

Child Abuse Pediatric Consults in the Pediatric Emergency Department Improve Adherence to Hospital Guidelines

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ABSTRACT

Background: Little data describes the role of child abuse pediatricians in consultation for physical abuse patients the pediatric emergency department.

Objectives: To compare adherence in the emergency department to hospital physical abuse guidelines and need to return for testing between 2 groups: those receiving a child abuse consultation in the pediatric emergency department vs those who received standard emergency department care with subsequent child abuse review.

Methods: We reviewed 471 records of visits to the pediatric emergency department for physical abuse. Data collected included demographics, studies performed, whether patients need to return after child abuse review, child abuse subpoenas, child abuse testimony in court.

Results: Patients who received a child abuse consult in the emergency department or inpatient were more likely to be younger and to have more severe injuries. In cases where a consult was obtained, there was 100% adherence to emergency department clinical guidelines vs 66% when no consult was obtained. In addition, in cases that did not receive a child abuse consult, 8% had to return to the hospital for labs or radiographs after their emergency department visit.

Conclusions: Child abuse consultation in the pediatric emergency department improves compliance with clinical guidelines and decreases the likelihood that patients will need to return for further testing.

INTRODUCTION/OBJECTIVES

Child physical abuse is a widespread problem in the United States, with approximately 80,000 cases reported each year.^{1,2,3} Many of these children present to the emergency department (ED) for evaluation of these injuries. There is currently little data to demonstrate the frequency and number of these visits, though

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children who are ultimately diagnosed with physical abuse tend to be frequent users of the pediatric ED in general.⁴

As child abuse (CA) pediatrics is a relatively new specialty,⁵ the role of these physicians in caring for physical abuse patients in the pediatric ED is not clearly defined. In some institutions, these physicians are contacted regarding all cases of physical abuse; however, in our pediatric ED, physical abuse cases are not routinely evaluated in the ED by child abuse pediatricians. The need for specialist consultation is determined based on the ED physician's level of suspicion for abuse or if there is diagnostic uncertainty. If a specialty consult is not obtained while the patient is in the ED, the chart is later reviewed by a child abuse pediatrician to determine if the patient needs additional follow-up.

Due to the importance of proper detection and management of physical abuse in children, the American Academy of Pediatrics (AAP) has developed a set of guidelines for the evaluation of suspected physical abuse in children.⁶ Since not all children are initially evaluated by the specialist, a set of step-by-step hospital guidelines (based on recommendations in the AAP guidelines for management of physical abuse) is available for work-up of physical abuse patients in our ED. ED physicians have been educated on the presence of the guidelines, which are periodically updated based on updated AAP recommendations. Secondly, though 1 prior study has looked at the percentage of court subpoena and testimony for physical abuse patients,⁷ no studies have looked specifically at patients in the ED.

The aims of this study are: (1) to compare adherence to hospital guidelines and the need for patients to return to the hospital for further testing in patients that receive child abuse specialist consults versus those that receive standard ED care, and (2) to describe the frequency of subpoenas and court testimony by

treating physicians in cases with specialty consult vs those where no consult was obtained.

METHODS

Study Population

A retrospective record review was performed for physical abuse on visits to an urban pediatric ED from January 1, 2005 to December 31, 2006. The study was performed beginning in 2008, and this data was the most recent data available that included information on court appearances and subpoenas. Patients were identified as patients who were logged in an Access (Microsoft Corporation, Redmond, Washington) database maintained by the child abuse pediatrics department as having received a social work consult in the ED for physical abuse. All patients who present to the ED with injuries concerning for physical abuse receive a social work consult, which is a standard of care for an abuse evaluation in our ED and a social worker is available in the ED 24 hours a day. The Access database also contained information on demographics, follow-up, and court involvement for each patient. Data also was obtained from paper/electronic medical records. The diagnosis of physical abuse was either suspected during the ED evaluation, or patients presented to the ED for evaluation of abuse as self-referrals, primary doctor referrals, or referrals from child protective services. Records of patient visits were excluded if the patient already had been evaluated in the ED for the same injury. A total of 471 records were included in the study, which represented 0.4% of all ED visits during a 2-year time period. The institutional review board of the Children's Hospital of Wisconsin approved this study.

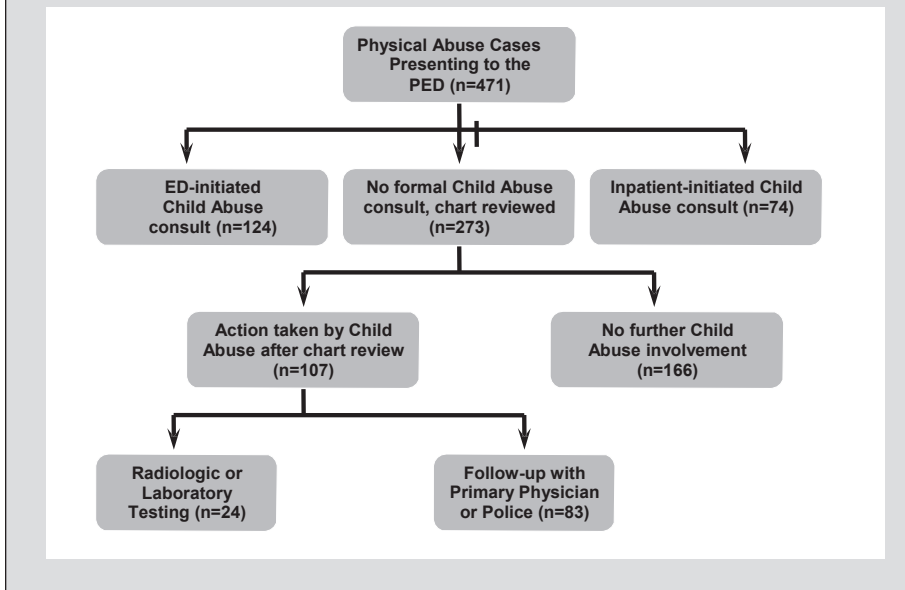
Clinical and Legal Characteristics

Data extracted from the records included demographic data, laboratory and radiographic studies performed in the ED, child abuse pediatrician consultation (in ED, inpatient, or none), whether the patient needed to return to the hospital for additional testing after chart review by child abuse pediatricians, whether patients required follow-up for legal issues, and whether child abuse pediatricians were subpoenaed or testified in court. An Abbreviated Injury Score (AIS) was calculated for each subject using methodology as described by Greenspan et al.⁸

Groups

Patients presenting to the pediatric ED can follow 1 of several different management pathways. All children seen in the ED for whom there are concerns of physical abuse receive a social work

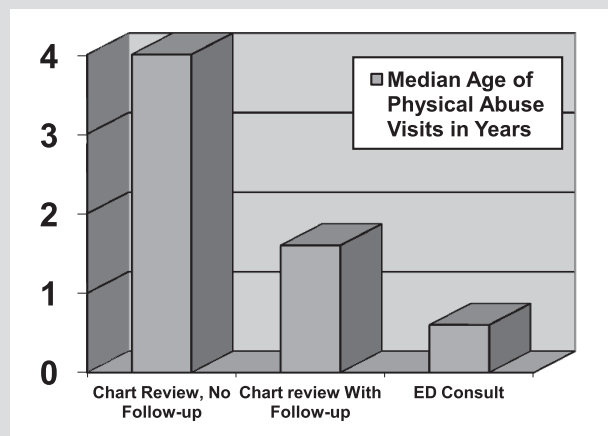
Figure 1: Management Options for Physical Abuse Cases that Present to the Pediatric Emergency Department (PED).



consult and are evaluated by an ED physician. After evaluation by the physician, either a child abuse consult is requested in the ED, the child is admitted and receives the child abuse consult as an inpatient, or no child abuse consult is requested. For patients who do not receive a consult, all charts are reviewed later by a child abuse pediatrician who determines whether additional follow-up is necessary (Figure 1). If additional laboratory or radiologic testing is required after chart review, the patient or their primary doctor is contacted to arrange this testing. Information on the need for additional testing was obtained from medical records and a database maintained by the child abuse pediatricians. Only patients that needed to return for testing that could have been performed as part of the initial evaluation were recorded as patients that needed to return to the hospital; patients who needed to return for routine follow-up (such as repeat skeletal surveys in 2 weeks or follow-up of prior abnormal studies) were not included in this category. Aside from laboratory or radiologic testing, CA pediatricians also follow up on legal issues such as providing reports to police for this group of patients or arranging follow-up with the patients' primary physicians.

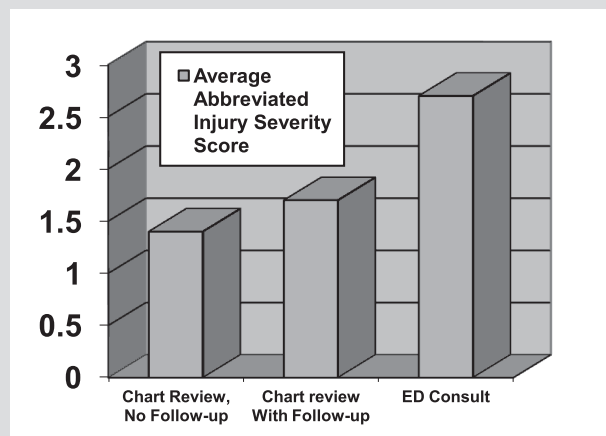
To determine the differences in management of these patients, comparisons were made among 3 groups: ED consults, chart review (no ED child abuse consult) with follow-up required, and chart review (no ED child abuse consult) with no follow-up required. Patients who were admitted to the hospital and received a child abuse consult as inpatients were excluded, since the testing performed in the ED was only part of the workup performed during their hospital stay and some studies were deferred to be done during their inpatient stay. The primary record reviewer (TW) reviewed each record to determine the number of indi-

Figure 2: Age by Child Abuse Specialist Involvement.



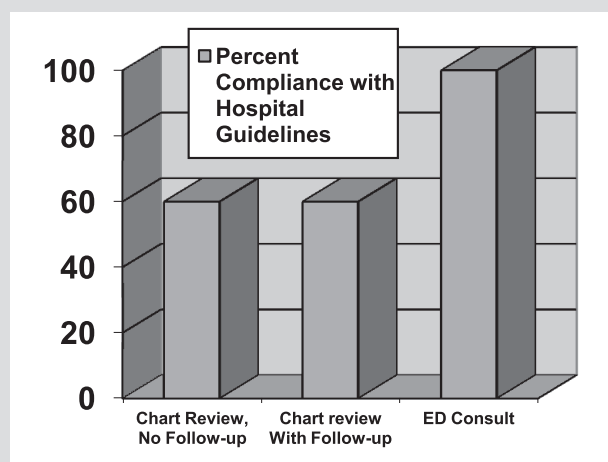
Patients who received child abuse specialist consults in the emergency department or as inpatients were significantly younger than patients who did not receive consults ($P < 0.001$).

Figure 3: Injury Severity by Child Abuse Specialist Involvement.



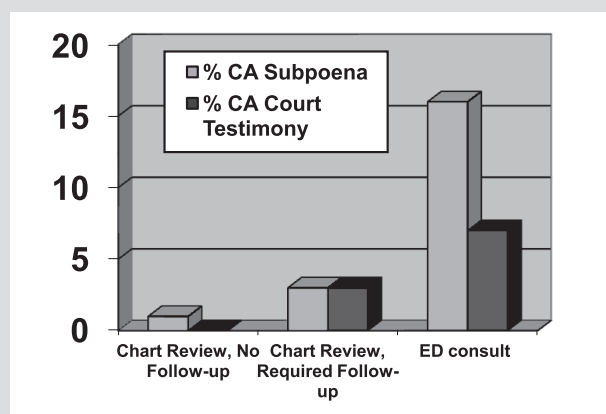
As expected, children with more severe injuries (calculated based on abbreviated injury severity score) were more likely to receive child abuse consults ($P < 0.001$).

Figure 4: Compliance With Hospital Guidelines.



Patients with child abuse consults had significantly increased compliance with hospital guidelines. ($P < 0.001$)

Figure 5: Child Abuse Specialist Subpoena and Court Testimony.



Child abuse pediatricians received subpoenas on 16% of the patients they consulted on in the emergency department (ED). They appeared in court to testify for 7% of ED consults. No ED physicians were subpoenaed or testified in court over this time period.

cated studies (based on hospital guidelines) performed and the number of tests indicated but not ordered. A percent compliance was calculated with number of tests ordered in the numerator and total number of tests indicated in the denominator. For example, if a 6-month old came to the ED for an arm fracture, the guidelines recommend that a head CT and skeletal survey should be obtained. If only 1 of these tests were performed on the patient, the percent compliance would be recorded at 50%.

Data Analysis

Statistical analyses were performed using SPSS software (IBM Corporation, Armonk, New York). Data was analyzed using the Mann Whitney test for continuous data, the χ^2 test for proportions, and the Kruskal-Wallis test for >2 continuous variables (such as the comparisons among the 3 groups by specialty consult).

RESULTS

Demographics

The median age for physical abuse visits was 1.7 years, significantly lower than the median age of 3 years for all ED visits. Patients evaluated in the ED for physical abuse did not have a significantly different racial or ethnic distribution when compared to all ED visits ($P = .470$) though they did have a significantly lower median family income (calculated by ZIP code of residence) ($P < 0.001$).

Use of Specialty Consults

Comparisons by Age

Comparisons of median age of patients receiving child abuse physician consults showed that younger patients were more likely to receive consults than older patients. The median age of

patients who received consults in the ED was 0.6 years. In the patients who did not receive consults, younger patients tended to need more follow-up from the specialists, with a median age of 1.6 years in patients that needed follow-up compared to 4.0 years in patients who did not need follow-up (Figure 2).

Comparisons by Injury Severity

Patients receiving consults had more severe injuries ($P < 0.001$) with a mean AIS of 2.7. Patients who did not receive ED consults but required follow-up had a mean score of 1.4, and patients who did not receive ED consults and did not need follow-up had a mean AIS of 1.6 (Figure 3).

Compliance with Clinical Guidelines

Comparisons of the 3 groups showed that, when no consult was obtained, ED physicians had approximately 66% compliance with the testing recommended by clinical guidelines. When a consult was obtained in the ED, there was 100% compliance with the guidelines ($P < 0.001$) (Figure 4).

Patients Returning to the Hospital for Further Testing

In the group of patients who did not receive a consult, 8% of patients needed to return to the hospital for additional testing (24 patients). See Table 1 for additional testing required for these patients. No patients who received a child abuse consult in the ED needed to return for additional testing.

Court Subpoenas and Testimony by Physician Specialists

Frequencies of court subpoenas and testimony of child abuse pediatricians were recorded. In patients who received consults in the ED, child abuse pediatricians received subpoenas 16% of the time and provided court testimony 7% of the time. The CA pediatricians testified as expert witnesses on 1% of the group that did not receive a consult (3 patients for whom they had recommended follow-up testing). No ED physicians were subpoenaed or testified in court over this time period (Figure 5).

DISCUSSION

Child abuse and neglect recently has been recognized as a specialty, approved by the American Board of Pediatrics in 2005 and accepted by the American Board of Medical Specialties in 2006. As reported by Block and Palusci,⁵ the specialty was developed in response to a relative paucity of research in this important area and the rapid advances in the field that make it difficult for a general pediatrician to stay updated. In addition, child abuse pediatricians bring greater understanding of the workings of the legal system and knowledge of current state legislation.⁵

There are no previous published studies addressing the use of child abuse pediatricians in the ED. The goal of this study was to determine the contributions of the CA pediatricians to cases of physical abuse in the ED. As reported earlier, since not all children in our ED receive consults, we were able to compare the children with child abuse involvement directly to groups of

patients in our ED who did not receive consults. With respect to demographic comparisons, younger children were more likely to receive specialty consults, likely because this population tends to have more severe injuries such as nonaccidental head trauma. Our data shows patients with higher AIS scores also were more likely to receive consults, so there may have been a significant overlap between these 2 populations.

As hypothesized, adherence to the guidelines varied with the level of involvement of the child abuse pediatricians. After the charts of patients who did not receive consults in the ED were reviewed by the specialists, a significant number of patients needed to return to the hospital for additional testing or radiological evaluation. Since this testing should have been performed as part of the initial workup in the ED as part of the physical abuse guidelines, it is concerning that patients who do not receive a consult may have undiagnosed injuries during their initial visits and may be at risk for further abuse. However, we were able to demonstrate improvements in the adherence to clinical guidelines and the reduced need for patients to return to the hospital for further testing in patients who received CA consults.

In addition, the recorded data on court testimony and subpoenas by the child abuse specialists is similar to that published by Palusci et al in 2001.⁷ While both studies look at rates of court subpoena and testimony in child abuse experts, the Palusci study was performed before a formal pediatric specialty in the field of child abuse existed and showed rates of court subpoenas of 13% of patients evaluated, while our study shows slightly higher court subpoenas on 16% of patients evaluated in the ED and 18% of patients evaluated as inpatients. Our study also showed a slightly higher percentage of court appearances in patients evaluated by the child abuse pediatricians (7% of ED consults compared to 4.5% of total evaluations in the Palusci study). It is unclear from the Palusci study whether the child abuse experts were evaluating only outpatients or were also performing consults in the ED. Possible explanations for our higher rates of subpoenas and court appearances could be related to higher acuity of care resulting in patients with more severe injuries or may be simply due to differences in the legal system in different jurisdictions.

Possible limitations of our study are that our inclusion criteria may have inadvertently excluded some physical abuse patients. First, though we perform social work consults on abuse patients as a standard of care, it is possible that a rare patient may not have received a consult. Secondly, not all cases of physical abuse that present to the ED are detected, so patients who had unrecognized abuse would not have been included in the study. Third, though we were able to demonstrate that a significant number of patients needed to return to the hospital for additional testing, incomplete data was available regarding the results of this testing, so we were unable to determine if any new injuries were detected as a result of the additional testing. Also, given the retrospective nature of the study, it is difficult to determine whether the

involvement of the child abuse physicians and improved guideline adherence resulted in improved outcomes for the patients.

Another limitation is that child abuse policies and procedures vary among institutions. In institutions that have different protocols for consultation, the information reported in our study may not be applicable or relevant to their clinical practice. Also, the study data reflects physician practice specific to our geographic area, which may vary in other hospitals and locations. Finally, not all institutions have child abuse specialists available and do not have the ability to consult these physicians regarding patient management. Though this study has demonstrated significant improvements in adherence to hospital guidelines when child abuse physicians were involved in patient care, similar adherence could be achieved potentially with better education of ED physicians regarding established AAP or local hospital guidelines.

CONCLUSION

This study shows that consultation of child abuse pediatricians can improve adherence to physical abuse guidelines and decrease the need for patients to return to the hospital for further testing. Future directions will be to determine whether these indicators of improved clinical practice result in an improvement in diagnosis of physical abuse and prevention of future injury. In addition, a prospective study aimed at determination of the effect of specialist involvement on legal and child protective service outcomes is needed to examine the contribution of these specialists to ongoing management of physical abuse patients and prevention of further injuries.

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