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Improved Cost, Health, and Satisfaction With a Health Home Benefit Plan for Self-Insured Employers and Small Physician Practices

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Abstract: We compared the impacts on total costs, health, and satisfaction among 615 adults enrolled 2 years in an employer's health home benefit plan to their baseline year in a standard preferred provider organization plan. The new plan combined strong continuity care incentives with nurse coaching support. After 24 months, total medical costs were 23% lower than the baseline year, biometric measures improved for more than 85% of members, and patient satisfaction exceeded 85%. Emergency department visits decreased by 16% and hospital days decreased by 48%. Health home benefit plans engaging small primary care physician practices and members in coordinated continuity care can deliver high value. **Key words:** *benefit plan, health home, patient-centered medical home, primary care, quality improvement, self-insured employers, small physician practices, value-based benefit design*

THE GREAT RECESSION has driven both public and private health plan sponsors to explore innovations in health care delivery that drive better value from their health care investments—better health, better care, and better costs (Dentzer, 2012; Grumbach & Grundy, 2010; US Department of Health and Human Services, 2011). Research comparing variations in care delivery models among nations, states, and regions has shown that health systems built on a solid foundation of primary care deliver more effective, efficient, and equitable care than systems that fail to invest adequately in primary care (Grumbach et al., 2009; Reid et al., 2010). Only about 5% to 6% of total medical spend in the United States is devoted to primary care. A variety of monikers are used to identify continuity primary care systems including patient-centered primary care, patient-centered medical homes, medical neighborhoods, team-based primary care, and health homes. Recent estimates indicate that doubling the proportion devoted to primary care would result in net savings and improved health outcomes (Phillips & Bazemore, 2010). But the long cycle times to prove results, small (typically <10%) increments in primary care payments, and almost exclusive focus on redesigning doctor practices rather than engaging patients have contributed to slow adoption of advanced health home principles by rank and file health care providers (Steele et al., 2010).

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With the advent of health care reform and the Affordable Care Act in America, about half of practicing office-based US physicians, especially specialists, are now employed by hospitals or integrated delivery systems, a trend fueled by the intended creations of accountable care organizations and the prospect of more risk-sharing payment approaches (Kane, 2001, 2009). However, hospitals lose money when purchasing primary care practices. It is difficult to predict whether this cycle of hospitals acquiring physician practices will be any more sustainable than the 1990s when hospitals subsequently divested themselves (Kocher & Sahni, 2011). Large National Committee for Quality Assurance–recognized level III medical home primary care clinics mostly serving one common Minnesota insurer reported only slow marginal improvements in quality and patient satisfaction over a 3-year period (Solberg et al., 2011). With few notable exceptions (Bodenheimer, 2011), small- and medium-sized physician practices use few patient-centered health home processes (Rittenhouse et al., 2011).

Care delivery redesign of patient-centered primary care health homes includes offering ready access to coordinated care, long-term continuing relationships with health care providers, connected care (real-time access to prior patient clinical information at the point of care), and a payment system that rewards these activities (American Academy of Family Physicians, 2007). But patient engagement is equally important. Doctors advise; patients decide. Most patient health decisions are made between doctor visits. It is necessary to engage patients in better understanding and self-management of their conditions and treatments.

Previous studies have evaluated the net benefits to care outcomes of deploying individual value-based benefit redesign or patient-centered office practice redesign (Averill et al., 2011; Coulter, 2012; Eckel, 2008; Ettner, 1999; Finkelstein et al., 2012; Gibson et al., 2011; Rollnick et al., 1999; Rosenthal, 2008; Saultz & Lochner, 2005; Smerd, 2010; Sokol et al., 2005; Zastrow, 2010). This prospective cohort study of adult beneficiaries of a self-insured employer health plan compares outcomes of preintervention standard preferred provider organization (PPO) plan coverage with outcomes of postintervention health home benefit plan coverage offering value-based benefit redesign, office practice redesign, mutual engagement of physicians and patients in shared care plans, strong incentives aligned with desired outcomes, information technology support, and personal health coaching. It compares total medical costs, health improvement, and satisfaction levels between a baseline year of coverage by a standard PPO plan and the first 2 years of coverage by a health home benefit plan offering faster access and continuing personalized care with strong behavior change incentives and support services for doctors in small practices and their patients.

METHODS

Employer and population

The participating self-insured employer offered standard PPO and health home network benefit coverage for adult beneficiaries regardless of illness burden beginning January 2010. The plan sponsor is a large employer with 558 employees and 449 adult and child dependents in Las Vegas. Of the 1007 eligible Las Vegas–domiciled beneficiaries of the self-insured employer health plan, about 74% were employees and adult dependents (the 745 who were eligible for the *PreferredCare Plan*) and 26% were dependent children younger than 18 years. Neither children younger than 18 years nor employees of the company or their dependents residing outside Las Vegas were eligible for the pilot health home network benefit plan that was only deployed in Las Vegas. The employer specializes in publishing, software, real estate, and call center services. Illness burdens of beneficiaries reflected in historical health risk assessments and biometric tests were consistent with other local service industry workers. The employer leadership had a long-established record of implementing a health-promoting culture in the workplace. The aging

workforce, high medical cost trends (10%+ increase per year the prior 3 years), and serious economic recession motivated them to seek more active engagement of their members and health care providers in improving the health status of the plan members and lowering medical cost trends to maintain affordability of health insurance coverage.

Eligibility and beneficiary engagement

Members could choose enrollment in the patient-centered health home network benefit plan with richer coverage and service levels, higher member self-management responsibilities, and smaller primary care physician (PCP) network or the standard PPO plan offering more freedom of choice with substantially higher out-of-pocket expense. Upon enrollment in January of each year, members who chose the *PreferredCare Plan* were offered multiple face-to-face contacts and printed explanations of the benefits and member expectations detailed in Table 1 at the employer worksites, in PCP offices, and through mail and telephone calls from the program administration staff. The 5 steps of *PreferredCare Plan* participation included (a) designate your health home PCP from 8 offered; (b) complete the health risk assessment and biometric testing with your PCP within the first 90 days of enrollment; (c) access primary care through your PCP; (d) follow care guidelines recommended by your PCP; and (e) provide personal experience feedback on the *PreferredCare Plan.* When you need nonemergency health care services during normal business hours, contact your health home directly on the dedicated *PreferredCare Plan* telephone line at your PCP office. If you require a specialist, contact your health home and it will coordinate the appointment. If you require urgent care after hours or emergency care, contact your health home within 72 hours of the visit for follow-up. If your health home PCP refers you to the *PreferredCare Plan* Health Management Program, call the registered nurse health coach and follow the recommended care plans approved by you and your health home PCP. To coordinate your care when you require specialty care, contact your health home PCP and obtain a referral explaining the assistance requested and Specialist Coordination Form to complete and return to your PCP detailing the results of your specialist visit. To continuously improve services, we will contact you to provide program executives feedback on your experience with the *PreferredCare Plan* after each visit to your health home PCP.

Incentives for enrollee engagement

The contract signed by *PreferredCare Plan* enrollees at annual open enrollment also specified what they would receive in return for meeting their expectations. For following expectations of the *PreferredCare Plan*, the enrollees received (a) concierge-level primary care services by their health home PCP; (b) same-day access for acute care needs if the office was called before 10 AM; (c) dedicated phone line at the health home PCP office only for *PreferredCare Plan* members for rapid answers and advice; (d) less than 60-minute turnaround time from entering the doctor office to exiting the office visit (unless longer evaluation is desired for complex needs); and (e) much lower out-of-pocket expense for copays, deductibles, and premium contributions (Table 2).

If an enrollee failed to comply with one of the expectations (Table 1), a letter was mailed to the member explaining the observed discrepancy, offering the member the opportunity to demonstrate that the alleged discrepancy was an error. The appeal process was consistent with Employee Retirement Income Security Act, Department of Labor, and other relevant Federal and State statutes and regulations. If the review of the appeal determined that the discrepancy was upheld, the member received a reminder of the expectations and a warning letter that a second nonadherence event would result in financial penalty. If the second noncompliance event was established as valid after appeal and review, the member's financial responsibility for its premium contribution increased at the beginning of the following month. If a third violation was validated, the member was disenrolled from *PreferredCare* and automatically enrolled in

Table 1. Expectations of *PreferredCare* Members and Definitions of Noncompliance Events That Could Result in Financial Penalty or Disenrollment

Member Expectations to Avoid Financial Penalty or Disenrollment	
Expectation Description	**Definition of Noncompliance Event**
Establishment of care with PCP—new enrollee or PCP change	Failure to establish care with *PreferredCare Plan* PCP within 60 d of your coverage effective date or PCP change.
Office visit expectation—PCP follow-up	Failure to conduct scheduled follow-up visits with a *PreferredCare Plan* PCP within 14 d of the scheduled follow-up appointment.
Specialist referral expectation—office visits	Failure to follow your *PreferredCare Plan* PCP mutually developed care plan regarding an office visit to a specialist within 90 d of being referred by your *PreferredCare Plan* PCP.
SCF expectation	Failure to complete and return the SCF to your *PreferredCare Plan* PCP within 90 d of any specialist visit.
Laboratory/radiology order expectation	Failure to complete laboratory or radiology services within 30 d of being ordered by a *PreferredCare Plan* PCP.
Urgent care expectation	Failure to comply with urgent care visit expectation. Unauthorized visit to an urgent care facility during business hours.
ED and/or urgent care notification expectation	Failure to comply with ED and/or urgent care notification expectation. Failure to notify your *PreferredCare Plan* PCP within 72 h of an ED visit and/or an after-hours urgent care visit.
Inpatient discharge notification expectation	Failure to notify your *PreferredCare Plan PCP* within 72 h of an inpatient hospital discharge.
Prescribed medication expectation	Failure to fill a prescribed drug authorized by a *PreferredCare Plan* PCP for a chronic health condition. For new prescriptions, member has 90 d to fill. For ongoing prescriptions, members must fill 90% of the medications annually.
PHMP enrollment expectation	Failure to enroll in the PHMP within 21 d of receiving your PCP's referral notification letter.
PHMP participation expectation	Failure to complete scheduled coaching encounters with *PreferredCare Plan* health coach within 14 d of the scheduled call.

Abbreviations: ED, emergency department; PHMP, *PreferredCare Plan* Health Management Program; PCP, primary care physician; SCF, Specialist Coordination Form.

the more costly standard freedom of choice PPO plan. The actuarial difference in out-of-pocket costs to enrollees was 30% higher for enrollees in the standard PPO plan through a combination of increased premium contributions, deductibles, and co-pays.

Engagement of physicians

Primary care physicians recruited to participate in the health home benefit plan were previously screened on the basis of patterns of high-quality and efficient care and popularity among employees and spouses who were beneficiaries of the employer's benefit plans. They signed contracts with the employer that defined the quality, access, satisfaction, and cost-savings performance expectations to qualify for significant performance bonus payments. The health home PCPs agreed to accept single, more generous global payments covering all services for each member's office visit, using a single procedure code that replaced the lower average payments from the usual multiple fee-for-service codes for office

Table 2. Comparison of Benefit Coverage of *PreferredCare Plan* With the Coverage Offered With the Alternative Standard PPO Benefit Plan[a]

Member Out-of-Pocket Payment Responsibilities	*PreferredCare Plan*		Alternative PPO Plan	
	In Network	Out of Network	In Network	Out of Network
Annual deductible (member pays)	$500/$1000 individual/family	$1500/$3000 individual/family	$2000/$4000 individual/family	$4000/$8000 individual/family
Annual out-of-pocket maximum (member pays)	$3 000/$6 000 individual/family	$7 500/$1 5000 individual/family	$4 000/$8 000 individual/family	$12 000/$24 000 individual/family
Coinsurance	80% (plan pays)	60% (plan pays)	80% (plan pays)	50%
PCP visit	$20 (member pays)	Deductible and coinsurance[b]	80% (plan pays)	50%
Specialist visit	$40 (member pays)	Deductible and coinsurance[b]	Deductible and coinsurance	
Inpatient admit, ED visit, outpatient surgery, imaging services	Deductible and coinsurance		Deductible and coinsurance	
Urgent care visit	$75 co-pay and coinsurance		Deductible and coinsurance	
Retail Rx co-pay (1 mo)	$10/$30/$50	Not covered	Deductible and coinsurance[b]	Not covered
Mail Rx co-pay (3 mo)	$25/$75/$125	Not covered	Deductible and coinsurance[b]	Not covered

Abbreviations: ED, emergency department; PPC, primary care physician; PPO, preferred provider organization; Rx, prescription.

[a]Richer coverage is available by receiving services from contracted in network providers (80% paid by plan, 20% by member) than for noncontracted out of network providers. Annual deductible and office visit costs for *PreferredCare Plan* members are lower than with the standard PPO benefit.

[b]Members pays the balance not covered by the plan.

care of standard PPO plans. For *PreferredCare Plan* members, physician offices agreed to register their findings and recommendations on the program's Web-based patient registry within 3 business days. Participating PCPs encouraged patients without established specialist relationships to seek care from specialists with efficient and effective care patterns demonstrated in medical claims and patient registry records of coordinating care with the PCP. Since the plan was a PPO plan, members with established relationships with specialists could continue to see in plan specialists they were using before the implementation of *PreferredCare*. Network specialists and facilities were compensated through discounted fee for service payments. The resulting medical and pharmacy claims were monitored and evaluated for possible improvement opportunities in conjunction with the attending health home PCPs.

Information technology and nurse coach support

The proprietary patient registry accepted data feeds from eligibility verification, physician clinical information entries, third party pharmacy and medical claims, the health coach care tracking information system, laboratory test data feeds, and patient self-reported information from health risk appraisals, health coach interactions, and satisfaction surveys (Figure 1). Health home PCPs were provided periodic reports from the program's claims data warehouse and patient registry showing observed versus expected levels of patients' adherence to their recommendations, total medical costs with drilldowns by cost type,

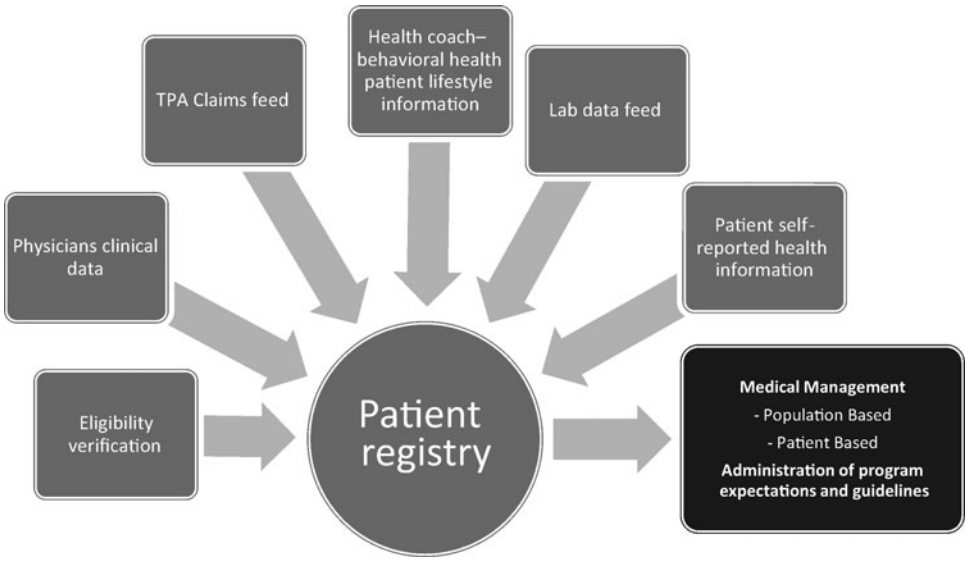

Figure 1. Summary of data feeds and outputs of the Web-based patient registry. TPA indicates third party administrator.

satisfaction levels for each satisfaction survey element, and health care services their patients were receiving from other health care providers. Registered nurse health coach services and care plan progress reports were made available to health home PCPs and members to assist them with achieving the goals of shared care plans mutually developed between the PCP and the patient. Nurse health coaches tracked intake history, patient activation scores (Mosen et al., 2007), Patient Health Questionnaire-9 depression screen results (Kroenke et al., 2001), care plan deliverables, training curriculum progress, and patient self-reported health metrics (blood pressure [BP], weight, activity, filled prescriptions, test results) with a Web-based health management tracking system offering bidirectional data feeds with the online patient registry. On the basis of the agreement, each enrollee was mailed a "Care Kit" that contained the needed equipment (BP cuff, scale, glucometer, etc) and simple to understand reading materials and journals relevant to the curriculum to follow during subsequent face-to-face and/or telephonic encounters scheduled at the convenience of the patient (Figure 2).

Regular meetings of the employer senior managers, program administrators, medical director and health coach, and PCPs identified lessons learned and assisted with designing program improvements. Global per enrollee per month payments were incurred and included in the costs of administering the program, deploying the information technology, nurse coach and medical director support, and implementing interventions based on analyses of medical cost, quality, and satisfaction data.

Incentives for physicians

If the PCP's *PreferredCare Plan* members achieved 15% total medical and pharmacy claims cost savings below their actuarial expectations (after excluding catastrophic claims above $40 000 per year) and 85% adherence to evidence-based care guidelines, and 85% patient satisfaction ratings of care and service, the health home PCP would receive an additional 50% performance bonus for each 6 months that all 3 standards were achieved.

Data analysis

All medical claims for the baseline year and the 2 intervention years and the pharmacy claims for the 2 intervention years were imported into the data warehouse for analysis of medical and pharmacy cost and

Figure 2. Illustration of contents of self-care kits for members enrolled in *PreferredCare* Health Management Program (Weight Management—"Getting Down to the Real Me"), available at: www.carekit.com.

utilization by enrolled beneficiaries. These were displayed as per member (enrolled beneficiary) per month and sorted by the attending PCP and by the patient for year over year comparisons. Data were also sorted by service category (inpatient facility, outpatient facility, professional) and subcategories (surgery, diagnostic testing, emergency department facility payments; professional payments by specialty and service category) and compared by date ranges. These findings were compared with identical data analyses of beneficiary paid claims of this employer for program participating beneficiaries in prior baseline year and were compared with similar analyses of other self-insured regional employers with 100 to 1000 employees during calendar years 2009, 2010, and 2011. Demographic differences and corresponding risk were accounted for by comparing the age-sex mix of the population in the baseline year to the age-sex mix of the populations in the intervention years. Actuarial projections in 2009 of per member per month total medical and pharmacy costs for 2010 and 2011 intervention years also took into account family size, occupation, number of enrollees, medical conditions, tobacco use, and claims history. The age-sex mix of the population in the intervention years was approximately 3% less favorable than the baseline year. We did not adjust projected claims costs since the age-sex adjustment was small. Cost and use patterns of patients enrolled with each participating physician for 12 months of continuous enrollment were compared with peer participating physician patterns and with total population patterns. The year-to-year prevalence of diagnoses was determined from *International Classification of Diseases, Ninth Revision*, diagnostic codes, and adherence with drug treatment recommendations was measured according to classes of medication prescriptions filled by enrolled beneficiaries with chronic disease diagnoses.

RESULTS

More than 96% of eligible adults in Las Vegas (712 workers and adult dependents) enrolled in the *PreferredCare* health home benefit plan the first year. The plan was served by 8 PCPs geographically dispersed throughout Las Vegas, Nevada. Average age-sex severity index of the population was 1.18. This was higher than average than other regional employer groups served by Cigna Healthcare. In rank order, the analysis of diagnoses in medical claims and health risk appraisals that year showed that the most prevalent chronic

conditions among enrollees included obesity, hyperlipidemia, hypertension, diabetes mellitus, anxiety, and depression. The most costly enrollees identified by total medical costs per enrollee per year had cancer, chronic renal disease, stroke, and heart disease. The expected actuarial trend projected in 2009 for the population of enrollees who enrolled in 2010 for their first and second years in the *PreferredCare Plan* was an expected 10% increase in per member per month total medical costs each year. This was consistent with the experience of this employer before undertaking this study. At the completion of 12-month enrollment, total medical costs in the initial intervention year were 13% less than actuarially projected and 4% less than actual total medical costs in the baseline year (Table 3).

After company downsizing driven by the local economic recession, 615 adults maintained continued enrollment in the health home benefit plan for 24 months through the second year. Among the 615 continuously enrolled for 2 years in the *PreferredCare Plan* at the end of 2011, total medical costs per member per year were 36% lower than the actuarially expected total medical costs for year 2011 and 23% below the actual total medical costs per member in the baseline year (Table 4). Categories of services with reduced use (2011 vs 2009) included rates of emergency department visits per 1000 member months (− 16%), hospital days (− 48%), imaging services (− 35%), and procedure services (− 10%). Average prescription costs per member per year decreased 18% and generic utilization rate increased 13% (from 68.5% to 77.6%) Prescriptions filled remained flat at 12.5 scripts per member per year and physician office visits per member per year increased by 19%.

Compliance rates with Healthcare Effectiveness Data and Information Set (HEDIS) recommended care processes improved. Biometric tests of enrolled members with the most prevalent chronic conditions showed that more than 85% had improved control of their diabetes mellitus (hemoglobin A_{1c}), hypertension (BP), and hyperlipidemia measures (total cholesterol and low-density lipoprotein cholesterol) than their baseline measures (Table 5). Among the 81 members with an average of 2.5 comorbid chronic conditions enrolled in the health coaching weight management program for more than 6 months, 79% lost weight. Average weight loss was 7 lb; 31% lost more than 10 lb (Table 6). Among 44 patients who completed 9-month enrollment in the weight management program, the average weight loss was 5%. Of these 44 patients, 12 (27%) achieved at least 8% weight loss for an average weight loss sustained for 9 months in this group of 12% of baseline body weight.

Among 361 *PreferredCare* members who completed and returned satisfaction surveys, patient satisfaction rates with same-day access, fast office turnaround time, and clear answers about the program were more than 94% and overall patient satisfaction ratings were

Table 3. Comparison of Total Medical Costs Including Catastrophic Cases Between the Baseline Year (2009) and the First Intervention Year (2010)[a]

2009 Baseline Year and 2010 First Intervention Year Total Medical Costs					
	2009 Actual	**2010 Expected**	**2010 Actual**	**Savings**	**Savings per 1 000 Members**
PMPM claims	$298.70	$328.57	$286.16	13% below expected 4% below baseline actual	$508 920.00

Abbreviation: PMPM, per member per month.

[a]At the completion of 12-month enrollment, total medical costs in the initial intervention year were 13% less than actuarially projected and 4% less than actual total medical costs in the baseline year.

Table 4. Comparison of Total Medical Costs in the Second Intervention Year (2011) With the First Intervention Year (2010) Actual Costs and the Actuarially Expected Costs From 2009 Baseline Year Projections[a]

	2011 Results				
	2010 Actual	2011 Expected (2009 Projection)	2011 Actual	Savings	Savings per 1 000 Members
PMPM claims	$286.16	$361.43	$230.61	36% below expected 23% below baseline actual	$1 569 840

Abbreviation: PMPM, per member per month.
[a]At the completion of 24-month enrollment, total medical costs in the second intervention year were 36% less than actuarially projected and 23% less than actual total medical costs in the baseline year.

more than 86%. Of all 1918 patient satisfaction surveys issued, less than 5% of patients expressed dissatisfaction (Table 7).

"Notices of noncompliance" to care plan expectations were infrequent. Of 243 individual allegedly unmet expectations, 166 (68%) were validated after appeal. Seventeen percent of enrolled households had 1 validated noncompliance event, 1.3% had 2, and only 1 of the 712 patients had a third noncompliance event in the first year. It was in the 12th month of his enrollment in the program just preceding his reenrollment in the second plan year. Most commonly unmet expectations were failure to timely return the specialist visit coordination form, failure to inform the PCP about a specialist visit in advance, and failure to establish care with the chosen PCP within 60 days of coverage.

All PCP health homes qualified for and received all 4 semiannual performance bonuses during the 2 years for meeting the

Table 5. Percentage of *PreferredCare* Members With Chronic Conditions Who Met HEDIS standards for frequency of testing, showed improvement in biometric measures, met HEDIS definitions for not being out of control, and the Percent Change in Prevalence of ED Visits and Hospital Days by 24 Months of *PreferredCare* Enrollment

Quality Results Summary (2011)			
HEDIS Measures	**%**	**Measures Improved**	**%**
Hemoglobin A_{1c} in past year	84.4	Hemoglobin A_{1c}	90.1
BP in past year	92.6	BP	94.2
LDL-C in past year	75.6	LDL-C	88.1
TC in past year	76.4	TC	89.5
Disease Controlled	**%**	**Lower ED Visits/K[a]**	**%**
Diabetes mellitus	64.5		−7
Hypertension	81.8		
Hyperlipidemia: LDL-C	75.6	**Lower hospital days/K[a]**	**%**
Hyperlipidemia: TC	76.4		−48

Abbreviations: BP, blood pressure; ED, emergency department; HEDIS, Healthcare Effectiveness Data and Information Set; LDL-C, low-density lipoprotein cholesterol; TC, total cholesterol.
[a]Per 1000 member months.

Table 6. Weight Loss Among 81 Members Enrolled in the Weight Management Program for 6+ Months

Weight Change of Enrollees	Pounds	% Enrollees
Change in weight	−15 to −48	17.5
	−10 to −14	13.8
	−5 to −9	30.0
	−1 to −4	17.5
	0	7.5
	+1 to +4	8.8
	+5 to +11	5.0
Median weight change	−8	
Average weight change	−7.2	
% lost weight		78.8
% gained weight		13.8
Average no. of comorbid chronic conditions	2.5	

quality, satisfaction, and cost-savings benchmarks. The net savings to the employer compared with expected costs at 2 years after counting all program costs and provider bonuses exceeded $827 338 (about $56.05 per member per month).

DISCUSSION

The health home benefit plan used in this study offered an array of innovations including benefit redesign, payment reform, and doctor practice transformation previously reported to improve health care, improve health, and reduce cost through innovation—the "triple aim" (Bertakis & Azari, 2011; Gibson et al., 2011; Grumbach et al., 2009; Grumbach & Grundy, 2010; Reid et al., 2010). The patient-centered values prioritized by the benefit design included same-day access for acute needs, short wait times in offices, quick responses to patient phone calls, and lower out-of-pocket costs. There was less attention to formulary redesign and prescription co-pays included in more traditional value-based insurance designs. The high patient satisfaction scores may relate to personalized attention, higher service levels, and greater engagement between patients and their physicians and coaches in shared care plans, similarly reported in the literature (Bodenheimer, 2007, 2011). We also deployed other interventions to increase sustained engagement of patients in better self-managing their chronic conditions and adhering to recommended medication regimens for their chronic conditions. We simplified complex processes and offered frequent

Table 7. Patient Satisfaction Ratings From Surveys Mailed Following Each Medical Home Primary Care Physician Office Visit

	Patient Satisfaction Ratings				
	Total	Positive	Negative	%	Goal, %
Global patient satisfaction					
Overall patient satisfaction					
Survey issued	1918	1871	47	97.55	>85
Surveys completed	361	314	47	86.98	>85
Program operations satisfaction					
Surveys completed					
Phone access satisfaction	361	344	17	95.29	>85
Same-day appointment satisfaction	361	355	6	98.34	>85
60-min turnaround satisfaction	361	341	20	94.46	>85
Accurate communication satisfaction	361	343	18	95.01	>85
Total office visits	2085	1918	167	92.0	>85

face-to-face answers to members in multiple settings. Contracts signed by members enrolling in the plan specified clear common sense behaviors that were expected of both enrollees and their health home PCPs and the plan's health advocacy and support coach. We offered flexible scheduling of office visits and coach calls. While financial rewards and consequences initiated engagement through extrinsic motivation, most members in the health management program transitioned to intrinsic motivation, as highly trained coaches applied targeted outreach consistent with their patient activation levels in combination with motivational interviewing and active listening to build members' self-confidence and ownership of their health. Many program enrollees expressed appreciation for having ready access at home to the relevant care kits from their doctor with easy-to-understand and follow curriculum and all the tools they needed to better manage their chronic conditions. Signed member contracts with behavior pledges, motivational interviewing with active listening, and tailoring interventions consistent with activation levels have been reported to improve outcomes among obese patients and those with other chronic conditions (Appel et al., 2011; Coulter, 2012; Eckel, 2008; Mosen et al., 2007; Rollnick et al., 1999).

The payment reforms for doctors in our study included implementing global bundled payments for office visits and significant outcomes-based bonus payments for improving satisfaction, quality, and cost. The office visit compensation system reduced billing hassles, and the outcomes-based payments were generous enough to engage busy office practitioners in practice redesign. They improved levels of service, changed work flows in the office, and delegated key tasks to additional members of the care team including the office manager, clerical staff, and health coach to achieve better care coordination and tracking. Health information technologies including Web-based patient registry, care tracking systems, data warehouse reporting systems, and interactive voice response technologies for clinical reminders and data collection aided achieving care goals consistent with evidence reported in the literature (Finkelstein et al., 2012). The health home physicians and their staff expressed high satisfaction with the combined interventions.

Our interventions accomplished the triple aims of improved health care, improved health, and lower cost. Perhaps, the most gratifying evidence of improved health care was the high patient satisfaction ratings achieved despite significant expectations of members to engage in self-management of their health. Improved processes of care included relatively good compliance rates with recommended HEDIS measures, chronic medication adherence rates, same-day access for acute conditions, shorter wait times in doctor offices, and improved coordination and continuity of care. Improvements in health were evidenced by achieving significant weight loss among obese patients, and improvements in biometric measures of chronic conditions including hemoglobin A_{1c} measures of diabetes control, BP measurements in hypertensive patients, and serum total cholesterol and low-density lipoprotein cholesterol measurements in patients with hyperlipidemia. These were consistent with findings in previous reports of similar interventions (Appel et al., 2011; Cramer et al., 2008; Eckel, 2008; Ettner, 1999; Gibson et al., 2011; Grumbach et al., 2009; Grumbach & Grundy, 2010; Reid et al., 2010; Saultz & Lochner, 2005; Smerd, 2010; Sokol et al., 2005; Steele et al., 2010; Yanovski, 2011). Additional follow-up is needed to determine whether the health improvements will be sustained for more than 3 years.

The limitations of the study relate to the population size of the continuously enrolled group ($n = 615$) and the scalability of the interventions to larger culturally variable populations in the current rapidly changing health care environment. The feasibility of creating similar health home benefit plans among many self-insured employers and small physician practices may be daunting. There is a leap of trust that local leaders and benefit managers will have the requisite capabilities and commitment to recruit the right health home care teams, implement the needed

patient registry and information system tools, and administer the program incentives. On the contrary, health care providers and benefit administrators are rapidly adapting to new expectations. Health plan members are expecting better care experiences as they bear more of the cost. And, plan sponsors are demanding better value from their investments in health care coverage (Dahill, 2012; Dentzer, 2012; Finkelstein et al., 2012; Grumbach & Grundy, 2010; Kaiser Commission on Medicaid and the Uninsured, 2012; Phillips and Bazemore, 2010; Rosenthal et al., 2012; US Department of Health And Human Services, 2011; Weaver & Mathews, 2012). As demands for solutions, such as those described in this study, increase, we anticipate proliferation of demonstrations that health care in America can achieve better outcomes more cost-efficiently through innovation and experimentation.

CONCLUSION

Implementing health home benefit plans combining strong continuity care incentives for members and triple aim incentives for PCPs with information system and health coach support can result in reduced medical cost trends, significant health improvements, and high patient satisfaction. Further studies are warranted to demonstrate that these innovations can be adapted to achieve widespread improvements in US health care not only through collaborations of self-insured employers with small physician practices but also among larger integrated care organizations and public payers.

REFERENCES

American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians, American Osteopathic Association. (2007). *Joint principles of the patient-centered medical home*. Retrieved July 31, 2012, from http://www.medicalhomeinfo.org/downloads/pdfs/Joint Statement.pdf

Appel, L. J., Clark, J. M., Yeh, H. C., Wang, N. Y., Coughin, J. W., Daumit, G., & Brancati, F. L. (2011). Comparative effectiveness of weight loss interventions in clinical practice. *The New England Journal of Medicine, 365*(21), 1959–1968.

Averill, R. A., Hughes, J. S., & Goldfield, N. I. (2011). Paying for outcomes, not performance: lessons from the Medicare inpatient prospective payment system. *Joint Commission Journal on Quality and Patient Safety, 37*(4), 184–191.

Bertakis, K. D., & Azari, R. (2011) Patient-centered care is associated with decreased health care utilization. *Journal of American Board Family Medicine, 24*(3), 229–39.

Bodenheimer, T. (2007) *Building teams in primary care: Lessons learned: Parts 1 and 2*. Oakland, CA: California Health Care Foundation. Retrieved July 16, 2012, from http://www.chcf.org/publications/2007/07/building-teams-in-primary-care-lessons-from-15-case-studies.

Bodenheimer, T. (2011). Lessons from the Trenches—A high-functioning primary care clinic. *The New England Journal of Medicine, 365*(1), 5–8.

Coulter, A. (2012). Patient engagement- what works? *Journal of Ambulatory Care Management, 35*(2), 80–99.

Cramer, J. A., Benedict, A., Muszbek, N., Keskinaslan, A., & Khan, Z. M. (2008). The significance of compliance and persistence in the treatment of diabetes, hypertension and dyslipidaemia: A review. *International Journal of Clinical Practice*, *62*, 76–87.

Dentzer, S. (2012). One payer's attempt to spur primary care doctors to form new medical homes. *Health Affairs, 31*(2), 341–349.

Dahill, P. (2012). *National Committee for Quality Assurance (NCQA) 2012 accreditation benchmarks and thresholds-mid-year update*. Retrieved August 1, 2012, from http://www.ncqa.org/tabid/123/Default.aspx

Eckel, R. H. (2008). Nonsurgical management of obesity in adults. *The New England Journal of Medicine*, *358*(18), 1941–1950

Ettner, S. L. (1999). The relationship between continuity of care and health behaviors of patients: Does having a usual physician make a difference? *Medical Care*, *37*, 547–555.

Finkelstein, J., Knight, A., Marinopoulos, S., Gibbons, M. C., Berger, Z., Aboumatar, H., & Bass, E. B. (2012). *Enabling patient centered care through health information technology* (Evidence Report/Technology Assessment No. 206, Prepared by Johns Hopkins University Evidence-based Practice Center under Contract No. 290-2007-10061-I, AHRQ Publication No. 12-E005-EF). Rockville, MD: Agency for

Healthcare Research and Quality. Retrieved from http://www.effectivehealthcare.ahrq.gov/reports/final.cfm

Gibson, T. B., Mahoney, J., Ranghell, K., Cherney, B. J., & McElwee, N. (2011). Value-based insurance plus disease management increased medication use and produced savings. *Health Affairs (Millwood), 30*, 100–108.

Grumbach, K., Bodenheimer, T., & Grundy, P. (2009, August). *The outcomes of implementing patient centered medical home interventions: A review of the evidence on quality, access and costs from prospective evaluation studies*. Retrieved July 31, 2012, from http://www.pcpcc.net/files/Grumbach_et-al_Evidence-of-Quality_%20101609_0.pdf

Grumbach, K., & Grundy, P. (2010, November 16). *Outcomes of implementing patient centered medical home interventions: A review of the evidence from prospective evaluation studies in the United States*. Retrieved July 31, 2012, from http://www.pcpcc.net/files/evidence_outcomes_in_pcmh.pdf

Kaiser Commission on Medicaid and the Uninsured. (2012, May). *How is the affordable care act leading to changes in Medicaid today? State adoption of five new options* [Publication No. 8312]. Retrieved July 31, 2012, from http://www.kff.org/medicaid/upload/8312.pdf

Kane, C. K. (2001). *Physician Marketplace Report—The practice arrangements of patient care physicians*. Retrieved July 21, 2012, from http://www.ama-assn.org/resources/doc/health-policy/pmr-022004.pdf

Kane, C. K. (2009). *The practice arrangements of patient care physicians, 2007–2008: An analysis by age cohort and gender*. Chicago, IL: American Medical Association. Retrieved July 21 2012, from http://www.ama-assn.org/ama1/pub/upload/mm/363/prp-200906-phys-prac-arrange.pdf

Kocher, R., & Sahni, N. (2011). Hospitals' race to employ physicians-the logic behind a money-losing proposition. *The New England Journal of Medicine, 364*(19):1790–1793.

Kroenke, K., Spitzer, R., & Williams, J. B. (2001). The PHQ-9—Validity of a brief depression severity measure. *Journal of General Internal Medicine, 16*(9), 606–613.

Mosen, D. M., Schmittdiel, J., Hibbard, J., Sobel, D., Remmers, C., & Bellows, J. (2007). Is patient activation associated with outcomes of care for adults with chronic conditions? *Journal of Ambulatory Care Management, 30*(1): 21–29.

Phillips, R. L. Jr, & Bazemore, A. W. (2010). Primary care and why it matters for US health system reform. *Health Affairs, 29*(5), 806–810.

Reid, R. J., Coleman, K., Johnson, E. A., Fishman, P. A., Hsu, C., Soman, M. P., & Larson, E. B. (2010). The Group Health medical home at year two: Cost savings, higher patient satisfaction, and less burnout for providers. *Health Affairs, 29*(5), 835–843

Rittenhouse, D. R., Casalino, L. P., Shortell, S. M., McClellan, S. R., Gillies, R. R., Alexander, J. A., & Drum, M. L. (2011). Small and medium-size physician practices use few patient-centered medical home processes. *Health Affairs, 30*(8), 1575–1584.

Rollnick, S., Mason, P., & Butler, C. (1999). *Health behavior change—A guide for practitioners*. China: Churchill Livingstone, an imprint of Elsevier Limited.

Rosenthal, M. B. (2008). Beyond pay for performance-emerging models of provider-payment reform. *The New England Journal of Medicine, 359*(12), 1197–1200.

Rosenthal, M. B., Abrams, M. K., & Bitton, A. (2012, May). Recommended core measures for evaluating the patient-centered medical home: Cost, utilization, and clinical quality. New York, NY: The Commonwealth Fund. Retrieved July 16, 2012, from http://www.commonwealthfund.org/~/media/Files/Publications/Data%20Brief/2012/1601_Rosenthal_recommended_core_measures_PCMH_v2.pdf

Saultz, J. W., & Lochner, J. (2005). Interpersonal continuity of care and care outcomes: A critical review. *Annals of Family Medicine, 3*, 159–166

Smerd, J. (2010). Home-spun health savings. *Workforce Management*, 17–20

Sokol, M. C., McGuigan, K. A., Verrbrugge, R. R., & Epstein, R. S. (2005). Impact of medication adherence on hospitalization, risk and healthcare cost. *Medical Care, 43*, 521–530

Solberg, L. I., Asche, S. E., Fontaine, P., Flottemesch, T. J., & Anderson, L. H. (2011) Trends in quality during medical home transformation. *Annals of Family Medicine, 9*, 515–521.

Steele, G. D., Haynes, J. A., Davis, D. E., Tomcavage, J., Stewart, W. F., Graf, T. R., & Shikles, J. (2010). How Geisinger's advanced medical home model argues the case for rapid cycle innovation. *Health Affairs, 29*(11), 2047–2053.

US Department Of Health And Human Services. (2011, September 11). *Fact Sheet—Comprehensive primary care initiative*. Retrieved July 18, 2012, from http://www.hhs.gov/news. http://innovation.cms.gov/Files/fact-sheet/Comprehensive-Primary-Care-Initiative-Fact-Sheet.pdf

Weaver, C., & Mathews, A. W. (2012, January 27). An Rx? Pay more to family doctors. *Wall Street Journal*. Retrieved July 31, 2012, from http://online.wsj.com/article/SB10001424052970203363504577185270518129952.html

Yanovski, S. Z. (2011). Obesity treatment in primary care—Are we there yet? *The New England Journal of Medicine, 365*(21), 2030–2031.

Zastrow, R. W. (2010). Meaningful use and the system of caring. Retrieved July 31, 2012, from http://www.vbhealth.org/case-studies-and-analysis/analysis-2/ray-zastrow-md-discusses-meaningful-use-and-systems-of-care