Population Health Outcomes Benchmarking

How do you compare?

Are your programs working?

How can you get valid measurement with ingredients already in your kitchen?

What you will learn

- Does your DM work at all?
- If so, is it better than others?
- Does it have a positive ROI?
  - Where should you prioritize/cut back?
- Are your prevention efforts cost-effective or is it costing you (for example) $5000 to prevent a $500 asthma ER visit?

How event rate reporting differs from pre-post outcomes reports

1. Comparative
2. Valid
3. Long-term trends with strategic decision points
4. Focused on answering the question: "What are the most important 'failure points' in our chronic population and how well are we avoiding them vs. history and vs. benchmarks?"

Why “failure points” ?

- Because there is no need to finance DM or other programs to manage chronic disease members…*unless* they are out of control
  - Don’t just “do disease management”
  - Instead, *focus* your efforts where they can avoid failures—people falling through the cracks and ending up in the ER/hospital with preventable complications and attacks
    - This is exactly what manufacturers do—focus improvement efforts where there are high defect rates

Examples of what you will learn that you don't know but should know

- You are spending millions on (for example) heart disease management to avoid heart attacks
- Yet you don't know your own heart attack rate (and angina etc.), whether it's gone down since you started DM, and how it compares to others…
  - So how can do determine if your DM is effective or even necessary without those metrics?

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The “special sauce” – this is what you use to extract the data which answers that question

Disease Program Category	ICD9s (all .xx unless otherwise indicated)
Asthma	493 (including 493.2x)
Chronic Obstructive Pulmonary Disease	491.1, 491.2, 491.8, 491.9, 492, 494, 496, 506.4
Coronary Artery Disease (and related heart-health issues)	410, 411, 413, 414
Diabetes (CAD codes above will also indicate the success of the diabetes program)	250
Heart Failure	428, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, 425.0, 425.4

[1] 493.2x is asthma with COPD. It could fit under either category but for simplicity we are keeping it with asthma

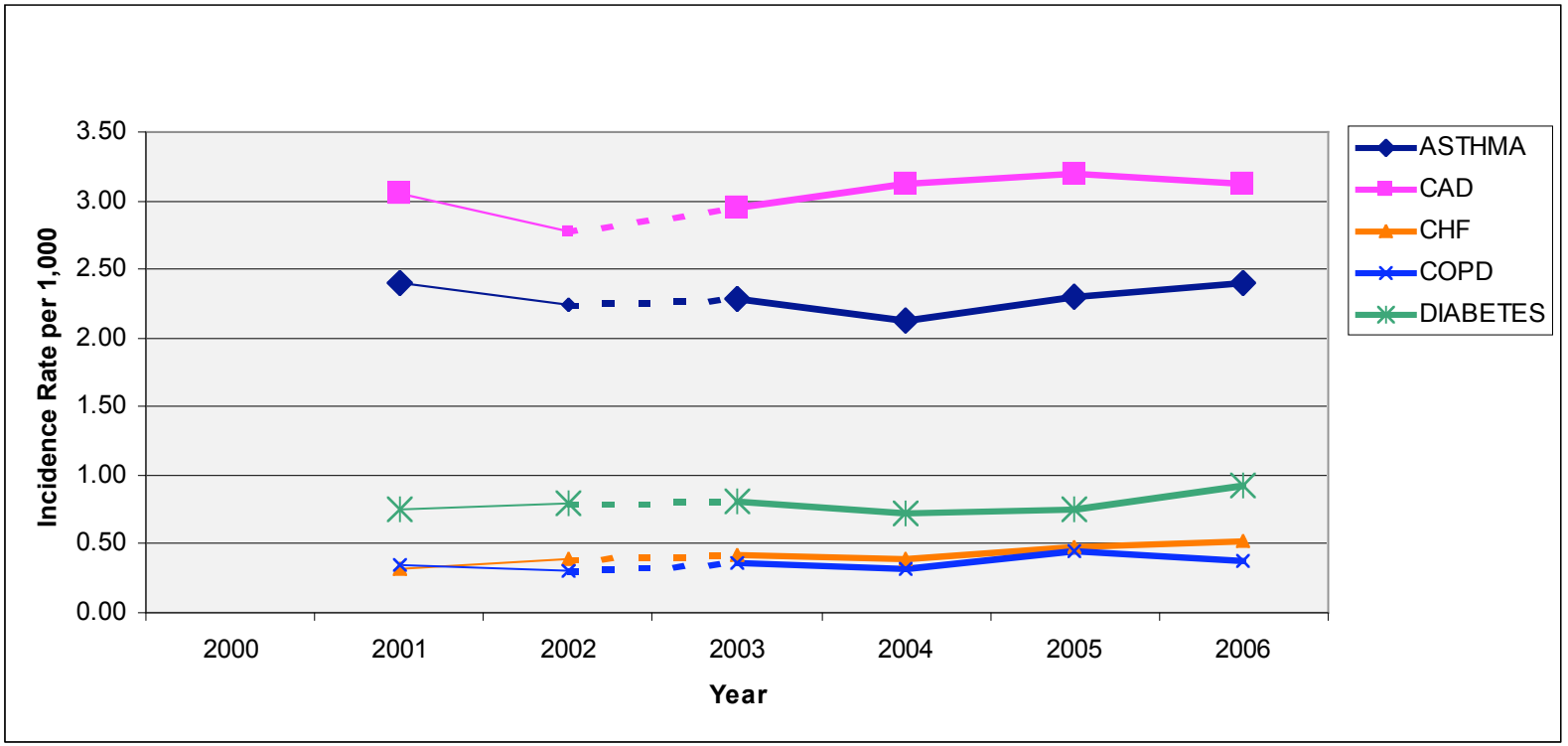
Based on that valid, reliable, accessible extraction…

- Use the 15 watch-outs to avoid mistakes (email me for the list)
- Collect your datapoints by year
- Divide by number of members (commercial, Medicare, TANF, disabled separately)

Key to Reading DM Benchmarking slides

- Your Own Disease Management
  - Thin lines are pre-program
  - Dotted lines are periods in which program was partially in place
  - Thick lines are program fully implemented
- National Average
  - Based on 30+ commercial health plans

Your own disease management:
Historical trend in event avoidance in DM-able conditions
Before and after DM program implementation
Rate of ER and IP events/1000 members ("event incidence")



Implications of Your Own Disease Management

- DM does not appear to have had an impact on adverse events
- Perhaps your ER/IP rates are already low
  - This can be checked against national averages to see if some conditions should be prioritized or if they are all low

Key to Reading DM Benchmarking slides

- Your Own Disease Management
  - Thin lines are pre-program
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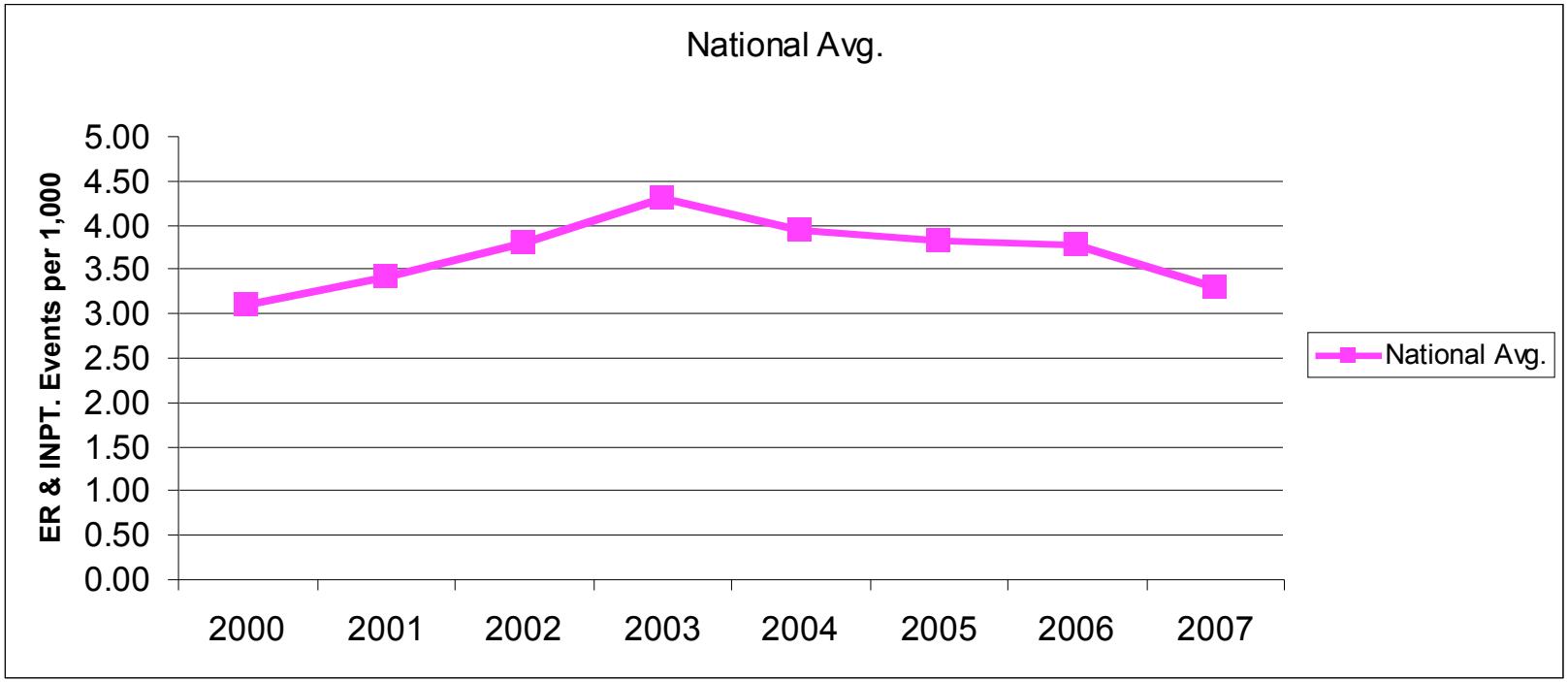
  - Thick lines are program fully implemented
- National Average
  - Based on 30 commercial health plans (30-million lives)
  - Only database of its kind in the US
    - Can be split into regions, provider-owned etc.

Example of National Average Event Rates
Heart Attacks, Angina Attacks, other Ischemic Events
(CAD)



Implications (CAD example)

- Improvements in usual care, adherence to protocols and disease management have turned national trend around
  - It appears to diverges from trend towards more obesity, diabetes prevalence
    - Later we will compare event rate (hard numbers) to prevalence rates (soft numbers)

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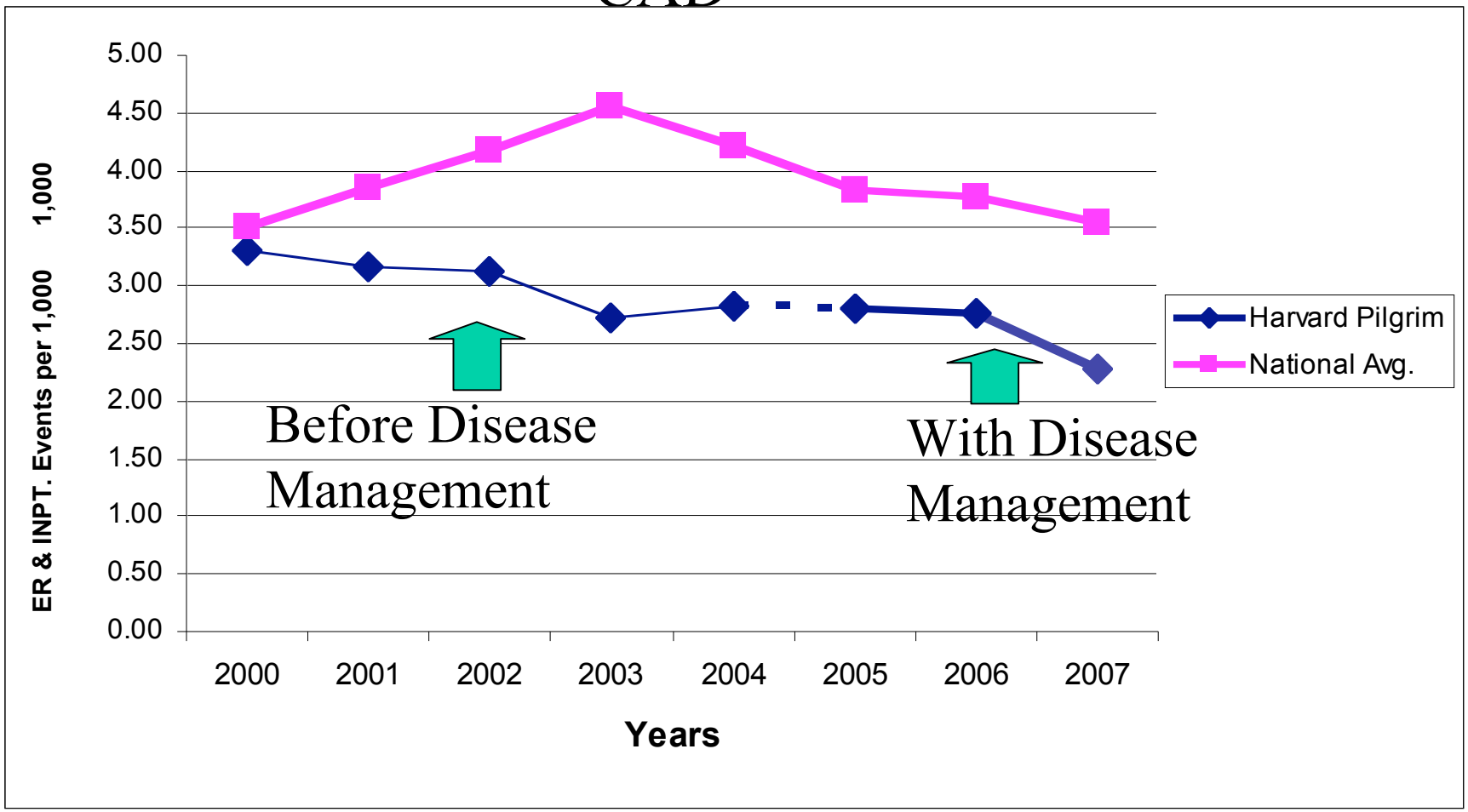
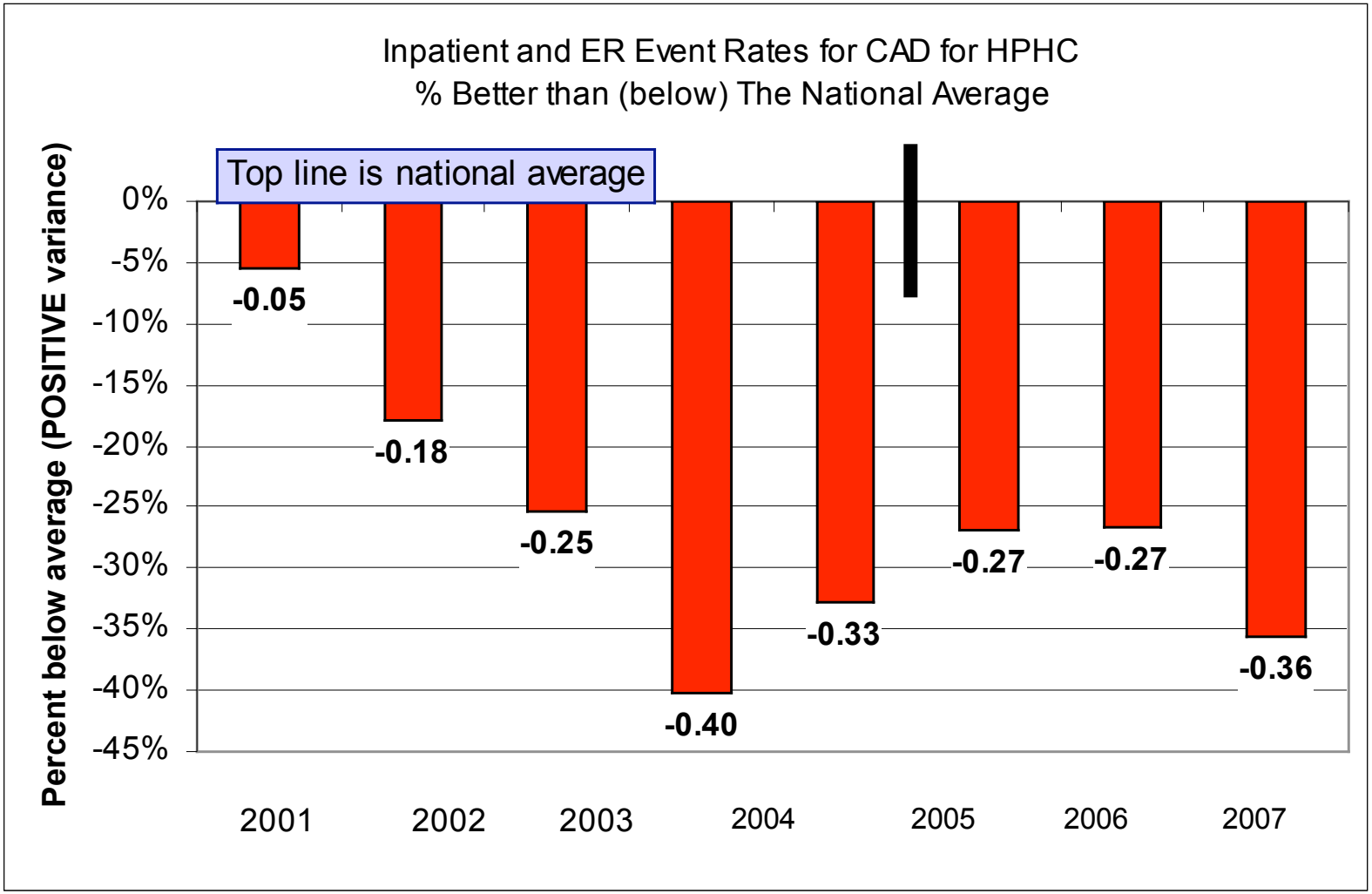
ER and Inpatient Event Rates (Commercial) Harvard Pilgrim vs. National Average
- CAD -

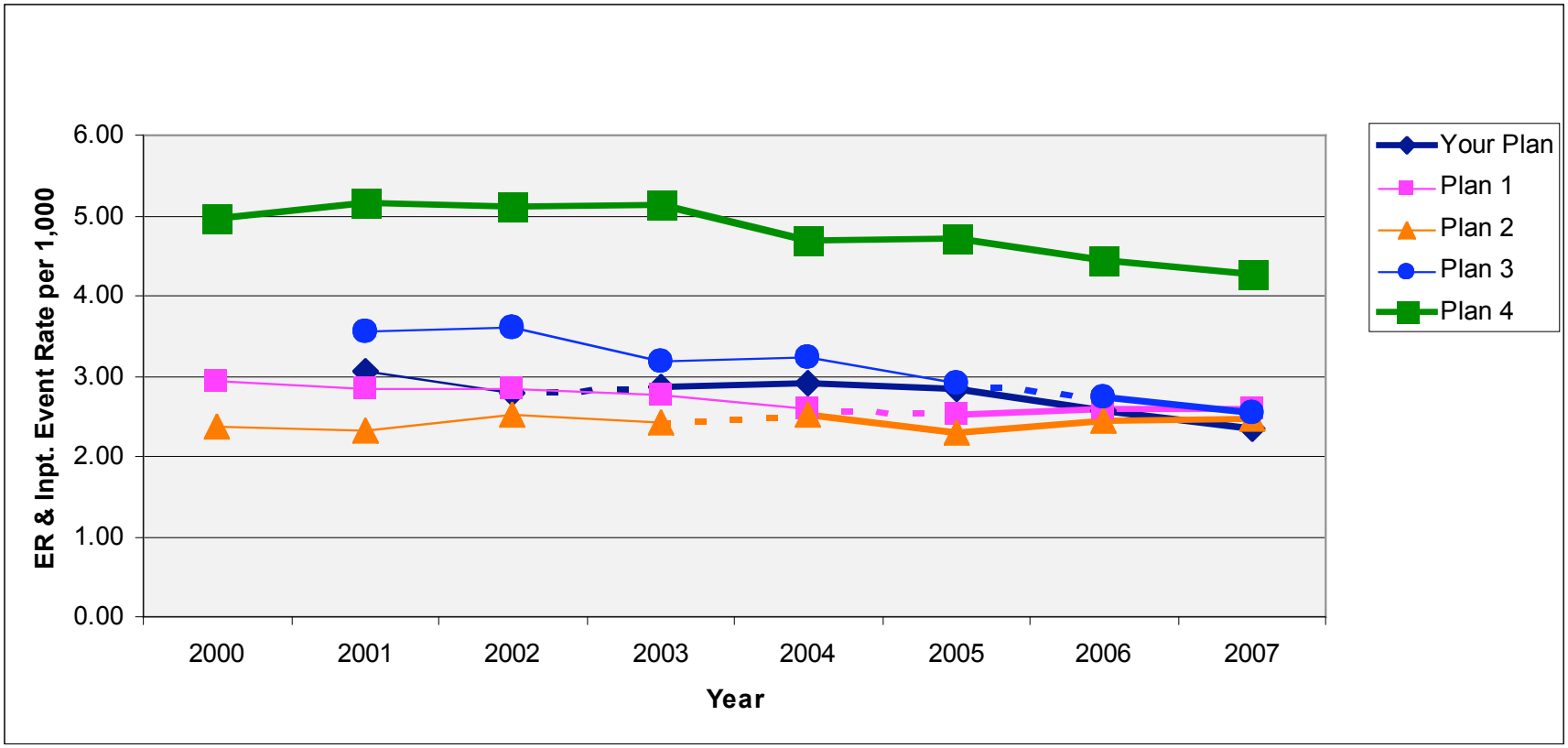




You can also compare…

- …Yourselves to peers who are willing to do the same datapull
  - Remember, any health plan can request the data pull information and complete it on their own at no cost
- Here is an example of a peer comparison

Your Plan ER & Inpatient Event Rates as compared to other like health plans
Per 1,000 Commercial Members
- CAD -



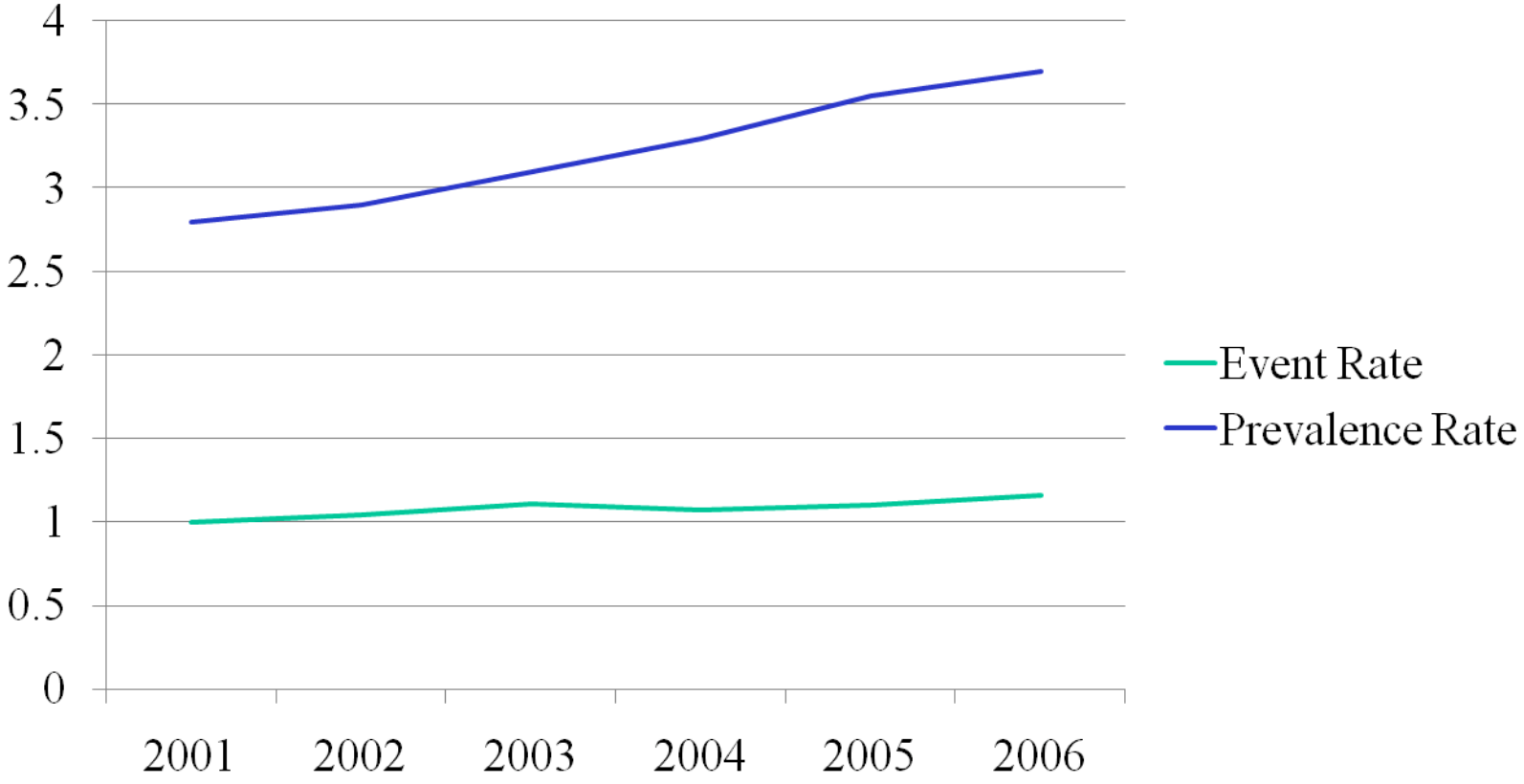
Implications

- 4 of those 5 plans are in the exact same region
- All have improved, some faster than others
- Unexplained variance has been reduced to almost zero as all plans institute DM and most MDs practice according to protocols

Let's compare event rates to prevalence rates

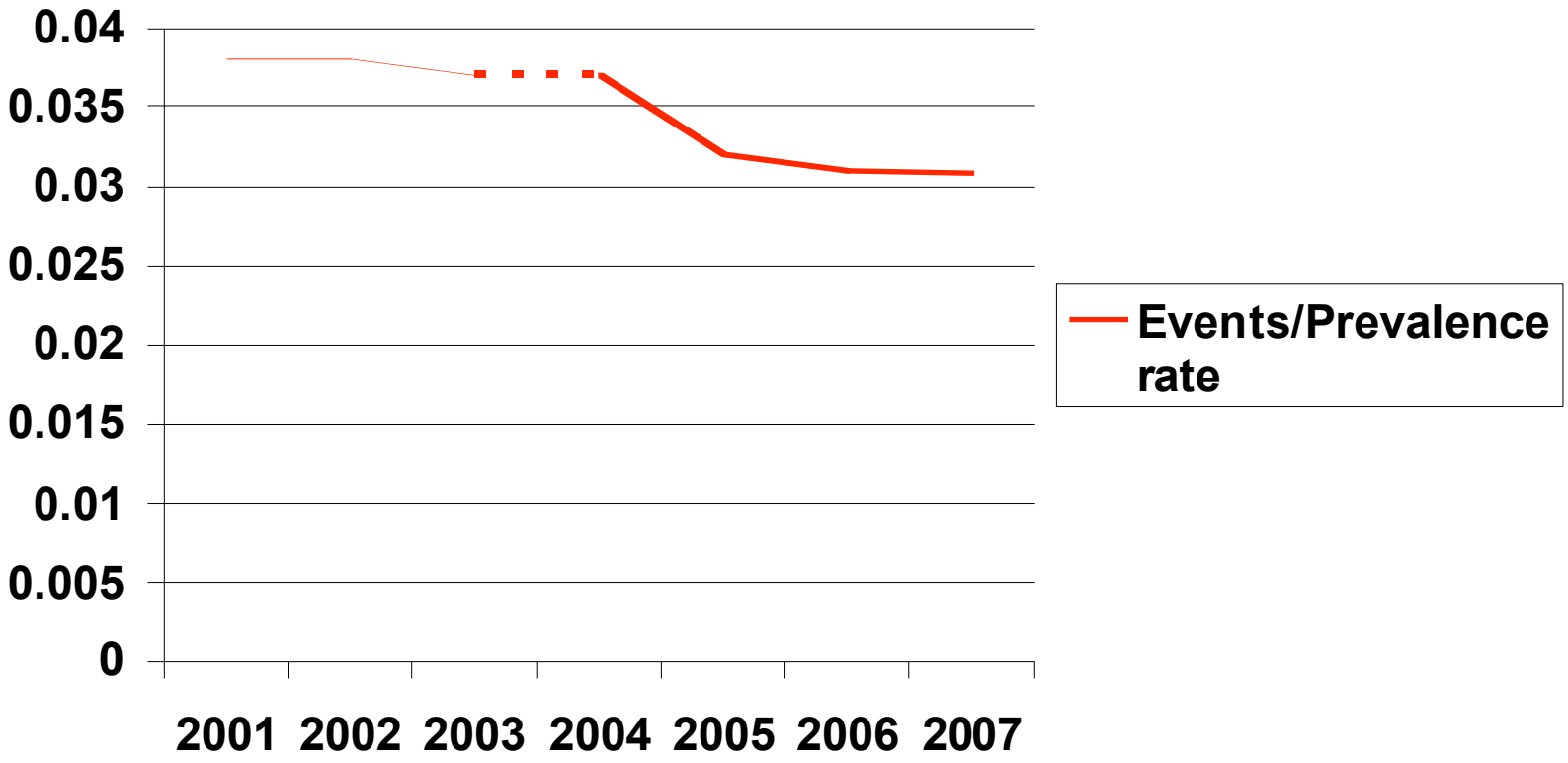
- This will tell you if you are adversely selected
  - How well are you playing the hand you are dealt?
- Note that unlike event rates which are "hard" numbers, prevalence rates are calculated in non-standard fashion and one can't always trust the cross-sectional conclusions
  - However, generally one can trust the historic trendlines

Diabetes event rate (250.xx) vs. prevalence rate (calculated using the same algorithm every year)



Note that incidence rates are per 1000 and prevalence rates per 100 – to put them on the same page I am using two different scales

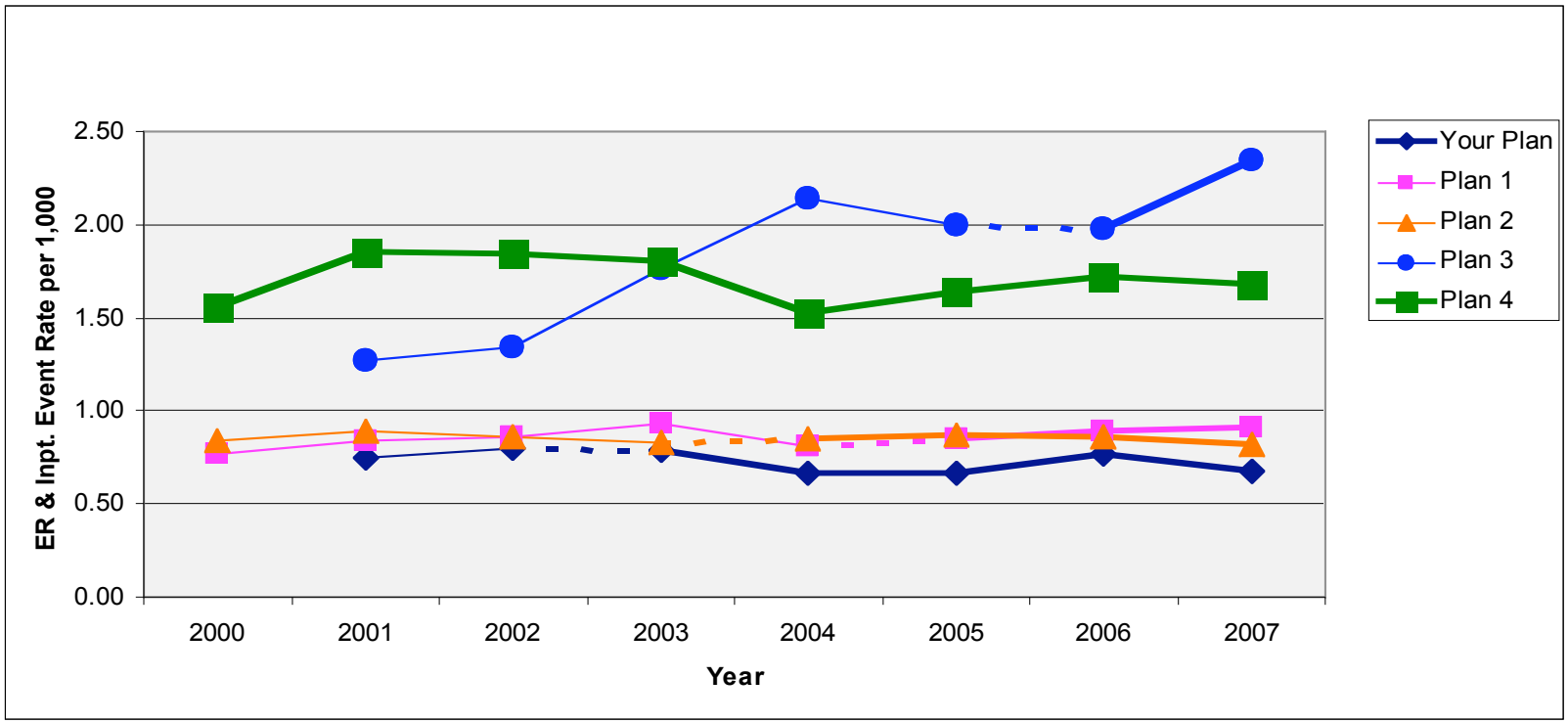
Ratio of Events to Prevalence for diabetes



Was the diabetes DM program successful?

- Despite diabetes “epidemic” the 250.xx event rate climbed very slowly
  - More slowly than the prevalence
- But how does this compare to other payors?
- You can compare yourselves to peers again

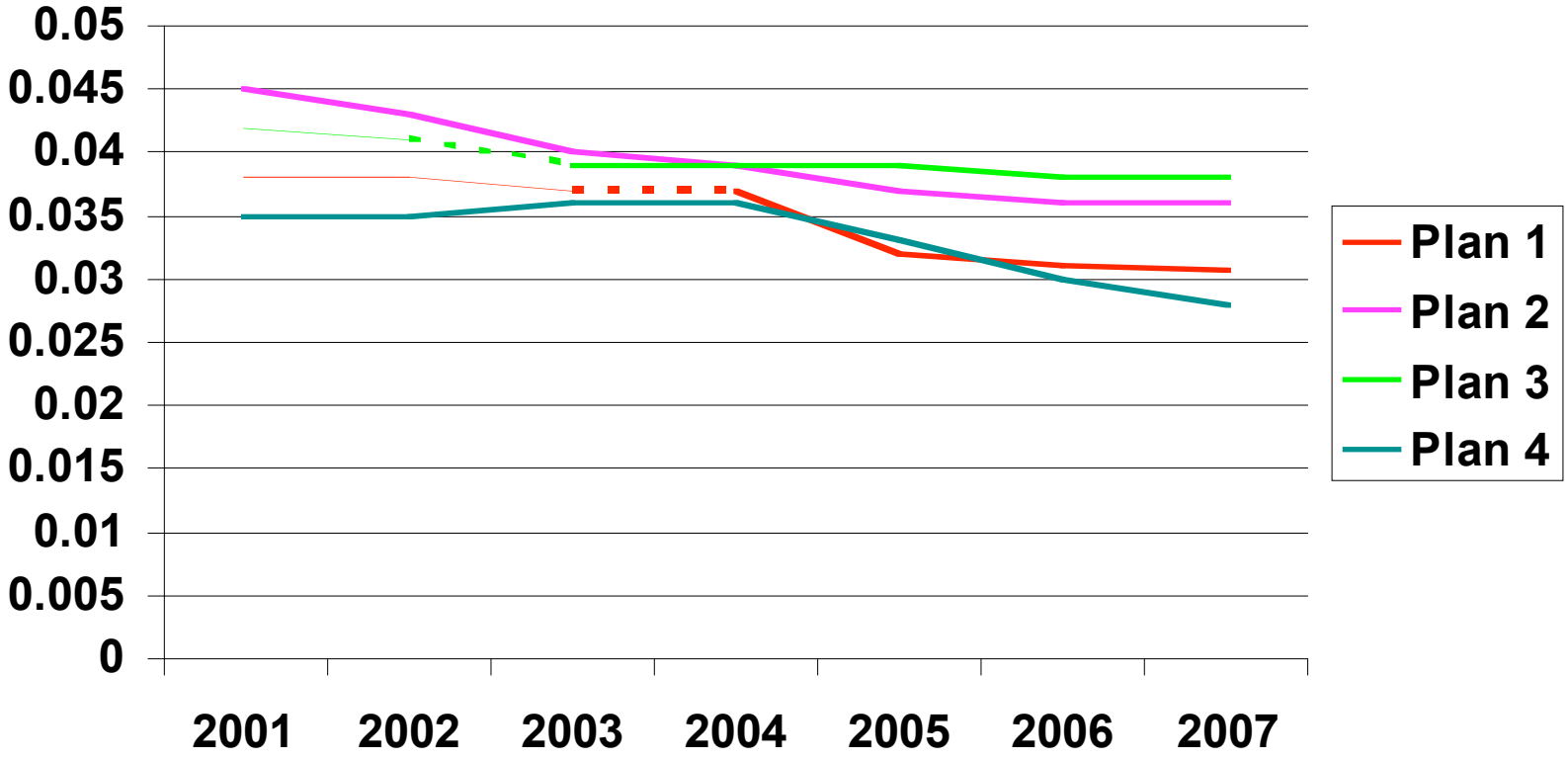
Five Plans' ER & Inpatient Event Rates
Per 1,000 Commercial Members
- Diabetes -



Implications

- Unlike CAD events, 250.xx events have been flat-to-rising
  - This is because underlying prevalence of diabetes is increasing, even faster
- We have, for four plans in the database (not the previous ones), a comparison of event rates and prevalence increases

Events/Prevalence for diabetes multi-health plan comparison



Event Rate/Prevalence Rate

- It looks like diabetes DM works even though the raw event rate for 250.xx has increased in most places
  - Event rate has not increased as fast as the prevalence rate
  - Plan 3 lagged
  - Clearly some improvement was due to usual care so looking at relative outperformance is the way to measure
  - The other variable to measure is, how much did the program cost?

How much did the programs cost?

- Outsourcing generally costs more than in-sourcing
- The next level of analysis is to compare your relative performance to your relative cost
  - The laggard, Plan 3, was outsourced and the price was higher than for the other two outsourced plans in that chart

What you will learn

- Does your DM work at all?
- If so, is it better than others?
- Does it have a positive ROI?
  - Where should you prioritize/cut back?
- Are your prevention efforts cost-effective or is it costing you (for example) $5000 to prevent a $500 asthma ER visit?

How to determine your *real* ROI using "Number needed to decrease" analysis (note: NND invented by Ariel Linden)

- Formula uses primary coded event rates for ER and IP, ALOS, cost/day and cost per ER visit
- Very important – there is a "comorbidity index" -- for every 10 primary-coded events avoided, how many co-morbidities are avoided?
  - This varies by condition (very low for asthma, high for diabetes) and index may be varied by you on spreadsheet

Typical Co-Morbidity Index

For Every Avoided specifically coded event in:	This many comorbid events are avoided
asthma	0.2
heart attack, angina, ischemia	0.2
CHF	3
COPD	1
diabetes	4

ASTHMA INCLUDING COMORBIDITIES

If you are being shown savings in asthma your entire outcomes report (not just asthma) is invalid

- Assume:
  - $0.25 PMPM for asthma alone ($0.60 per contract holder if employer)
  - $2000/day inpatient and $400/ER visit
  - Standard event rates and admission rates from ER
  - 2-day ALOS
  - 1 avoided comorbidity for every 5 avoided asthma events

It turns out that – and look at the spreadsheet in your copious free time – that…

- Total spending on asthma ER and IP events is only a little higher than the cost of the program itself
  - IP and ER events would have to decline by 60%+ just to break even, assuming no increase in drug spending
  - You can see this for yourself on the spreadsheet
  - Don't even attempt to follow the math on this webinar

Snippet of Spreadsheet
(to show what it looks like from 30,000 feet – you can request one free from DMPC)

Disease Management Cost PMPM		PMPY (calculated)
asthma	$ 0.10	$ 1.20
heart attack, angina, ischemia	$ 0.25	$ 3.00
CHF	$ 0.25	$ 3.00
COPD	$ 0.25	$ 3.00
diabetes	$ 0.25	$ 3.00
Claimed Program ROI	1.0	
Approximate average cost per day for hospital	$ 2,600	
% of all disease-specific events which are IP (vs. ER)		
asthma	20%	These can be changed
heart attack, angina, ischemia	70%	These are averages
CHF	90%	
COPD	70%	
diabetes	60%	
ALOS -- Inpatient		
asthma	2.0	
heart attack, angina, ischemia	5.0	
CHF	6.0	
COPD	6.0	
diabetes	4.0	
ALOS approximate average with ER visits counted at 0.2 days -- this is the average event LOS (including		
asthma	0.6	
heart attack, angina, ischemia	3.6	
CHF	5.4	
COPD	4.3	
diabetes	2.5	
relevant comorbidity rate		DMPC estimates
For every one admission/ER visit prime for the prime morbidity, the following number is avoided for comor		
asthma	0.2	
heart attack, angina, ischemia	0.2	
CHF	3	
COPD	1	
diabetes	4	
Current inpatient admissions rate (includes ER at 0.2 rate)		
asthma	0.35%	Input from benchmarki
heart attack, angina, ischemia	0.40%	Once again, these are
CHF	0.15%	
COPD	0.10%	
diabetes	0.15%	

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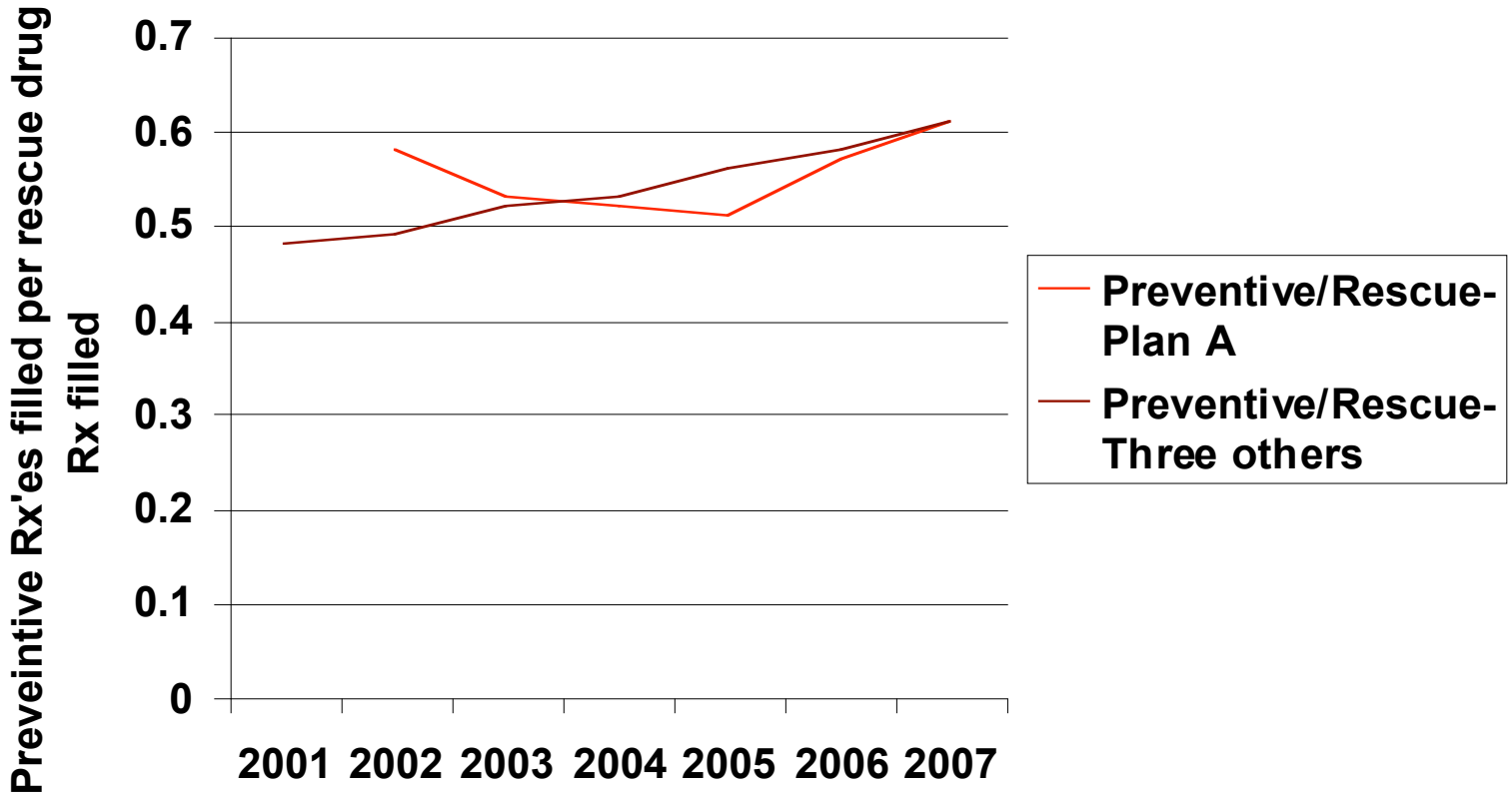
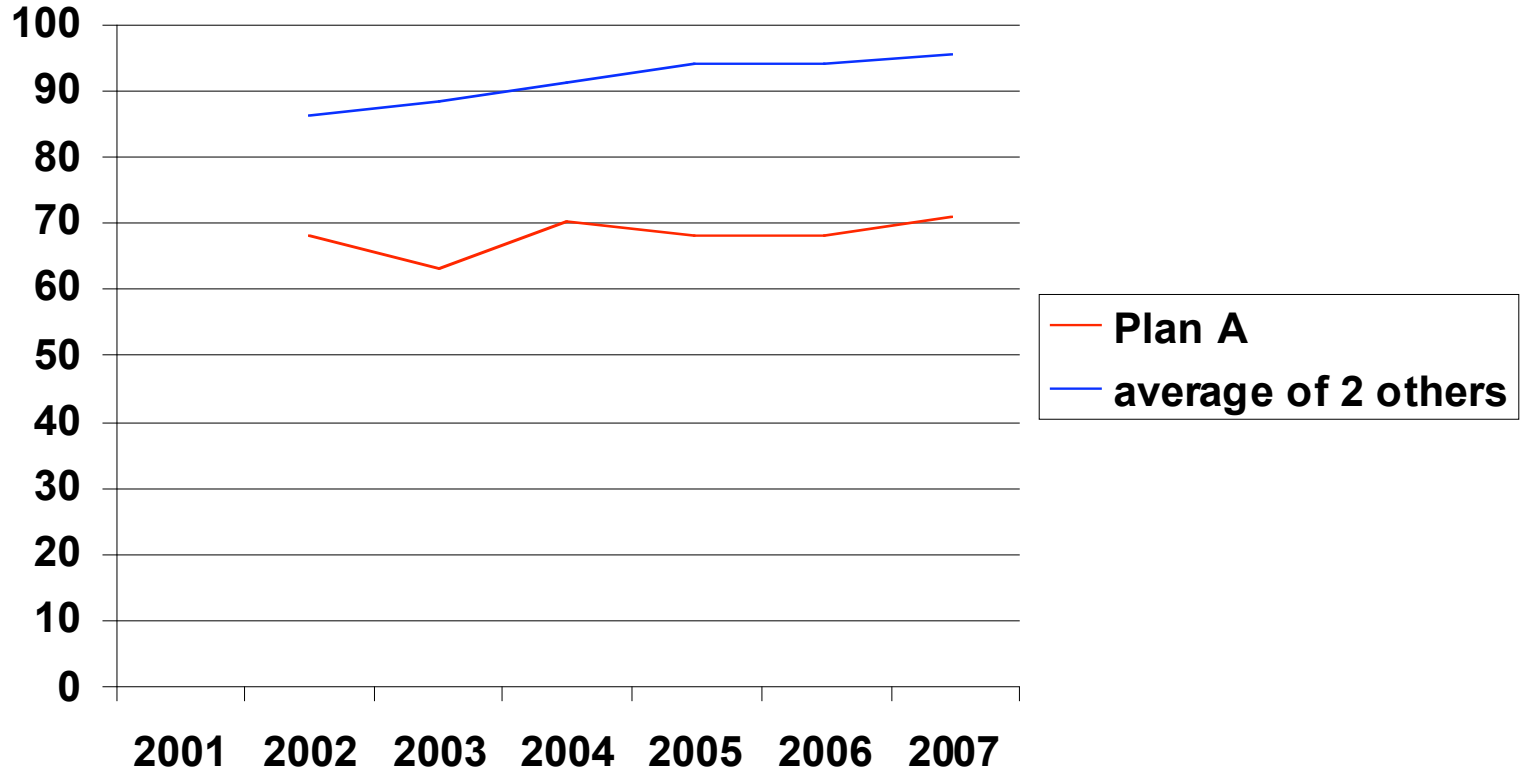
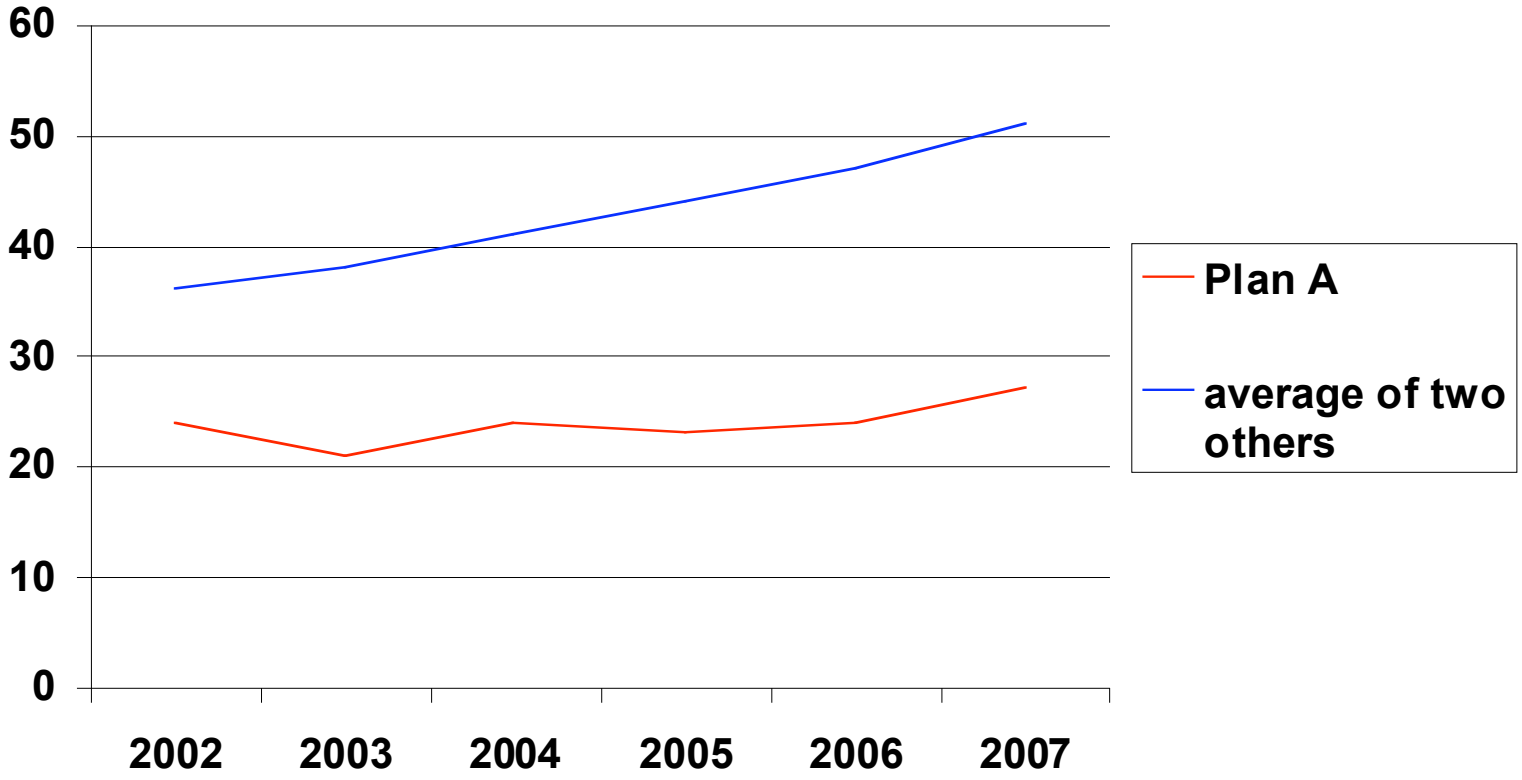
Asthma: How well are you moving people into preventive care



Total prescriptions filled vs. total events



Preventive prescriptions per event



Plan A vs. others

- Doctors write fewer scripts per event
  - Could be because there are more events but it appears that the doctors are just better because events are being avoided (see below)

Events avoided calculation for Plan A

- The event rate in the population in 2002, had it continued through 2007, vs. the actual event rate in 2007
  - Adjusted for population change, would be 1936 more ER visits and IP stays
  - You paid for 44,506 more preventive prescriptions over that period, or about 23 scripts per incremental event avoided

Implications for 2 other plans

- They are writing 50+ preventive Rx's for each $500 ER event avoided
- Is this too much prevention?
- Should they also be doing DM to get more patients on preventive meds?
- Should they be paying docs P4P to get them to use more of the "right" asthma meds?

Next steps

- You can get valid measurement using just the tools in this session
- You can compare yourselves historically and also create a peer group, or join the DMPC peer group
- You will learn whether your DM has worked and has been cost-effective
  - You will almost certainly find that asthma DM and asthma P4P is “too much prevention.”

In loving memory of Janet Speers (Lewis) 1959 - 2008