

Social Needs & Children with Special Health Care Needs: Investigating Outcomes to Drive Health System Improvements



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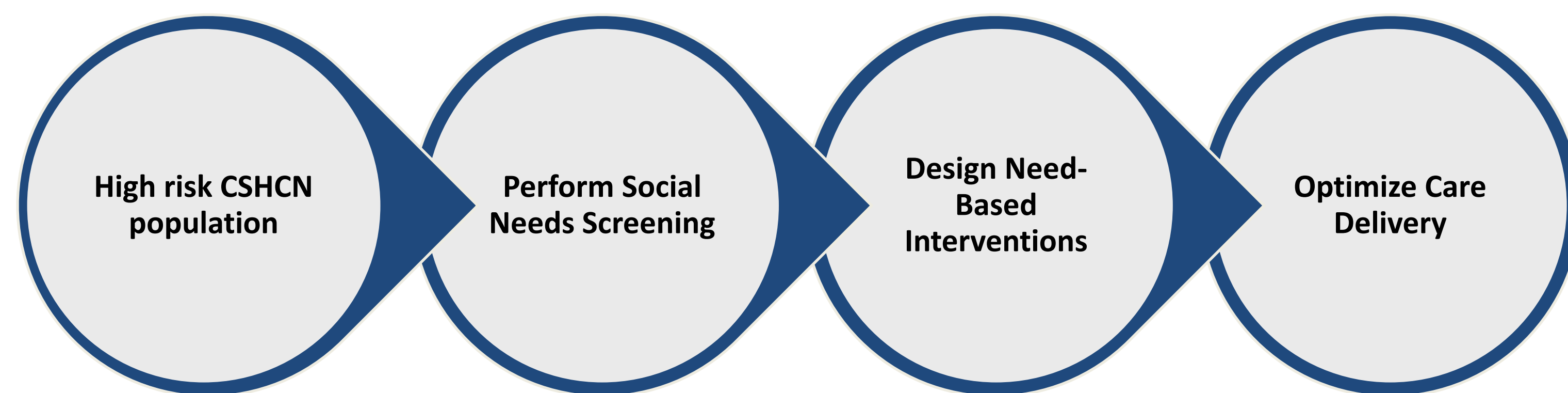
BACKGROUND

Children with Special Health Care Needs (CSHCN): Children who “have or are at increased risk for chronic physical, developmental, behavioral or emotional conditions and also require health and related services of a type or amount beyond that required by children generally”

- CSHCN are a high-cost, resource intensive population that are at heightened risk for higher financial burden, social stressors, and unmet health needs
- Optimizing CSHCN care delivery is important to health systems and should address the social determinants of health (SDoH)
 - social needs: SDoH at the individual or family level
- Understanding social needs of CSHCN can allow health systems to design interventions that optimize care delivery (Figure 1)

Definition from: McPherson M, Arango P, Fox H, et al. A new definition of children with special health care needs. Pediatrics 1998;102:137-40.

Figure 1: CSHCN Social Needs Screening and Care Delivery Optimization Process Map



OBJECTIVE

- To investigate the associations between CSHCN diagnoses and social needs.

METHODS

- **Setting:** Cross-sectional study of 19,779 Pediatric patients at primary care practices in a large urban health system in the Bronx NY, from April 2018-December 2019
- **Measures:** Outcome variable was any of 10 social needs identified on a social needs screener (Table 1); or presence of a specific social need identified on the screener. Predictor variables were the 6 most common CSHCN diagnoses.
- **Statistical Analyses:**
 - Bivariate analyses and multivariate logistic regression was used to measure association between CSHCN diagnoses and any social need
 - Multivariate logistic regression was used to measure association between CSHCN diagnoses and specific social need

Table 1: Social Needs Screener

Are you worried that the place you are living now is making you sick (has mold, bugs/rodents, water leaks, not enough heat)? Housing quality	In the past 12 months, has the electric, gas oil, or water company threatened to shut off services to your home? Utilities cost
Are you worried that in the next 2 months, you may not have a safe or stable place to live? Housing instability	Are you finding it hard to get along with a partner, spouse, or family members? Getting along
In the last 12 months, did you worry that your food could run out before you got money to buy more? Food insecurity	Do you need help getting child-care or care for an elderly or sick adult? Care need
In the last 12 months, has lack of transportation kept you from medical appointments or getting medications? Transportation	Do you need legal help (child/family services, immigration, housing discrimination, domestic issues, etc.)? Legal issues
In the last 12 months, did you skip buying medication, or going to doctor's appointments to save money? Health cost	Does anyone in your life hurt you, threaten you, frighten you or make you feel unsafe? Interpersonal violence

RESULTS

- Of the 19,779 Pediatric patients screened, 11,071 were CSHCN. In the cohort, 2,247 (20%) of CSHCN reported social need. Among non-CSHCN, 1,223 (14%) reported social need.
- CSHCN were more likely to have social need than children without CSHCN (OR 1.55, 95% 1.44-1.68; aOR 1.53, 95% 1.41-1.65) (Tables 2&3).
- Asthma, Anxiety/Depression, and Autism/Other Developmental Delay report high odds of social need in multiple specific areas (Figure 2).

Table 2: Demographic Characteristics of Study Cohort with Bivariate Analysis by Social Need

	Families without Social Need n (%)	Families with One Or More Social Need(s) n (%)	OR	95% CI
No Diagnosis	7485 (46)	1223 (35)		
CSHCN Diagnosis	8824 (54)	2247 (65)	1.55	1.44-1.68
Allergies	5894 (43)	1381 (37)	1.17	1.08-1.26
Asthma	3319 (24)	962 (26)	1.50	1.38-1.63
ADHD/ADD or Behavioral/Conduct Disorder	1294 (10)	399 (11)	1.51	1.34-1.70
Anxiety/Depression	645 (5)	192 (5)	1.42	1.21-1.68
Learning/Speech/Language Delay	1578 (12)	439 (12)	1.35	1.21-1.51
Autism/Other Developmental Delay	865 (6)	338 (9)	1.93	1.69-2.20
Sex				
Male	8246 (51)	1800 (51)		
Female	8063 (50)	1670 (48)	0.95	0.89-1.03
Age Group				
0-5	6860 (42)	1508 (43)		
6-11	5101 (31)	1133 (33)	1.01	0.93-1.10
12-17	4348 (27)	829 (24)	0.87	0.79-0.95
Race/Ethnicity				
Hispanic	5248 (32)	1282 (37)		
Black, non-Hispanic	4438 (27)	855 (25)	0.79	0.71-0.87
White, non-Hispanic	291 (2)	30 (1)	0.42	0.29-0.61
Asian/Pacific Islander, non-Hispanic	187 (1)	23 (1)	0.50	0.33-0.78
American Indian/Alaskan Native, non-Hispanic	68 (<0.1)	14 (<0.1)	0.84	0.47-1.50
Other/Missing	6077 (38)	1266 (36)	0.85	0.78-0.93
Language				
English	13213 (81)	2674 (77)		
Spanish	1765 (11)	572 (16)	1.60	1.44-1.78
Other	514 (3)	89 (3)	0.86	0.68-1.08
Missing	817 (5)	135 (4)	0.82	0.68-0.98
Insurance				
Commercial	5300 (33)	552 (16)		
Medicaid	10179 (62)	2739 (79)	2.58	2.34-2.85
Medicare	3 (<0.1)	2 (<0.1)	6.40	1.07-38.43
Missing/None	827 (5)	177 (5)	2.05	1.71-2.47
Census-Geocoded Poverty Status				
Q1: 0-14.5%	2811 (17)	331 (10)		
Q2: 14.5-25.8%	2542 (16)	411 (12)	1.37	1.18-1.60
Q3: 25.8-36.0%	3104 (19)	749 (22)	2.05	1.78-2.36
Q4: 36.0-46.1%	3278 (22)	855 (25)	2.06	1.80-2.37
Q5: 46.1-82.9%	3773 (23)	1013 (29)	2.28	2.0-2.61
Missing	561 (3)	111 (3)	1.68	1.33-2.12

Figure 2: Highest Odds of Specific Social Needs for Asthma, Anxiety/Depression, and Autism/Developmental Delay.

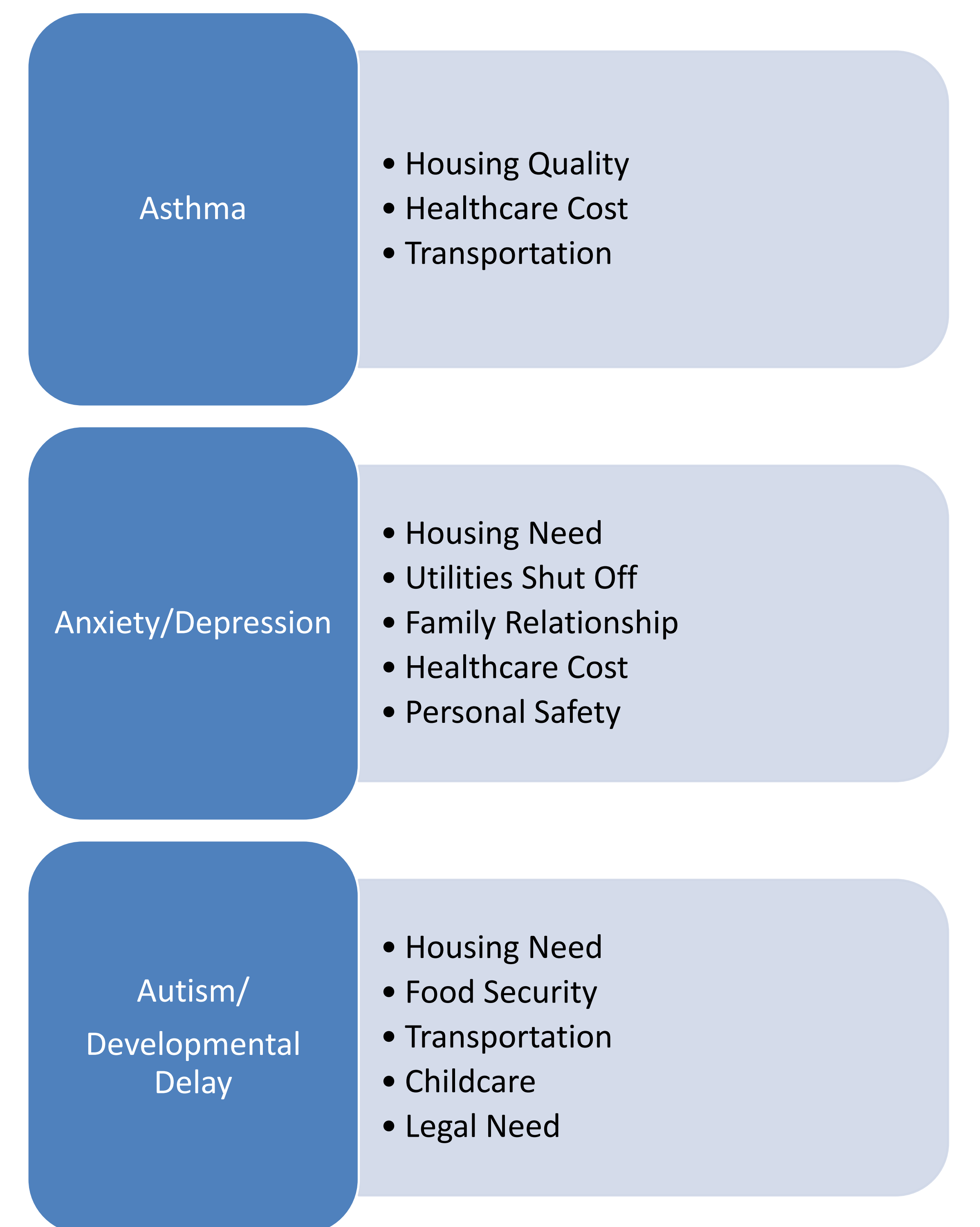


Table 3: Multivariate Regression of CSHCN Diagnosis by Specific Social Need

CSHCN Diagnosis	One or More Need(s)		Housing Quality		Housing Need		Food Security		Utilities Shut Off		Transportation		Family Relationship		Childcare/Other Care		Healthcare Cost		Legal Representation		Personal Safety	
	aOR*	95% CI	aOR*	95% CI	aOR*	95% CI	aOR*	95% CI	aOR*	95% CI	aOR*	95% CI	aOR*	95% CI	aOR*	95% CI	aOR*	95% CI	aOR*	95% CI	aOR*	95% CI
Allergies	1.08	0.99-1.17	1.19	1.06-1.35	0.96	0.82-1.13	1.10	0.96-1.26	1.07	0.91-1.26	0.89	0.76-1.04	0.99	0.82-1.20	1.06	0.92-1.23	0.89	0.73-1.09	0.94	0.79-1.11	1.05	0.79-1.41
Asthma	1.41	1.29-1.54	1.87	1.65-2.13	1.08	0.90-1.30	1.12	0.96-1.31	1.24	1.03-1.48	1.32	1.11-1.58	1.28	1.04-1.59	1.07	0.90-1.27	1.53	1.22-1.89	1.22	1.00-1.47	1.30	0.95-1.79
ADHD/ADD or Behavioral/Conduct Disorder	1.27	1.12-1.44	1.23	1.03-1.49	0.96	0.74-1.25	1.04	0.83-1.29	1.22	0.95-1.57	1.29	1.0-1.65	1.36	1.02-1.81	1.34	1.06-1.69	1.07	0.78-1.47	1.03	0.79-1.36	1.67	1.13-2.48
Anxiety/Depression	1.46	1.14-1.60	1.34	1.04-1.74	1.68	1.23-2.29	1.49	1.14-1.95	1.75	1.28-2.39	1.59	1.15-2.21	2.05	1.45-2.91	1.52	1.07-2.17	1.66	1.12-2.45	1.39	0.97-2.0	3.33	2.14-5.15
Learning/Speech/Language Delay	1.07	0.95-1.21	1.02	0.85-1.23	1.02	0.81-1.31	1.00	0.81-1.24	1.03	0.79-1.32	1.02	0.87-1.18	1.41	1.08-1.86	1.13	0.92-1.39	1.29	0.96-1.72	1.02	0.79-1.31	1.21	0.79-1.83
Autism/Other Developmental Delay	1.66	1.44-1.91	1.67	1.37-2.04	1.68	1.30-2.17	1.57	1.25-1.98	1.32	0.92-1.65	2.12	1.67-2.69	0.94	0.92-1.34	2.27	1.82-2.81	1.42	1.01-2.0	2.03	1.56-2.63	1.09	0.65-1.82

*aOR = Adjusted Odds Ratio. Adjusted for sex, age, race/ethnicity, language, insurance, and census-geocoded poverty status

CONCLUSION

- Families with children with CSHCN conditions are more likely to identify unmet social needs when compared to families without CSHCN conditions. These associations are strongest for children with Asthma, Anxiety/Depression, and Autism/Developmental Delay.
- The current study supports social needs screening in the CSHCN population to improve care and reduce barriers. It informs how health systems can design interventions for the CSHCN population.
- Future studies include repeat administration of a screener to describe needs over time; and study of SDOH interventions and CSHCN health outcomes.