Acute Child Sexual Assault Exams: A Quality Improvement Project

Karis Kerbs

Oregon Health & Science University

Abstract

Child sexual assaults number about 115,000 annually. The American Academy of Pediatrics and a panel of child maltreatment medical experts known as the "Adams" group maintain updated guidelines for examination, diagnosis, and treatment of child sexual assault victims. Chart reviews at the project site demonstrate that child sexual assault (CSA) exams in the emergency department (ED) do not adhere to current national and state CSA guidelines for anogenital exam documentation, taking anogenital photo-documentation, and photo-documentation quality. A plan-do-study-act model was used to assess current practice, plan strategies to improve adherence to CSA guidelines, and for ongoing improvement. Chart review of all CSA ED patients were performed to measure guideline adherence and compare data before and after the intervention. An educational module for ED nursing and provider staff was created based on current CSA guidelines and presented to ED CSA champions and provider representatives in didactic sessions. One-on-one coaching was available following the didactic education. Descriptive statistics were collected, and inferential statistics were performed on collected data. Independent t-tests demonstrated that exam adherence to CSA guidelines was higher in post-education exams than pre-education exams for forensic collection, photo quality, and anogenital exam documentation, but was not statistically significant due to small sample sizes. However, some clinical significance was exhibited by the increase in CSA guideline adherence following the educational intervention. Recommendations for continued adherence to CSA guidelines are ongoing CSA staff education, development of electronic documentation and flowsheets for CSA exams, and continuation of chart reviews to evaluate guideline adherence.

Keywords: child abuse, sexual; guideline adherence; quality improvement

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Sexual assaults number about 230,000 annually with half of those under the age of 18 years (Trotman, Young-Anderson, & Deye, 2016). Sexual assaults are designated acute if occurring within the past seven days (Al-Jilaihawi, Borg, Maguire, & Hodes, 2017) with the first 72 hours an emergency for evidence collection, physical exam, and photo documentation (Adams et al., 2016). Emergency departments (EDs) are often the site of acute child sexual assault (CSA) exams due to assault prevalence and time sensitivity, inability of primary care clinics to collect forensic evidence, child maltreatment clinics not having availability for acute or emergent exams, and the inability of outpatient clinics to stabilize patients if needed (Schilling et al., 2015). Unfortunately, evaluation and treatment of acute CSA in EDs do not always meet recommended guidelines for anogenital exam documentation, quality photo-documentation of the anogenital exam, and/or sexually transmitted infection (STI) testing and treatment (Schilling et al., 2015). Unclear or questionable ED documentation and photos of acute CSA exams may result in the victims needing to be re-examined and re-photographed urgently in a child maltreatment clinic (Adams et al., 2016; Adams, Farst, & Kellogg, 2017; Goyal et al., 2013).

Problem Description

Monthly peer chart reviews performed on all acute CSA performed at a local community ED identified inadequate anogenital exam documentation and/or photos without sufficient quality to clearly identify whether or not anogenital injury had occurred with the assault. This unclear or questionable documentation led to many patients requiring urgent re-examination and photographing to meet current CSA guidelines. The lack of adherence to CSA guidelines can adversely affect CSA patients by increasing their emotional distress when re-examination is urgently needed, adding cost to their care, and making it difficult for staff at child maltreatment

clinics and child advocacy centers to make decisions medically and legally for the victim without the quality anogenital photos and adequate written documentation of the anogenital exam.

In the past several years, CSA training for staff in this community ED has not occurred for new employees or as an annual competency for current staff. Most CSA instruction occurred between experienced and less experienced staff when the need arose rather than with a well-developed education module based on current CSA guidelines.

The adverse effects of CSA re-examination on the victims, staff, and system may be associated with the inadequate ED staff CSA education, and the poor quality of CSA anogenital exam documentation and photography.

Available Knowledge

The foundation of CSA scientific knowledge consists of the Adams guidelines and two classic large studies, which are cited by most other manuscripts and guidelines addressing the acute evaluation, exam and treatment of CSA victims (Smith, Raman, Madigan, Waldman, & Shouldice, 2017). Berkoff et al (2008) and McCann, Miyamoto, Boyle, and Rogers (2007) are two classic studies that document the variety of anogenital exam findings in CSA and the typical healing seen in hymenal injuries in prepubertal and pubertal girls from sexual assault, accidental and unknown causes. A consensus of medical child maltreatment experts collaborated and published reviews of updated guidelines for the medical assessment of CSA starting in 2007 with the most recent update in 2017. This group of experts regularly reviews recent CSA manuscripts, American Academy of Pediatrics (AAP) recommendations, World Health Organization, and Centers for Disease Control guidelines every few years and publishes updated guidelines known as the Adams guidelines to inform CSA medical care (Smith et al., 2017).

The current Adams guidelines and other manuscripts support the following components of an acute CSA exam: a thorough medical and sexual history, a general and anogenital specific physical exam with written and photo documentation within 72 hours of assault, testing and treatment for STIs and pregnancy, referral to mental health services, a trauma-informed approach, collection of forensic evidence, and report to law enforcement and child protective services (Adams et al., 2016, 2017; Goyal et al., 2013; Sena et al., 2015; Subramanian & Green, 2015; World Health Organization, 2017).

The application of CSA guidelines in EDs through specialized sexual assault pathways is associated with increased rates of victims receiving guideline-recommended evaluation and treatment (Schilling et al., 2015). Schilling et al. (2015) retrospectively studied adolescent sexual assault victims seen at 38 different EDs and discovered varying rates of adherence to current CSA guidelines: an average of only 35% of all victims received recommended treatment while those seen at EDs with specific CSA pathways had guideline adherence rates of 57-89%.

Rationale

The lack of clear photos showing the presence or absence of hymenal injuries and inadequate written documentation of the presence or absence of injury in the anogenital area is one of the primary reasons CSA patients seen in the project ED site may need urgent re-examination by the outpatient child maltreatment team. According to the results of Schilling et al. (2015), the use of a specialized CSA pathway in the ED may increase the percentage of victims receiving recommended evaluation and treatment during acute CSA.

The knowledge-to-action (KTA) model from Canadian Institutes of Health Research for quality or practice improvement assumes the absence of optimal care and adherence to established clinical guidelines is from either a difficulty with adaptation of available knowledge

to clinical practice or a barrier to the use of available knowledge by staff (Graham et al., 2006). Since staff in this community ED have not been educated on updated CSA guidelines, it can be presumed that the lack of staff CSA knowledge presented to staff may be the primary barrier to the application of CSA guidelines in clinical practice.

According to the KTA model, removing the barrier to guidelines adherence, a lack of staff education in this case, should improve the adherence to these guidelines. Providing ED nursing and provider staff with guideline-adherent education modules should increase the number of ED CSA victims receiving guideline-adherent CSA exams for quality anogenital photos and documentation.

Specific Aim

The purpose of this project was to improve adherence of acute CSA exams in the ED to current CSA guidelines, particularly in photo-documentation quality and anogenital exam documentation. This improved adherence to CSA guidelines would be achieved through education of ED staff on current CSA guidelines, demonstration of quality anogenital photography, and examples of adequate anogenital exam documentation.

Project Design and Methods

Project Setting

A local community ED was the site of this quality improvement project. The ED is located within a medical center that was established in 2012 and is part of a large regional health care organization consisting of multiple medical centers, specialty clinics, and primary care clinics. The project ED has 38 ED beds with an addition 12 overflow beds. Annually, the ED sees over 75,000 patients of all ages with a daily average of about 50 daily pediatric patients under the age of 18 years. Provider staff in this ED are made up of emergency medicine

physicians, physician assistants, and nurse practitioners. Pediatric emergency medicine physicians and pediatric-focused nurses care for pediatric patients in the overflow area in the afternoons and evenings when most pediatric patients are seen.

When CSA victims are referred to this ED, they are encouraged to arrive during the hours when a pediatric physician is available. However, as CSA exams are time sensitive, it may not be appropriate to wait until pediatric-focused staff are available. Therefore, CSA patients may be seen by any emergency provider or nurse if arriving at the ED at an hour when pediatric-focused staff are not available. For this reason, it is imperative all ED staff be prepared and willing to care for CSA patients in a manner that is adherent to guidelines and compassionate. Sexual assault patients 15 years and older are seen by contracted sexual assault nurses (SANE) for examination, evaluation, and forensic evidence collection alongside the ED staff.

Project Population

The sample population in this quality improvement project was CSA patients seen in the local community ED. Inclusion criteria was patients under the age of 18 years seen in the ED for the complaint of alleged sexual abuse or assault.

Intervention

A CSA ED committee was formed to address CSA guidelines adherence through educational intervention in this ED. This committee consisted of a Doctor of Nursing Practice (DNP) student, the ED nurse educator, a sexual assault nurse (SANE), and the Medical Director of the child maltreatment specialty clinic. The CSA committee worked together to identify CSA champions and provider representatives among the ED staff, and used a plan-do-study-act (PDSA) model to assess educational needs of staff, and to develop an educational intervention and plan for evaluation.

The intervention in this quality improvement project was a didactic educational module and one-on-one bedside education based on current CSA guidelines and recommendations with a focus on the following CSA exam components:

- thorough medical and sexual history
- general and anogenital specific physical exam with written and photo documentation
- testing and treatment for STIs and pregnancy
- referral to mental health services
- trauma-informed approach
- collection of forensic evidence
- report to law enforcement
- report to child protective services
- referral to child maltreatment specialty team

The didactic module presented to CSA champions and physician representatives included anogenital anatomy diagrams, photography technique guidelines and demonstration, and an exam checklist [Appendix A] to guide staff in following current CSA guidelines. Separate documentation portions were developed for nurses and providers as their roles and responsibilities differ in this area. An electronic health record (EHR) template for the anogenital physical exam was shared with providers to add detail and names of genital structures to their exam documentation and description of any injuries. A nursing documentation form was developed for use when forensic collection is part of the exam. This form was to be filled out manually and scanned then into the EHR. In addition to the educational modules, the DNP student was available for one-one-one bedside coaching with nurses and providers during CSA exams.

Study of the Intervention

An existing chart review process of all CSA ED exams was utilized for this quality improvement process to assess the impact of the educational intervention on adherence to CSA guidelines during ED CSA exams. In addition to the child maltreatment provider already performing these chart reviews, the DNP student leading this project independently reviewed the same CSA ED charts and compared their data with that of the maltreatment provider to ensure accuracy and completeness of data. Any difference between data collected by the DNP lead and provider were discussed together to reach a consensus. Twelve weeks of CSA patient charts were reviewed pre-intervention and 12 weeks post-intervention to collect data for this assessment.

Measures

Data from these chart reviews were collected on data collection forms [Appendix B]. From these forms, five exam components were selected to measure adherence to CSA guidelines. These outcomes were measured with a yes or no for each chart reviewed:

- Whether forensic swabs collected within 120 hours of the assault as recommended by state guidelines
- Whether anogenital photos were taken and had good technique and quality
- Whether the anogenital exam was documented with adequate detail
- Whether reports were made to both law enforcement (LE) and child protective services (CPS)
- Whether a referral was made to a child maltreatment clinic

These five outcome measures were scored using a 0 for a no answer and a 1 for a yes answer. In addition, each exam was given a composite exam score determined by adding up the scores of the individual components. The composite exam score had a possible range of 0 to 5 with lower

scores demonstrating less CSA guideline adherence and higher numbers demonstrating more CSA guideline adherence.

Analysis

Twelve weeks of data were collected pre- (n=12) and post-intervention (n=16) through the chart reviews of all ED CSA patients. Descriptive statistics for gender and age were collected on all patients meeting criteria. Inferential statistical analysis was used to measure the impact of the intervention by comparing pre- and post-intervention groups. Independent t-tests were performed to compare the means of individual exam components between pre- and post-intervention groups and to compare the means of composite exam scores between the pre- and post-intervention groups.

Ethical Consideration

The age (0-17 years old) and the sensitive topic (sexual assault/abuse) of this quality improvement project's sample population, and the review of protected health information (PHI) during chart reviews required ethical consideration. During chart reviews, the EHRs of ED CSA patients were opened and viewed only on secure health system computers or through secure remote access to the health system's network. Verbal discussions of patient data between team members did not occur near non-project individuals, and PHI patient identifiers were not entered in data collection spreadsheets or included in the collection and storage of results. Internal review board (IRB) exemption was obtained from both the project site health system and the DNP student's educational institution after demonstration that these ethical considerations would be adequately addressed.

Another ethical consideration for this project was that of patient consent and assent for the CSA exam. At any point of the CSA exam, patients could decline the exam, treatment, or

evidence collection, or decide to defer all or part of the evaluation until later. Even when the choice to decline or delay part or all of the evaluation might affect the forensic or legal outcome of their case, the patient's choice was honored.

Funding

No funding was received in the form of monetary or equipment by this quality improvement project team.

Results

Twelve weeks of data was collected pre- (n=12) and post-intervention (n=16) and analyzed for descriptive and inferential statistics to assess the educational intervention's impact on adherence to CSA guidelines for all ED CSA patients.

Descriptive Statistics

The descriptive statistics for gender were two males and 10 females in the pre-intervention group, and two males and 14 females in the post-intervention group. The two males in the pre-intervention group were 17 months and 10 years old, and the males in the post-intervention group were 2 years and 6 years old.

The descriptive statistics for age ranged from 17 months to 17 years old with a mean of 6 years in the pre-intervention group, and a range from 7 weeks to 17 years old with a mean of 8.5 years in the post-intervention group.

Inferential Statistics

Independent t-tests were performed on the collected data to compare the means between both individual exam components of the pre-intervention and post-intervention groups. Post-intervention group means were higher than the pre-intervention group in forensic swab collection, photo-documentation quality, and anogenital exam documentation [Table 1]. The

independent t-tests for individual exam components did not obtain a statistical significance of $p<0.05$. The significance of these independent t-tests for individual exam components ranged from $p=0.25$ to $p=1.0$. An independent t-test was also performed on the means of the exam composite scores of both groups and showed a composite exam score increase of 0.18 from the pre-intervention group ($M=3.82$; $SD=0.87$; $p=0.579$) to the post-intervention group ($M=4.0$; $SD=0.71$; $p=0.579$). The independent t-test of the composite exam scores did not obtain a statistical significance of $p<0.05$. Likely the small sample sizes ($n=12$; $n=16$) were the reason statistical significance was not obtained.

Although the inferential statistics did not reach statistical significance to demonstrate an improved adherence to CSA guidelines in post-intervention CSA exams as compared to pre-intervention CSA exams, there was clinical significance in the results of this project. On a clinical level, this quality improvement project demonstrates that by using a PDSA model with an educational intervention and documentation tools, CSA guideline adherence was improved for forensic swab collection, photo-documentation quality, anogenital exam documentation, and overall CSA exam composite scores.

Discussion

Summary

This quality improvement project accomplished the specific aim set forth at the beginning: to improve adherence of acute CSA exams in the ED to current CSA guidelines, particularly in photo-documentation quality and anogenital exam documentation. The identified barriers of insufficient staff CSA education and the absence of CSA documentation forms were addressed in the intervention in this project; the improvement in CSA guideline adherence is likely from the removal of these barriers.

Limitations

The results of this quality improvement project were limited by the small sample size and lack of statistical significance. This limitation could be addressed by continued CSA chart reviews and data collection to obtain a larger sample size and to elicit statistical significance.

The results of photo-documentation for male patients was limited by the lack of specific photo-documentation instruction for male genitalia, specifically instructions for foreskin retraction and inspection of the urethra. This limitation could be addressed by including male genital techniques in future photo-documentation education modules.

The educational modules in this project were only presented to identified CSA champions and a provider representative due to a limited education budget at the project site. Not being able to educate all nursing staff directly is a limitation of this project. Providing didactic and hands-on education to all ED nursing and provider staff would address this limitation and ensure that all staff receive CSA education and the opportunity to have their questions answered.

The nursing exam documentation and exam checklist forms in this project were paper forms designed to be filled out manually and then scanned into the EHR. Developing an electronic version of this form and embedding it in the EHR as a clinical pathway or flowsheet would remove the limitations of using paper forms: remembering to use the form, finding the form, taking time to fill out the form, and scanning the form into the EHR.

Conclusions

This quality improvement project demonstrated clinical significance by meeting the aim of improved adherence to CSA guidelines through an educational intervention. Even without statistical significance due to small sample size, and several limitations which had possible negative effects on its results, this project has useful implications for practice by demonstrating

that educating CSA champions and removing barriers can increase guideline adherence. For sustainability of increased CSA guideline adherence, it is recommended to continue data collection and analysis from chart reviews of all ED CSA exams, expanding CSA education to all staff, and embedding CSA documentation into the EHR.

This project and its results have the potential for spread to other contexts, both in the project site and other community EDs that care for acute CSA patients. Expanding the CSA educational modules to include child physical abuse is one possible potential spread for this project site. Adapting the educational modules and documentation forms for use by other community EDs to improve their adherence to CSA guidelines in CSA exams is another potential for spread. This quality improvement project addressing ED CSA exams is the first step with the potential for spread in both the local site, the local health system, and all community EDs to improve the care of CSA patients.

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Appendix A: Exam Checklist

- **Checklist for All Pediatric SA Cases**

__ Call YWCA advocate for all sex abuse cases. (document in Epic)

__ Law Enforcement, CPS and CAAT need to be contacted/referred for every SA case. CSW is helpful in this

__ Triage RN: Document chief complaint, triage note (include brief circumstances and associated symptoms in patient/caregiver's own words with " ", person accompanying patient) ESI score of 2.

__ Primary RN: For **SA < 120 hours** get Peds SA packet for documentation, SA cart keys (critical pyxis), camera (Pit pyxis) and SA cart. Refer to Abuse Reference Book (in SA cart). Wipe down cart/inside dryer with cleaning wipes—let dry x 5 minutes before use. For **SA > 120 hours** get camera and guidebook only.

__ Do not let patient eat, drink, or undress until evaluated by medical provider.

__ Obtain consents for exam/evidence collection and Release of information (ROI). Place in scan folder.

__ AT ANY TIME, if child needs to urinate, first collect dirty urine (no wiping/cleaning) before clean catch. For all females > 10 years collect POC HCG & GC/CT if concerned about STIs.

- **Photography:**

__ Proper positioning and traction required to show hymen

__ Never delete any photo….even if poor quality (or of the ceiling)

__ Take picture of patient label at beginning and end of photo series. Take a picture of the patient's face.

__ Generally, use rule of 3: photo at least 3 feet away (to identify body part), close-up and close-up with a measuring device for each injury/area photographed. Anogenital photos do not require measuring device

__ Label photo SD case with patient label, evidence tape, initials, date and time. Log photo evidence into photo evidence log and place SD card with the log in locked camera drawer.

- **Forensic Evidence collection by RN (120 hours or less post-assault):** WEAR GLOVES AND CHANGE OFTEN

__ ALWAYS COLLECT-Underwear, oral, fingertip and control swabs. (based on history also collect skin , debris, pubic hair swabs and clothing.) See instructions on each envelope within kit and reference book.

__ For wet items (diaper, tampon, underwear) see pg. 7 under evidence packaging in Abuse Reference Book

__ All swabs must be identified with location stickers before placing in dryer. Dry swabs in dryer for 60 min.

__ All unused contents of kit must be returned to box before sealing.

__ Reference instructions on each envelope within kit.

__ Include copy of Peds SA packet documentation in Kit box before sealing

- **Forensic Evidence by Provider and RN:**

__ Perineal swabs, vaginal, penile and anal swabs (as appropriate) are collected by Provider and handed to RN for labeling and drying

- **Sealing, Tracking, Locking kit:** see Abuse Reference Book
- **Community Partners:** in all Peds SA cases. CSW may be able to help with these calls

__ Contact Law Enforcement to pick up completed kit (unless they are already on site questioning pt).

Appendix B: Chart Review Data Collection Form

ED CSA Chart Review Data Collection

Date: Age: Gender: Time post assault:

Swabs collected: Y/N

Photos taken Y/N

Photos good technique/quality Y/N

Skin exam specifies bruising and/or injury Y/N

GU exam specifies specific anatomy seen Y/N

CPS contacted Y/N LE contacted Y/N

Referral to CAAT team Y/N

Notes:

Table 1: Results