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Impact of Healthcare Location Concordance on Receipt of Preventive Care Among Children Whose Parents have a Substance Use and/or Mental Health Diagnosis

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Abstract

Aims: Children of parents with substance use and/or other mental health (SU/MH) diagnoses are at increased risk for health problems. It is unknown whether these children benefit from receiving primary care at the same clinic as their parents. Thus, among children of parents with >1 SU/MH diagnosis, we examined the association of parent-child clinic concordance with rates of well-child checks (WCCs) and childhood vaccinations. **Design**: Retrospective cohort study using electronic health record (EHR) data from the OCHIN network of community health organizations (CHOs), 2010-2018. **Setting:** 280 CHOs across 17 states. **Participants/Cases**: 41,413 parents with >1 SU/MH diagnosis, linked to 65,417 children aged 0 to 17 years, each with >1 visit to an OCHIN clinic during the study period. **Measurements:** Dependent variables: rates of WCCs during (1) the first 15 months of life, and (2) ages 3 to 17 years; vaccine completeness (3) by the age of 2, and (4) before the age of 18. Estimates were attained using generalized estimating equations Poisson or logistic regression. **Findings:** Among children utilizing the same clinic as their parent versus children using a different clinic (reference group), we observed greater WCC rates in the first 15 months of life [adjusted rate ratio (aRR) = 1.06; 95% confidence interval (CI) = 1.02-1.10]; no difference in WCC rates in ages 3 to 17; higher odds for vaccine completion before age 2 [adjusted odds ratio (aOR) = 1.12; 95% CI = 1.03-1.21]; and lower odds for vaccine completion before age 18 (aOR = 0.88; 95% CI = 0.81-0.95). **Conclusion:** Among children whose parents have at least one SU/MH diagnosis, parent-child clinic concordance was associated with greater rates of WCCs and higher odds of completed vaccinations for children in the youngest age groups, but not the older children. This suggests the need for greater emphasis on family-oriented healthcare for young children of parents with SU/MH diagnoses; this may be less important for older children.

Keywords
prevention, primary care, family medicine, childhood vaccinations, well child care, family healthcare

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Introduction

Children of parents with substance use and/or other mental health (SU/MH) diagnoses are at increased risk for health problems[1,2]; thus, it is critically important for these children to have regular access to preventive healthcare services. Well child checks (WCCs) are among the most important preventative healthcare services for children and reduce emergency department utilization and hospitalizations.[3] The American Academy of Pediatrics (AAP) promotes WCCs as a time to assess the health and function of a family and child.[4] Although recommended annually and a key

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opportunity to identify and address health problems at an early life stage, children miss between one-third and one-half of all WCCs.[5] Given their heightened healthcare risks, removing barriers to WCCs for children of parents with SU/MH diagnoses is a high priority.[1]

A multitude of barriers are known to affect whether a child receives a WCC, including transportation, limited time off work, and disruption in child-care schedules. Economically disadvantaged populations are disproportionately affected by such barriers. Further, lack of health insurance or having public health insurance is associated with missing WCCs.[2,5-7] Importantly, for parents with SU/MH diagnoses, these challenges are often even more acute.[8] Thus, it is important to identify factors that may facilitate recommended, timely pediatric care for this population. For example, parental receipt of preventive care is a facilitator of children's receipt of preventive care.[8] A qualitative study found that parents, many of whom had SU/MH diagnoses, valued being seen at the same clinic as their children.[8] However, it is unknown if parent-child primary care clinic location concordance is independently associated with receipt of recommended pediatric preventive services. To fill this knowledge gap, we examined the receipt of WCCs and immunization completeness among children who received care at the same versus different clinic location as their parent.

Since receipt of WCCs is lowest for children without health insurance and with low incomes,[2,5] we focused our study on patients seen in community health centers and other community health organizations (CHOs). There are approximately 1400 community health centers in the United States that serve more than 31.5 million patients per year.[9] These centers and other CHOs provide a wide spectrum of preventative care services,[10] and provide these services to patients regardless of their insurance status or income levels. Among a national cohort of CHO patients under age 18 linked to a parent with a documented SU/MH diagnosis, we hypothesized that children of parents receiving care at the same CHO would have higher receipt of guideline-concordant preventive care than children receiving care at a different clinic.

Methods

Data Source

We used electronic health record (EHR) data from OCHIN, a national network of CHOs hosting a centralized EHR system of OCHIN Epic©. OCHIN leads the Accelerating Data Value Across a National Community Health Center (ADVANCE) clinical research network of PCORnet®.[11] Incorporating a previously identified cohort of children linked to parents each of whom utilize this network,[12] we selected child-parent linkages in which the child was linked to a single OCHIN parent and that parent had at least one SU/MH diagnosis recorded on the problem list (Appendix Table A1). Of note, all parents with a SU diagnosis had at least one additional MH diagnosis documented (32% SU + MH, 68% MH only), and some parents linked to more than one child. The process and validation of identifying the child-parent linkages has been described elsewhere.[12] This study utilized patient- and encounter-level data from 280 CHOs across 17 U.S. states, from 2010 to 2018.

Population

Among this cohort of children, we identified four non-mutually exclusive subgroups of children from birth through age 17 years utilizing an eligible CHO in 2010 to 2018. Eligible CHOs provided preventive care (Current Procedural Terminology codes: 99381-7; 99391-7; G0438-9) for ≥10% of child and adult patients. The four subgroups were created based on different age groups corresponding with the four primary study outcomes (next section) and consisted of children with any ambulatory visit (1) within the first 3 months of life (n = 14,040), (2) aged 3 to 17 years (n = 56,474), (3) aged 12 to 24 months, not on Medicare (n = 15,296), and (4) aged 8 to 13 years (n = 29,681). See Appendix Tables A2.1 to A2.4 for details on the characteristics of these subgroups.

Dependent Variables/Primary Study Outcomes

The main dependent variables were four preventive care outcome measures, each assessed in the corresponding age cohort described above: WCCs in (1) the first 15 months of life among those seen within their first 3 months, (2) between ages 3 and 17 years; and vaccine completeness (3) by 2 years of age, (4) before 18 years of age among those receiving care between the ages of 8 and 13 years. We assessed receipt of all vaccines recommended for children by the age of 2 as defined in one of the most commonly used series of the Core Set of Children's Health Care Quality Measures consisting of (# of doses): Diphtheria, Tetanus, acellular Pertussis (4); Polio (3); Measles, Mumps, Rubella (1); Haemophilus influenza type b (3); Hepatitis B (3); Varicella (1); Pneumococcal (4); Hepatitis A (1); and Rotavirus (≥2). Adolescent vaccination by 18 years of age includes receiving Human papillomavirus (2) and Meningococcal (1) vaccinations.[13]

Independent Variable

The independent variable of interest was a binary indicator distinguishing children whose primary clinic was the same as their linked parent ("same clinic") from those whose clinics differed ("different clinic"). If the child's most frequented clinic was the same as their linked parent, they were in the

"same clinic" group. If they had some visits at the same clinic but the majority of their visits were at a different site, they were placed into the "different clinic" group.

Covariates

We adjusted for covariates based on Andersen and Aday's conceptual model (well-child outcomes 1&2), and prior vaccine status studies (vaccine outcomes 3&4).[14,15] Parent factors included preferred language, income, total linked children, receipt of influenza vaccine, preventive care use, and number of chronic conditions (Appendix Table A1 includes details on chronic conditions). Child factors included age at first study encounter, race and ethnicity, health insurance status, number of chronic conditions, and U.S. region.

Statistical Analysis

We described parent and child characteristics, overall and for each of the four subgroups by the linkages' indicator of clinic concordance. For all outcome measures we used general estimating equations (GEE) with robust sandwich variance estimation and exchangeable correlation structure clustered on the child's primary clinic. More specifically, we used GEE Poisson regression for the well-child outcomes, and GEE logistic regression for the vaccine outcomes. Lastly, we reported unadjusted rates of WCCs and prevalence of vaccine completion, and both unadjusted and adjusted rate ratios (RR, aRR) and odds ratios (OR, aOR) with their associated 95% confidence intervals (CI). Analyses were performed in Stata v.15 and utilized two-sided testing with set 5% type I error. This study was approved by the Oregon Health & Science University Institutional Review Board.

Results

The majority of parents were female (90.1%), had ≥ 2 chronic conditions (83.4%), and had no documented visit that was dedicated to receiving preventive care (63%). Nearly 90% had household incomes near or below the federal poverty level (FPL), with only 11% with incomes consistently above the FPL. Most children (94%) had health insurance, and 18% had ≥1 chronic condition. Table 1 shows the demographics of the four subgroups, which ranged in size from 14,040 to 56,474 children linked to 11,547 to 36,531 parents. Demographic patterns were similar among the age group subsamples. Over three-quarters (76%) of the children were in the same clinic group; 24% were in the different clinic group.

Unadjusted rates of WCCs for children in their first 15 months of life ranged from 4.3 visits in the different clinic group to 4.6 in the same clinic group. All children aged 3-17 years had <1 WCC per year (unadjusted rate for different clinic: 0.58/year; same clinic: 0.60/year). For children under age 2 years, the unadjusted prevalence of vaccine completeness was 51.8% in the same clinic group and 47.6% in the different clinic group. The unadjusted prevalence of vaccine completeness for adolescents in the different clinic group was 33.1%, compared with 31.1% among adolescents in the same clinic group.

Adjusted GEE regression models (Table 2), estimate that children in the same clinic group had a 6% greater rate of WCCs in the first 15 months of life, compared to the different clinic group (aRR = 1.06, 95% CI = 1.02-1.10). Similarly, children in their first 2 years of life had 12% greater odds of having completed recommended vaccinations if part of the same clinic group compared to the different clinic group (aOR = 1.12, 95% CI = 1.03-1.21). WCC rates between the ages of 3 and 17 did not statistically differ between parent-child clinic concordance groups. Adolescents in the same clinic group had lower odds of having received two human papillomavirus and one meningococcal vaccination by the age of 18 (aOR = 0.88, 95% CI = 0.81-0.95), compared to the different clinic group.

Discussion

Among a national cohort of children linked with parents who have a SU/MH diagnosis, both of whom utilize the same CHO network, we found contrasting patterns of children's preventive care use relative to parent-child clinic concordance. Clinic concordance was associated with higher WCC rates and vaccine utilization among children under 2 years old, while children older than 3 years in same vs different clinic groups had similar WCC rates. Adolescents had lower rates of vaccine completeness when the child and parent shared the same clinic.

One possible explanation for clinic concordance being significantly associated with higher rates of WCCs and vaccination for children in the younger age groups may be a matter of logistics and convenience. For example, same clinic care is more convenient at younger ages since the child is not engaged in school activities during the day, and childcare is otherwise required if their parent needs to attend an appointment without them. During this stage of life, parents may be more likely to have their young child attend visits with them and schedule visits concurrently for the entire family. Once children are older, their schedules may dictate appointments at separate times and separate locations, and parents may feel less comfortable having an older child accompany them to a visit. Additionally, it may be more convenient (and confidential) for adolescents to receive care from their schools or other clinical locations where they feel more anonymous.[16] This phenomenon may explain the negative association between adolescent vaccinations and parent-child clinic concordance.

Table 1. Characteristics of Parents and Their Linked Children Utilizing Clinics in the OCHIN Network, by Outcome (2010-2018).

	No. (%)			
	Outcome 1	Outcome 2	Outcome 3	Outcome 4
Parent characteristics	N = 11 547	N = 36 531	N = 12 465	N = 21 559
Age at child's 1st visit, median (range)	26 years (13-55)	34 years (13-72)	27 years (13-56)	34 years (14-68)
Female	11 177 (96.8%)	32 110 (87.9%)	11 810 (94.7%)	18 856 (87.5%)
English language preferred	8336 (72.2%)	27 163 (74.4%)	9036 (72.5%)	15 323 (71.1%)
Visits during study				
1	634 (5.5%)	2209 (6.0%)	476 (3.8%)	1071 (5.0%)
2-5	2287 (19.8%)	7764 (21.3%)	2224 (17.8%)	3937 (18.3%)
6-10	1930 (16.7%)	6978 (19.1%)	2218 (17.8%)	3813 (17.7%)
11+	6696 (58.0%)	19 580 (53.6%)	7547 (60.5%)	12 738 (59.1%)
Unresolved chronic conditions[a]				
1	2660 (23.0%)	5362 (14.7%)	2687 (21.6%)	2897 (13.4%)
2+	8887 (77.0%)	31 169 (85.3%)	9778 (78.4%)	18 662 (86.6%)
Flu vaccine during study	6418 (55.6%)	19 080 (52.2%)	7281 (58.4%)	11 883 (55.1%)
Preventive care visit during study	3685 (31.9%)	13 555 (37.1%)	4497 (36.1%)	8652 (40.1%)
Federal poverty level				
Always > 100%	1282 (11.1%)	4547 (12.4%)	1267 (10.2%)	2558 (11.9%)
Above & below 100%	3809 (33.0%)	10 200 (27.9%)	4243 (34.0%)	6793 (31.5%)	
Always ≤ 100%	5226 (45.3%)	16 124 (44.1%)	5594 (44.9%)	9166 (42.5%)
Not documented	1230 (10.7%)	5660 (15.5%)	1361 (10.9%)	3042 (14.1%)
Number of children in study				
1	5598 (48.5%)	20 527 (56.2%)	5576 (44.7%)	9521 (44.2%)
2	3249 (28.1%)	10 121 (27.7%)	3761 (30.2%)	6894 (32.0%)
3	1689 (14.6%)	4050 (11.1%)	1965 (15.8%)	3419 (15.9%)
4	692 (6.0%)	1319 (3.6%)	804 (6.5%)	1224 (5.7%)
5+	319 (2.8%)	514 (1.4%)	359 (2.9%)	501 (2.3%)
Child characteristics				
	N = 14 040	N = 56 474	N = 15 296	N = 29 681
Age at child's first visit, median (range)	0 months (0-3)	7 years (3-17)	0 months (0-24)	9 years (8-13)
Female	6830 (48.6%)	28 263 (50.0%)	7440 (48.6%)	11 034 (49.1%)
Race/ethnicity				
Non-Hispanic White	4930 (35.1%)	22 887 (40.5%)	5503 (36.0%)	8579 (38.2%)
Non-Hispanic Black	1579 (11.2%)	7418 (13.1%)	1806 (11.8%)	2968 (13.2%)
Non-Hispanic other	528 (3.8%)	2486 (4.4%)	627 (4.1%)	990 (4.4%)
Hispanic	6088 (43.4%)	20 780 (36.8%)	6540 (42.8%)	8839 (39.4%)
Unknown	915 (6.5%)	2903 (5.1%)	820 (5.4%)	1074 (4.8%)
Visits during study				
1	408 (2.9%)	6945 (12.3%)	1141 (7.5%)	3048 (13.6%)
2-5	2769 (19.7%)	20 458 (36.2%)	3097 (20.2%)	6819 (30.4%)
6-10	5734 (40.8%)	13 676 (24.2%)	4375 (28.6%)	5483 (24.4%)
11+	5129 (36.5%)	15 395 (27.3%)	6683 (43.7%)	7100 (31.6%)
Last known insurance status				
Private	781 (5.6%)	5482 (9.7%)	944 (6.2%)	2173 (9.7%)
Public	12 724 (90.6%)	47 404 (83.9%)	13 642 (89.2%)	19 027 (84.8%)
Uninsured	535 (3.8%)	3588 (6.4%)	710 (4.6%)	1250 (5.6%)

(continued)

Table 1. (continued)

Child characteristics				
	N = 14 040	N = 56 474	N = 15 296	N = 29 681
Unresolved chronic conditions[a]				
0	11 310 (80.6%)	53 524 (94.8%)	12 083 (79.0%)	11 349 (50.6%)
1	2330 (16.6%)	2569 (4.5%)	2747 (18.0%)	6378 (28.4%)
2+	400 (2.8%)	381 (0.7%)	466 (3.0%)	4723 (21.0%)
Region[b]				
Northeast	947 (6.7%)	6034 (10.7%)	1201 (7.9%)	2623 (11.7%)
South	34 (0.2%)	370 (0.7%)	48 (0.3%)	136 (0.6%)
Midwest	1703 (12.1%)	6870 (12.2%)	1849 (12.1%)	2582 (11.5%)
West	11 356 (80.9%)	43 200 (76.5%)	12 198 (79.7%)	17 109 (76.2%)

Parent characteristics are for the entire family observation period, defined as the earliest child encounter date through the last date plus the minimum of 3 years, child turning 18 years, or study end (2010-2018). Each child is linked to only 1 parent, but parents may be linked to multiple children.
Outcome 1: Rate of well-child checks in first 15 months of life. Child characteristics in the first 15 months of life for children established in the network by age 3 months. Data from 194 distinct clinics.
Outcome 2: Rate of well-child checks ages 3 to 17 years. Child characteristics for ages 3 to 17 years. Data from 280 distinct clinics.
Outcome 3: Childhood vaccination completeness by 2 years of age. Child characteristics in the first 24 months of life. Data from 227 distinct clinics.
Outcome 4: Childhood vaccinations completeness before age 18 years. Child characteristics for ages 8 to 13 years. Data from 274 distinct clinic.
[a]See Appendix Table A1 for list of chronic conditions.
[b]States include: Northeast (MA); South (FL, GA, NC, TX); Midwest (IN, MN, OH, WI); West (AK, CA, MT, NM, NV, OR, UT, WA).

Table 2. Comparisons of Pediatric Routine Care Between Children Who Utilize the Same Versus Different Primary Care Clinic as Their Linked Parent in the OCHIN Network, 2010 to 2018.

Parent and child clinic concordance	Unadjusted rate	RR (95% CI)	aRR (95% CI)
Outcome 1. Well-child checks first 15 months of life[a] (N = 11 547 parents; 14 040 children)			
Different clinic group	**4.3**	Ref	Ref
Same clinic group	**4.6**	**1.07 (1.02, 1.12)**	**1.06 (1.02, 1.10)**
Outcome 2. Well-child checks ages 3-17 years, yearly[a] (N = 36 531 parents; 56 474 children)			
Different clinic group	0.58	Ref	Ref
Same clinic group	0.60	1.02 (0.99, 1.06)	1.02 (0.98, 1.06)
	Unadjusted prevalence	OR (95% CI)	aOR (95% CI)
Outcome 3. Vaccinations completed, among children under age 2 years (Combination 7)[b] (N = 12 465 parents; 15 296 children)			
Different clinic group	**47.6%**	Ref	Ref
Same clinic group	**51.8%**	**1.18 (1.08, 1.30)**	**1.12 (1.03, 1.21)**
Vaccinations completed, among adolescents up to age 18 years[c] (N = 21 559 parents; 29 681 children)			
Different clinic group	**33.1%**	Ref	Ref
Same clinic group	**31.1%**	**0.91 (0.85, 0.98)**	**0.88 (0.81, 0.95)**

Abbreviation: aOR, adjusted odds ratio; aRR, adjusted rate ratio; CI, confidence interval; HPV, human papillomavirus vaccine; MCV, meningococcal vaccine; OR, odds ratio; RR, rate ratio Ref, referent group.
Some parents are linked to more than one child; children are linked to a single parent in the dataset.
Estimates derived using generalized estimating equations logistic (odds) or Poisson (rate) regression and robust sandwich variance estimation for clustering within child's primary clinic. Adjusted for parent's preferred language, income, total children, influenza vaccination, preventive care use, number of chronic conditions, and child's age at first encounter, race & ethnicity, insurance, number of chronic conditions, and U.S. region. Additionally, estimates were adjusted for child's total visits in the 3 years and older outcomes. *P*-value $<.05$ in bold.
[a]Well-child checks were identified through the combination of provider type (MD, DO, NP, PA) and CPT codes (99381-99387, 99391-99397, G0438, G0439).
[b]Combination 7 vaccination (number required) for children prior to age 2 years: Diphtheria, Tetanus, acellular Pertussis (4); Polio (3); Measles, Mumps, Rubella (1); Haemophilus influenza type b (3); Hepatitis B (3); Varicella; Pneumococcal; Hepatitis A (1); and Rotavirus ($\geq$2).[1,14]
[c]Adolescent vaccines completed prior to age 18 years: Human papillomavirus (2) and Meningococcal (1) vaccinations.

We found no prior study that examined independent associations between receipt of parent and child healthcare at the same clinic and rates of receipt of children's preventive services. The AAP Bright Futures Guidelines offers an evidence-based recommended schedule for WCCs and advocates for concurrent parental health screenings.[4] Our findings, combined with these recommendations, advocate for more emphasis on creating opportunities for children and their parents to receive care in the same clinical setting, especially in the first 2 years of life. This type of family-centered care may be even more beneficial for facilitating receipt of preventive care among young children whose parents have SU/MH diagnoses, as our findings suggest. Although we did not explore the associations in reverse, co-location of care for children and parents may benefit parents, too.[17-19] Additional research should assess causal mechanisms and investigate cohorts of families with different risk factors and healthcare needs. Future study should also evaluate the mechanisms involved with the associations reported in this paper.

This study has several limitations. First, this study assessed correlation, not causation. Second, we were only able to measure WCCs and vaccinations completed for linked parents and children seen in the OCHIN network. We could not account for care received outside the network or determine when/if patients left the network. Yet, previous research found >66% of patients with a visit to an OCHIN clinic had another visit within 3 years.[20] Third, our definition of a parent was limited and may not have captured all parent-child dyads. It is also possible that our algorithm included a household member who was not a parent (e.g., grandparent), yet we previously validated our methodology and found 98% agreement between the sources.[21] Fourth, yearly WCC recommendations are based on expert opinion, and there is controversy about their necessity.[22,23] Lastly, "emergency contact" and "guarantor" fields in the child's EHR were used to link children with adults; however, the dataset does not explicitly determine parental custody status within parent-child dyads. It is possible that some of the children linked with parents in the dataset may have been in voluntary custody with family/friends or foster care and not in the custody of a parent. Despite these limitations, this study is a crucial first step to understanding the extent to which co-located healthcare for children and parents may help to overcome barriers faced by children of parents with SU/MH diagnoses.

Conclusion

Parent-child primary care clinic concordance was associated with improved rates of WCC and vaccine completion among children under 2 years old; however, concordance was not significantly associated with different rates of WCCs among children older than 3 and was associated with lower documented rates of adolescent vaccine completeness. These findings suggest the need for greater emphasis on family-oriented healthcare to improve pediatric recommended care in the youngest age groups. Further research is needed to clarify the nuances of parent-child primary care clinic concordance on both parent and child health.

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Declaration of Conflicting Interests

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Supplemental Material

Supplemental material for this article is available online.

References

1. Peleg-Oren N, Teichman M. Young children of parents with substance use disorders (SUD): a review of the literature and implications for social work practice. *J Soc Work Pract Addict*. 2006;6(1-2):49-61.
2. Wolf ER, Donahue E, Sabo RT, Nelson BB, Krist AH. Barriers to attendance of prenatal and well-child visits. *Acad Pediatr*. 2021;21(6):955-960.
3. Pittard WB, 3rd. Well-child care in infancy and emergency department use by South Carolina Medicaid children birth to 6 years old. *South Med J*. 2011;104(8):604-608.
4. Hagan JF, Shaw JS, Duncan PM. *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents (Pocket Guide)*. American Academy of Pediatrics, 2017; 2018.
5. Wolf ER, Hochheimer CJ, Sabo RT, et al. Gaps in well-child care attendance among primary care clinics serving low-income families. *Pediatrics*. 2018;142(5):e20174019.
6. Jhanjee I, Saxeena D, Arora J, Gjerdingen DK. Parents' health and demographic characteristics predict noncompliance with well-child visits. *J Am Board Fam Pract*. 2004;17(5):324-331.
7. Short VL, Gannon M, Sood E, et al. Opportunities to increase well-child care engagement for families affected by maternal opioid use disorder: perceptions of mothers and clinicians. *Acad Pediatr*. 2023;23(2):425-433.

8. Angier H, Kaufmann J, Heintzman J, et al. Association of parent preventive care with their child's recommended well-child visits. *Acad Pediatr*. 2022;22(8):1422-1428.
9. National Association of Community Health Centers. What is a Community Health Center. 2023. Accessed December 23, 2023. https://www.nachc.org/community-health-centers/what-is-a-health-center/#:~:text=Since%20the%20nation's%20first%20health,more%20than%2030%20million%20people
10. Santo L, Schappert SM, Ashman JJ. Characteristics of Visits to Health Centers: United States, 2020. 2022. Accessed 2023. https://stacks.cdc.gov/view/cdc/117898
11. DeVoe JE, Gold R, Cottrell E, et al. The ADVANCE network: accelerating data value across a national community health center network. *J Am Med Inform Assoc*. 2014;21(4):591-595.
12. Angier H, Giebultowicz S, Kaufmann J, et al. Creation of a linked cohort of children and their parents in a large, national electronic health record dataset. *Medicine (Baltimore)*. 2021;100(32):e26950.
13. Medicaid. *Core Set of Children's Health Care Quality Measures for Medicaid and CHIP (Child Core Set) Technical Specifications and Resource Manual for Federal Fiscal Year 2019* Reporting Center for Medicaid and CHIP Services; 2019.
14. Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? *J Health Soc Behav*. 1995;36(1):1-10.
15. Bates AS, Wolinsky FD. Personal, financial, and structural barriers to immunization in socioeconomically disadvantaged urban children. *Pediatrics*. 1998;101(4 Pt 1):591-596.
16. Baldridge S, Symes L. Just between us: an integrative review of confidential care for adolescents. *J Pediatr Health Care*. 2018;32(2):e45-e58.
17. Schuster MA, Fuentes-Afflick E. Caring for children by supporting parents. *N Engl J Med*. 2017;376(5):410-413.
18. Venkataramani M, Cheng TL, Solomon BS, Pollack CE. Caregiver health promotion in pediatric primary care settings: results of a national survey. *J Pediatr*. 2017;181:254-260 e252.
19. Lindly OJ, Geldhof GJ, Acock AC, Sakuma K-LK, Zuckerman KE, Thorburn S. Family-centered care measurement and associations with unmet health care need among US children. *Acad Pediatr*. 2017;17(6):656-664.
20. Huguet N, Kaufmann J, O'Malley J, et al. Using electronic health records in longitudinal studies: estimating patient attrition. *Med Care*. 2020;58(61):S46-S52.
21. Angier H, Gold R, Crawford C, et al. Linkage methods for connecting children with parents in electronic health record and state public health insurance data. *Matern Child Health J*. 2014;18(9):2025-2033.
22. Isaac A, Saginur M, Hartling L, Robinson JL. Quality of reporting and evidence in American Academy of Pediatrics guidelines. *Pediatrics*. 2013;131(4):732-738.
23. McInerny TK, Sachdeva RC. The American academy of pediatrics and quality improvement. *Acad Pediatr*. 2013;13(6):S7-S8.