater than \$100,000	-4.89	0.97	<.0001

Diabetes – Cont'd

Prescriber GFR, Multivariate Least Squares Regression

Variable	Coefficient	SE	p-value
East North Central (IN, IL, MI, OH, WI)	Reference Category		
New England (CT, ME, MA, NH, RI, VT)	8.19	0.32	<.0001
Mid Atlantic (NY, NJ, PA)	-5.02	0.27	<.0001
West North Central (IA, KS,MN, MO, NE, ND, SD)	4.65	0.33	<.0001
South Atlantic (DE, DC, FL, GA, MD, NC, SC, VA, WV)	-1.82	0.27	<.0001
East South Central (AL, KY, MS, TN)	0.32	0.35	0.3602
West South Central (AR, LA, OK, TX)	-1.60	0.31	<.0001
Mountain (AZ, CO, ID, NM, MT, UT, NV, WY)	3.25	0.39	<.0001
Pacific (AK, CA, HI, OR, WA)	0.51	0.32	0.1089

Diabetes – Cont'd

Prescriber GFR, Multivariate Least Squares Regression

Variable	Coefficient	SE	p-value
Internal Medicine	Reference Category		
Nurse Practitioners	-1.41	0.41	0.0006
Physician Assistant	-1.28	0.51	0.0122
Family Doctor	-0.39	0.19	0.0383
Geriatric	1.41	0.41	0.0006
Specialist	-3.48	0.23	<.0001
ER Physician	-0.05	0.40	0.9103

Model Results – Summary

	Medicare Penetration	Income	Geography	Urban / Rural
Hypertension	GFR highest when 80% <	GFR lowest at income over \$100k	GFR highest in New England; lowest in Mid Atlantic	GFR higher in rural
Lipids	GFR highest when 80% <	GFR lowest at income over \$100k	GFR highest in New England; lowest in Mid Atlantic	GFR higher in rural
Diabetes	GFR highest when 80% <	GFR lowest at income over \$100k	GFR highest in New England; lowest in Mid Atlantic	GFR higher in rural

Conclusions





- Higher Generic Fill Rate for prescribers who have a high concentration of Medicare Patients
- Lower GFR in NY, NJ, PA relative to the rest of the country; higher in New England
- Higher income areas have a lower GFR
- Rural areas have about a 1-2 point lift in GFR relative to urban areas
- Specialists who prescribe diabetes and lipid medications have a lower generic fill rate.



Assessments

Assessment Question 1

Which of the following have been most useful in managing Medicare prescription drug trends?

-  1/A Cost sharing
-  2/B Formulary management
-  3/C Generic medications
-  4/D Physician prescribing

Assessment Question 2

Which of the following are physician characteristics **not** associated with better Generic Fill Rate?

- 1/A Physician Gender
- 2/B Physician Region
- 3/C Concentration of Medicare Patients
- 4/D All are associated



Questions?

Contact Information

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Presentation Evaluation

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