Transforming Primary Care: The Patient-Centered Medical Home

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Medical/Health Homes

- One of the fundamental reforms promoted in the Affordable Care Act

- Medical homes enhance the standard primary care model in a number of ways

Defining the Patient-Centered Medical Home
The medical home is an approach to primary care that is:

Person-Centered
Supports patients and families in managing decisions and care plans

Comprehensive
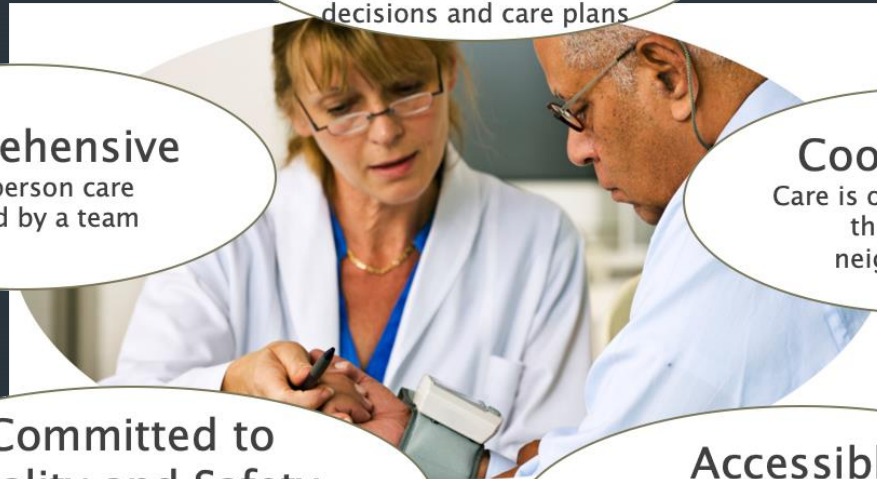Whole-person care provided by a team

Coordinated
Care is organized across the 'medical neighborhood'

Committed to Quality and Safety
Maximizes use of health IT, decision support and other tools

Accessible
Care is delivered with short waiting times, 24/7 access and extended in-person hours

Evidence for the PCMH

- Lower ED use
- Lower hospitalizations for ambulatory care-sensitive conditions

- Higher patient satisfaction

- Increased primary care visits

- Increases in preventive services & quality measures (A1c testing, eye exams, and LDL-C screenings)

Multiple chronic conditions

- However, patients with multiple chronic conditions, including mental illness, may have numerous conditions requiring specialty care, possibly taking the focus away from primary care reforms

- Almost 50% of all American adults - about 133 million people - are estimated to have a diagnosable chronic illness

- Over a quarter of American adults have **multiple** chronic conditions

  - This percent has increased almost 20% over less than a decade

Multiple Chronic Conditions and Mental Health

- Many people with chronic illness have comorbid mental health problems such as depression or schizophrenia

- Mental health problems exacerbate the disability associated with physical disorders

- Patients with such comorbidities consume high levels of medical care services and costs

Multiple Chronic Conditions and Mental Health

- Many patients with MCC and mental illness have inadequate access to primary care and their medical comorbidities go untreated

- Persons with chronic conditions are disproportionately represented among Medicaid's highest-need, highest-cost beneficiaries

Given the greater specialty needs of persons with MCC, can primary care enhancements through medical homes affect quality and costs?

Project Goals

1. To examine how patients with multiple chronic conditions interact and engage with their medical home

2. To examine how medical homes affect engagement and quality of care

Medical Homes in NC

- NC began a medical homes program for Medicaid recipients in 1997

    - Works on top of the existing payment system

    - Monthly fees paid to participating practices and to networks

- Enhancements centered around disease management efforts at the network level and team approaches to care

- Primary targets were asthma and diabetes, but have expanded

Study Sample

- Medicaid-enrolled persons with two or more of eight chronic conditions (asthma, chronic obstructive pulmonary disease, diabetes, hypertension, hyperlipidemia, seizure disorder, depression, or schizophrenia).

  - Medicare/Medicaid dual enrollees in the data but excluded from most analyses (incomplete data)

  - Some analyses use children and adults, others adults only (N = 188,531)

Selected conditions

- These conditions were selected based on prevalence, costliness, the ability to intervene, immediacy of treatment effects, and availability of claims-based quality measures.

- Constraints on the overall project prevented inclusion of additional mental disorders.

Enrollment/Engagement in Medical Homes

Lichstein et al., <u>Medical Care</u>, 2014.

Background & Objective

- **Objective:** To compare medical home use among patients with Severe Mental Illness to use among those with only chronic physical comorbidities.

- **Research Design:** We examined data on children and adults with MCC, to assess associations between SMI (major depressive disorder or psychosis) and medical home use, controlling for other differences between groups

Enrollment	Overall	No mental health conditions	Major Depression	Psychosis / Schizophrenia
Children (<18) (n=10,459)	78.4%	80.0%	78.7%	67.6%
Non-elderly Adults (18-64) (n=146,814)	65.4%	67.6%	63.0%	64.1%

Engagement	Overall	No mental health conditions	Major Depression	Psychosis / Schizophrenia
Children (<18) (n=8,795)	75.3%	80.0%	74.4%	62.1%
Non-elderly Adults (18-64) (n=105,576)	73.2%	74.3%	74.2%	64.3%

Trends in Medical Homes Enrollment: Children

% in Medical Home
(Kids age 6-17/2+ strict diags)
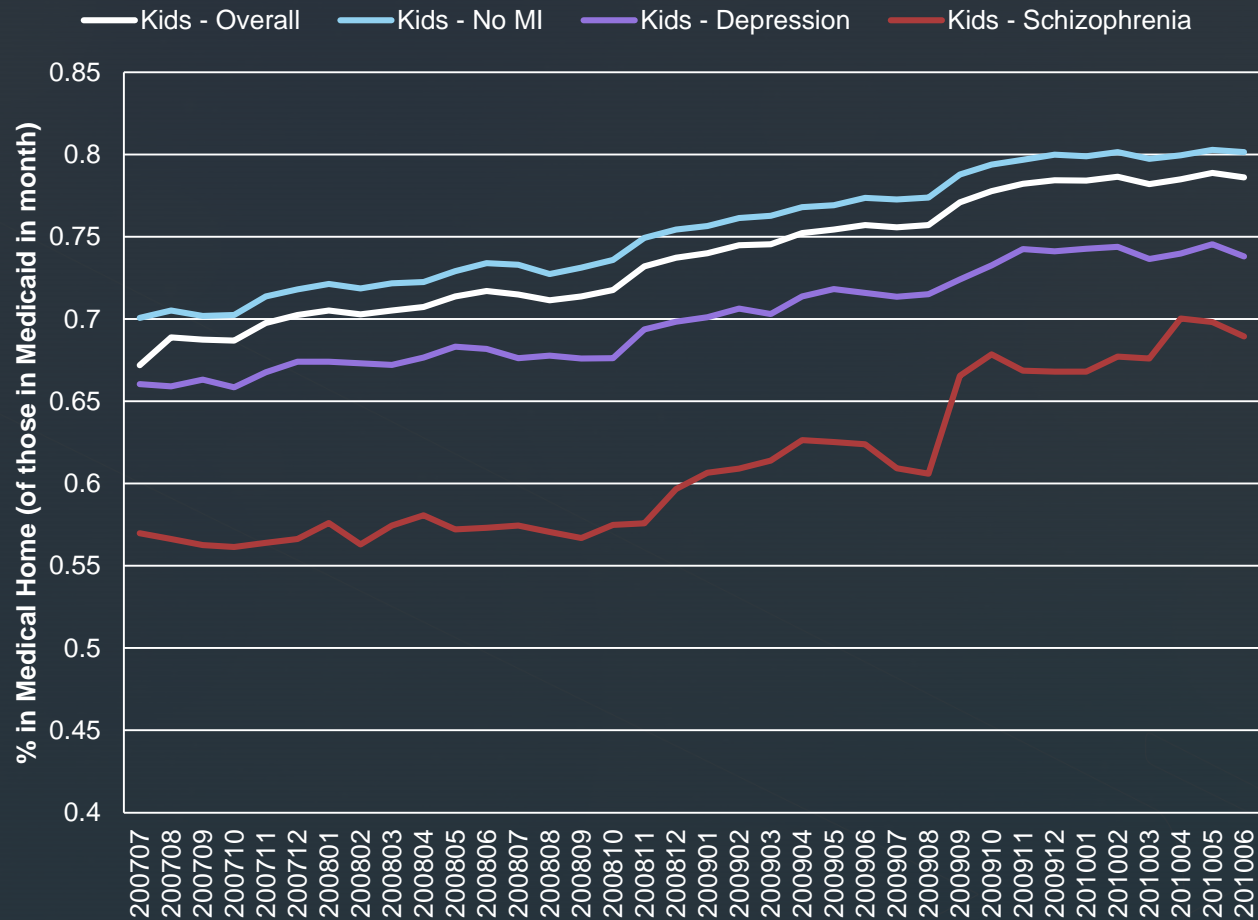
Trends in Medical Homes Enrollment: Adults

% in Medical Home
(Non-dual Adults age 18-64/2+ strict diags)
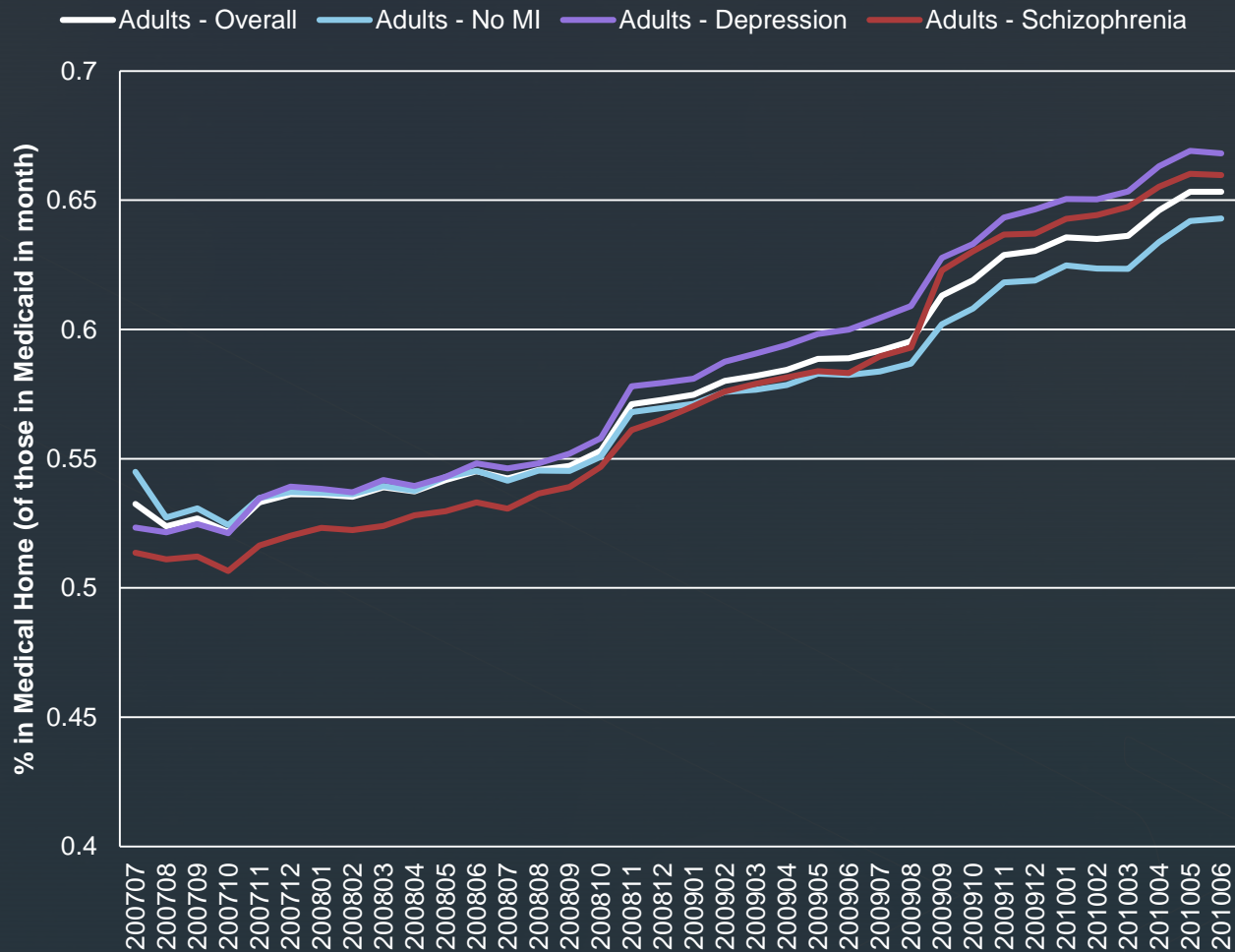
Differences in enrollment/engagement

Population and Measure:	Major Depression	Schizophrenia
Children		
Engagement	-5.1*%	-12.5*%
Number of visits to medical homes	-.2	-0.9*
Non-elderly adults		
Engagement	1.1%	-8.2*%
Number of visits to medical homes	0.1	-1.0*

*p<0.01

Quality of Care

Purpose

To examine cancer screening and single-disease quality of care measures in a Medicaid population with MCC and to compare quality measures among persons with MCC with varying medical comorbidities with and without depression or schizophrenia.

Sample selection

- We further restricted our sample to include only individuals who met stricter criteria for at least one target condition (herein referred to as the *strict diagnosis* definition):

    - at least one inpatient diagnosis or

    - at least two outpatient or emergency department diagnoses

- Because many of the quality measures described below, such as medication adherence, could only be derived from Medicaid claims data, we included only persons with at least one month of Medicaid enrollment during the 36-month study period.

- We excluded person-months during which persons were enrolled in both Medicaid and Medicare, because of incomplete data on pharmacy use.

Average change in cancer screening by target conditions

	Unadjusted Mean	Mental Health Conditions[1]		Number of Medical Conditions[2]		
		Depression	Schizo-phrenia	One medical comorbidity	Two medical comorbidities	Three or more medical comorbidities
Percent of persons over age 50 receiving colorectal cancer screening (n=67,522)	24.9%	4.42%** (0.52)	-3.8%** (0.92)	13.4%** (2.3)	16.1%** (2.2)	19.7%** (2.2)
Percent of women over age 40 receiving breast cancer screening (n=71,296)	41.0%	1.31%** (0.46)	-2.23%** (0.87)	7.9%** (1.4)	10.0%** (1.4)	10.5%** (1.4)
Percent of women between ages 21 and 65 receiving cervical cancer screening (n=113,877)	29.8%	1.51%** (0.38)	0.36% (0.72)	4.0% (1.0)	2.3%* (1.0)	-0.7% (1.0)

*=$p<0.05$; **=$p<0.01$. Delta-method standard errors are in parentheses. All models control for age in quadratic form, number of months enrolled in Medicaid, gender, race, and ethnicity. [1]Referent group for the two psychiatric diagnoses are persons without either of these conditions. [2]Referent group for the medical comorbidities are persons who do not meet the strict criteria for any of the six medical conditions examined but meet strict criteria for either depression or schizophrenia.

Average Differences in Disease-specific Quality of Care Measures by Disease Combinations

Disease-specific Quality Metrics	Unadjusted Variable Mean	Percentage Point Change in Quality Associated with Clinical Diagnosis of:			
		Mental Health Conditions[1]		Number of Medical Conditions[2]	
		Depression	Schizophrenia	Two medical comorbidities	Three or more medical comorbidities
Persons with Diabetes (n=62,157)					
Adherence to medications	0.29	-.0427** (0.0030)	0.0458** (0.0061)	0.0201** (0.0037)	0.0678** (0.0037)
Percent with A1C Test during 3 years	76.0%	-0.58%** (0.16)	-3.67%** (0.43)	1.14%** (0.17)	3.69%** (0.22)
Percent receiving Lipid Profile	70.1%	-1.31%** (0.23)	-1.61%** (0.47)	2.26%** (0.24)	8.51%** (0.33)
Percent receiving Eye Exam	54.9%	-0.19% (0.41)	-4.78%** (0.81)	-1.92%** (0.56)	2.37%** (0.55)
Percent with nephropathy screening or evidence of nephropathy	46.9%	-1.86%** (0.49)	-9.67%** (0.90)	6.79%** (0.66)	15.42%** (0.67)

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Persons with Hyperlipidemia (n=71,794)					
Adherence to hyperlipidemia medications	0.29	-0.0200** (0.0025)	0.0359** (0.0050)	0.0447** (0.0037)	0.0979** (0.0037)
Percent receiving Lipid Profile	82.9%	-0.51%** (0.11)	-2.72%** (0.27)	-0.02% (0.15)	0.43%** (0.15)
Percent with Liver Function Test if using Statins (n=47,246)	43.9%	3.92%** (0.53)	3.56%** (0.97)	-1.42% (1.02)	0.43% (0.98)
Persons with Hypertension (n=119,631)					
Adherence to antihypertensives	0.43	-0.0276** (0.0021)	-0.0105* (0.0041)	0.0365** (0.0023)	0.1039** (0.0024)
Persons with Diabetes and Hypertension (n=47,769)					
Percent with ACEI/ARBs	71.6%	-2.05%** (0.34)	-7.20%** (0.76)	--	5.21%** (0.34)
Persons with Asthma (n=37,844)					
SABA overuse	11.7%	-0.25 (0.45)	-2.90** (0.78)	1.25 (0.68)	3.68** (0.66)

Average Differences in Mental Health Quality Metrics by Number of Medical Comorbidities

Disease-specific Quality Metrics	Unadjusted Variable Mean	Percentage Point Change in Quality Associated with Clinical Diagnosis of:		
		One medical comorbidity	Two medical comorbidities	Three or more medical comorbidities
Persons with Depression (n=66,340)				
Adherence to antidepressant medication	0.33	0.0193** (0.0029)	0.0462** (0.0035)	0.0894** (0.0037)
Receipt of any individual or group psychotherapy	39.2%	-4.66%** (0.54)	-5.55%** (0.63)	-7.39%** (0.65)
Proportion with 8 or more psychotherapy visits	13.6%	-0.83% (0.50)	-0.52% (0.57)	-1.58%** (0.59)
Persons with Schizophrenia (n=15,636)				
Adherence to antipsychotic medication	0.46	0.0362** (0.0067)	0.0752** (0.0078)	0.1082** (0.0079)
Receipt of any individual or group psychotherapy	50.1%	-1.8% (1.0)	1.0% (1.2)	2.6%* (1.2)
Proportion with 8 or more psychotherapy visits	21.5%	-0.5% (1.2)	1.5% (1.3)	4.2%** (1.3)
Receipt of ACT	11.9%	0.41% (0.67)	-0.04% (0.78)	-0.02% (0.80)

In summary:

- Quality of care metrics were generally, but not always lower among those with depression or schizophrenia, and often higher among those with increasing levels of medical comorbidities.

- A number of exceptions to these trends were noted.
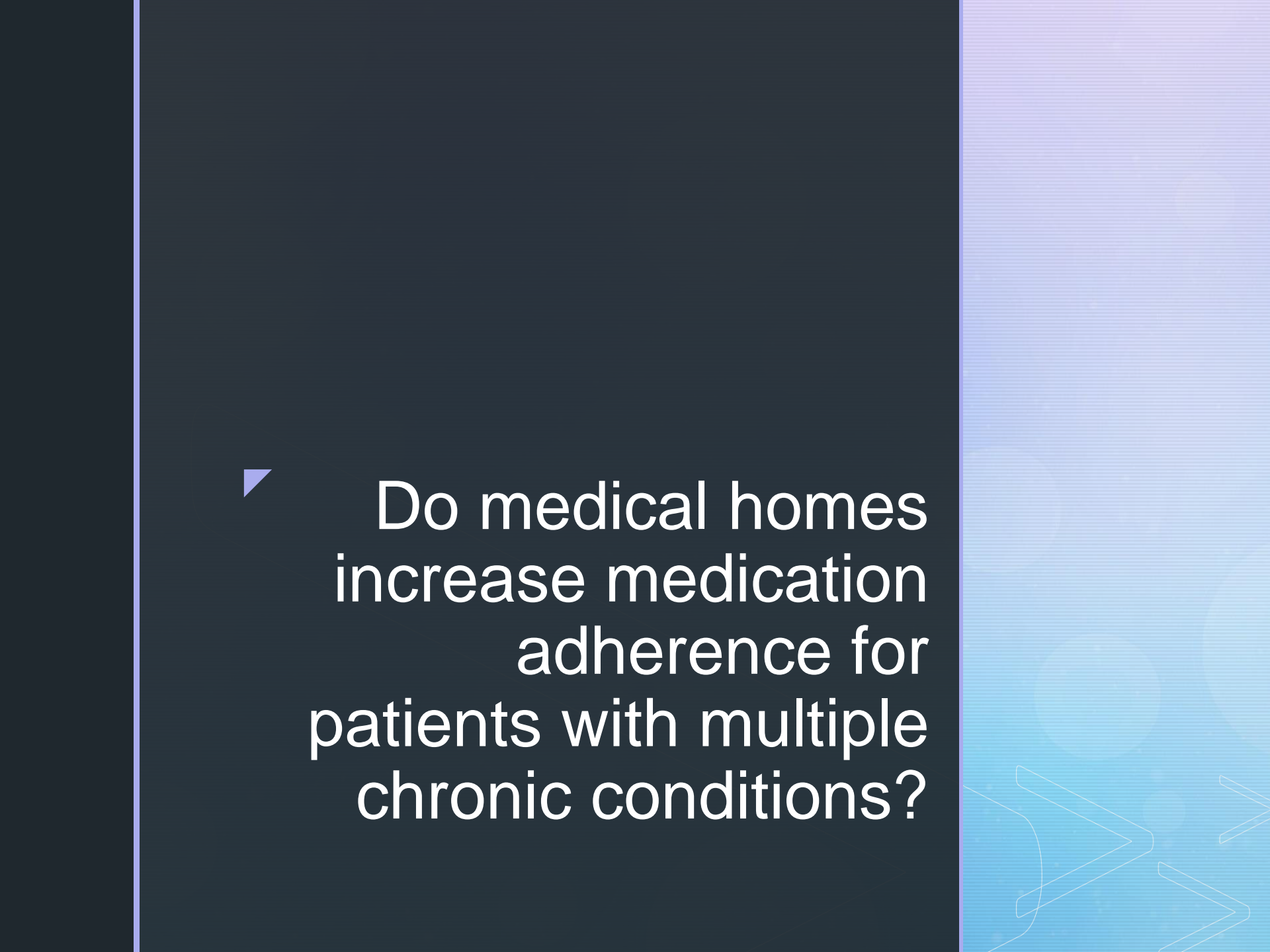
Four key points emerge

- Greater burden of disease is not always associated with lower levels of quality of care measures used in our study

    - Consistent with other literature

    - We often found better medication adherence among those with more, not fewer, medical comorbidities

- Among persons with MCC, we generally, but not always, found detrimental quality associated with poorer mental health.

Four key points emerge

- Comparing people with comorbid schizophrenia to those with MCC without schizophrenia or depression also yielded several surprising findings.

    - While persons with schizophrenia had generally poorer cancer screening rates, they often had better adherence to medications, such as diabetic agents and medications for hyperlipidemia.

- The number of medical conditions had mixed effects on evidenced-based services among those with a psychiatric impairment.

Do medical homes increase medication adherence for patients with multiple chronic conditions?

Medical Homes and Adherence

- One of the tools medical homes may use to improve care for persons with MCC is appropriate medication prescribing and adherence

- **Objective:** To assess whether a medical home model is associated with medication adherence to newly initiated medications among patients with multiple chronic conditions (MCC).

Methods - Adherence

- We created separate longitudinal cohorts of new users of antidepressants (N=11,397), antihypertensives (N=14,727), oral diabetic agents (N=6,767) or statins (N=9,676) among patients with MCC.

- We assessed adherence using Proportion of Days Covered each month for 6 months.
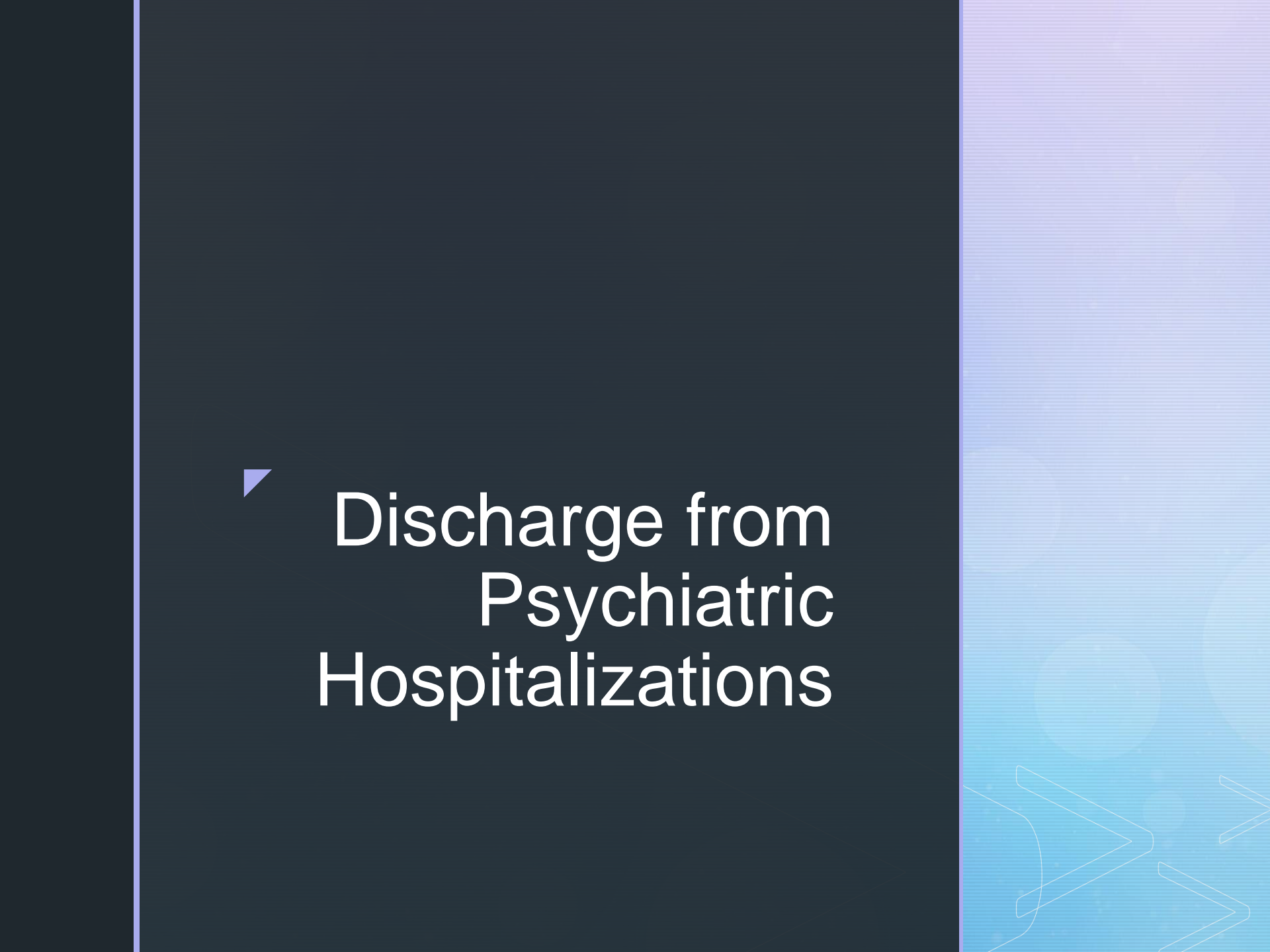
Methods - Adherence

- We used generalized estimating equations with inverse-probability-of treatment-weights to assess the association between medical home enrollment and medication adherence.

- Adjustment strategies to mitigate selection bias included propensity scores and instrumental variables.

Results - Adherence

- Medical home enrollment was positively associated with adherence to newly initiated medications among new medical home enrollees (3-6 percentage point increase).

- However, medical homes enrollment was also associated with no change in adherence or even declines in adherence when both new and on-going enrollees were pooled.

Discharge from Psychiatric Hospitalizations

Motivation

- Community-based follow-up care within 7 and 30 days of discharge from a psychiatric hospitalization is an important measure of quality (HEDIS)

- Because of enhancements to both health IT and because of the greater focus on the whole patient, enrollment in medical homes may facilitate greater access to follow-up care after psychiatric discharge

Methods - Discharge

- Non-dual adults discharge from a psychiatric hospitalization were followed for 7 and 30 days after discharge

- Persons in a medical home during the month of discharge were in the treatment arm, where as those not in medical homes were considered controls

- Because medical homes status is not randomly assigned, we worried about selection bias.

Methods - Discharge

- Propensity score weighting was used to balance a large number of demographic and service use risk factors based on services from the 6 months prior to discharge:

  - Hospital use, prescription drugs, outpatient mental health services, outpatient health services

- Stratified by discharges for schizophrenia, major depression

- Examined all psychiatric hospitalizations, those in state hospitals, and by low/high chronic illnesses (<= / >9)

Effects of Medical Homes on Follow Up Care

7/30 day follow up by type of hospitalization or stratification variable	Schizophrenia	MDD
Any hospitalization	1.7 / 5.0**	1.7* / 4.1**
State hospitalization	4.2 / 4.9	3.9 / 3.8
<=7 chronic conditions	2.2 / 5.2**	3.0* / 6.3**
>=12 chronic conditions	2.0 / 4.8*	2.0 / 3.7**

*=p<0.05;**=p<0.01 all results are % pt differences. Control rates are ~35% follow-up within 7 days and 70% follow-up within 30 days.

Can the patient-centered medical home model improve racial disparities in quality among adults with major depressive disorder and comorbid chronic physical conditions?

Multi-state study sample

- Medicaid beneficiaries

- Ages 18-64

- Georgia, North Carolina, and Texas

- Major depressive disorder & at least 1 physical chronic condition

- Attributed to primary care provider

Sample Summary Statistics

	N(%) or Mean(SD)		
	Total	Non-PCMH	PCMH
N (Person-years)	310,906	306,040 (98.4%)	4,866 (1.6%)
Diabetes	82,501 (26.5%)	81,304 (26.6%)	1,197 (24.6%)
Race/ethnicity			
White	156,039 (50.2%)	153,529 (50.2%)	2,510 (51.6%)
Black	94,167 (30.3%)	92,259 (30.1%)	1,908 (39.2%)
Hispanic/Latino	37516 (12.1%)	37,329 (12.2%)	187 (3.8%)
Female beneficiary	246,694 (79.3%)	242,765 (79.3%)	3,929 (80.7%)
Age	40.8 (13.6)	40.8 (13.6)	40.2 (13.4)
Months of Medicaid enrollment	10.8 (2.4)	10.8 (2.4)	10.8 (2.32)
Chronic comorbidities	5.2 (4.3)	5.2 (4.3)	5.3 (4.3)

Average Marginal Effect of PCMH Enrollment

	Any Psychotherapy	Any Antidepressants	Psychotherapy or Antidepressants	Adequate Antidepressants (Episodic)	LDL-C Testing	A1c Testing	Retinal Exam	Attn for Nephropathy
PCMH Enrollment	-0.0494**	0.0594**	0.0488**	0.0285*	0.117**	0.140**	-0.0551*	0.0753**
Black	0.0331**	-0.143**	-0.0735**	-0.153**	-0.0194**	0.00596	0.0218**	0.0344**
Hispanic / Latino	0.0369**	-0.0546**	-0.0221**	-0.0801**	0.0341**	0.0475**	0.0445**	0.0690**
N	310,906	310,906	310,906	170,381	82,501	82,501	82,501	82,501

* p<0.01, * p<0.05

Limitations

- Enhanced claims give us more than Medicaid claims alone, but still don't offer much in terms of:

  - Clinical/functional status

  - Quality of life

  - Services received outside of the contributing data systems (e.g., schools, charity care)

Conclusions

- PCMH enrollment generally improves overall quality of care metrics for Medicaid beneficiaries with depression and other chronic conditions

- The PCMH model alone may not be sufficient to improve quality and equity in diverse populations

  - Effects vary across racial groups

  - Impact on racial/ethnic disparities is mixed

- Sizable differences in the effectiveness of the PCMH model driven by race, sex, age, rurality, # of comorbidities