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RESEARCH LETTER

Parent-reported hesitancy to seek emergency care for children at the crest of the first wave of COVID-19 in Chicago

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The 2009 H1N1 pandemic and seasonal influenza outbreaks have, at times, overwhelmed capacity in children's hospitals.[1] The COVID-19 pandemic is different. Relatively few children have become severely ill when infected with SARS-CoV-2.[2] In 4 weeks from March to April 2020, the Centers for Disease Control and Prevention found a 42% reduction in emergency department (ED) visits nationally compared with the prior year and noted the steepest decrease in visits was among children <15 years.[3] A large, urban US children's hospital reported a decline in ED visits during the first 16 weeks of 2020 with visits of higher acuity for similar chief complaints compared with 2017 to 2019.[4] These authors also observed smaller proportions of visits made by Black and publicly insured children. Little is known about factors associated with caregiver hesitancy to seek ED care for their children during the pandemic.

Chicago was significantly impacted by COVID-19 through June 2020. In March, the Governor of Illinois issued a stay-at-home executive order limiting health care seeking to emergencies and COVID-19 care, closing schools to in-person instruction, and restricting daycare to groups of 10 or fewer children of essential workers. The stay-at-home order was associated with substantial reductions in health care utilization by children in metropolitan Chicago and northern Illinois; well-child examinations recovered to prepandemic levels by June while other visit types remained suppressed through summer 2020.[5]

In the first week of May 2020, we conducted a Web-based survey to characterize hesitancy to seek emergency care for children. We sampled caregivers of patients <18 years old from Ann & Robert H. Lurie Children's Hospital of Chicago, an independent, quaternary children's health system. We used the electronic medical record (EMR) to identify children who: (1) had an appointment canceled or rescheduled due to COVID-19 (n = 21,737); (2) were seen on at least two occasions in the year prior with a chronic condition, such as asthma or prematurity, that placed them in our influenza vaccine registry (n = 7966); or (3) were seen in our ED between March 16 and April 22, 2020 (n = 2387).

The survey was developed by the study team and fielded in English and Spanish. Survey questions and response options were refined based on feedback from pilot testing with experts in health services research and community engagement. This study was considered exempt human subjects research by the Lurie Children's Institutional Review Board. Survey links were distributed via short messaging service (SMS) message or email on May 6, 2020, using the Qualtrics survey platform (Qualtrics). Reminders were sent to nonrespondents on May 10, 2020, the day before the first phase of reopening in Illinois. Reopening allowed elective medical procedures and essential gatherings of 10 or fewer people. Respondents were offered a $5 eGift card in appreciation of their time. We sought 4000 respondents based on available institutional resources for participant incentives.

Our outcome of interest was response to the following question: "Assume the healthcare facility is following all current guidelines to reduce the spread of the COVID-19 virus. How likely is it that you would bring your child for an ER visit in person TODAY if they

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needed it?" Response options included very likely, somewhat likely, and unlikely. Caregivers were considered hesitant to seek emergency care if their response was "unlikely."

Predictor variables included survey responses and data available in the EMR. Variables obtained via survey included child's race/ethnicity, caregiver age, caregiver language preference, child's current health insurance coverage, child's health care utilization during the stay-at-home order, preference for an in-person or telemedicine visit for two hypothetical acute conditions (sore throat and head injury), COVID-positive individual in the household, agreement with stay-at-home orders, and compliance with stay-at-home orders. EMR-derived variables included child age, sex, and home address on file. The child's home zip code was used to determine the rate of COVID cases in that area (dichotomized as less than and equal to or greater than the 75th percentile for metropolitan Chicago). The census tract of the child's home address was used to assign the Child Opportunity Index 2.0 (COI) score[6] in the Chicago metropolitan area for that census tract, which was collapsed to three categories for analysis: very low and low, moderate, or high and very high. The COI 2.0 is a composite measure of 29 census tract–level indicators across three domains: education, health and environment, and social and economic opportunity. Indicators are weighted based on their impact on child health, development, and economic outcomes. We utilized chi-square statistics and calculated proportions with 95% confidence intervals (CIs) to test for associations between hesitancy to seek emergency care and predictor variables stratified by COI.

We identified 33,513 children from the EMR who met study recruitment criteria, and 31,568 (94%) of phone numbers successfully received a SMS message with the survey link. Surveys were started by 4282 (response rate = 14%) and completed by 4147 (completion rate = 97%) caregivers. The distribution of respondents reflected the distribution of clinical groups selected for study recruitment and child age categories, with slightly higher responses from English-speaking caregivers of White, non-Latinx, and privately insured children per the EMR. Spanish language surveys were utilized by 6% of respondents.

Most responses were collected from SMS message links (95%, $n = 3705$) and from caregivers whose child had an appointment canceled/rescheduled (70%, $n = 3013$). Responses were received by 949 caregivers of children in the influenza vaccine registry and 320 who had visited the Lurie Children's ED in March or April. We excluded 21 respondents who did not answer the hesitancy question and 230 children without address information.

There were 3896 responses analyzed. Caregiver-reported child race/ethnicity was 48% White, non-Latinx; 32% Latinx of any race; 9% Black/African American, non-Latinx; 7% multiple races or other race; and 4% Asian, non-Latinx. The children were 46% female and 24% younger than 36 months, 21% 3 to 5 years, 29% 6 to 11 years, and 26% 12 to 18 years. Caregiver-reported payer was 60% private, 39% public, and 1% other/uninsured/no response.

Overall, 23% ($n = 879$) of caregivers were hesitant to seek emergency care. Hesitancy differed across COI levels; 27% of the 1305 caregivers from very low/low COI areas were hesitant compared with 23% of the 740 caregivers from moderate COI areas and 19% of the 1851 caregivers from high/very high COI areas ($p < 0.001$). Table 1 includes results for other variables associated with hesitancy in bivariate analyses ($p < 0.05$). Black/African American, Latinx, or Asian race/ethnicity; child age older than 3 years; caregiver age 18 to 30 years; language preference other than English; public payer; high COVID-positivity-rate zip code; and having a canceled/rescheduled appointment were associated with more hesitancy. Receipt of Lurie Children's ED care and preference for an in-person visit if child had sore throat or head injury were associated with less hesitancy. Proportions of caregivers hesitant to seek ED care across study variables and stratified by COI also are presented in Table 1.

During the first wave of COVID-19 in metropolitan Chicago, we found that nearly one in four caregivers were hesitant to seek ED care for their child with a hypothetical emergency condition. Prior to declines in acute health care utilization associated with the COVID-19 pandemic,[3-5] higher ED utilization has been observed among children who are African American/Black or Latinx and publicly insured.[7] Researchers focused attention on low-acuity ED visits for children.[7,8]

We observed greater hesitancy within demographic groups that have previously relied on the ED for pediatric care and among caregivers from areas with lower COI and higher community rates of COVID-19 infection. Potential explanations for these findings include lower health literacy about emergency care seeking and higher perceived risks of contracting COVID-19 when traveling through the community or in health care settings. Greater hesitancy to seek ED care among caregivers who preferred telemedicine visits for evaluation of a child's sore throat or head injury may signal that ED care-seeking behaviors are influenced by expanded telemedicine services.

Hesitancy to seek ED care may have negative consequences. The literature describes COVID-19–related delays in pediatric care seeking that have resulted in severe diabetic ketoacidosis, complicated bacterial infections, and missed opportunities for earlier cancer diagnoses.[9,10]

Our findings are subject to limitations. Our survey was conducted in metropolitan Chicago at the height of the first wave of the COVID-19 pandemic and may not be generalizable to other areas or time frames. Responses were collected from caregivers who were able to receive SMS messages or email requests to participate. Response rates were low and response bias is possible, but respondents were similar to nonrespondents in terms of child sex, age categories, and COI distribution. Addresses listed in the EMR may be outdated and could result in misclassification bias for COI or community-level COVID-19 rates. Finally, the hypothetical scenario may have brought different emergency conditions to mind and caregiver responses may not translate to care-seeking behaviors when faced with an emergency.

Our results define hesitancy to seek emergency care among caregivers of children. Greater hesitancy within vulnerable populations could exacerbate health disparities during the COVID-19 pandemic. Health systems and health plans should monitor acute

TABLE 1 Demographic characteristics associated with caregiver hesitancy to seek emergency care for their child stratified by child opportunity index

		Proportion of caregivers hesitant to seek emergency care for their child[a]							
		Overall		Low COI (*n* = 1305)		Moderate COI (*n* = 704)		High COI (*n* = 1851)	
	N	Prop	95% CI	Prop	95% CI	Prop	95% CI	Prop	95% CI
	3896	0.23	0.21, 0.24	0.27	0.25, 0.30	0.23	0.20, 0.26	0.19	0.17, 0.21
Child race/ethnicity									
White, non-Latinx	1883	0.17	0.16, 0.19	0.18	0.13, 0.24	0.17	0.13, 0.21	0.17	0.15, 0.19
Latinx	1238	0.29	0.25, 0.30	0.29	0.26, 0.32	0.29	0.24, 0.35	0.23	0.18, 0.28
Black/African American, non-Latinx	344	0.29	0.24, 0.34	0.29	0.24, 0.35	0.30	0.19, 0.43	0.28	0.17, 0.42
Other races and multiple races, non-Latinx	262	0.18	0.14, 0.23	0.21	0.13, 0.32	0.28	0.18, 0.40	0.12	0.07, 0.19
Asian, non-Latinx	169	0.37	0.30, 0.45	0.39	0.24, 0.55	0.34	0.20, 0.53	0.38	0.29, 0.47
Child age group (years)									
<3	929	0.19	0.17, 0.22	0.23	0.19, 0.28	0.19	0.13, 0.25	0.17	0.13, 0.20
3–5	828	0.24	0.21, 0.27	0.28	0.23, 0.33	0.28	0.22, 0.35	0.19	0.15, 0.23
6–11	1123	0.24	0.22, 0.27	0.28	0.24, 0.33	0.23	0.18, 0.29	0.22	0.19, 0.26
12–17	1016	0.23	0.20, 0.25	0.30	0.25, 0.35	0.23	0.17, 0.29	0.18	0.15, 0.21
Caregiver age group (years)									
18–30	531	0.29	0.25, 0.33	0.31	0.26, 0.36	0.37	0.28, 0.47	0.18	0.12, 0.26
31–40	1893	0.22	0.21, 0.24	0.26	0.23, 0.30	0.21	0.17, 0.26	0.20	0.17, 0.23
41–50	1197	0.21	0.19, 0.23	0.27	0.22, 0.32	0.19	0.14, 0.25	0.19	0.16, 0.22
51+	265	0.17	0.13, 0.22	0.20	0.11, 0.33	0.23	0.13, 0.37	0.15	0.10, 0.21
Caregiver preferred language									
English	3557	0.21	0.20, 0.23	0.26	0.23, 0.28	0.21	0.18, 0.24	0.19	0.17, 0.21
Spanish	285	0.36	0.30, 0.41	0.35	0.29, 0.42	0.47	0.33, 0.63	0.24	0.11, 0.44
Other	54	0.37	0.25, 0.51	0.30	0.16, 0.48	0.43	0.21, 0.68	0.50	0.22, 0.78
Caregiver report of child's health insurance coverage at the time of survey									
Private	2330	0.17	0.15, 0.18	0.16	0.13, 0.21	0.15	0.12, 0.19	0.18	0.16, 0.19
Public	1539	0.31	0.29, 0.34	0.32	0.29, 0.35	0.35	0.30, 0.41	0.26	0.21, 0.31
Other/uninsured/no response	27	0.19	0.08, 0.38	0.17	0.05, 0.41	0.14	0.02, 0.58	0.50	0.06, 0.94
Family address in a zip code with COVID positivity rate >75th percentile for metropolitan Chicago									
Yes	868	0.28	0.25, 0.31	0.29	0.25, 0.32	0.25	0.18, 0.33	0.23	0.13, 0.37
No	3009	0.21	0.20, 0.23	0.26	0.22, 0.29	0.23	0.20, 0.27	0.19	0.17, 0.21
Child had a visit to Lurie Children's canceled or rescheduled, March 16–April 22, 2020									
Yes	2792	0.24	0.22, 0.25	0.29	0.26, 0.32	0.24	0.20, 0.27	0.20	0.18, 0.22
No	1104	0.20	0.18, 0.22	0.24	0.20, 0.28	0.22	0.17, 0.28	0.16	0.13, 0.20
Child had a Lurie Children's ED Visit, March 16–April 22, 2020									
Yes	289	0.10	0.07, 0.14	0.11	0.27, 0.32	0.13	0.06, 0.24	0.06	0.02, 0.13
No	3607	0.24	0.22, 0.25	0.29	0.07, 0.17	0.24	0.21, 0.27	0.20	0.18, 0.22
Caregiver preferred method for evaluation if child had sore throat									
In-person visit	1981	0.20	0.23, 0.27	0.24	0.21, 0.27	0.24	0.20, 0.29	0.16	0.13, 0.18
Telemedicine visit	1915	0.25	0.18, 0.22	0.32	0.28, 0.35	0.22	0.18, 0.26	0.22	0.19, 0.27
Caregiver preferred method for evaluation if child had head injury									
In-person visit	3571	0.21	0.20, 0.22	0.26	0.23, 0.28	0.21	0.18, 0.24	0.18	0.16, 0.20
Telemedicine visit	325	0.39	0.34, 0.45	0.42	0.34, 0.51	0.46	0.34, 0.59	0.34	0.27, 0.42

Abbreviations: COI, Child Opportunity Index; Prop, proportion.

[a]Caregivers were considered hesitant to seek ED care if unlikely was selected in response to the following question: "Assume the healthcare facility is following all current guidelines to reduce the spread of the COVID-19 virus. How likely is it that you would bring your child for an ER visit in person TODAY if they needed it?"

care utilization and intervene with caregivers to ensure that children are receiving necessary and timely care for emergency conditions.

CONFLICT OF INTEREST

The authors have no potential conflicts to disclose.

AUTHOR CONTRIBUTIONS

Michelle L. Macy contributed to the study concept and design, analysis and interpretation of the data, drafting of the manuscript, and critical revisions of the manuscript for important intellectual content. Tracie L. Smith and Jenifer Cartland contributed to the study concept and design, analysis and interpretation of the data, statistical expertise, and critical revisions of the manuscript for important intellectual content. Emily Golbeck contributed to the study concept and design, acquisition of the data, and critical revisions of the manuscript for important intellectual content. Matthew M. Davis contributed to the study concept and design, analysis and interpretation of the data, and critical revisions of the manuscript for important intellectual content.

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