

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

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

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)

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

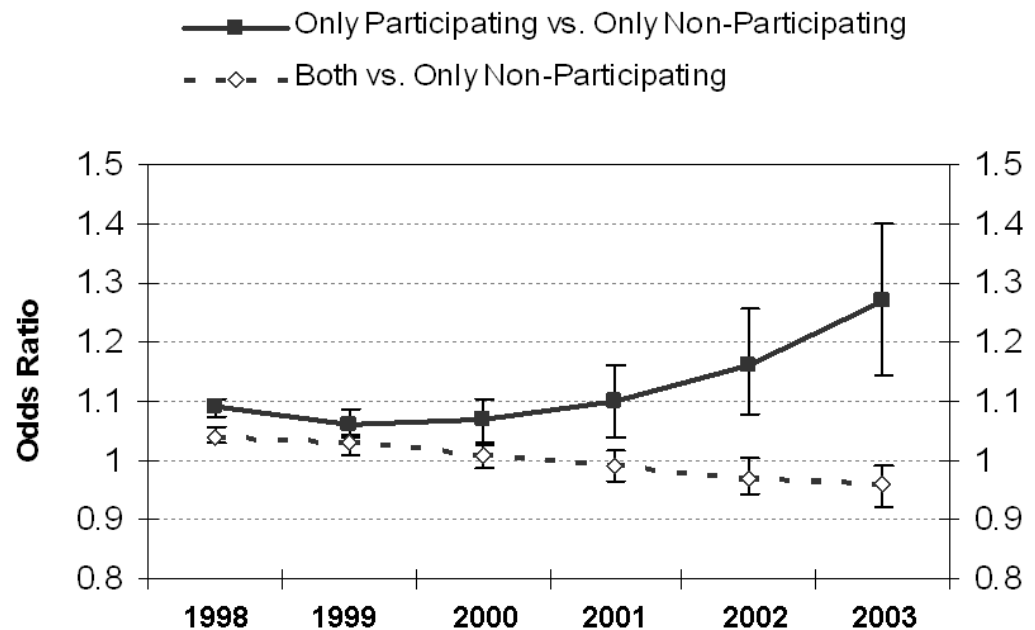
Summary of Evaluations – Published

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

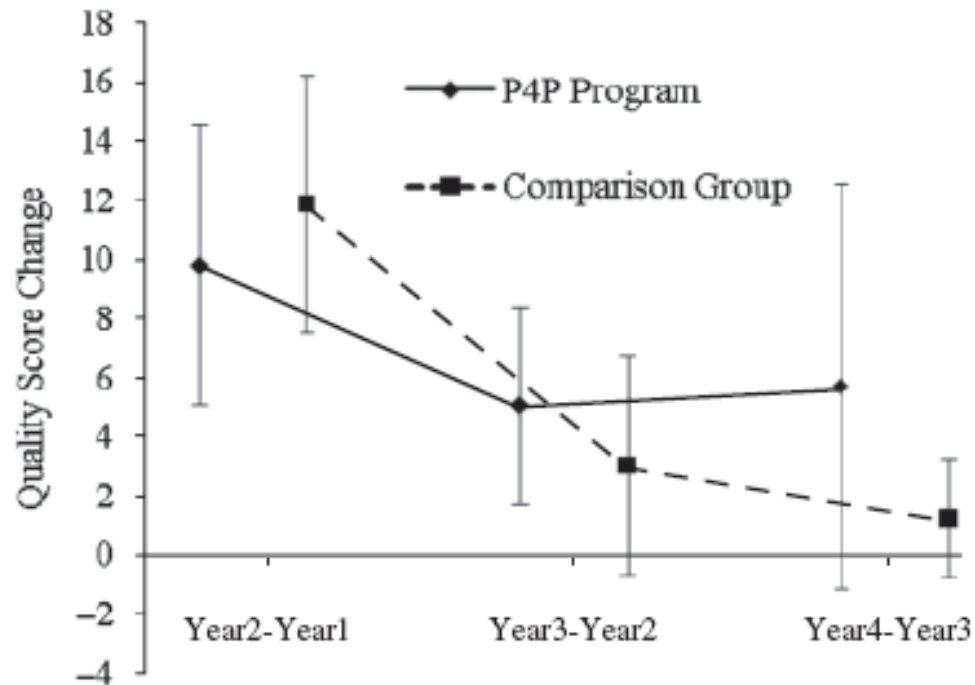


Gilmore AS, Zhao Y, Kang N, Ryskina KL, Legorreta AP, Taira DA, Chung RS. Patient outcomes and evidence-based medicine in a preferred provider organization setting: a six-year evaluation of a physician pay-for-performance program. *Health Serv Res.* 2007 Dec;42(6 Pt 1):2140-59.

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

Summary of Evaluations – Published

Impact in Diabetes

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

■ CLINICAL ■

The Effect of a PPO Pay-for-Performance Program on Patients With Diabetes

Judy Y. Chen, MD, MSHS; Haijun Tian, PhD; Deborah Talra Juarez, ScD; Krista A. Hodges, MPH, MBA; Jennifer C. Brand, MPH; Richard S. Chung, MD; and Antonio R. Lagorreta, MD, MPH

Since the publication of several Institute of Medicine reports that recommended quality-based incentive programs to improve healthcare quality, many health plans have adopted pay-for-performance programs (P4Ps).^{1,2} More than one-half of the physicians practicing in commercial health maintenance organizations and approximately one-quarter of all physicians in other settings participate in some form of P4P contract.^{3,4} Moreover, the Centers for Medicare & Medicaid Services have invested \$21 billion in P4Ps nationwide and plan to adopt P4Ps for health plans and physicians. Despite the wide use of P4Ps to improve the quality of care, few evaluations of the effectiveness of P4Ps are available in the literature, and most of these evaluations are published shortly after the P4P implementation, before the P4P can change physician behavior. In addition, the existing literature is mixed on the effect of P4Ps on physician behavior.^{5,6} Some studies^{7,8} found no effect or minimal effect, while other studies^{9,10} found that P4Ps were effective in improving the quality of care.

Moreover, because most P4Ps provide monetary rewards to physicians for the achievement of quality-of-care processes (eg, obtaining laboratory testing) and not for outcomes (eg, hospitalization rates), few studies have assessed the ability of P4Ps to significantly improve patient outcomes. One study¹¹ found that, after the implementation of a P4P in a large network of federally qualified health centers, patients with diabetes mellitus were more likely to receive 2 glycosylated hemoglobin (A1C) tests per year, as recommended by the American Diabetes Association; however, this im-

Objective: To investigate the effectiveness of a pay-for-performance program (P4P) to increase the receipt of quality care and to decrease hospitalization rates among patients with diabetes mellitus.

Study Design: Longitudinal study of patients with diabetes enrolled in a preferred provider organization (PPO) between January 1, 1999, and December 31, 2006.

Methods: We used multivariate analyses to assess the effect of seeing P4P-participating physicians on the receipt of quality care (ie, glycosylated hemoglobin and low-density lipoprotein cholesterol testing) and on hospitalization rates, controlling for patient characteristics.

Results: Patients with diabetes who saw P4P-participating physicians were more likely to receive quality care than those who did not (odds ratio, 1.16; 95% confidence interval, 1.11-1.22; $P < .001$). Patients with diabetes who received quality care were less likely to be hospitalized than those who did not (incident rate ratio, 0.89; 95% confidence interval, 0.80-0.95; $P < .001$). During 1 year, there was no difference in hospitalization rates between patients with diabetes who saw P4P-participating physicians versus those who did not. However, patients with diabetes who saw P4P-participating physicians in 2 consecutive years were less likely to be hospitalized than those who did not (incident rate ratio, 0.75; 95% confidence interval, 0.61-0.92; $P < .01$).

Conclusion: A P4P can significantly increase the

AJMC, Vol 16:e16-e19, Jan 2010

Summary of Evaluations – Published

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

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?

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

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

Results: Population Characteristics

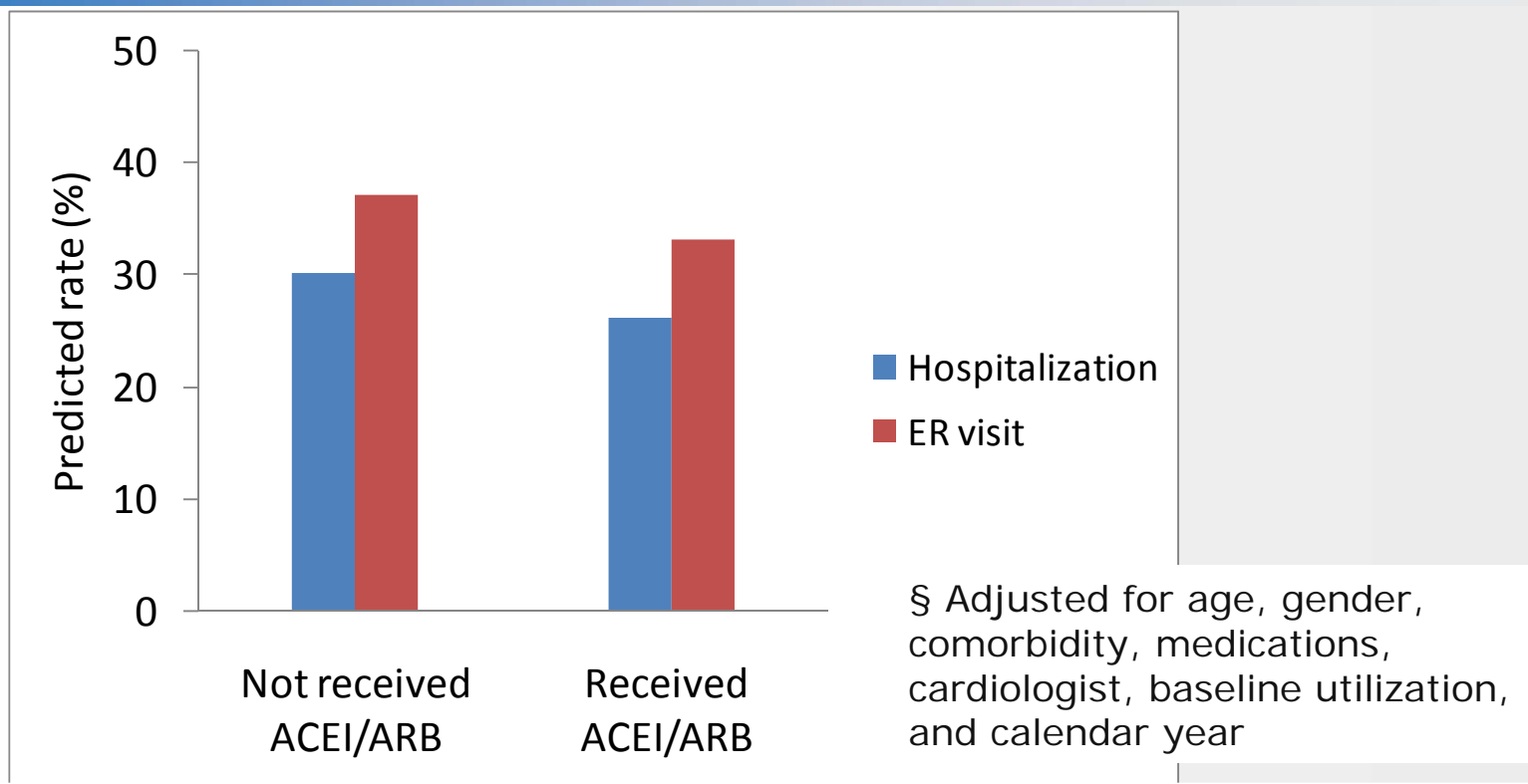
	CHF (n = 2396 patients, 3767 patient years)
Age (mean)	70 years
Female	38%
Comorbidity count	2.5
Medication count	9.4
Hospitalization	18%
ER visit	26%
Total Health Care Cost (2006 US\$)	11,000
Received ACEI/ARB	74%
Saw cardiologist	66%

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

Impact in CHF – Decreased Acute Utilization



↓ 13% in likelihood of hospitalization ($p < 0.05$)

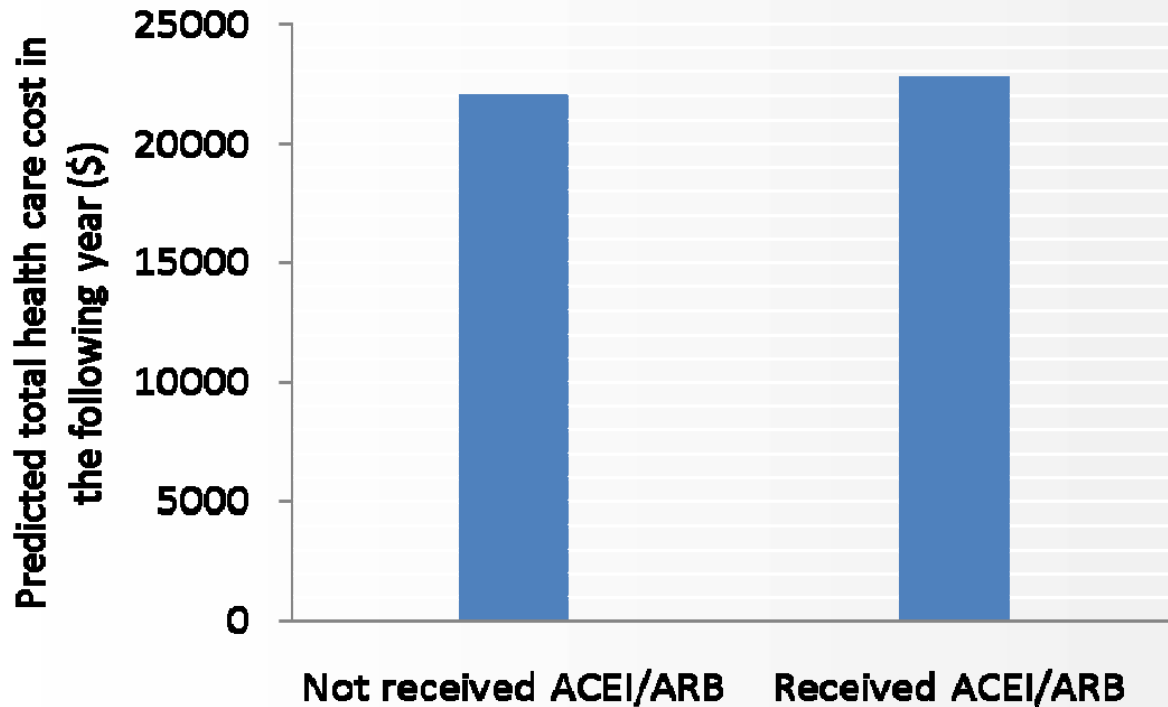
↓ 19% in likelihood of ER use ($p < 0.05$)

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

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)

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?

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 \leq 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

Population Characteristics

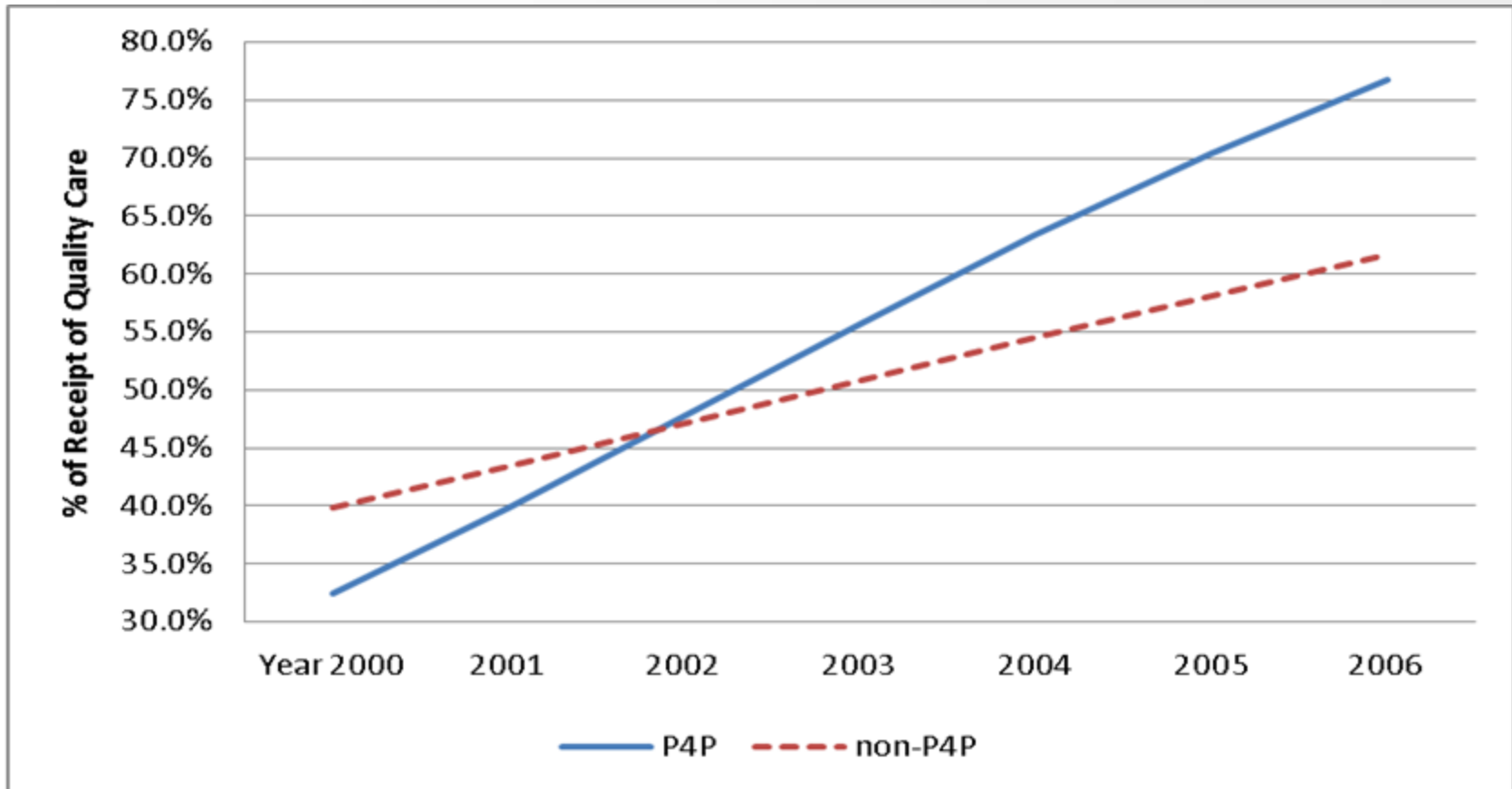
	2000	2002	2004	2006
Sample	4,551	4,820	5,120	5,007
Age (mean)	62	62	62	62
Female	30%	30%	30%	28%
P4P	87%	92%	96%	98%
Quality care	42%	47%	56%	71%
New coronary	5.7%	5.5%	6.1%	5.1%
Hospitalized	14.3%	15%	15.5%	12.8%
LDL < 100	43%	44%	64%	70%
Comorbidity	2.0	2.1	2.2	2.3
Medication	7..1	7.1	7.4	7.5
Cardiologist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



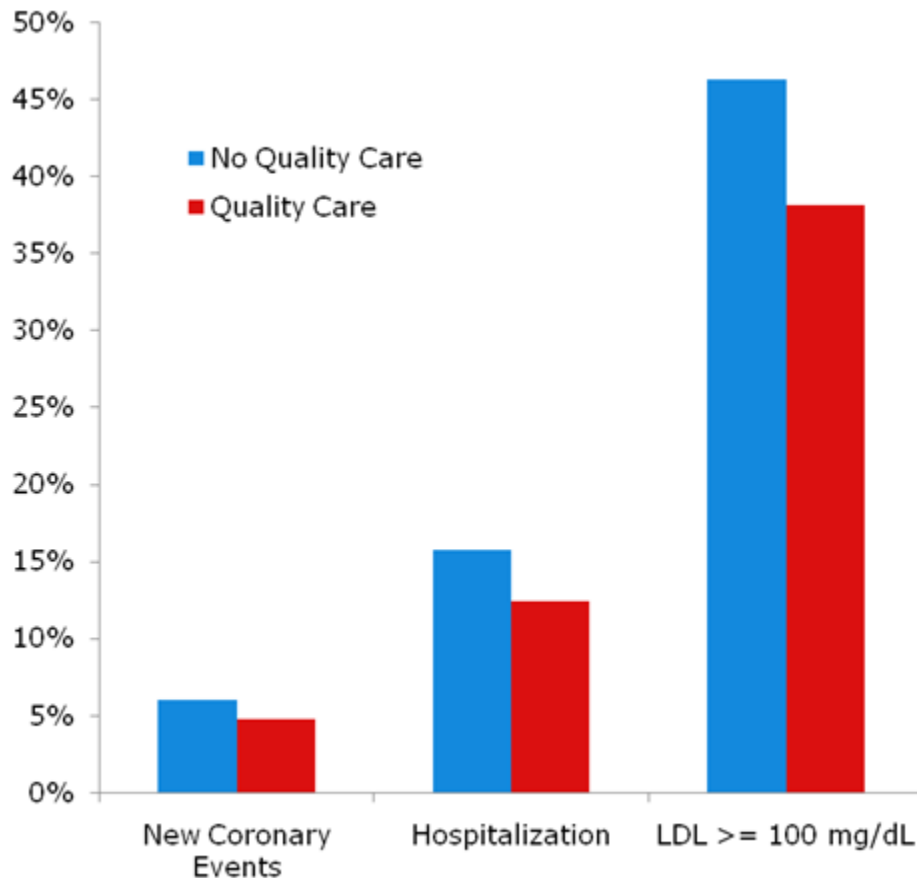
§ Adjusted for age, gender, comorbidity, medications, cardiologist, baseline utilization, and calendar year

Multivariate - Outcomes

	New Coronary OR (95% CI)	Hospitalized OR (95% CI)	LDL \geq 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

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

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

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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