

**Disease Management
Summit Presentation 5/13/03**

**“Real World ROI and Clinical
Outcomes for Diabetes, CHF,
CAD and COPD”**

**Michael Kelleher, MD
Medical Director for Quality
Fallon Community Health Plan**

Issues to be Addressed

- **Population-based vs. Cohort-based ROI Approaches**
- **Group Model vs. Network Model Impact**
- **Impact by Service Categories – Tradeoffs**
- **Linkage of Quality Improvement and Cost Control**
- **Impact of Structural Care System Setbacks**
- **Broad Based Assessment of a “Loser” Program**
- **Build vs. Buy Issues**

The Fallon Healthcare System

Fallon Foundation

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graph TD; FF["Fallon Foundation"] --- FC["Fallon Clinic"]; FF --- FCHP["Fallon Community Health Plan"]; FC -.-> WMC["Worcester Medical Center"]; FCHP -.-> WMC;
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Fallon Clinic

240 Salaried MDs

Electronic Records

85% of pts capitated at FCHP

Fallon Community Health Plan

145K Commercial

35K Srs 10K m'caid

75% of care at Fallon Clinic

Worcester Medical Center

Flagship Hospital

50% of FCHP admissions

Key Fallon Elements for Chronic Disease Management

- **Comprehensive data warehouse for claims mining, candidate identification, and ROI calculations.**
- **Risk Stratification, tied to stratified clinical interventions.**
- **Computerized disease specific registry for tracking of patients and clinical outcomes.**
- **Updated clinical guidelines, locally adapted, distributed and monitored.**

Key Fallon Elements for Chronic Disease Management (Contd)

- **RN care coordinators who form trusting relationships to enhance patient education and compliance.**
- **Real time feedback systems to alert MDs regarding patient management problems.**
- **Careful monitoring of clinical and financial outcomes, as well as patient satisfaction and functional status**
- **Retrospective feedback to MDs for outlier patients and aggregate outcomes**

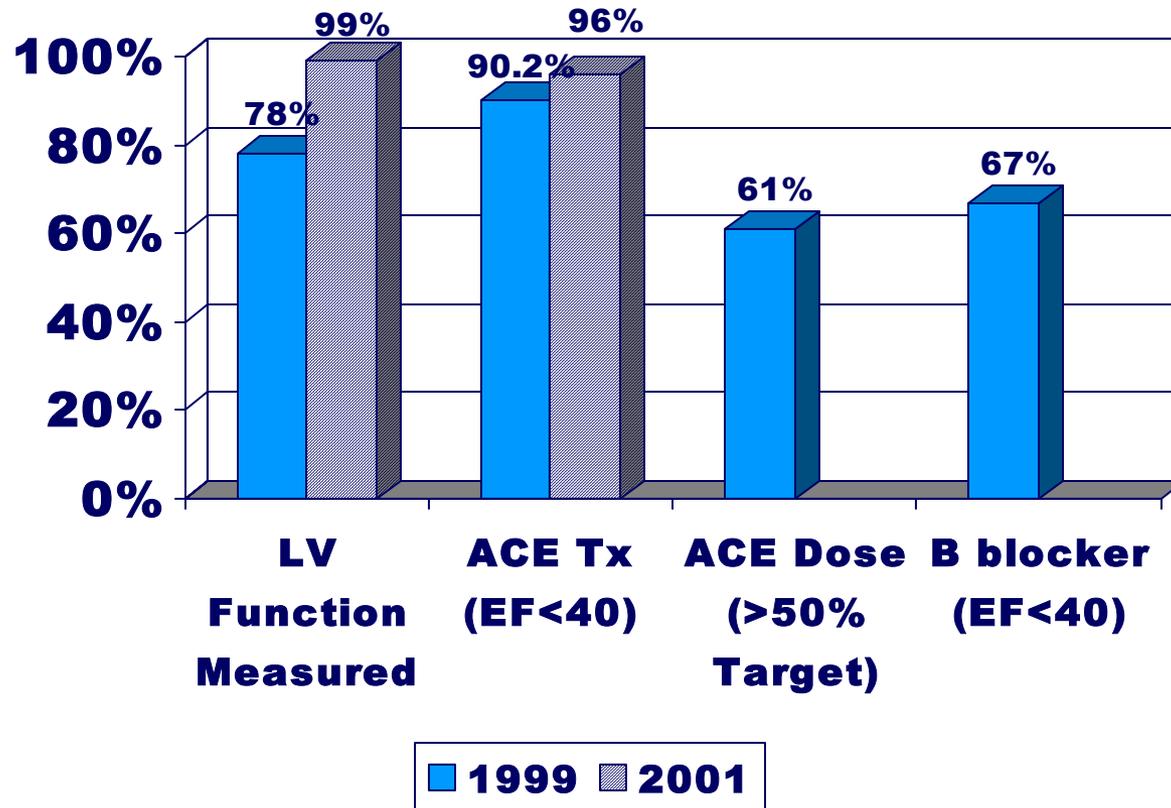
Fallon's Response to the Challenge

Engagement Rates for High Risk Cohorts, by Disease:

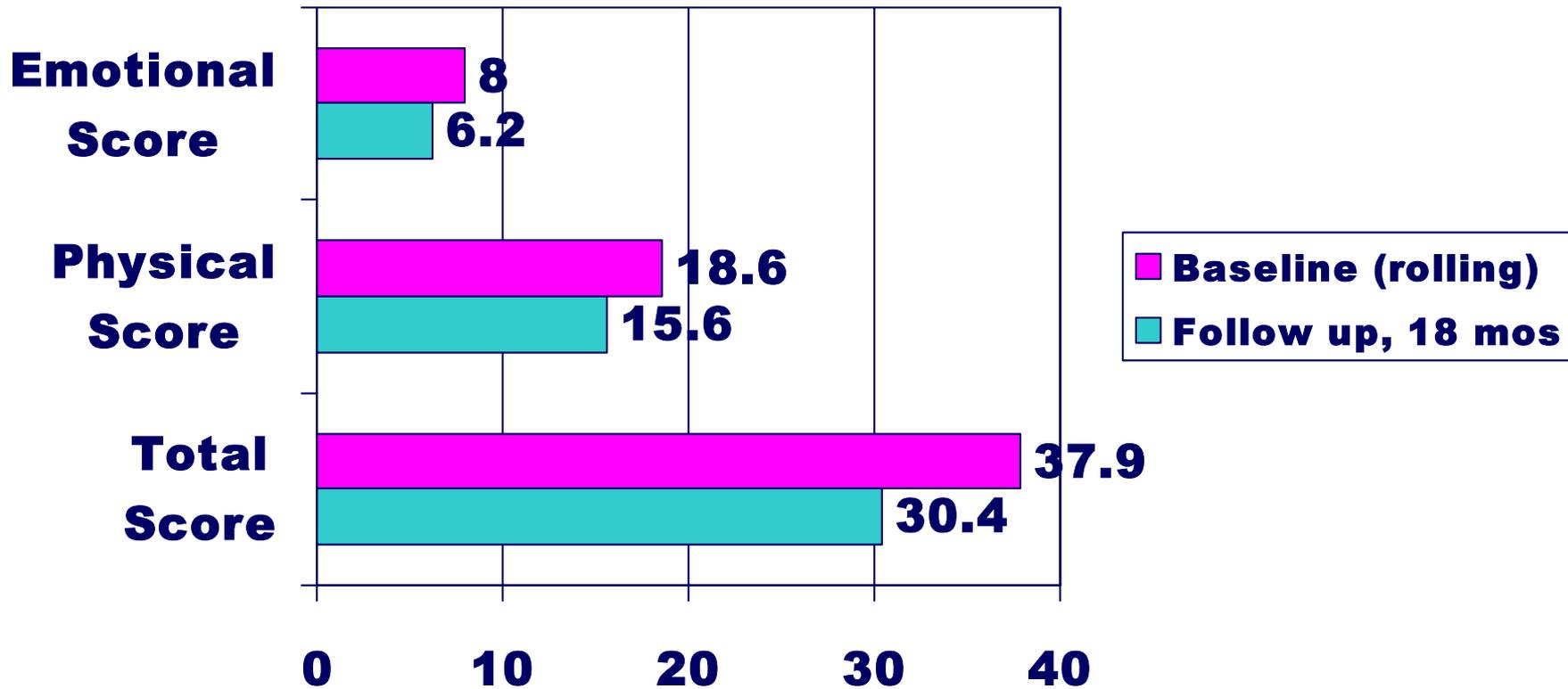
Disease	# Engaged *	Penetration %	Date started
Diabetes	1800	41%	1999
Congestive Heart Failure (CHF)	520	69%	1996
Coronary Artery Disease (CAD)	600	24%	1999
Chronic Obstructive Pulmonary COPD)	400	36%	1996
Acquired Immunodeficiency Syndrome (AIDS)	160	? 90%	1999
Asthma	231	36%	7/01
Depression	265	35%	9/01

* Engagement figures apply to high risk pts receiving regular care mgr calls

CHF, Key Process Measures

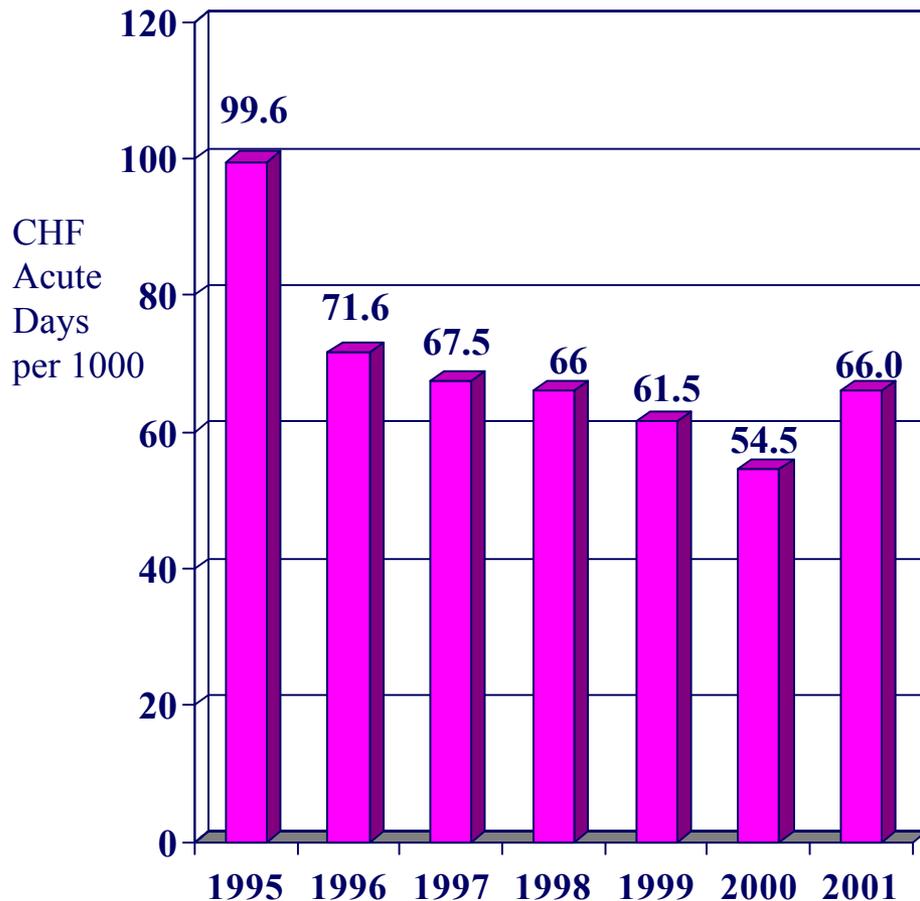


Minnesota Living With Heart Failure Functional Outcome Survey



(Lower numbers indicate improvement)

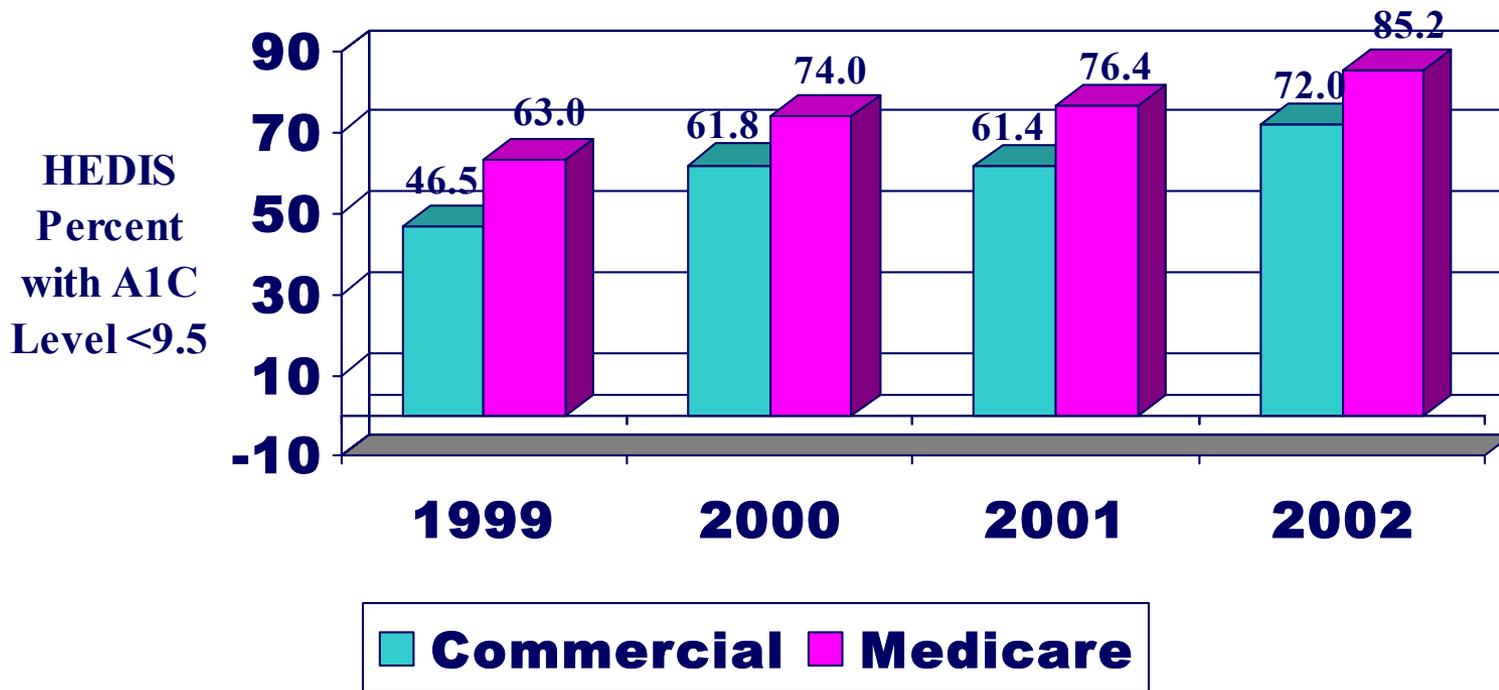
Senior Plan Program Impact -- CHF Acute Hospital Days



- ◆ Calculated for the entire FCHP medicare population (N=36,000) using primary discharge Dx of CHF
- ◆ Average annual inpatient savings = \$1.23 Million
- ◆ Total annual program costs: \$143,200
- ◆ Calculated ROI: 8.65
- ◆ Cumulative savings since 1995: Over \$9.0 million
- ◆ Delivery System problems in 2001 – Case Mgmnt, PCP turnover

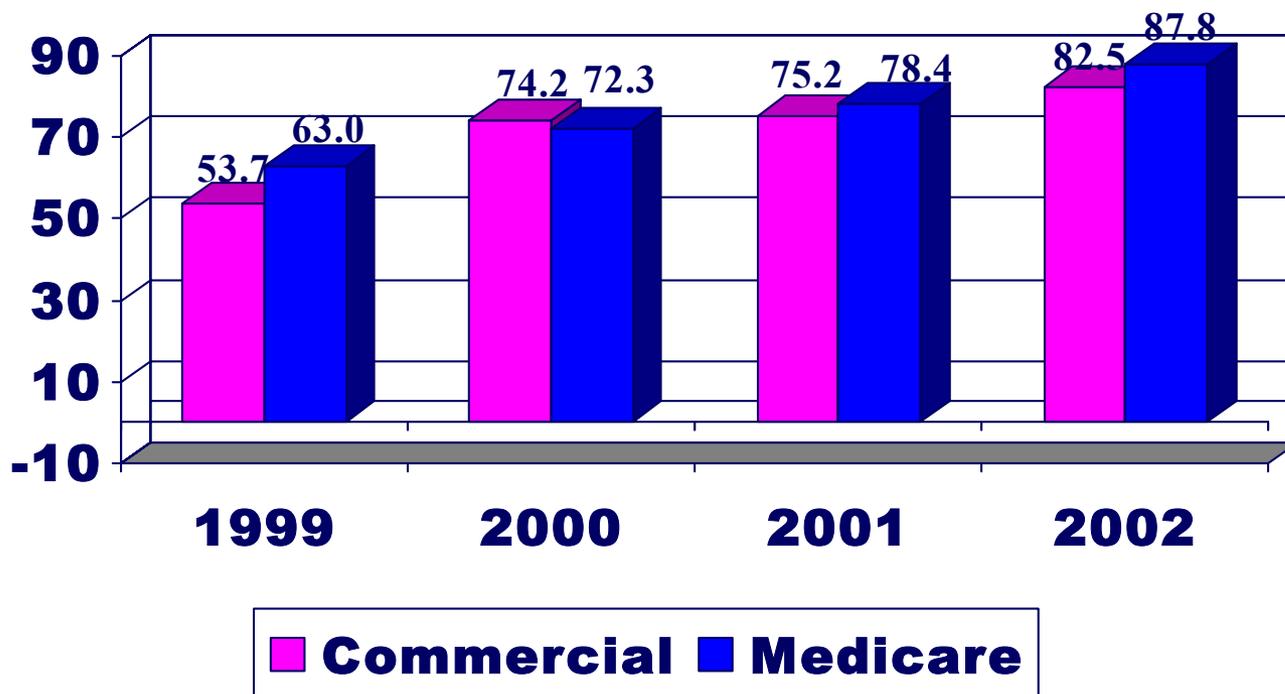
Diabetes Control

Trended Data by HEDIS Reporting Year



Diabetes LDL Screening

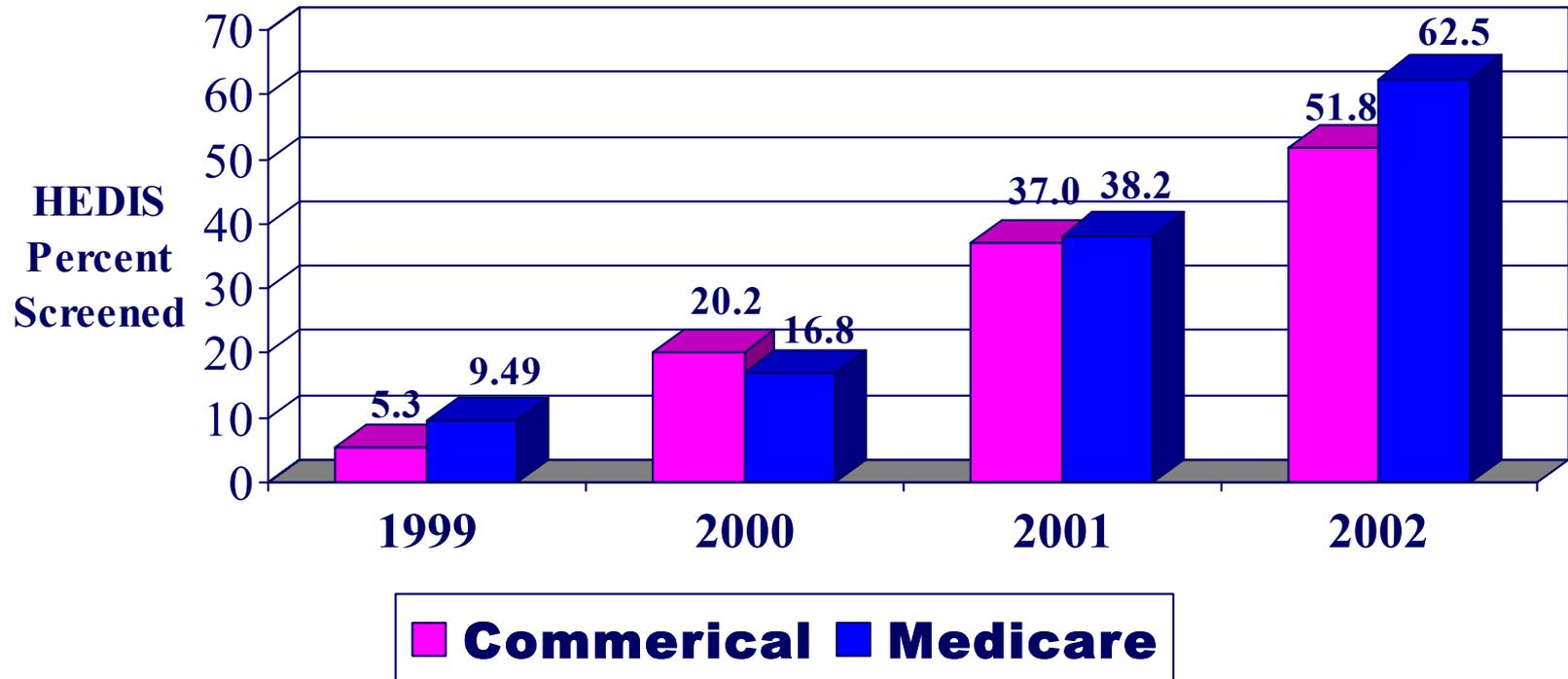
Trended Data by HEDIS Reporting Year



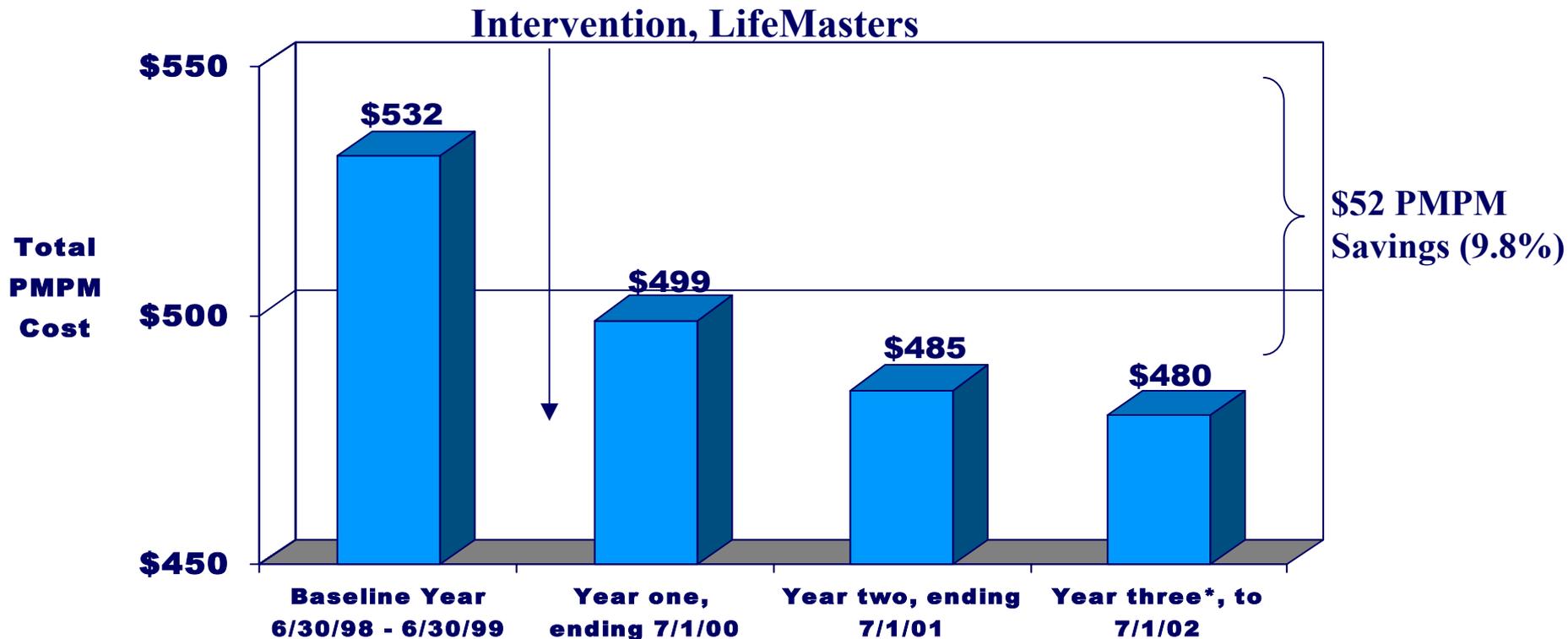
HEDIS
Percent
with LDL
Screening

Diabetes Microalbumin Screening

Trended Data by HEDIS Reporting Year



FCHP Plan-Wide Trended PMPM Costs, Diabetic Patients (N=12,000)



Uses constant unit prices, excludes services related to ESRD, Trauma, Cancer and BH
Total cost reduction for year 3 is **\$5.5 million** relative to baseline year, net of program fees

* Note that Year 3 figures are still in draft form, with ROI=2.2 for year 3

FCHP Diabetic Cost Savings

	Baseline PMPM	Year 3 PMPM	% Change
Inpatient Acute/Obs	\$243	\$215	-11.5%
Office Visits	\$86	\$67	-22.1%
Same Day Surgery	\$45	\$35	-22.2%
Outpatient Radiology	\$31	\$28	-9.7%
Same Day Procedures (Caths, EMG, EGD, etc.)	\$20	\$14	-30.0%
Home Health	\$18	\$17	-5.5%

FCHP Diabetic Cost Increases

	Baseline PMPM	Year 3 PMPM	% Change
Outpatient Lab	\$23.11	\$30.94	+33.9%
Outpatient Rx *	\$3.43	\$6.97	+103%
SNF	\$20.41	\$23.28	+14.0%
ED	\$10.41	\$12.82	+23.0%

- Includes only commercial and cardiovascular drugs, per contract, and
- excludes Medicare drugs due to varying payment cap.

FCHP Diabetes 3-year Program Impact by Practice Model

- **Fallon Clinic Group Practice↓ 15.9%
PMPM**
- **Non-Fallon Clinic Sites↑ 17.0%
PMPM**
- **Potential Explanation for Fallon Clinic Group
Practice Advantage:**
 - **Financial Risk Alignment**
 - **Higher Program Penetration Rates**
 - **Close Collaboration with FCHP Staff**

FCHP Diabetes 3-year Program Impact by Practice Model (contd)

- **Electronic Medical Record with Alerts for Delinquent Services**
- **In-House Services for DNEs, Nutrition Consults**
- **Major network changes during contract period**
- **Major membership shifts, especially for seniors**

FCHP Will Bring Diabetes Program In-House 7/1/03

Issues

- **Not due to “overall performance” of outsourced vendor**
- **Strategic decision regarding Plan’s Core Competencies**
- **PCP Desire for Increased Local Support and Visibility**
- **Improved Penetration Rates Targeted**

Coronary Artery Disease

Program Results 5/99 thru 3/00 for first 192 pts

- **Significantly Improved**

- **Lipid levels - Avg. LDL 98 mg%**
- **Smoking status - 66% sustained quit rate**
- **Functional Status - physical and behavioral**
- **Depression scores - Beck scale**

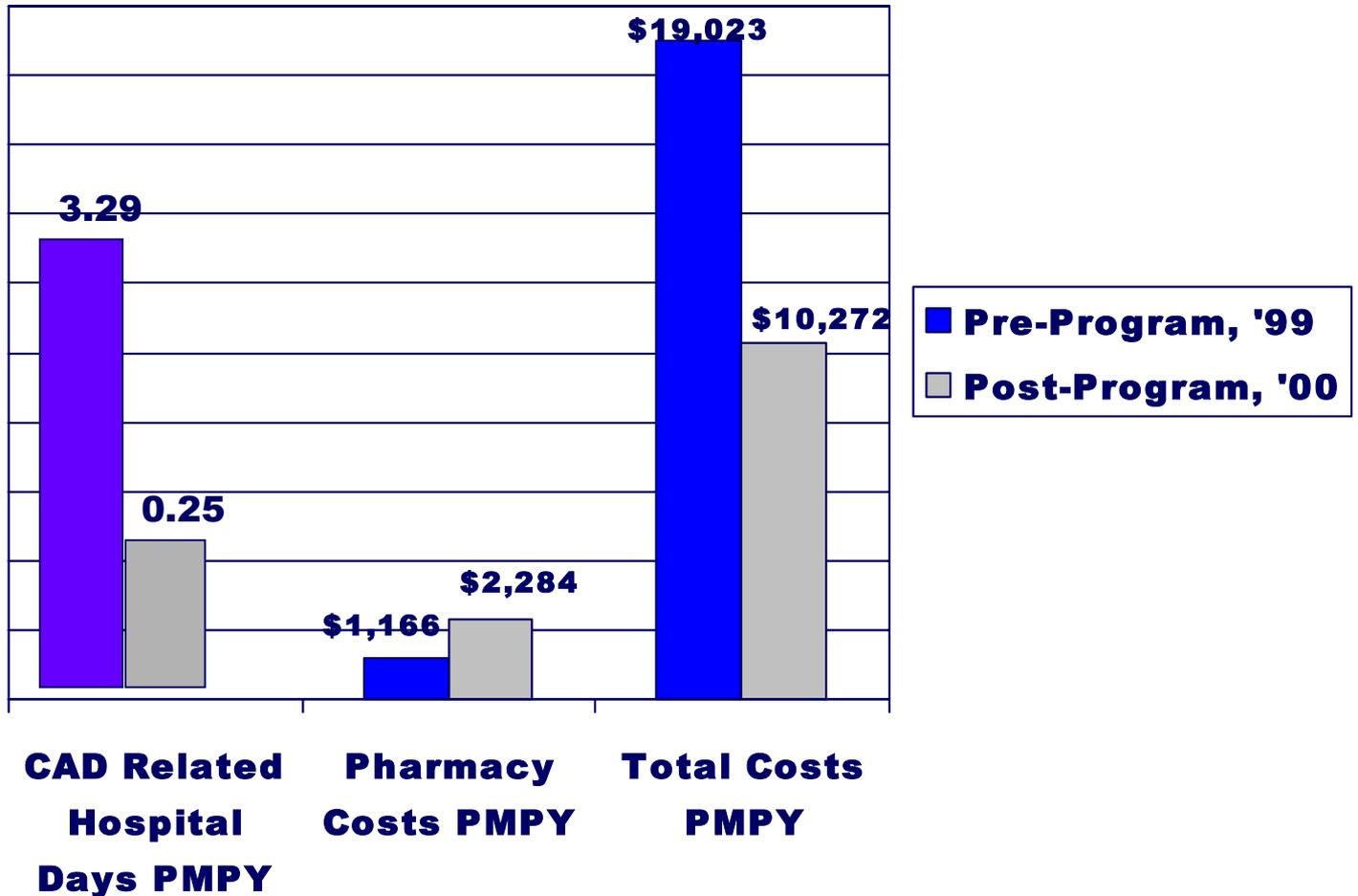
- ⚙ **Utilization Impressively Improved**

- **CAD - related hospital days down >90%**
- **CABG, PTCA, M.I. Rates down >85%**
- **Gross Cost savings approximately \$1085 PMPY, compared to historical controls, ROI=3.1**

C.A.D. Program Utilization Impact

Hospital Days and Total Costs

**Acute Days
and Costs
PMPY**



Comparison of CAD Program Graduates to FCHP Control Group

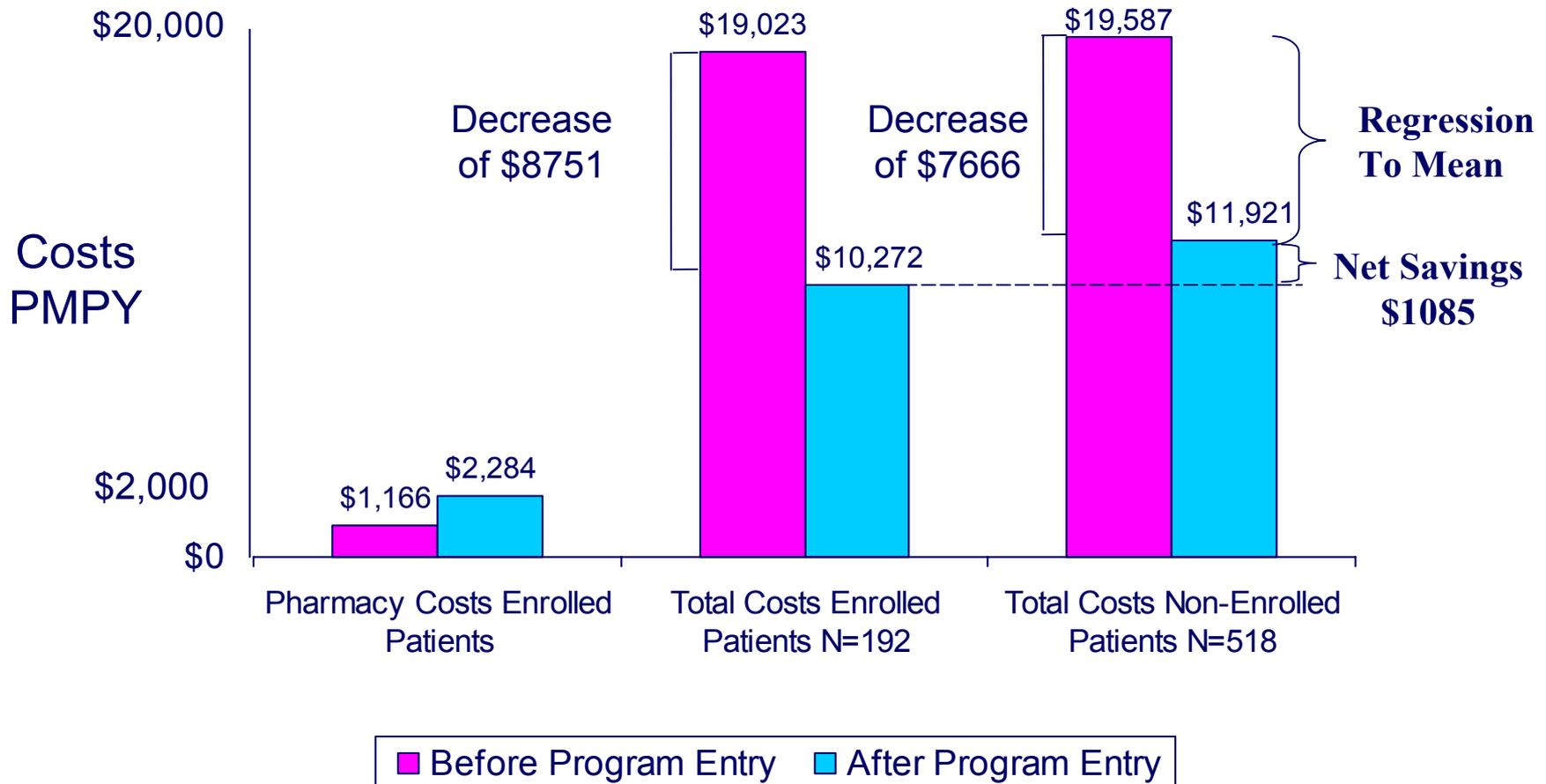
Disease Categories	CAD Program Graduates (N=192)		CAD LDL Control Group (N=518)	
	#	%	#	%
Diabetes *	40	20.8%	148	28.6%
Hypertension	100	52.1%	195	37.6%
CHF	45	23.4%	154	29.7%
MI	86	44.8%	265	51.2%
CABG Procedure	56	29.2%	134	25.9%
PTCA Procedure	66	34.4%	211	40.7%

Demographics

	Intervention Group (192)	Control Group (518)
Average Age	62.52	63.3
% Males	77%	66%
% Commercial Members	53%	50%
% Medicaid Members	1%	2%
% Medicare Members	46%	48%

CAD Program Utilization Impact

Total Costs CY `99/00



Problems with Cohort-Based ROI Estimates

- **Regression to mean overshadows true program impact**
- **Difficult to adjust accurately for self selection bias**
- **Difficult to identify all pertinent variables for comparison of intervention and control groups**
- **Formal regression analysis needed for adequate comparison – a resource issue**

Possible Future Alternatives to Cohort-Based ROI Estimates

- **Predictive modeling software**
 - e.g. DxCG™ projections for disease specific cohorts, comparing predicted to actual costs for treated and untreated groups.
- **Regression discontinuity trial design.**
 - Uses cutoff threshold for intervention patients (e.g. A1C>8%), then analyzes regression line before and after intervention for all, above and below threshold.

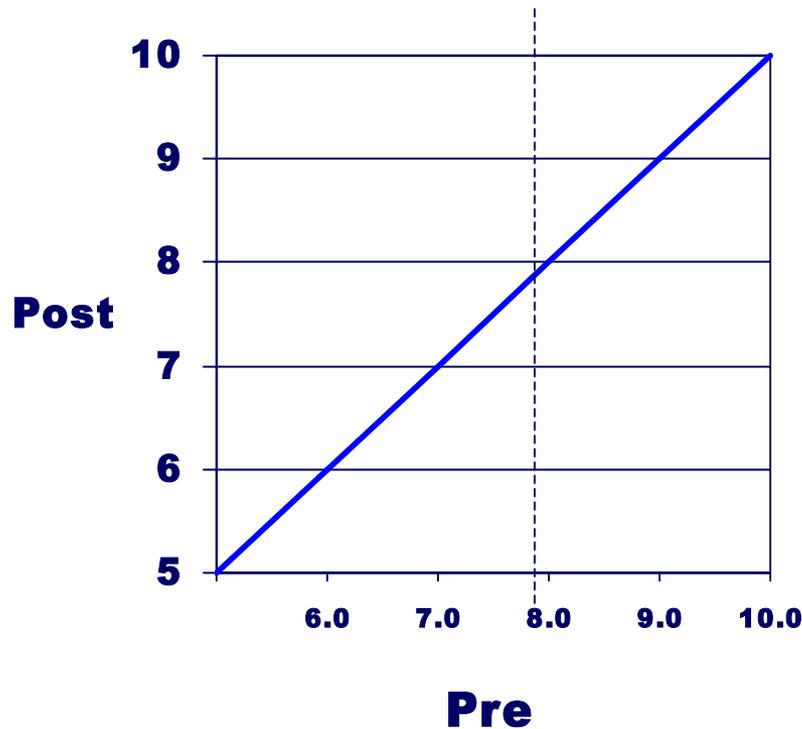
References – <http://trochim.human.cornell.edu>

McBurney, DH (1994) “Research Methods”,
3rd ed, Pacific Grove, CA.; Brooks/Cole

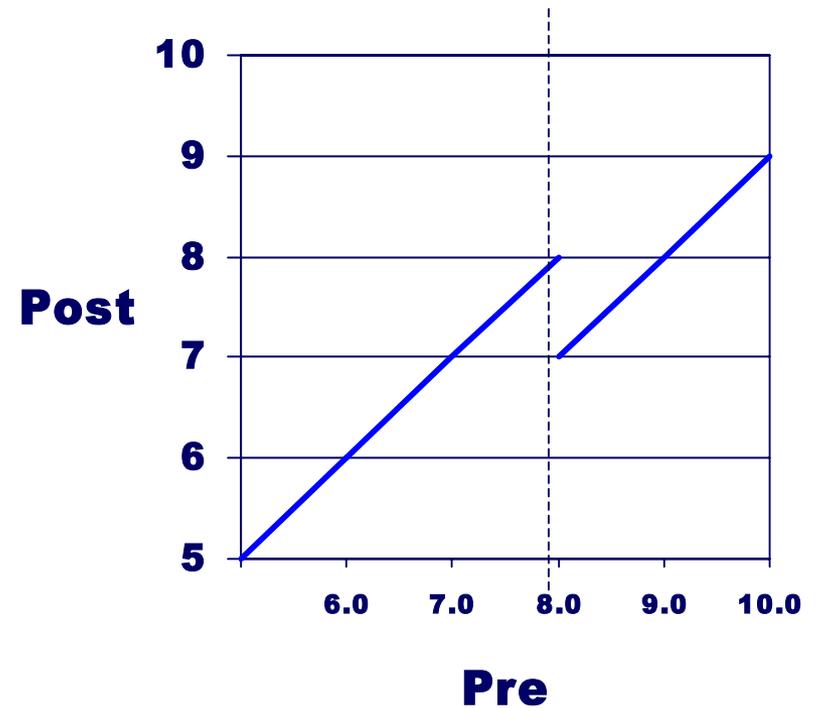
Regression Discontinuity Design (cont'd)

A1C Example, Diabetics

No Intervention



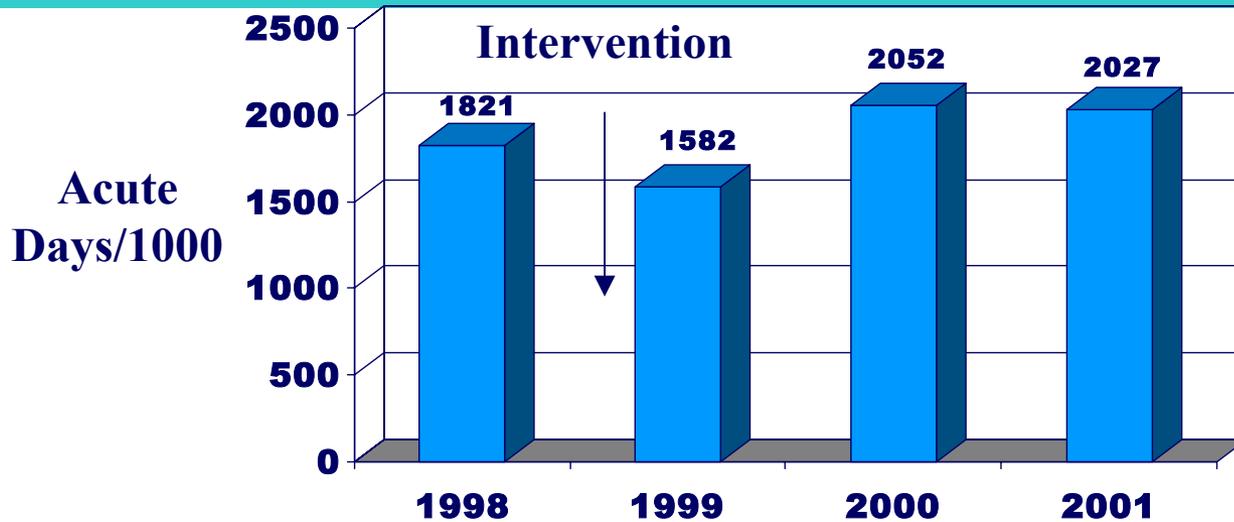
With Intervention



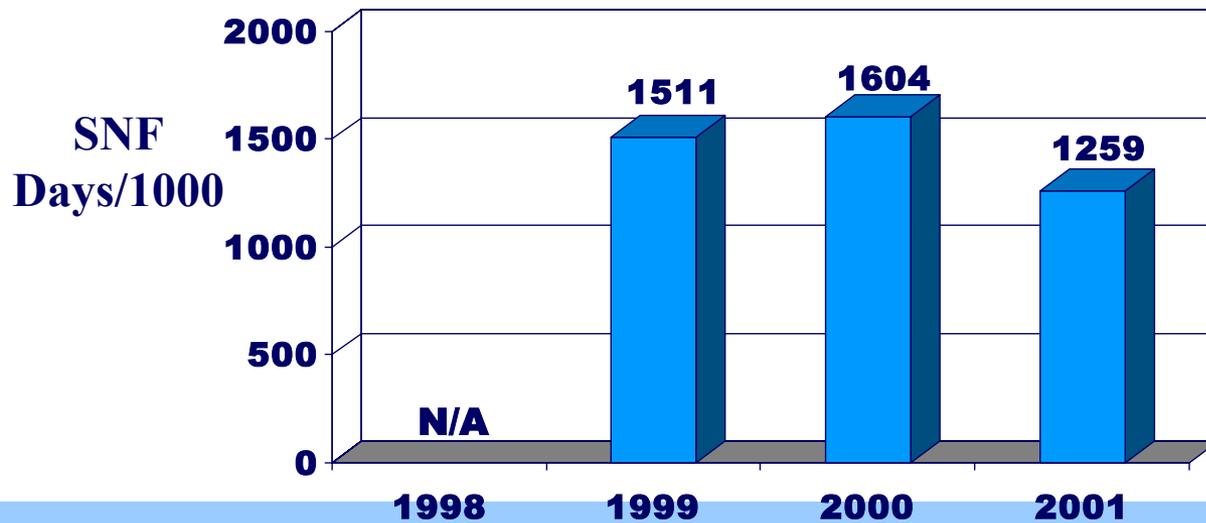
Disease Management Program Impact, COPD

- **Admission frequency and COPD-related hospital days flat over time for enrolled patients, BUT:**
 - **86% sustained quit rate for smokers in the COPD program (US rate 62%, per AHRQ)**
 - **Compliance with pneumovax and flu vaccine exceed 80% (US rate 60%)**
 - **Almost 60% of patients with advance directives in place. (US rate < 15%)**

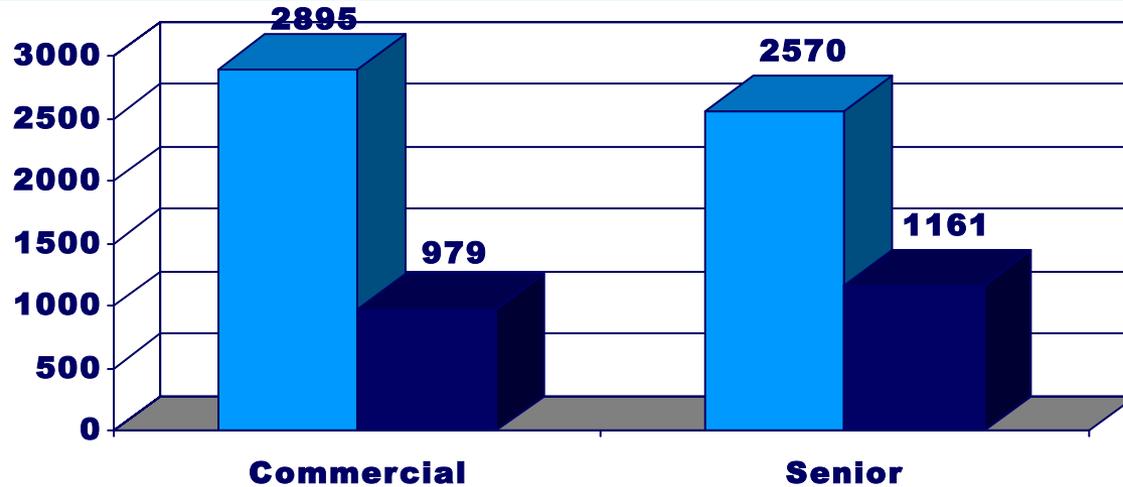
COPD Program Impact on Enrolled Members



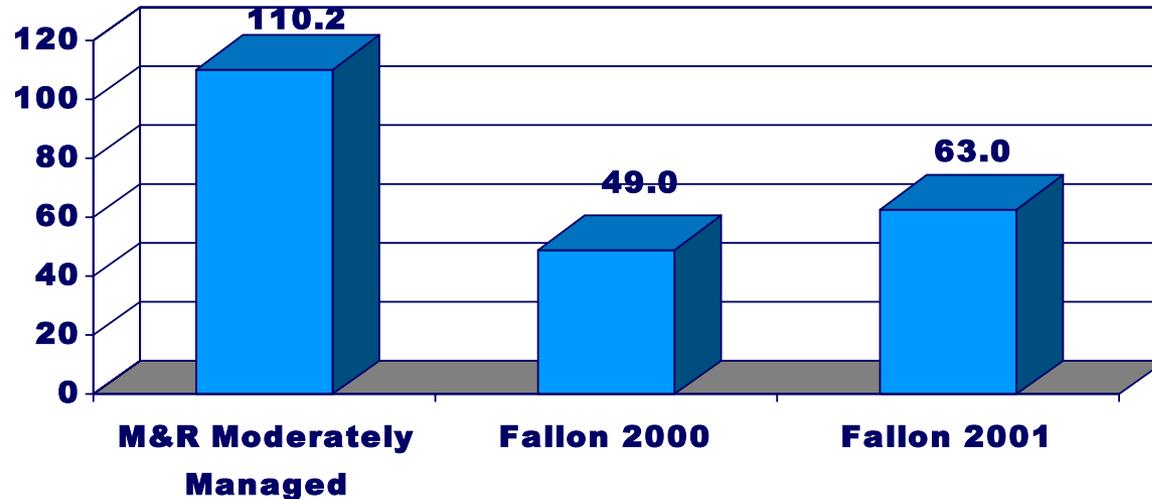
A “Loser” Program??



Fallon COPD Utilization vs. Benchmark



■ National Database, DM Vendor
■ FCHP, CY2000



Comparison to M&R Benchmarks

Possible Reasons for Fallon COPD Trends

- **Selected very ill population, ? Irreversible disease, with FEV1 <35% predicted, many on O₂**
- **Confounding influence of bad flu year 2000**
- **Pushed caseload too high ? (N=400+)**
- **Evidence for benchmark performance (per M&R) before program implemented**

Next Steps for COPD at Fallon

- **Continuation of current program – single care manager with lower caseload**
- **Expansion of engaged population via external grant**
- **Future ROI estimates using Pop-based and cohort-based approaches**
- **Engagement of patients with less severe COPD, especially current smokers**

Conclusions from the Fallon Experience

Well executed chronic disease management programs can:

- **Deliver true “managed care” – not “managed payments”**
- **Reduce the total cost of care for high risk cohorts**
- **Improve quality of care, as measured by process metrics as well as clinical outcomes**
- **Improve patient satisfaction and functional status**

Conclusions – Continued

- **Population-based ROI estimates most robust – avoid regression to mean and self selection bias.**
- **Cohort-based ROI estimates needed when low penetration rates dilute population-based results – less robust.**
- **Compare baseline results to external benchmarks prior to program selection.**
- **Must balance clinical benefits and financial ROI for full value equation.**