



**Report Title:** PCPCH Evaluation: Impacts on Patient Reported Outcomes

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# PCPCH EVALUATION

## IMPACTS ON PATIENT REPORTED OUTCOMES

**EVALUATING THE PATIENT CENTERED PRIMARY CARE HOME INITIATIVE**

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# PCPCH EVALUATION

## PATIENT-REPORTED OUTCOMES: EXECUTIVE SUMMARY

### OVERVIEW OF THE STUDY

This report describes findings from an evaluation of Oregon's Patient-Centered Primary Care Home (PCPCH) initiative on patient-reported outcomes. Widespread adoption of PCPCH models is a key part of Oregon's strategy for an improved healthcare delivery system.

We used a set of existing survey data — the Oregon Health Study, a longitudinal study of low-income Oregonian — to assess access, quality, and health outcomes over time. Our intent was to compare the *change* in our key outcomes over time between groups, in order to determine whether patients who had re-

ceived their care in a PCPCH did better over time than patients whose primary care occurred in a traditional setting.

We attributed patients in our survey panel to a PCPCH or non-PCPCH setting using claims data. We then used surveys from before and after PCPCH certification to compare change in key outcomes over time. We used multivariate modeling to adjust for other differences between PCPCH and non-PCPCH patients, assessing whether PCPCH patients saw better improvements in outcomes over time than non-PCPCH patients.

This report is part of a larger series of studies on the PCPCH model, including a cost impacts analysis and other work. These other reports are available separately.

### KEY FINDINGS

#### DID PCPCH PATIENTS HAVE BETTER ACCESS TO CARE?

**NO.** All patients in our study panel did better in terms of access to care over time. However, we did not find evidence that PCPCH patients saw *more* improvement than anyone else.

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#### DID PCPCH PATIENTS HAVE HIGHER QUALITY OF CARE?

**IN SOME WAYS.** We did not find evidence of higher subjective ratings of care quality. However, we did find that PCPCH patients were more likely to get help with non-medical (food, transportation, housing) needs when they had them, a key component of the PCPCH model.

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#### DID PCPCH PATIENTS USE CARE DIFFERENTLY?

**NO.** All patients in our study became more connected to primary care, and used less ED care, over time. However, we did not find evidence that PCPCH patients had substantively difference utilization shifts than non-PCPCH patients. Rates of use for preventive services were similar across care settings as well.

SEE PAGES 7-8.

#### DO PCPCH PATIENTS HAVE BETTER HEALTH OUTCOMES?

**MARGINALLY.** We found that PCPCH patients did see better improvements in their subjective overall health ratings over time, though the result was only marginally significant ( $p < .10$ ). We did not see evidence of a similar effect on depression or overall emotional well-being/happiness.

SEE PAGE 9.

### THE BOTTOM LINE

The PCPCH model is a key component of Oregon's healthcare transformation strategy. We examined short-term outcomes of the model from the perspective of patients in a low-income longitudinal survey panel and found only limited support for the model's impact on access, quality, and care utilization. We did see some signs of better "whole person" care and a potential impact on overall health outcomes, but it may be too early for definitive answers on these outcomes.

It is important to note that our study focused on a specific population (low-income Oregonians) and that our outcomes were measured 6-12 months post-certification. The potential impacts of the PCPCH model on other populations, or over longer periods of time, cannot be inferred from these results.

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# PCPCH EVALUATION

## AN ANALYSIS OF PATIENT-REPORTED OUTCOMES

### INTRODUCTION

This report describes findings from an evaluation of Oregon’s Patient-Centered Primary Care Home (PCPCH) initiative. We use data from a longitudinal panel of patient surveys to assess the impacts of PCPCH enrollment on patient-reported outcomes such as access, quality of care, and health outcomes over time.

### BACKGROUND

Widespread adoption of PCPCH models is a key part of Oregon’s strategy for an improved healthcare delivery system. In 2009-2010, Oregon developed and implemented a complete set of PCPCH standards and criteria. Clinic certification began in October 2011 and has continued since.

In 2012, in partnership with private sector researchers, OHRP initiated an evaluation of the PCPCH program’s impact on Oregon’s primary care landscape. The evaluation was built around several key components:

### KEY QUESTIONS

This portion of the PCPCH evaluation was designed with five key questions in mind:

#### 1. ACCESS

Do patients who receive care at a PCPCH enjoy better access to care over time than patients in traditional clinics? Are they more connected to their personal physicians? Do they report higher quality of care?

#### 2. QUALITY

Do patients who receive care at a PCPCH subjectively rate it as being of better quality? Do they receive more comprehensive, better coordinated care?

#### 3. HEALTH CARE UTILIZATION

Do patients who receive care at a PCPCH start to use care differently than those in traditional clinics? Are they less likely to seek care in the ED?

#### 4. HEALTH SCREENINGS & BEHAVIORS

Do patients who receive care at a PCPCH use more preventive care and receive more screenings than patients in traditional care settings?

#### 5. HEALTH OUTCOMES

Do patients who receive care at a PCPCH have better self-reported health outcomes over time when compared to those in traditional care settings?

### KEY PCPCH EVALUATION COMPONENTS

- A). An assessment of **implementation** of the PCPCH model, including adoption and implementation of key components;
- B). An assessment of **staff and provider experiences**;
- C). A **cost and efficiency of care** analysis, conducted using All Payer, All Claims (APAC) data to assess utilization and cost impacts associated with the model; and
- D). A **patient experiences** assessment, including patient-reported access, quality, utilization, satisfaction with care, and health.

This report summarizes results from the fourth key component: patient-reported experiences. It is intended to be combined with the work of other researchers to provide a full-spectrum evaluation of the PCPCH movement in Oregon.

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# METHODOLOGY

## OVERVIEW OF DESIGN

We employed a retrospective longitudinal panel design to conduct this portion of the PCPCH assessment. We leveraged data from the **OREGON HEALTH STUDY**, an ongoing longitudinal health care survey of low-income Oregonians that started in 2008 and continued into 2013, to examine changes in patient-reported outcomes before and after PCPCH certification. This survey collects annual data on a variety of access, quality, cost, and health outcomes for low-income Oregonians under 65 years of age, most of whom are uninsured or on Medicaid.

Because these surveys were collected as part of other research, our intent was to use already-available data for PCPCH evaluation by sorting respondents in the panel according to where they received primary care services.

We placed panel members whose care occurred within a certified tier 3 PCPCH in our “PCPCH” group, and those whose care occurred outside a PCPCH in our “non-PCPCH” group. This attribution process is further detailed below.

We defined a PCPCH certification window of Fall 2011-Fall 2012. We selected the survey just prior to this time period as a “baseline” survey, and the subsequent survey as a “post” survey. All post-surveys were selected to ensure that at least six months had passed since certification of the patient’s clinic.

All members of the larger OHS panel who could be cleanly attributed in step one, and who had surveys at each required time point in step two, were entered into our study.

We then compared *changes in outcomes* from baseline to follow-up. Our intent was to test whether OHS Panel members who received their primary care in a PCPCH did better over time than those receiving traditional primary care.

## DATA SOURCES

### OREGON HEALTH STUDY SURVEYS

Our primary source of patient survey data was from the Oregon Health Study, a longitudinal set of surveys of low-income Oregonians started in 2008 and continued through 2014. The surveys ask patients to measure access, quality, and other health care outcomes using standardized measures widely used in similar studies.

We selected a subset of OHS panel members for this study: those whose primary care clinic we could identify and classify, and who had filled out surveys just before and just after the PCPCH certification window defined in our study design.

This resulted in a total of **3,089 participants**, each contributing two surveys (pre and post).

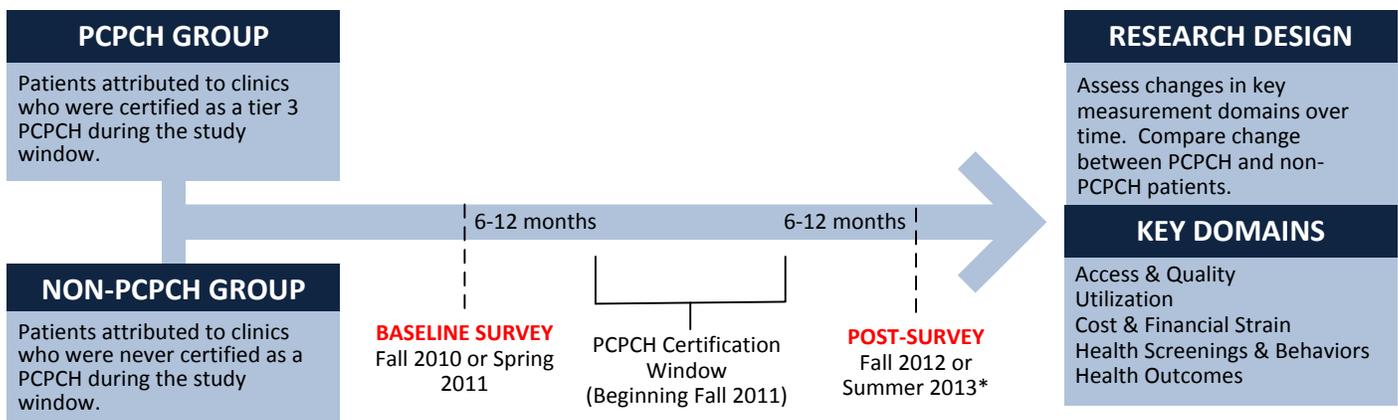
### ALL PAYER, ALL CLAIMS (APAC) DATA

We used the APAC data to empirically attribute panel members to a primary care practice based on their actual utilization patterns during our study period. In addition to attribution, APAC data was used by other researchers to conduct a cost impact assessment, available elsewhere.

### PCPCH CERTIFICATION DATA

We used the state’s certification records to flag each clinic in our study as a certified PCPCH or not, and to identify the date of certification. Our analysis focuses on comparing Tier 3 PCPCH (the highest level of certification available) to clinics with no level of PCPCH certification.

## OVERVIEW OF STUDY DESIGN FOR PCPCH ASSESSMENT OF PATIENT-REPORTED OUTCOMES



\* We used the Fall 2012 survey when patients were in a PCPCH clinic certified before Jan 2012, and the Summer 2013 survey when patients were in a clinic certified in 2012. This allowed us to ensure a minimum of six months post-certification for all PCPCH patients.

**EXCLUSION NOTES:** We excluded patients with mixed or unclear attribution based on their utilization patterns in claims data; thus, these tests represent patients who were **fully and cleanly attributed** to their respective clinic groups based on the attribution algorithm.

## IDENTIFYING STUDY COHORTS

We used the state’s list of certified PCPCH providers to create a list of PCPCH practices and their certification dates. There were 205 certified PCPCH sites during our study window, with 137 certified between Oct-Dec 2011 and the remainder certified in 2012. Primary care claims were identified in APAC using provider taxonomy codes and place of service codes. We identified the National Provider Identification numbers (NPIs) for providers in the certified primary care clinics, then matched those NPIs to records in the APAC provider data in order to flag primary care encounters that occurred in a certified PCPCH. We were then able to bundle APAC primary care claims into one of three groups of interest:

- 1.) First-wave PCPCH: Oct-Dec 2011 certification dates
- 2.) Second-wave PCPCH: Jan-Dec 2012 certification
- 3.) Non-PCPCH: no certification during study period

## ATTRIBUTION

Individual primary care attribution was based on the number of actual primary care visits for each individual within the three groups listed above. Individuals were attributed to one of the above groups at three levels: 1) 100% of primary care visits occurred within a group; 2) a majority of primary care visits occurred within a group, or 3) a plurality of primary care visits occurred within a group. Individuals with equal numbers of visits across two or more groups were unattributed. The process resulted in attributions for over one million persons:

CHARACTERISTICS	PCPCH	NON PCPCH
All attributed patients in APAC	152,641	873,287
100% attributed patients	136,732	845,914
Percent with 100% attribution	90%	97%

For this study, we focus on patients who were 100% attributed — that is, *all* of their primary care during the study period occurred within their assigned group, allowing for a more “pure” test of potential impacts. Patients with mixed attribution, or who could not be cleanly attributed, were not included.

## CREATION OF SURVEY PANEL

The claims panel was used to conduct a cost impacts assessment of PCPCH care (available separately). For this analysis of patient-reported outcomes, we applied these attribution results to our Oregon Health Study patient panels in order to identify a subset of survey panel participants who were attributed to PCPCH or non-PCPCH care, and for whom we had both “pre” and “post” patient-reported survey data available. To accomplish this, we matched our OHS Study Participant Panel against the APAC data in order to capture the attribution status of each panel member. The match was performed by partners at the state with access to identifiable APAC records; we received back a list of our OHS participants with the attribution category appended for use in this study.

**TIMING OF SURVEYS:** We identified a pre and post survey for every survey panel member with attribution data. Pre surveys were designated as any survey completed between 6 and 12 months prior to the first PCPCH certification period. Post-surveys were designated as those occurring in Fall 2012 (for the first wave PCPCH clinics) or Summer 2013 (for the second wave PCPCH clinics). This approach ensured that all baseline surveys were 6-12 months before PCPCH certification, and all follow-up surveys occurred 6-12 months post-certification.

## STATISTICAL METHODS

Because our baseline survey is prior to the PCPCH certification period and our follow-up is six or more months after, we were interested in *comparing change over time* between PCPCH and non-PCPCH patients. We were essentially testing whether receiving primary care in a PCPCH was associated with having better outcomes over time.

**UNADJUSTED OUTCOMES:** We first compared the unadjusted change in scores for each outcome of interest between baseline and follow-up. We computed “net effect” of PCPCH by subtracting the change in scores among non-PCPCH patients from the same change in PCPCH patients. Thus, if PCPCH patients saw an improvement of 5% in access to care, and non-PCPCH patients saw a change of 2%, we would estimate a “net effect” of 3% in favor of PCPCH patients before adjusting for any other group differences. We used chi-square tests of association to compare PCPCH to non-PCPCH scores for dichotomous outcomes within each time period.

**ADJUSTED OUTCOMES:** Changes in outcomes before and after PCPCH certification were compared between groups using generalized estimating equations (GEE), a form of linear model that allows for longitudinal datasets with multiple points of data collected from the same individuals. GEE was used to contrast differences in population average outcomes between groups over time while controlling for covariates of interest, such as demographics, insurance coverage, and baseline chronic illness status. Models were constructed using a logistic link function, and the results were interpreted as odds ratios indicating the likelihood of an outcome occurring among PCPCH patients relative to non-PCPCH patients. Our models included three “main effect” terms:

- ◆ **STUDY GROUP:** The impact of being in a PCPCH or not on outcomes, independent of changes in those outcome scores over time.
- ◆ **TIME:** The impact of time on outcomes of interest, independent of group membership.
- ◆ **STUDY GROUP\*TIME:** An interaction term capturing the impact of being in the PCPCH group over time. Since it describes the difference in the rate of change in our outcomes over time, **this term acts as the primary “treatment effect” in our adjusted analyses.** Under this approach, statistically significant odds ratios indicate a meaningful impact of PCPCHs on scores over time relative to the change in scores over time in non-PCPCH clinics.

Our methods are described in more detail in the Appendix.

# SAMPLE DESCRIPTIVES

Our study sample consisted of 3,089 participants, each with two surveys (pre and post). Participants were split roughly equally between PCPCH (1,434) and non-PCPCH (1,655) patients.

We descriptively compared PCPCH and non-PCPCH patients to determine whether any differences in outcomes between the two groups might be attributable to differences in group composition rather than the clinical model. For instance, if PCPCH patients were systematically sicker to begin with than non-PCPCH patients, we might expect different health outcomes over time regardless of the care model employed by the clinic.

## DEMOGRAPHIC COMPARISON

We did not find evidence of meaningful demographic differences between PCPCH and non-PCPCH patients — gender, age, and racial/ethnic distributions were similar, as were socioeconomic indicators such as education, income, and employment. Thus, we would not expect demographic differences to drive differences in outcomes between groups.

## COVERAGE COMPARISON

We discovered two important things about insurance status in our study groups. First, everyone was more likely to have coverage at our second data point than our first. This is likely due to the fact that our survey sample is not a general population sample; rather, it consists of low-income individuals who signed up for the Oregon Health Plan lottery, and thus were likely to be uninsured at baseline and subsequently selected in the lottery. Because health coverage is also a strong predictor of our outcomes of interest, it is important for our analysis to look not just for improvements in outcomes, but for *better* improvements among PCPCH clients while taking into account this change in coverage status.

We also found that there was an important difference between PCPCH and non-PCPCH patients in terms of how their insurance status changed over time: while both groups had roughly similar insurance status distribution at baseline, by our second survey PCPCH patients were less likely to be uninsured and more likely to be on Medicaid. This could actually be an *intermediary impact* of the PCPCH model— PCPCHs may have done a better job of getting their patients signed up for coverage over time than non-PCPCH clinics. However, it is also an important potential driver of outcomes, since any “effect” of PCPCHs on access or health outcomes could be attributable to the gain in insurance rather than the clinical model. To account for this, we adjust our estimates of effect using a form of multivariate regression to assess the impacts of PCPCH membership while holding constant the impacts of insurance coverage at each point in time.

## HEALTH PROFILE COMPARISON

Finally, we compared our study populations in terms of baseline health profiles in order to ensure that we had a comparable level of disease burden in both groups. We found no significant differences in baseline disease burden between our study populations, suggesting that differing health profiles are likely not an alternate explanation for any findings.

### DEMOGRAPHIC COMPARISON

PCPCH		Non-PCPCH
61%	Percent Female	61%
8%	Percent Hispanic	10%
3%	Percent Black/African American	4%
46	Average Age	46
17%	Less than High School Education	15%

### INSURANCE STATUS COMPARISON

PCPCH		Non-PCPCH
50%	Uninsured at Baseline Survey	48%
16%	Uninsured at Second Survey	25% ★
11%	Medicaid at Baseline Survey	11%
70%	Medicaid at Second Survey	64% ★

### BASELINE HEALTH PROFILE COMPARISON

PCPCH		Non-PCPCH
58%	Has 1+ physical chronic conditions	57%
49%	Has 1+ mental chronic conditions	47%
74%	Has at least one of <b>either</b> type	72%
33%	Has at least one of <b>each</b> type	32%

★ Indicates statistical significant difference between PCPCH and non-PCPCH (p<.05)

### IMPACT ON EMPIRICAL APPROACH

Based on this comparison, we determined that the most important potential confounder in our study design was coverage status. To account for this, our regression-adjusted estimates control for coverage in two ways: by accounting for *type of coverage* at each time point, and by accounting for the *number of months* covered during the six months prior to each survey response. Our models also control for some of the other variables above, including race/ethnicity, age, gender, education, and baseline chronic illness status.

## RESULTS:

# ACCESS TO CARE

## WHAT WE DID:

We wanted to know if patients getting care in PCPCH clinics saw better access to care and services than those in traditional clinics. We compared scores on a variety of access measures within each time point, but also looked at the *changes in scores* over time. To adjust for demographic and other differences in populations, we used GEE to compare the change in access scores within and between our study groups over time.

## MEASURES:

We employed several common self-reported measures of health care access:

- ◆ **Usual Place of Care:** Whether patients reported having a place they consider their “regular” source of care.
- ◆ **Personal Doctor:** Whether patients reported having a provider they considered their “personal” care provider.
- ◆ **Medical Care Access:** Among patients who reported needing medical care in the last six months, the percent who received all the care they needed.
- ◆ **Prescription Access:** Among patients who reported needing prescriptions in the last six months, the percent who received all the prescriptions they needed.
- ◆ **Behavioral Health Access:** Among patients who reported needing behavioral health care in the last six months, the percent who received all the prescriptions they needed.

## WHAT WE FOUND:

Access to care improved over time for all panel members—partially because of gains in insurance coverage across the panel. Improvements in access to care were similar regardless of whether a patient received their care in a PCPCH or not, even when controlling for demographic and other differences in the two populations. We did not see evidence of any “additional” improvements associated with getting care at a PCPCH. Results are summarized below; full output is available in the Appendix.

	UNADJUSTED RESULTS				UNADJUSTED NET “EFFECT”	REGRESSION-ADJUSTED RESULTS <sup>1</sup>	
	PCPCH Clinics		NON-PCPCH Clinics			Change in PCPCH minus change in Non-PCPCH <sup>2</sup>	PCPCH (vs NON-PCPCH)
	Pre	Post	Pre	Post	OR		95% CI
Have a usual place to go for care	61%	84%	62%	81%	+4%	1.1	0.86-1.4
Have a personal doctor or provider	45%	72%	44%	73%	-2%	0.80*	0.65-0.99
Received all needed medical care	30%	69%	31%	69%	+1%	0.86	0.66-1.12
Received all needed prescriptions	45%	77%	44%	74%	+2%	0.94	0.73-1.22
Received all needed behavioral health care	20%	50%	19%	45%	+4%	1.13	0.73-1.74

\* indicates a result that is statistically significant ( $p < .05$  or less)

Results from our GEE regression model assessing change over time within and between groups while controlling for covariates including: age, gender, race, education, chronic illness status, insurance type at each time point, and continuity of insurance at each time point.

## BOTTOM LINE

We did not see evidence that , among our low-income statewide panel, PCPCH patients saw better access outcomes than non-PCPCH patients during our study period. Patients in both groups did measurably better on access at follow-up than at baseline; but the rate of improvement was about the same regardless of where they received their primary care.

## RESULTS:

# QUALITY OF CARE

## WHAT WE DID:

We wanted to know if patients getting care in PCPCH clinics rated their care better in terms of quality. We also wanted to know if those patients tended to receive better coordinated or more “whole person care” — key elements of the PCPCH model.

## MEASURES:

We employed several common self-reported measures of health care quality and care coordination:

- ◆ **Quality of Care:** Whether patients rated their overall care as good/very good/excellent (vs fair/poor).
- ◆ **Well Coordinated Care:** Whether patients reported that their care “mostly or always” seemed well coordinated (vs sometimes/rarely/never). This measure was available only in the post-period.
- ◆ **Involved in Care:** Whether patients reported that their provider “mostly or always” involved them in their care (vs sometimes/rarely/never). This measure was available only in the post-period.
- ◆ **Basic Needs Care:** Whether patients reported that their provider “mostly or always” helped them with any food, transportation, or housing needs (vs sometimes/rarely/never). This measure was available only in the post-period.

## WHAT WE FOUND:

Patients generally became happier with the quality of their care over time, but we didn’t find evidence that PCPCH patients saw *greater* improvement than non-PCPCH patients. Our other quality measures were only available at follow-up, so we performed logistic regression to compare the odds of having a high quality experience between clinic types. We found that PCPCH patients were more likely to get “social determinants of health” care (food/transportation/housing) when they needed it, but reported that their care seemed *less* well coordinated. Further study would be needed to interpret that result, but one possibility is that a team-based care model introduces more provider voices into the patient relationship and risks overwhelming or confusing some patients.

Results are summarized below; full output for each regression model is available in the Appendix.

	UNADJUSTED RESULTS				UNADJUSTED NET “EFFECT”	REGRESSION-ADJUSTED RESULTS <sup>1</sup>	
	PCPCH Clinics		NON-PCPCH Clinics			PCPCH (vs NON-PCPCH)	
	Pre	Post	Pre	Post	Change in PCPCH minus change in Non-PCPCH	OR	95% CI
Quality of care rated good/very good/excellent (vs fair or poor)	65%	78%	64%	80%	-3%	0.79	0.6-1.03
Care mostly/always seemed well coordinated (vs sometimes/rarely/never)	n/a	73%	n/a	78%	—	0.70*	0.51-0.98
Providers mostly/always involved me in care (vs sometimes/rarely/never)	n/a	77%	n/a	76%	—	0.87	0.62-1.22
Providers helped with food, housing, transportation when needed	n/a	50%	n/a	57%	—	1.36*	1.01-1.84

\* indicates a result that is statistically significant (p<.05 or less)

For “quality of care,” results from our GEE regression model assessing change over time within and between groups while controlling for covariates including: age, gender, race, education, chronic illness status, insurance type at each time point, and continuity of insurance at each time point. For other measures, results from a logistic regression comparing PCPCH to non-PCPCH clinics with the same covariates as above but only at time 2; results indicate the relative odds of having the indicated outcome in a PCPCH vs non-PCPCH setting.

## BOTTOM LINE

PCPCH and non-PCPCH patients had similar views of the quality of their care over time. PCPCH patients were more likely to get help with basic needs when they asked for it, but were also *less* likely to report that their care seemed well coordinated.

## RESULTS:

# UTILIZATION PATTERNS

## WHAT WE DID:

We wanted to know if patients getting care in PCPCH clinics saw bigger changes in their utilization patterns than those in traditional clinics, with more use of primary care potentially substituting for ED care and resulting in less overall ED use. We compared utilization of primary care, ED, and inpatient care within and between our study groups over time.

## MEASURES:

We employed several common self-reported measures of health care utilization:

- ◆ **Primary Care:** Whether patients reported having at least one primary care visit in the last six months.
- ◆ **ED Care:** Whether patients reported having at least one ED visit in the last six months.
- ◆ **Inpatient Care:** Whether patients reported at least one non-OB inpatient stay in the last six months.

## WHAT WE FOUND:

All panel members saw increases in primary care use and declines in ED visits across the study period — perhaps a function of gaining coverage and becoming more connected to care over time. We did not see evidence that PCPCH patients saw *larger* changes in utilization than anyone else — overall, changes in care use patterns were roughly equivalent regardless of whether the patient was receiving their primary care in a PCPCH or not. Results are summarized below; full output for all models is available in the Appendix.

	UNADJUSTED RESULTS				UNADJUSTED NET "EFFECT"	REGRESSION-ADJUSTED RESULTS <sup>1</sup>	
	PCPCH Clinics		NON-PCPCH Clinics			Change in PCPCH minus change in Non-PCPCH	PCPCH (vs NON-PCPCH)
In the Last Six Months....	Pre	Post	Pre	Post			OR
At least 1 Primary Care Visit	58%	77%	57%	72%	+4%	1.04	0.84-1.31
1 or more ED Visits	40%	27%	39%	24%	+2%	1.08	0.88-1.33
1 or more Inpatient Stays (non-OB)	10%	9%	9%	8%	0%	1.0	0.70-1.42

\* Results were not statistically significant.

Results from our GEE regression model assessing change over time within and between groups while controlling for covariates of interest, including: age, gender, race, education, insurance type at each time point, and continuity of insurance prior to each time point.

## BOTTOM LINE

All patients in our low-income study panel became more connected to primary care and saw reduced ED use over the study period. We did not see evidence that receiving primary care in a PCPCH had a larger impact on utilization patterns than other primary care clinics, however. Impacts on hospitalization rates were negligible in both cases.

## RESULTS:

# HEALTH BEHAVIORS

## WHAT WE DID:

We wanted to know if patients getting care in PCPCH clinics used more preventive screenings and saw better improvements in preventive behaviors over time than those in traditional clinics. We compared scores on a variety of health behavior measures within each time point, but also looked at the *changes in scores* over time.

## MEASURES:

We employed five common self-reported measures of health care utilization:

- ◆ **Cholesterol Test:** Whether patients reported having had a cholesterol test in the last year.
- ◆ **Diabetes Test:** Whether patients reported having had a blood test for diabetes in the last year.
- ◆ **Mammograms:** Whether female patients reported having had a mammogram in the last year.
- ◆ **PAP tests:** Whether female patients reported having had a PAP test in the last year.
- ◆ **Smoker:** Whether patients reported being a current smoker.

## WHAT WE FOUND:

Over time, our low-income panel members used more preventive screenings and were slightly less likely to smoke. However, we did not see evidence that members receiving care in a PCPCH saw *larger* improvements in healthy behaviors than anyone else — changes in behavioral patterns were roughly equivalent across both study groups. Results are summarized below; full output for all models is available in the Appendix.

	UNADJUSTED RESULTS				UNADJUSTED NET "EFFECT"	REGRESSION-ADJUSTED RESULTS <sup>1</sup>	
	PCPCH Clinics		NON-PCPCH Clinics		Change in PCPCH minus change in Non-PCPCH	PCPCH (vs NON-PCPCH)	
In the Last 12Months....	Pre	Post	Pre	Post		OR	95% CI
Had a cholesterol test	47%	65%	44%	65%	-1%	0.85	0.67-1.09
Had blood tested for diabetes	43%	66%	44%	66%	+1%	0.94	0.74-1.2
Had a mammogram (females only)	16%	29%	15%	27%	+1%	0.75	0.51-1.09
Had a PAP test (females only)	34%	48%	35%	48%	+1%	0.93	0.68-1.27
Is a current smoker	46%	40%	46%	40%	0%	0.99	0.99-1.14

\* Results were not statistically significant.

Results from our GEE regression model assessing change over time within and between groups while controlling for covariates of interest, including: age, gender, race, education, insurance type at each time point, and continuity of insurance prior to each time point.

## BOTTOM LINE

Everyone in our low-income panel started using more preventive care over time, but we did not see evidence that PCPCH patients saw better outcomes than non-PCPCH patients during our study period. Patients in both groups improved at about the same rate.

## RESULTS:

# HEALTH OUTCOMES

## WHAT WE DID:

We wanted to know if patients getting care in PCPCH clinics saw better self-reported health outcomes over time than those in traditional clinics. We compared scores on a variety of health behavior measures within each time point, but also looked at the *changes in those scores* over time.

## MEASURES:

We employed several common self-reported measures of general physical and mental health:

- ◆ **Overall Health Status:** Whether patients rate their own health as excellent, very good, or good (vs fair or poor).
- ◆ **Depression:** Whether patients screened positive for active depression using the PH-Q2 brief depression screen.
- ◆ **General Happiness:** Whether the patient reports being generally “very” or “pretty” happy in life (vs not happy).

## WHAT WE FOUND:

Over time, our low-income panel members were emotionally happier and had better assessments of their own overall health status than at the start of the study. We did see some evidence of impact among PCPCH patients in terms of their overall health assessments—improvements over time were slightly *greater* for patients in PCPCH clinics than in traditional clinics, a result that was marginally significant ( $p < .10$ ). We did not see similar impacts on our depression or happiness measures. Results are summarized below; full output for all models is available in the Appendix.

	UNADJUSTED RESULTS				UNADJUSTED NET “EFFECT”	REGRESSION-ADJUSTED RESULTS <sup>1</sup>	
	PCPCH Clinics		NON-PCPCH Clinics			Change in PCPCH minus change in Non-PCPCH	PCPCH (vs NON-PCPCH)
	Pre	Post	Pre	Post	OR		95% CI
Overall health status good/very good/excellent (vs fair or poor)	60%	75%	63%	74%	+4%	1.2**	0.98-1.48
Screened positive for current depression (Ph-Q2)	39%	34%	37%	31%	-1%	0.95	0.79-1.15
Pretty or very happy overall in life (vs not happy)	53%	68%	53%	69%	-1%	0.93	0.77-1.13

\* Indicates a result that is statistically significant ( $p < .05$  or less)

\*\* Indicates result that is significant at  $p < .10$  or less.

Results from our GEE regression model assessing change over time within and between groups while controlling for covariates of interest, including: age, gender, race, education, insurance type at each time point, and continuity of insurance prior to each time point.

## BOTTOM LINE

We saw some evidence that PCPCH patients saw better improvements in self-reported health over time than non-PCPCH patients. Patients in both groups reported improving overall health over the course of the study, but improvements were better in the PCPCH group. We did not see similar differences in our measures of mental health and general happiness.

# CONCLUSIONS

## STUDY GOALS & STRUCTURE

We used a retrospective longitudinal survey design to assess the impact of PCPCH care on outcomes of interest over time. We leveraged data from an existing longitudinal study — the OREGON HEALTH STUDY (OHS) — which followed low-income patients over time to determine whether patients who got their primary care in a PCPCH did better than patients who received primary care in non-PCPCH settings.

We used claims data to attribute individuals to PCPCH or non-PCPCH clinics based on their actual utilization of primary care services. We limited our analysis to persons who received 100% of their primary care in one setting or the other, then matched that list against our OHS data set to sort survey respondents into one of the two groups. For each respondent, we then identified a pre-survey (completed 6-12 months before PCPCH certifications began) and a post survey (completed 6-12 months after certifications). Surveys captured data on access, quality, utilization, and health outcomes over time.

Since our baseline surveys were prior to PCPCH certification, we were interested in understanding the change that occurred over time in our outcomes of interest. We compared the change in scores over time between our groups to determine if PCPCHs saw better changes in outcomes over time than non-PCPCH patients.

## RESULTS

For most of our key measures — access to care, quality of care, utilization, health behaviors, and health outcomes — everyone in our study did better over time. The key question was whether PCPCH patients saw *larger* improvements than others.

**ACCESS & UTILIZATION:** In general, we found little evidence to suggest the PCPCH model was having a large impact on access, utilization, or preventive screenings and behaviors. PCPCH and non-PCPCH patients saw very similar rates of improvement in most of these measures over time.

**QUALITY OF CARE:** We did find some differences between the two groups in terms of care quality. In our quality measures, we found

that PCPCH members were more likely to receive assistance for food, transportation, and housing when they needed it — a key indicator of “whole person” care that is a core part of the PCPCH model. However, they were also *less* likely to report that their care seemed well coordinated. Our data is not positioned to explore this question, but one possible explanation could be that “team based” care models of a tier 3 PCPCH create more voices in a patient’s care that can serve to confuse or overwhelm some patients.

**HEALTH:** We did find some indication of a potential PCPCH impact on patient health outcomes. All patients reported better overall health at follow-up than at baseline, but PCPCH patients saw *more* improvement than non-PCPCH patients. The result was only marginally significant ( $p < .10$ ), but may be an early indication that the PCPCH model holds promise for helping improve patient health. Further research will be needed to explore this properly.

## LIMITATIONS

Our approach had important limitations that should be noted. First, we rely on self-report data, which can be subject to recall bias. Additionally, we were leveraging data from an existing study that was designed to track similar outcomes over time, but was not designed explicitly to test the PCPCH model of care. Patients outcomes could have been shaped by many factors outside their primary care. Third, our follow-up survey was only 6-12 months post-certification; the true impact of the PCPCH model may take longer to become evident. And finally, the OHS was designed to track outcomes for a specific subset of people — low income Oregonians who were seeking Medicaid coverage prior to the ACA expansions. Thus, our results speak primarily to the impacts of PCPCH on uninsured and Medicaid populations, and the potential impact of the model on other populations cannot be inferred from these results.

## BOTTOM LINE

We did not find conclusive evidence that PCPCHs had a significant impact on care utilization, access, health behaviors, or perceived care quality among our low-income study panel. There was marginal evidence for an impact on overall patient health outcomes, but further research will be needed to attribute these effects confi-

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