

Letters

RESEARCH LETTER

Medical Uninsurance and Underinsurance Among US Children: Findings From the National Survey of Children's Health, 2016-2019

The number of medically uninsured children rose by 700 000 from 2016 to 2019.¹ Trump administration policies (eg, the public charge rule) may have contributed to this rise.² Trends in the adequacy of coverage among children with medical insurance, however, are less clear.

Using data from the National Survey of Children's Health (NSCH), Kogan et al³ estimated that 14.1 million children were underinsured in 2007 and that these children faced barriers to care. Using data from the 2016 to 2019 NSCH, we examined trends and correlates of both medical uninsurance and underinsurance among US children.

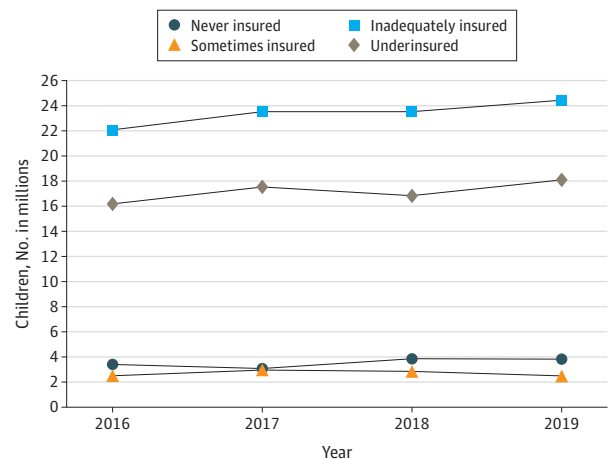
Methods | The Health Resources and Services Administration funds and plans the annual NSCH. The NSCH contacts a parent or guardian in households with children by mail and collects data (by mail or internet) on 1 child per household (response rate: 37.4%-43.1%).

In this cross-sectional study, we examined trends in coverage among children younger than 18 years using a 4-category indicator similar to that of Kogan et al.³ We categorized children as "never insured" if they had no health coverage during the preceding 12 months, and "sometimes insured" if they had no coverage during any month. Among the remaining (continuously insured) children, we categorized some as "underinsured" if their parent or guardian said their insurance never or only sometimes (1) covered the services they needed; (2) covered the providers they needed; or (3) imposed "reasonable" out-of-pocket costs (among those with any such costs).³ We considered other continuously insured children "fully insured." The Cambridge Health Alliance institutional review board deemed this study to not constitute human subjects research and hence waived review. This study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guideline.

Using univariate logistic regressions, we determined the odds of a child being inadequately insured (ie, not fully insured) according to demographic characteristics, state Affordable Care Act Medicaid expansion status,⁴ and the presence of each of 12 chronic diseases or disabilities, or "special health care needs" (CSHCN) according to the NSCH's screener.⁵ We used the Stata/SE, version 16.1 (Stata-Corp) survey procedures and the NSCH weights and multiply imputed income data.

Results | The **Figure** displays trends in children's insurance status for 128 621 children. Among these children, the weighted mean (SE) age was 8.6 (0.03) years, 51.0% were male, 49.0% were female, and 51.0% were non-Hispanic White children.

Figure. Inadequate Coverage Among 128 621 Children, 2016 to 2019



"Never insured" includes those that were not covered by any insurance in the last year. "Sometimes insured" includes those with coverage for some part of the last year (ie, the currently insured who had gaps in coverage in the past year), and those currently uninsured but who had any type of coverage in the past year. "Underinsured" included those who were continuously insured in the last year but for whom the coverage was inadequate, as defined in the text. "Inadequately insured" includes those never insured, sometimes insured, and underinsured. The total 2016 to 2019 National Survey of Children's Health sample size was 131 774; we excluded 3153 children (2.4%) with missing data on our constructed 4-category insurance indicators, leaving 128 621.

The number of children uninsured for all or part of the year rose from 5.9 million (8.3%) in 2016 to 6.3 million (8.8%) in 2019. Over that period, the number of underinsured children rose from 16.2 million (22.8%) to 18.1 million (25.4%).

Adolescents, children in non-English speaking families, or those with middle incomes (200%-399% of the federal poverty level) and Hispanic and White children were more likely to be inadequately insured (**Table**). Of children in Medicaid expansion states, 30.9% were inadequately insured vs 35.3% in nonexpansion states.

Among insured children, inadequate insurance was more common when insurance was private vs public (34.8% vs 17.5%). Rates of inadequate insurance were higher among children with medical problems. For example, 55.8% of children with diabetes (154 349 nationwide) and 39.9% of children with autism (708 133 nationwide) were inadequately insured, compared with 31.5% of children with no condition. Of children with CSHCN, 37.4% were inadequately insured (n = 5 066 240).

Discussion | During the first 3 years of the Trump administration, both medical uninsurance and underinsurance increased among children. This analysis indicates that, by 2019, 24.4 million children were inadequately insured, including millions with chronic conditions.

Table. Inadequate Insurance by Characteristics Among 128 621 Children, 2016 to 2019^a

Characteristic ^b	Proportion inadequately insured in subgroup, %	Weighted annual count inadequately insured	Odds ratio (95% CI)
Age, y			
0-5 (n = 36 542)	28.6	6 581 584	1 [Reference]
6-12 (n = 46 482)	33.2	9 379 559	1.24 (1.16-1.33)
13-17 (n = 45 597)	36.5	7 376 944	1.44 (1.34-1.54)
Sex			
Male (n = 66 493)	32.7	11 910 763	1 [Reference]
Female (n = 62 128)	32.7	11 427 324	1.00 (0.95-1.05)
Household language			
English (n = 119 681)	32.1	19 441 203	1 [Reference]
Spanish (n = 3918)	35.0	2 387 607	1.14 (1.00-1.30)
Other (n = 4249)	39.9	1 310 681	1.40 (1.23-1.61)
Race/ethnicity			
Non-Hispanic White (n = 89 695)	33.1	12 056 126	1 [Reference]
Non-Hispanic Black (n = 7820)	28.4	2 654 562	0.80 (0.74-0.87)
Non-Hispanic other (n = 16 306) ^c	31.8	2 451 173	0.94 (0.87-1.01)
Hispanic (n = 14 800)	34.4	6 176 226	1.06 (0.98-1.14)
Family income, % FPL (n = 128 621)^d			
<100	28.5	4 081 852	0.84 (0.77-0.92)
100-199	31.1	4 825 994	0.96 (0.89-1.03)
200-299	38.6	4 298 367	1.33 (1.23-1.44)
300-399	36.5	3 092 167	1.21 (1.12-1.31)
>400	32.1	7 039 707	1 [Reference]
Medicaid expansion^e			
Nonexpansion (n = 47 237)	35.3	10 004 628	1 [Reference]
Expansion (n = 81 384)	30.9	13 333 459	0.82 (0.78-0.87)
Insurance type^f			
Public (n = 29 819)	17.5	4 393 066	1 [Reference]
Private (n = 92 759)	34.8	14 272 460	2.51 (2.34-2.69)
Uninsured (n = 4814)	100.0	4 355 040	NA
Conditions^g			
Asthma (n = 10 188)	37.6	2 081 189	1.31 (1.19-1.44)
Heart disease (n = 1703)	37.1	304 292	1.28 (1.06-1.55)
Diabetes (n = 560)	55.8	154 349	2.74 (1.78-4.23)
Epilepsy (n = 822)	38.0	160 790	1.33 (1.01-1.75)
Autism (n = 3261)	39.9	708 133	1.44 (1.21-1.72)
Attention-deficit disorder or attention-deficit/hyperactivity disorder (n = 11 339)	36.4	1 902 839	1.24 (1.14-1.35)
Brain injury (n = 729)	43.3	146 367	1.66 (1.24-2.22)
Intellectual disability (n = 1257)	39.5	266 517	1.42 (1.11-1.82)
Cerebral palsy (n = 376)	37.4	62 678	1.30 (0.88-1.90)
Blood disorder (n = 724)	28.7	141 964	0.87 (0.63-1.21)
Visual impairment (n = 1703)	41.6	488 680	1.55 (1.23-1.94)
Hearing impairment (n = 1549)	36.0	346 926	1.22 (0.94-1.58)
None of the above (n = 97 792)	31.5	17 374 723	1 [Reference]
Any of the above (n = 26 412)	37.1	5 039 617	1.28 (1.20-1.37)
Children with CSHCNs (n = 29 748) ^h	37.4	5 066 240	1.30 (1.22-1.38)
Children without CSHCNs (n = 98 873) ^h	31.6	18 271 847	1 [Reference]

Abbreviations: CHSCNs, chronic diseases or disabilities or special health care needs; FPL, federal poverty level; NA, not applicable.

^a All estimates are weighted to be nationally representative at the midpoint of the 2016 to 2019 period. Odds ratio represents the association between each table characteristic and being inadequately insured (vs fully insured).

^b Parenthetical numbers represent unweighted values.

^c Includes American Indian or Alaskan Native, Asian, Native Hawaiian and Other Pacific Islander, "some other race," and "2 or more races."

^d Family income analysis used 6 imputations provided by the National Survey of Children's Health (NSCH), and Stata mi estimate procedure. Number with missing data included household language (n = 773) and insurance type (n = 1229).

^e Status as of January of the survey year, using data from the Kaiser Family Foundation.⁴

^f Those with both public and private coverage were coded as having public coverage. All uninsured children are inadequately insured by definition and dropped from the logistic regression.

^g A child was considered to have a chronic disease by report of a doctor or health care professional (or educator for intellectual disability), per parent or guardian respondent. Children with asthma, heart disease, diabetes, epilepsy, autism, ADD/ADHD, brain injury, intellectual disability, and cerebral palsy were considered to have these conditions only if they were "currently" said to have the condition. Brain injury includes brain injury, concussion, and head injuries. Autism includes autism spectrum disorder. For logistic regressions, the comparator group was "none of the above" (n = 97 792) for all of these analyses.

^h Defined by the NSCH's CHSCN screener, which identifies children with special health care needs stemming from health conditions lasting at least 12 months, as determined by a battery of 5 questions.⁵

This study has limitations. Analysts have used various criteria to define underinsurance. We replicated the broad definition from Kogan et al,³ which corresponded (in earlier data) with impaired health care access/use. We lacked data on

children's insurance plan design (eg, deductibles and copayments) and provider networks.

The findings of this cross-sectional study have implications for ongoing health care reform debates. Bolstered mar-

ketplace subsidies provided by the 2021 American Rescue Plan could help some uninsured families afford coverage, although private coverage often leaves children underinsured. Proposals for universal Medicaid coverage of children could improve care affordability for many more children but may not address the paucity of providers accepting Medicaid and could leave adolescents vulnerable to insurance and care disruptions as they transition to adulthood.⁶ Reforms that achieve seamless and universal coverage, in contrast, could improve access for individuals throughout the life course.

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Drafting of the manuscript: Gaffney.

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Conflict of Interest Disclosures: Drs Gaffney, Cai, McCormick, Himmelstein, and Woolhandler reported being or having served as leaders of Physicians for a National Health Program (PNHP), a nonprofit organization that favors coverage expansion through a single-payer program, and Dr Dickman is a member; however, none of them receive any compensation from that group, although some of Dr Gaffney's travel on behalf of the organization has been reimbursed by it. Dr Cai reported working as a paid policy intern to US Representative Pramila Jayapal in 2020.

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