Impact of Insurance Discontinuity on Access to Care in U.S. Children in the Peri-Pandemic Period

VICTORIA MAGLOIRE, MD

APRIL 2024

Background

- Lack of or discontinuous insurance coverage is associated with poor health outcomes and access to care.

- There is minimal recent literature examining insurance coverage trends/lapses in children.

- No literature (to our knowledge) looking from the PEM perspective examining a potential relationship between ED utilization and coverage trends.

Background

- Due to the COVID-19 pandemic, in 2020, the federal government passed the Families First Coronavirus Response Act (FFCRA) that stipulated a "continuous coverage" requirement for Medicaid for as long as the order is in effect.

- On December 29, 2022, the Consolidated Appropriations Act, 2023 was signed into law which set an end date of March 31, 2023* for the continuous enrollment provision.

Objective

We aim to describe contemporary patterns in insurance continuity and access to care in a nationally representative cohort of children, including the relationship between these outcomes and ED visits.

Secondary Aim/Objective

- To describe and compare insurance discontinuity and access to care trends among children, ages 0-17 years, with and without ED visits, categorized by the number of ED visits in the last 12 months as a categorical variable (0, 1, 2+)

Methods

- Used de-identified data from the 2019, 2021, and 2022 National Health Interview Survey (NHIS)

- Created a data variable dictionary to clearly define our outcome variables based on specific questions within the survey

- Created descriptive tables based upon the weighted data, sorted by year, to compare trends in demographics and variables of interest

Methods

- Parametric (ANOVA) and non-parametric (Chi-square test χ^2) statistical tests were utilized to assess differences and trends over time

- Multivariate regression models were used to assess independent associations between outcomes (access to care and insurance coverage) and relevant patient characteristics, including ED visits

- R statistical package was used for the regression models to allow application of weights within NHIS data

National Health Interview Survey (NHIS)

- Cross-sectional household interview survey aimed at monitoring the health trends and healthcare utilization of the U.S. population through the collection and analysis of data on a variety of health topics

- Uses geographically clustered sampling techniques to be nationally representative; continuous from January to December each year

- Publicly available data facilitates epidemiologic and policy research re: matters such as barriers to accessing/using appropriate health care and evaluation of various federal health programs

Data Weighting

- A statistical method by which sample datasets are adjusted to accurately represent the target population

Definitions Used in This Study

Classifications of Insurance Status

- Continuous Insurance:
  - Had uninterrupted insurance over the past 12 months

- Discontinuous Insurance*:
  - Had insurance in the past 12 months, but not currently
  - Have insurance currently, but had a period without in the past 12 months

- Uncovered:
  - Did not have any insurance over the past 12 months

Access to Care

- We chose to include any usual source other than the ED setting, given that our dependent variable of interest for the study was ED visits

- This includes:
  - Doctor's Office or Health Center
  - Urgent Care Center or Clinic in a Drug Store/Grocery Store
  - Some Other Place

Results

Table 1: NHIS Questionnaire Pediatric Demographics Sorted by Years of Interest (Weighted)

	Overall (n=218)	2019 (n=73)	2021 (n=72)	2022 (n=73)	p
Age (median [IQR])	9.00 [5.00, 13.00]	9.00 [5.00, 13.00]	9.00 [5.00, 13.00]	9.00 [5.00, 14.00]	0.221
Sex (%)					-
Female	107 (**48.9**)	36 (**48.9**)	35 (**49.0**)	36 (**48.9**)	
Male	111 (**51.1**)	37 (**51.1**)	37 (**51.0**)	37 (**51.1**)	
Race (%)					0.343
White	143 (**72.0**)	48 (**72.6**)	47 (**71.9**)	47 (**71.5**)	
Black/African American	29 (**14.7**)	10 (**14.9**)	10 (**14.4**)	10 (**14.7**)	
Asian	10 (**5.2**)	3 (**5.1**)	3 (**5.3**)	3 (**5.2**)	
AIAN	5 (**2.6**)	2 (**2.4**)	2 (**2.5**)	2 (**2.9**)	
Other	11 (**5.5**)	3 (**5.0**)	4 (**5.8**)	4 (**5.7**)	
Hispanic (%)					0.981
Hispanic	55 (**25.5**)	19 (**25.5**)	18 (**25.5**)	19 (**25.6**)	
Not Hispanic	162 (**74.5**)	54 (**74.5**)	54 (**74.5**)	54 (**74.4**)	
Region (%)					0.981
Northeast	35 (**15.8**)	12 (**16.0**)	11 (**15.6**)	12 (**15.9**)	
Midwest	46 (**21.1**)	15 (**21.2**)	15 (**21.0**)	15 (**21.1**)	
South	85 (**39.0**)	28 (**38.5**)	28 (**39.4**)	28 (**39.0**)	
West	53 (**24.1**)	18 (**24.3**)	17 (**24.1**)	17 (**24.0**)	

	Overall (n=218)	2019 (n=73)	2021 (n=72)	2022 (n=73)	p
Condition (%)					0.079
Excellent	143 (**65.4**)	48 (**65.8**)	48 (**66.6**)	47 (**64.0**)	
Very Good	48 (**22.0**)	16 (**21.7**)	16 (**21.7**)	16 (**22.7**)	
Good	22 (**10.1**)	7 (**9.8**)	7 (**9.6**)	8 (**10.8**)	
Fair	5 (**2.2**)	2 (**2.4**)	1 (**1.9**)	2 (**2.3**)	
Poor	1 (**0.3**)	0.2 (**0.3**)	0.2 (**0.3**)	0.2 (**0.3**)	
Coverage (%)					<0.001
Continuous	204 (**93.6**)	68 (**92.4**)	68 (**94.0**)	69 (**94.4**)	
Discontinuous	5 (**2.3**)	2 (**3.0**)	2 (**2.0**)	1 (**1.9**)	
Uncovered	9 (**4.1**)	3 (**4.6**)	3 (**4.0**)	3 (**3.8**)	
Access to Care (%)					0.32
Yes	209 (**95.9**)	70 (**96.1**)	70 (**96.1**)	70 (**95.6**)	
No	9 (**4.1**)	3 (**3.9**)	3 (**3.9**)	3 (**4.4**)	
ER Visits (%)					<0.001
None	184 (**84.6**)	60 (**82.0**)	63 (**87.7**)	61 (**84.1**)	
Once	22 (**10.2**)	8 (**11.3**)	6 (**8.6**)	8 (**10.7**)	
Twice or more	11 (**5.2**)	5 (**6.7**)	3 (**3.6**)	4 (**5.2**)	

*Weighted estimates are expressed as 10^6

Table 2: Comparison of health insurance and demographics across number of ER visits (categorized as none, one, or more than one), stratified by year (2019, 2021, and 2022)

	Overall	2019			2021			2022			p
		None	One	> One	None	One	> One	None	One	> One	
	(n=218)	(n=60)	(n=8)	(n=5)	(n=63)	(n=6)	(n=3)	(n=61)	(n=8)	(n=4)	
Age (median [IQR])	9.00 [5.00, 13.00]	9.00 [5.00, 13.00]	8.00 [3.00, 13.00]	7.00 [4.00, 12.00]	9.00 [5.00, 13.00]	8.00 [4.00, 13.00]	9.00 [4.00, 14.00]	10.00 [5.00, 14.00]	7.00 [3.00, 12.00]	6.00 [3.00, 13.00]	<0.001
Sex (%)											--
Female	107 (48.9)	29 (48.8)	4 (49.8)	2 (48.7)	31 (49.2)	3 (43.5)	1 (57.7)	30 (49.3)	4 (46.1)	2 (48.8)	
Male	111 (51.1)	31 (51.2)	4 (50.2)	3 (51.3)	32 (50.8)	4 (56.5)	1 (42.3)	31 (50.7)	4 (53.9)	2 (51.2)	
Race (%)											<0.001
White	143 (72.0)	40 (73.3)	5 (69.5)	3 (69.2)	42 (72.0)	4 (72.8)	2 (69.0)	40 (71.7)	5 (73.3)	2 (62.4)	
Black/African American	29 (14.7)	8 (14.0)	1 (18.2)	1 (20.9)	8 (14.0)	1 (15.7)	0.5 (20.6)	8 (14.4)	1 (15.1)	1 (19.9)	
Asian	10 (5.2)	3 (5.5)	0.2 (3.0)	0.1 (2.6)	3 (5.7)	0.1 (2.1)	0.1 (4.0)	3 (5.6)	0.2 (3.5)	0.1 (2.7)	
AIAN	5 (2.6)	1 (2.4)	0.2 (2.8)	0.1 (2.0)	1 (2.3)	0.2 (4.2)	0.1 (4.0)	2 (2.8)	0.1 (1.9)	0.2 (6.8)	
Other	11 (5.5)	3 (4.8)	0.5 (6.4)	0.2 (5.3)	4 (6.1)	0.3 (5.2)	0.1 (2.4)	3 (5.5)	0.4 (6.2)	0.3 (8.2)	
Hispanic (%)											0.003
Hispanic	55 (25.5)	15 (24.7)	2 (25.4)	2 (34.7)	16 (25.2)	2 (27.2)	1 (27.9)	15 (25.2)	2 (26.6)	1 (29.7)	
Not Hispanic	162 (74.5)	45 (75.3)	6 (74.6)	3 (65.3)	47 (74.8)	5 (72.8)	2 (72.1)	45 (74.8)	6 (73.4)	3 (70.3)	

Table 2: Comparison of health insurance and demographics across number of ER visits (categorized as none, one, or more than one), stratified by year (2019, 2021, and 2022)

	Overall	2019			2021			2022			p
		None (n=60)	One (n=8)	> One (n=5)	None (n=63)	One (n=6)	> One (n=3)	None (n=61)	One (n=8)	> One (n=4)	
	(n=218)										
Region (%)											0.091
Northeast	35 (15.8)	9 (15.6)	1 (17.6)	1 (18.5)	10 (15.8)	1 (13.5)	0.4 (15.6)	10 (16.2)	1 (15.4)	0.5 (12.1)	
Midwest	46 (21.1)	13 (21.4)	2 (22.4)	1 (16.8)	13 (20.9)	1 (22.9)	0.5 (19.0)	13 (21.3)	2 (20.5)	1 (18.0)	
South	85 (39.0)	23 (38.0)	3 (40.8)	2 (40.4)	25 (39.0)	3 (41.0)	1 (44.0)	23 (38.3)	3 (42.2)	2 (44.8)	
West	53 (24.1)	15 (25.0)	2 (19.3)	1 (24.4)	15 (24.4)	1 (22.5)	1 (21.4)	15 (24.2)	2 (21.8)	1 (25.1)	

	Overall	2019			2021			2022			p
	(n=218)	None (n=60)	One (n=8)	> One (n=5)	None (n=63)	One (n=6)	> One (n=3)	None (n=61)	One (n=8)	> One (n=4)	
Condition (%)											<0.001
Excellent	143 (65.4)	41 (68.1)	5 (58.4)	2 (50.7)	43 (68.0)	4 (59.2)	1 (50.0)	40 (49.7)	4 (56.0)	2 (50.1)	
Very Good	48 (22.1)	13 (21.2)	2 (23.8)	1 (24.2)	13 (21.1)	2 (26.7)	1 (23.4)	14 (22.4)	2 (23.6)	1 (25.3)	
Good	22 (10.1)	5 (8.8)	1 (14.0)	1 (14.8)	6 (9.1)	1 (10.7)	0.5 (18.9)	6 (9.8)	1 (16.4)	1 (13.6)	
Fair	5 (2.2)	1 (1.7)	0.3 (3.6)	0.5 (9.6)	1 (1.5)	0.2 (2.9)	0.2 (7.2)	1 (1.7)	0.3 (3.9)	0.3 (7.5)	
Poor	1 (0.3)	0.1 (0.2)	0.01 (0.2)	0.03 (0.7)	0.1 (0.2)	0.03 (0.5)	0.01 (0.5)	0.1 (0.2)	0.01 (0.1)	0.1 (3.4)	
Coverage (%)											<0.001
Continuous	204 (93.6)	55 (92.4)	8 (92.2)	5 (93.1)	59 (94.1)	6 (93.4)	2 (95.1)	57 (94.2)	7 (95.1)	4 (96.7)	
Discontinuous	5 (2.3)	22 (2.8)	0.3 (3.6)	0.2 (4.2)	1 (1.8)	0.3 (4.1)	0.1 (2.8)	1 (1.9)	0.2 (2.1)	0.04 (1.0)	
None	9 (4.1)	3 (4.8)	0.3 (4.2)	0.1 (2.7)	3 (4.1)	0.2 (2.5)	0.1 (2.1)	2 (3.9)	0.2 (2.8)	0.1 (2.3)	
Access to Care											0.008
Yes	209 (95.9)	58 (96.4)	8 (96.8)	5 (95.6)	61 (96.5)	6 (96.3)	2 (94.3)	58 (96.3)	7 (96.3)	3 (91.8)	
No	9 (4.1)	2 (3.6)	0.3 (3.2)	0.2 (4.4)	2 (3.5)	0.2 (3.7)	0.1 (5.7)	2 (3.7)	0.3 (3.7)	0.3 (8.2)	

Reported values are weighted estimates expressed as 10^6

Table 3: Binomial Regression for Insurance Continuity

	Overall		2019		2021		2022	
	OR	p-value	OR	p-value	OR	p-value	OR	p-value
Age	1.024	0.034	1.026	0.121	0.985	0.43	1.067	0.009
Sex-Male	1.135	0.256	1.141	0.428	0.801	0.278	1.618	0.037
Race-Black/African American only	1.059	0.745	0.909	0.7	1.446	0.335	1.03	0.93
Race-Asian only	1.102	0.712	0.747	0.38	2.512	0.039	1.121	0.845
Race-Other	0.801	0.274	0.602	0.089	1.206	0.669	0.753	0.433
Race-AIAN	0.776	0.429	0.784	0.705	0.57	0.191	1.059	0.918
Hispanic-Not Hispanic	1.075	0.583	1.201	0.352	1.041	0.864	0.944	0.832
Condition-Very Good	0.696	0.006	0.856	0.424	0.651	0.071	0.533	0.02
Condition-Good	0.63	0.009	0.819	0.436	0.577	0.089	0.44	0.018
Condition-Fair	0.362	<0.001	0.382	0.016	0.35	0.076	0.36	0.101
Condition-Poor	0.665	0.533	1.961	0.515	0.468	0.463	0.231	0.185
ER Visits-Once	0.872	0.423	0.909	0.683	0.588	0.079	1.449	0.366
ER Visits-Twice or more	0.855	0.48	0.742	0.293	0.665	0.375	2.235	0.23

Table 4: Binomial Regression for Access to Care

	Overall		2019		2021		2022	
	OR	p-value	OR	p-value	OR	p-value	OR	p-value
Age	0.966	<0.001	0.97	0.048	0.959	0.011	0.967	0.046
Sex-Male	1.137	0.151	1.03	0.842	1.256	0.154	1.148	0.377
Race-Black/African American only	0.683	0.003	0.681	0.063	0.596	0.019	0.785	0.318
Race-Asian only	0.623	0.003	0.524	0.02	0.643	0.106	0.725	0.241
Race-Other	0.747	0.134	1.03	0.946	0.789	0.533	0.6	0.045
Race-AIAN	0.82	0.497	2.5	0.203	0.676	0.317	0.621	0.286
Hispanic-Not Hispanic	1.699	<0.001	1.489	0.025	2.006	<0.001	1.631	0.006
Condition-Very Good	0.935	0.543	0.716	0.059	0.98	0.921	1.182	0.397
Condition-Good	0.847	0.232	0.766	0.254	0.74	0.216	1.08	0.749
Condition-Fair	0.731	0.218	0.666	0.33	0.945	0.912	0.668	0.332
Condition-Poor	0.644	0.488	0.392	0.38	0.838	0.867	1.003	0.997
ER Visits-Once	1.036	0.798	1.235	0.38	0.881	0.62	0.984	0.943
ER Visits-Twice or more	0.632	0.011	0.93	0.791	0.81	0.547	0.4	0.001

Conclusions

- There is no significant relationship between number of ED visits and insurance continuity.

- After adjustment for age, sex, race, ethnicity, and health condition, children with two or more ED visits have lower odds of access to care (overall and in 2022).

- Odds of access to care does not seem to vary with patient's health condition.

- Consistent with existing literature, known health disparities are redemonstrated in assessing children's access to care.

Limitations/Confounders

- NHIS doesn't allow for state-specific data, so differences in state coverage could affect results

- 2021 NHIS data does include some 2020 ED visits
  - May be seeing decreased # of ED visits b/c people were afraid of potential exposures
  - Unable to differentiate etiology utilizing NHIS

Future Directions

- Add 2023 NHIS data, given that the continuous coverage provision lapsed in March 2023

- Perform regional sub-analysis to better examine trends within a certain region of interest/practice

Special Thanks to:

- Dr. Michelle Stevenson
- Tessa Kluthe
- Yana Feygin
- And everyone who gave me feedback during SOCs!

THANK YOU!

Any Questions?

Corresponding NHIS Questions: Discontinuous

HILASTMY_C:

In the past 12 months, how many months was ^SCNAME without coverage?

- 1-12

- Refused

- Don't Know

Corresponding NHIS Questions: Discontinuous
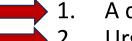
HINOTYR_C:

In the past 12 months, was there any time when ^SCNAME did NOT have ANY health insurance or coverage?

- Yes
- No
- Refused
- Don't Know

HINOTMYR_C:

In the past 12 months, about how many months was ^SCNAME without coverage?

- 1-12
- Refused
- Don't Know

Corresponding NHIS Questions

USUALPL_C:

Is there a place that ^SCNAME usually goes to if they are sick and need health care?

1. Yes ←
2. There is NO place
3. There is MORE THAN ONE place
4. Refused
5. Don't Know

USPLKIND_C:

What kind of place do they go to – a doctor's office or health center; an urgent care center, a clinic in a drug store or grocery store; a hospital emergency room; or some other place?

1. A doctor's office or health center ←
2. Urgent care center or clinic in a drug store or grocery store ←
3. Hospital emergency room
4. Some other place ←
5. Does not go to one place most often
6. Refused
7. Don't know

Children's Health Insurance Status and Emergency Room Utilization: An Examination of Complex Survey Data

Daenuka Muraleetharan, PhD,[1] Tamika D. Gilreath, PhD,[1] Kristin M. Primm, PhD,[1] and Shelby C. Lautner, MS[1]

▼ Author information ▸ Article notes ▸ Copyright and License information   PMC Disclaimer

[1]Texas A&M University, College Station, USA

Daenuka Muraleetharan, College Station, TX 77840, USA. Email: daenukam@tamu.edu

Abstract

Since the Children's Health Insurance Program's passage into law in 1997, the program has increased in cost to over $15 billion in recent years. Emergency room usage has also increased throughout the United States, leading to nationwide issues in overcrowding and surges in service costs. This study seeks to examine emergency room utilization of children insured under Children's Health Insurance Program to determine if Children's Health Insurance Program enrollees use the emergency room more or less frequently than their privately insured counterparts. The data used in this study were from the 2017 National Health Interview Survey. SAS statistical software was used to conduct a multinomial regression assessing the relationship between insurance type (private v. Children's Health Insurance Program) and frequency of emergency room utilization over the last 12 months. The analysis results indicate no statistically significant difference between Children's Health Insurance Program insured and privately insured children in terms of frequency of emergency room utilization and suggest a need to explore other factors that more directly influence Children's Health Insurance Program costs.

Children's health insurance status and emergency department utilization in the United States

Xuemei Luo [1], Gordon Liu, Karen Frush, Lloyd A Hey

Affiliations + expand

Conclusions: Health insurance status was not associated with children's overall ED use or children's ED use for nonurgent problems at the national level. Our findings suggest that policy efforts in an attempt to relieve ED overcrowding conditions should look for measures beyond solely making changes in health insurance coverage for children.

PEDIATRICS
OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS
www.pediatrics.org

Trends in Pediatric Emergency Department Use After the Affordable Care Act FREE

Michael Lee, Jr, MD ✉ ; Michael C. Monuteaux, ScD

CONCLUSIONS:

There was no immediate change in pediatric ED visit rates the year after the ACA took full effect in 2014, but the rate of change from 2014 to 2016 was significantly higher than previous rate trends. In our model, increased pediatric insurance coverage neither drove nor counteracted the observed trends.