



Medica's Corporate Predictive Modeling Care Management Program - Evaluation

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Innovative Strategies in Predictive Modeling Conference



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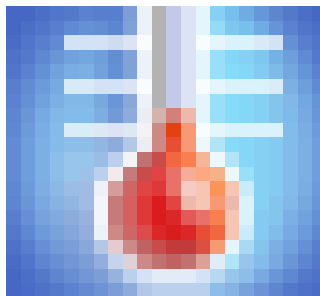
Overview of Presentation:

- Brief Background
- Process Measures
- Financial Outcomes
- Questions/Comments

Medica Company Overview

- Non-profit HMO based in Minnesota
- Membership: 1.3 million
- Service area includes MN, parts of Wi, SD, & ND.
- Forecast for Tuesday 2/13/2007:

Minneapolis



High = 12
Low = -3

Orlando



High = 79
Low = 60

Medica's Interest in Predictive Modeling

- Identify a manageable number of members who are likely to become high-cost.
- Want to intervene with members BEFORE they become high cost (e.g. instead of identifying members who are already high-cost).
- To have a positive impact on the members health, leading to appropriate healthcare utilization (a “Win-Win”)

Identify and Send Members to Care Management:

“Predicted High-Cost” Member Pool
(2,378 members)

Commercial adult members;

JH ACG PHC score ≥ 0.4 ;

Included “hook” diagnosis

Not already enrolled in another CM/DM program.

■ Able to find a large number (2,378 out of 5,117, or 46.5%) of “highest predicted cost” members not in existing CM/DM.

Care Management Services Provided

- Care Managers reviewed claims and pharmacy utilization via claims look up Summary of Care tool before contacting member
- A personalized approach – personal health goals
 - Members who enroll have an average of 6 goals
 - Most common goals related to chronic pain, mental health, weight reduction, and tobacco use.
- On-line research/handouts/pamphlets; e-mail
- Entrance to primary care
- Toughest part? – Reaching and engaging members.

Evaluation – the Core of this Discussion

- We're putting significant time and resources into this project.
- Process Measures – operationally, is the program “flowing”/working as intended?
- Outcomes Measures - did the healthcare utilization and expenditures change for the intervention group relative to the control group?
 - We're hoping program is a “win-win” for our members (e.g. healthier) and Medica.
- What makes this different? – Random Assignment

Random Assignment

- We've seen enough questionable methodologies:
 - Vendor proposed to compare trends for purpose of payment. We examined trends before intervention:

Per Diseased Member per Month	With Depression &/or Anxiety	Without Depression &/or Anxiety
Pre-Program 2004	\$1,342	\$ 593
Post-Program 2005	\$1,410	\$ 635
% Change	5.1%	7.1%

- This calculates to an additional savings of 2% PMPM
 - With $\$28.42 \text{ pmpm} \times 11,839 = \$4,037,500$ Savings?
- For reasons such as this, we used random assignment

Random Assignment

“Predicted High-Cost” Member Pool
(2,378 members)

Commercial adult members; JH ACG PHC
score ≥ 0.4 ; “hook” and not already
enrolled in another CM/DM program.

Random Assignment

Between August 2005 and October 2005

**Sent to Care
Management
500 Members**

**Comparison
Group
500 Members**

Process – “Flowing” as Intended

- Approx. 24% of members sent to care management agreed to participate.
- Biggest reason for non-participation – unable to contact.
- Approx. 58% of members agreed to participate once contacted (e.g. once the nurse got them on the line).
- Members who agreed to participate had an average of approx. 6 goals
- Most common goals related to chronic pain control, mental health, weight reduction, and tobacco use.
- 52.9% of goals accomplished.

Outcome Measures

- Admittedly, a little overly focused on financials
- Also doing satisfaction surveys, etc.
- But in the end, financials are what translate best into business interest.
- Overall risk/PMPM trends, coupled with “probability indicators” (what’s driving the overall trends?)

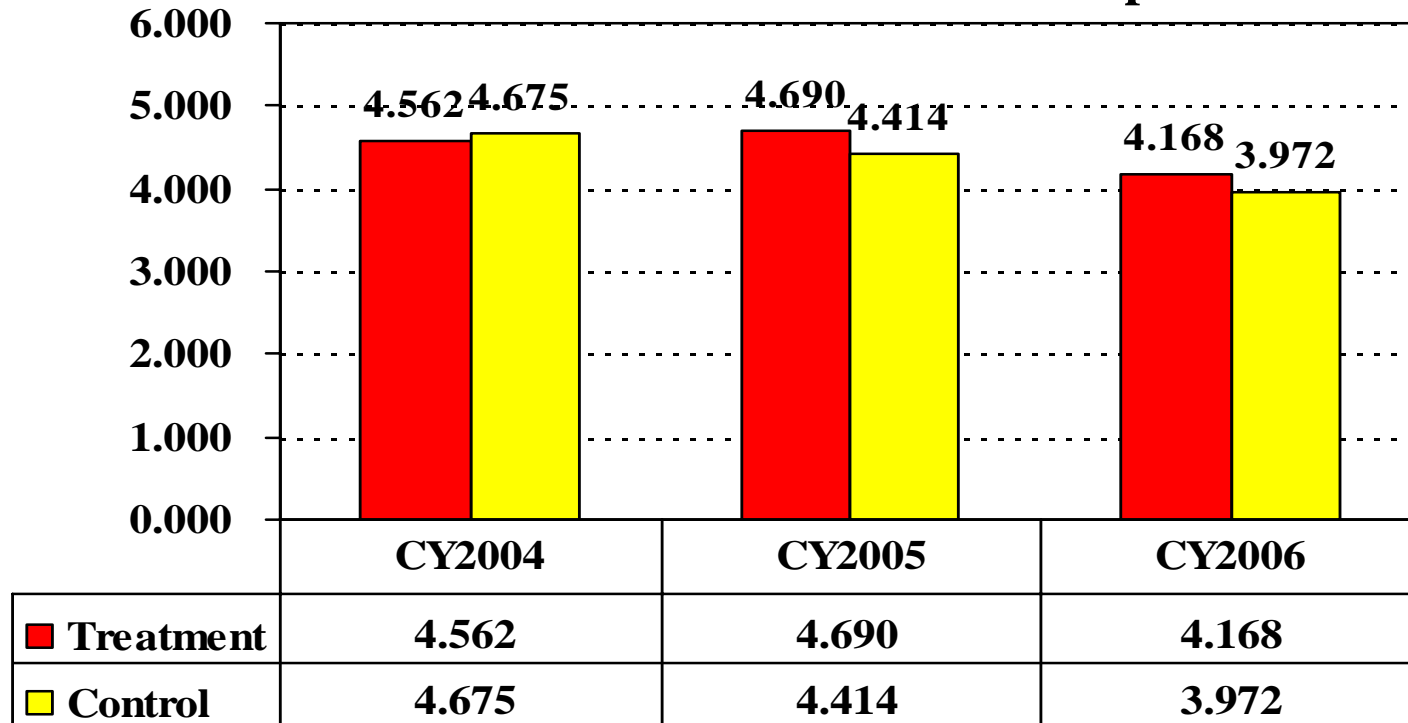
Financial Outcomes - Methodology

- Conducted an analysis mid January 2007.
- Examined facility, physician, and RX claims during a 3-year period – CY2004 (Pre-Treatment Year); CY2005 (Pre-Treatment/Treatment Year); CY2006 (Post-Treatment Year).
- For purposes of this analysis – included members continuously enrolled over the three years.
- Two groups (based on random assignment):
 - Treatment group = 329 members sent to care management between August 2005 and September 2005.
 - Control group = 292 members identified but not sent to care management during same time frame.
- Examined outliers – not believed to be a factor. Very similar findings when run with a 100k cap on expenditures.

Findings - Financial

Similar predicted ACG “morbidity” between the two groups.

**Average ACG-PM Risk Score
Treatment Versus Control Group**

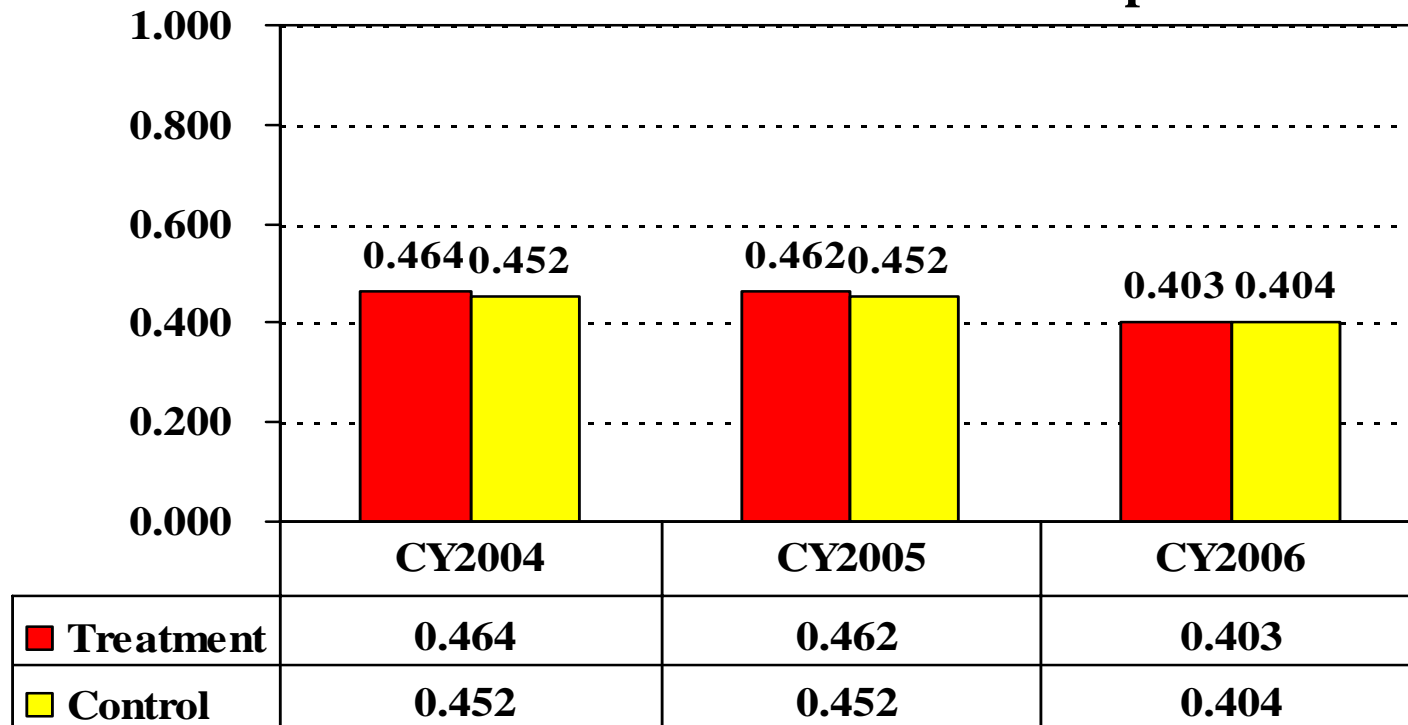


All differences between Treatment and Control groups by year are non-significant.

Findings - Financial

Similar predicted ACG “risk probability” between the two groups.

**Average ACG-PM Risk Score
Treatment Versus Control Group**



All differences between Treatment and Control groups by year are non-significant.

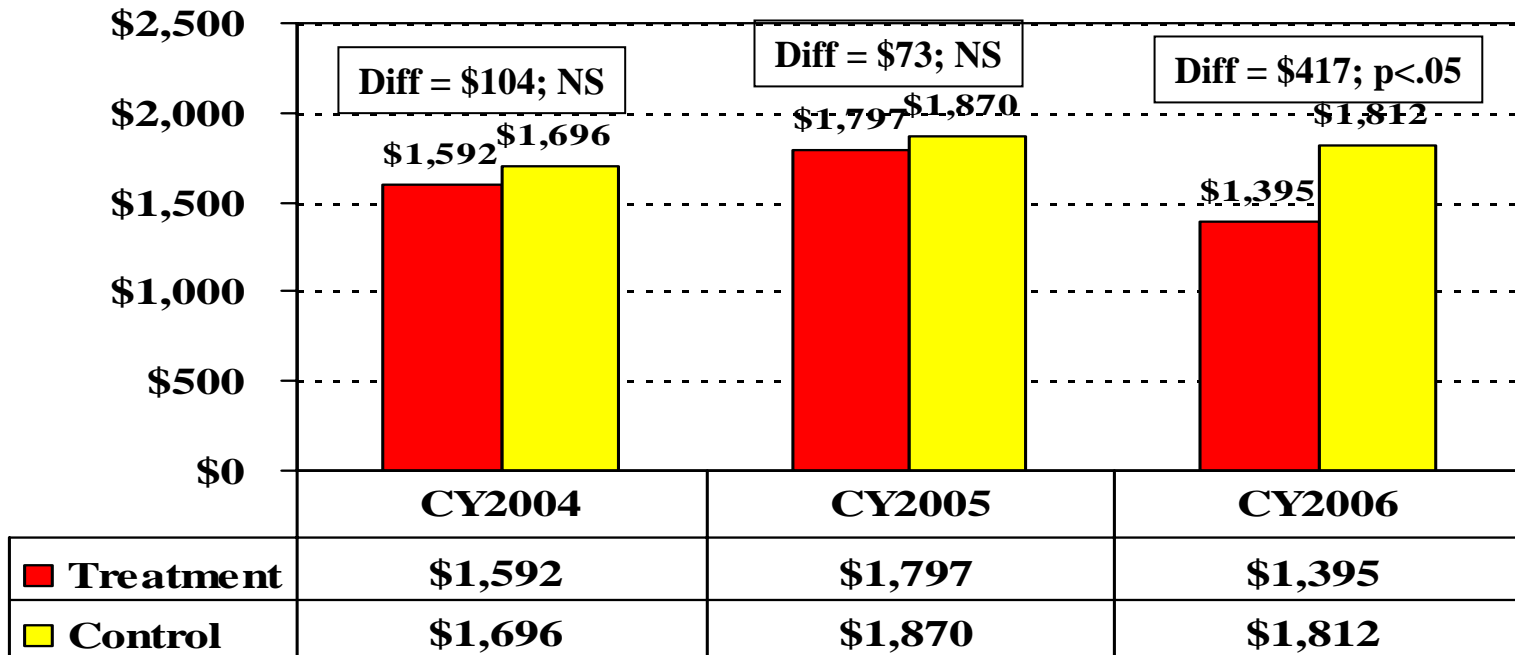
Outcome Measures

- Treatment and control groups had similar concurrent and prospective risk levels before intervention
- Please note, the two groups also had similar predicted cost, age, gender
- Would expect this – groups based on random assignment
- Intervention had no impact on risk levels – two groups also had similar risk after intervention
- Next – PMPMs (allowed dollars)

Findings - Financial

Treatment group had lower overall claim costs in the post-intervention period compared to the control group.

**Average Total (Physician, Facility, and RX) PMPM
Treatment Group Versus Control Group**

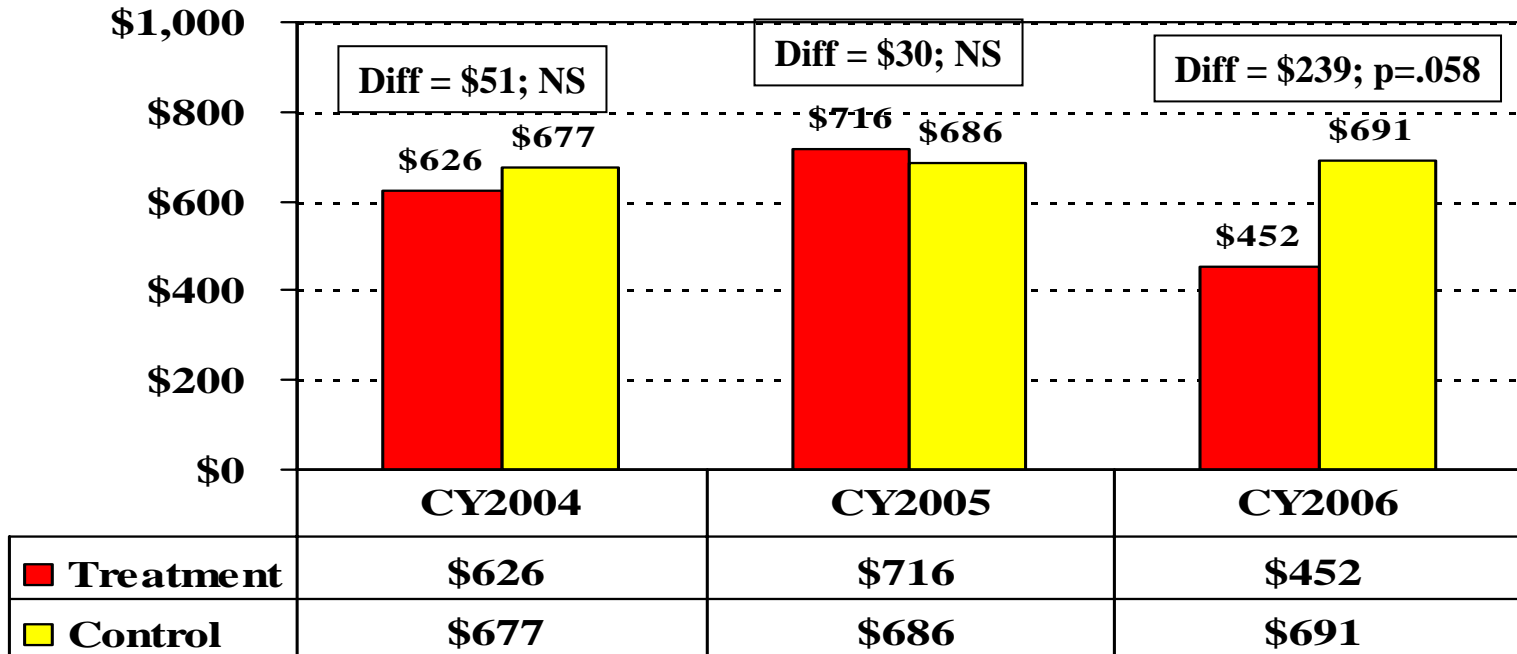


■ What's behind this trend?

Findings - Financial

Largest driver = facility expenditures.

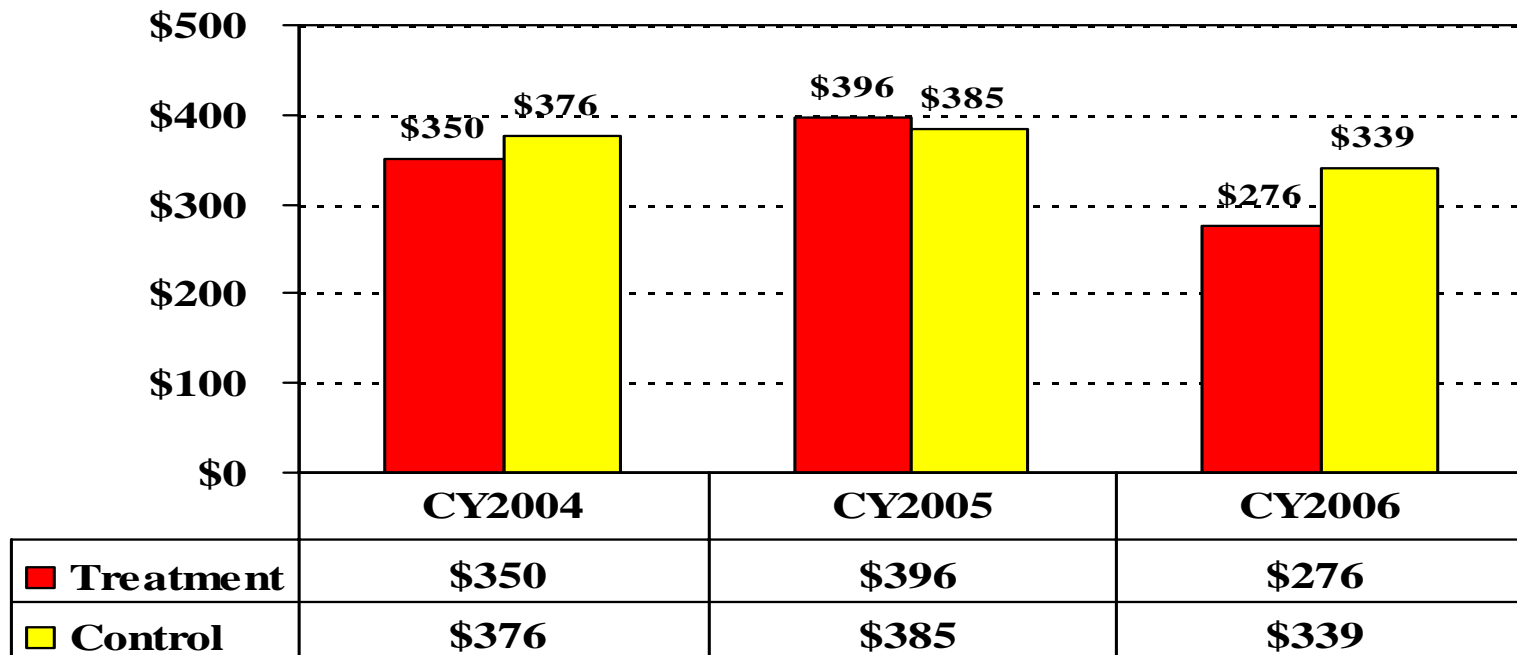
**Average Total Facility Claims PMPM
Treatment Group Versus Control Group**



Findings - Financial

In turn, facility expenditures driven by reductions in inpatient and outpatient costs.

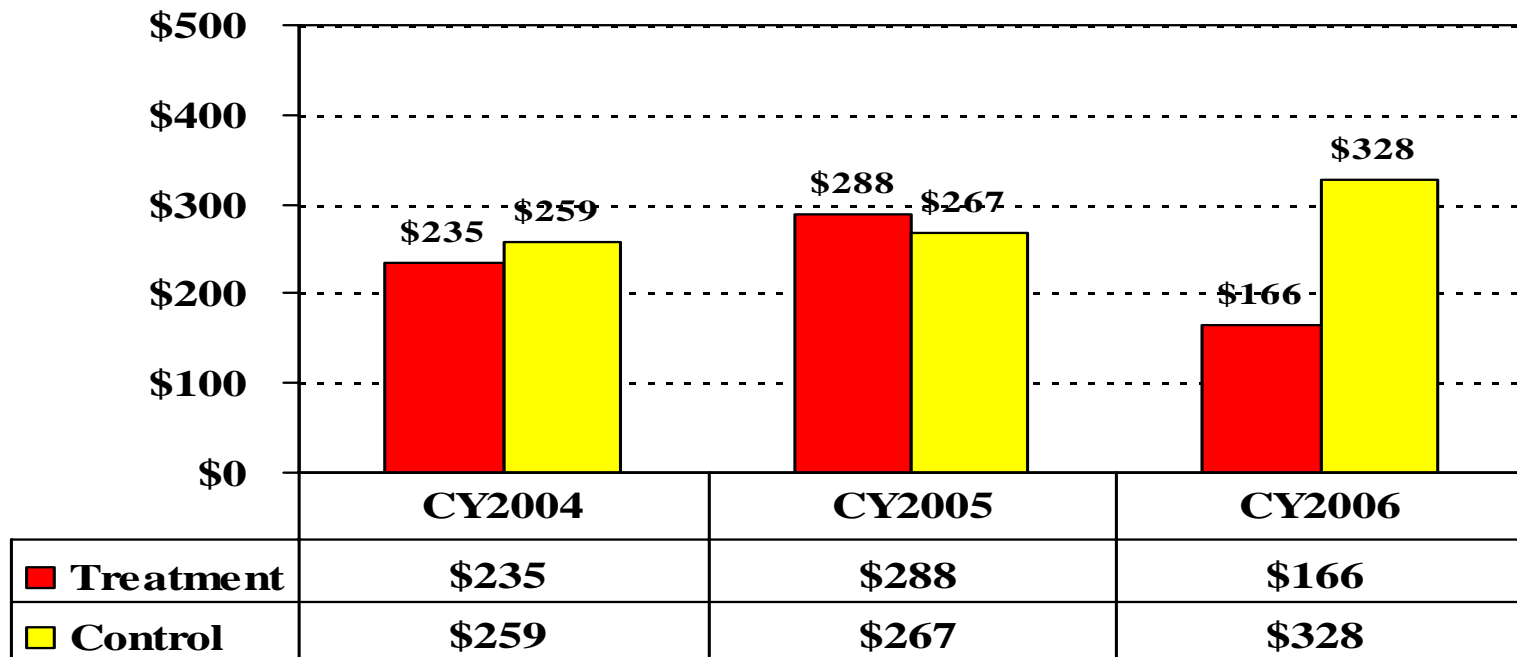
Average Total INPATIENT Facility Claims PMPM Treatment Group Versus Control Group



Findings - Financial

In turn, facility expenditures driven by reductions in inpatient and outpatient costs.

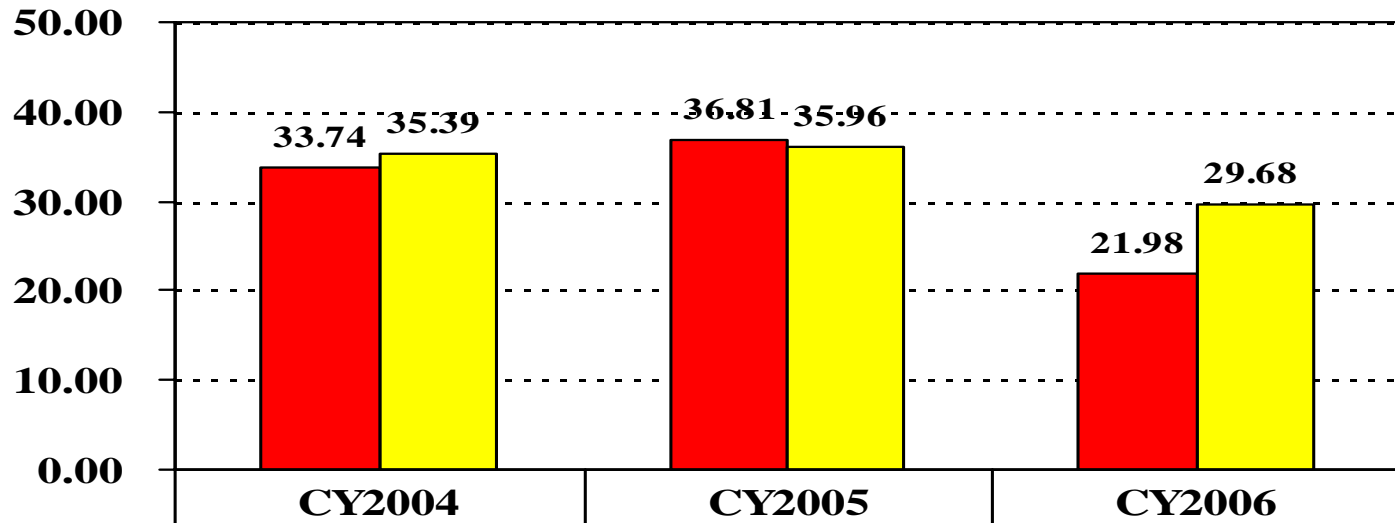
Average Total OUTPATIENT Facility Claims PMPM Treatment Group Versus Control Group



Findings - Financial

Further, facility expenditures driven by reductions in VISITS.

**Inpatient Visits Rate/1,000
Treatment Group Versus Control Group**

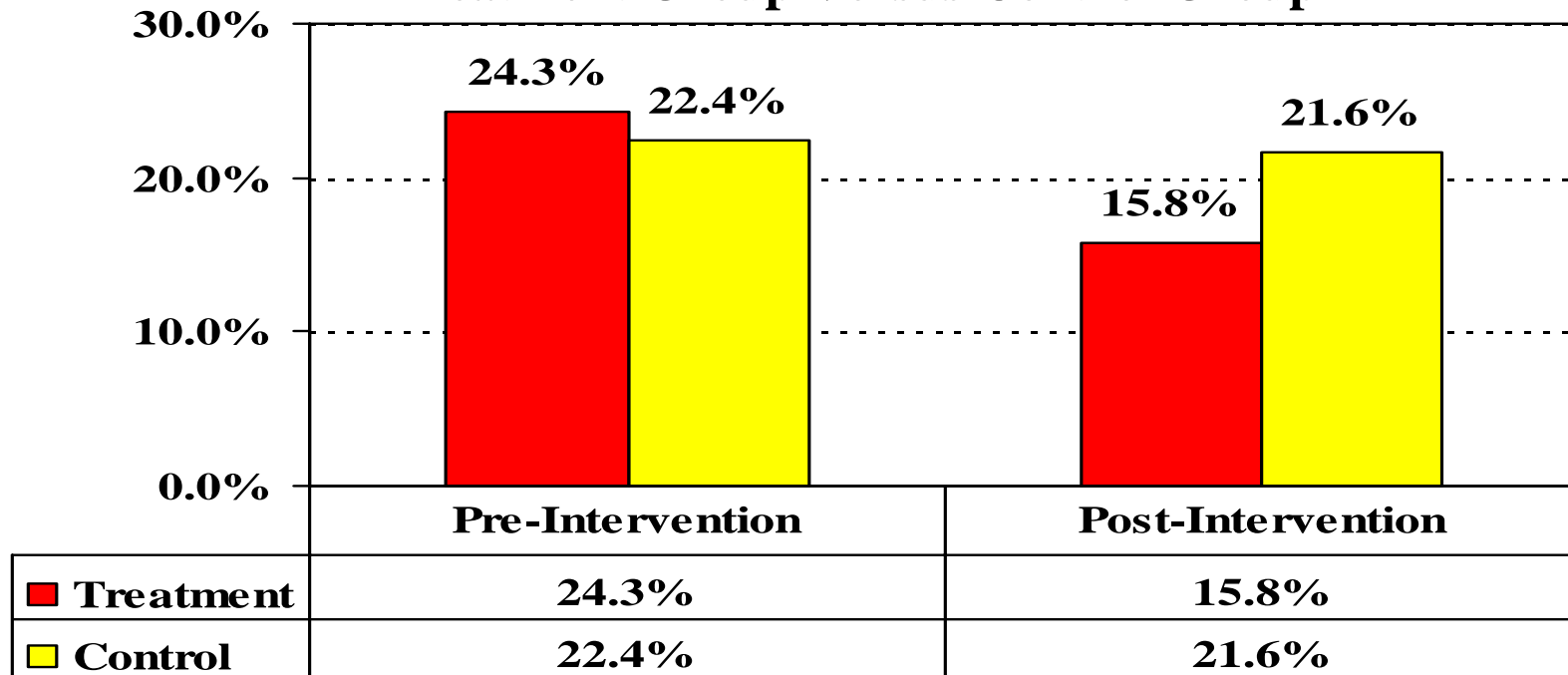


■ Treatment	33.74	36.81	21.98
■ Control	35.39	35.96	29.68

Findings - Financial

Facility claims PMPM appear related to a decrease in inpatient hospitalizations.....(earlier work – 9 months pre and post)

Percentage of Members with an Inpatient Hospitalization Treatment Group Versus Control Group



Findings - Financial

- **Using the same earlier work (9 months pre/9 months post) examined facility claims by primary diagnosis code.**
- **Two conditions appeared to be primary areas for decreases – mental health (e.g. depression) and chronic pain (e.g. low back conditions).**
- **These conditions are also fit in with the goals established for the members – top two were mental health/chronic pain.**

Additional Analysis

- Beginning to examine the average pre-post PMPMs for treatment group and control groups based on the level of claims/risk – e.g. the categories below:

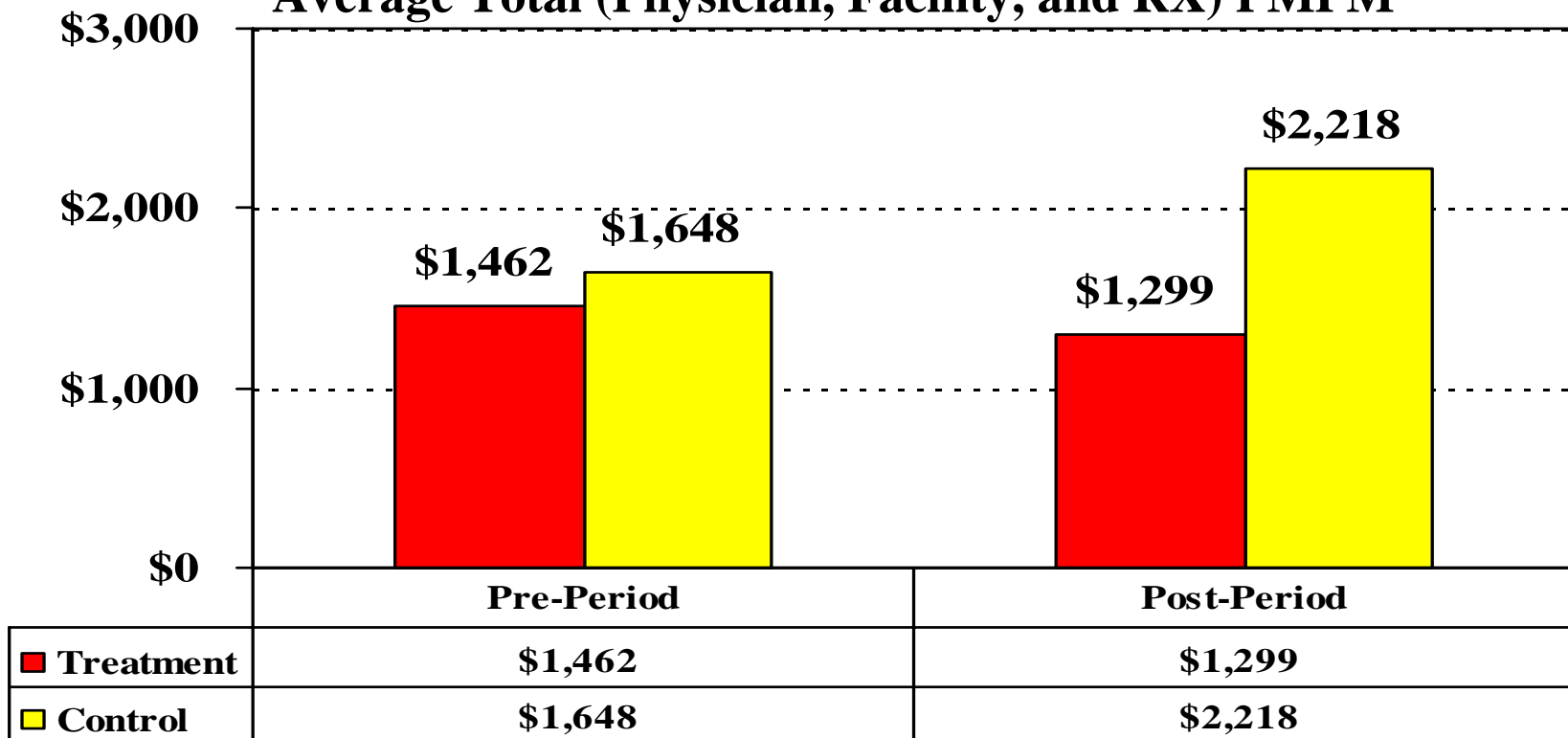
Probability of High Future Cost

Past 12 months Claim Costs	0.4 to 0.49	0.5 to 0.69	0.7 and higher	Totals
Under \$10,000	389 members (16% of total)	236 members (10% of total)	<i>52 members</i> <i>(2% of total)</i>	677 members (28% of total)
\$10,000 to \$29,999	400 members (17% of total)	463 members (19% of total)	<i>344 members</i> <i>(14% of total)</i>	1,207 members (51% of total)
\$30,000 and up	87 members (4% of total)	150 members (6% of total)	257 members (11% of total)	494 members (21% of total)
Totals	876 members (37% of total)	849 members (36% of total)	653 members (27% of total)	2,378 members

Additional Analysis

- Based on this initial analysis, data suggests largest effect may be for members who currently have low to moderate expenditures, but who have high likelihood of becoming high-cost.

**“Low to Moderate” Allowed Claims; “Highest” Risk Level Members
Average Total (Physician, Facility, and RX) PMPM**



Findings Summary - Financial

- The treatment and control groups had similar concurrent/predicted risk scores – did not change after intervention.
- The two groups had similar levels of expenditures before intervention, but treatment group had significantly lower PMPMs after intervention.
- Differences “driven by” members who accept program.
- Most of the difference in average PMPM appears related to the number and costs of inpatient and outpatient facility hospital claims.
- Previous review suggests the relative decrease may be related to depression and low back pain.
- The largest effects so far – “low to moderate” cost members who are predicted to become “high cost”.

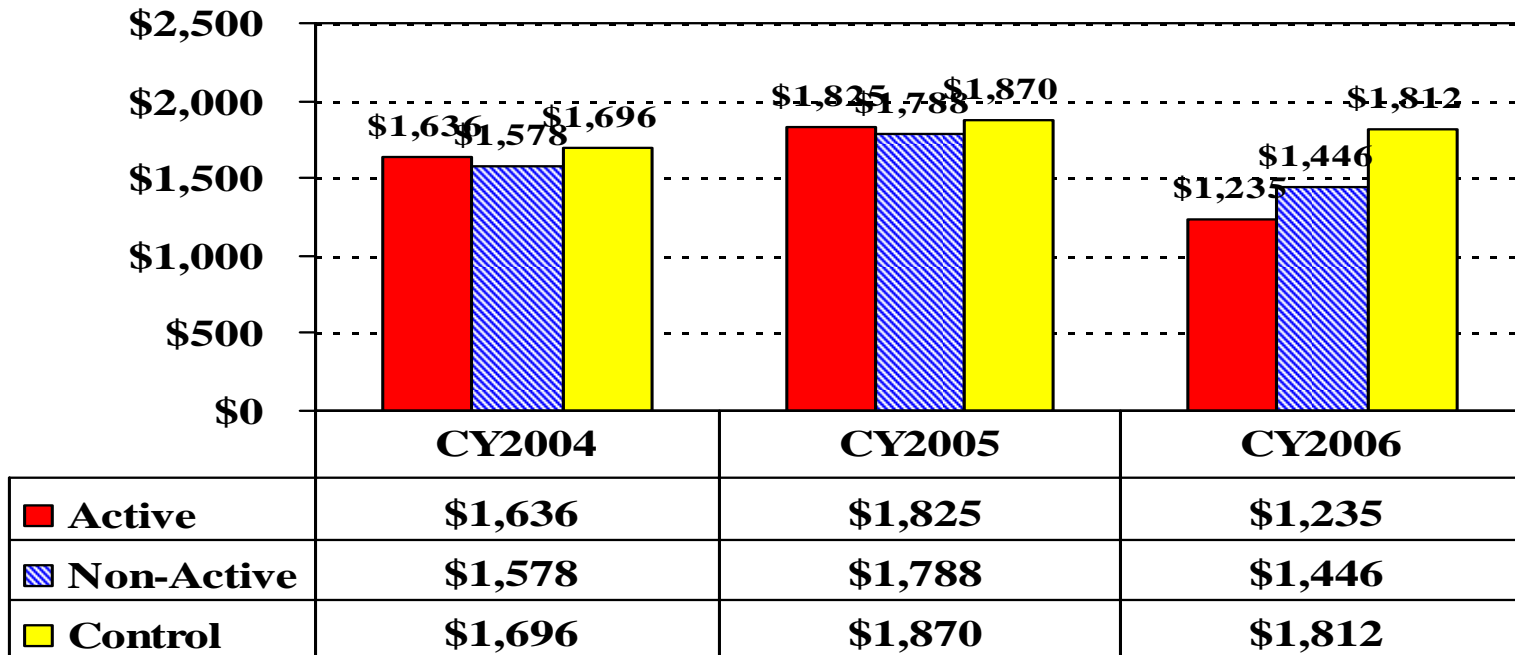
Considerations

- What happens after one year?
 - Risk scores didn't change – PMPMs did.
 - Are we making members healthier or only postponing?
- Are we having an inadvertent effect?
 - Control group continuous enrolled = 292 out of 500.
 - Treatment group = 329 out of 500.
 - Are we inadvertently retaining high-risk members? And if so, is it a bad or good thing?
 - Very complex question (e.g. member/employer group)...
- Are members who actively engaged adequately driving findings?

Findings - Financial

Not everyone agrees to participate. Of the 329 members in treatment group, 79 (24%) participated.

Average Total (Physician, Facility, and RX) PMPM Treatment Group Versus Control Group



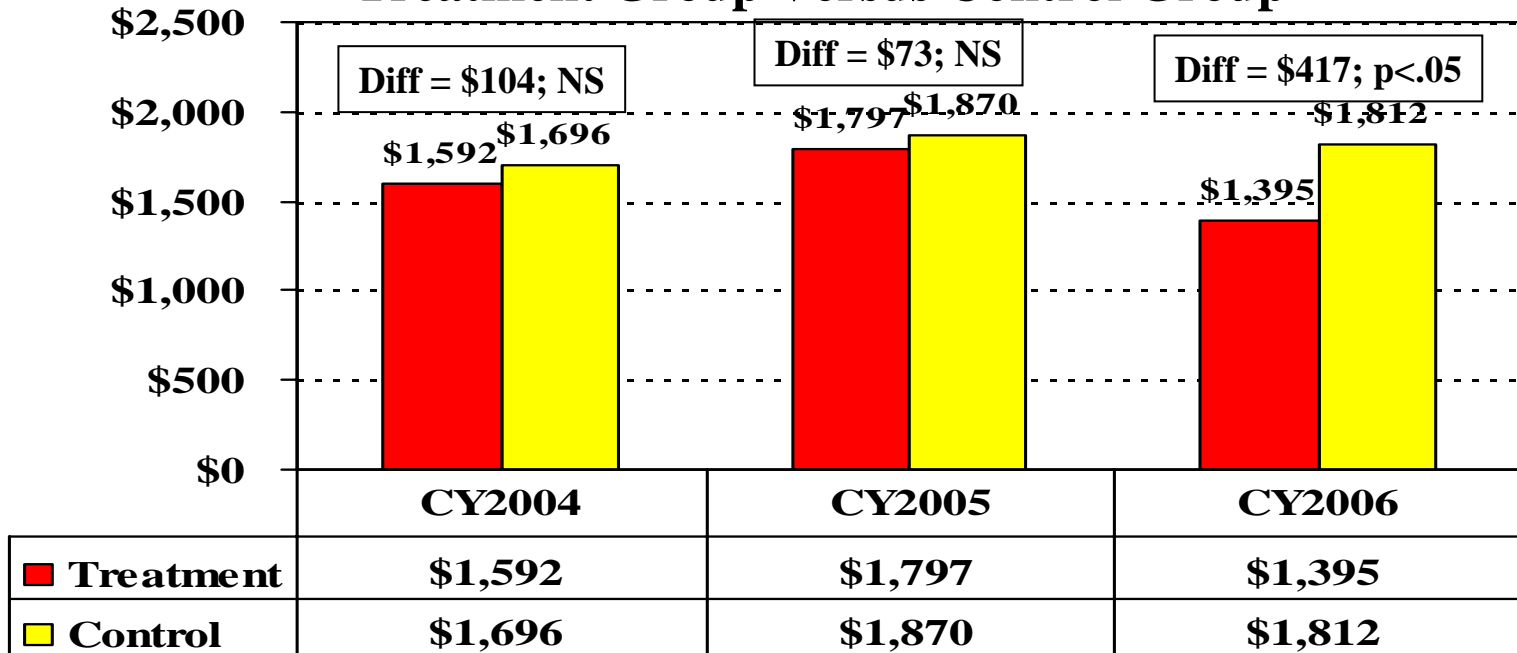
Conclusions

- By using random assignment – able to speak to the findings more confidently.
- It appears we are having positive impact
 - Considering expanding the program
- Supports idea that value may be identifying members before becoming high-cost
- Program appears to have greater impact in certain conditions/areas. Working to better screen in our identification.
- Still some unanswered questions:
 - Timeframe – keep examining past one year....
 - Enrollment effect?
 - Actively engaged versus non-actively engaged

Findings - Financial

Bottom line – we believe program is having positive impact.

**Average Total (Physician, Facility, and RX) PMPM
Treatment Group Versus Control Group**



Thank you! Questions/Comments?

Can also e-mail Mike.Sjomeling@Medica.com