

A System-Wide Hospital Child Maltreatment Patient Safety Program

Jennifer Hansen, MD,^a Amy Terreros, DNP, RN, APRN,^a Ashley Sherman, MA,^a Andrew Donaldson, BA,^b James Anderst, MD, MSCI^a

abstract

BACKGROUND AND OBJECTIVES: Hospital-wide patient safety programs have been used to ensure appropriate provision of care. Similar approaches have not been widely applied to child maltreatment. In this study, we describe a hospital-system child maltreatment safety program by characterizing the frequency of patients needing further intervention, associations between the age of patient and location of care and need for further intervention, and patients who require immediate intervention.

METHODS: For all staff concerns for child maltreatment, a social worker completed a patient at risk (PAR) form. All PAR forms were reviewed within 24 hours by the child abuse team and categorized on the basis of 6 types of interventions, most significantly an “immediate callback.” Wilcoxon rank and χ^2 tests were used for group comparisons.

RESULTS: Over a 30-month period, program interventions occurred in 2061 of 7698 PARs (26.8%). The most common reason for a PAR form was physical abuse (32.5%). Subjects requiring an intervention were no different in age than those who did not (median age: 5.6 vs 5.2 years). PAR forms performed in the emergency departments or urgent care were more likely to require an intervention than inpatient (odds ratio: 4.4; 95% confidence interval 3.6–5.3) or clinic (odds ratio: 2.0; 95% confidence interval 1.7–2.3) PAR forms. Of the 53 immediate callbacks, potential diagnostic errors and safe discharge concerns occurred in nearly one-half, and >40% involved subjects with bruising. Immediate follow-up in the child abuse pediatrician clinic occurred in 87% (46 of 53) of cases, resulting in a new or changed diagnosis in 57% of such cases.

CONCLUSIONS: A child maltreatment safety program encompassing a health system can identify and address medical errors.



Full article can be found online at www.pediatrics.org/cgi/doi/10.1542/peds.2021-050555

^aDepartment of Pediatrics, Children's Mercy Hospital and School of Medicine, University of Missouri–Kansas City, Kansas City, Missouri; and ^bSchool of Medicine, University of Kansas, Kansas City, Kansas

Drs Hanson conceptualized and participated in the study design, participated in the acquisition and interpretation of data, and was the primary author of the manuscript; Dr Anderst conceptualized and participated in the study design and interpretation of data and reviewed and edited the manuscript; Ms Terreros and Mr Donaldson participated in the design of the study and acquisition and interpretation of data; Ms Sherman interpreted data and performed statistical analysis of data; and all authors edited and approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

DOI: <https://doi.org/10.1542/peds.2021-050555>

Accepted for publication April 13, 2021

Address correspondence to James Anderst, MD, MSCI, Division of Child Adversity and Resilience, Children's Mercy Hospitals, 2401 Gillham Rd, Kansas City, MO 64108. E-mail: jdanderst@cmh.edu

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

Copyright © 2021 by the American Academy of Pediatrics

WHAT'S KNOWN ON THIS SUBJECT: Hospital-based patient safety programs are used in several areas of pediatrics. Such programs have the potential for patient safety improvements in child maltreatment detection and assessments, but this has not been widely applied or evaluated.

WHAT THIS STUDY ADDS: A hospital-based child maltreatment patient safety program can address gaps in child maltreatment cases in all types of medical encounters and locations within a hospital, across the spectrum of maltreatment, and results in error reduction and diagnostic changes.

To cite: Hansen J, Terreros A, Sherman A, et al. A System-Wide Hospital Child Maltreatment Patient Safety Program. *Pediatrics*. 2021;148(3):e2021050555

In 2019, Child Protective Services (CPS) investigated nearly 3.5 million reports of suspected child maltreatment, with 11% coming from medical personnel.¹ Physicians express a lack of confidence in handling cases of possible maltreatment and have demonstrated knowledge and performance gaps in such cases.^{2,3} This results in variability in care, possible misdiagnoses, and subsequent harm to children and families.⁴⁻⁶ Failure to identify abuse at the individual case level may result in further abuse and/or death for the child.^{5,6} Conversely, overdiagnosis of abuse places a child and family at risk for inappropriate separation.

Although child abuse pediatricians (CAPs) frequently provide in-person consultation in a clinic or inpatient setting, cases involving possible maltreatment present for care throughout the medical system. These cases involve children with varying concerns seen in clinics, emergency departments (EDs), urgent care (UC) centers, and inpatient units. It is likely that many of these cases do not result in involvement of CAPs. Given physicians' lack of skill³ in handling such cases and the varying locations and types of presentation, there is a risk of harm because of medical errors.

Hospital patient safety programs are used to ensure appropriate provision of care in several fields. Examples include antimicrobial stewardship and anticoagulant monitoring programs.^{7,8} These programs use continuous data surveillance by content experts to provide hospital system-wide oversight of a specific part of care, intervening on the patient level to improve safety. Applying these principles to child maltreatment throughout a health care system includes a system-wide daily review

of all patients with concerns of maltreatment by CAPs. Using such a system, CAPs may need to intervene to address sources of potential error and variability, including history taking, injury identification, testing for occult injuries, and cognitive analysis.³ Additionally, ongoing communication and collaboration with CPS and/or law enforcement (LE) by CAPs is often necessary because information from such sources frequently changes medical diagnoses regarding abuse.⁹ Thus, medically based patient safety monitoring programs for child maltreatment must be capable of addressing all such potential sources for error at the case level.

With this retrospective study, our aim is to describe the impact of a system-wide hospital patient safety program for child maltreatment by characterizing¹ the frequency of identification of patients needing further intervention,² associations between the age of the patient and/or location of care and need for further intervention, and³ those patients who require immediate intervention. Demonstration of the impact of such a program may allow for replication or adaptation in other health care systems and error reduction in cases of possible child maltreatment.

METHODS

This is a retrospective study of a child maltreatment patient safety program in a tertiary pediatric health care system in a Midwestern city with a metropolitan population of >2 million. The health care system includes 2 free standing children's hospitals, each with dedicated pediatric EDs and inpatient units, a PICU, 3 UC sites, 2 primary care offices, and >30 specialty clinics. Subjects included children who received care within the system and had an identified concern for child maltreatment

during care between December 2015 and April 2019.

Child Maltreatment Patient Safety Program and Identification of Study Subjects

By health care system policy, whenever any staff member had concerns for child maltreatment, a patient at risk (PAR) (Table 1) form was completed by hospital social workers (SWs) in the electronic medical record. PAR forms served as the location for documentation by SWs after an in-person meeting with the family. Completion of a PAR form did not automatically result in a report to CPS because a concern for maltreatment may not have risen to the level of suspicion requiring a report. Information gathered by SWs to complete the PAR was used to further inform decision-making regarding filing a report. The filing of reports with CPS was at the discretion of staff involved in each specific case on the basis of their determination of the level of suspicion for abuse in that case. By state laws, all staff are mandated reporters of suspected child maltreatment. A report to LE was made when staff believed a crime may have been committed, but this is not mandated by state laws. A potential victim of maltreatment could be identified at any location in the system (ED or UC, inpatient, or clinic) and at any time while under the care of the hospital system. All children with completed PAR forms were subsequently engaged in the child maltreatment safety program, as described below, and serve as the subjects for this study. Subjects were excluded if the PAR form was completed because of a CAP consult because the patient safety program was not necessary to identify these children. Hospital medical personnel were free to consult or discuss cases with the CAP medical providers outside of the safety program.

TABLE 1 PAR Components

Referral and presenting information	Law enforcement jurisdiction: (free text)
Presenting situation and history: (free text entry)	Law enforcement contact information: (free text)
Reason for PAR: (physical abuse/sexual abuse/neglect/other)	Provider notified: (free text)
Family systems	Nurse notified: (free text)
Caregiver/household address: (free text)	On-site safety plan: (yes/no)
Caregiver/household #2: (free text)	Patient safety intervention: (free text)
Patient's siblings: (yes/no)	Supervision/ongoing plan for patient's safety: (free text)
Siblings: (list)	Social work recommendation/plan/goals: (free text)
Patient/caregiver functioning	Social work care transition: (free text)
Caregiver mood: (free text)	Original documenter: (free text)
Caregiver affect: (free text)	
Caregiver speech: (free text)	
Caregiver memory: (free text)	
Caregiver orientation: (free text)	
Recommendation, plan, and goals	
Clinical impression: (free text)	
Protective services involved: (yes/no)	
Protective services details: (free text)	
Protective services ID#: (free text)	
County where child resides: (free text)	
Law enforcement involved: (yes/no)	

The hospital policy on child maltreatment contained a list of questions describing situations in which staff should consider maltreatment (Supplemental Information); however, this existed only in the hospital policy and was not used as a formal checklist. Staff could refer to it as desired, but the list was not otherwise formalized within the safety program. As such, all staff members used their own judgment regarding the possibility of abuse in any given situation. SW consultation for completion of a PAR form was based on the concerns of any staff member. SW staff classified the reason for the PAR form, and a single PAR form could include concerns for >1 type of maltreatment. PAR forms categorized as “other” included patients with intimate partner violence and food insecurity, among other concerns.

Safety Program

Daily, an Excel file including names, medical record numbers, location within the hospital system, and PAR text field entries, was sent to the hospital CAP team. CAP providers

reviewed the PAR form and medical documentation for the encounter (including interventions, history taking, test results, photographs [if present], and diagnoses, as well as documentation regarding mandated reporting, interactions with CPS and/or LE, and safety planning at discharge, if appropriate). Hospital policy allowed CAP providers to make further recommendations and interventions, when necessary, on an individual case level, including contacting inpatient teams to discuss the possible need for a CAP consult. All completed PAR forms with associated medical documentation were reviewed within 24 hours by the CAP team and assigned ≥ 1 subsequent categories of intervention by the CAP team:

1. Immediate callback: immediate return to the hospital to correct medical error (eg, a child with a potential sentinel injury discharged from the hospital back into a potentially abusive home or young child needing acute occult injury screening).

2. Need for inpatient consult: managing inpatient team contacted by a CAP to discuss the need for possible consult.
3. Contact CPS or LE: the CAP contacted CPS or LE for any reason (eg, the CAP recommends further scene investigation to clarify the history provided regarding a child's injury and findings).
4. Follow-up appointment: the CAP arranged for a follow-up medical appointment regarding the possibility of abuse (eg, a follow-up appointment with the CAP needed to reassess findings and/or a repeat skeletal survey).
5. Other: all other actions not encompassed by the above.
6. No action taken: no errors or need for CAP intervention.

The above interventions were used to address any possible type of error. For instance, an infant with a sentinel injury (eg, bruise) could have been identified through the program with any of the following errors: lack of report to CPS, lack of appropriate testing for occult injury, discharge to an unsafe setting (even in the context of a CPS report being made), and/or lack of appropriate testing for a medical condition. In cases involving immediate callbacks, the previous managing physician was contacted by the CAP to discuss the case and reasons for the immediate callback. There were no other maltreatment-related decision rules or algorithms in use in the health care system during the study period.

Study Methods and Statistical Analysis

Subjects were identified through a review of the PAR database encompassing the study period. For research purposes, authors collected the following on each subject: the location of care (inpatient, clinic, or ED or UC), age, reason for PAR form,

CPS and/or LE involvement, and CAP interventions using the 6 categories, above. Medians, interquartile ranges (IQRs), and proportions were used to characterize the data. χ^2 and Wilcoxon rank tests were used to compare the groups on the basis of categorical and continuous variables, respectively. Statistical analyses were conducted by using SAS version 9.4 (SAS Institute, Inc, Cary, NC) software.

For study aim 1, the frequency of subjects with a PAR form who needed further intervention (eg, categorized as any of 1 to 5 in the daily PAR review) was tallied and compared with the total number of PARs performed. For aim 2, the need for further intervention was evaluated for association with the subject age and location of PAR. For aim 3, subjects requiring an immediate callback (category 1 in the program) were identified, and study authors performed an individual chart review and collected the following information: the recommended immediate interventions, the reasons for the immediate callback (categorized by the primary presenting injury or concern), whether the recommended intervention was completed, and diagnostic impressions related to abuse by the initial medical provider and, if seen by the CAP team, that from the CAP team as well. The institutional review board of the authors' institution approved this study.

RESULTS

During the 30-month study period, 1 497 117 hospital visits occurred, generating 7698 PAR forms (0.5% of all visits), resulting in an average of 8.6 PAR forms per day. The distribution of PAR forms across the first (33.4%), second (33.1%), and third (33.5%) 10-month periods in the study was similar. The median

age of the subjects was 5.4 years (IQR 2–12.3). Subject sex, ethnicity, and socioeconomic status were not collected in the PAR form to preclude their potential to induce bias in the safety program and thus are not available as study data points.

Table 2 details the results of the program. One-third of PARs were completed outside of the ED or UC centers. Physical abuse was the most common single reason for a PAR form, but two-thirds of PAR forms were done for reasons other than physical abuse. Physical abuse was the most common reason for PAR forms requiring further intervention in younger ages, whereas sexual abuse was predominate in teenagers (Fig 1). For study aim 1, of the 7698 PAR forms reviewed, the safety program resulted in some intervention for 2061 (26.8%). Excluding follow-up appointments, 619 (8.0%) of PAR forms resulted in an intervention. For aim 2, the median age of the subjects for whom an intervention occurred (median age: 5.6 years;

IQR 2.3–10.8) was not statistically different from that of those for whom no intervention occurred (median age: 5.2 years; IQR 1.9–12.7). Subjects requiring an immediate callback (median age: 1.5 years; IQR 0.6–4.3) were significantly younger than those requiring no intervention (median age: 5.2 years; IQR 1.9–12.7; $P < .0001$) and those requiring any other intervention (median age: 5.7 years; IQR 2.4–10.9; $P < .0001$).

Interventions were more common in the ED or UC settings than inpatient or clinic settings (Table 3). Although the odds of an immediate callback were higher in the ED or UC setting than in the inpatient setting, there was no significant difference between ED or UC and clinic, and 15% of the immediate callbacks occurred because of care in the clinic setting. It should be noted that a single PAR form could be performed for multiple maltreatment concerns (eg, physical abuse and neglect) and multiple different interventions could be performed on the basis of a single

TABLE 2 Results of Child Maltreatment Safety Surveillance Process ($N = 7698$)

	<i>n</i> (%)	Hospital Location		
		Inpatient (<i>n</i> = 1228)	Clinic (<i>n</i> = 1299)	ED or UC (<i>n</i> = 5171)
Reason for PAR ^a				
Physical abuse	2483 (32.3)	269	292	1922
Sexual abuse	2057 (26.7)	77	223	1757
Neglect	1837 (23.9)	588	667	582
Sibling examination	242 (3.2)	5	10	227
Mental health needs	927 (12)	192	254	481
Suicide ideation or attempt	220 (2.9)	76	52	92
Other	743 (9.7)	221	98	424
CAP intervention ^a				
Immediate callback	53 (0)	1	8	44
Need for inpatient consult	18 (0)	12	0	6 ^b
Contact investigators	419 (5.4)	43	56	320
Follow-up appointment	1535 (19.9)	50	152	1333
Other	129 (2)	29	47	53
No intervention	5637 (73.2)	1105	1048	3484
LE or CPS involvement				
LE	3338 (43.4) ^c	340	163	2835
CPS	5878 (76.3)	907	973	3998

^a More than 1 reason or intervention could have occurred in a single case.

^b PAR was completed in the ED or UC, but the patient was subsequently admitted to the hospital.

^c In 31 subjects, LE was called, but CPS was not called.

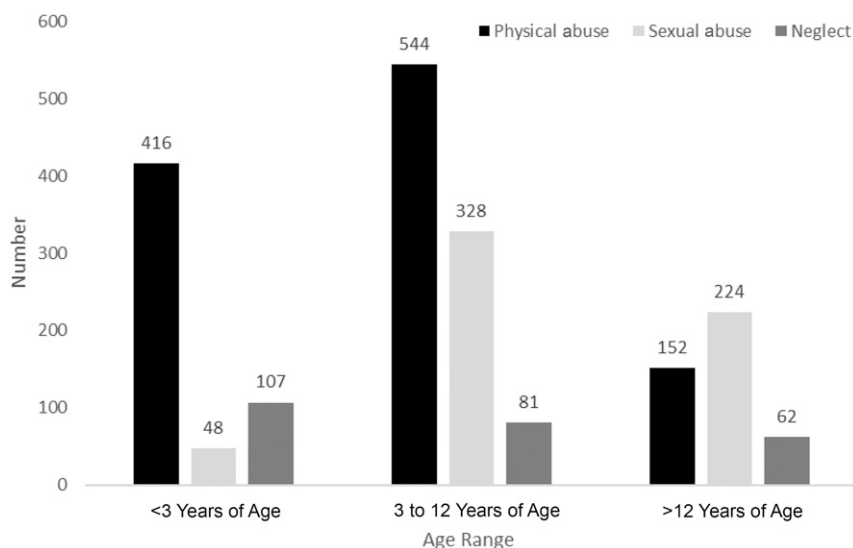


FIGURE 1
PARs requiring further intervention by maltreatment type and age range.

PAR form. Of the 5171 ED or UC subjects with a PAR, 1687 (32.6%) required an intervention, most commonly for physical abuse. Of the 1228 inpatients with a PAR form, 123 (10%) required some intervention, most commonly for neglect. Finally, for clinic patients, 251 (19.3%) required an intervention, again, most commonly for neglect. Of the 2154 total interventions by the CAP team through the safety program, 398 (18.5%) occurred on the basis of inpatient or clinic visits.

When evaluating the need for interventions based on PAR form reason (Table 4), physical abuse was more likely than sexual abuse (odds ratio [OR]: 2.0; 95% confidence interval [CI] 1.7–2.2) or neglect (OR: 5.1; 95% CI 4.4–6.0), whereas sexual abuse was more likely than neglect

(OR: 2.6; 95% CI 2.2–3.1). Immediate callbacks were more likely to occur in PAR forms done for physical abuse than in those done for sexual abuse (OR: 8.2; 95% CI 2.9–23) or neglect (OR: 5.9; 95% CI 2.3–14.9). No significant difference was seen when comparing sexual abuse and neglect (OR: 0.7; 95% CI 0.2–.7).

For aim 3, Table 5 details the reasons for the 53 immediate callbacks. Over 40% involved subjects with bruising. Immediate follow-up in the CAP clinic occurred in 87% (46 of 53) of cases. There was CPS involvement in the remaining 7 cases: 5 declined to follow-up in the clinic, and 2 could not be located. The 46 cases seen in immediate follow-up are detailed in Table 6. For 17% (8 of 46) of cases, a diagnosis regarding abuse was not

provided by the non-CAP but was subsequently provided by the CAP. In 39% (18 of 46), the diagnosis regarding abuse was changed by the CAP from the initial non-CAP diagnosis. The diagnostic change was from not abuse to abuse in 94% (17 of 18) of cases. Overall, CAP assessment resulted in a new or changed diagnosis in 57% of emergency call back cases. Of the 17 cases initially diagnosed as not abuse and ultimately diagnosed as abuse by the CAP, the concern was related to physical abuse for 16 subjects and sexual abuse for 1 subject. Their ages ranged from 9 days to 15 years, with more than one-half being >3 years old.

Case Example

A 6-month-old male infant presented to the ED for concerns of wheezing and eczema. The ED provider noted the following: “bruise to the right pinna. Mom thinks the infant may have rolled off the couch.” The bruise was documented in the physical examination, but no photograph was taken. A PAR form was completed for possible medical neglect because of missing clinic appointments.

PAR form review the next day through the safety program resulted in an immediate callback to the clinic. Through a skeletal survey, a classic metaphyseal fracture of the right radius was identified. A diagnosis of child physical abuse was provided, and LE and CPS were called. The child was placed into the care of a relative.

TABLE 3 ORs (95% CI) of Intervention Based on the Location of the PAR Form

	Location		
	ED or UC Versus Inpatient, OR (95% CI)	ED or UC Versus Clinic, OR (95% CI)	Clinic Versus Inpatient, OR (95% CI)
Any intervention versus no intervention	4.4 (3.6–5.3)	2.0 (1.7–2.3)	2.1 (1.7–2.7)
Immediate callback versus all other categories	10.5 (1.4–76.5)	1.4 (0.7–2.9)	7.6 (0.9–60.9)

TABLE 4 CAP Interventions Based on the Reason for PAR Form

	n (%) ^a	Reason for PAR Form ^a						
		Physical Abuse (n = 2483), n	Sexual Abuse (n = 2057), n	Neglect (n = 1837), n	Sibling Examination (n = 242), n	Mental Health Needs (n = 927), n	Suicide Ideation or Attempt (n = 220), n	Other (n = 743), n
CAP intervention ^b								
Immediate callback	53 (0)	39	4	5	3	6	0	3
Need for inpatient consult	18 (0)	9	0	7	0	1	1	3
Contact CPS or LE	419 (5.4)	214	98	88	12	56	14	39
Follow-up appointment	1535 (19.9)	907	477	110	30	19	77	108
Other	129 (2)	37	26	48	4	19	3	11
No action taken	5637 (73.2)	1371	1457	1587	195	776	183	592
Interventions based on reason for PAR form, n (%) ^c	2061 (26.8)	1112 (44.8)	600 (29.1)	250 (13.6)	47 (19.4)	151 (16.3)	37 (16.8)	151 (20.3)
LE or CPS involvement								
LE	3338 (43.4)	1241	1276	420	165	302	58	251
CPS	5878 (76.3)	1934	1661	1461	209	693	156	598

^a Percent of all PARs that resulted in the specific intervention as listed by row.

^b More than 1 reason or intervention could have occurred in a single case.

^c Percent of each category of reason for PAR that required an intervention.

DISCUSSION

Variation in care and misdiagnoses in child abuse have been well documented.^{4-6,9} In particular, missed sentinel injuries and missed abusive head trauma have been shown to result in subsequent harm to young infants.^{5,6} However, diagnostic and evaluation errors are not isolated to young infants and physical abuse.^{3,9,10,11} Additionally, the overdiagnosis of abuse can occur in the setting of medical conditions that mimic abuse.^{12,13} As such, to fully address potential medical errors regarding abuse, a more

comprehensive approach is needed. This study demonstrates the impact of a child maltreatment safety program on medical errors using a similar structure to other safety programs.^{7,8}

Formal screening procedures for detecting abuse and improving evaluations have been targeted at the ED setting.^{14,15} ED-based screens may be a critical component of comprehensive abuse detection systems, but broader safety programs may be necessary to fully capture maltreatment-related medical errors. In this study, immediate callbacks represented the most critical interventions and demonstrate the need for safety interventions outside of the ED and UC settings. The population of immediate callbacks often fit the broad concept of a sentinel injury, with bruising in young children and diagnostic and safety issues predominating. This is unsurprising, given the known relationship between bruising in young infants and missed abuse.^{5,16} However, many of the callbacks involved a lack of appropriate initial testing

and sexual abuse and/or neglect, and 17% were from the clinic or inpatient setting.

The most common reason for intervention in the safety program was to arrange a follow-up appointment, followed by the CAP team contacting CPS and/or LE, a known critical element of medically based child abuse work.⁹ Because medical providers were free to consult and/or call the CAP team or arrange for follow-up appointments throughout the study, the high need for follow-up appointments may reflect the lack of understanding of when a child may benefit from a CAP clinic appointment. The need for further contact with CPS and/or LE demonstrates the vital role that CAP and CPS and/or LE collaboration in determining accurate medical diagnoses regarding abuse. This sort of collaboration is uncommon among non-CAP providers² and is a critical benefit of the safety program.

Globally, the findings of the safety program may best be described as “we don’t know what we’re missing if we don’t look.” Because of the

TABLE 5 Immediate Callbacks (N = 53)

	n (%)
Reason for evaluation ^a	
Bruising	23 (43)
Fracture	5 (9)
Intracranial hemorrhage	7 (13)
Abdominal trauma	3 (5)
Sexual abuse	4 (8)
Neglect	5 (9)
Other	17 (32)
Reason for callback ^a	
Radiology testing	21 (40)
Laboratory testing	6 (11)
Photographs	23 (43)
Safety concern	12 (23)
Diagnostic error	14 (26)

^a More than 1 reason for evaluation or callback may have occurred in each single case.

TABLE 6 Diagnostic Changes Based on Immediate Callbacks

CAP Diagnosis	Non-CAP Diagnosis			Total
	Abuse	Not Abuse	No Diagnosis	
Abuse	6	17	5	28
Not abuse	1	14	3	18
Total	7	31	8	46

multiple presentations of maltreatment and the locations of presentation in the context of physician confidence and skill gaps, a hospital-wide safety program may be a necessary step to ensure patient safety from harm. Given the long-term implications and costs of child maltreatment, addressing these issues as urgently and frequently as necessary seems prudent.^{17,18}

There are limitations to this study. The safety program requires time investment from SWs that may not be available in many locations. However, the core components could be adapted to the available resources (such as shortening the PAR form or simply flagging any case concerning for abuse for CAP review). Additionally, the benefits of eliminating medical errors involving child maltreatment likely outweigh the drawbacks of investments in such a program. Further study on

such issues and adaptations is warranted. Data on all maltreatment concerns in the hospital system before implementation of this system are not available for comparison. It is not known how often medical providers did not take specific actions because they knew the safety program was in place. This may have resulted in more safety-based interventions in the study. However, this would also be reflective of providers' previously documented lack of confidence in handling maltreatment.^{2,3} Multiple demographic factors, including race, ethnicity, insurance status, and sex, were not recorded in the PAR form review program and, therefore, were not included in the data set. Although the program has been in existence for several years at the authors' institution and has been well-received, there is also no objective measure of the

acceptability of the child maltreatment intervention program. Finally, the safety program requires staff to have a concern for abuse. It may be best deployed with other interventions to assist in triggering the concern, such as electronic medical record based-alert systems.¹⁵ Further study is warranted.

CONCLUSIONS

A child maltreatment patient safety program encompassing a large pediatric health system provides significant benefits to children. Including such a program across all clinical settings is beneficial.

ABBREVIATIONS

CAP: child abuse pediatrician
 CI: confidence interval
 CPS: Child Protective Services
 ED: emergency department
 IQR: interquartile range
 LE: law enforcement
 OR: odds ratio
 PAR: patient at risk
 SW: social worker
 UC: urgent care

FINANCIAL DISCLOSURE: The authors have indicated they have no financial relationships relevant to this article to disclose.

FUNDING: No external funding.

POTENTIAL CONFLICT OF INTEREST: The authors have no potential conflicts of interest to disclose.

COMPANION PAPER: A companion to this article can be found online at www.pediatrics.org/cgi/doi/10.1542/peds.2021-051583.

REFERENCES

1. US Department of Health and Human Services; Administration on Children and Families; Administration on Children, Youth and Families; Children's Bureau. Child maltreatment 2019. Available at: <https://www.acf.hhs.gov/sites/default/files/documents/cb/cm2019.pdf>. Accessed January 25, 2021
2. Anderst J, Dowd MD. Comparative needs in child abuse education and resources: perceptions from three medical specialties. *Med Educ Online*. 2010;15(1):5193
3. Anderst J, Nielsen-Parker M, Moffatt M, Frazier T, Kennedy C. Using simulation to identify sources of medical diagnostic error in child physical abuse. *Child Abuse Negl*. 2016;52:62–69
4. Wood JN, Feudtner C, Medina SP, Luan X, Localio R, Rubin DM. Variation in occult injury screening for children with suspected abuse in selected US children's hospitals. *Pediatrics*. 2012;130(5):853–860
5. Sheets LK, Leach ME, Koszewski IJ, Lessmeier AM, Nugent M, Simpson P. Sentinel injuries in infants evaluated for child physical abuse. *Pediatrics*. 2013;131(4):701–707
6. Letson MM, Cooper JN, Deans KJ, et al. Prior opportunities to identify abuse in children with abusive head trauma. *Child Abuse Negl*. 2016;60:36–45
7. Gerber JS, Jackson MA, Tamma PD, Zaoutis TE; COMMITTEE ON INFECTIOUS DISEASES, PEDIATRIC INFECTIOUS DISEASES SOCIETY. Antibiotic stewardship in pediatrics. *Pediatrics*. 2021;147(1):e2020040295

8. Clark NP. Role of the anticoagulant monitoring service in 2018: beyond warfarin. *Hematology Am Soc Hematol Educ Program*. 2018;2018(1):348–352
9. Anderst J, Kellogg N, Jung I. Is the diagnosis of physical abuse changed when Child Protective Services consults a child abuse pediatrics subspecialty group as a second opinion? *Child Abuse Negl*. 2009;33(8):481–489
10. Dubow SR, Giardino AP, Christian CW, Johnson CF. Do pediatric chief residents recognize details of prepubertal female genital anatomy: a national survey. *Child Abuse Negl*. 2005;29(2):195–205
11. Gavril AR, Kellogg ND, Nair P. Value of follow-up examinations of children and adolescents evaluated for sexual abuse and assault. *Pediatrics*. 2012;129(2):282–289
12. Singh Kocher M, Dichtel L. Osteogenesis imperfecta misdiagnosed as child abuse. *J Pediatr Orthop B*. 2011;20(6):440–443
13. Jackson J, Carpenter S, Anderst J. Challenges in the evaluation for possible abuse: presentations of congenital bleeding disorders in childhood. *Child Abuse Negl*. 2012;36(2):127–134
14. Rumball-Smith J, Fromkin J, Rosenthal B, et al. Implementation of routine electronic health record-based child abuse screening in general emergency departments. *Child Abuse Negl*. 2018;85:58–67
15. Berger RP, Saladino RA, Fromkin J, Heinen E, Suresh S, McGinn T. Development of an electronic medical record-based child physical abuse alert system. *J Am Med Inform Assoc*. 2018;25(2):142–149
16. Crumm CE, Brown ECB, Thomas-Smith S, Yu DTY, Metz JB, Feldman KW. Evaluation of an emergency high-risk bruising screening protocol. *Pediatrics*. 2020;147(4):e2020002444
17. Lansford JE, Godwin J, McMahon RJ, et al. Early physical abuse and adult outcomes. *Pediatrics*. 2021;147(1):e20200873
18. Widom CS, Czaja SJ, Bentley T, Johnson MS. A prospective investigation of physical health outcomes in abused and neglected children: new findings from a 30-year follow-up. *Am J Public Health*. 2012;102(6):1135–1144

A System-Wide Hospital Child Maltreatment Patient Safety Program
Jennifer Hansen, Amy Terreros, Ashley Sherman, Andrew Donaldson and James
Anderst
Pediatrics 2021;148;
DOI: 10.1542/peds.2021-050555 originally published online August 23, 2021;

Updated Information & Services

including high resolution figures, can be found at:
<http://pediatrics.aappublications.org/content/148/3/e2021050555>

References

This article cites 17 articles, 6 of which you can access for free at:
<http://pediatrics.aappublications.org/content/148/3/e2021050555#BL>

Subspecialty Collections

This article, along with others on similar topics, appears in the following collection(s):
Child Abuse and Neglect
http://www.aappublications.org/cgi/collection/child_abuse_neglect_sub

Permissions & Licensing

Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
<http://www.aappublications.org/site/misc/Permissions.xhtml>

Reprints

Information about ordering reprints can be found online:
<http://www.aappublications.org/site/misc/reprints.xhtml>

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN®



PEDIATRICS[®]

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

A System-Wide Hospital Child Maltreatment Patient Safety Program
Jennifer Hansen, Amy Terreros, Ashley Sherman, Andrew Donaldson and James
Anderst
Pediatrics 2021;148;
DOI: 10.1542/peds.2021-050555 originally published online August 23, 2021;

The online version of this article, along with updated information and services, is
located on the World Wide Web at:
<http://pediatrics.aappublications.org/content/148/3/e2021050555>

Data Supplement at:
<http://pediatrics.aappublications.org/content/suppl/2021/08/20/peds.2021-050555.DCSupplemental>

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 345 Park Avenue, Itasca, Illinois, 60143. Copyright © 2021 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN[®]

