Impact of a P4P Program in a PPO Setting Over a Decade:

Quality of Care, Outcomes, and the Future

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Agenda

- Background
- PQSR – A PPO Pay for Performance Program
- Summary of Evaluations - Published
  - ❖ Overall Effectiveness
  - ❖ Effectiveness in Low Performers
  - ❖ Impact in Diabetes
- Impact in CHF – Quality, Utilization, & Cost
- Impact in CVD – Quality, Utilization, New CV events, LDL level
- Future Considerations

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Background

- Many Health Plans Use P4P programs
  - ❖ ~50% of physicians in HMOs (Rosenthal et al)
  - ❖ ~25% of all physicians (Terry et al)
- CMS invested $21 million in P4P demonstration projects; expects to adopt P4P programs
- Few Studies With Mixed Results
- Virtually All Studies in HMO or IDN environment

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PQSR – A PPO Pay for Performance Program

- Provider Quality & Service Program
  - ❖ 1998 to Present
- Voluntary Participation
- Awards Range 0% - 7.5% based on Performance
  - ❖ Base Professional Fees
- Awards Based on Achievement & Improvement
- Maximum of $16,000 in total awards

PQSR – A PPO Pay for Performance Program

- **Quality Indicators**   (Max 40 pts)
  - ❖ Clinical Measures   (25)
  - ❖ Member Rating Outcomes   (10)
  - ❖ Board Certification   (5)

- **Patient Satisfaction**   (Max 30 pts)

- **Business Operations**   (Max 15 pts)
  - ❖ HHIN   (5)
  - ❖ Electronic Media Claims   (5)
  - ❖ Lines of Business with HMSA   (5)

- **Practice Patterns**   (Max 15 pts)
  - ❖ Medical Utilization   (5)
  - ❖ Formulary Compliance   (10)

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Type of Clinical Quality Indicators

Measure Focus

- Prevention
- Early detection
- Disease Management
- Appropriate Treatment
- Medication Managements
- Overutilization

Examples

- Childhood Immunizations
- Cancer Screening
- Hb_{a1c} in Diabetics
- ACE in CHF
- Adherence to Medications
- Appropriate Imaging for LBP

PQSR Program Summary: 1998 -2009

Program Year	No. Participants	Total $ Awards	Avg. $ Awards	No. Max Awards
1998	855	$2.2 mil	$2,532	14
1999	1198	$2.6 mil	$2,181	11
2000	1466	$3.8 mil	$2,618	22
2001	1548	$4.3 mil	$2,790	17
2002	1758	$9.1 mil	$5,132	27
2003	2030	$9.7 mil	$4,785	31
2004	2243	$10.6 mil	$4,744	40
2005	2245	$9.8 mil	$4,381	34
2006	2371	$10.7 mil	$4,524	44
2007	2387	$10.3 mil	$4,342	45
2008	2678	$9.9 mil	$4,028	91
2009	2899	$8.5 mil	$2,951	93

Summary of Evaluations – Published

Overall Effectiveness

Physician reimbursement models built upon evidence-based quality of care metrics may positively affect whether or not a patient receives high quality, recommended care.

We found a **consistent, positive association** between having seen only program-participating providers and receiving recommended care for all six years with odds ratios ranging from 1.06 to 1.27 (95% CI: 1.03-1.08, 1.09-1.40).

Odds of Receiving Recommended Care over Time

Legend:
— Only Participating vs. Only Non-Participating
- -◇- Both vs. Only Non-Participating
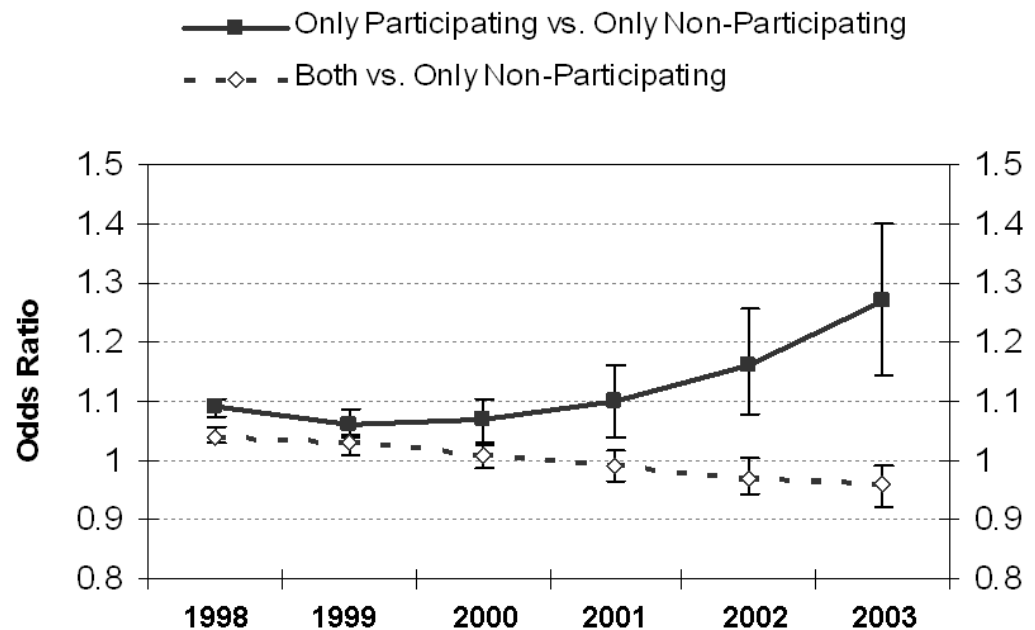
Gilmore AS, Zhao Y, Kang N, Ryskina KL, Legorreta AP, Taira DA, Chung RS. Patient outcomes and evidence-based medicine in a preferred provider organization setting: a six-year evaluation of a physician pay-for-performance program. Health Serv Res. 2007 Dec;42(6 Pt 1):2140-59.

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Summary of Evaluations – Published
Effectiveness in Low Performers

Figure 1. Composite Quality Score Change Between two Adjacent Years for the Pay-for-Performance (P4P) Study Group and the Non-P4P Comparison Group
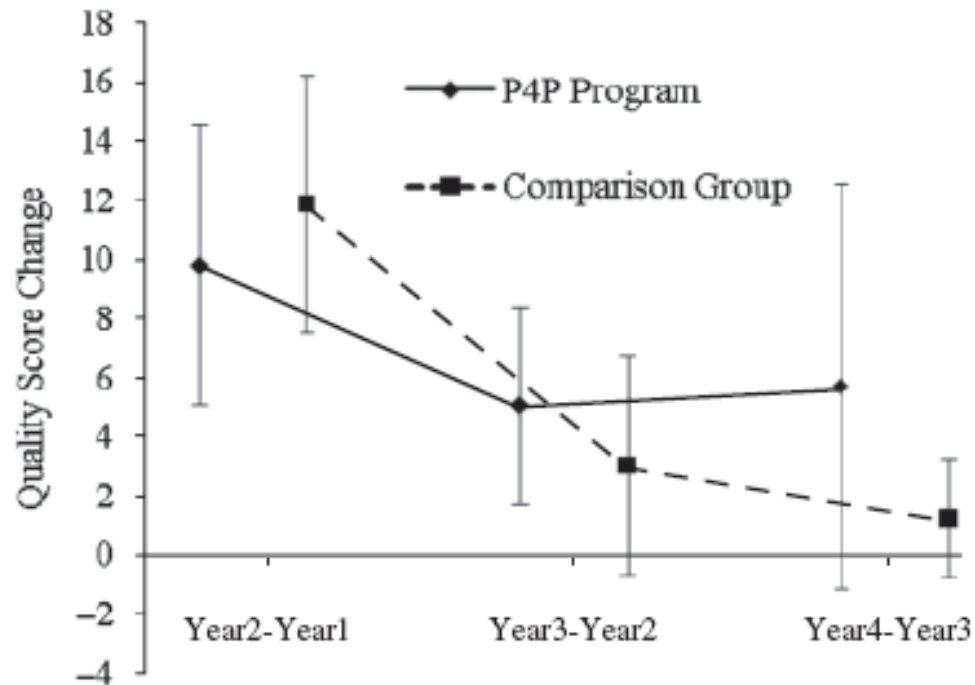
Chen, Kang, Juarez, Hodges, Chung, Impact of a Pay-for-Performance Program on Low Performing Physicians, JHQ, Jan/Feb Vol. 32:13-21, 2010

Impact in Diabetes

- Effective to improve diabetic processes of care (i.e., receipt of Hb_{a1c} and LDL test)

- Decrease likelihood of hospitalization

AJMC, Vol 16:e16-e19, Jan 2010

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Overall Effectiveness
Potential Cost Avoidance

Variable	Incident Rate Ratio (95% Confidence Interval)	
	No. of Hospitalizations (n = 165,636 Patient-Years)[a]	No. of Hospitalizations in 2006 (n = 19,193)[b]
Saw P4P-participating physicians in the previous year [Reference no]	1.00 (0.95-1.05)	—
Saw P4P-participating physicians continuously between 2004 and 2006 [Reference no]	—	0.75 (0.61-0.93)

- Decrease of 40/1,000 hospitalizations over a 3 year period
- Average number of patients with diabetes in a medium size plan = 30,000
- 30,000 * 40/1,000 = 1,200 over 3 years
- Mean cost of hospitalizations in US = $8,360 (AHRQ 2006)
- Cost saved = 1,200 * 8,360 = $10.03 million over 3 years

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Research Questions

- Would P4P work in another common disease such as CHF

- Can increased quality of care also have a similar positive impact to decrease emergency room utilization?

- How does this impact total health care cost? Are the savings in acute utilization sufficient to counter the increase cost of providing quality care?

- Can increased quality of care impact true health outcomes?

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Impact in CHF – Acute Utilization & Cost

- Study objective:
  - ❖ Assess the impact of filling of one prescription of an ACEI/ARB among patients identified with CHF using an administrative claims algorithm on acute health care utilization and total health care cost in a real-world population

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Impact in CHF – Methods

- Used Administrative Data - 2000 thru 2006
- Study Population (2,396 patients, 3767 patient-years):
  - ❖ Patients >18 years & older with CHF
  - ❖ Continuously enrolled (2yrs) with medical/pharmacy benefit
  - ❖ Exclude patient with contraindication to ACEI/ARB
- Outcomes:

  (1) Hospitalization

  (2) ER

  (3) Total healthcare cost

Impact in CHF – Methods

- Main Independent: receipt of ACEI/ARB

- Covariates: age, gender, comorbidity, medications, cardiologist, baseline utilization & cost, and calendar year

- Statistical Analysis: hierarchical logistic model, hierarchical effects log transformed linear model

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Results: Population Characteristics

	CHF (n = 2396 patients, 3767 patient years)
Age (mean)	70 years
Female	38%
Comorbidity count	2.5
Medication count	9.4
Hospitalization	18%
ER visit	26%
Total Health Care Cost (2006 US$)	11,000
Received ACEI/ARB	74%
Saw cardiologist	66%

Multivariate – Acute Utilization

	Hospitalization OR (95% CI)	Emergency room OR (95% CI)
Received ACEI/ARB	0.8 (0.7-0.9)*	0.8 (0.7-0.9)*
Age (control: < 50 yrs)		
50-64 years	1.1 (0.8-1.5)	0.8 (0.6-1.0)
>= 65	1.7 (1.3-2.4)**	1.3 (1.0-1.7)
Female	1.0 (0.8-1.1)	1.3 (1.0-1.6)
h/o hospitalization	1.7 (1.3-2.0)***	N/A
h/o ER	N/A	2.5 (2.1-2.9)***
High medication count	1.8 (1.4-2.4)***	1.6 (1.3-2.1)***
Comorbidity	1.2 (1.1-1.2)***	1.1 (1.1-1.1)*
Cardiology	1.0 (0.8-1.1)	1.0 (1.1-1.1)

§ Adjusted for calendar year

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Impact in CHF –Decreased Acute Utilization

§ Adjusted for age, gender, comorbidity, medications, cardiologist, baseline utilization, and calendar year
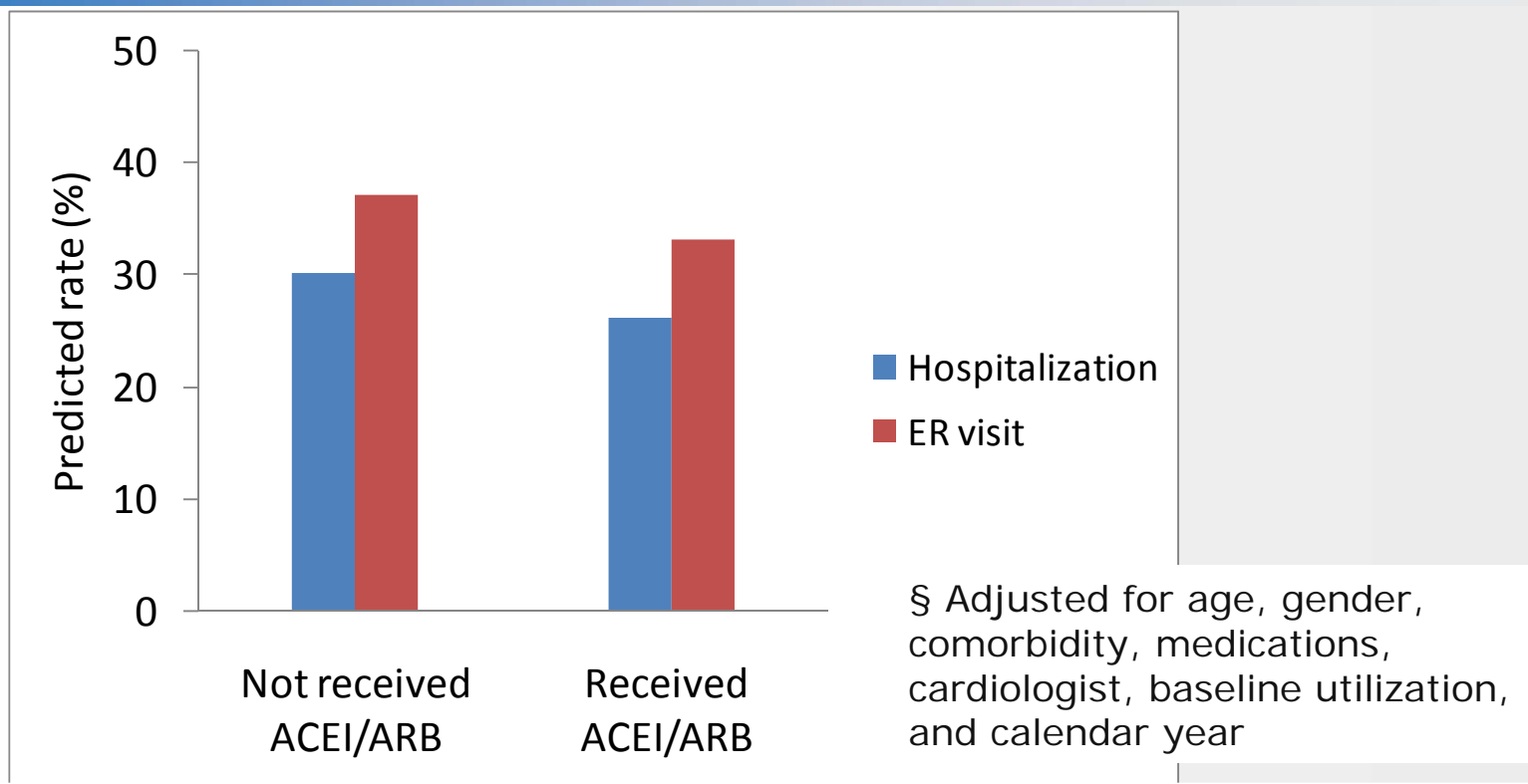
⬇ 13% in likelihood of hospitalization (p < 0.05)

⬇ 19% in likelihood of ER use (p < 0.05)

Multivariate - Cost

	Health care cost Coefficient estimate (95% CI)
Received ACEI/ARB	0.06 (-0.06-0.18)
Age (control: < 50 yrs)	
50-64 years	0.36 (0.14-0.57)**
>= 65	0.66 (0.46-0.86)***
Female	-0.001 (-0.12-0.12)
Prior health care cost	0.26 (0.21-0.32)***
High medication count	0.66 (0.48-0.83)***
Comorbidity	0.04 (0.01-0.08)*
Cardiology	0.01 (-0.10-0.12)

§ Adjusted for calendar year

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Cost Neutral Improvement
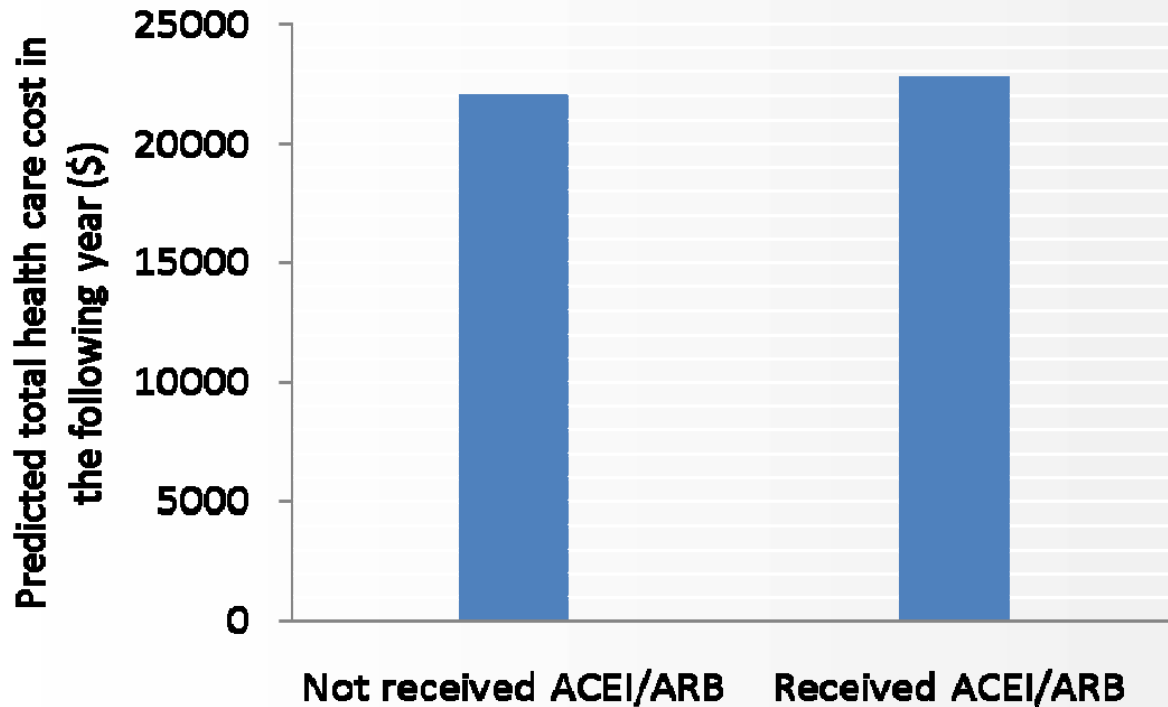
§ Adjusted for age, gender, comorbidity, medications, cardiologist, baseline cost, and calendar year

No significant increase in total health care cost

Discussion

- The receipt of ACEI/ARB
    - Significant decrease in acute care utilization
    - Not associated with increased total health care cost
- Providing quality care can improve outcomes without increase in cost
- Increased OPT pharmacy cost offset by decreased acute utilization cost
- Possible - portion of OPT pharmacy cost may be due to use of brand vs. generic (ACEI/ARB)

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Research Questions

- Would P4P work in another common disease such as CHF

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- How does this impact total health care cost? Are the savings in acute utilization sufficient to counter the increase cost of providing quality care?

- Can increased quality of care impact true health outcomes?

Impact in CVD – Quality, Utilization, New CV Events, LDL level

- Objective
  - Impact of P4P on receipt of quality processes (1 Lab test for LDL & 1 prescription for statin) in patients with CVD
  - Effect of quality process in the baseline year on health outcomes (i.e., hospitalization, acute coronary events, and LDL levels) in the subsequent year

Impact in CVD – Methods

- Administrative & lab data - 1999 thru 2006
- Study pop. (12,106 pts, 27,239 pt-yrs):
  - ❖ Patients 18 – 75 yo with CVD
  - ❖ Continuously enrolled (2yrs) with medical & pharmacy benefit
  - ❖ Exclude patient with contraindication to statins
- Outcomes: (1) Adm,(2) Acute Coronary Events, (3) LDL ≤ 100 mg/dL
- Main Independent: Receipt of LDL test & statins
- Covariates: age, gender, comorbidity, medications, cardiologist, baseline utilization & cost, and CY
- Statistical Analysis: Random Effects Logistic Model

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Population Characteristics

	2000	2002	2004	2006
Sample	4,551	4,820	5,120	5,007
Age (mean)	62	62	62	62
Female	30%	30%	30%	28%
P4P	87%	92%	96%	98%
Quality care	42%	47%	56%	71%
New coronary	5.7%	5.5%	6.1%	5.1%
Hospitalized	14.3%	15%	15.5%	12.8%
LDL < 100	43%	44%	64%	70%
Comorbidity	2.0	2.1	2.2	2.3
Medication	7..1	7.1	7.4	7.5
Cardiologist	68%	68%	72%	76%

Multivariate – Receipt of Quality Care

	Quality Care Odd Ratio (95% CI)
P4P	0.7 (0.5-0.9)**
Calendar year	1.2 (1.1-1.3)**
P4P*calendar year	1.2 (1.1-1.4)**
Age (control: 18-55 yrs)	
56-60	1.6 (1.4-1.9)**
61-65	1.6 (1.4-1.9)**
66-70	0.6 (0.5-0.7)**
71-74	0.5 (0.4-0.6)**
Female	0.5 (0.4-0.6)**
Cardiology	1.8 (1.6-1.9)**

§ Adjusted for comorbidity, medication count, seeing mult PCP

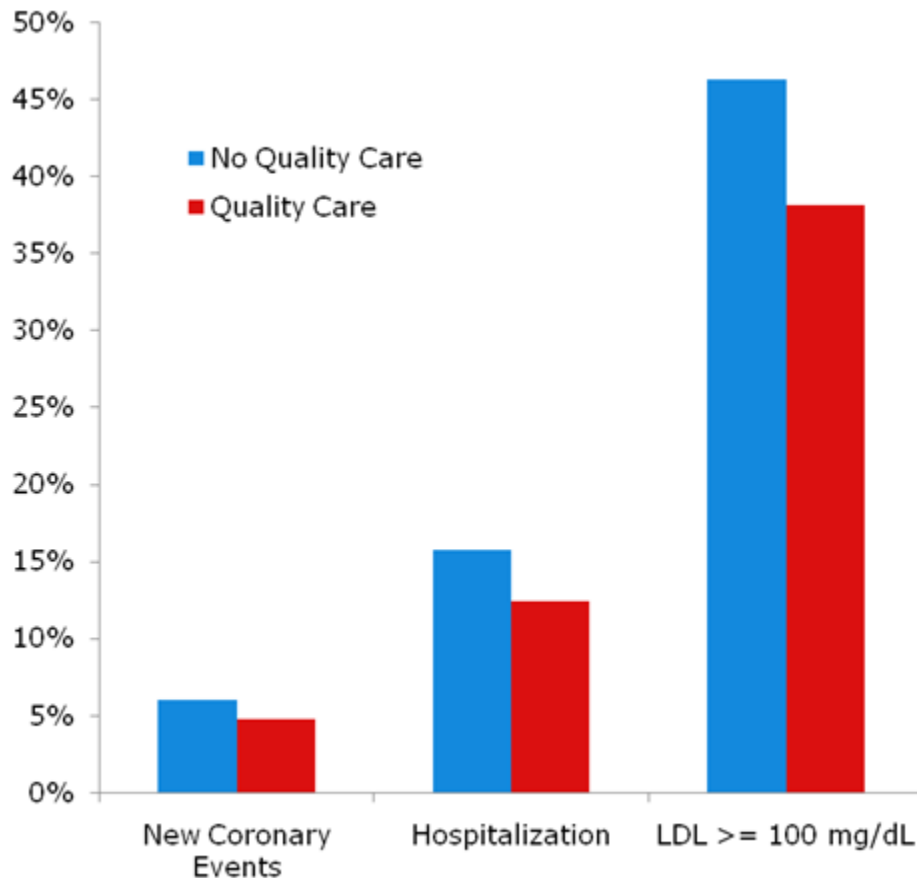# Impact in CVD – PFP & Receipt of Quality Care
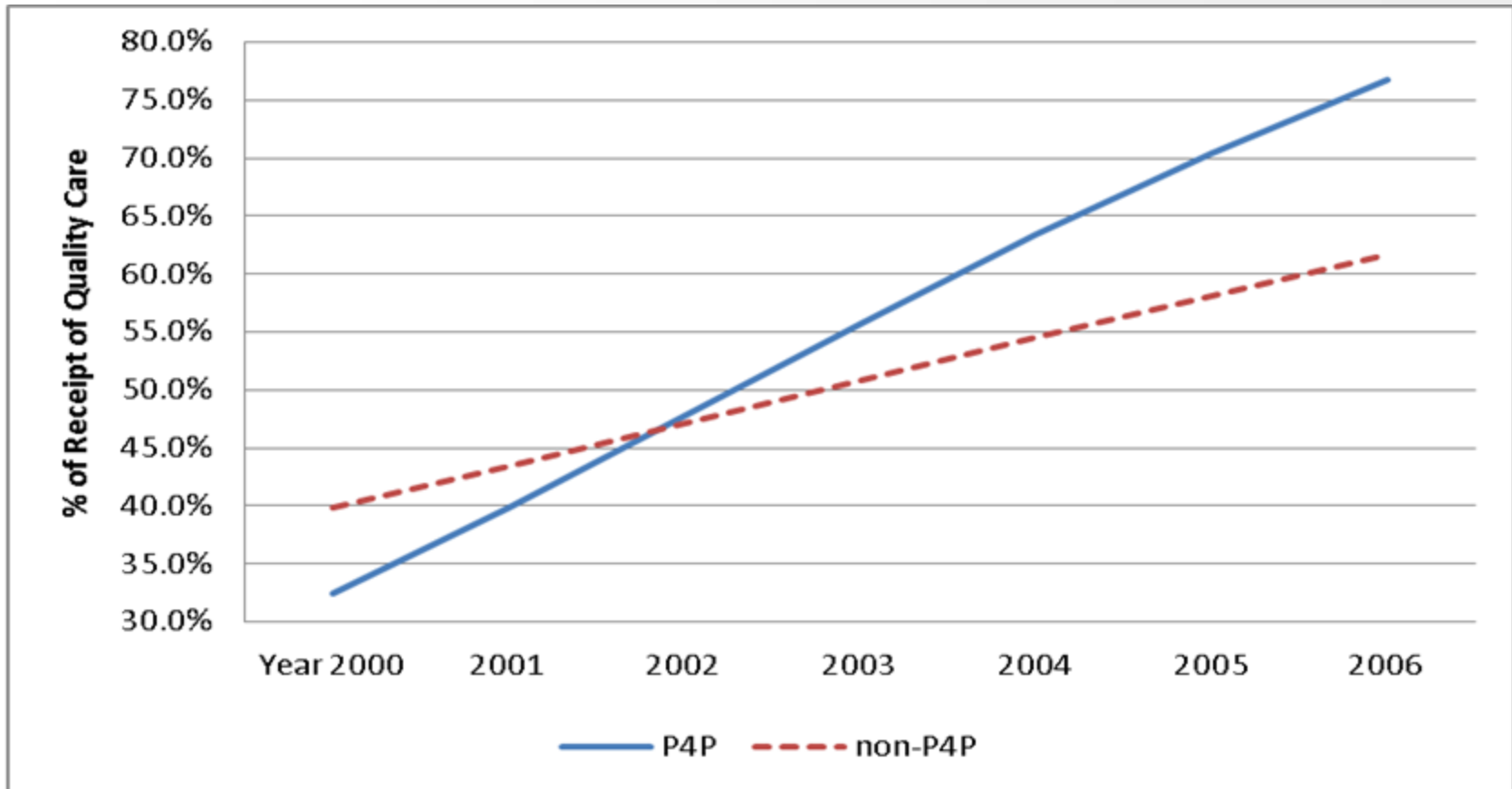
§ Adjusted for age, gender, comorbidity, medications, cardiologist, baseline utilization, and calendar year

Multivariate - Outcomes

	New Coronary OR (95% CI)	Hospitalized OR (95% CI)	LDL >= 100 OR (95% CI)
Quality care	0.8 (0.7-0.9)**	0.7 (0.7-0.8)**	0.7 (0.6-0.7)**
Age			
56-60	1.2 (1.0-1.5)	1.2 (1.1-1.4)**	0.9 (0.8-1.0)
61-65	1.1 (0.9-1.4)	1.2 (1.1-1.4)**	0.8 (0.7-0.9)**
66-70	1.4 (1.1-1.7)**	1.4 (1.2-1.7)**	0.7 (0.6-0.8)**
71-74	1.2 (1.0-1.5)	1.8 (1.5-2.1)**	0.7 (0.6-0.8)**
Female	0.7 (0.6-0.8)**	0.9 (0.8-1.0)*	1.4 (1.3-1.5)**
Cardiology	1.1 (0.7-1.3)	0.9 (0.8-1.0)	0.9 (0.8-0.9)*

§ Adjusted for comorbidity, medication count, seeing mult PCP, prior hospitalization, prior LDL level, calendar year

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Impact in CVD – Impact on Health Outcomes

22% in likelihood of hospitalization (p<0.01)

20% in likelihood of new coronary events (p<0.01)

18% in likelihood of having LDL > 100 mg/dL (p<0.01)

§ Adjusted for age, gender, comorbidity, medications, cardiologist, baseline utilization & LDL level, and calendar year

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Discussion

- PPO, P4P prog. increased lipid monitoring & statin treatment for CVD patients

- P4P associated with increased quality care with time

- Receipt of lipid monitoring and statin treatment among CVD patients improved LDL control and reduced likelihood of new coronary events & hospitalizations

- Women & older patients with CVD significantly less likely to receive lipid monitoring & statin treatment (Despite evidence of benefit with statin treatment among women & older patients)

Lessons Learned

- Reasons to Implement a P4P program
  - ❖ Quality gap & demand for accountability
  - ❖ Realign payment & value
  - ❖ P4P can improve both quality & health outcomes
  - ❖ Improvement in quality is cost neutral or cost effective
- Tips to Implement a P4P with impact
  - ❖ Measure selection
  - ❖ Physician buy in & sufficient incentive
  - ❖ Reward improvement as well as absolute score
  - ❖ Consistency in measures for at least 3 years
  - ❖ System for monitoring and evaluation

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Future

- Integration of PFP with Payment Reform
- Collaborative Relationship: Providers & Payers
- Redesign of Delivery System
- Total Population Management/IHMS
- Must Measure & Must Have Transparency

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