

Effectively Targeting Overuse/Abuse and Strategies for Intervention

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by

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Conflict of Interest Disclosure

No actual or potential conflicts of interest

I have no relevant financial relationships that would be considered a conflict of interest for the purposes of this program. This CPE program will not include a discussion of non-FDA approved (off-label) medication use.

Today's Agenda

1. Describe concepts and methods of identifying 'outliers' using claims data
2. Assess methods to effectively target the best candidates for intervention
3. Identify effective strategies for intervening on 'outliers'

Where are we going?

Goals of this presentation:

- To introduce you to (or to remind you of) methodologies used to identify outliers in your plan
- To orient you to what's happening nationally with regards to identifying and measuring outliers
- To get you to ask better questions of your vendors and staff

Types of Outliers



1. Rules-based (exceptions)
2. Quality measures
3. Statistical outliers
4. Model-based outliers

Case-based Examples

1. Opioid doctor shopping
2. Morphine equivalent dose
3. Cost outliers
4. Case management study results

First, what is an outlier?

- I do not want to impose a rigid definition for this talk
- Conceptual idea of an outlier – **someone outside a standard we set or distinct from their peers on some measure we find important**
- No distinction will be made between overuse and abuse
 - Abuse is the overuse of resources which have a disposition to result in negative outcomes for an individual

Types of outliers	Level of measurement	Outcome	Intervention
- statistical - exception	- patient - pharmacy - prescriber - plan	- adherence - hospital/ED visits - therapy gaps - tx guidelines	-written communication -DUR messaging / PA -lock-in programs -academic detailing -case management

How did they become an outlier?

- Did some change in state cause them to be an outlier?
- Are they a “true” outlier and how can we be sure about that? (Sure enough to spend money/time/resources to intervene?)

Take home point:

We want to identify outliers **AND** reduce our uncertainty about them being an outlier

Rules-based (exceptions)

Case-based example:
Doctor/pharmacy shopping with
opioids

Rules-based (exceptions)

Examples

Overutilization of Opioids

CMS selection criteria for members with:

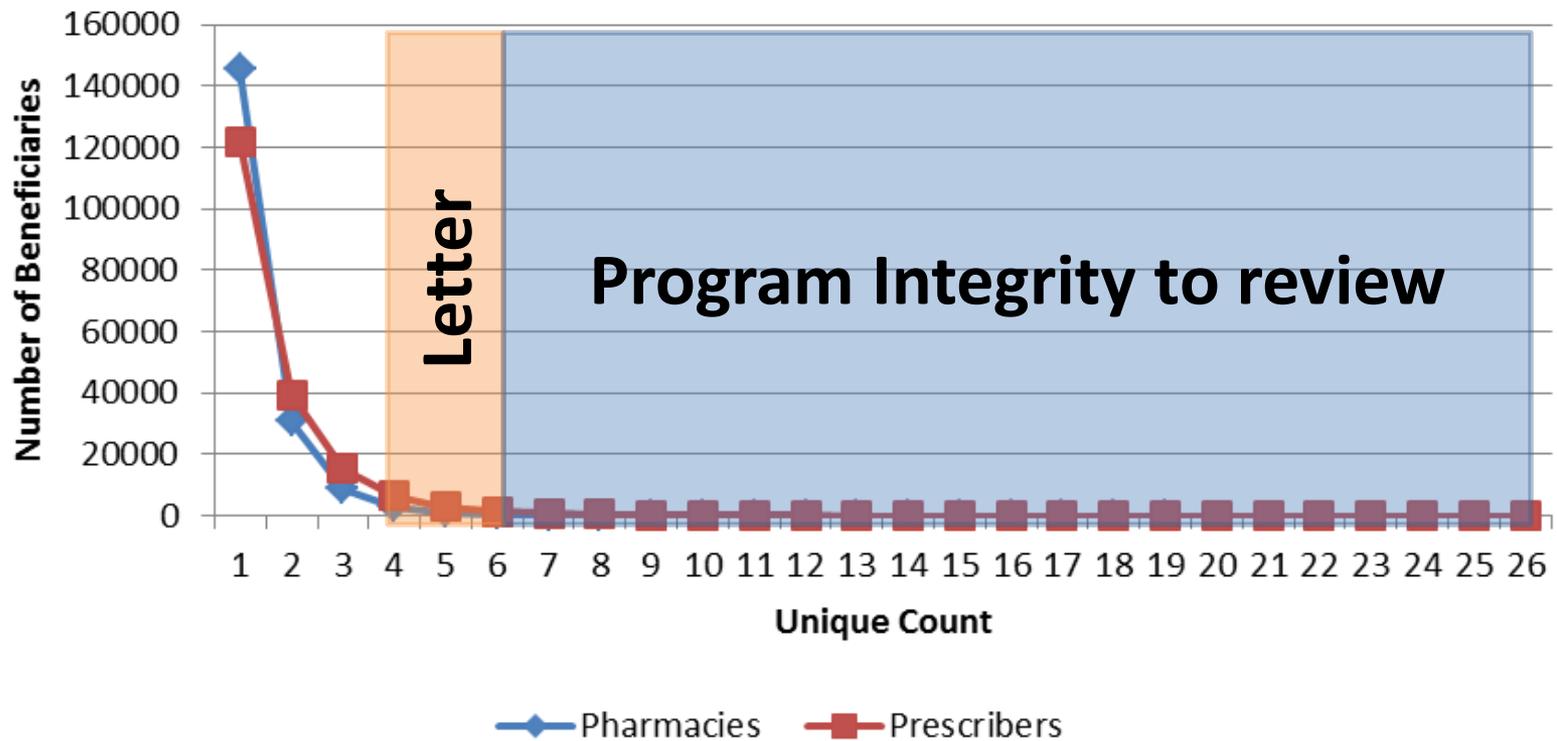
1. More than 3 prescribers **AND**
2. More than 3 pharmacies **AND**
3. An average daily morphine equivalent dosage (MED) of greater than 120mg over the previous 90 days

Criteria from other entities:

- MS Prescription Monitoring Program
 - 6 prescribers / 6 pharmacies / 6 months
- MS Medicaid
 - 7 prescribers / 7 pharmacies / 3 months (likely changing soon)

Figure 1: Count of Unique Prescribers and Unique Pharmacies per Beneficiary

- Narcotic Analgesics -



Overutilization of opioids

MS Medicaid analysis (continued)

Table 2: Count of unique prescribers and pharmacies

Count	Unique Pharmacies			
	1-3	4-6	7-10	≥11
1-3	127,632	1,261	24	0
4-6	7,839	2,471	103	0
7-10	853	906	225	0
≥11	35	155	125	17
Total	136,359	4793	477	17

Unique Prescribers

Communicate With Prescriber (shaded blue)

Recommend Program Integrity Review (shaded red)

Interventions for CS Overutilization

Review of select studies

- Anderson et al. (1996) study included 18 outlier prescribers that received DUR letter
 - Resulted in a 25% decrease in controlled substance prescriptions (p=0.008)
- Daubresee et al. (2013) study included letters sent to 766 beneficiaries (commercial plan)
 - CS claims decreased 7.5% after 6 months (p=0.01)
- Hoffman et al. (2003) study included DUR prescriber letters for 94 HMO benes
 - One fewer CS claim PMPM (p<0.05) and Rx cost decreased by \$79 PMPM (p<0.05)

Quality Measures

Case-based example:

Morphine equivalent dose and
doctor shopping quality measures

Pharmacy quality measures

Pharmacy Quality Alliance (PQA)-endorsed measures

- A quality measure can be described as a rules-based exception with a denominator over a fixed time period
 - Typically a year, but may vary based on measure purpose
- Adherence measures
 - Oral Diabetes Medications (metformin, sulfonylureas, TZDs)
 - Hypertension Mediations (ACEs, ARBs)
 - Cholesterol (statins)
- Appropriate therapy measures
 - Suboptimal asthma control (SAC: >3 SABA fills in 90 days)
 - Absence of asthma controller therapy (ACT: SAC without controller tx)
 - Use of ACE/ARBs in diabetes
- High-risk medications in the elderly (Beers list)

PQA Quality Measure

Multi-prescriber, multi-opioid use in persons without cancer

- PQA Medication Use Safety work group has draft measures that state Medicaid programs may find useful for:
 - monitoring,
 - targeting beneficiaries for provider/beneficiary education,
 - referring to program integrity for review,
 - lock-in referral.
- MS-DUR conducted a sensitivity analysis of different thresholds of the measure for use in the MS Medicaid population (DUR Board to review at the February 13th meeting)
 - Presenting some of those results here to see if this might be helpful in your state

Measure 1: Opioid Dose Overutilization

MED measure (100mg /120mg) with consecutive and nonconsecutive day thresholds

Measure 1 (Opioid Dose Over-utilization):

The percentage of individuals without cancer receiving a daily dosage of opioids greater than 120mg morphine equivalent dose (MED) for 90 days or longer.

MEASURE 1 EXAMPLES: 90 DAYS, NON-LTC		
	NC	C
MED > 100	651/10,297 = 6.3%	263/10,297 = 2.6%
MED > 120	549/10,297 = 5.3%	192/10,297 = 1.9%

Report Card
Plan A

Opioid
Overutilization:
1.9%

Measure 2:

Multiple prescribers / pharmacies

Measure 2 (Multiple Prescribers / Pharmacies):

The percentage of individuals without cancer receiving prescriptions for opioids from four (4) or more prescribers **AND** four (4) or more pharmacies.

MEASURE 2: AND/OR, NON-LTC	
	Example measure result
OR	$2,256/10,297 = 21.9\%$
AND	$613/10,297 = 5.9\%$

Report Card
Plan A

Measure 2:
→ 5.9%

Measure 3:

Multi-provider, multi-opioid use

Measure 3 (Multi-Provider, Multi-Opioid Use):

The percentage of individuals without cancer receiving prescriptions for opioids greater than 120mg morphine equivalent dose (MED) for 90 days or longer, who received opioid prescriptions from four (4) or more prescribers **AND** four (4) or more pharmacies.

M3 EXAMPLES: MED > 120, 90 DAYS, NON-LTC		
	NC	C
AND	43/10,297 = 0.42%	11/10,297 = 0.11%
OR	129/10,297 = 1.25%	35/10,297 = 0.34%

Report Card
Plan A

Opioid
Overutilization:
0.11%

Statistical Outliers

Case-based example:
Cost outliers

Where do we intervene?

You have been tasked with developing strategies to reduce unnecessary spending within your plan. Which of the following beneficiaries would you focus efforts towards and why?

	# 1	#2	#3	#4
Actual Costs/Yr.	\$75,000	\$15,000	\$5,000	\$5,000
Condition	Hemophilia	Diabetes	Diabetes	RSV (at risk)
Expected Costs/Yr.	\$75,500	\$13,000	\$400	\$5,000

Statistical Outliers

- Cost outliers
 - May be as simple as creating a “Top 10” cost list
 - Stratification based on some logical grouping may help data be more meaningful (example, provider type or health system)
- Finding cost outliers is helpful, but sometimes deceiving
 - Prescriber profiling within practice type or finding outlier prescribers after accounting for “case mix”

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CMCS Informational Bulletin

DATE: July 24, 2013

FROM: Cindy Mann, Director
Center for Medicaid and CHIP Services

SUBJECT: **Targeting Medicaid Super-Utilizers to Decrease Costs and Improve Quality**

The Medicaid program serves as the country's largest insurer, covering over 62 million Americans.¹ The Center for Medicaid and CHIP Services (CMCS) is committed to supporting innovative care delivery models with potential to improve care, improve health, and reduce costs.

Programs that target "super-utilizers" – beneficiaries with complex, unaddressed health issues and a history of frequent encounters with health care providers – demonstrate early promise of realizing these goals for Medicaid populations. CMCS is issuing this Informational Bulletin to share details of care delivery and payment models to help states and Medicaid providers better meet the complex needs of the highest utilizers of acute care in Medicaid populations.

CMCS Informational Bulletin



Purpose: “to share details of care delivery and payment models to help states and Medicaid providers better meet the complex needs of the highest utilizers of acute care in Medicaid populations”

Targeting strategy based on: [excerpt]

- High observed-to-expected costs*
- Specific patterns of care
- Very high levels of utilization
- Presence of risk factors associated with high, preventable costs
- And others...

CMCS Informational Bulletin



- **High observed-to-expected costs***
 - Risk adjustment or “ grouper ” algorithms
- **Specific patterns of care**
 - High utilization of ED with preventable conditions AND no primary care visits over a short time period
- **Very high levels of utilization**
 - “High levels of spending in the absence of excessively high rates of inpatient or outpatient care is often a marker of legitimate and necessary medical treatment for a high-cost condition” (you need a good comparator to see if utilization is actually high relative to the patient’s health status)
- **Presence of risk factors associated with high, preventable costs**
 - History of high cost and utilization with risk factors for substance abuse disorders, homelessness and mental illness

Model-based Outliers

Case-based example:
Targeting for Case Management
Study Results

Model-based Outliers

“MacGyver” Introduction to Regression

- To describe how model-based outliers are identified, we’ll cover a “MacGyver” introduction to regression
- Many of you may be familiar with the Chronic Illness & Disability Payment System (CDPS), which is one methodology used to calculate capitated payments to managed Medicaid plans
 - The model-based approach to identifying outliers can be explained using CDPS as a contextual example

Model-based Targeting

High observed-to-expected costs

Deterministic Model:

Equation from line

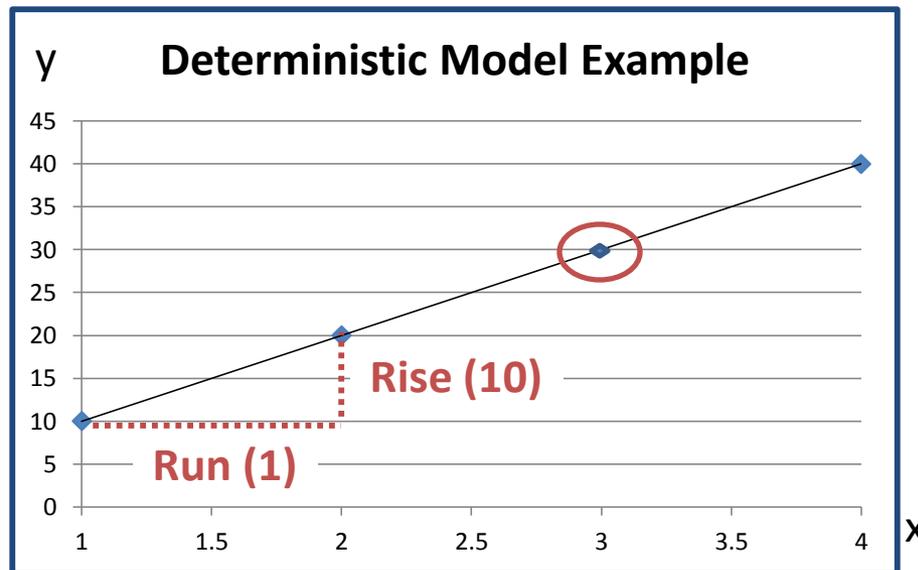
$$Y = mx + b$$



$$\frac{\text{rise}}{\text{run}} = \frac{10}{1} = 10$$

$$Y = 10x + 0$$

$$30 = 10(3) + 0$$



Deterministic models happen in a vacuum or in physics. They **NEVER** happen in health care, but it is an easy way to explain the concept of prediction.

Expected Costs

Observed-to-expected

Statistical Model:

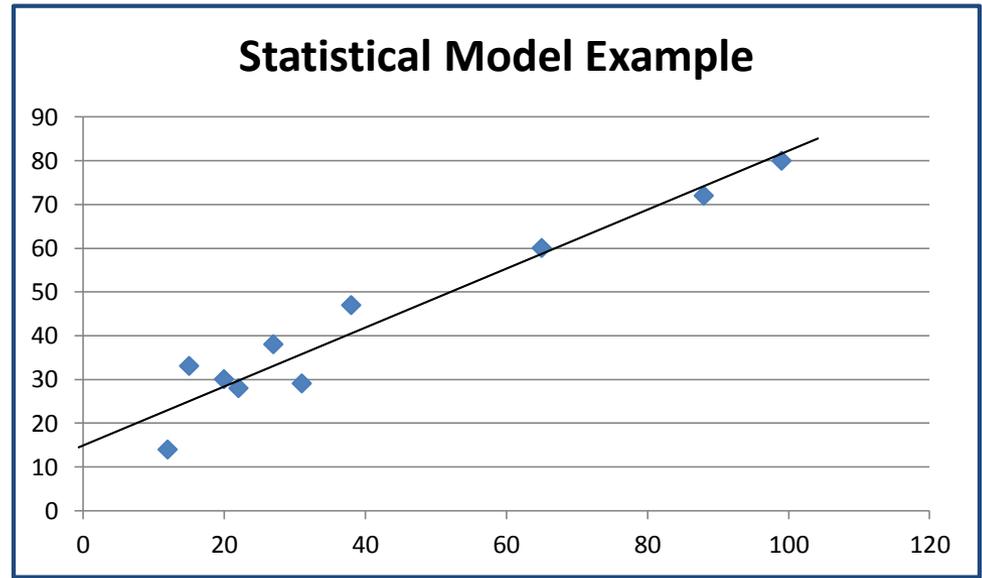
$$Y = mX + b + \text{error}$$

$$Y = \alpha + \beta X + \text{error}$$

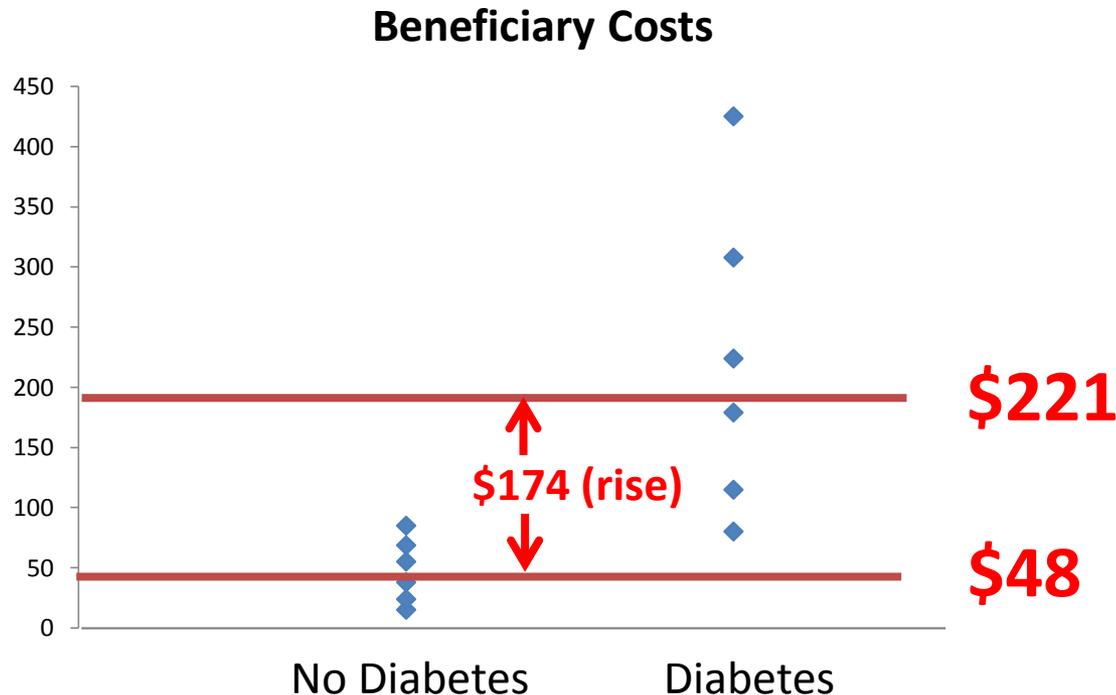


Expected costs = $\alpha + \beta X + \text{error}$

$\beta = \text{weight} * x = \text{variable}$



One condition example



$$Y = \alpha + \beta x + \text{error}$$

Expected costs = \$48 + \$174Diabetes (1,0) + error

$$\$221 = \$48 + \$174\text{Diabetes} + \text{error}$$

When no diabetes: \$48 = \$48 + \$0Diabetes + error 28

CDPS and Managed Medicaid

Simplified Conceptual Example

$$\text{Expected costs} = \alpha + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n + \text{error}$$

Diabetes ICD-9 Codes

250
250.1
250.4
250.5

Asthma ICD-9 Codes

493
493.1
493.2
493.4

Dyslipidemia ICD-9 Codes

272.1
272.2
272.4
272.5



Regression Interpretation:

After accounting for (all of the conditions present)
the expected cost is \$ _____

Model-based Targeting

High observed-to-expected value

$$\frac{\textit{Observed expenditure}}{\textit{Expected expenditure}}$$

- We've talked about how to get "expected" costs from a model for each beneficiary
 - We can get an expected value for each beneficiary
- The observed value is the actual amount of expenditures for a given beneficiary

	# 1	#2	#3	#4
Actual Costs/Yr.	\$75,000	\$15,000	\$5,000	\$5,000
Condition	Hemophilia	Diabetes	Diabetes	RSV (at risk)
Expected Costs/Yr.	\$75,500	\$13,000	\$400	\$5,000

$$\frac{\textit{Observed expenditure}}{\textit{Expected expenditure}} = \frac{\$5,000}{\$400} = 12.5$$

Coordination of Care Study

MS Medicaid

- We conducted a study to segment beneficiaries (n=168,984) based on their level of coordination of care (Group 1 = most coordinated; Group 3 = least coordinated)
- Found 508 beneficiaries with the highest observed-to-expected ratio (they cost much more than expected) with the least coordinated care

Ratio Group	Coordination of Care		
	Group 1	Group 2	Group 3
Low	62,206	16,927	1,006
Medium	44,255	20,052	1,671
High	16,211	6,148	508

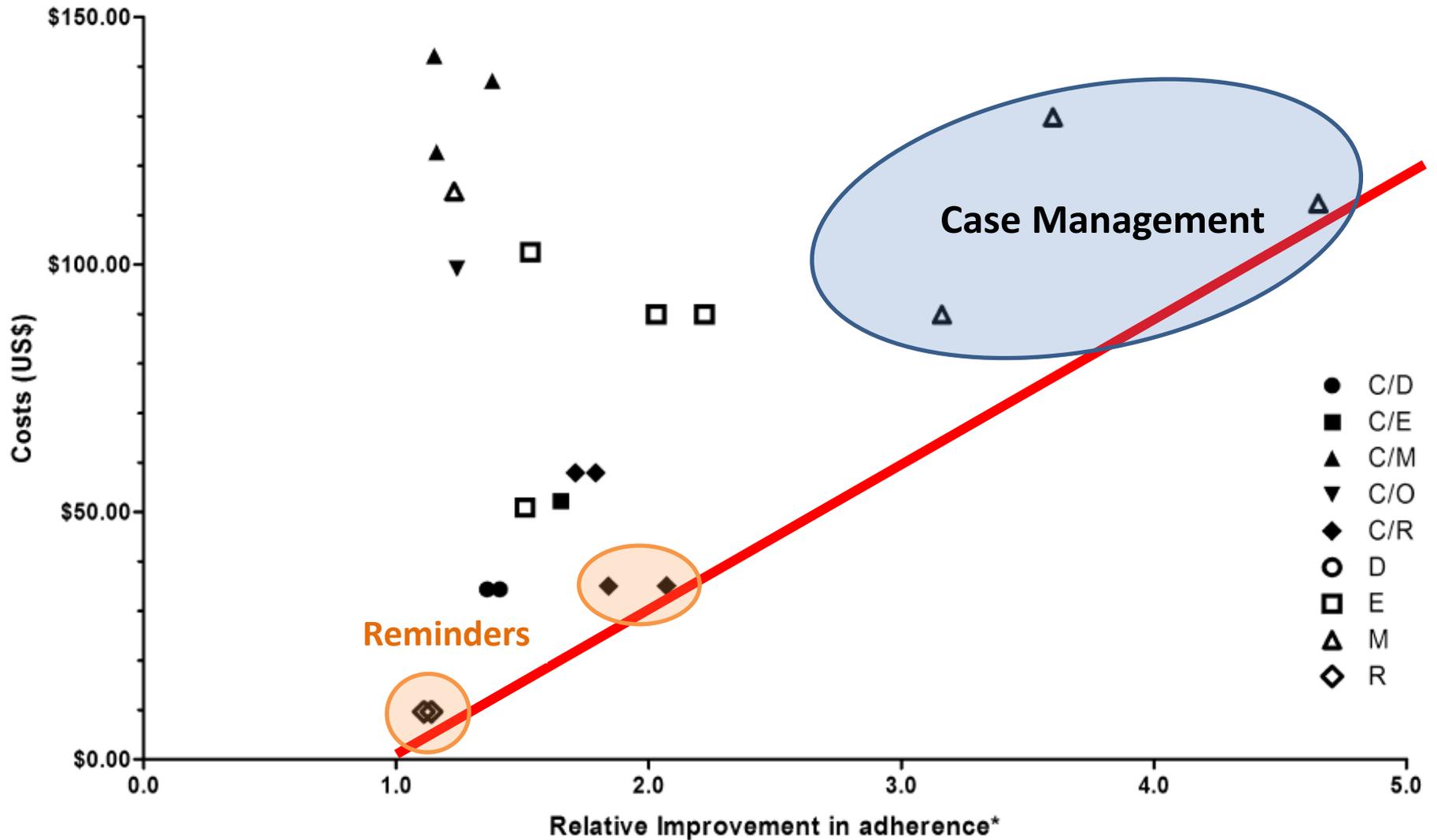


Figure 2 Costs vs. Relative Improvement in adherence, by type of intervention. *Relative Improvement = risk of the event occurring in the intervention group divided by the risk of the event occurring in the control group. C/D, combination/dosing modification; C/E, combination/education; C/M, combination/case management; C/O, combination/other; C/R, combination/reminders; D, dosing modification; E, education; M, case management; R, reminders

Source: Chapman et al. (2010). The cost and effectiveness of adherence-improving interventions for antihypertensive and lipid lowering drugs. Int J of Clin Practice.

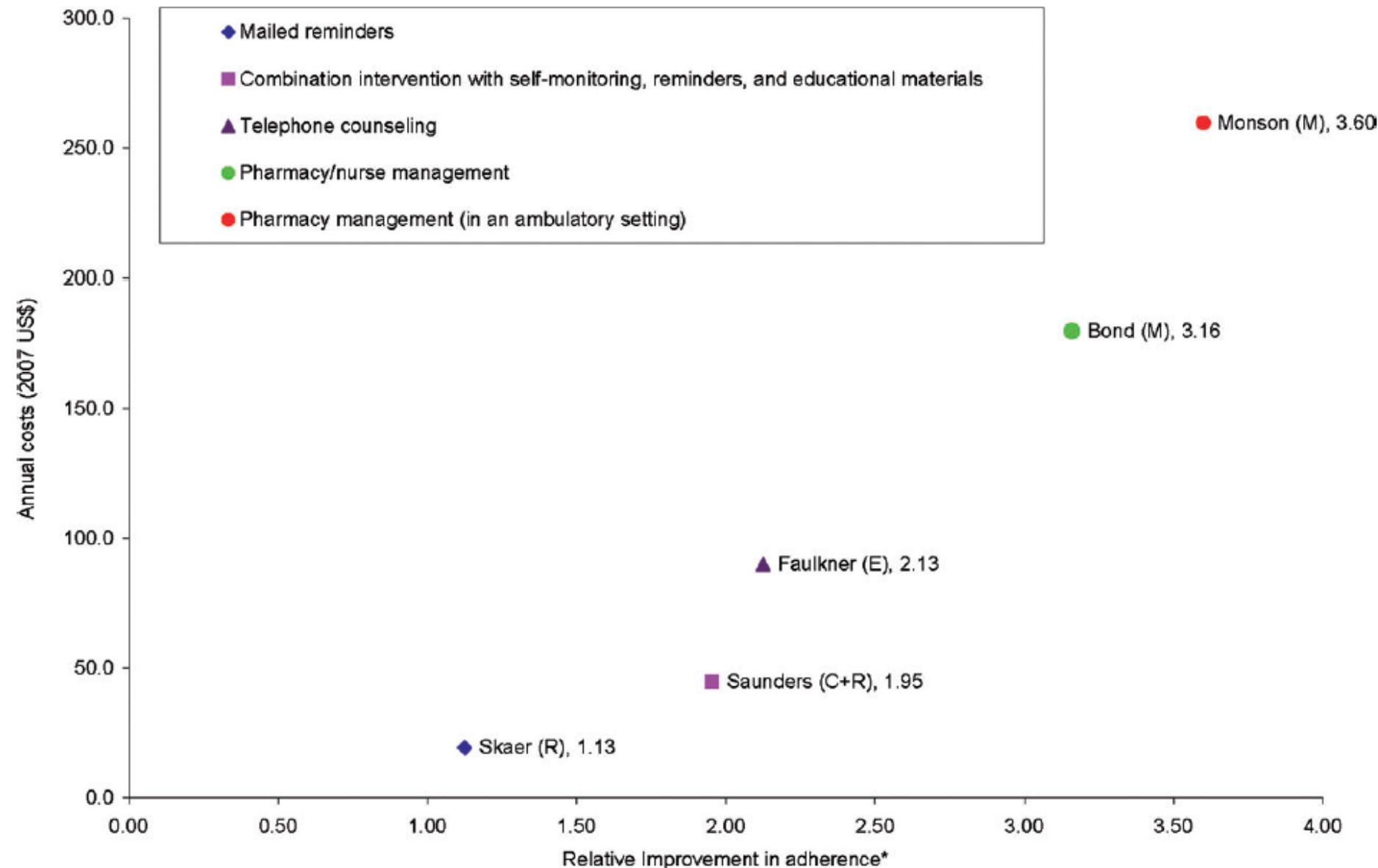
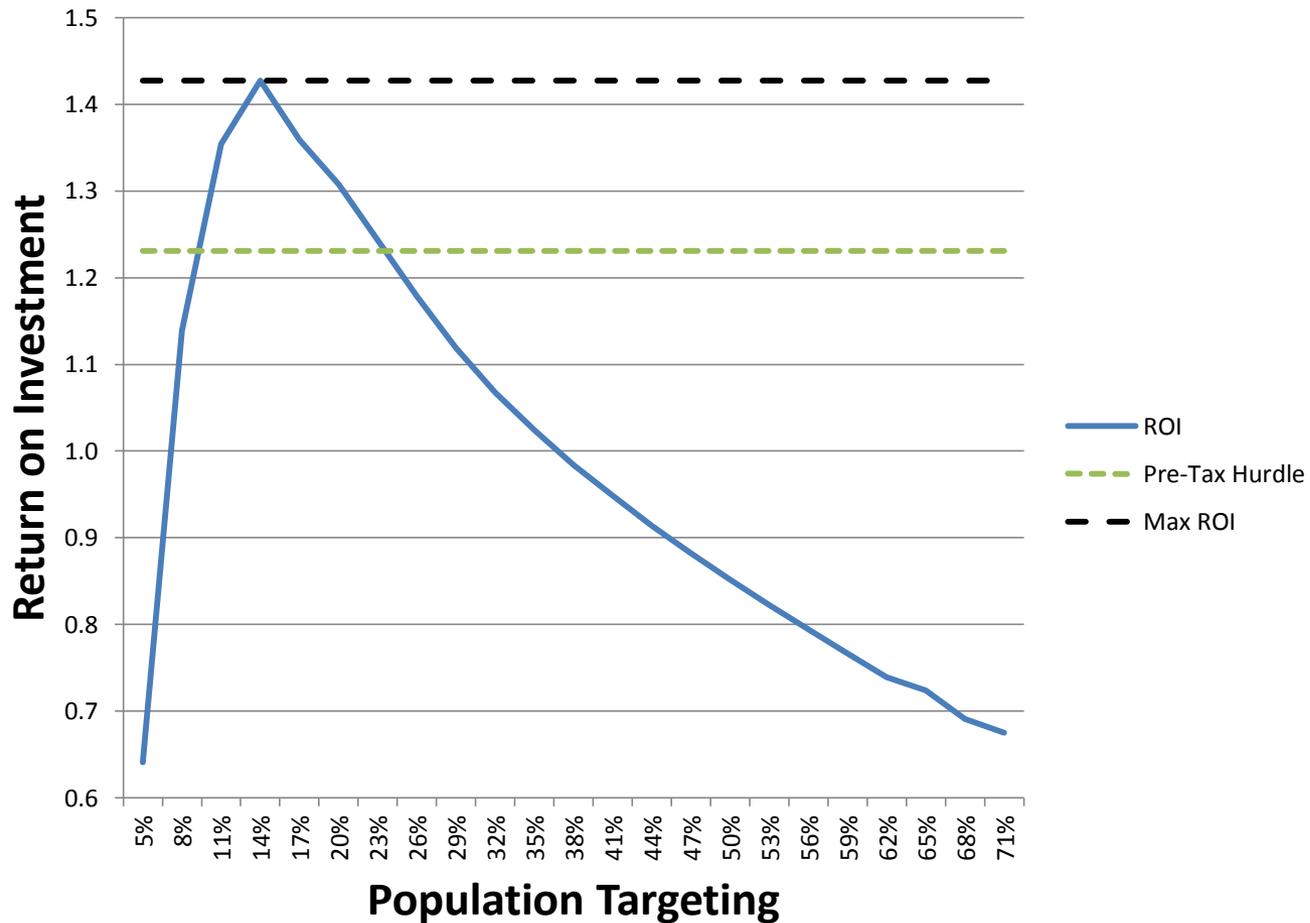


Figure 2 Costs versus Relative Improvement in adherence, by type of intervention. *Relative Improvement = adherence outcome reported in the intervention group divided by the adherence outcome reported in the control group. C+R, Combination + reminders; E, Education; M, Case management; R, Reminders.

Source: Chapman, et al. The modeled lifetime cost-effectiveness of published adherence-improving interventions for antihypertensive and lipid-lowering medications. *Value in Health*. 2010; 13(6):685-694.

Targeting and Intervention Effectiveness



What's next?

- Quality measurement will become increasingly important for Medicaid
 - The Pharmacy Quality Alliance (PQA) will be working on a Medicaid core quality measure set
- There is additional matching funds available for setting up programs targeting high utilizers (see the July 2013 CMCS bulletin)
- Is your state doing anything that you would like to share?

Thank you!



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Extra Slides

Rules-based (exceptions)

Examples

CMS Medicare Part D Overutilization Monitoring System

APAP Overutilization: Beneficiaries who may be taking more than 4g of APAP per day for 30 or more days within any 6 month period during the measurement cycle, and at least one day of overutilization occurs in the most recent calendar quarter.

MS Medicaid Rx claims for narcotic analgesics filled during calendar year 2011 were reviewed

Table 3: Frequency of Narcotic Analgesic Prescriptions

Drug Name	All Prescriptions		≥7 Prescribers AND ≥7 Pharmacies	
	Frequency	Cumulative Percentage	Frequency	Cumulative Percentage
acetaminophen- hydrocodone	240,340	70.8	140	38.1
acetaminophen-codeine	42,578	12.5	46	12.5
acetaminophen-oxycodone	27,681	8.2	84	22.9
morphine	6,756	2.0	13	3.5
fentanyl	4,963	1.5	10	2.7
oxycodone	4,083	1.2	13	3.5
All others	13,006	3.8	61	16.6
Total	339,407	100%	367	100%

Special Needs Consulting Services

MS Medicaid Analysis

- MS-DUR conducted our own analysis using patient-level records
 - SNCS study used State Drug Utilization and MSIS data
 - SNCS had no ability to link patients to their utilization; therefore, no ability to measure appropriate/inappropriate utilization
- We proposed several measures to monitor based on the proportion of individuals with “chronic” use

Exhibit ES-1. Medicaid Narcotic Prescriptions in 14 States, 2007 and 2010

State	Narcotics Scripts Per Beneficiary Age 15-64			Narcotic Prescriptions		
	2007	2010	% Change, 2007-2010	2007	2010	% Change, 2007-2010
Alaska	1.96	2.31	18%	64,998	87,651	35%
Arkansas	1.07	1.21	14%	235,514	257,226	9%
Louisiana	1.63	1.65	1%	513,851	673,442	31%
Maine	1.97	2.49	27%	269,912	324,312	20%
Mississippi	1.18	1.55	31%	243,619	319,490	31%
Nebraska	2.00	2.14	7%	107,010	134,764	26%
New Hampshire	2.54	3.41	34%	85,771	139,697	63%
North Carolina	2.11	2.59	23%	893,684	1,329,226	49%
North Dakota	1.78	2.38	34%	29,878	45,602	53%
Oklahoma	1.92	2.38	24%	352,582	500,834	42%
Tennessee	2.00	2.38	19%	1,006,464	1,195,293	19%
Texas	1.26	1.36	8%	920,298	1,240,189	35%
Utah	2.60	2.63	1%	184,065	227,500	24%
West Virginia	3.42	3.90	14%	408,953	511,206	25%
TOTAL, All 14 States	1.75	2.01	15%	5,316,599	6,986,432	31%

Table 3. Proposed Quality indicators for controlled substance pain medication use among Mississippi Medicaid beneficiaries

	2010	2011	2012	2013*
Average covered beneficiaries (15-64 years)	245,641	249,378	245,503	97,297
Number of beneficiaries with a controlled substance prescription	88,478	76,171	75,779	23,643
Proposed Measures				
1. Proportion of beneficiaries with a prescription for controlled substances (out of total eligible beneficiaries)	36.02%	30.54%	30.87%	24.30%
2. Number of controlled substance prescriptions per beneficiary among beneficiaries with a prescription for controlled substances	3.58	3.06	3.18	2.33
3a. Number (%) of beneficiaries with cumulative controlled substances use greater than 30 days	23,783 (26.88%)	17,206 (22.59%)	18,122 (23.91)	3,008 (12.72)
3b. Number (%) of beneficiaries with cumulative controlled substances use greater than 90 days	12,790 (14.46%)	9,007 (11.82%)	9,971 (13.16)	1,387 (5.87)

* Projected value for the year 2013; calculated based on claims during 2012 and the likelihood of being enrolled in fee-for-service Mississippi Medicaid in 2013.

Medicaid quality indicators

Chronic pain medication use

- *Usage of Controlled Substance Pain Medications in Medicaid*
 - White paper from Special Needs Consulting Services (SNCS) was released in January 2013 regarding opioid use in Medicaid programs
- Reviewed “narcotics” prescriptions from 14 state Medicaid programs for beneficiaries between the ages of 15-64
- “For the *entire* adult Medicaid-covered population to be averaging two narcotic prescriptions per year suggests there is considerable abuse, misuse, over-prescribing, etc. of these medications in the Medicaid arena.”

PQA Quality Measure

Multi-prescriber, multi-opioid use in persons without cancer

Measure 1 (Opioid Dose Over-utilization):

The percentage of individuals without cancer receiving a daily dosage of opioids greater than 120mg morphine equivalent dose (MED) for 90 days or longer.

Measure 2 (Multiple Prescribers and Multiple Pharmacies):

The percentage of individuals without cancer receiving prescriptions for opioids from four (4) or more prescribers AND four (4) or more pharmacies.

Measure 3 (Multi-Provider, Multi-Opioid Use):

The percentage of individuals without cancer receiving prescriptions for opioids greater than 120mg morphine equivalent dose (MED) for 90 days or longer, who received opioid prescriptions from four (4) or more prescribers AND four (4) or more pharmacies.

Measure 3: Multi-provider / multi-opioid

Analysis continued

		MED > 100			MED > 120			
AND	M3: AND + MED > 100				M3: AND + MED > 120			
	Type	60	90		Type	60	90	
	NC	76	54	- 30%	NC	54	43	- 20%
	C	34	13	- 62%	C	24	11	- 54%
		- 55%	- 76%		- 56%	- 74%		
OR	M3: OR + MED > 100				M3: OR + MED > 120			
	Type	60	90		Type	60	90	
	NC	216	163	- 25%	NC	173	129	- 25%
	C	112	54	- 52%	C	79	35	- 57%
		- 48%	- 67%		- 54%	- 73%		