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Assessing Prenatal Alcohol Exposure History for Pediatric Patients: Practices Among U.S. Clinicians

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Abstract

Objectives—The American Academy of Pediatrics recommends clinicians who treat pediatric patients screen for prenatal alcohol exposure (PAE) to facilitate the identification of children with fetal alcohol spectrum disorders and promote timely access to behavioral and cognitive interventions. We evaluated how frequently clinicians inquire about PAE in their pediatric patient interactions and the methods used to ascertain this information.

Methods—We analyzed data from the Fall 2020 DocStyles survey, a web-based survey of primary healthcare professionals (n = 1754). Distributions for frequency of assessing PAE history for five pediatric populations and the methods used were calculated by clinician specialty (family practitioners [FP], pediatricians, and nurse practitioners/physician assistants [NP/PAs]) and overall. Chi-square and Bonferroni post-hoc tests determined whether frequency of assessing PAE history varied by specialty.

Results—Among 779 clinicians serving pediatric patients, approximately 70.5%, 63.0%, and 60.7% reported often/always obtaining PAE history from parents of children with developmental/behavioral issues, adopted/foster children, and newborns, respectively. By contrast, less than half of respondents reported often/always collecting this information from parents of infants (47.6%) and new patients (38.2%). Most respondents reported collecting PAE history through interviews conducted by physicians or physician assistants (69.7%). Obtaining PAE history varied

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Ethical Approval This analysis was exempt from institutional review board approval as individual identifiers were not included in the datafile licensed from Porter Novelli.

Consent to Participate All participants provided consent to participate electronically.

by specialty; pediatricians (71.5%) were more likely to collect PAE history for adopted/foster children when compared to FPs (57.7%, $p = 0.003$).

Conclusions for Practice—PAE history is not routinely obtained for pediatric patients. These findings highlight the need for trainings and practice supports to aid clinicians in identifying and treating children at-risk of FASDs.

Keywords

Developmental disabilities; Developmental/behavioral issues; Fetal alcohol syndrome; Fetal alcohol spectrum disorders; Prenatal alcohol exposure

Introduction

Prenatal alcohol exposure (PAE) is the foremost preventable cause of neurodevelopmental disabilities and congenital disorders in the United States. It is recommended that pregnant persons abstain from alcohol use during pregnancy (Centers for Disease Control & Prevention, 2005). However, rates of alcohol consumption among pregnant persons in the United States has continued to increase since 2011 (Denny et al., 2020). Recent data indicate that 13.5% of pregnant persons reported consuming alcohol in the past 30 days and 5.2% reported binge drinking (≥ 4 drinks per occasion) during 2018–2020 (Gosdin et al., 2022). Fetal alcohol spectrum disorders (FASDs) are a range of diagnoses that can occur in a person prenatally exposed to alcohol. FASDs typically manifest as adverse, lifelong cognitive, behavioral, and/or physical outcomes (Bertrand & Dang, 2012; Manning & Hoyme, 2007; Streissguth & O'Malley, 2000). Studies among selected communities indicate the prevalence of FASDs range from 2 to 7% (May et al., 2009, 2018, 2021); other studies suggest rates of FASDs are markedly higher among certain populations in comparison to the general population, such as children in adopted/foster care and children of American Indian or Alaska Native descent (Abel, 1995; Chasnoff et al., 2015; Friedrich, 2019; Lange et al., 2013).

A documented history of alcohol use during pregnancy is an important component in the identification and diagnosis of children at risk for developing FASDs or other developmental issues (Bright Futures, 2017). An early FASD diagnosis facilitates early intervention, including connecting affected children with treatments and resources that might mitigate the impact of secondary and co-occurring conditions (i.e., mental health issues, learning disabilities, etc.) and maximize developmental and life potentials (Bertrand & Dang, 2012; Williams et al., 2015). Furthermore, due to similarities between FASDs and other neurodevelopmental disorders (e.g., attention-deficit/hyperactivity disorder (ADHD), autism spectrum disorder, etc.), documented information on PAE facilitates differential diagnosis by providing information related to etiology, potentially allowing for a more accurate diagnosis (Chasnoff et al., 2015; Popova et al., 2016; Weyrauch et al., 2017). Routinely assessing PAE during pediatric visits could also create opportunities to have a conversation with birth parents regarding alcohol use during breastfeeding and subsequent pregnancies.

The American Academy of Pediatrics (AAP) recommends screening for PAE in pediatric primary care settings (Bright Futures, 2017). They note that clinicians serving pediatric

patients have the unique opportunity to identify, refer for diagnostic evaluation, and coordinate care for children with FASDs and their families. Although there is no standardized method for obtaining and documenting PAE history, recommendations center on inquiring about PAE with the birth mother (or other available caregiver) at least once and re-assessing, if needed, as symptoms indicative of an FASD or other developmental issues emerge across the life course (Bright Futures, 2017).

No prior studies have examined whether PAE screening is routinely conducted during pediatric patient interactions as recommended by AAP. This analysis examines how frequently clinicians serving pediatric patients gather information about potential prenatal alcohol exposure in their practice, as well as the methods employed to obtain this history. Additionally, this analysis examines variations in this practice among specific groups of pediatric patients and across different clinician specialties.

Methods

DocStyles is a web-based panel survey that samples primary care and specialty healthcare professionals to assess their attitudes and clinical practices regarding a variety of health conditions and diseases. The DocStyles 2020 Fall survey was commissioned by Porter Novelli Public Services and sampled from SERMO, a social network consisting of more than 350,000 medical professionals, between September 14th and October 26th, 2020. Porter Novelli set sample size quotas of 1000 primary care physicians (i.e., family practitioners and internists), 250 obstetrician-gynecologists (OB/GYNs), 250 pediatricians, and 250 nurse practitioners/physician assistants (NP/PAs). The time to complete the survey ranged between 10 and 40 minutes. Participation was optional, and respondents were paid an honorarium of \$54-\$72 for completing the survey.

Study Sample

Medical professionals were eligible to participate in the survey if they practiced in the U.S., actively saw patients, had been practicing for at least three years, and worked in an individual, group, or hospital practice. Of the 2561 medical professionals invited to participate in DocStyles, 1754 completed the entire survey (1,000 primary care physicians, 251 OB/GYNs, 252 pediatricians, and 251 NP/PAs). The overall response rate was 68%. For this analysis, internists and OB/GYNs were excluded as these specialties do not typically see pediatric patients ($n = 810$). Respondents also were excluded if they indicated they did not see pediatric patients in their practice ($n = 111$) or if they provided inconsistent responses as to whether they obtain PAE history in their practice ($n = 54$) (i.e., respondents reported obtaining PAE history earlier in the survey but indicated not engaging in this practice in subsequent questions). The final analytic sample consisted of 779 respondents. This analysis was conducted in accordance with prevailing ethical principles and is exempt from institutional review board approval as individual identifiers were not included in the datafile licensed from Porter Novelli.

Measures

The DocStyles 2020 survey contained 135 questions about clinician demographics (age, sex, race/ethnicity), practice characteristics (specialty, main practice setting, years in practice, number of patients per week, region, community characteristics, estimated average household income of patient population), and attitudes and behaviors regarding various health issues. For this study, two questions were analyzed that assess how often a clinician obtains a history of PAE for specific pediatric patient groups and the methods used to obtain that history. The first question asked: *For the following groups of patients, how often do you obtain a history of prenatal alcohol exposure?* Respondents answered for five pediatric groups: newborns (birth-2 months of age), infants (3–12 months of age), children adopted or in foster care (including the care of a relative; regardless of age), new patients (regardless of age), and children with developmental and/or behavioral issues (regardless of age). Response options included: never, sometimes, often, always, or not applicable. The second question asked: *In your practice, what method is used to obtain a history of prenatal alcohol exposure?* Respondents could select one or more of the following response options for this question: “I do not see pediatric patients,” “I do not obtain a history of prenatal alcohol exposure,” “Interview by physician or physician assistant,” “Interview by allied health staff (e.g., nurse, medical assistant, nurse practitioner, etc.),” “Interview by office staff (e.g., receptionist),” “Questions included on office intake or pre-appointment forms completed by caregiver (including online forms or emails),” and “Questions prompted by Electronic Health Record (EHR).”

Data Analysis

Analyses were conducted using SAS (version 9.4; SAS Institute). Descriptive statistics of clinician demographics and practice characteristics were calculated for each of the three clinician specialties (family practitioner, pediatrician, and NP/PAs) and all specialties combined. We calculated the frequency and proportion for how often PAE history was collected for each pediatric group, overall and by clinician specialty. A dichotomous variable was created to distinguish respondents who reported ‘always/often’ versus ‘sometimes/never’ obtaining a history of PAE. Chi-square tests were used to examine variations among clinician specialty groups; respondents who selected ‘Not Applicable’ were excluded from the dichotomous variable and chi-square analyses for that pediatric group. If chi-square tests indicated statistically significant differences ($p < 0.05$) by clinician specialty, then Bonferroni post-hoc proportions tests were conducted to identify disparities between specific clinician specialty groups ($p < 0.017$). Frequency distributions were also calculated for each method used to obtain PAE history, categorized by clinician specialty and overall.

Results

Overall, most respondents were male (57.8%), White, non-Hispanic (68.9%), worked in group outpatient practices (77.4%), saw ≥ 100 patients per week (58.0%), and practiced in suburban communities (53.9%) (Table 1). There were some differences in demographic and practice characteristics by clinician specialty. For example, NPs/PAs differed from other clinician groups as a greater proportion were 40 years old or younger, female, practiced for 10 years or less, and saw fewer than 100 patients per week.

The frequency of collecting a history of PAE varied by pediatric subpopulation (Table 2). Among all clinician specialties, the highest proportion of respondents reported often/always obtaining a PAE history for children with developmental and behavioral issues (70.5%) followed by adopted/foster children (63.0%) and newborns (60.7%). In contrast, the highest proportion of respondents reporting never/sometimes obtaining a history of PAE was observed for new patients (61.8%) and infants (52.4%). When examining the frequency of collecting a PAE history by specialty, we found statistically significant differences between specialty categories for adopted/foster children and new patients. Among adopted/foster children, a significantly lower proportion of family practitioners (57.7%) reported often/always obtaining a history of PAE than pediatricians (71.5%, $p = 0.002$). For new patients, a significantly greater proportion of family practitioners (40.2%) and NP/PAs (46.4%) reported obtaining a history of PAE than pediatricians (29.8%; $p = 0.003$ and $p = 0.002$, respectively). Although we observed a statistically significant difference among specialty categories for infants ($p < 0.05$), post-hoc tests revealed no differences between specific specialty categories at the Bonferroni adjusted significance level ($p < 0.017$).

Among all clinician specialties, most respondents reported obtaining a history of PAE through interviews conducted by physicians or physician assistants (69.7%), and least reported using interviews by office staff (8.7%) (Table 3). About 1 in 4 respondents (26.1%) reported utilizing questions prompted by electronic health record (EHR) across clinician specialties. NP/PAs most often reported using interviews by allied health staff (e.g., medical assistants, nurses, etc.) as a method to obtain a history of PAE (44.2%) in comparison to other clinician specialties. Furthermore, pediatricians were more likely to use interviews conducted by physicians or physician assistants (79.0%).

Discussion

A documented history of alcohol use during pregnancy is a valuable resource for identifying children at risk for an FASD. In this study, 30–62% of clinicians reported never or sometimes obtaining PAE history, depending on pediatric group examined. Pediatric patient subpopulations known to have high prevalence rates of FASDs (e.g. children with developmental/behavioral issues, adopted/foster children) were screened more frequently for PAE, though certain clinician specialties still showed room for improvement. However, pediatric patient groups outside of these high prevalence populations were not screened consistently, regardless of clinician specialty. These results indicate that PAE history is not routinely collected among pediatric patients, suggesting further studies are needed to understand factors that may facilitate universal PAE screening within pediatric clinical practice.

Several factors may contribute to the overall suboptimal rate of screening for PAE history and differences in PAE screening by pediatric subpopulation observed in this study. In previous studies, clinicians have reported feeling unprepared to identify, diagnose, and coordinate treatment for children with FASDs, having limited access to diagnostic resources for FASDs in their community (Gahagan et al., 2006), and experiencing time constraints due to competing medical care and screening priorities and the increased time needed for documentation (Gahagan et al., 2006; Smith et al., 2017). In addition, clinicians

have also reported concerns around stigmatizing and offending families, as discussing alcohol consumption during pregnancy is a highly sensitive topic (Bright Futures, 2017; Gahagan et al., 2006; Smith et al., 2017). These concerns may create an unconscious bias, resulting in families perceived to be most at-risk for having a child with an FASD, such as foster or adoptive families, being screened more frequently than other families (Bright Futures, 2017). In this study, most clinicians reported often/always obtaining PAE history for children with developmental/behavioral issues, adopted/foster children, and newborns, but less than half reported this practice for new patients and infants. Such differential practices might reflect the sensitive nature of assessing this information and may contribute to disproportionately identifying PAE in certain populations and health disparities. Further studies examining specific factors impeding PAE screening, as well as potential facilitators, among clinicians serving pediatric patients may be necessary. Additionally, comprehensive trainings, linkages and access to resources, and reimbursement incentives for all specialties, designed to improve identifying children at risk of FASDs, might increase the proportion of clinicians who collect PAE history. Notably, the FASD Regional Education and Awareness Liaisons Champions Network provides trainings to build pediatric clinicians' capacity for identifying children at-risk for FASD (American Academy of Pediatrics, 2021).

Our study highlights the significant role clinicians play in identifying children with FASDs and suggests creating positive patient relationships are important for collecting comprehensive and accurate family health history. The AAP recommends assessing PAE history for all children and recommends screening during any family interaction time, which may include during prenatal visits, the newborn period, adoption processes, and new patient visits (Bright Futures, 2017). In this way, questions regarding PAE are normalized to all pediatric patient populations and might decrease stigma and associated unconscious bias behaviors. A non-judgmental approach when discussing PAE can help establish a positive rapport between clinicians, patients, and their families which may help promote transparency. Furthermore, exercising cultural sensitivity is important when collecting PAE history as certain social groups may have strong beliefs regarding alcohol consumption that may impact how the caregiver responds to questions regarding PAE. The AAP has published an online toolkit and implementation guide for pediatric primary care clinicians that includes sample questions for PAE screening and prompts that clinicians may use to inquire about PAE history in a direct and compassionate manner (American Academy of Pediatrics, 2023; Bright Futures, 2017).

Few clinicians reported inquiring about PAE through questions prompted by EHR in this analysis, which might be explained by clinicians having difficulty modifying their practice's existing EHR systems and a lack of uniformly accepted PAE documenting practices (Bright Futures, 2017). EHR systems have the potential to facilitate consistent collection and documentation of PAE history. Turchi et al., 2014; Kim et al., 2011; Spooner et al., 2007. Enhancing EHR system processes to include prompts and intake forms inquiring about PAE might facilitate clinician use of EHR systems for PAE history assessments, which could in turn promote the identification, diagnosis, and treatment of children with FASDs.

Limitations

This analysis is subject to limitations. DocStyles respondents were sampled from a nationwide panel of health care professionals; however, the sample was not nationally representative, and findings may not be generalizable to all clinicians. Responses were self-reported and are subject to social desirability and recall bias, which may have resulted in an overreporting of routinely screening for PAE.

Conclusion

This study found that clinicians serving pediatric patients, from all specialties studied, are not routinely inquiring about instances of potential PAE in their practice interactions. The AAP recommends screening for PAE in pediatric primary care settings to facilitate identification of children with FASDs and promote timely access to behavioral and cognitive interventions. Clinicians serving pediatric patients may benefit from increased awareness of the importance of routinely screening for PAE, trainings on how to collect history of alcohol use during pregnancy, and additional practice supports to facilitate the PAE identification and documentation process. Consistent and accurate documentation of PAE history can enhance efforts to identify, diagnose, treat, and support children with FASDs and their families.

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Significance

Children with fetal alcohol spectrum disorders (FASDs) are often unidentified or misdiagnosed.

The American Academy of Pediatrics (AAP) recommends screening for prenatal alcohol exposure (PAE) among pediatric patients in primary care settings to facilitate the identification of children with FASDs, but no prior studies have examined this practice. This study enhances existing knowledge regarding this issue by examining how often clinicians serving pediatric patients gather information about PAE in their clinical practice and the methods used to obtain this history. Our findings reveal variations in this practice among specific pediatric patient groups and provider specialties.

Table 1
Demographic and practice characteristics of Fall DocStyles 2020 respondents, by clinician specialty

Characteristic	All		Specialty categories				Nurse practitioner/ physician assistant			
	N = 779		Family practitioner		Pediatrician		N = 243		N = 163	
	N	Column %	N	Column %	N	Column %	N	Column %	N	Column %
Clinician demographics										
Age										
≤ 40 years	267	34.3	109	29.2	58	23.9	100			61.3
41–50 years	243	31.2	137	36.7	72	29.6	34			20.9
> 50 years	269	34.5	127	34.0	113	46.5	29			17.8
Sex										
Male	450	57.8	262	70.2	138	56.8	50			30.7
Female	329	42.2	111	29.8	105	43.2	113			69.3
Race/Ethnicity										
White, non-Hispanic	537	68.9	253	67.8	152	62.6	132			81.0
Black, non-Hispanic	32	4.1	12	3.2	14	5.8	6			3.7
Asian, non-Hispanic	134	17.2	72	19.3	54	22.2	8			4.9
Hispanic	35	4.5	17	4.6	11	4.5	7			4.3
Other, non-Hispanic	41	5.3	19	5.1	12	4.9	10			6.1
Practice characteristics										
Main work setting										
Individual outpatient practice	123	15.8	64	17.2	18	7.4	41			25.2
Group outpatient practice	603	77.4	295	79.1	200	82.3	108			66.3
Inpatient practice	53	6.8	14	3.8	25	10.3	14			8.6
Years in practice										
≤ 10 years	260	33.4	112	30.0	59	24.3	89			54.6
11–20 years	276	35.4	148	39.7	81	33.3	47			28.8
> 20 years	243	31.2	113	30.3	103	42.4	27			16.6
Number of patients per week										
< 100 patients	327	42.0	123	33.0	115	47.3	89			54.6

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Characteristic	All		Specialty categories					
			Family practitioner		Pediatrician		Nurse practitioner/ physician assistant	
	N	Column %	N	Column %	N	Column %	N	Column %
≥ 100 patients	452	58.0	250	67.0	128	52.7	74	45.4
Region								
Northeast	158	20.3	70	18.8	61	25.1	27	16.6
Midwest	191	24.5	106	28.4	47	19.3	38	23.3
South	274	35.2	117	31.4	92	37.9	65	39.9
West	156	20.0	80	21.4	43	17.7	33	20.2
Community characteristics								
Urban	229	29.4	90	24.1	95	39.1	44	27.0
Suburban	420	53.9	210	56.3	125	51.4	85	52.1
Rural	130	16.7	73	19.6	23	9.5	34	20.9
Patient's household income								
Poor (Less than \$25,000)	53	6.8	29	7.8	8	3.3	16	9.8
Lower middle (\$25,000—\$49,999)	188	24.1	87	23.3	66	27.2	35	21.5
Middle (\$50,000-\$99,999)	290	37.2	134	35.9	96	39.5	60	36.8
Upper middle (\$100,000—\$249,999)	165	21.2	74	19.8	45	18.5	46	28.2
Affluent (\$250,000 or more)	83	10.7	49	13.1	28	11.5	6	3.7

Table 2
Frequency of obtaining a history of prenatal alcohol exposure for pediatric groups, by clinician specialty, Fall DocStyles 2020

Characteristic	All*		Specialty categories*						χ ²	P Value
			Family practitioner		Pediatrician		Nurse Practitioner/ Physician assistant			
	N	Column %	N	Column %	N	Column %	N	Column %		
For the following groups of patients, how often do you obtain a history of prenatal alcohol exposure?										
Newborns	712	100.0	338	100.0	241	100.0	133	100	0.9872	1.00
Often/Always	432	60.7	205	60.7	147	61.0	80	60.2		
Never/Sometimes	280	39.3	133	39.3	94	39.0	53	39.9		
Infants	716	100.0	343	100.0	239	100.0	134	100	7.3788	0.03 [†]
Often/Always	341	47.6	173	50.4	97	40.6	71	53.0		
Never/Sometimes	375	52.4	170	49.6	142	59.4	63	47.0		
Adopted/Foster Children	719	100.0	343	100.0	239	100.0	137	100	11.753	0.003 [†]
Often/Always	453	63.0	198	57.7	171	71.5 ^a	84	61.3		
Never/Sometimes	266	37.0	145	42.3	68	28.5	53	38.7		
New patients	752	100.0	361	100.0	238	100.0	153	100	12.018	0.003 [†]
Often/Always	287	38.2	145	40.2	71	29.8 ^a	71	46.4 ^b		
Never/Sometimes	465	61.8	216	59.8	167	70.2	82	53.6		
Children with developmental/behavior issues	738	100.0	356	100.0	239	100.0	143	100	1.1027	0.58
Often/Always	520	70.5	257	72.2	166	69.5	97	67.8		
Never/Sometimes	218	29.5	99	27.8	73	30.5	46	32.2		

* Samples for each pediatric group exclude respondents who selected 'Not Applicable' in response to collecting a history of prenatal alcohol exposure for that group

[†] Bonferroni post hoc proportions tests were performed if the Pearson χ^2 results were significant to identify differences between clinician specialty categories, ($p < 0.05$)

^a Significantly different than Family Practitioner, ($p < 0.017$)

^b Significantly different than Pediatrician, ($p < 0.017$)

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