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ORIGINAL ARTICLE

Every child, every time: hospital-wide child abuse screening increases awareness and state reporting

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Abstract

Purpose A review of our child abuse evaluation system demonstrated a lack of standardization leading to low reporting levels. The purpose of this quality improvement initiative was to develop a standard child abuse screening tool; an education program increasing awareness to child abuse; and to measure the impact of the screening tool in reporting.

Methods A screening tool was developed and implemented for all trauma patients < 15 years of age; staff was educated; and a child protection team (CPT) was established. Within 9 months, screening was extended to all patients admitted to the children's hospital. Screening compliance, number of child abuse reporting forms (CY-47) filed, and consultations to the CPT were monitored.

Results Initially, there was an average screening compliance of 56%. After making the program hospital-wide, the compliance rate increased to an average of 96%; and the average number of CPT consults increased from 2 to 10 per month. Over this study period, the average number of CY-47s filed increased from 6.1 to 7.3 per month.

Conclusions Hospital-wide use of an objective screening tool, frequent re-education, and the support of an experienced child protection team led to improved child abuse screening compliance and more consistent suspected-abuse reporting rates.

Keywords Child abuse · Universal screening · Quality improvement · Non-accidental trauma (NAT)

Introduction

Lack of early identification of child abuse continues to be a problem which allows potentially preventable events to occur. In 2014, there were 29,273 reports of child abuse in Pennsylvania, with 3340 cases substantiated after investigation by Department of Human Services (DHS). Of these cases, 3284 were reported by a hospital [1].

Previous studies have demonstrated that using a standardized tool for evaluation and documentation can improve the diagnosis of non-accidental trauma (NAT). Additionally, the authors found that without standardization, screening and management thereafter may be inconsistent [2]. One issue with many forms of abuse identification is that NAT is suspected after the infliction of severe injury, and sometimes it is too late. The intent of screening is to diagnose child abuse to prevent future harm. Many methods have been developed thus far, with varied success. Using "the Escape instrument," Louwers et al. demonstrated that utilization of a screening questionnaire in the emergency department led to improved identification of child abuse victims [3].

At our institution, we identified a disparity in reporting compared to other institutions in the state, as well as inconsistencies with which patients were screened. In this quality initiative, we describe how the implementation of a child abuse screening tool, the establishment of an education program increasing awareness to child abuse, and the development of the CPT affected child abuse reporting at our

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institution, a high-volume tertiary care and level 2 pediatric trauma center.

Methods

This study was excluded from the IRB under the institution quality assurance/quality improvement initiative. Data for the study were acquired using the institution's trauma registry, which is continually compiled on each trauma patient evaluated by or admitted to the trauma service. No chart review was performed, and all information was collected without any patient identifiers.

The study was conducted at Lehigh Valley Health Network and Lehigh Valley Reilly Children's Hospital in Allentown, PA, a level 1 adult and level 2 pediatric Pennsylvania trauma system and tertiary care center from September 2013 to August 2015. During the pediatric trauma site visit, the reviewers cited lower than expected child abuse reporting and inconsistent and subjective screening practices. In response to this, a child abuse task force was established in September 2013 which included the pediatric trauma coordinator, pediatric trauma medical director, trauma PI director, pediatric hospitalists, and the Children's Hospital nurse manager. This group's main purpose was to develop an objective institutional child abuse screening tool to be used in the initial evaluation of all pediatric trauma patients. The tool was created using our institution's policy of reporting of suspected child abuse, the relevant literature, consultation with large Level 1 pediatric trauma centers, and the Pennsylvania State Criminal Code for Child Protective Services Law [4] (Fig. 1). From September 2013 to December 2013, the screening tool underwent several versions that were finalized after approval from the child abuse task force and the trauma PI membership. The screening tool was implemented in January 2014 for all trauma patients under 15 years of age. Screening was extended to all patients evaluated in the children's emergency department and admitted to the children's hospital in September 2014. The screening tool was posted in nursing charting areas of all pediatric floors, intensive care units and the emergency department.

Initially, staff members were educated with online modules. Education was reinforced during nursing huddles and with continuous case review during the monthly pediatric trauma quality meetings. Re-education was performed by reminders during unit meetings, emails, or conferences led by the child abuse pediatrician.

In August 2014, a child protection team (CPT) was established, led by a board certified child abuse pediatrician. Volume of consultations was immediately monitored. The CPT is consulted on any patient with a positive screen or on whom a state child abuse reporting form (CY-47) has been filed. The child abuse pediatrician held multiple child abuse awareness seminars. These were mandatory for all employees involved with children at the institution.

Screening compliance was monitored from January 2014 to August 2015 by the pediatric trauma coordinator and nursing unit administrative partners; this was then reviewed at monthly pediatric trauma quality meetings. Initially, the screening was performed on paper charts as the institution had a hybrid medical record system. Screening tools were collected prior to discharge. During the study period, the institution transitioned to completely electronic medical records, and the screening tool was incorporated into the triage and admission checklists. To monitor screening compliance, number of forms completed was compared to the number of pediatric trauma patient evaluations in the institution's trauma registry. The number of child abuse reporting forms was also monitored. Any patient with positive screening prompted the nurse to notify the treating provider and to document who completed the CY-47. In response, the treating provider must file the CY-47, and a consult to the CPT is placed.

Results

Seven hundred and twenty-four patients were seen and evaluated as a pediatric trauma patient from January 2014 to August 2015. In January 2014, five patients were screened out of 25 patients evaluated, making compliance only 20 %. As the involved personnel underwent education, compliance improved to greater than 60 %. Throughout the summer months, with new staff employments, compliance rates deceased, reaching a nadir of less than 20 % in August, with only eight of 44 patients evaluated. This trend was quickly reversed with re-education through child abuse awareness seminars and continuous compliance monitoring. Screening was also made mandatory for all pediatric patients around this time. With all these facets in place, screening was maintained greater than 95 % for the last 7 months of monitoring (Fig. 2).

The volume of child abuse reporting fluctuated on a month to month basis. However, throughout the monitoring period, it continued to increase with the average number of reports filed increasing from 6.1 to 7.3 per month (Fig. 3). In 2013, prior to intervention, 73 CY-47s were filed. After initiation, reporting increased to 81 in the first year and 88 in the second year (Fig. 4). At the start of monitoring, when screening compliance was low, there was a significant gap between the number of pediatric trauma patients evaluated and the number of screens performed. During this time, there were more CY-47 reports filed than screens performed. However, towards the end of the monitoring period, when compliance was consistent, number of pediatric trauma patients evaluated was equal to number of

PATIENT STICKER

INPATIENT UNIT
Child Abuse Screening Tool (age < 18 years)

☐ **CY47 completed at Outside Facility or Physician Office**

Yes*	No	Unable to Assess	
☐	☐	☐	Child's report of injury caused by parent or caretaker
☐	☐	☐	Unexplained or suspicious fractures, bruises or burns
☐	☐	☐	Explanation for injury inconsistent with mechanism or developmental age
☐	☐	☐	Significant discrepancies in report of injury by parents or parent/child
☐	☐	☐	Delay in seeking appropriate care
☐	☐	☐	Injury resulting from neglectful or unsafe situation (including lack of proper supervision and/or imminent risk)
☐	☐	☐	Appearance of malnutrition or poor physical/dental hygiene
☐	☐	☐	Parent or caretaker presents with impairment due to substance abuse, physical abuse or mental illness
☐	☐	☐	Child's report or physical findings consistent with sexual abuse
☐	☐	☐	Other concern (describe in detail):

Checklist completed by: _____
Name Date/Time Unit

*** Any YES answer above requires CY47 and call to Childline**

☐ Name Provider notified: _____

☐ CY47 Completed by: _____
Name of individual or Outside Facility Date/Time

☐ Filed with **Childline**: _____
(800-932-0313 or https://www.compass.state.pa.us/cwis/public/home) Name of person taking report or online

☐ DNA-VC placed: Call Security at 402-8220

Fig. 1 Child abuse screening tool. The initially used paper version is depicted here. The same format was incorporated into the electronic charts. Compared to what had previously been used at the institution, there is less element of subjectivity with simple yes or no questions. There is still an "other" option to allow for clinical suspicion not based on other criteria. Additionally, the form is not complete without documenting who filed the CY-47 for all positive screens

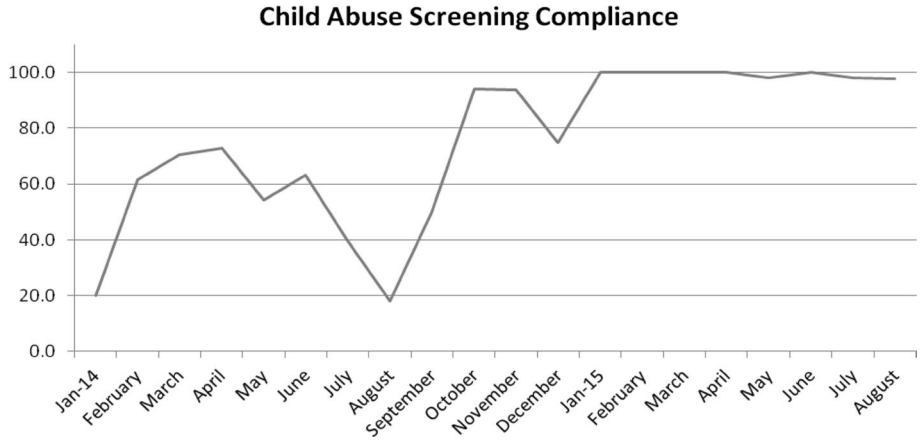

Fig. 2 Child abuse screening compliance rates. Education began in January, 2014. Reminder emails and nursing huddles emphasized screening in May, 2014. Screening compliance decreased with new staff hires in the summer months. Child abuse awareness seminars began in August, 2014. Screening was made mandatory for all pediatric trauma patients in September 2014. Screening was maintained at greater than 95 % for the last 7 months of monitoring

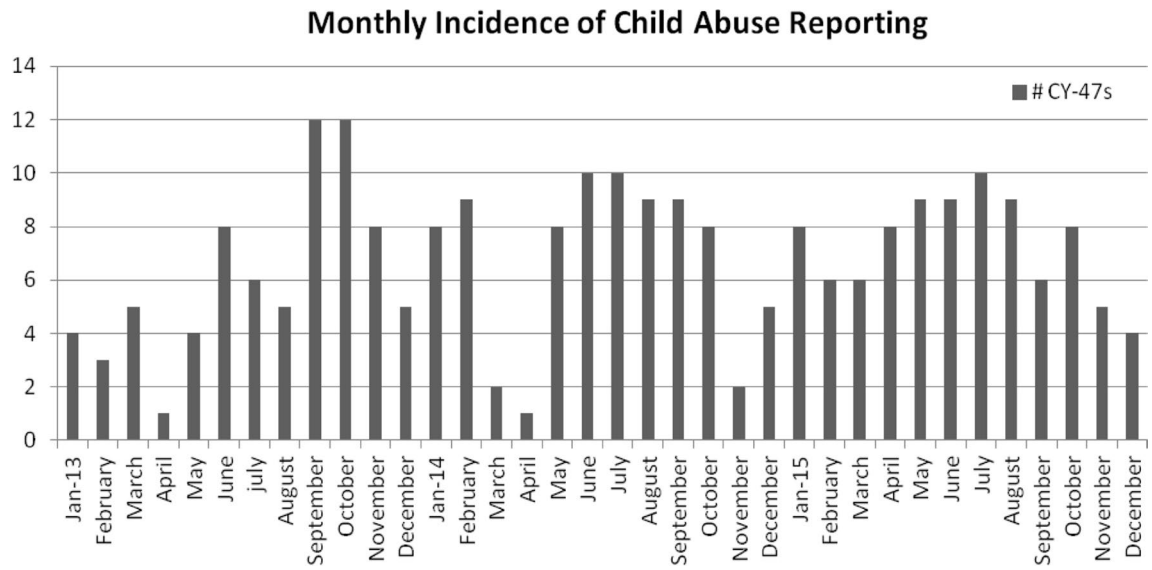

Fig. 3 Summary of monthly child abuse reporting volumes based on number of CY-47 reports filed. Though monthly fluctuations occurred, average number of CY-47s per month increased from 6.1 to 7.3 per month over the study period

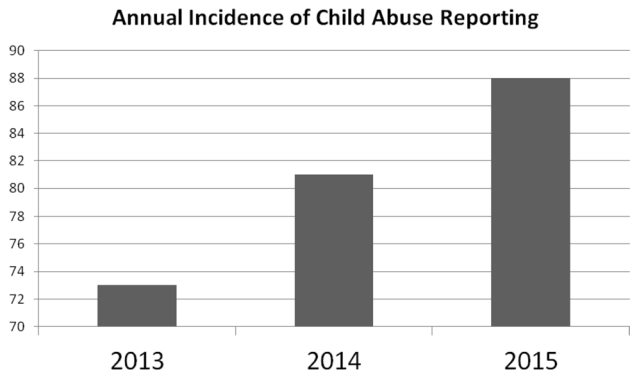

Fig. 4 Summary of annual child abuse reporting volumes. Over the study period, reporting volumes increased by 20%

screens performed, and the number of positive screens was equivalent to the number of CY-47 reports (Fig. 5).

In the first month the CPT was established, there were only two consults. This volume increased dramatically with child abuse awareness education and screening compliance. The CPT evaluates patients on multiple pediatric services, so the number of consults exceeds the number of both positive screens and CY-47s for each month. Throughout the study, the number of CPT consults increased from two to an average of ten per month.

Discussion

Utilization of an objective child abuse screening tool in pediatric trauma patients is vital to increasing suspicion of NAT and its reporting. The use of a child abuse task force which consisted of multidisciplinary stakeholders in a pediatric trauma patient's care provided initial buy-in for the quality project. However, it was when screening was mandatory for all pediatric patients admitted to the Children's Hospital that missed screens were minimized. In a multicenter evaluation of child abuse screening in the emergency department, Louwers et al. demonstrated that lack of adherence to uniform screening guidelines was associated with underreporting [5]. In our study, screening was incorporated into the entire hospital, not just one clinical setting. Though screening compliance for all pediatric patients was not monitored, the compliance for trauma patients improved to greater than 95 % when the screen was generalized to all pediatric patients. Additionally, when subjective screening is performed, providers, patients and their families alike may become uncomfortable with questioning, causing possible unnecessary stressors or even causing parents to alter their account of the situation due to feeling defensive. When a screening tool is used universally for all patients, it makes it a regular part of the medical encounter, which can be relayed to the patient and their families. To this end, it serves to facilitate effective and efficient evaluation, communication and follow-up of positive screens. When screening is not automated, compliance will suffer. Benger and Pearce demonstrated that using a chart "sticky note" placed by the triage nurse as a reminder to providers to consider NAT increased referrals to the child

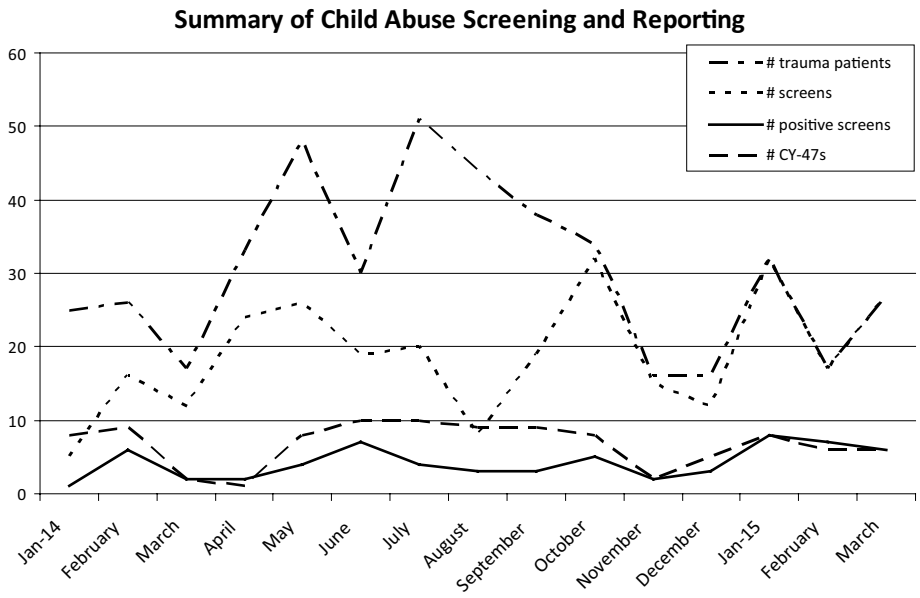

Fig. 5 Compilation of data. During months of low compliance, a large gap is evident between the number of trauma patients evaluated and the number of screens performed. Additionally, the relationship between positive screens and number of CY-47s filed fluctuated. When screening compliance was consistent toward the end of the study period, the number of screens is equal to the number of pediatric trauma patients; the number of positive screens is equal to the number of CY-47s

protection registry. However, even with the intervention, only 71% of the audited charts had the "sticky note" included [6]. We found that making it a necessary completion step in registration and triage prevented such human error. Furthermore, it has been shown that without clinical or social history suspicion of child abuse, physical exam alone may be unreliable in detecting child abuse, with positive findings in a minority of patients [7]. This emphasizes the importance of a screening tool in addition to the regular components of medical evaluation.

Establishment of the child protection team was crucial in facilitating the discussions and ongoing communication between the family, institution case management, and the state Department of Health Services (DHS). Prior studies have emphasized both a multidisciplinary approach and the surgeon's role in evaluation of NAT [8]. Though the initial screening was intended to pick up on red flags for abuse, the CPT assisted in more thorough history gathering, including understanding the complete social situation of the patient. Furthermore, the CPT manages the institution's Children's Advocacy Center, which conducts follow-up and continuing care on any patients with suspected NAT. Should any further concerns in arise in the post-hospital period, through the Child Advocacy Center the CPT serves as another avenue for monitoring and reporting.

Frequent monitoring of screening compliance was fundamental to the success of the program. At the monthly pediatric trauma quality meetings, in addition to evaluating the previous month's screening numbers, case review was performed to ensure that there were not any patients with positives screens or CY-47 reports who did not have CPT consult and adequate follow-up. Though universal screening was mandatory, as with any intervention, utilization waned without frequent re-education and reminders. With regular monitoring, any unfavorable trends in compliance were recognized and addressed promptly.

Based on deficiencies recognized at the trauma site survey, the goal of intervention was to improve screening and reporting. In reviewing the discrepancy between the number of reports filed compared to the number of positive screens (Fig. 4), a few possibilities exist; reports were filed at an outside hospital prior to transfer to our institution on patients who may not have had a positive screen with our tool, or reports were filed on patients who were never screened. With this information and the significant increase in annual reporting volume after intervention, it reiterates that though we were screening previously, it was inconsistent, subjective and may have missed children based on social or situational biases. Additionally, this QI project was conducted based on volumes of evaluation. Though chart monitoring and follow-up of DHS investigations for patients with positive screens was conducted in the clinical setting, this information was not used in the study. Thus the relationship between positive screens, CY-47 forms filed and the outcomes of the DHS investigations is not known. Therefore, it is possible that we are over reporting. However, it is understood that in the case of evaluating for NAT, higher sensitivity is prioritized over specificity to prevent missing abused children [9]. Future research could focus on validating the screening tool by further defining such endpoints.

Another limitation of this study was that it was initially conducted with a hybrid chart system. When the record was partially paper, it was challenging to ensure that screening was completed on every patient on admission. With completely electronic medical records, the screening tool has been made a part of the triage information for all children's

emergency department patients and the registration information for all patients admitted to the pediatric hospital. Though screening has been monitored only on trauma patients, it is easy to confirm screening has been completed and monitor overall pediatric patient compliance. Additionally, since a prompt appears to document which provider filled out the state report in the electronic chart if a screen is positive, it is another check point to ensure no positive screens are performed without a CY-47 being filed.

In conclusion, this study demonstrates that implementation of a child abuse screening tool with global utilization in a children's hospital and intense quality assurance led to improved identification of suspected NAT. Maintenance of screening compliance required frequent education, screening monitoring and the support of a CPT led by a pediatric child abuse specialist. Furthermore, without an established screening protocol, child abuse evaluations were subjective and may have missed children who required further evaluation. After intervention, child abuse reporting more accurately reflected the expected rate, and all children with positive screens received the multidisciplinary support necessary for these situations.

Compliance with ethical standards

Research involving human participants and/or animals This article does not contain any studies with human participants performed by any of the authors.

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