Effects of an Outpatient Generic Medication Voucher Program on the Generic Dispensing Ratio (GDR) in a 4,100 Member Physician-Hospital Organization (PHO) - 4 Years Experience.

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April 2013

Disclosure

I have no conflicts of interest to report.

Learning Objective

Describe the impact of using an outpatient generic medication voucher program over 4 years on the generic dispensing ratio in a 4,100 member physician-hospital organization (PHO).

Advocate Physician Partners

Advocate Physician Partners delivers services throughout Chicagoland and the Bloomington/Normal area.

- Physician Membership ≈ **4,100**
  - 1,085 Primary Care Physicians
  - 2,889 Specialist Physicians
  - Total Membership Includes 987 Advocate-Employed Physicians
- 10 Acute Care Hospitals and 2 Children's Hospitals
- Central Verification Office Certified by NCQA
- 230,000 Capitated Lives/700,000 PPO Lives
- 215,000 "Attributable Lives"

Advocate Health Care

- **$4.5 Billion Annual Revenue**
- **AA Rated**
- **12 Acute Care Hospitals**
  - 2 Children's Hospitals
  - 5 Level 1 Trauma Centers
  - 4 Major Teaching Hospitals
  - 4 Magnet Designations
- **Over 250 Sites of Care**
  - Advocate Medical Group
  - Dreyer Medical Clinic
  - Occupational Health
  - Imaging Centers
  - Immediate Care Centers
  - Surgery Centers
  - Home Health / Hospice

Question?

- Every 1% <u>increase</u> in generic prescribing associated with what % <u>decrease</u> in overall drug spend?

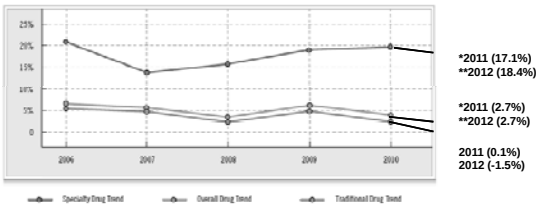
- 0.1%
- 1%
- 5%
- 10%

Why Focus on Generic Prescribing?

- Generics cost 30% to 80% less than brand name drugs*
- Every 1% increase in generic prescribing reduces overall drug spend by 1%(2006)** - one publication says 1.5%-2.0% (2012)***
- Lower patient copays
- Lower prescription drug cost for payer
- **Less phone calls and faxes for physicians/offices**
- Pharmacies make money by filling prescriptions
- A "win-win" situation for all

*"Generic Initiative for Value and Efficiency (GIVE)". FDA. October 4, 2007. http://www.fda.gov/oc/initiatives/advance/generics.html.
**Generic drugs first for millions. Express Scripts press release. May 2006. http://phx.corporate-ir.net/phoenix.zhtml?c=69641&p=irol-newsArticle&ID=860127&highlight.
***Express Scripts. *Drug Trend Report 2011*. Available at: www.drugtrendreport.com. - Accessed October 31, 2012.

Drug Spend Trend 2006-2012



Source: *Express Scripts 2011 Drug Trend Report and
**Express Scripts 2012 Drug Trend Report

Comparative Costs Brand vs. Generic - PPIs

Brand AcipHex 20mg per Day
- AWP ($11.59 per pill) x 365 days = **$4,230 per year**

Brand Dexilant 60mg per Day
- AWP ($5.69 per pill) x 365 days = **$2,077 per year**

Brand Nexium 40mg per Day
- AWP ($7.98 per pill) x 365 days = **$2,913 per year**

Generic Prevacid 30mg per Day
- ✓ MAC ($1.58 per pill) x 365 days = $577 per year
- ✓ **Generic Prevacid Saves $1,500 to $3,653 per Year compared with Brands**

Generic Prilosec 20mg per Day
- ✓ MAC ($0.13 per pill) x 365 days = $48 per year
- ✓ **Generic Prilosec Saves $2,029 to $4,182 per Year compared with Brands**

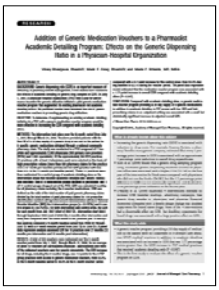
Store brand omeprazole OTC 20mg per Day
- ✓ AWP ($0.40 per pill) x 365 days = $146 per year
- ✓ ***Generic omeprazole OTC* Saves $1,931 to $4,084 per Year compared with Brands**

Source: McKesson *Connect* - accessed March 5, 2013 **AWP** (average wholesale price) **MAC** (maximum allowable cost)

Generic Voucher Pilot Program 2007-2008

- A tool to encourage generic medication prescribing
- 2007 Pilot Program initiated with Walgreens Pharmacy provided vouchers for 30-day supply of generic medication at **No Cost** to patient
- Top generics by APP PHO volume covered
  - Including: atenolol, hydrochlorothiazide, lisinopril, metformin, and simvastatin
- "High Prescribing/Low Generic Rate" practice groups selected (95 MDs in intervention/95 MDs in control)
- Results demonstrated **1.77%** percentage point increase in overall generic prescribing compared with control group **(p<0.047)** ***JMCP. 2010;16(6):384-92***
- Some physicians increased overall GDR by 20 **percentage** points!

Generic Voucher Pilot Program 2010 Publication



Recipient of the 2010 ***"Journal of Managed Care Pharmacy Award for Excellence."***

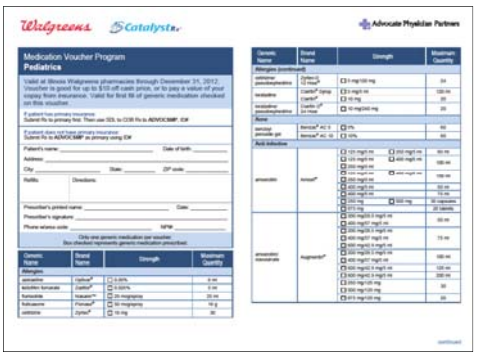
APP Generic Medication Voucher Program 2008-2012

- Introduced Q4 2008
- Positioned as tool to help physicians increase generic prescribing and to serve as an alternative to brand samples
- **$10** off coupon toward copay or cash pay for up to 30-day supply of select generic and OTC medications
- Redeemed voucher data included in physician's GDR score calculation
- Voluntary participation: open to all APP/AMG/Dreyer prescribers
- No Medicare, Medicaid, or Government payers
- Specialty-specific vouchers
  - Cardiology, Contraceptives, IM/FM, OB/GYN, Ophthalmology, Pediatrics

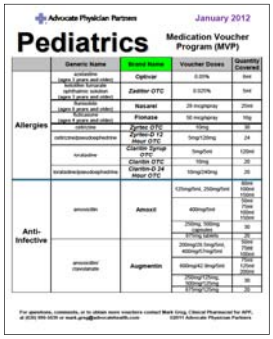
APP Generic Voucher Program Medications - 2012

- **Cardiology**
  - Over 30 medications including generics for: Altace, Coreg, Lofibra, Pravachol, Prinivil/Zestril, Toprol XL, and Zocor
- **Contraceptives**
  - Over 20 medications including generics for: Estrostep Fe, Mircette, Loestrin Fe 1/20, Ortho Tri-Cyclen, Seasonale , Yasmin, and YAZ
- **Internal Medicine/Family Medicine**
  - Over 45 medications including generics for: Altace,, Celexa, Ditropan XL, Flonase, Fosamax, Weekly, Glucophage/XR, Nasarel, Prilosec, Prinivil/Zestril, Protonix , Pravachol, Zocor, and Zoloft
- **OB/GYN**
  - Over 35 medications including generics for: Celexa, Cipro, Ditropan XL, Fosamax Weekly, prenatal vitamin with Omega-3, Terazol-3, Zoloft
- **Ophthalmology**
  - Over 18 medications including generics for: Betagan, Ciloxin, Ocufen, Ocuflox, Pred Forte, and Timoptic
- **Pediatrics**
  - Over 30 medications including generics for: Amoxil, Augmentin, Allegra, Bactroban Ointment, Flonase, Floxin Otic, Nasarel, Omnicef, Zantac Liquid, and Zithromax

Sample Voucher Image - 2012



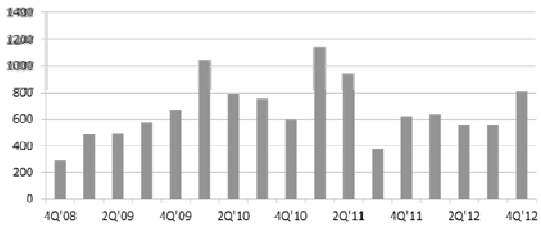
Communication Pieces



Key Findings

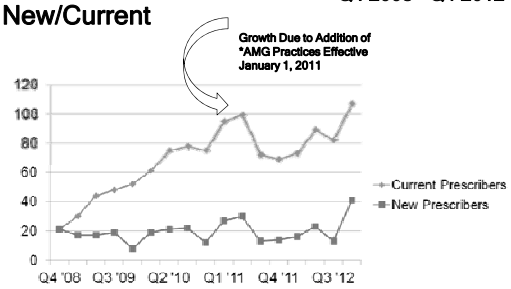
- **11,489** vouchers redeemed (9/2008 to 12/31/12)
- 85% copay assistance : 15% cash pay (2012)
- Over **107** prescribers actively using vouchers (Q4 2012)
- Over **340** prescribers used the program at least once
- Pediatrics (antibiotics), IM/FM, Gastroenterology (bowel preps), and OB/GYN (contraceptives) are highest volume users of program
- Average cost to PHO per voucher redeemed **$5.64** (9/2008 thru 12/31/12)
- Average cost to patient per voucher redeemed **$2.72** (09/2008 thru 12/31/12)

Voucher Redemption by Quarter Q4 2008 thru Q4 2012



Participating Prescribers - New/Current

Q4 2008 - Q4 2012



*AMG (Advocate Medical Group) employed physicians

Top Medications Redeemed

(9/2008 thru 12/31/12)

Medications		Number of Vouchers Redeemed
azithromycin	Zithromax®	1,735
amoxicillin	Amoxil®	1,533
contraceptives	Various	1,080
cefdinir	Omnicef®	938
fluticasone	Flonase®	874
amox/clav	Augmentin®	869
PEG-3350	NuLytely®	539
albuterol	Ventolin®	292
ofloxacin	Floxin® Otic/ Ocuflox®	279
pantoprazole	Protonix®	245
Others		3,105
Total		**11,489**

APP Contribution to Voucher Medication Costs by Year

Year	# Vouchers Redeemed	APP Expense	Average APP Cost per Voucher Redeemed
2008	298	$2,355.23	$7.09
2009	2,243	$12,501.31	$5.43
2010	3,282	$17,689.23	$5.24
2011	3,174	$17,654.98	$5.44
2012	2,492	$16,564.01	$6.42
Total	**11,489**	**$66,764.76**	**$5.81**

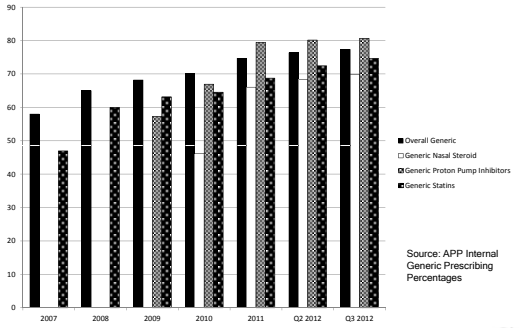
(9/01/2008 thru 12/31/12)

Top 10 Voucher Program Participants from Program Inception (Q4 2008 thru Q4 2012)

Rank	Number of Vouchers Redeemed	Prescriber	Medical Specialty	Independent/ Employed	*Q4 2008 GDR	Specialty Average GDR Q4 2008	# physicians in Specialty Q4 2008	*Q4 2012 GDR	Specialty Average GDR Q4 2012	# physicians in Specialty Q4 2012	Individual MD Difference Q4 2008 and Q4 2012	Difference Specialty Q4 2008 and Q4 2012
1	1,529	AJ	Pediatrics	Independent	68%	65%	178	87%	80%	283	19% (+4%)	15%
2	1,292	PD	Pediatrics	Independent	72%	65%	178	93%	80%	283	21% (+6%)	15%
3	717	AR	OB/GYN	Independent	41%	53%	164	79%	70%	217	38% (+12%)	26%
4	345	NG	OB/GYN	Independent	35%	53%	164	79%	70%	217	34% (+8%)	26%
5	314	PS	Pediatrics	Independent	76%	65%	178	82%	80%	283	6% (-9%)	15%
6	301	AA	Gastro-enterology	Independent	***41%	47%	82	82%	66%	120	41% (+22%)	19%
7	278	GC	Pediatrics	Independent	75%	65%	178	84%	80%	283	9% (-6%)	15%
8	268	MG	Pediatrics	Independent	49%	65%	178	90%	80%	283	41% (+26%)	15%
9	248	**MR	Pediatrics	Independent	60%	65%	178	93%	80%	283	33% (+18%)	15%
10	227	CC	Pediatrics	Independent	64%	65%	178	86%	80%	283	24% (+9%)	15%
				PHO	65%			80%				15%

*based upon a rolling 4 quarters of data
**No longer a member of APP
*** Q4 2009

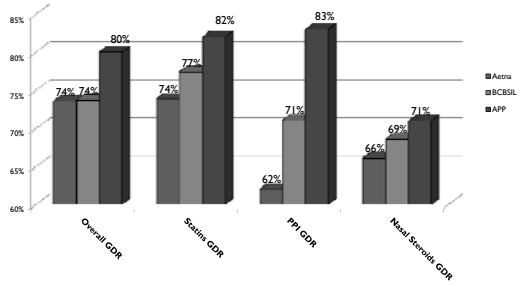
Advocate Physician Partners (PHO) Generic Prescribing (2007-2012)



Source: APP Internal Generic Prescribing Percentages

Results: Generic Usage 4Q11-3Q12

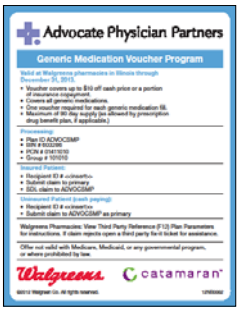
*Over $40M in savings due to higher GDR!



Source: *2013 APP Value Report*

Program Revised for 2013!

- The voucher is a coupon good for **up to $10 off** of the cash price or a portion of the copayment of any generically available medication **up to a 90 day supply** at any Walgreens retail pharmacy in Illinois.
- Designed to fit in lab coat or suit coat pocket.
- One generic medication fill per voucher.
- A separate voucher is required for each generically available prescription medication.
- Additional voucher(s) are needed to receive up to $10 off of subsequent medication fills/refills.
- Retail only! Valid for up to a 90 day supply! **Not valid at mail!**
- Over-the-counter (OTC) medications are **not covered**.



Program Revised for 2013!

- For electronic prescriptions: The patient presents the voucher at the pharmacy counter with their prescription drug card and receives a discount **off of their copayment** or **up to $10 off of the cash price.**
- For all patients **except** government payers like Medicare Part D and Medicaid, DOD, VA.
- **Program developed and funded by Advocate Physician Partners (APP).**
- Program in effect through December 31, 2013. Program continuation in 2014 contingent upon APP PHO Board approval.

Revised 2013 Voucher Program Stats (Jan-Feb)

Metric	2012	2013 (Jan-Feb)
Number of Prescribers	107	209
Number of Vouchers Redeemed	2,492	1,290
Average Cost to Patient per Voucher Redeemed	$4.12	$10.82
Average Cost to APP per Voucher Redeemed	$6.42	$7.15

Generic Voucher Program – Next Steps

- Continue to grow base of program participants
- Goal is to Eventually offer:
  - single voucher covering **any** generically-available medication
  - Up to a 90 day supply
  - Redeemable at **any** retail pharmacy
  - Launch revised program Q3 2013(?)
- Publish 2008-2012 data
- Continue program for 2014 pending PHO Board Approval

Questions?

Thanks!

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Test Question

- Every 1% **increase** in generic prescribing associated with what % **decrease** in overall drug spend?

- 0.1%
- 1%
- 5%
- 10%

Evaluating a Maximum Osmolarity of 1100 mOsm/L for Extravasation in Neonates Receiving Total Parenteral Nutrition- A Retrospective Chart Review

Emily McLouth, PharmD, BCPS
Lindsey Schnabel, PharmD

April 13, 2013

The speakers have no conflicts to disclose in relation to this program.

Objective

- Recognize that increasing the maximum TPN osmolarity from 900 mOsm/ L to 1100 mOsm/ L does not increase the risk of extravasation in the neonatal population.

Background

- Saint Luke's East Hospital
- NICU at time of study
  - Level 2
  - 7 patients
  - ≥30 weeks GA

Background

- Current ASPEN guidelines
  - Maximum peripheral osmolarity of 900 mOsm/L
- Published clinical trials
  - Support increased maximum osmolarity
- DUE at Saint Luke's Hospital in 2000
- Clinical relevance
  - Patient populations
  - Maximizing nutrition therapy

Objectives

- **Objectives**
  - Primary Objective
    - The evaluation of the incidence of extravasation in neonates receiving peripheral TPN with an osmolarity greater than 900 mOsm/L
  - Secondary Objective
    - Overall incidence of extravasation in neonates receiving peripheral TPN

Endpoints

- **Primary Endpoint**
  - Presence or absence of extravasation in patients with a peripheral line and osmolarity >900 mOsm/L
- **Secondary Endpoint**
  - Presence or absence of extravasation in patients receiving any TPN

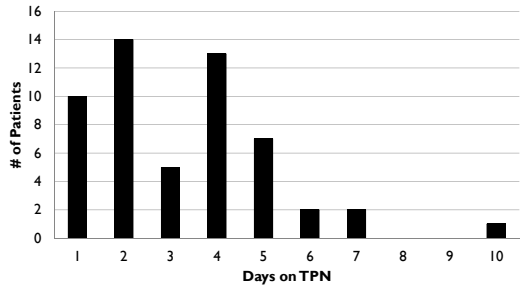
Study Design

- General Study Design
  - Inclusion Criteria
  - Exclusion Criteria
  - Sample Size
  - Statistics
  - Data Collection

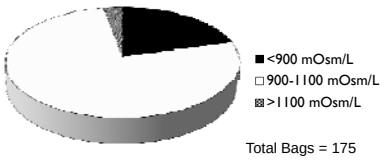
Results

- 54 patients received TPN
- 175 bags of TPN dispensed
- Average duration of TPN: 3.26 days
- Mean osmolarity: 989 mOsm/L
- Median osmolarity: 1005 mOsm/L
- Osmolarity range: 664 – 1174 mOsm/L
- Number of bags with osmolarity >900 mOsm/L: 139

Days on Peripheral TPN



Osmolarity of Peripheral TPN



Results (continued)

- Two bags (1.4%) resulted in an extravasation (p=0.469)
  - 959 mOsm/L
  - 995 mOsm/L

Extravasation	<900 mOsm/l	900-1100 mOsm/L	>1100 mOsm/L	P value
Yes	0	2	0	P = 0.469
No	61	107	5	

Study Conclusion

- It is safe to increase the maximum peripheral TPN osmolarity from 900 mOsm/ L to 1100 mOsm/ L without increasing the risk of extravasation in the neonatal population.

Limitations

- Placement of extravasation order set on chart by nursing
- Documentation regarding line placement
- Five bags exceeded the maximum upper limit of 1100 mOsm/ L

Summary

- Take home points
  - Increasing maximum osmolarity to 1100 mOsm/L does not increase extravasation in the neonatal population receiving peripheral TPN
- Relevance to Pharmacy Practice

Questions?

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Pharmacy Practice Platform Presentations
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0121-9999-13-039-L04-P

Post-Test

1. Based on this study, what is the maximum peripheral TPN osmolarity that is safe to use in the neonatal population?
    a. 700 mOsm/L
    b. 900 mOsm/L
    c. 1100 mOsm/L
    d. 1200 mOsm/L

2. What is the current ASPEN recommendation for peripheral TPN osmolarity in the neonatal population?
    a. 700 mOsm/L
    b. 900 mOsm/L
    c. 1100 mOsm/L
    d. 1200 mOsm/L

Efficacy of Anti-retroviral Therapy in a Large Urban Clinic – Does a Diverse Patient Population Require a Diversity of Treatment Options?

Andrew Merker, Pharm.D.
Post-Graduate Year One Resident
John H. Stroger, Jr. Hospital of Cook County

Conflict of Interest

The speaker has no conflict of interest to disclose as it relates to this topic for this presentation.

Pharmacist Learning Objective

- Discuss the importance of having a full complement of antiretroviral therapy available for patients in order to provide optimal HIV treatment

Technician Learning Objective

- Discuss the importance of having a full complement of antiretroviral therapy available for patients in order to provide optimal HIV treatment

Purpose

- Currently 23 FDA approved anti-retrovirals (ARV)
  - Additionally 8 combination medications

NRTI's	NNRTI's	PI's	Integrase Inhibitors	Entry Inhibitors	Fixed Dose Combination
Abacavir Didanosine Emtricitabine Lamivudine Stavudine Tenofovir Zidovudine	Delavirdine Efavirenz Etravirine Nevirapine Rilpivirine	Atazanavir Darunavir Fosamprenavir Indinavir Nelfinavir Ritonavir Saquinavir Tipranavir	Elvitegravir Raltegravir	Enfuvirtide **CCR5 Antagonist** Maraviroc	Atripla Combivir Complera Epzicom Kaletra Stribild Trizivir Truvada

Department of Health and Human Services.

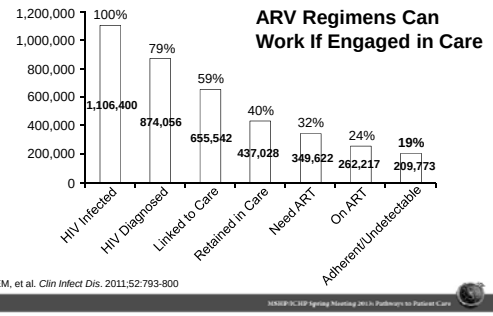
Purpose

- Department of Health and Human Services recommended regimens
  - 2 NRTI's plus a 3rd agent
- Some patients may require different regimen
  - Possibly due to resistance, intolerability, or pill burden

2 NRTIs	
Truvada (emtricitabine and tenofovir)	
Plus a 3rd Agent	
NNRTI	Efavirenz (Atripla)
Boosted PI	Atazanavir Darunavir
Integrase Inhibitor	Raltegravir

Department of Health and Human Services.

Purpose



Gardner EM, et al. *Clin Infect Dis*. 2011;52:793-800

Purpose

- Hundreds of ARV regimens available
- What will happen as brand turns generic?
  - Regimens can be costly
  - Will county, state, and federal formularies become more restrictive?
- Study objective:
  - Diversity of regimens
  - Patient's viral load (VL) and CD4

Ann Intern Med. 2013; 158:133-134.
Ann Intern Med. 2013; 158:84-92.

Methods

- Single center, retrospective, Institutional Review Board (IRB) approved
- Ruth M. Rothstein CORE Center patients
  - Chicago, Illinois
  - Approximately 5,500 patients
- Electronic medical record used to obtain information

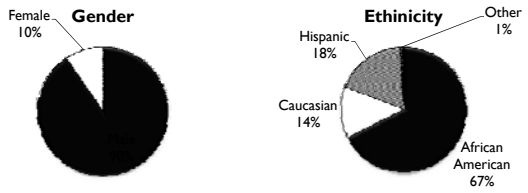
Age	Gender	Ethnicity	VL	CD4	ARV Regimen and Naïve/Salvage Treatment	Same ARV for Previous 12 months (Y/N)

Methods

- Inclusion Criteria
  - Male/female over age of 18 years
  - Walk in or scheduled appointment
  - Engaged in care
    - Defined as 2 clinic appointments in previous 12 months
  - CD4 and VL within previous 6 months
  - If on treatment, duration of > 3 months
- Exclusion Criteria
  - HIV diagnosis within previous 30 days

Results

Patient Demographics



Average age: 47.4 years

Age range: 20 – 82 years

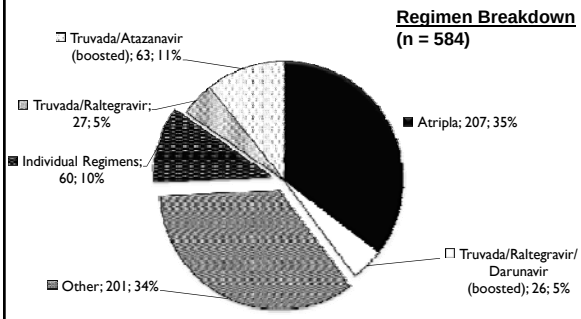
Results

VL (copies/mL)	Overall (n = 600)	Male (n = 543)	Female (n = 57)
< 40	497 (83%)	448 (82.5%)	49 (86%)
41 - 99	29 (5%)	28 (5%)	1 (2%)
100 - 1000	44 (7%)	38 (7%)	6 (10%)
1,001 - 100,000	22 (3.5%)	21 (4%)	1 (2%)
> 100,000	8 (1.5%)	8 (1.5%)	0 (0%)

Results

VL (copies/mL)	Naïve (n = 365)	Salvage (n = 178)
< 40	324 (88.5%)	137 (77%)
41 - 99	9 (2.5%)	18 (10%)
100 - 1000	21 (6%)	15 (8.5%)
1,001 - 100,000	9 (2.5%)	6 (3.5%)
> 100,000	2 (0.5%)	2 (1%)

Results



Results

	June – November 2011	September 2012- January 2013
Patients (n)	503	600
Patients with Undetectable VL	76%	83%
Mean CD4 (cells/uL)	424 (range 7 – 1788)	449 (range 5 – 1927)
Patients Not on HAART	5%	2.5%
Most Common Regimen	Atripla (37%)	Atripla (35%)
Amount of Individualized Regimens	56/93 (60%)	60/102 (60%)

Conclusion

- Many of these medications are potent
- Being engaged in care is vital
- Some patients require unique, extremely specialized regimens
- With impending generics, important to proceed cautiously
  - By restricting formularies may also restrict optimal HIV treatment

Question

Which of the following is a reason that would require a change in an anti-retroviral regimen?

References

1. Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents. Department of Health and Human Services. Available at http://aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf. Section accessed 20 March 2013.
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3. Walensky RP. Sax PE. Nakamura YM, et al. Economic Savings Versus Health Losses: The Cost-Effectiveness of Generic Antiretroviral Therapy in the United States. *Ann Intern Med.* 2013; 158:133-134.

Pharmacy Practice Platform Presentations
Efficacy of Anti-retroviral Therapy in a Large Urban Clinic – Does a Diverse Patient Population Require a Diversity of Treatment Options?
Andrew Merker, PharmD
0121-9999-13-039-L04-P

Post-Test

How many different combinations of anti-retrovirals can be implemented to treat HIV in a patient?

1. 5
2. 25
3. 50
4. >100

Use of MR ROSS (Medication Reconciliation Review of Systems Subject) at the Initial Visit in a Geriatric Clinic

MSHP Platform Presentation – April 13, 2013

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The speaker has no conflict of interest in relation to this program.

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Learning Objective

Identify errors of omission using a standardized method

Background

- Prior to clinical pharmacist at PACE, patients with diabetes and glaucoma did not have their insulin and eye drops data collected at admission to the program.

Background

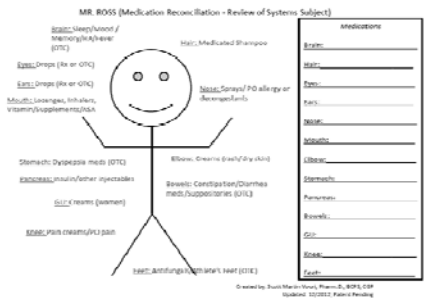
- Medication reconciliation was first implemented as part of The Joint Commission's (TJC) National Patient Safety Goals (8A), which stated that a patient's medication list should be updated at every admission, transfer, or discharge.[1]
- "Obtain and document or verify patient's medication list when admitted or seen as an outpatient. Medication to inquire include current prescription and over-the-counter medications, such as vitamins, supplements, eye drops, creams, ointments, and herbals."[2]
- Obtaining a complete medication list may be difficult in the elderly for a variety of reasons such as cognitive impairment, reliance on caregivers, family, and friends to have medication knowledge, lack of a clear and up-to-date medication list[1]

1) Gizzi et al. Am J Geriatr Pharmacother. 2010;8(2):127-135.
2) Gleason et al. AHRQ Publication No. 11(12)-0059.Rockville, MD: Agency for Healthcare Research and Quality. Revised August 2012.

Background

- A study at a private medical center compared patient's (n=312) medication bottles to the physician's chart and noted 76% of patients, accounting for 545 medications, had discrepancies. Of these, 278 medications (51%) were omissions where patients were taking medications that the physician did not have documentation.[3]
- In a prospective evaluation of an outpatient clinic records over three months, 250 medications discrepancies were identified. Of these, 58.8% (n=147) discrepancies were patients taking medications that was not on their medication list.[4]

3) Bedell et al. Arch Intern Med. 2000;160:2129-2134.
4) Ernst et al.. Am J Health-Syst Pharm. 2001;58:2072-2075.



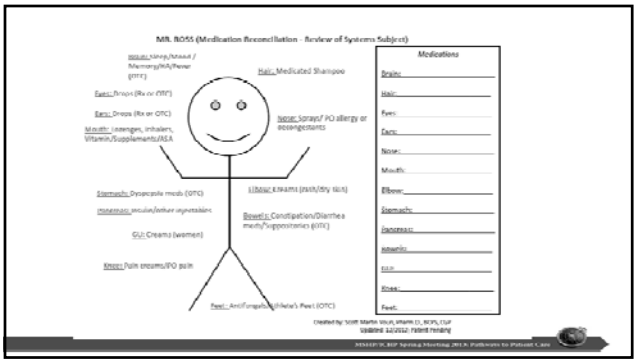
Study Design

Study Design

- Design: 12 month (January-December 2012), retrospective, descriptive chart review
- Study setting: Alexian Brothers Community Services PACE, St Louis, MO
- Subjects: Participants enrolled in PACE between January 1, 2012 – December 31, 2012.

Methods

1. All participants underwent an initial evaluation by a home health nurse to collect medications, which were then transcribed into an intake summary along with other assessments prior to a pre-admission evaluation (PAE).
2. During the clinical pharmacist's portion of the PAE, a medication review is performed and medication information is collected.
3. Once the "usual care" processes were complete, MR ROSS was used to collect additional medication information.
4. Using MR ROSS, the clinical pharmacist asked the patient, "Are you taking anything for _____?"



Results

Baseline

Age – years (SD)	67.13 (9.87)
Patients – n (%) White / Caucasian Black or African American Asian	40 (100)
Race – n (%) White / Caucasian Black or African American Asian	 9 (22.5) 27 (67.5) 4 (10)
Sex – n (%) Male Female	 9 (22.5) 31 (77.5)
How Attended – n (%) Attended by self Attended with family or caregiver	 23 (57.5) 17 (42.5)
GDS - ___/15 (SD)	3.56 (3.26)
MMSE - ___/30 (SD)	25.03 (6.77)

GDS = Geriatric Depression Scale; MMSE = Mini-Mental Status Exam

Medications

Patients – n (%)	40 (100)
Number of Medications – n (%) Mean – (SD)	547 (100) 13.34 (7.07)

How Medications were Identified

	Usual Care	Post-Usual Care – using MR ROSS	Total Identified
Number of Medications – n (%)	424 (77.5)	123 (22.5)	547 (100)
Medication Type – n (%)			
Prescription	308 (72.6)	33 (26.8)	341 (62.3)
Non – Prescription	116 (27.4)	90 (73.2)	206 (37.7)
Medication Schedule – n (%)			
Scheduled	329 (77.6)	35 (28.5)	364 (66.5)
PRN	87 (20.5)	86 (69.9)	173 (31.6)
Short – Term	8 (1.9)	2 (1.6)	10 (1.8)
Route of Administration – n (%)			
Oral	364 (85.8)	70 (56.9)	434 (79.3)
Oral Inhaler	18 (4.2)	11 (8.6)	29 (5.3)
Nasal Inhaler	3 (0.7)	5 (4.1)	8 (1.5)
Topical	10 (2.4)	21 (17.1)	31 (5.7)
Topical Patch	5 (1.2)	2 (1.6)	7 (1.3)
Subcutaneous	9 (2.1)	1 (0.8)	10 (1.8)
Ophthalmic	14 (3.3)	9 (7.3)	23 (4.2)
Otic	0 (0)	1 (0.8)	1 (0.2)
Rectal	1 (0.2)	2 (1.6)	3 (0.5)
Other	0 (0)	1 (0.8)	1 (0.2)

Medication Information Captured by MR ROSS

Patients requiring MR ROSS to capture all medications – n (%)	31 (100)
Number of Medications Captured using MR ROSS – n (%) Mean (SD)	123 (100) 3.97 (2.47)

Required MR ROSS to Identify Additional Medications MMSE 24 – 30	$p = 0.009$

Medication Information Captured by MR ROSS

System of MR ROSS – n (%)	
Brain	9 (7.3)
Hair	1 (0.8)
Eyes	9 (7.3)
Ears	1 (0.8)
Nose	7 (5.7)
Mouth	54 (43.9)
Elbow	11 (8.9)
Stomach	3 (2.4)
Pancreas	1 (0.8)
Bowels	10 (8.1)
Genitourinary	0 (0)
Knee	14 (11.4)
Feet	3 (2.4)

Medication Information Captured by MR ROSS

Medication Classification (VA Category – n (%)	
Antihistamines	
Blood products/ Modifiers/	1 (0.8)
Volume Expanders	7 (5.7)
CNS Medications	
CV Medications	25 (20.3)
Dermatological Agents	1 (0.8)
GI Medications	10 (8.1)
Herbals/ Alternative Therapies	15 (12.2)
Hormones/ Synthetics/ Modifiers	8 (6.5)
Musculoskeletal Medications	1 (0.8)
Ophthalmic Agents	3 (2.4)
Dental Agents	8 (6.5)
Otic Agents	1 (0.8)
Respiratory Tract Medications	1 (0.8)
Minerals/ Electrolytes	29 (23.6)
Vitamins	2 (1.6)
	10 (8.1)

CNS = Central Nervous System; CV = Cardiovascular; GI = Gastrointestinal;

Conclusion

- MR ROSS was a feasible and effective method to identify additional medications missed during the usual care pharmacist interview at an initial visit in a geriatric clinic

Applicability

- Minimal external validity, however, can be used at any transition of care
- May be beneficial at:
  - Initial medication reconciliation upon admission
  - Ambulatory / Clinical settings
  - Medication Therapy Management
  - Completion of a Medication List by a layperson

Future Aims

- Pilot study at the initial medication reconciliation upon admission
- Multisite study
- Studies in anyone interested in working with medication safety and transitions of care

Question

- Use of a Medication Reconciliation Tool, like MR ROSS, was successful at identifying how many additional meds per patient when found?
  a) 0
  b) 1
  c) 4
  d) 10

References

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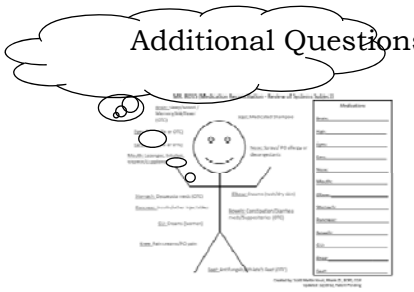
Additional Questions?