Disease-Specific Event Reduction "Plausibility Indicators"

The reasons for widespread marketplace acceptance

Agenda

- Logic
- Dealing with Populations Subject to Trend
- Examples
- Acceptance

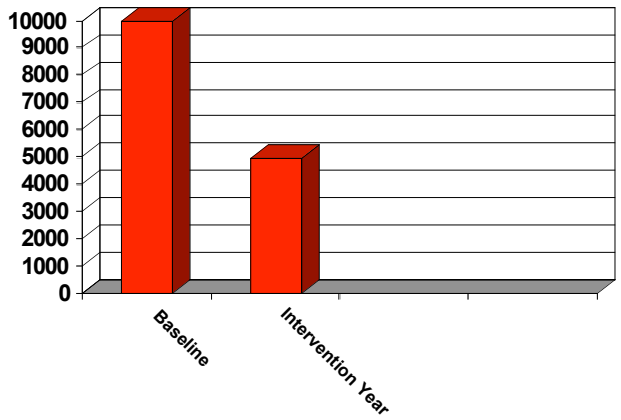
Reprise of Ariel's Definition: Logic

- An asthma nurse is talking to asthma patients about asthma. Much if not most of the reduction in claims should be in asthma. It is not plausible to say, "We earned a 2:1 ROI in asthma" with a pre-post if there was no significant reduction in asthma admissions/ER visits ("plausibility")

Pre-post Analysis vs. Event-Based "plausibility analysis"

- Example: Babies
- Suppose you want to reduce your plan's birth rate (now 10,000 babies a year) by instituting free contraception and family planning
- For a pre-post analysis, to find eligibles, you take everyone with a claim for a birth during the last two years
  - That is the cohort with which you are working

Births in your 2-Year Baseline Cohort: Pre-post analysis



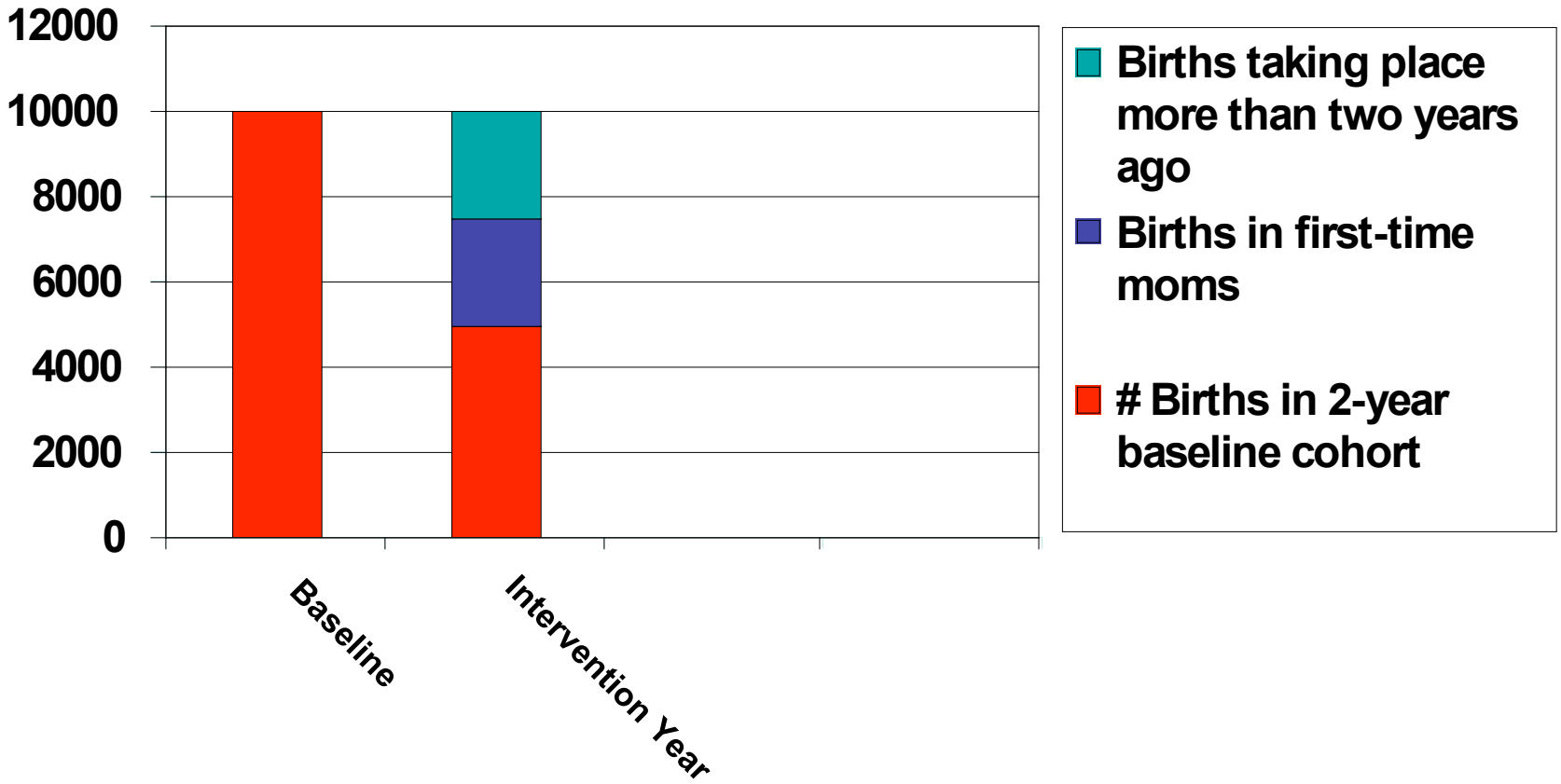
Would you say:

- "We achieved a 50% reduction in births and costs of birth through our contraception and family planning programs" ?

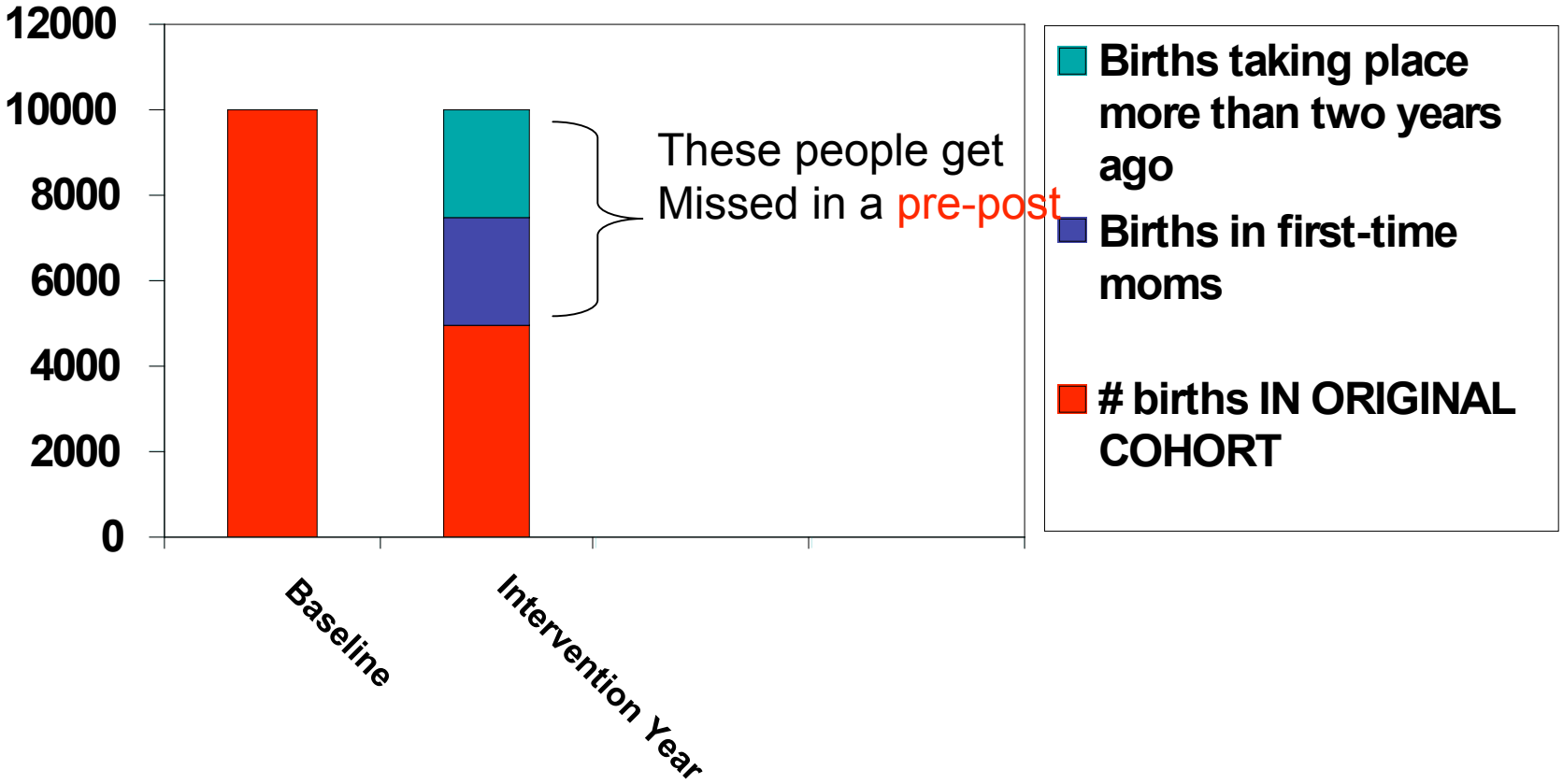
Of course not. You would say:

- "This is absurd…you would never just measure births in a cohort. You'd measure in the entire plan."
  - Measuring the entire plan is an event-based plausibility analysis to check the pre-post, as in this example

Births in your entire Health Plan: The event-based plausibility analysis

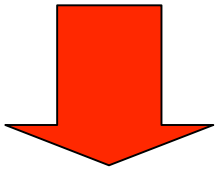


Births in your entire Health Plan: The event-based plausibility analysis



Babies vs. chronic disease

- "This is absurd…you would never just measure births in a cohort. You'd measure in the entire plan."



But this is precisely what you do when you measure pre-post for chronic disease and then track your performance vs. the baseline. Let's use a hypothetical from a chronic disease and include cost and show how Pre-post gives you a much different – and much less Valid – result than a plausibility-based event measurement

Example from Asthma
First asthmatic has a $1000 IP claim in 2004

	2004 (baseline)	2005 (contract)
Asthmatic #1	1000	
Asthmatic #2		
Cost/asthmatic		

Example from Asthma

Second asthmatic has an IP claim in 2005 while first asthmatic goes on drugs (common post-event)

	2004 (baseline)	2005 (contract)
Asthmatic #1	1000	100
Asthmatic #2	0	1000
Cost/asthmatic		

Cost/asthmatic in baseline?

	2004 (baseline)	2005 (contract)
Asthmatic #1	1000	100
Asthmatic #2	0	1000
Cost/ asthmatic	$1000	

Cost/asthmatic in contract period?

	2004 (baseline)	2005 (contract)
Asthmatic #1	1000	***100***
Asthmatic #2	0	***1000***
Cost/asthmatic	$1000	***$550***

Using “event-based plausibility indicator” of total primary asthma IP codes

	2004 (baseline)	2005 (contract)
Asthmatic #1	1000	***100***
Asthmatic #2	0	***1000***
Number of IP codes	1	*1*

Conclusion

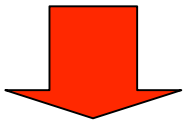
- The "plausibility analysis" showed no change in asthma events
- Invalid pre-post financial results caused by the unfound asthmatic in base year (just like unfound people getting pregnant in previous example)
  - This is very common—many people with a condition don't have disease-identifiable claims every year
- No money was saved despite pre-post "result" (costs went up)

Difference between babies and chronic disease

- Better-established trends in babies
- Unlikely to miscode a birth (though miscoding primary IP/ER events generally is a wash year over year)

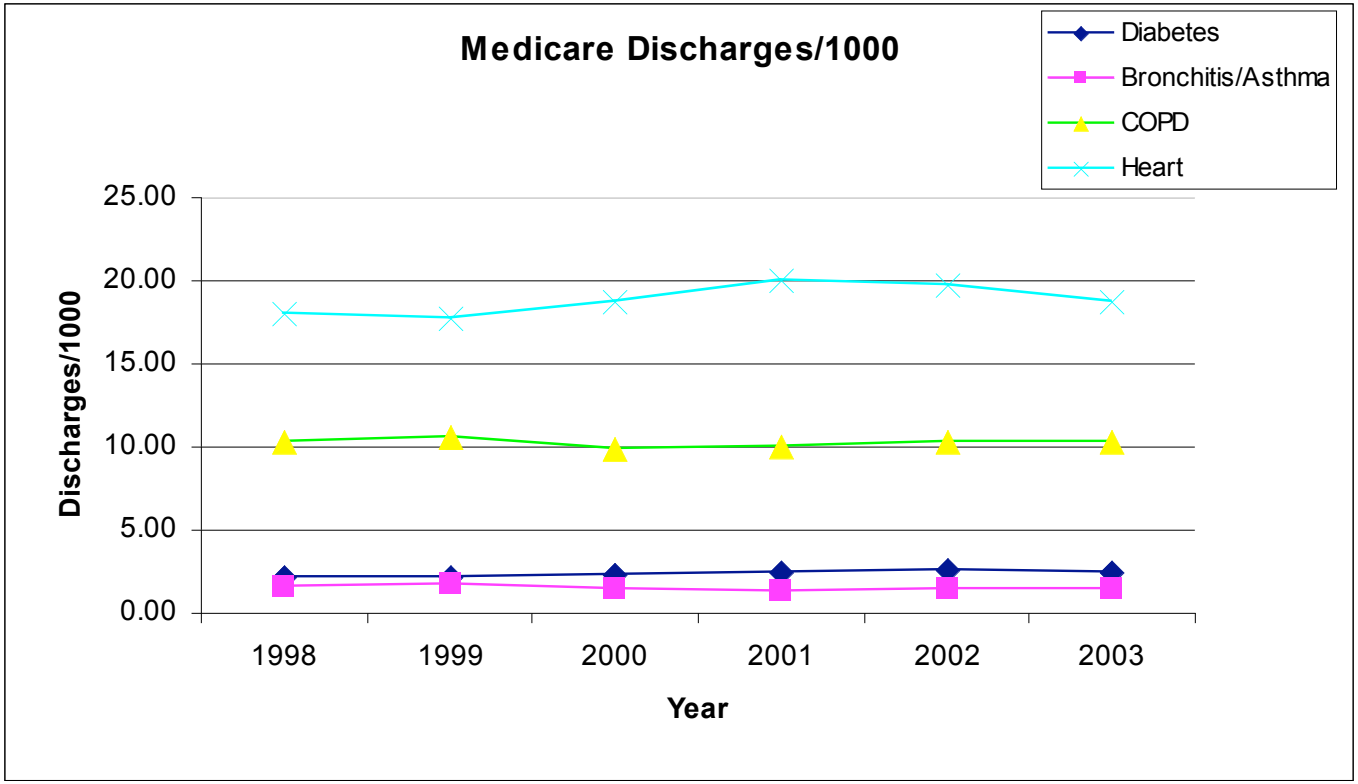
What Can Happen to Move Chronic Disease Trend

- Change in demographics of plan (adding a large municipality, for example)
- Major change in usual care
- Major change in physician behavior
- Change in underlying rate of disease-specific events (due to prevalence or usual care)



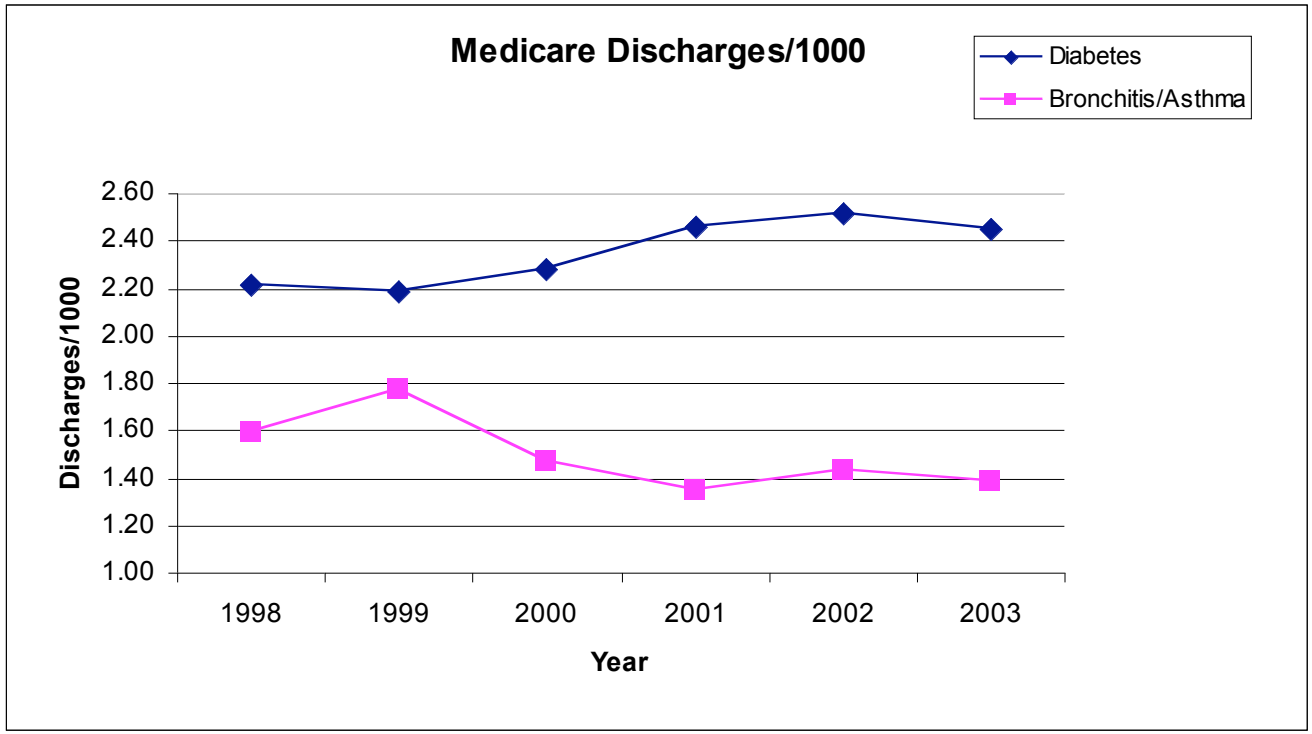
Next slide will show that these tend to move the line in small percentages while DM should create large percentage declines

Recent Medicare Inpatient Admission Trends (note: similar in commercial – even major Trends take place slowly)



Source: CMS reports, 2000-2006 and thanks to Ian Duncan, who supplied it

Enlarging the picture…

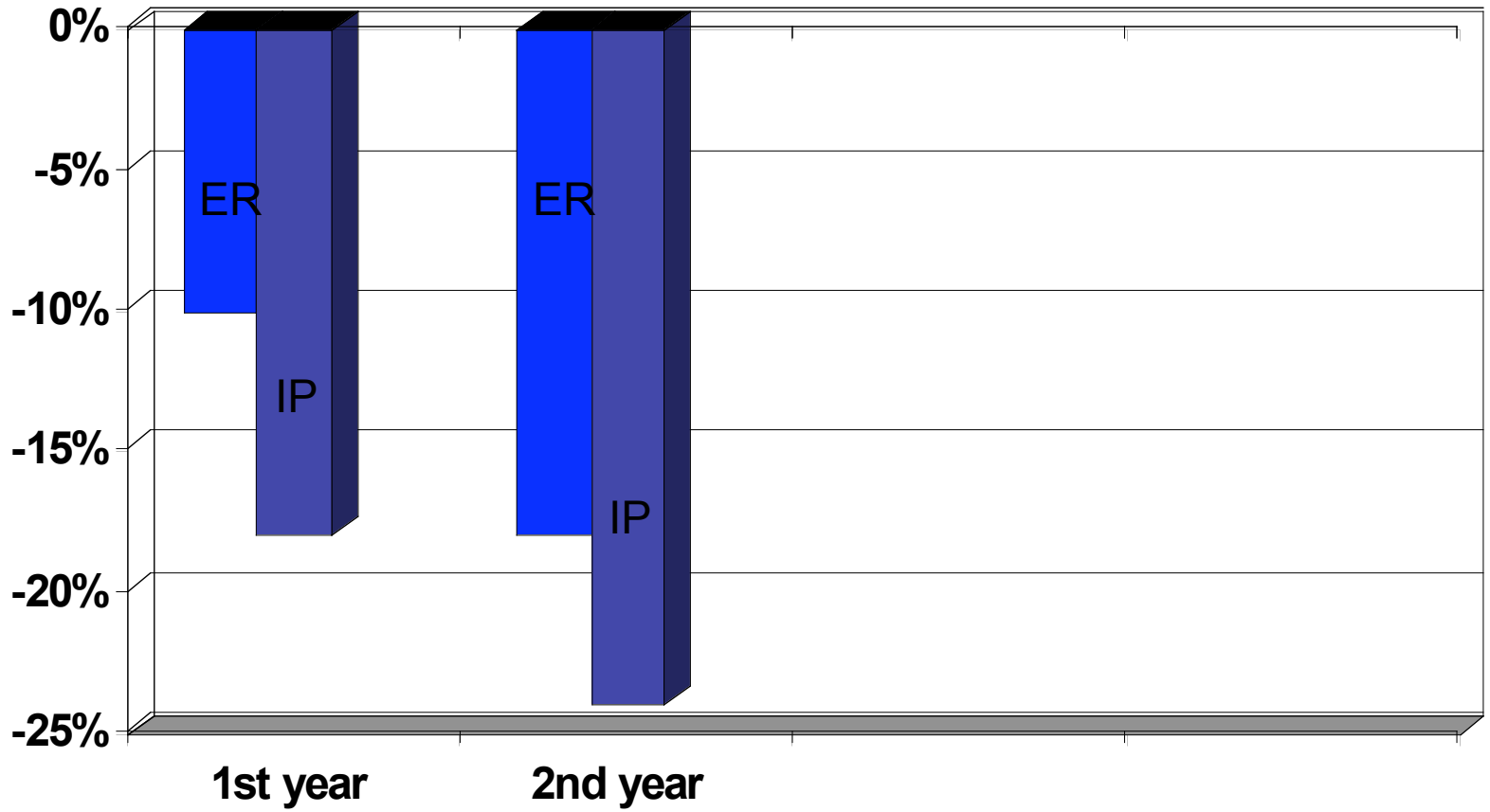


Annualized trends: Diabetes: 2.1%; Asthma: -2.8%; COPD: 0.2%; Heart: 0.8%

Agenda

- Logic
- Dealing with Populations Subject to Trend
- Examples
  - Note that the vendor report example would require major inflections of trend
  - Note that it is events only, not procedures (which are discontinuous)
  - Note that it is consistent with Ariel's research showing that significant event rate changes needed to get ROI
- Acceptance

Example of just looking at Diagnosed people in pre-post: Vendor Report of Asthma Cost/patient Reductions

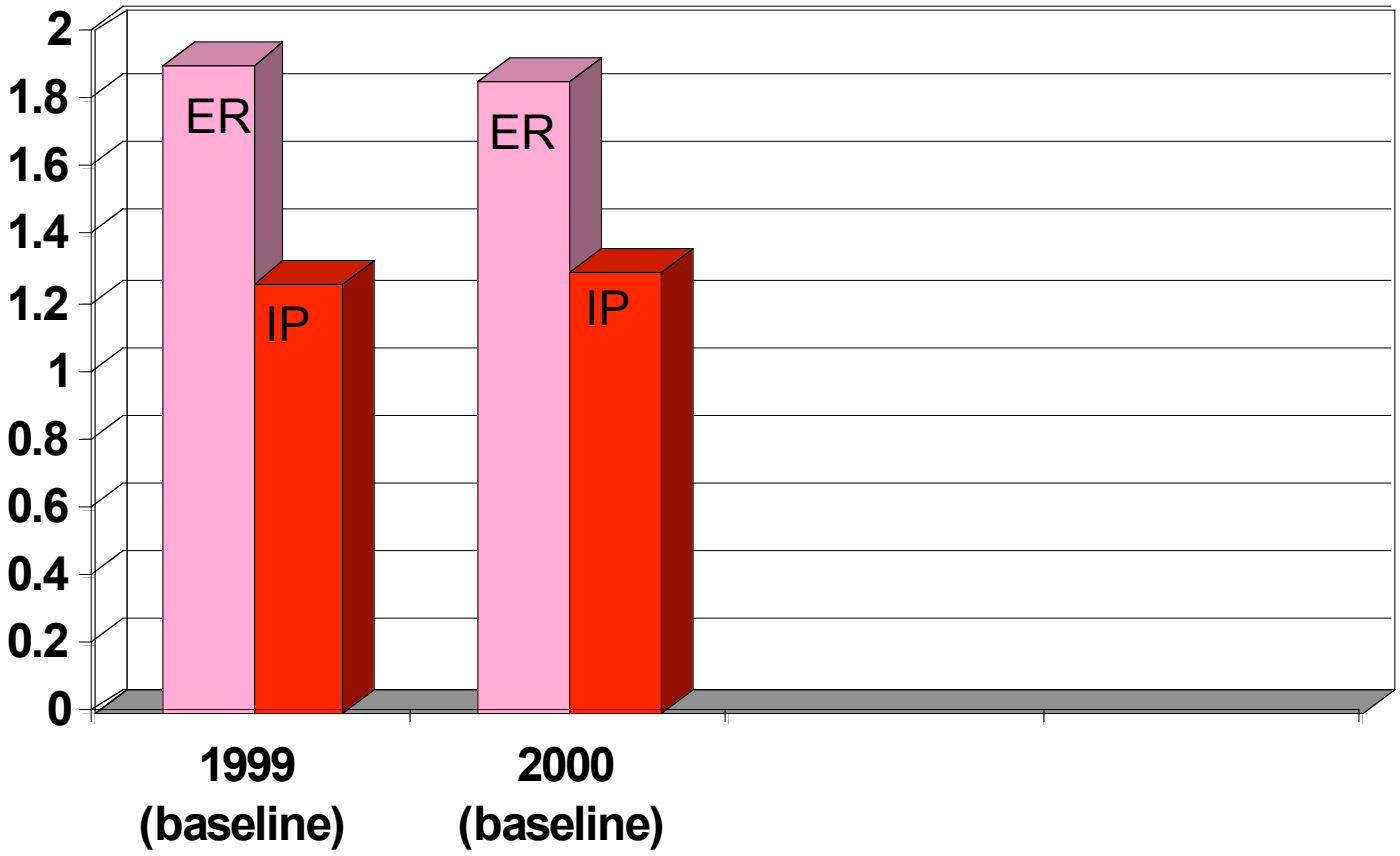


What we did to verify…

- We looked at the actual asthma ER/IP primary codes across the entire plan (planwide event-based plausibility analysis)
- Two years of codes pre-program to establish trend
  - Note that historic “trend” in plans could be used or else Ian’s Medicare slide – about the same trend
- Then compared the two program years

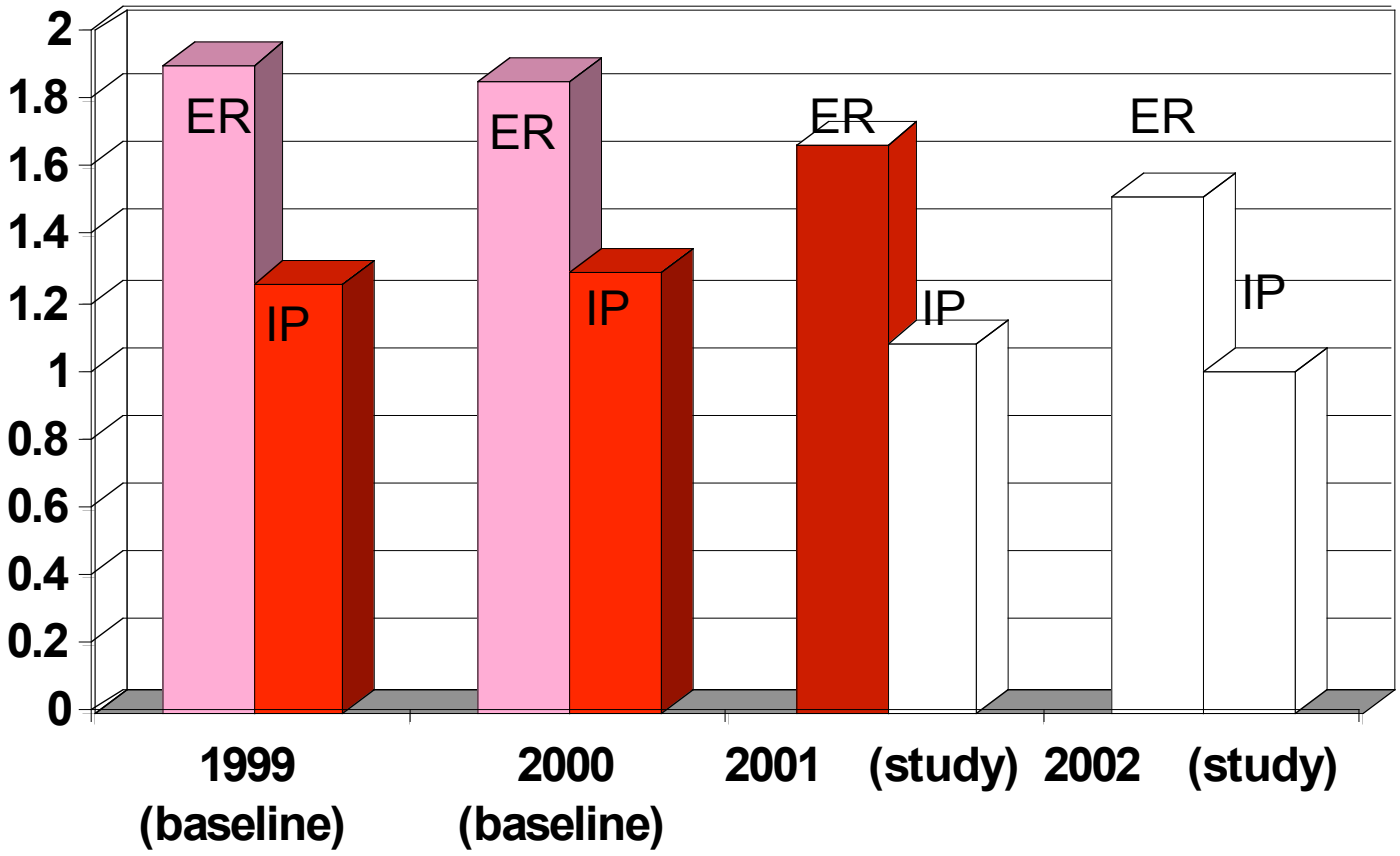
Two years' Baseline health plan trend for asthma ER and IP Utilization

493.xx Primary-coded ER visits and IP stays/1000 planwide



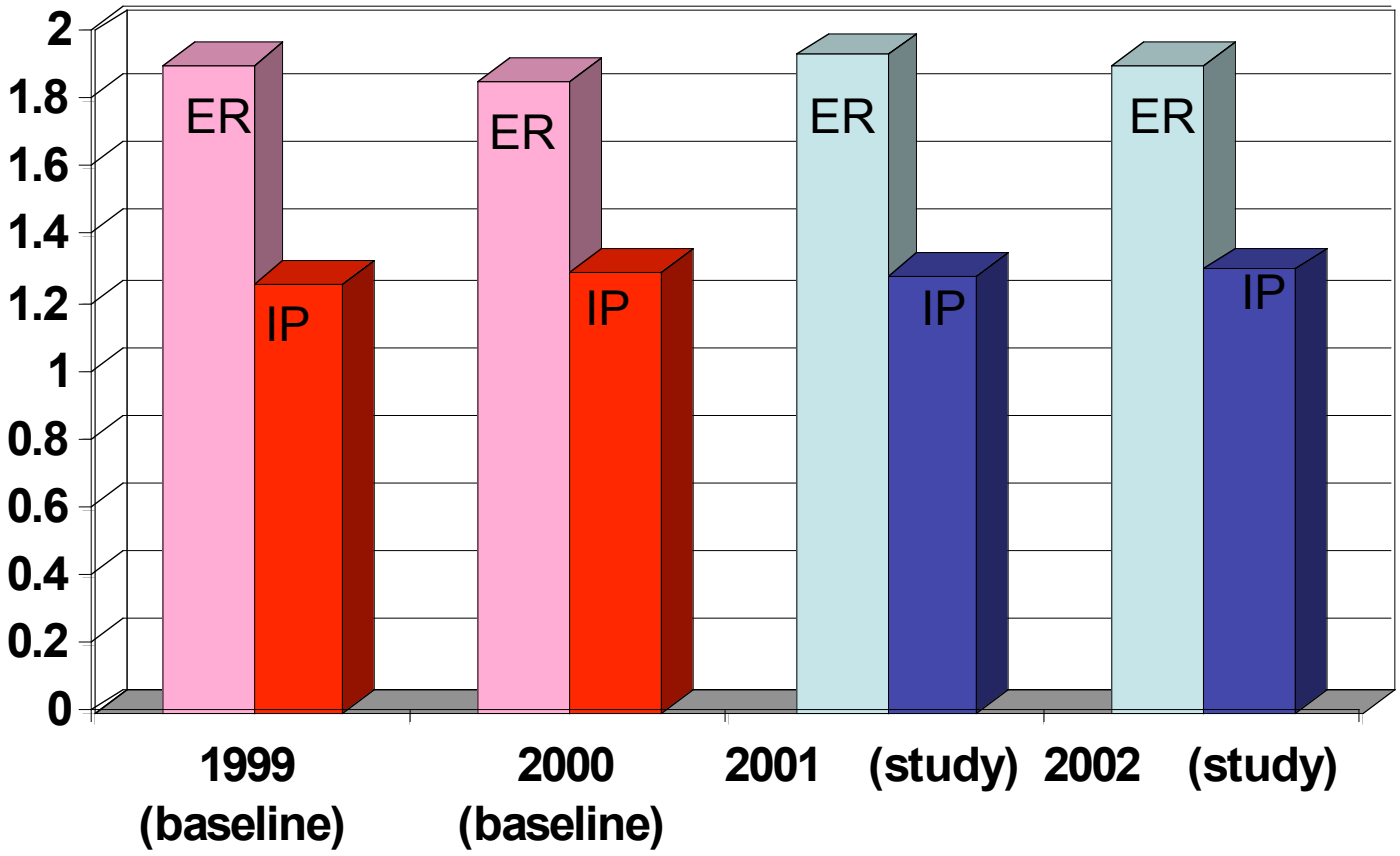
If pre-post was accurate, plausibility expectation is something like…

(493.xx primary-coded ER visits and IP stays/1000 planwide)



Plausibility indicator Actual:
Validation for Asthma savings from same plan including ALL CLAIMS for asthma

(493.xx ER visits and IP stays/1000 planwide)

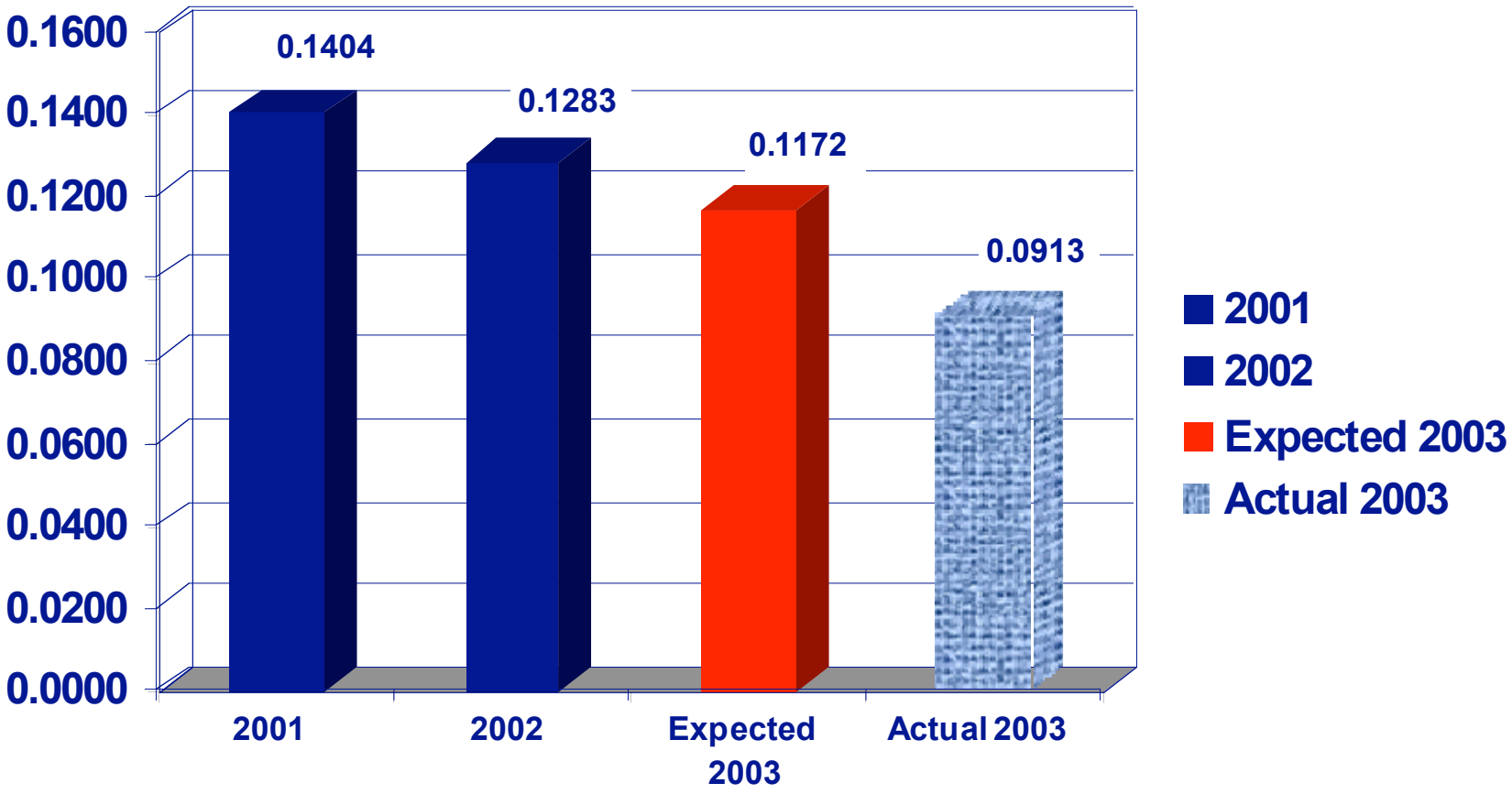


Two more Plausibility Examples

- IBM (Matria) CAD
- Pacificare (Alere) CHF

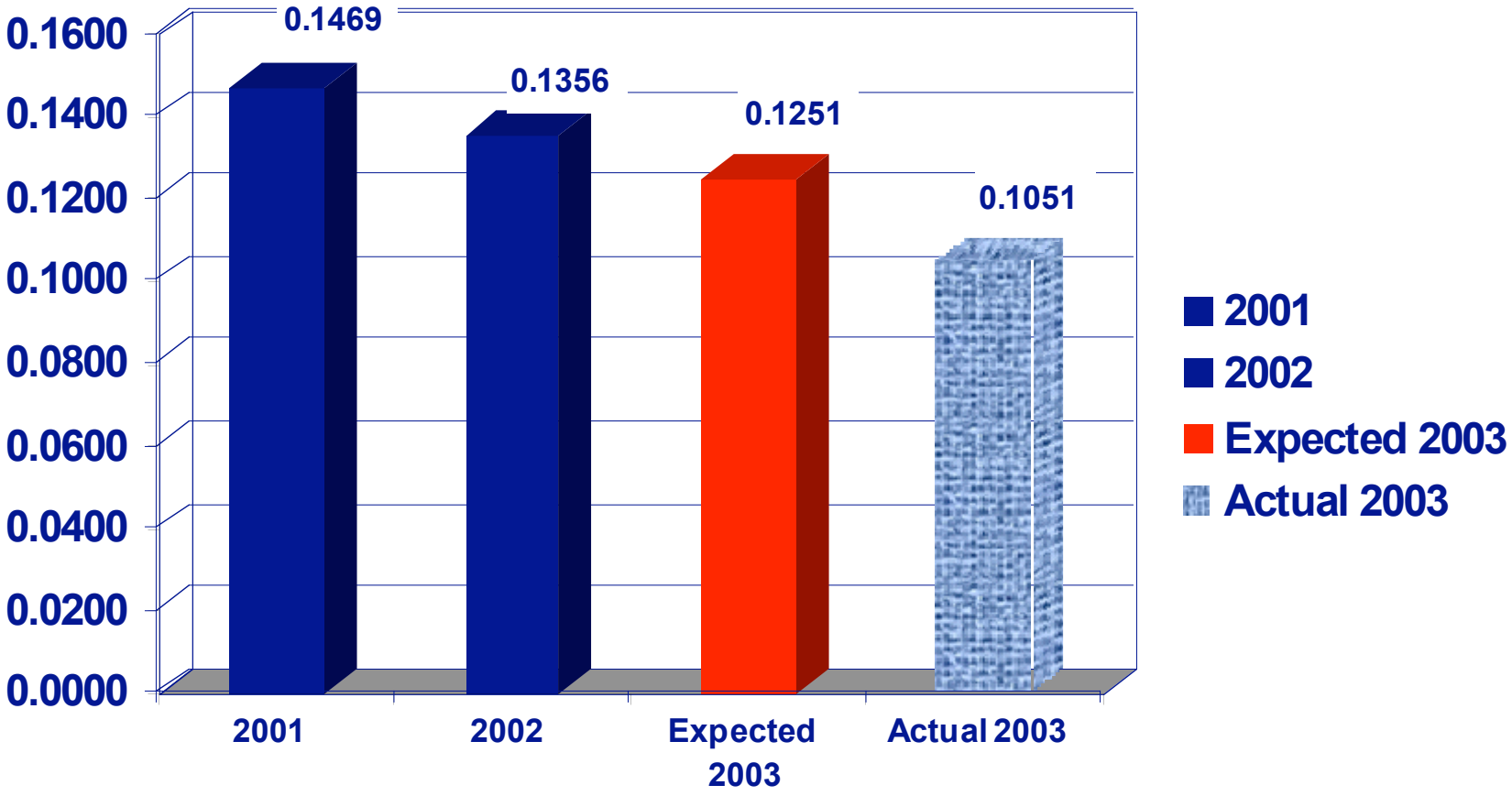
IBM Angina "Plausibility Analysis"

Hosp Admits ICD-9 '413.xx' per 1000 MM



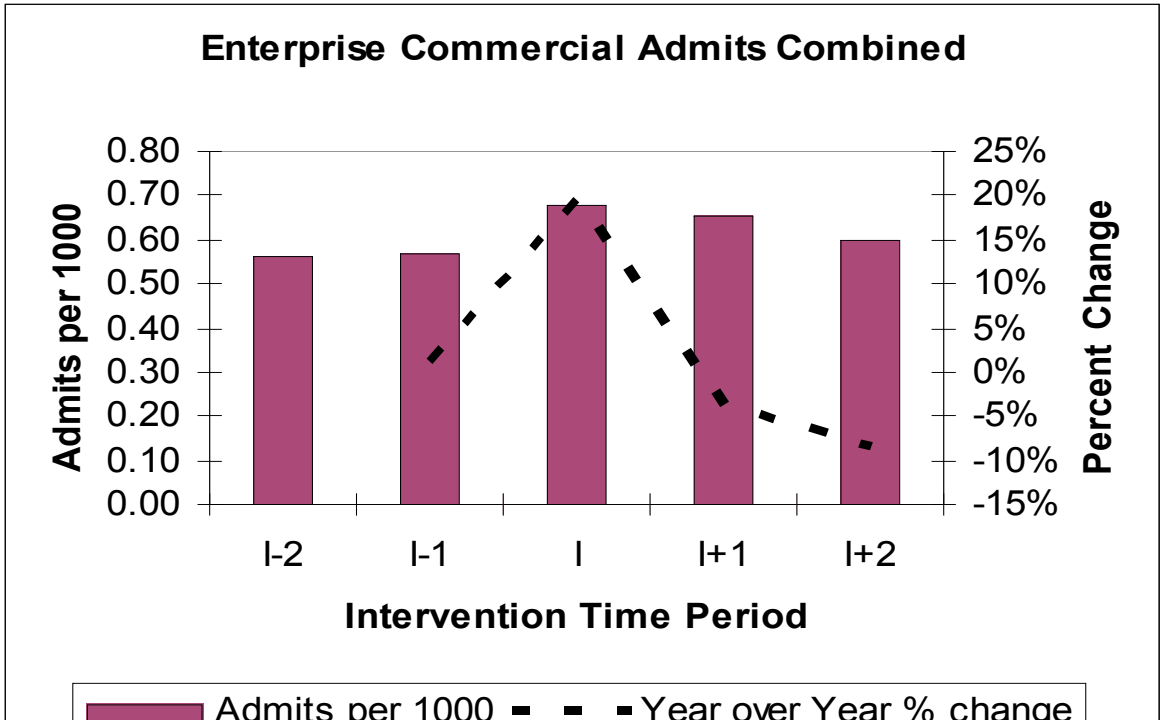
Acute MI "Plausibility Analysis"

Hosp Admits ICD-9 '410.xx' per 1000 MM



Alere Customer CHF Utilization

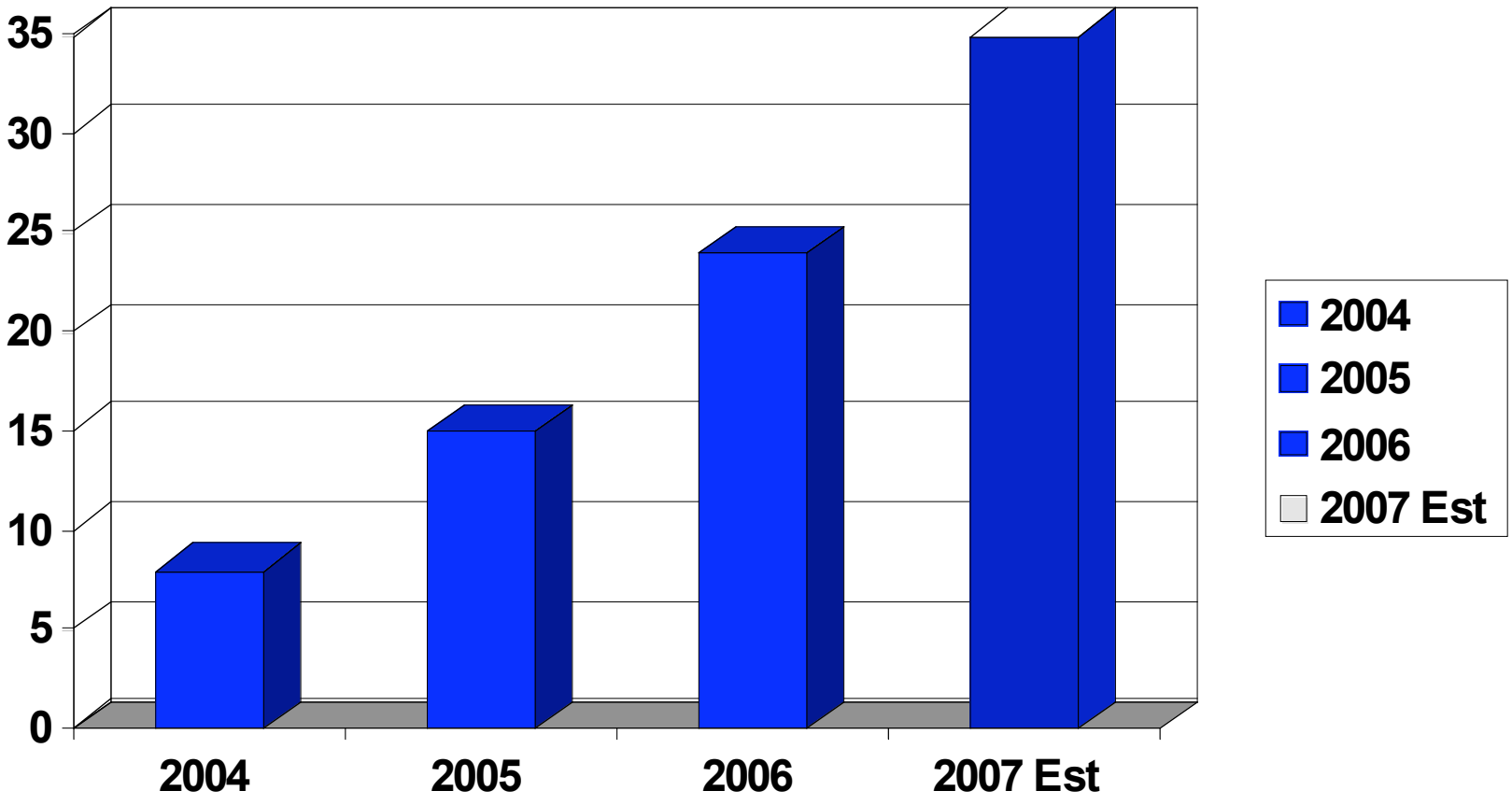
Commercial Membership



Agenda

- Logic
- Dealing with Populations Subject to Trend
- Examples
- Acceptance of event-based plausibility

Number of Payors Using This Approach



Partial list of Payors using this methodology (DMPC certified only)

Blue Cross of Alabama	Health First Health Plans
Blue Cross of Delaware	Health Net
Blue Cross of Vermont	HealthPartners (MN)
Bluegrass Family Health Plan	IBM
CareFirst	Illinois Department of Family Health
Capital District Physicians' Health Plan, Inc. (CDPHP)	Pacificare
CHA Health	PreferredOne
Connecticare	Premera Blue Cross
Empire Blue Cross	Procter & Gamble
Georgia Department of Community Health (Medicaid)	State Teachers Retirement System of Ohio
Great-West Health Care	SummaCare
Harvard Pilgrim Health Care	Wyoming Medicaid

Conclusion

- In “normal” situations any financial result should be tested with an event-based plausibility analysis. If the financial result shows significant savings but the event rate trend didn’t change noticeably, there is likely a mistake in the financial result
  - Preferable to have both analyses show consistent results
- Make sure to understand demographic trend changes before reaching that conclusion