



# Innovations in Healthcare Financing:

*PCMH Payments at Capital  
District Physicians' Health Plan*

*Presented by Verisk Health*

## Executive Summary: Results after one year

Risk adjusted  
**PMPM savings**

**\$32**

Risk adjusted  
**admissions reduction**

**24%**

Risk adjusted  
**ED visit reduction**

**9%**

Risk adjusted **advanced**  
**imaging reduction**

**18%**

# Agenda

**CDPHP PCMH Pilot Overview**

**Research Methodology**

**Results: Cost and Utilization Savings**

**Conclusions and Areas of Further Inquiry**

# Capital District Physicians' Health Plan is a premier regional health plan in New York



## CDPHP in Brief

- Not-for-Profit health plan headquartered in Albany
- 350K+ members across 36 counties in NY & VT

- Physician founded and guided
- 15 member board of directors includes 8 community physicians and 7 business leaders



**Historical culture of experimentation and innovation**

# CDPHP launched a medical home pilot in 2009 to test alternative approaches to primary care



- Three participating clinical practices
- Clinicians – 18 MDs
- 13,000 CDPHP member lives

## Specific Selection Criteria

- Significant number of CDPHP members within physician panels
- Practice needed to already have an EHR installed
- Physicians needed to be recognized as community leaders

# Key attribute of pilot was aligning economic incentives between payer and providers

1

Ask primary care physicians to share in the “right” level of risk

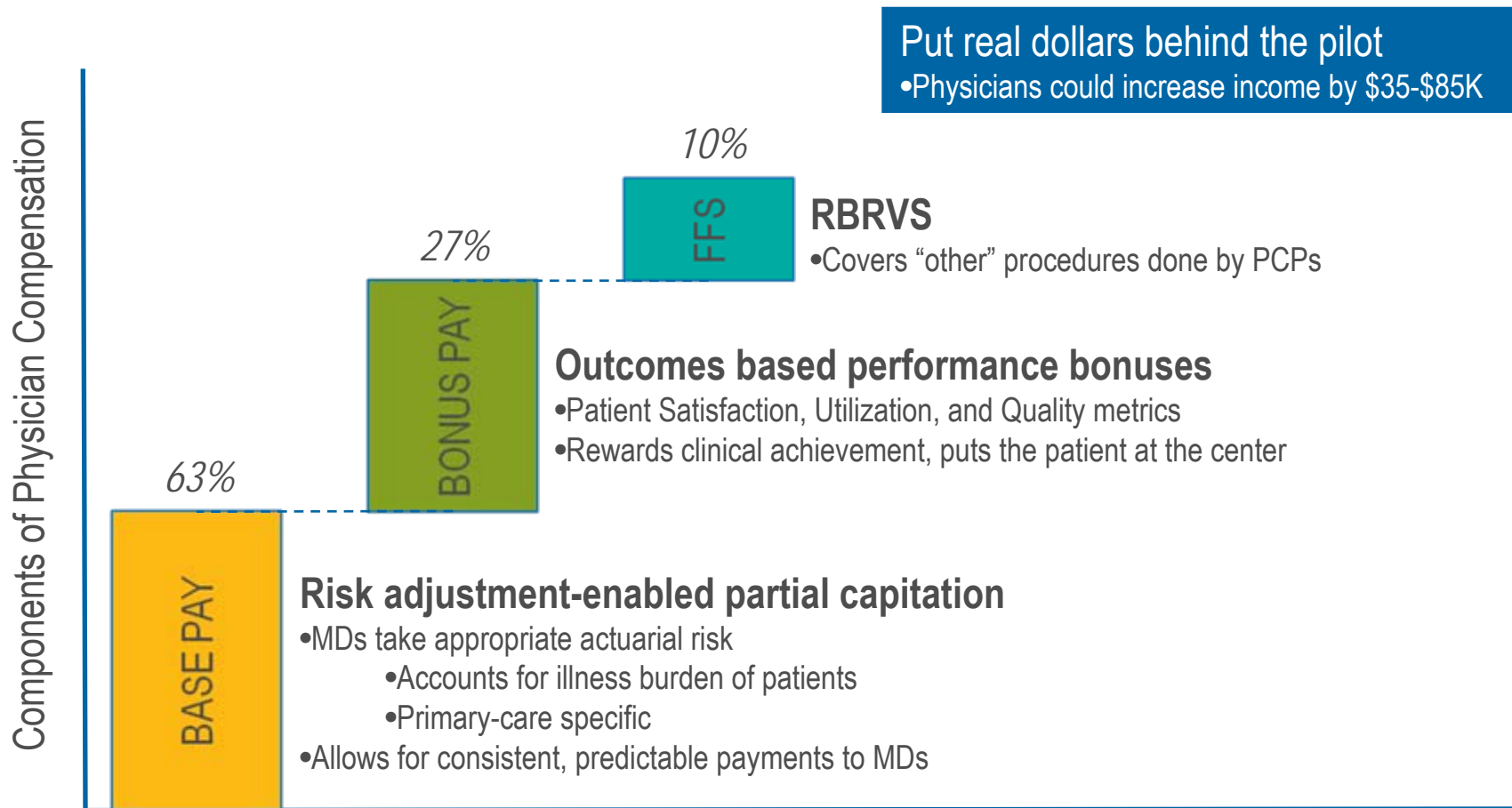
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Make outcomes a key ingredient of the new payment model

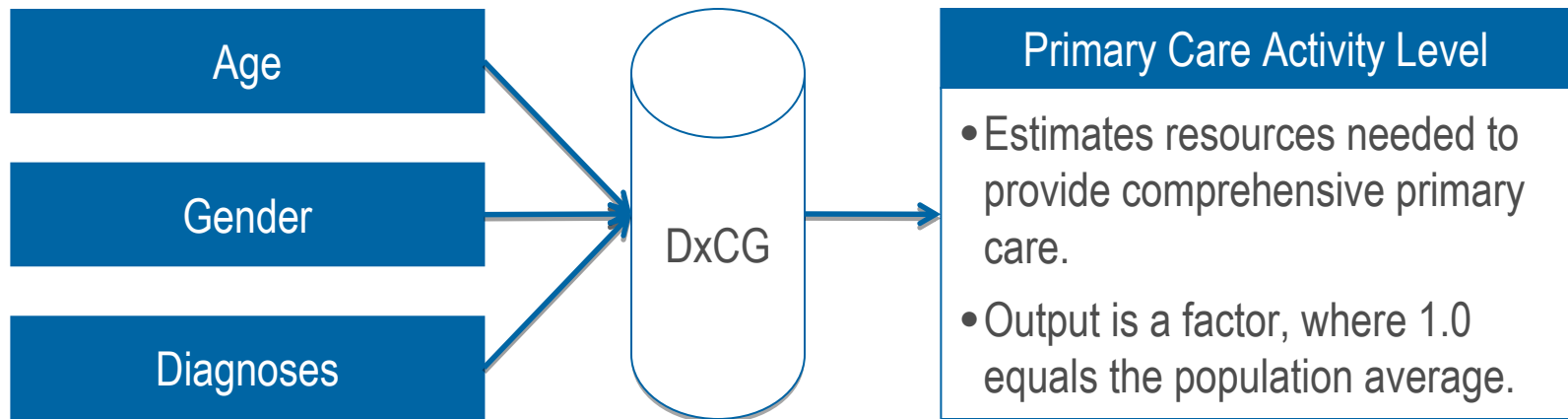
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Allow PCPs to make substantially more income for strong performance

# CDPHP adopted an innovative solution for alternative primary care financing



# Verisk Health developed a novel approach to setting the base payment rates



**Sophisticated modeling approximates resource needs based on illness burden and enables primary care-specific partial capitation.**



# CDPHP generates risk adjusted base capitation rates by payer type

	Base	PCAL Increment
Commercial HMO	\$128.80	\$60.69
Commercial non-HMO	\$105.16	\$49.65
Medicare	\$101.83	\$48.08
Medicaid	\$90.74	\$42.74

## Example:

A Medicaid patient with a PCAL of 1.8 would generate a comprehensive annual payment of

$$\mathbf{\$90.74 + (1.8 * \$42.74) = \$167.67 \text{ (or } \$13.97/\text{month)}}$$

Source: The Capital District Physicians' Health Plan.

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# Research methodology must answer three fundamental questions

How to remove confounding variables to measure the impact of the pilot?

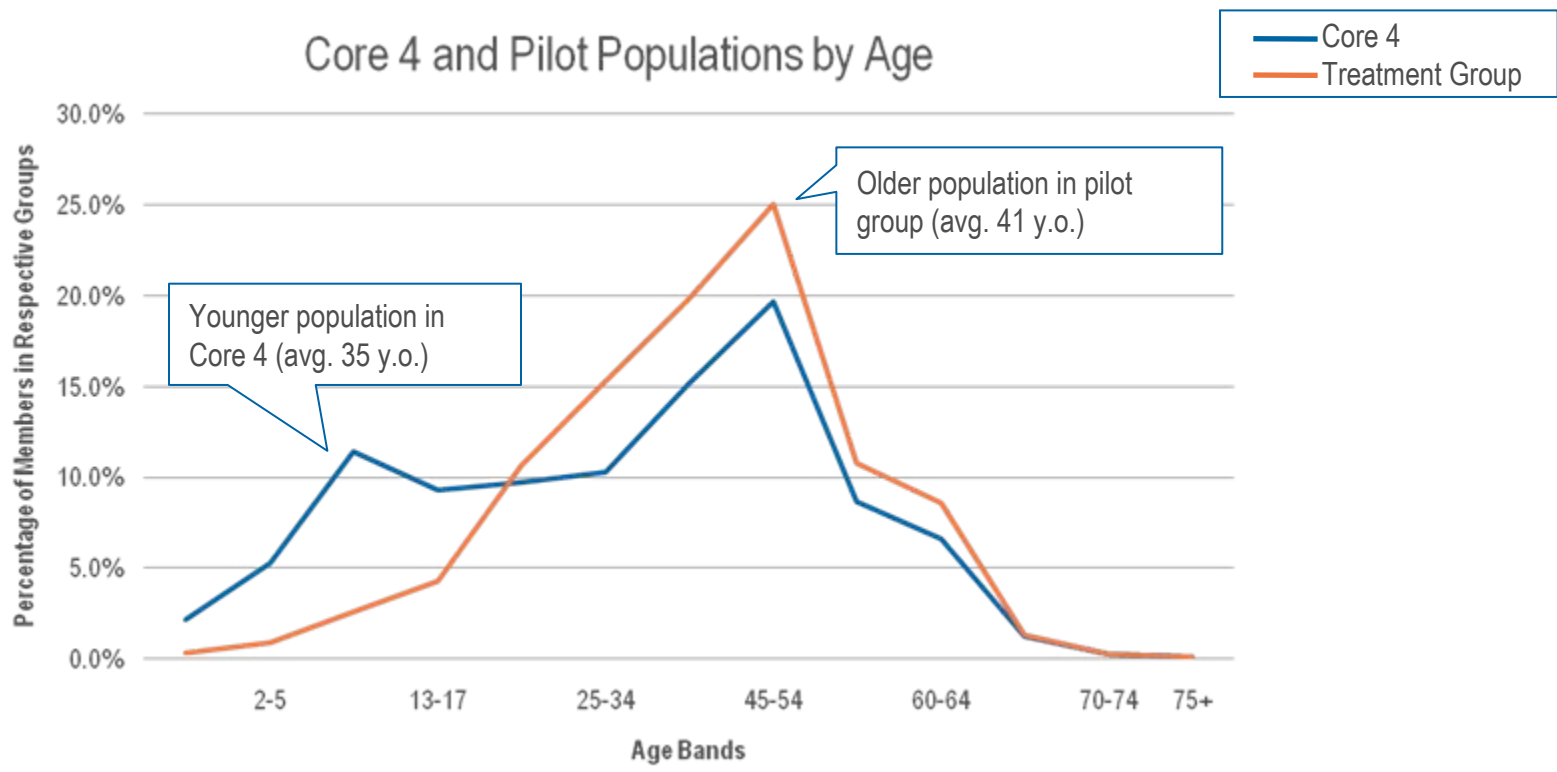


How to create appropriate Treatment and Control groups for comparison?



How to define and measure “savings”?

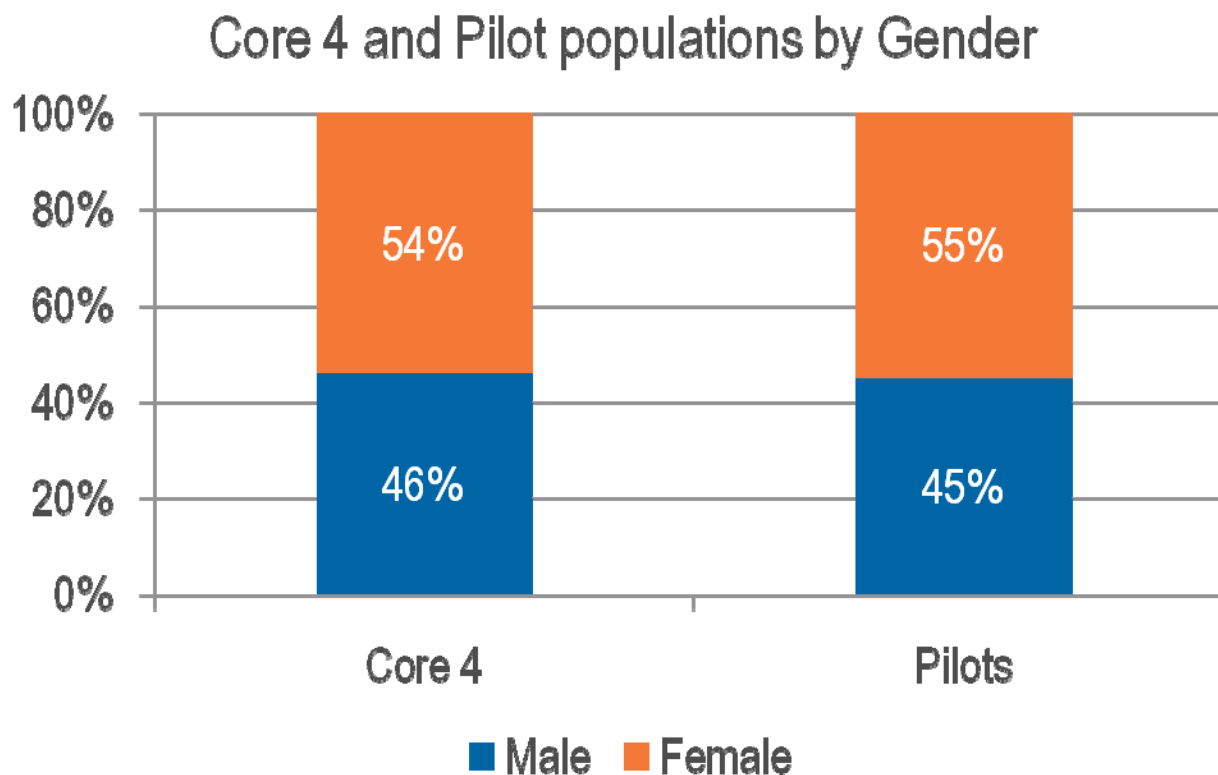
# Step 1: Control for Age



## Analytic Approach

Match the Control and Treatment populations by Age.

## Step 2: Control for Gender



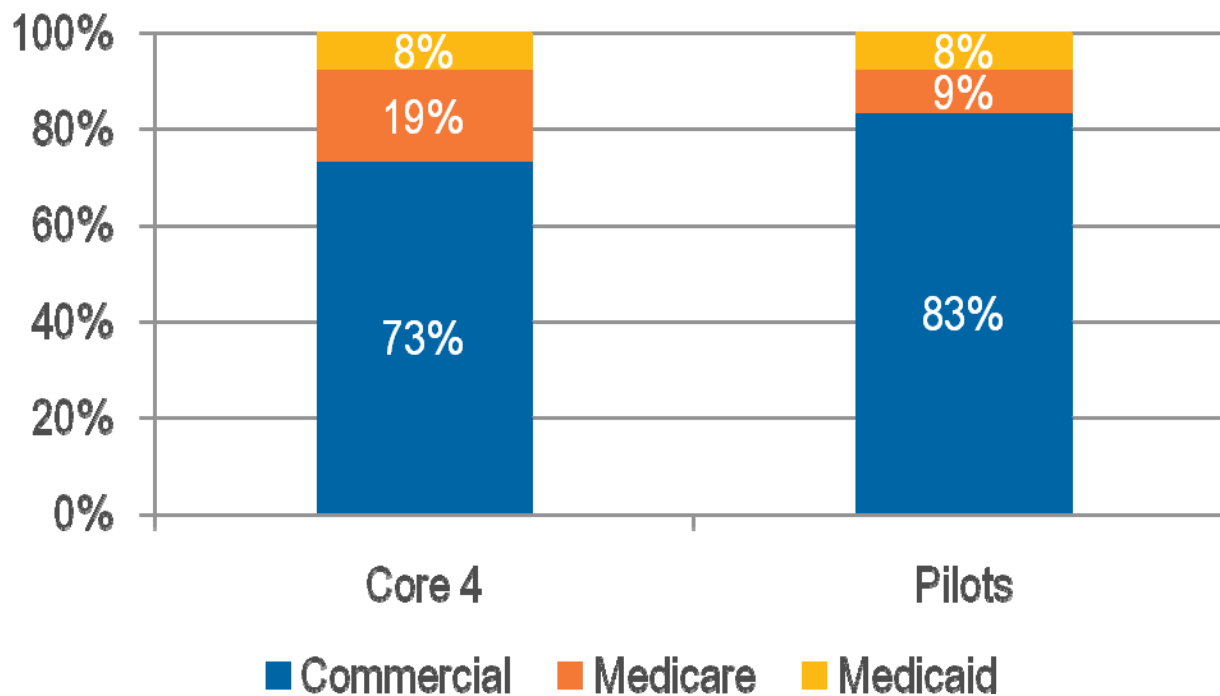
### Analytic Approach

Match the Control and Treatment populations by Gender.

## Step 3: Control for Payer Type



### Core 4 and Pilot populations by Payer



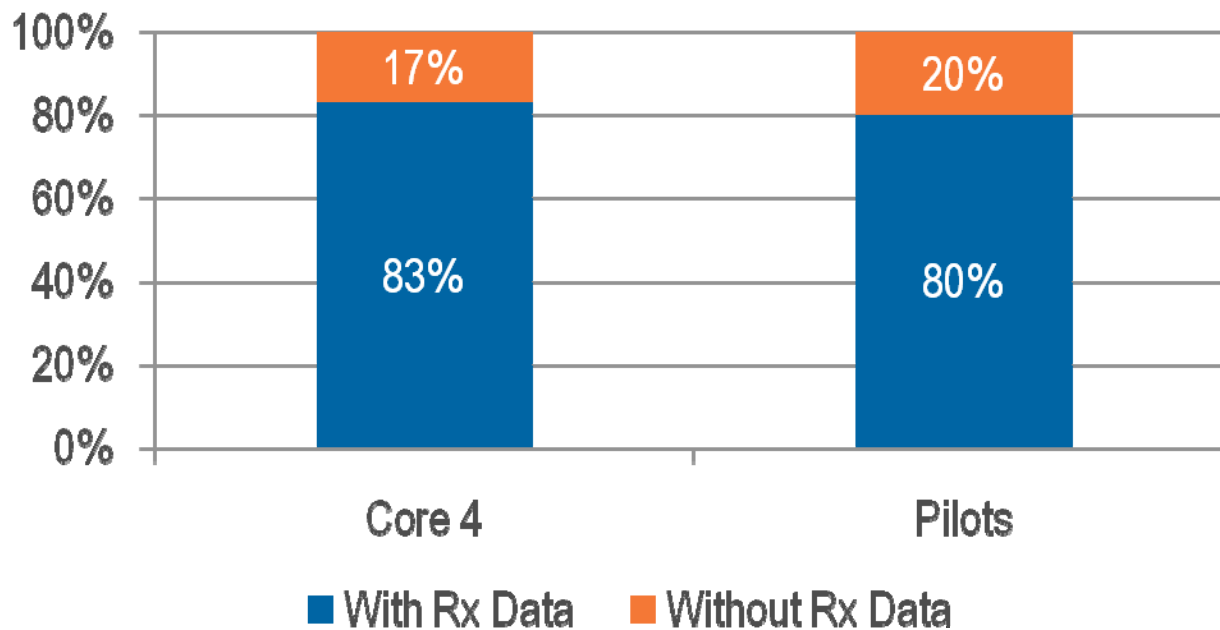
### Analytic Approach

Match the Control and Treatment populations by Payer Type.

## Step 4: Control for Patients with Rx Data Available



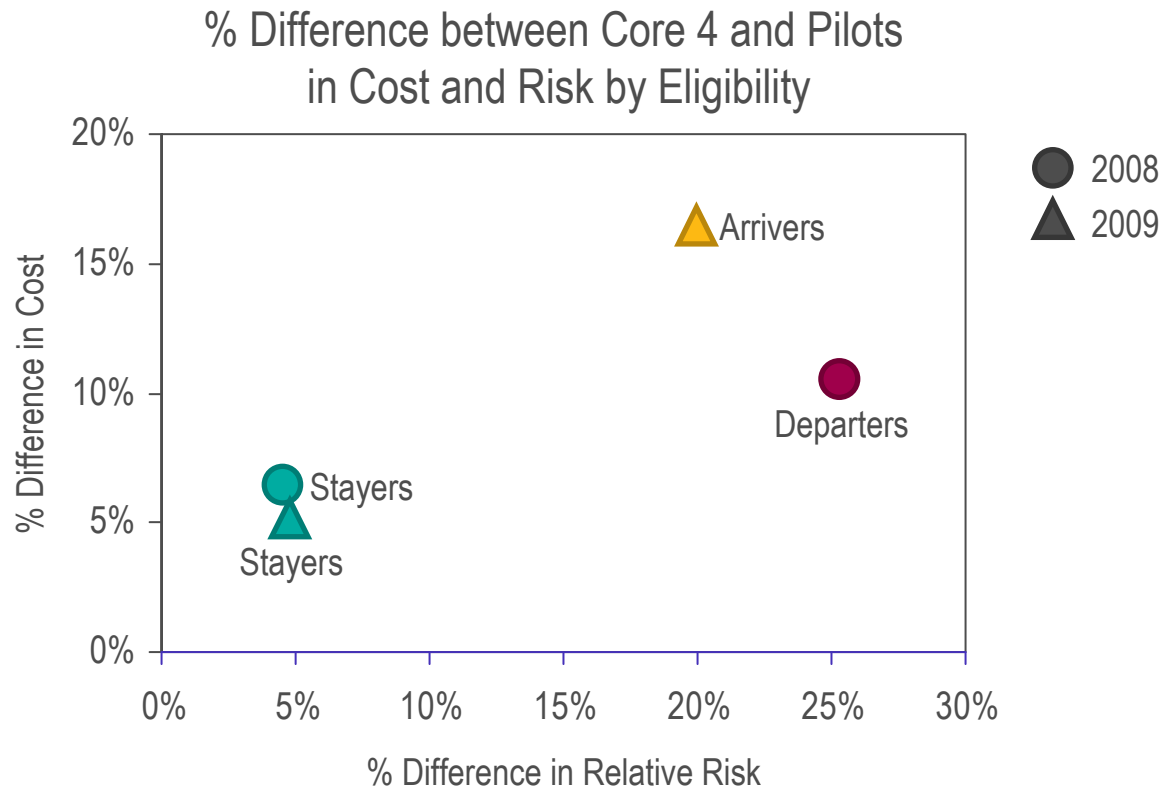
### Core 4 and Pilot populations by Rx Data Availability



#### Analytic Approach

Match the Control and Treatment populations by Rx data availability.

# Step 5: Control for Eligibility

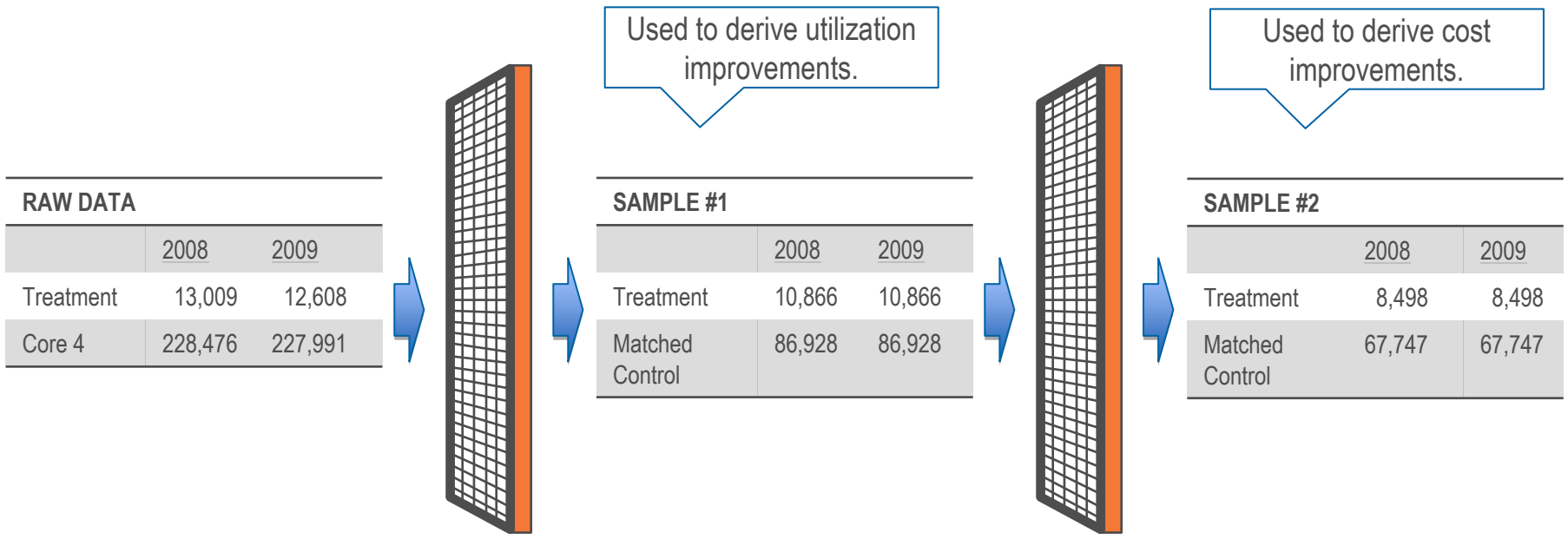
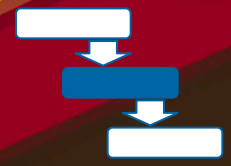


## Analytic Approach

Only include “Stayers” when developing Treatment and Control groups.



# Step 6: Select appropriate Treatment and Matched Control groups



RAW DATA		
	2008	2009
Treatment	13,009	12,608
Core 4	228,476	227,991

SAMPLE #1		
	2008	2009
Treatment	10,866	10,866
Matched Control	86,928	86,928

SAMPLE #2		
	2008	2009
Treatment	8,498	8,498
Matched Control	67,747	67,747

## First Filter

- Match control group by age, sex, payer type, eligibility.
- Exclude arrivers and departers from treatment group.
- Restrict control sample to 8-to-1 match with treatment group.

## Second Filter

- Further reduce sample by excluding members without Rx data from treatment and control groups.
- Matched control still restricted to 8-to-1 match with treatment group.

## Step 7: Risk adjust the populations



### Case Study: John Smith



- Annual Spend: \$4,500
- National Average Spend: \$3,000
- John Smith's Risk Score: 2.5

### Evaluating efficiency **without** risk adjustment

$\frac{\text{Observed Spend: } \$4,500}{\text{Avg. Population Spend: } \$3,000} = 1.5 \rightarrow \text{John is } \mathbf{50\% \text{ less efficient}}$  than “expected” (national average)

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### Evaluating efficiency **with** risk adjustment

$\frac{\text{Observed Spend: } \$4,500}{\text{Expected (Risk Adjusted) Spend: } \$7,500} = 0.6 \rightarrow \text{John is } \mathbf{40\% \text{ more efficient}}$  than “expected” (given his illness burden)  
*(2.5 \* \$3,000)*

# Step 8: Use top coding (at \$250K) to mitigate the impact of outliers



Total Spending PMPM  
Sample Statistics

	Without Top Coding		With \$250,000 Top Coding		Change due to Top Coding	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Control '08	\$355	\$862	\$353	\$774	-0.6%	-11.3%
Treatment '08	\$321	\$662	\$321	\$662	0.0%	0.0%
Control '09	\$403	\$403	\$400	\$915	-0.9%	-16.7%
Treatment '09	\$359	\$359	\$357	\$819	-0.5%	-9.7%

Has modest effect on sample means.

Has much larger effect on standard deviations.

# Step 9: Treatment effect measured using the “Difference-in-Difference” (D-in-D) model



- Costs were increasing in both the control and treatment groups
- Analyses were designed to quantify how much less rapidly costs grew in the treatment group than the control group
- Difference-in-Difference = (Change in Costs in Treatment) – (Change in Costs in Control)
- Used regression framework to isolate the D-in-D “savings”:
  - How different was the change in costs for the treatment group than the control group? (change in intercept)
  - Did being in the treatment group change the intensity of care for high cost people more than low cost people? (change in slope)

Basic Difference-in-Difference Example

	Total PMPM Costs, Yr. 1	Total PMPM Costs, Yr. 2	Change	D-in-D Savings
Treatment	\$330	\$365	\$35	-\$15
Control	\$300	\$350	\$50	

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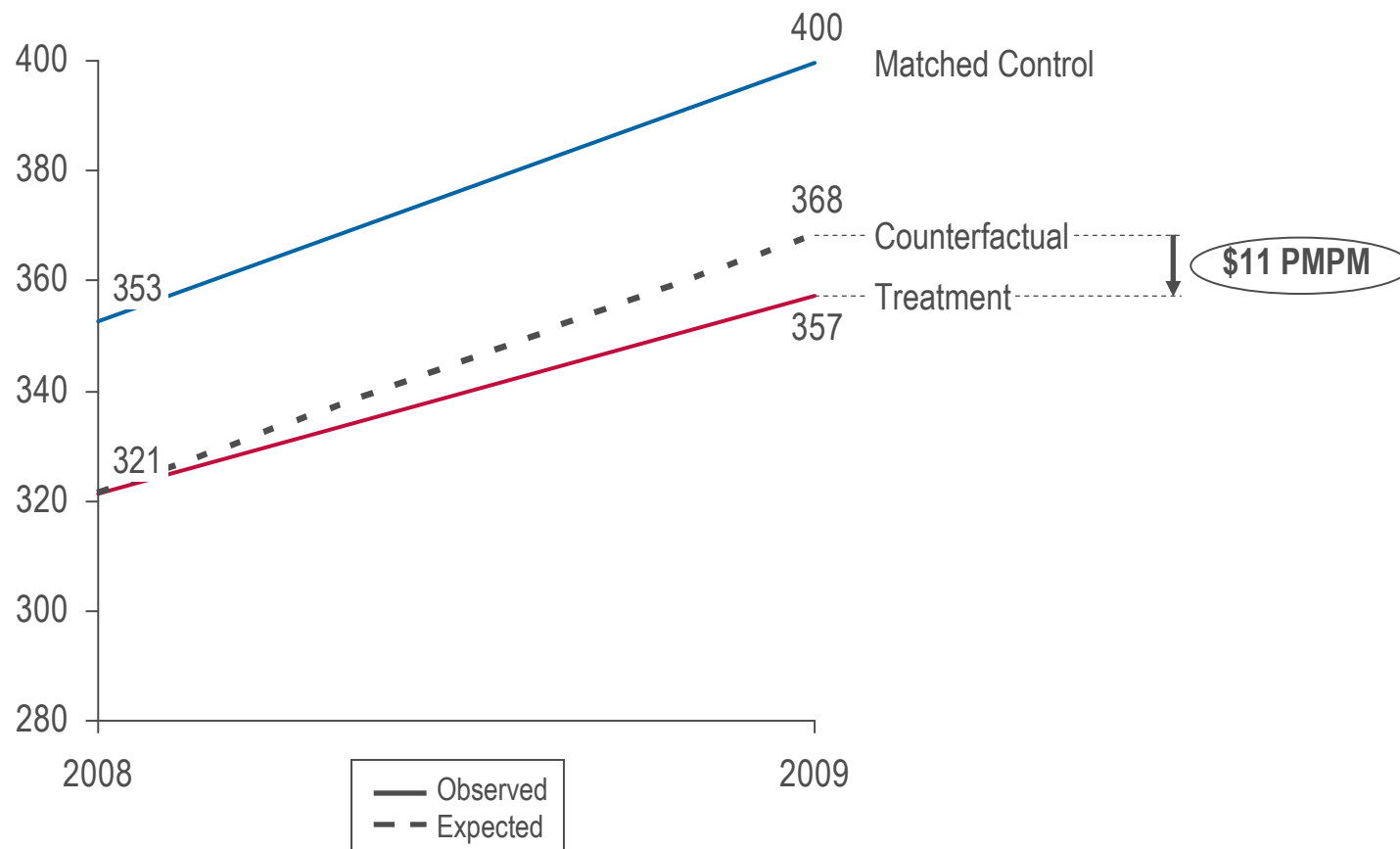
Research Methodology

**Results: Cost and Utilization Savings**

Conclusions and Areas of Further Inquiry

# Observed "Total Cost" experience indicates \$11 savings

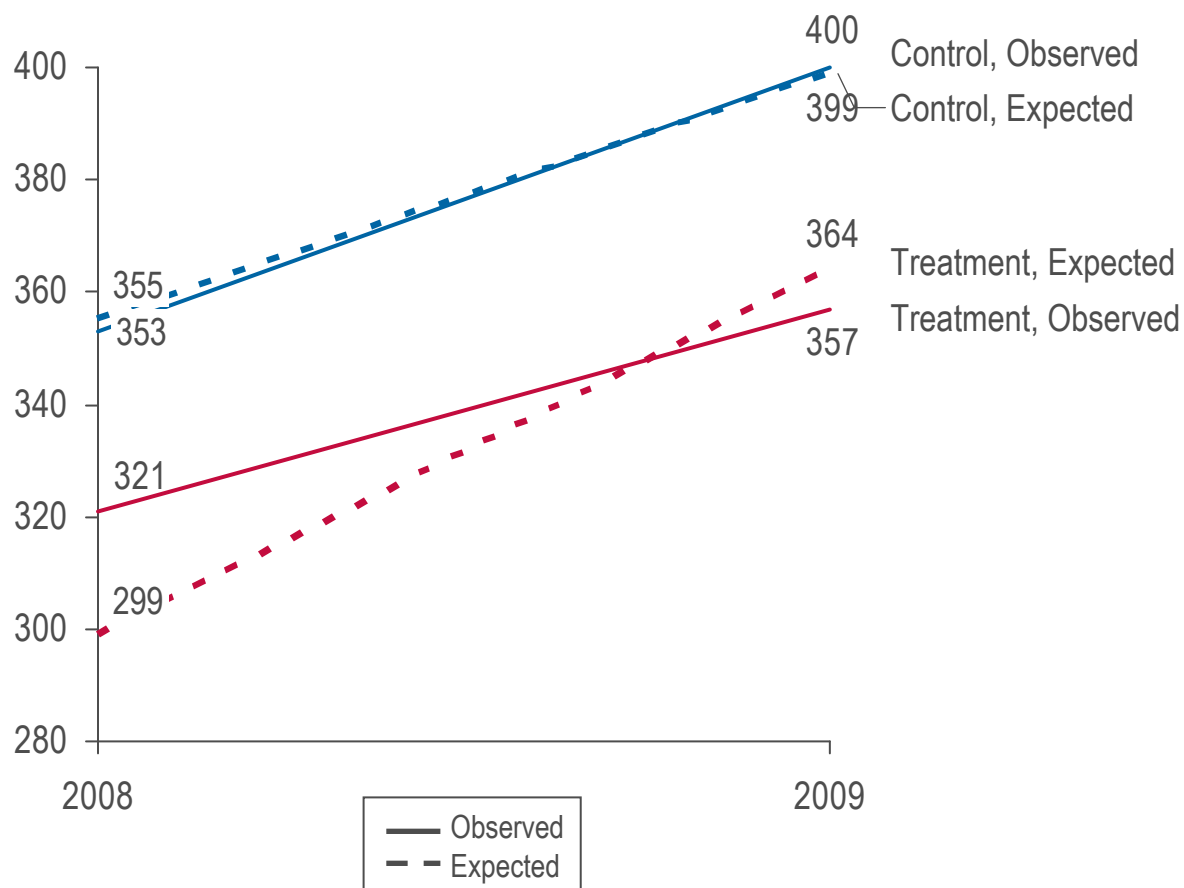
Non-Risk Adjusted



Note: The population analyzed is the subset of patients for whom pharmacy data was available.

# Risk-adjusted expected "Total Cost" spending yields \$32 savings

Risk Adjusted



Observed PMPM			
	2008	2009	Δ (\$)
Treatment	321	357	36
Control	353	400	47
			<b>(11)</b>

Expected PMPM			
	2008	2009	Δ (\$)
Treatment	299	364	65
Control	355	399	44
			<b>21</b>

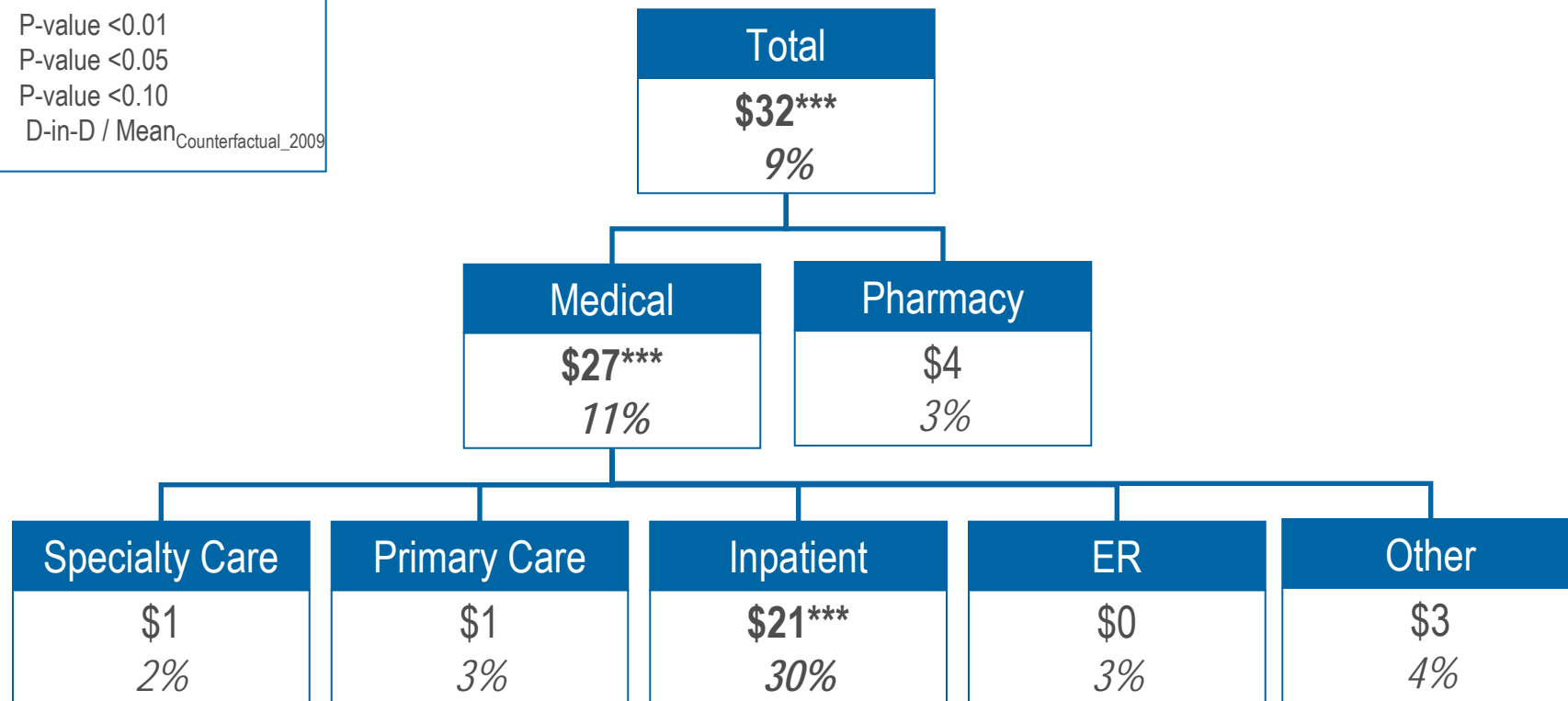
Observed-Expected PMPM			
	2008	2009	Δ (\$)
Treatment	22	-7	-29
Control	-3	1	4
			<b>(32)</b>

Note: The population analyzed is the subset of patients for whom pharmacy data was available.

# Medical and Inpatient spending comprise the bulk of total savings on a risk-adjusted basis

## Treatment Practices' Risk Adjusted Savings PMPM by Sub-category

\*\*\* P-value <0.01  
 \*\* P-value <0.05  
 \* P-value <0.10  
 %Δ D-in-D / Mean<sub>Counterfactual\_2009</sub>



Note: The population analyzed is the subset of patients for whom pharmacy data was available.

Categories don't perfectly sum due to the use of separate models, each tuned to predict a different dependent variable.



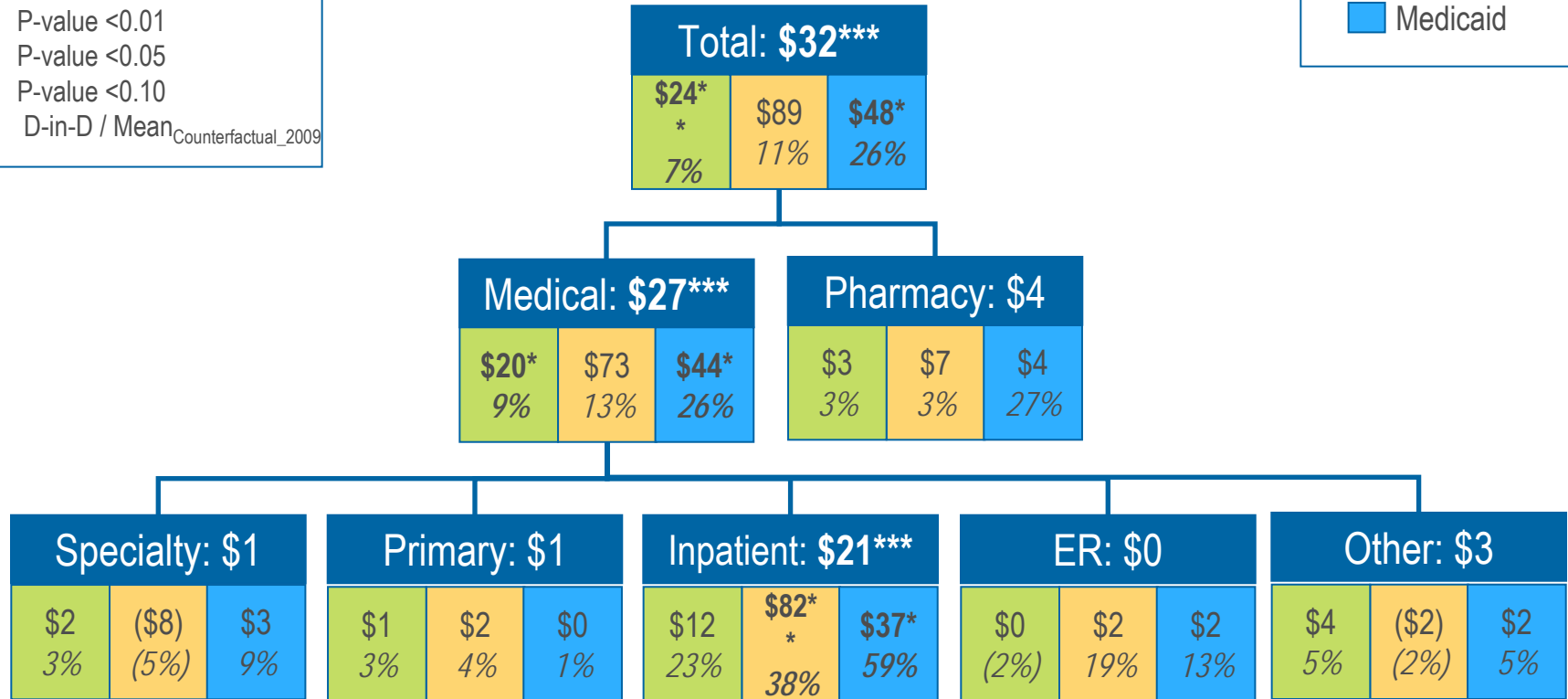
# Risk-adjusted “Total Cost” spending shows savings across Payer types

Risk Adjusted

## Treatment Practices’ Risk Adjusted Savings PMPM by Sub-category

\*\*\* P-value <0.01  
 \*\* P-value <0.05  
 \* P-value <0.10  
 %Δ D-in-D / Mean<sub>Counterfactual\_2009</sub>

Commercial  
 Medicare  
 Medicaid



Note: The population analyzed is the subset of patients for whom pharmacy data was available. Categories don't perfectly sum due to the use of separate models, each tuned to predict a different dependent variable.

# Utilization measures designed to risk adjust outcomes metrics, measure practice performance

Utilization models reflect Verisk Health approach to risk-adjusted quality surveillance that supports and encourages primary care practice improvement .

Metric	Definition
All ED Visits	Measures utilization efficiency of all ED visits in a practice population.
Advanced Imaging	Measures utilization efficiency of advanced imaging in a practice population.
Admissions (exc. OB & MH)	Measures utilization efficiency of admissions, excluding those for obstetrics and mental health, in a practice population.
ACSC Admissions	Measures utilization efficiency of avoidable admissions, as defined by AHRQ, in a practice population.

Each model creates an expected value at the individual level derived from age, gender, and diagnoses in '08.

Utilization measures have reasonable prevalence and the models are highly predictive

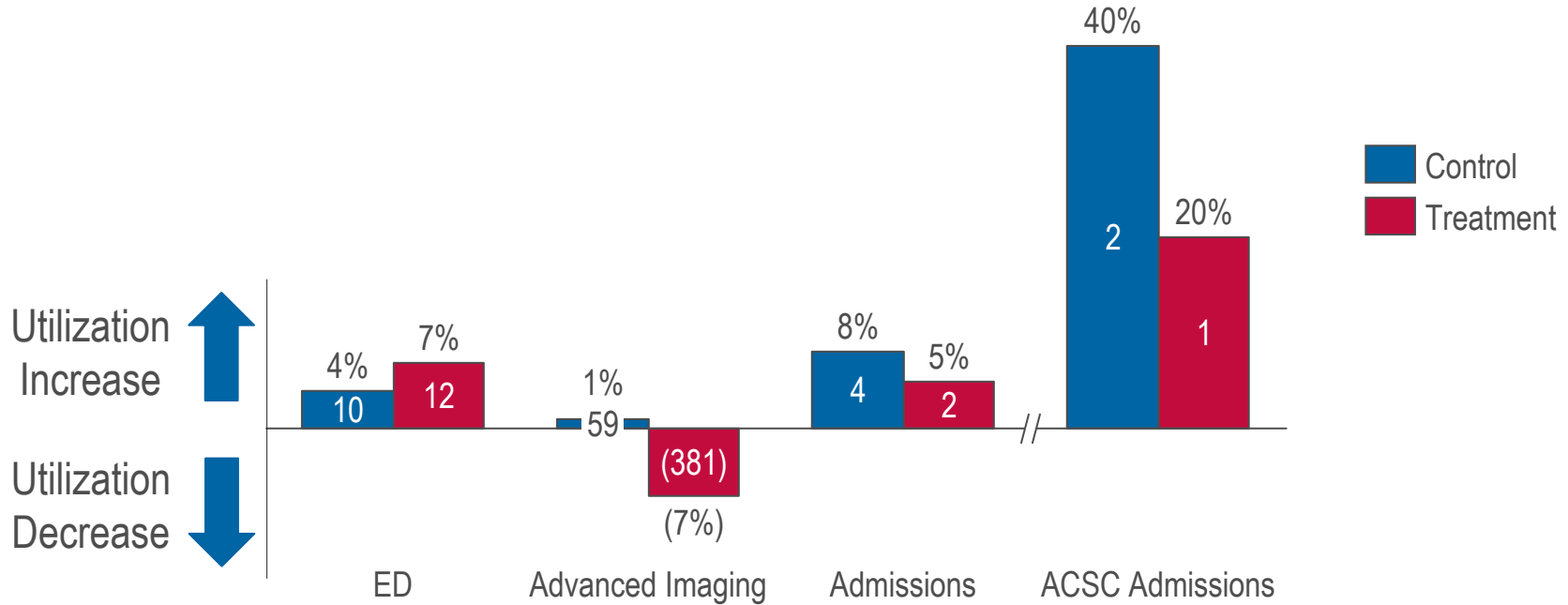
Utilization Measure	Rate per 1K in National Sample	Model R <sup>2</sup>
All ED visits	200 visits	27.7%
Advanced Imaging	3,309 RVUs (391 discrete tests)	48.5%
Admissions (exc. OB & MH)	41.1 admissions	45.2%
ACSC Admissions	3.7 admissions	31.7%

Source: MarketScan 2007 national dataset, 17.4M lives

# Observed utilization shows mixed improvements

Non-Risk Adjusted

Change in Utilization, 2008-2009  
*# of events per year per 1000 members*



\*\*\* P-value <0.01  
 \*\* P-value <0.05  
 \* P-value <0.10  
 %Δ D-in-D / Mean<sub>Counterfactual\_2009</sub>

# Risk adjusted utilization metrics signal meaningful improvements

Risk Adjusted

## Utilization Improvement

*# of events per year per 1000 members*

### ED Visits

**18\*\***  
**9%**

### Advanced Imaging

**1005\*\*\***  
**18%**

### Admissions

**11\*\*\***  
**24%**

### ACSC Admissions

**1**  
**20%**

\*\*\* P-value <0.01  
\*\* P-value <0.05  
\* P-value <0.10  
%Δ D-in-D / Mean<sub>Counterfactual\_2009</sub>

Source: Centers for Medicare and Medicaid Studies

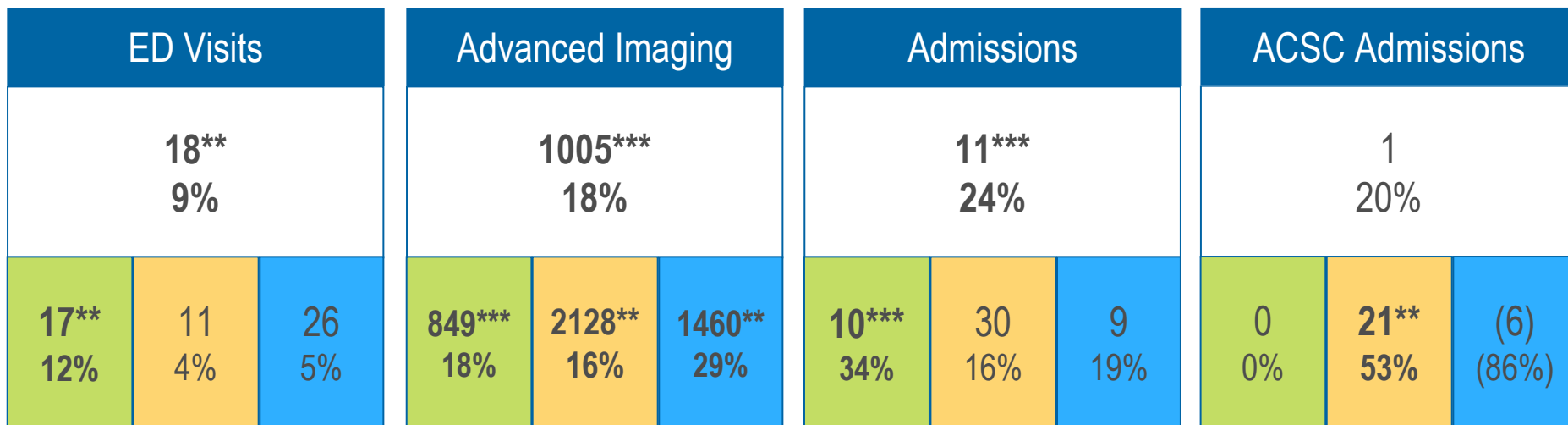
# Risk adjusted utilization measures show improvement across Payers

Risk Adjusted

## Utilization Improvement

# of events per year per 1000 members

Commercial  
Medicare  
Medicaid



\*\*\* P-value <0.01  
 \*\* P-value <0.05  
 \* P-value <0.10  
 %Δ D-in-D / Mean<sub>Counterfactual\_2009</sub>

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# Pilot gives additional insight into financing care

1. **Financing Mechanism:** Migrating away from FFS payments can provide substantial benefits, in particular partially-capitated primary care payments coupled with meaningful pay-for-outcomes bonuses..
2. **Government Involvement:** Medicare patients seem to derive significant value under this model, suggesting a government role in supporting patient centered medical homes and alternate payment models.
3. **Further Study:** Results variability is susceptible to small populations sizes, so expanded longitudinal studies are needed to confirm these results.