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Characteristics Associated With Presence of Pediatric Mental Health Care Policies in Emergency Departments

Robyn A. Cree, PhD[*,†], **Marvin So, MPH**[‡], **Jessica Franks, MPH**[‡], **Rachel Richards, MStat**[§], **Rebecca Leeb, PhD**[*], **Andrew Hashikawa, MD, MS**[‖], **Steven Krug, MD**[¶], **Lorah Ludwig, BS**[#], **Lenora M. Olson, PhD**[§]

[*]Centers for Disease Control and Prevention, Division of Human Development and Disability, Atlanta, GA;

[†]Epidemic Intelligence Service, Centers for Disease Control and Prevention, Atlanta, GA;

[‡]Oak Ridge Institute for Science Education, Oak Ridge, TN;

[§]University of Utah, Department of Pediatrics, Division of Critical Care, Salt Lake City, UT;

[‖]Michigan Medicine, Department of Emergency Medicine, Ann Arbor, MI;

[¶]Department of Pediatrics, Division of Emergency Medicine, Ann & Robert H. Lurie Children's Hospital, Northwestern University Feinberg School of Medicine, Chicago, IL;

[#]Emergency Medical Services for Children, Division of Child, Adolescent, and Family Health, Maternal and Child Health Bureau, Health Resources and Services Administration, Rockville, MD.

Abstract

Objectives: The majority of US children do not have access to an emergency department (ED) with a pediatric mental health care policy in place. Our objective was to understand factors associated with whether US EDs have a pediatric mental health care policy.

Methods: We analyzed data from the National Pediatric Readiness Project, a nationally representative cross-sectional survey of US EDs. Nurse managers reported whether their hospitals had a policy to care for children with social/mental health concerns (n = 3612). We calculated prevalence estimates, prevalence ratios (PRs), and confidence intervals (CIs) for regional and ED characteristics (eg, rurality and types of personnel) by whether EDs had a pediatric mental health care policy.

Results: Overall, 46.2% (n = 1668/3612) of EDs had a pediatric mental health care policy. Emergency departments located in remote areas were 60% less likely to have such a policy compared with EDs in urban areas (PR, 0.4; CI, 0.3–0.5). Emergency department characteristics associated with having a pediatric mental health care policy included having a policy to transfer children with social/mental health concerns (PR, 5.4; CI, 4.7–6.2), having a policy to address

Reprints: Robyn A. Cree, PhD, Centers for Disease Control and Prevention, Division of Human Development and Disability, 4770 Buford Hwy NE, MS E-88, Atlanta, GA 30341 (nru7@cdc.gov).

R.A.C. and M.S. contributed equally to this work.

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maltreatment (PR, 3.4; CI, 2.6–4.4), and having nurse and physician pediatric emergency care coordinators (PR, 1.6; CI, 1.5–1.8).

Conclusions: Lower prevalence of pediatric mental health policies in rural EDs is concerning considering EDs are often the first point of contact for pediatric patients. This work highlights the importance of pediatric emergency care coordinators in fostering ED capacity to meet children's mental health needs.

Keywords

preparedness; mental health; readiness

Emergency departments are often the first point of care for pediatric patients experiencing mental health emergencies.[1] The number of pediatric emergency department (ED) visits involving mental health concerns has been increasing more rapidly over the past several decades compared with general ED visits,[2–5] whereas the number of psychiatric care facilities has been decreasing nationwide.[6] Emergency departments often have few mental health care providers, insufficient service hours with available mental health care providers, and long wait times.[7] Mental health care professionals typically are not immediately available to evaluate children when they arrive at the ED, often resulting in inadequate mental health evaluations and a deficiency in referrals to inpatient or outpatient mental health services.[8–10] Further, multiple studies have observed both significantly longer lengths of stay and higher rates of readmission for pediatric patients with mental health concerns presenting for care to the ED compared with pediatric patients presenting with other concerns,[9–12] suggesting that evaluation and treatment of mental health conditions are complex and may require longer time frames.

Given the already constrained capacity of EDs to assess and provide early intervention services for pediatric mental health concerns, caring for children's increased mental health care needs during and after public health emergencies is essential,[13] particularly given widespread impact[14] and increasing frequency and intensity[15] of weather-related disasters. Emergency departments continue to play a critical role in the delivery of immediate medical and mental health services to address symptoms of psychological distress following a disaster (eg, posttraumatic stress or depression), regardless of whether hospitalization or outpatient care follows any interventional services provided in the ED.[16] Emergency departments that meet established guidelines for pediatric readiness are necessary, as children represent approximately one-quarter of the US population and often experience disproportionate morbidity and mortality during and after public health emergencies.[17]

In 2009, the Health Resources and Services Administration's Emergency Medical Services for Children program joined with the American Academy of Pediatrics, the American College of Emergency Physicians, and the Emergency Nurses Association to update pediatric readiness guidelines and establish the National Pediatric Readiness Project (NPRP), an ED quality improvement initiative.[18] To meet pediatric readiness guidelines, EDs must "develop and implement policies, procedures, and protocols for the emergency care of children with social and mental health concerns" and "when appropriate, provide timely transfer to a facility with specialized pediatric services." The NPRP assessment,

conducted in 2013, was a cross-sectional investigation to gather baseline data, using a nationally representative sample of EDs to examine the extent to which EDs met the pediatric readiness guidelines. Prior analyses of NPRP data demonstrated the importance of pediatric emergency care coordinators (PECCs) on overall pediatric readiness, as well as regional differences in pediatric readiness.[19–22] However, demographic andhospital characteristics of EDs with pediatric mental health care policies, as well as exploration of related policies, have not yet been described using these data.

In line with previous findings showing that rural areas had lower levels of pediatric readiness compared with urban areas,[19] we hypothesized that rural counties would have fewer EDs with a pediatric mental health care policy in place. We also hypothesized that among EDs having PECCs and additional policies in place aimed at addressing children's mental health care needs, including reporting and treating suspected child abuse and neglect, policies for promoting family-centered care, and written guidelines for transfer of children with mental health concerns, would be associated with having a mental health care policy. Understanding factors associated with the existence of these policies could guide allocation of resources to ensure hospitals throughout the US are adequately equipped to meet children's mental health care needs, including those that arise following a human-induced or natural disaster.

METHODS

We used data from the 2013 NPRP national assessment, for which detailed implementation methods have been previously described.[19] Briefly, the NPRP assessment is a 55-question web-based questionnaire based on the 2009 joint consensus-based Guidelines for the Care of Children in the ED,[18] defined as providing emergency care 24 hours a day, 7 days a week. The assessment, based on 6 domains included in the guidelines, is as follows: coordination of pediatric patient care, physician/nurse staffing and training, quality improvement activities, policies and procedures, patient safety initiatives, and availability of pediatric equipment. Nurse managers from 5017 US facilities were invited through email, postal service, or telephone to complete the assessment online via a web link. Managers from 4146 hospital-based EDs responded, resulting in an 83% response rate. The survey was approved by the University of Utah Institutional Review Board.

Nurse managers were asked whether their hospital has a policy on how to care for children with social and mental health issues (yes/no). Managers were also asked about ED characteristics, including whether their hospitals or EDs had maltreatment policies, family-centered care policies, guidelines for transfer of children with social or mental health needs, or nurse or physician PECCs. Emergency department-specific characteristics included pediatric volume, which ranged from low (<5 pediatric patients per day) to high (≥27 pediatric patients per day), and hospital configuration, categorized as standby (physician on call to the ED), basic (physician present 24 hours but with no pediatric inpatient services), general (physician was present 24 hours, and an inpatient pediatric ward, with or without a neonatal intensive care unit, was available), or comprehensive (a physician was present 24 hours, and an inpatient pediatric ward and a pediatric intensive care unit, with or without a neonatal intensive care unit, were available). Regional characteristics included number and percentage of children aged 0 to 17 years in the county living below the federal

poverty level (FPL) in 2013 obtained from the US Census Bureau Small Area Income and Poverty Estimates,[23] rurality (urban, suburban, rural, and remote designated using the US Department of Agriculture's 2013 12-part county urban influence codes classification scheme),[24] and census division (eg, New England, Pacific).[25]

Statistical Analysis

We restricted analyses to hospitals that were asked whether the hospital has a policy in place to care for children with social and mental health concerns (n = 3612; 87.1% of the total sample). A subsample of hospitals was excluded; none of the 300 EDs located in California were asked the mental health policy question, and 234 EDs answered a previous version of this question that did not include the mental health policy question. We used log-binomial regression models[26,27] to calculate unadjusted prevalence estimates, prevalence ratios (PRs), and 95% confidence intervals (CIs) for regional and ED-specific characteristics by whether EDs had a policy in place for children with social and mental health issues. We calculated adjusted PRs and 95% CIs for each ED characteristic individually, controlling for annual pediatric volume, hospital configuration, and rurality, consistent with prior work.[19] We completed the analyses using SAS 9.4 software (SAS Institute, Cary, NC).

RESULTS

Overall, 46.2% (n = 1668/3612) of EDs had a policy in place for children with social and mental health concerns (Table 1). Remote (PR, 0.4; CI, 0.3–0.5), rural (PR, 0.7; CI, 0.6–0.7), and suburban (PR, 0.7; CI, 0.6–0.8) areas less often had a pediatric mental health care policy compared with urban areas. Compared with the Pacific division, West North Central was less likely to have a policy (PR, 0.6; CI, 0.5–0.8), whereas the Islands (PR, 1.4; CI, 1.1–1.8) and the Middle Atlantic (PR, 1.2; CI, 1.0–1.5) were more likely to have a policy. There were no other differences by Census division. Comprehensive (PR, 4.7; CI, 3.2–6.9), general (PR, 3.2; CI, 2.2–4.6), basic (PR, 2.5; CI, 1.7–3.7), and other (PR, 3.0; CI, 1.8–5.1) hospital configurations more often had a pediatric mental health care policy compared with standby configurations. Hospitals with higher pediatric patient volume more often had a pediatric mental health care policy compared with those with low pediatric volume (PR, 2.3; CI, 2.1–2.5). Areas with a greater number of children living at or below the FPL more often had an ED with a pediatric mental health care policy compared with areas with fewer numbers of children living at or below the FPL. For example, 59.1% of EDs located in counties with the highest quartile of children living at or below the FPL had a pediatric mental health care policy, compared with 25.8% of EDs located in counties in the lowest quartile of children living at or below the FPL (PR, 2.3; CI, 2.0–2.6). There were no differences in whether an ED had a pediatric mental health care policy by the percentage of children living in poverty in the surrounding county.

Facilities with policies addressing maltreatment, promoting family-centered care, and written guidelines for the transfer of children with social and mental health issues more often had a pediatric mental health care policy, compared with those without (50.1% vs 12.7%, 60.6% vs 25.1%, and 72.9% vs 12.5%, respectively; Table 2). Among facilities with both a nurse and physician care coordinator, 60.6% had a mental health care policy,

compared with those with either a nurse or a physician (39.4%) or none (33.1%). Adjusting for annual pediatric volume, hospital configuration, and rurality, having policies to address maltreatment (PR, 3.4; CI, 2.6–4.4), promote family-centered care (PR, 2.1; CI, 1.9–2.3), and transfer children with social and mental health issues (PR, 5.4; CI, 4.7–6.2) were associated with having a mental health care policy compared with those without these policies. Emergency departments with both a nurse and physician PECC and those with a single nurse or physician PECC were 1.8 (CI, 1.7–2.0) and 1.2 (CI, 1. 1–1.3) times as likely, respectively, to have a pediatric mental health care policy, compared with EDs without nurse and physician PECCs.

DISCUSSION

Fewer than half of US ED nurse managers reported their facility had a policy to care for children with social and mental health concerns, which could indicate a lack of pediatric mental health care capacity for triage and crisis intervention in US EDs. It is possible that children living in remote, rural, and suburban areas may be more vulnerable to experiencing unmet needs during mental health emergencies compared with those living in urban areas, which more often had a mental health care policy in place. Having both a nurse and physician PECC was associated with having a pediatric mental health policy, compared with having either or none, regardless of ED pediatric volume, hospital configuration, and rurality. This work highlights the importance of having nurse and physician PECCs embedded within the hospital ED structure.

PECCs and Having a Pediatric Mental Health Care Policy

Consistent with national pediatric readiness guidelines,[28] the presence of PECCs within EDs was associated with having a pediatric mental health care policy in place, regardless of hospital volume, configuration, and rurality. Having PECCs could be a feasible solution to pediatric mental health care readiness regardless of other, potentially less modifiable hospital characteristics such as volume of pediatric patients or geographic location.[22] This work complements previous analyses using NPRP data showing PECCs are associated with increased overall pediatric readiness[19,29] and adds further justification for PECC inclusion recommendations put forth by the Institute of Medicine.[30] An additional study found that transfer agreements and guidelines are more common in EDs when a PECC is in place.[21] Although ED nurse managers may hire PECCs to comply with guidelines, these findings suggest that PECCs help increase the number of children who receive necessary follow-up treatment for symptoms of psychological distress, provided sufficient treatment resources are available. The potential for PECCs is especially significant given that fewer than half of pediatric patients receive care coordination for follow-up mental health services within 7 days following admission to the ED with a psychiatric diagnosis.[31] Having both a nurse and physician PECC could increase the likelihood of an ED having a mental health care policy in place, potentially leading to increased pediatric mental health care readiness.[32]

Regional Differences in Having a Pediatric Mental Health Care Policy

Most US children live farther than 30 miles from a facility that meets the essential guidelines for pediatric readiness, suggesting the presence of geographic disparities in access to high-

quality emergency care.[20] In light of this geographic discrepancy, our finding that remote and rural areas were less likely to have a pediatric mental health care policy compared with urban areas is concerning, particularly considering that children in rural areas are more likely to have mental, behavioral, and developmental disorders,[33] experience shortages of mental health care professionals compared with urban areas,[34] and use EDs as a first point of contact for mental health treatment.[35,36] Further, rural communities are often less resilient to emergencies, such as natural disasters, which can have serious implications for the mental health of children and families.[37] Examining gaps in pediatric readiness and service provision in rural (eg, within rural health clinics/urgent care centers) compared with urban areas to identify factors associated with disparities in disaster-related mental health conditions among vulnerable populations would be beneficial.

There was some variation by census division in whether a hospital had a pediatric mental health care policy across the United States, consistent with overall pediatric readiness examined among the NPRP sample.[20] Island areas and the Middle Atlantic regions were more likely to have a mental health policy in place than other regions. It could be that increased need for pediatric mental health services and increased likelihood of experiencing extreme weather events and natural disasters such as hurricanes could lead to higher levels of mental health policies in these regions. Public health emergencies are not exclusive to these regions of the United States; therefore, pediatric mental health care capacity and preparedness are important for all EDs. In addition, the West North Central region reported lower likelihood of mental health policies than other regions. This region is relatively rural compared with other areas of the United States, aligning with our finding that rural areas were less likely to have a pediatric mental health care policy compared with urban areas. Further, the West North Central Region has a relatively lower prevalence of mental disorders and higher rates of access to health care among youth, and collectively, this region also has relatively lower mental health care provider shortage areas than other rural regions of the United States.[38,39] Reduced prevalence of mental disorders and increased access to health care could impact mental health–related ED service utilization, impacting likelihood of EDs having a mental health care policy in place within this region.

Poverty and Having a Pediatric Mental Health Care Policy

Our finding that counties with a greater number of children living in poverty have an ED with a pediatric mental health care policy in place is likely a reflection of population size, considering that urban areas and EDs with high pediatric volume more often had policies compared with rural communities and EDs with low pediatric volume. However, areas with larger percentages of children living in poverty were not significantly different from those with lower percentages, potentially suggesting that likelihood of having a mental health care policy is consistent regardless of the surrounding county's socioeconomic status. Nonetheless, children living in poverty are more likely to have mental, behavioral, or developmental disorders, as well as several risk factors related to these disorders compared with children living in higher-income households.[40] Therefore, children in lower-income families could benefit from additional access to screening and treatment both within and outside the ED.

Limitations

These analyses have several limitations. First, the presence of a mental health care policy does not capture mental health care capacity within the ED. The question asked on the NPRP survey was broad and did not probe for detail on the scope, implementation, or degree of overlap with other existing policies. However, this question provides the best available insight into ED consideration of pediatric mental health care needs within a nationally representative sample. Future studies assessing finer-grain details or quality of pediatric ED mental health care policies including implementation are warranted. Second, ED policies may have changed since responses were collected in 2013; however, to our knowledge, this is the most recent nationally representative data available. Third, this study's cross-sectional design limits our understanding of causality or directionality. The associations we documented could be further explored in future investigations, such as how having PECCs contributes to the development of pediatric mental health care guidelines. Fourth, although we documented correlations between having a pediatric mental health care policy and regional characteristics, it is unclear if these units of geography are meaningful in representing the availability of mental health services for children in EDs. Further, EDs located in California were not asked about mental health policies and were excluded from our analyses, potentially biasing our results. Although prior work has documented limited mental health care resources in California EDs,[41,42] the state ranks similarly compared with other states in the Pacific Census division with a moderately high prevalence of mental disorders and low rate of access to care among youth.[39] Taking into account spatial relationships as well as other dimensions of access (eg, affordability) could help us better understand families' access to triage and crisis care within the ED even where policies exist.[20] Fifth, ED managers could have misreported the presence or absence of policies. Without on-site verification, it is not possible to know whether presence of policies was underreported or overreported.[43]

CONCLUSIONS

Our findings elucidate hospital and regional characteristics related to presence of pediatric mental health care policies in US hospital EDs. Findings could inform strategies to ensure EDs are adequately equipped to meet children's behavioral health needs when a crisis emerges. The presence of a pediatric mental health care policy alone is likely insufficient for creating routine practice change among health care teams.[44] A tailored approach that supports implementation of policies at multiple levels, including individual providers and the practice environment, could complement the efforts of EDs to improve pediatric readiness.[45] Our results underscore the importance of efforts to address pediatric health care needs in EDs and support inclusion of children's mental health policies in future ED quality improvement efforts. Emergency department mental health care capacity is not only important to meet children's mental health needs on a daily basis; but also it is essential for EDs to be prepared for likely dramatic increases in children and families requiring mental health care during and following disasters.

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TABLE 1.

Regional and ED Characteristics Associated With Whether an ED Had a Policy on How to Care for Children With Social or Mental Health Care Issues

Characteristic	Policy for Children With Social and Mental Health Issues	PR (95% CI)
Overall	1668/3612 * (46.2%)	—
Urban/rural designations †		
Urban	1121/2032 (55.2%)	(Reference)
Suburban	135/346 (39.0%)	0.71 (0.62–0.81) ‡
Rural	281/770 (36.5%)	0.66 (0.60–0.73) ‡
Remote	89/402 (22.1%)	0.40 (0.33–0.48) ‡
Census division §		
Pacific	72/147 (49.0%)	(Reference)
New England	73/133 (54.9%)	1.12 (0.89–1.40)
Middle Atlantic	218/365 (59.7%)	1.22 (1.01–1.47) ‡
East North Central	288/637 (45.2%)	0.92 (0.77–1.11)
West North Central	166/538 (30.9%)	0.63 (0.51–0.78) ‡
South Atlantic	293/553 (53.0%)	1.08 (0.90–1.30)
East South Central	162/320 (50.6%)	1.03 (0.85–1.26)
West South Central	203/503 (40.4%)	0.82 (0.68–1.00)
Mountain	151/355 (42.5%)	0.87 (0.71–1.07)
Islands	42/61 (68.9%)	1.41 (1.11–1.78) ‡
Hospital configuration ‖		
Standby	23/144 (16.0%)	(Reference)
Basic	770/1899 (40.5%)	2.54 (1.74–3.71) ‡
General	597/1188(50.3%)	3.15 (2.15–4.60) ‡
Comprehensive	261/346 (75.4%)	4.72 (3.23–6.90) ‡
Other	17/35 (48.6%)	3.04 (1.83–5.05) ‡
Pediatric patient volume ¶		

Characteristic	Policy for Children With Social and Mental Health Issues	PR (95% CI)
Low	467/1459 (32.0%)	(Reference)
Medium	540/1114 (48.5%)	1.51 (1.38–1.67)‡
Medium high	340/593 (57.3%)	1.79 (1.62–1.98)‡
High	321/446 (72.0%)	2.25 (2.05–2.47)‡
No. children aged 0–17 y living at ≤FPL per county#		
Quartile 1 (≤1200)	229/889 (25.8%)	(Reference)
Quartile 2 (1201–3502)	382/886 (43.1%)	1.67 (1.46–1.92)‡
Quartile 3 (3503–17,518)	491/889 (55.2%)	2.14 (1.89–2.43)‡
Quartile 4 (17,519–299,330)	524/886 (59.1%)	2.30 (2.03–2.60)‡
Percentage of children aged 0–17 y living at ≤FPL per county#		
Quartile 1 (≤14.7%)	408/891 (45.8%)	(Reference)
Quartile 2 (14.8%−20.6%)	405/901 (45.0%)	0.98 (0.89–1.09)
Quartile 3 (20.7%−25.5%)	430/872 (49.3%)	1.08 (0.98–1.19)
Quartile 4 (25.6%−66.3%)	383/886 (43.2%)	0.94 (0.85–1.05)

*Denominators for characteristics may not add to 3612 because of missing ED location data.

†Urban/rural designations were classified as urban, suburban, rural, or remote using the US Department of Agriculture's 2013 12-part county urban influence codes classification scheme.

‡Statistically significant difference from reference group where CI does not include 1.

§Census divisions of the US categorized as New England (CT, MA, ME, NH, RI, VT), Middle Atlantic (NJ, NY, PA), East North Central (IL, IN, MI, OH, WI), West North Central (IA, KS, MN, MO, ND, NE, SD), South Atlantic (DC, DE, FL, GA, MD, NC, SC, VA, WV), East South Central (AL, KY, MS, TN), West South Central (AR, LA, OK, TX), Mountain (AZ, CO, ID, NM, MT, UT, NV, WY), Pacific (AK, CA, HI, OR, WA), and Islands (American Samoa, Federal States of Micronesia, Marshall Islands, Northern Mariana Islands, Palau, Puerto Rico, Virgin Islands), taken from https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf.

‖Hospital configuration was categorized as standby (a physician was on call to the ED), basic (a physician was present 24 hours but with no pediatric inpatient services), general (a physician was present 24 hours, and an inpatient pediatric ward, with or without a neonatal intensive care unit, was available), and comprehensive (a physician was present 24 hours, and an inpatient pediatric ward and a pediatric intensive care unit, with or without a neonatal intensive care unit, were available).

¶Pediatric patient volume was defined as low (<1800 patients in the past year, or an average of ≤5 a day), medium (1800–999 patients in the past year, or an average of 6–13 a day), medium high (5000–9999 patients in the past year, or an average of 14–26 a day), and high (≥10,000 patients in the past year, or an average of ≥27 a day).

#Based on family income and family size and composition using federal poverty thresholds that are updated annually by the US Census Bureau using the change in the average annual consumer price index for all urban consumers.

TABLE 2.

ED Characteristics Associated With Whether an ED Has a Policy on How to Care for Children With Social or Mental Health Care Issues

Policies and Staffing	Policy for Children With Social and Mental Health Issues	PR (95% CI)	Adjusted PR (95% CI)*
Maltreatment policy			
Yes	1620/3234 (50.1%)	3.94 (3.02–5.15)†	3.39 (2.61–4.42)†
No	48/378 (12.7%)	(Reference)	(Reference)
Policy for promoting family-centered care			
Yes	1300/2146 (60.6%)	2.41 (2.20–2.65)†	2.11 (1.92–2.32)†
No	368/1466 (25.1%)	(Reference)	(Reference)
Written guidelines for the transfer of children with social and mental health issues			
Yes	1469/2014 (72.9%)	5.86 (5.13–6.69)†	5.40 (4.71–6.18)†
No	199/1598 (12.5%)	(Reference)	(Reference)
PECC			
Both‡	922/1522 (60.6%)	1.83 (1.67, 2.00)†	1.61 (1.47–1.76)†
Either	335/850 (39.4%)	1.19 (1.06, 1.33)†	1.18 (1.06–1.31)†
None	411/1240 (33.1%)	(Reference)	(Reference)

*Adjusted for annual pediatric volume, hospital configuration (eg, standby, basic, general, comprehensive, and other), and rurality.

†Statistically significant difference from reference group where PR does not include 1.

‡Physician and nurse coordinator.

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