

# Inconsistent Medicaid Coverage is Associated with Negative Health Events for People with Epilepsy

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January 14, 2022

MetroHealth Population Health Research Institute  
Seminar Series

\* Article accepted and in press with *Journal of Health Care for the Poor and Underserved*

# Disclosures

- Editorial Board, *Neurology*
- Funding:
  - Centers for Disease Control and Prevention
    - Special Interest Project: 3 U48 DP005030-05S1
  - National Institute on Minority Health and Health Disparities (NIMHD) of the National Institutes of Health (NIH)
    - Ruth L. Kirschstein Predoctoral Individual National Research Service Award: 1F31MD015681

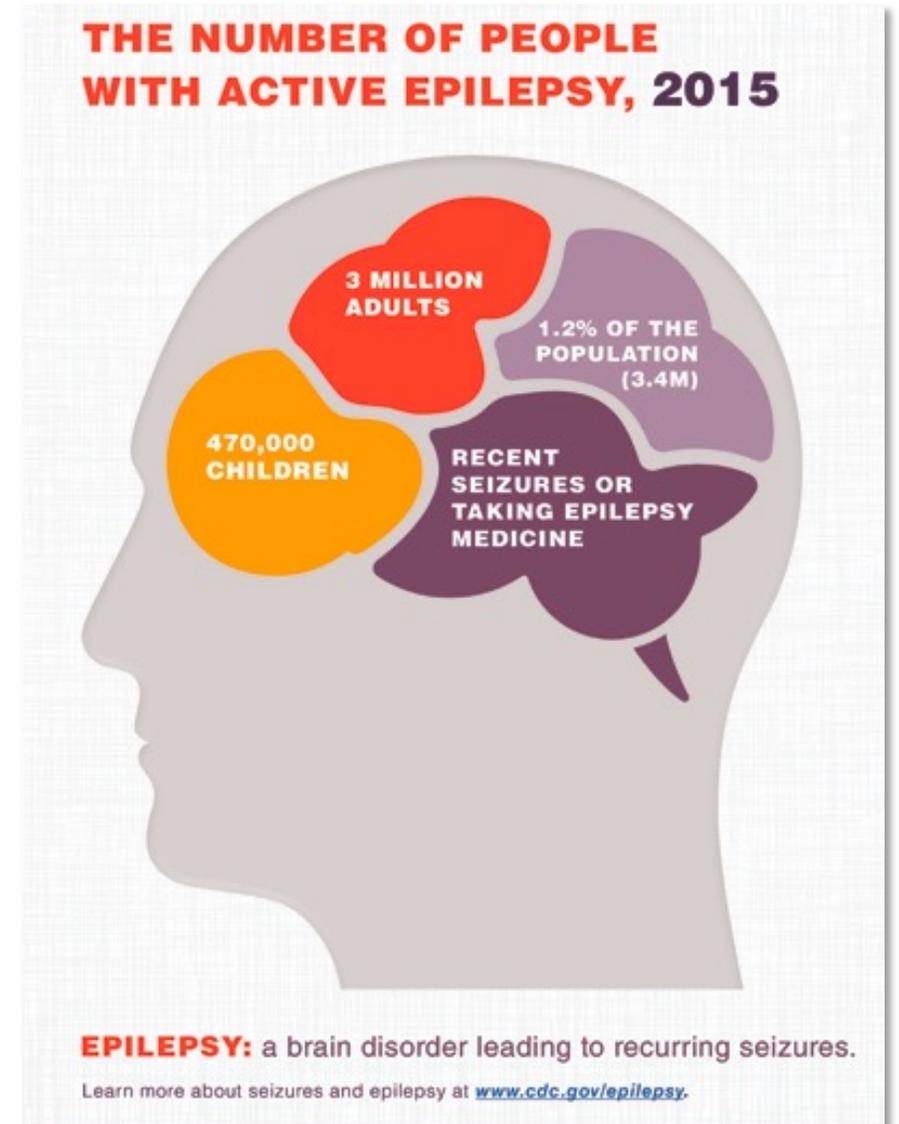
# Overview of Presentation

- [1] Background on Epilepsy
- [2] Background on Medicaid and Gaps in Medicaid
- [3] Gaps in Medicaid Among People with Epilepsy

# [1] Background on Epilepsy

# Epilepsy

- Epilepsy is a neurological condition characterized by unprovoked seizures
- Prevalence: 1.2% of US population
  - Up to 50 million people worldwide
  - “1 in 26” people will develop epilepsy in their lifetime
- Cost of \$15.5 billion annually
- Expected increase with increase in population of older adults



# Epilepsy

- Many potential causes:
  - Genetics, head trauma, brain conditions, infectious diseases, prenatal injuries, developmental disorders
- Significant impact on an individual:
  - Challenges in school, social relationships, employment, transportation (losing driving privileges due to recent seizures), independent living, and stigma
  - Risk in daily activities

# Make your HOME SAFER

## ✓ In the kitchen:



Cook with a partner



Use the microwave for most cooking



Use non-breakable dishes



Use caution with hot foods and liquids



Take a shower instead of a bath



Install a rubber mat or non-skid strips on the tub or shower floor

SUDEP happens most often while the person is sleeping

Bathtub drowning is the most common cause of accidental death for people with epilepsy and seizures

## ✓ In the bedroom:



Consider using a seizure alert monitor or sharing a room so others can hear if a seizure happens



Move your bed away from walls, night tables and other sharp or hard objects

## ✓ Around the house:



Pad hard edges of tables and other furniture



Keep walkways and floors clear of cords, tools and toys



Don't use kitchen appliances or power tools when you're alone



epilepsyfdn



## Epilepsy and Screen time

Safety tips

Reduce the brightness of the screen.



Take **frequent breaks** and **look away** from the screen every once in a while.

Sit as far back from the screen as possible.



Learn more about photosensitivity and seizures at [epilepsy.com](http://epilepsy.com)



## EPILEPSY IS:

### Common



3.4 million people in the US have epilepsy: 3 million adults and 470,000 children



One of top 10 reasons for hospital inpatient stays among children aged 0 to 17 in the US in 2014



One of top 10 reasons for hospital inpatient stays paid by Medicaid in the US in 2014

### Challenging

**66%** of adults with epilepsy have 4 or more other chronic conditions

**56%** of adults with epilepsy taking seizure medicine have uncontrolled seizures

**42%** of children with epilepsy live in homes at or close to the poverty level

**32%** of adults with epilepsy are unable to work

**25%** of the general public say they would be nervous around a person with epilepsy

### Complex

People with epilepsy may:



Take many medicines each day



Have trouble with school, jobs, and relationships



Face stigma



Go to multiple doctors to find the right care



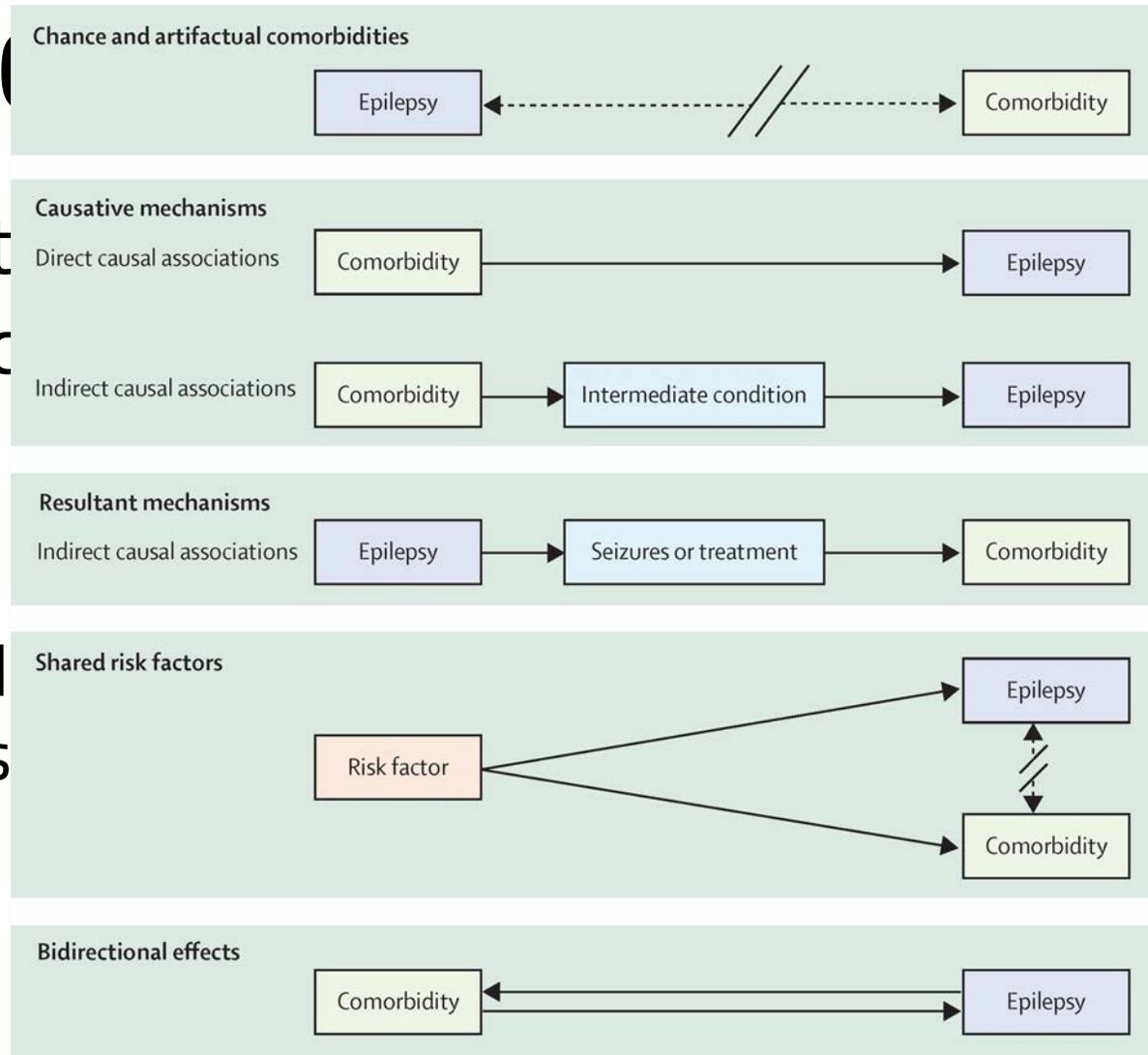
Have depression or anxiety

# Epilepsy Treatment

- Referral to neurologist or epileptologist
- Clinical evaluation:
  - Imaging/EEG or video-EEG
- Pharmacotherapy with antiepileptic drug (AED)
  - Untreated: 40-50% of people who have had a seizure will have recurrence of seizure within 2 years
- Surgical resection, implantation, or ablation
- Other management: ketogenic diet, stress management, etc.

# Epilepsy (

- Comorbidity health outcomes
- Numerous associated conditions
  - somatic disorders
  - infectious diseases



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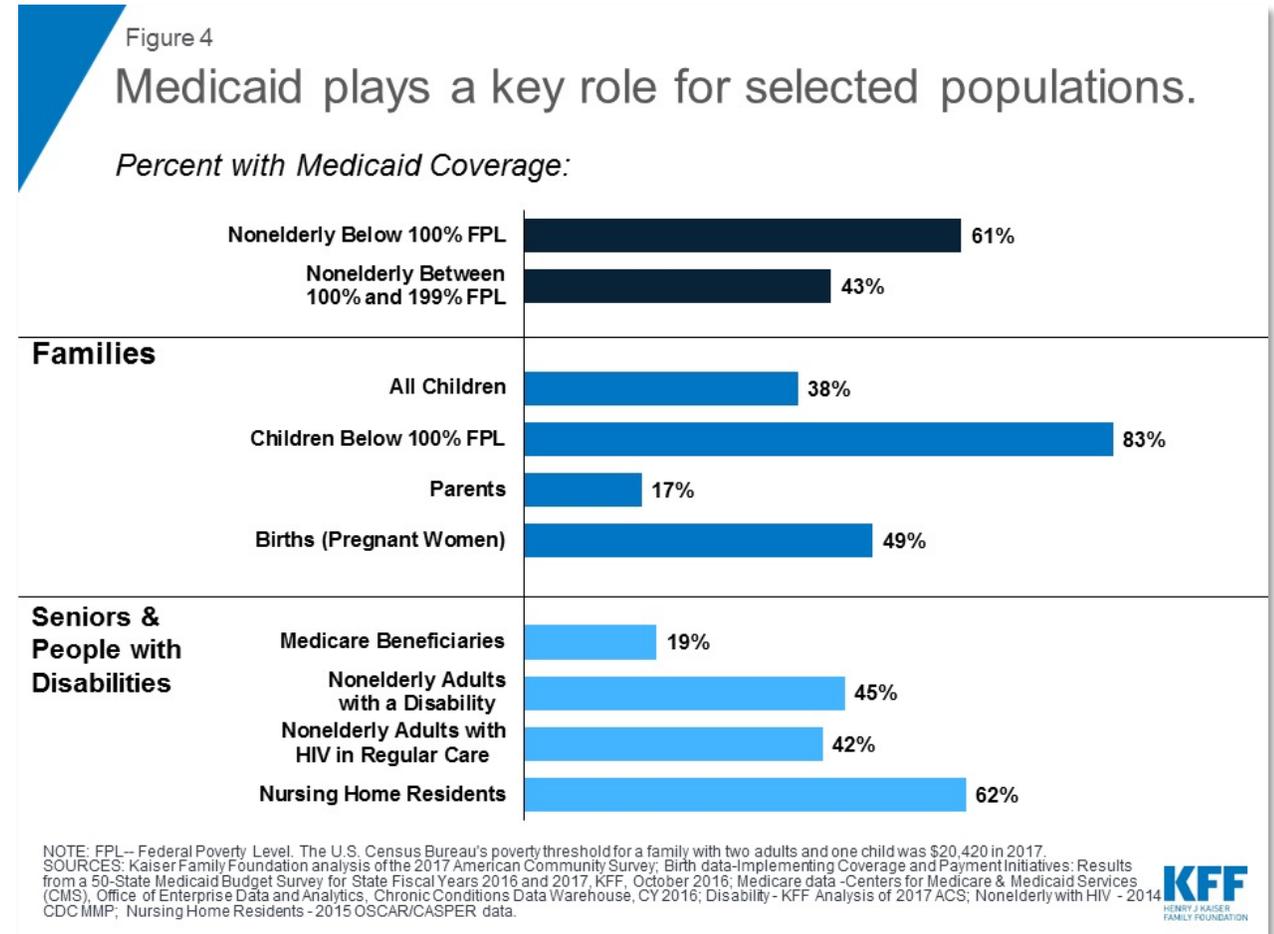
# Health Outcomes for People with Epilepsy

- Lower quality of life
- Increased rates of comorbid conditions
- Increased emergency room use, hospitalizations, and hospital readmission
- Specific epilepsy risks:
  - Sudden Unexpected Death in Epilepsy (SUDEP)
  - Status epilepticus
- Premature mortality (up to 17 years)

# [2] Background on Medicaid and Gaps in Medicaid

# Overview of Medicaid

- Medicaid is a state-administered health insurance program
- Covers over 75 million children and adults in US each year
  - Low income, pregnant women, infants, and children, older adults, individuals with disabilities
- Eligibility/enrollment criteria and processes vary by state
  - Often must renew their Medicaid every 12 months



# MetroHealth and Medicaid

**TABLE 1.** Medicaid and Low-Income Utilization Statistics for MetroHealth Medical Center and Other Hospitals, 2014

Comparison region	Medicaid inpatient utilization rate	Low-income utilization rate
MetroHealth Medical Center (Cleveland, OH)	56%	35%
Cleveland, OH, hospital referral region average	21	11
Ohio average	20	12
National average	18	13

**Notes:** The Medicaid inpatient utilization rate is the percentage of hospital inpatient days that are attributable to patients who are eligible for Medicaid. The low-income utilization rate is a measure of Medicaid and charity care utilization.

**Source:** MACPAC, 2017, analysis of 2014 Medicare cost reports.



Medicaid and CHIP Payment  
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# Gaps and Churning in Medicaid: Impact

- Changes in income, employment or lack of support with renewal result in disruptions in coverage
- Several studies have examined the effect of gaps in coverage

# Does Churning in Medicaid Affect Health Care Use?

*Eric T. Roberts, PhD\* and Craig Evan Pollack, MD, MHS†*

- “Churning adults visit office-based providers in a **concentrated window of time** when they have coverage”
- “rate of visits to office-based providers falls significantly below that of continuously enrolled adults ... **only returns to a level that is comparable to the control group several months after reenrollment**”
- “Longer uninsurance spells are associated with **more volatile patterns** of health care use.”

## Lapses in Medicaid Coverage

### *Impact on Cost and Utilization Among Individuals With Diabetes Enrolled in Medicaid*

*Allyson G. Hall, PhD,\*† Jeffrey S. Harman, PhD,\* and Jianyi Zhang, PhD†*

- “Interruptions in Medicaid coverage lead to **greater program expenditures and higher inpatient and emergency room utilization** among beneficiaries with diabetes, at least for the 3 months immediately after the lapse”

# Changes in Health Care Use and Costs After a Break in Medicaid Coverage Among Persons With Depression

Jeffrey S. Harman, Ph.D.  
Allyson G. Hall, Ph.D.  
Jianyi Zhang, Ph.D.

ORIGINAL ARTICLE

## Discontinuity of Medicaid Coverage *Impact on Cost and Utilization Among Adult Medicaid Beneficiaries With Major Depression*

*Xu Ji, MSPH, Adam S. Wilk, PhD, Benjamin G. Druss, MD, MPH, Cathy Lally, MSPH, and Janet R. Cummings, PhD*

- **“Utilization of emergency and inpatient services as well as overall Medicaid expenditures significantly increase for a subset of beneficiaries with a diagnosis of depression when Medicaid coverage resumes after a temporary loss in coverage.”**

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## Policies and Practices that Lead to Short Tenures in Medicaid Managed Care

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By Gerry Fairbrother, PhD  
Heidi L. Park, PhD  
Arfana Haivderv, MPH  
New York Academy of Medicine

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*Funded by the Center for Health Care Strategies, Inc.  
under The Robert Wood Johnson Foundation's  
Medicaid Managed Care Program*

- “Medicaid eligibility renewal often is not a smooth process”
- “In all states, if Medicaid children do not prove their continuing eligibility through the re-determination process before their 12- or six-month coverage period is over (or within a 45- day grace period), they are **removed from the Medicaid and health plan rolls.**”

# Gaps and Churning in Medicaid: Impact

- Changes in income, employment or lack of support with renewal result in disruptions in coverage
- Several studies have examined the effect of gaps in coverage
- People with Medicaid gaps often have:
  - Increased utilization, higher expenditures, and hospitalization for ambulatory care sensitive conditions

## Barriers to Medicaid Enrollment: Who Is at Risk?

| Jennifer Stuber, PhD, and Elizabeth Bradley, PhD

- 54% did not know whether they could apply for Medicaid in places other than a welfare office
- 24% did not know if people have to be on welfare to obtain Medicaid
- 56% answered 3 or more knowledge questions incorrectly
- Those with less education, and non-Hispanic Black individuals had more limited information about Medicaid rules

# Barriers to Enrollment for the Uninsured: A Single-Site Survey at an Urban Free Clinic in Milwaukee

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Drumil Bhatt, BS; Ken Schellhase, MD, MPH

- “In terms of knowledge of benefits and eligibility, the majority of respondents (**55.5% for Medicaid, 68.5% for Marketplace**) had some **misunderstanding or misinformation about their eligibility**”

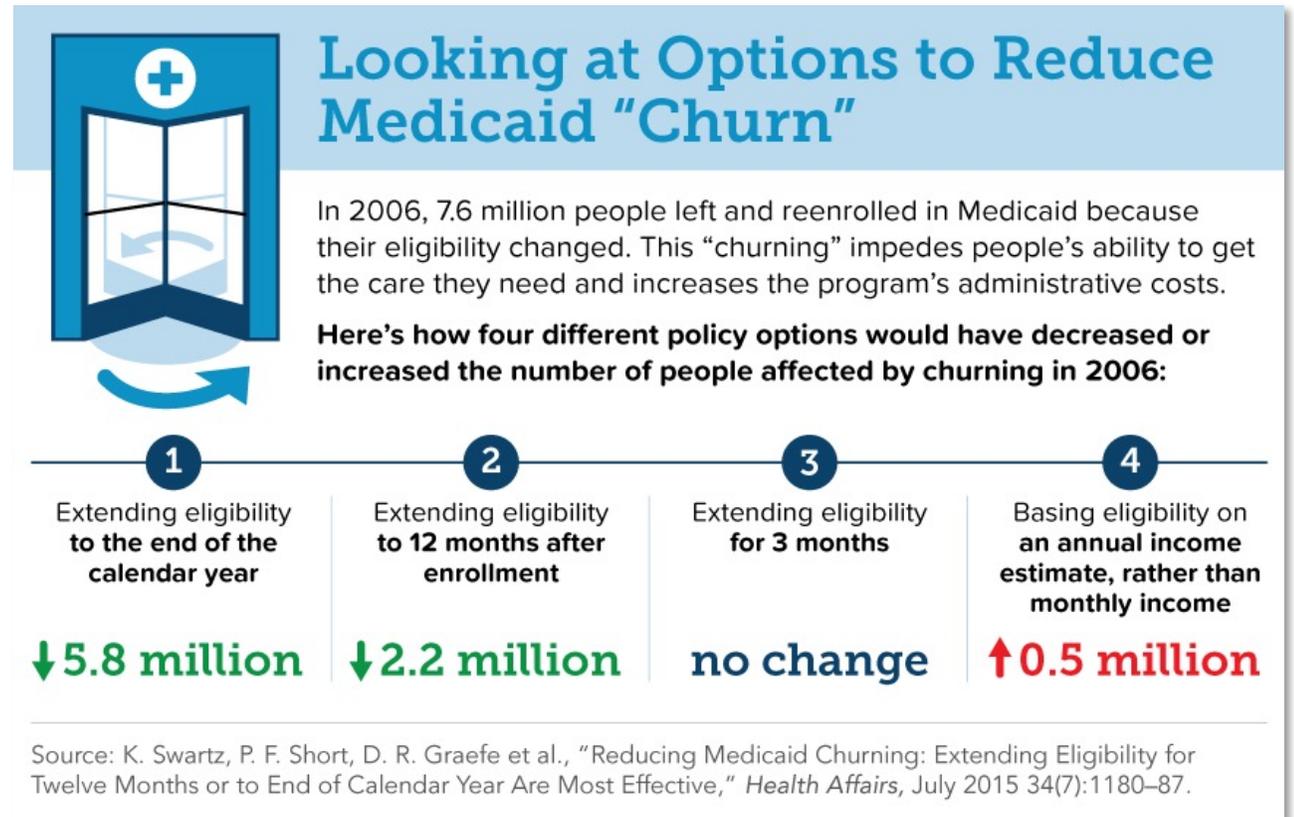
# Barriers to Enrollment in Health Coverage in Colorado

Laurie T. Martin, Nazleen Bharmal, Janice C. Blanchard, Melody Harvey,  
Malcolm V. Williams

- **“Significant confusion and little understanding about Medicaid and private insurance subsidies through the Marketplace”**

# Interventions to Address Gaps

- Reducing the frequency of re-certification
- Decreasing premiums



# Gaps and Churning in Medicaid

- Limitation: many of these studies focus on a single state, a single facility, or a narrow time-frame (1-2 years) where the full effect of gaps or churning may not be apparent.
- Limitation: not evaluated *who* may be more at risk for gaps

# Medicaid and Epilepsy

- Approximately 1/3 of people with epilepsy are on Medicaid
  - Epilepsy itself would not qualify an individual for Medicaid coverage
  - Those with more severe epilepsy may qualify without additional eligibility
- In the top 10 reasons for hospital inpatient stays paid by Medicaid
- Gaps -> lapses in prescriptions or follow-up care could result in a breakthrough seizure
- Epilepsy provides a salient condition through which to understand the impact of gaps in coverage on health outcomes, and who is most at risk for those gaps

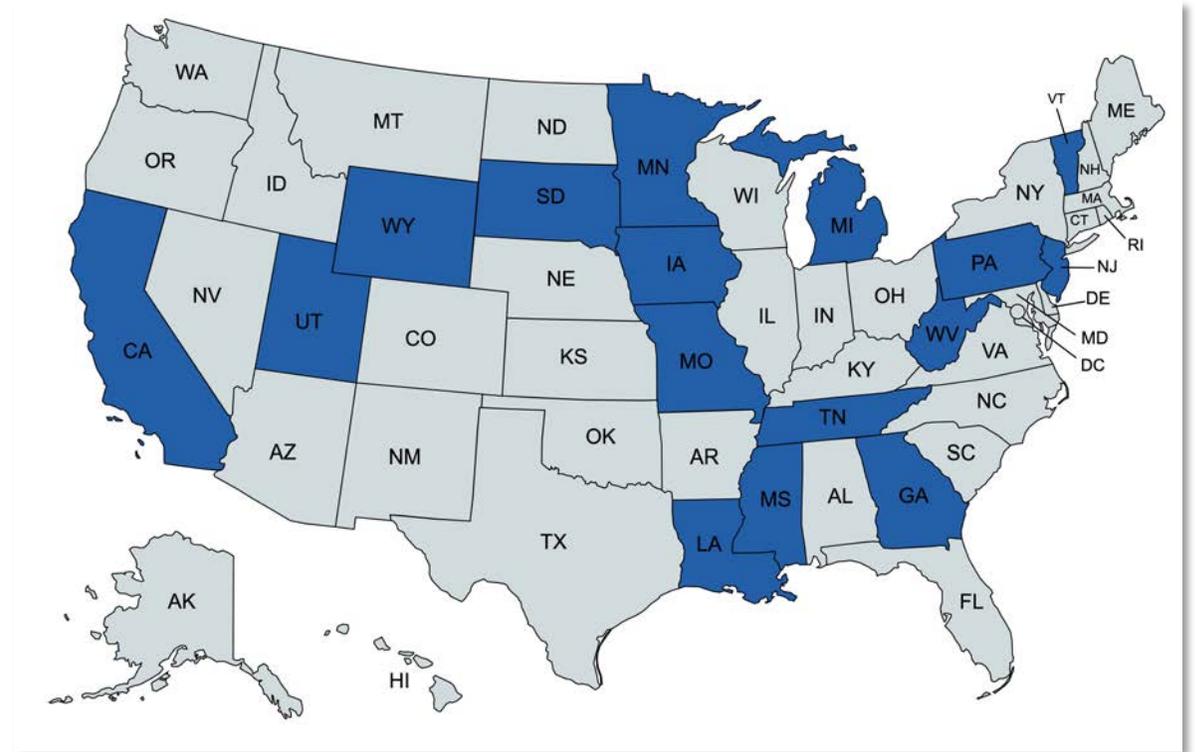
# [3] Gaps in Medicaid Among People with Epilepsy

# Study Goals

- (1) Explore the impact of gaps in Medicaid coverage on **negative health events (NHEs)** for people with epilepsy
  - NHEs: hospitalizations and emergency department (ED) visits
- (2) Identify **factors associated with gaps**

# Study Population and Inclusion Criteria

- Medicaid data for five years (2010 – 2014) from 16 states
- Identifying people with epilepsy in claims data
  - (1) 1 epilepsy or 2 seizure claims on different dates
  - (2) 30+ days later, another claim for epilepsy or seizure
  - (3) At least 2 pharmacy dispensing claims for an AED after index date and at least 30-days apart

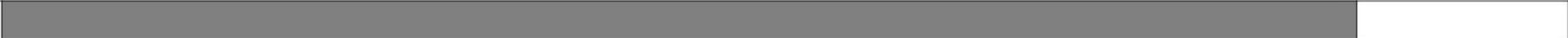
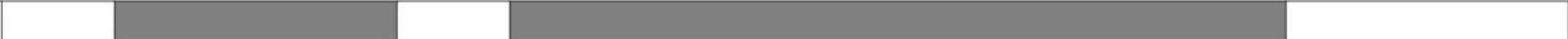


# Study Inclusion Criteria

- No missing geographic or prescription fill data
- Not dually eligible for Medicare and Medicaid
- Between 18 and 64 years old

# Identifying Gaps in Medicaid

- Identify months when an individual was not enrolled
  - Only periods between covered periods, ignoring other gaps that occurred at the start or the end of the study period
- (1) ever had a gap and (2) total number of gaps

	Monthly Indicators	Total Gaps
Patient A		0
Patient B		0
Patient C		1
Patient D		2

# Outcomes of Interest

- Negative health events (NHEs): all-cause inpatient hospitalizations and emergency department visits
- Annualized the number of NHEs to NHEs per year
  - For example, if someone had 5 NHEs in 53 months of enrolled time they would be said to have 1.13 NHEs per year.
- Dichotomized this to those in the top quartile (the highest utilizers) versus all others

# Statistical Analyses

- Used multi-level logistic regression
  - Model 1: association between any gap in coverage and NHEs per year (top quartile)
  - Model 2: association between number of gaps in coverage and NHEs per year (top quartile)
  - Model 3: association between any gap in coverage and hospitalizations per year (top quartile)
  - Model 4: association between any gap in coverage and ED visits per year (top quartile)
  - Model 5: association between covariates and any gap in coverage

# Covariates

- State of residence
- Sex
- Race/ethnicity
- Age at index date
- Rurality
- AED adherence
- On a 3rd unique AED
- Undergone epilepsy surgery
- Nursing home
- Elixhauser comorbidities

# Elixhauser Comorbidities

- AIDS/HIV
- Alcohol Abuse
- Anemia Deficiency
- Rheumatoid Arthritis
- Blood loss anemia
- Cardiac Arrhythmia
- Congestive heart failure
- Chronic pulmonary disease
- Coagulopathy
- Depression
- Diabetes w/ complications
- Diabetes w/o complications
- Drug abuse
- Hypertension
- Liver disease
- Lymphoma
- Fluid and electrolyte disorders
- Metastatic cancer
- Other neurological disorders
- Obesity
- Paralysis
- Peripheral vascular disease
- Psychoses
- Pulmonary circulation disorders
- Renal failure
- Solid tumor w/o metastasis
- Peptic ulcer disease
- Valvular disease
- Weight loss

# Covariates

- State of residence
- Sex
- Race/ethnicity
- Age at index date
- Rurality
- AED adherence
- On a 3rd unique AED
- Undergone epilepsy surgery
- Nursing home (yes/no)
- Elixhauser comorbidities
  - None
  - Psychiatric-only
  - Physical-only
  - Both psychiatric and physical
- Density of primary care and neurologist physicians
  - Bottom quartile vs all others

# Study Population

- 186,616 adult people with epilepsy
- 40,502 (21.7%) had at least one gap

<b>Number of Gaps</b>	
Median [IQR]	1.00 [1.00, 2.00]
Mean (Std Dev)	1.41 (0.77)

Demographics n (%) or median [IQR]	No Gaps in Coverage n = 146,114 (78.3%)	Gaps in Coverage n = 40,502 (21.7%)
<b>Male</b>	67,204 (46.0)	15,558 (38.4)
<b>Race</b>		
White	77,216 (52.8)	24,012 (59.3)
Black	34,022 (23.3)	8,226 (20.3)
American Indian or Alaskan Native	1,007 (0.7)	488 (1.2)
Asian or Pacific Islander	2,049 (1.4)	404 (1.0)
Hispanic	15,648 (10.7)	4,532 (11.2)
Native Hawaiian or Other Pacific Islander	1,868 (1.3)	247 (0.6)
Other	14,304 (9.8)	2,593 (6.4)
<b>Rural</b>	28,059 (19.2)	8,778 (21.7)
<b>Age</b>		
18 to 24	25,514 (17.5)	9,290 (22.9)
25 to 34	35,046 (24.0)	12,265 (30.3)
35 to 44	30,023 (20.5)	9,334 (23.0)
45 to 54	36,091 (24.7)	7,214 (17.8)
55+	19,440 (13.3)	2,399 (5.9)

Demographics n (%) or median [IQR]	No Gaps in Coverage n = 146,114 (78.3%)	Gaps in Coverage n = 40,502 (21.7%)
<b>Nursing Home Status</b>		
Nursing Home	17,179 (11.8)	2,414 (6.0)
<b>Comorbidities</b>		
None	27,510 (18.8)	8,999 (22.2)
Physical only	52,678 (36.1)	9,426 (23.3)
Psychiatric only	11,245 (7.7)	5,690 (14.0)
Physical and psychiatric	54,681 (37.4)	16,387 (40.5)

Demographics n (%) or median [IQR]	No Gaps in Coverage n = 146,114 (78.3%)	Gaps in Coverage n = 40,502 (21.7%)
<b>NHEs, Hospitalizations, ED Visits</b>		
NHEs per year	1.60 [0.45, 4.15]	2.79 [1.15, 5.81]
NHEs per year (top quartile)	33,351 (22.8)	13,352 (33.0)
Hospitalizations per year	0.20 [0.00, 0.60]	0.27 [0.00, 0.81]
Hospitalizations per year (top quartile)	35,276 (24.1)	11,993 (29.6)
ED visits per year	1.33 [0.40, 3.40]	2.31 [0.92, 4.98]
ED visits per year top quartile	33,086 (22.6)	13,647 (33.7)

# Gaps in Medicaid by State

State	Medicaid Expansion Status	n (%) with a gap
California, n = 54,240	Adopted (2014)	9,435 (17.4)
Iowa, n = 4,005	Adopted (2014)	1,008 (25.2)
Michigan, n = 20,650	Adopted (2014)	6,016 (29.1)
Minnesota, n = 9,290	Adopted (2014)	2,980 (32.1)
New Jersey, n = 10,833	Adopted (2014)	2,087 (19.3)
Vermont, n = 1,311	Adopted (2014)	605 (46.1)
West Virginia, n = 5,834	Adopted (2014)	1,530 (26.2)
Pennsylvania, n = 20,037	Adopted (2015)	5,099 (25.4)
Louisiana, n = 9,942	Adopted (2016)	1,371 (13.8)
Utah, n = 2,662	Adopted (2020)	689 (25.9)
Missouri, n = 10,931	Adopted, but not implemented	3,293 (30.1)
Georgia, n = 14,421	Not Adopted	2,474 (17.2)
Mississippi, n = 6,797	Not Adopted	1,173 (17.3)
South Dakota, n = 818	Not Adopted	185 (22.6)
Tennessee, n = 14,299	Not Adopted	2,443 (17.1)
Wyoming, n = 546	Not Adopted	114 (20.9)

# Impact of Gaps in Medicaid on NHEs

	Odds Ratio (95% CI)
<b>Model 1: Association between Any Gap and NHEs</b>	
Unadjusted	1.66 (1.62, 1.70)
Adjusted	1.66 (1.61, 1.70)

	Odds Ratio (95% CI)
<b>Model 2: Association between the Number of Gap and NHEs</b>	
Unadjusted	1.35 (1.33, 1.37)
Adjusted	1.34 (1.32, 1.36)

# Impact of Gaps in Medicaid on NHEs

	Odds Ratio (95% CI)
<b>Model 3: Association between Any Gap and Hospitalizations</b>	
Unadjusted	1.31 (1.28, 1.35)
Adjusted	1.60 (1.56, 1.65)

	Odds Ratio (95% CI)
<b>Model 4: Association between Any Gap and ED Visits</b>	
Unadjusted	1.74 (1.70, 1.78)
Adjusted	1.63 (1.59, 1.68)

# Factors Associated with Gaps

Term	Adjusted Odds Ratio (95% Confidence Interval)
Male (ref: Female)	0.76 (0.74, 0.78)
<b>Race (ref: White)</b>	
Black	0.89 (0.86, 0.92)
American Indian or Alaskan Native	1.45 (1.29, 1.63)
Asian or Pacific Islander	0.76 (0.68, 0.85)
Hispanic	1.21 (1.16, 1.26)
Native Hawaiian or Other Pacific Islander	0.64 (0.56, 0.74)
Other	0.72 (0.69, 0.76)
<b>Rural (ref: Urban)</b>	1.00 (0.96, 1.03)
<b>Age (ref: 18 - 24)</b>	
25 to 34	0.91 (0.88, 0.94)
35 to 44	0.83 (0.80, 0.86)
45 to 54	0.58 (0.55, 0.60)
55+	0.40 (0.38, 0.42)

# Factors Associated with Gaps

Term	Adjusted Odds Ratio (95% Confidence Interval)
No Third AED (ref: Third AED)	1.30 (1.27, 1.33)
Surgery	0.53 (0.49, 0.58)
Nursing Home	0.68 (0.65, 0.72)
<b>Comorbidities (ref: Physical only)</b>	
None	1.54 (1.49, 1.59)
Psychiatric only	2.24 (2.15, 2.33)
Physical and psychiatric	1.61 (1.56, 1.66)
<b>Area Level Measures</b>	
Primary Care Density: Bottom Quartile	1.06 (1.02, 1.09)
Neurologist Density: Bottom Quartile	1.00 (0.96, 1.04)

# Discussion

- Gaps in Medicaid coverage were associated with higher utilization
  - Consistent with previous work
- Clarified that this was seen for both hospitalizations and emergency department visits
- The *number* of gaps also matters

# Discussion

- Those with severe disease had lower odds of having a gap
  - Motivation to stay enrolled in Medicaid
- Greater disease severity:
  - ↓ the probability of becoming transiently ineligible (e.g., through employment)
  - ↑ the probability of closer clinical observation (e.g., living in a nursing home)

# Discussion

- Psychiatric comorbidities increased the odds of having a gap in Medicaid coverage
  - Larger odds ratio among those without physical comorbidities.
- Potential racial and ethnic disparities
  - Messaging or tailoring the communication of programmatic details, beyond the time spent during individual medical visits
  - This warrants greater attention and exploration

# Discussion

- Older adults had significantly lower odds of having a gap than younger adults
  - Older adults may have more experience navigating the Medicaid re-enrollment system or have greater support or caregiving
- Selection bias and competing risks
  - Those with worse health and inconsistent coverage may face premature mortality

# Strengths

- Epilepsy is a salient condition for examining Medicaid gaps:
  - Prevalence (over three million adults in the United States)
  - Complexity in disease presentation and management
  - High rates of comorbid conditions
  - Substantial social impact on individuals
  - Potential consequences of having a gap
- Demonstrate the relationship between gaps in coverage and care utilization, and specific factors associated with gaps

# Limitations

- Did not examine the specific reason for hospitalization or emergency department use
  - Future work should identify the causes of these NHEs to identify what aspects of health may be most vulnerable to gaps in coverage
- Affordable Care Act and Medicaid expansion have likely influenced gaps in Medicaid coverage
  - The data used in this study, the most recently available at time of study initiation, were all from before, or just after, this expansion

# Limitations

- Unable to assess specific reasons for state-by-state differences
  - Policy-level analysis to identify factors that could be points of intervention
- Unable to assess the reason for the gap or re-enrollment
  - A gap may be due to improved circumstances or a lack of social support
  - Income changes would rely on federal and state policy interventions
  - Missed or errors in re-enrollment could be addressed at the individual level
  - Possible that barriers to enrolling in Medicaid are non-uniform

# Implications

- Studies using Medicaid data limited their study population to those with continuous enrollment during the study period
  - Ensures claims completeness during the study period
  - This exclusion, particularly for studies that use multiple years of data, introduces selection bias
  - Patients who are high utilizers, with psychiatric and/or substance abuse disorders, and of specific race/ethnicities may be excluded
  - Bias final estimates in studies of outcomes or disparities

# Implications

- Interventions for people with epilepsy could be targeted to younger adults & those with psychiatric conditions
- Value-based payment -> incentives in helping maintain Medicaid?
  - Reduce emergency department and/or hospital utilization—benefitting both the patient and the health care system
- Ongoing issues regarding Medicaid coverage

# NBC News – December 19, 2021

## Public health emergency end could cause millions to lose Medicaid coverage

Up to 15 million people, including 6 million kids, are at risk of losing Medicaid coverage once the public health emergency ends. State and federal officials are scrambling to prepare.



In Ohio, the Republican-controlled Legislature included in the budget it passed earlier this year that the state would need to complete those redeterminations in 90 days, which advocates say is not nearly enough time to reach out to Ohio's 3.2 million Medicaid recipients and ensure that people who remain eligible aren't disenrolled.

Erica Crawley, a Franklin County commissioner who now oversees the job and family services program and fought against the 90-day provision in the budget when she served in the Legislature, said about 460,000 people would have to be processed within 90 days in her county, which includes Columbus.

With about 300 case managers, it would amount to more than 1,500 applications for each of them to process within 90 days.

Ohio has gone so far as to appropriate \$35 million for an outside vendor called Public Consulting Group. The company says it can automate eligibility redeterminations by checking third-party sources and finish the work within days. Of those that Public Consulting Group flags, the state would pay 10 to 20 percent of its savings to the company, according to the November newsletter published by the Ohio General Assembly Joint Medicaid Oversight Committee.

The Boston-based company did not respond to a request for comment.

It's one method that some consider controversial for its speed and payment system that some health advocates said was akin to paying a bounty for taking away residents' access to health care.

# Implications

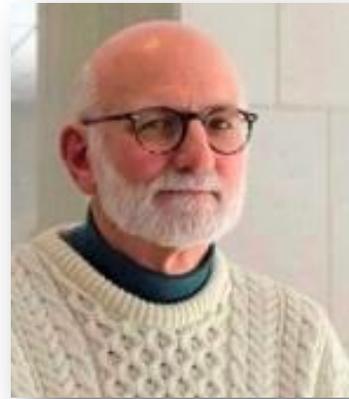
- Interventions for people with epilepsy could be targeted to younger adults & those with psychiatric conditions
- Value-based payment -> incentives in helping maintain Medicaid?
  - Reduce emergency department and/or hospital utilization—benefitting both the patient and the health care system
- Ongoing issues regarding Medicaid coverage
- How might this extend to other patients or conditions?
- What can MetroHealth do about this?
  - In the absence of broad policy changes

# Acknowledgements

- Centers for Disease Control and Prevention
  - Special Interest Project: 3 U48 DP005030-05S1
- National Institute on Minority Health and Health Disparities (NIMHD) of the National Institutes of Health (NIH)
  - Ruth L. Kirschstein Predoctoral Individual National Research Service Award: 1F31MD015681



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# Questions?

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