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# FORENSIC EVIDENCE IN CHILD SEXUAL ABUSE CASES: THE EXPERIENCE OF USING A STATEWIDE PEDIATRIC FORENSIC EVIDENCE COLLECTION KIT

**RESEARCH BRIEF** | THEODORE P. CROSS, JOAN MEUNIER-SHAM, CYNTHIA L. MOORE |
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Child sexual abuse is a heinous crime and violation of a child's trust that can cause serious harm to children's well-being and development. Sexual assault can damage children's sense of safety and lead to trauma symptoms and mental health problems, and the damage to victims' sense of self can last into adulthood (see, e.g., Berliner, 2011). But child sexual abuse can be very difficult to prove because there are typically no eyewitnesses and no obvious physical evidence (Walsh, Jones, Cross, & Lippert, 2010). Children may be too young to provide testimony or may not be believed when their word is pitted against the perpetrator's (Whitcomb, 1994).

A forensic medical examination can contribute evidence that may corroborate a child's disclosure while also addressing medical issues (see, e.g., Palusci, Cox, Shatz & Schultze, 2006). A medical examination using quality evidence collection methods conducted within 72 hours of an assault can sometimes identify injuries related to sexual abuse, and can provide evidence of perpetrators' semen, sperm, blood, hair or amylase (an enzyme found in saliva). Girardet and colleagues (2011) even found biological evidence in two cases seen more than 72 hours after the assault. A quality medical examination can also be important to help children recover from sexual abuse, because it assures children that their body is healthy following the victimization, and can address any medical needs children have as a result of the abuse (Finkel, 2011).

Forensic evidence kits (known colloquially as rape kits) have been used for many years following adult sexual assault to provide clinicians with the tools and procedures to gather evidence in medical examinations, but adult kits are inappropriate for children. The use of speculums and other invasive methods used with adults are not appropriate for child exams. Although well-meaning clinicians may make adaptations to an adult kit when used for a child, this requires a level of knowledge that many clinicians do not have. This brief is a product of a research partnership between the Massachusetts Sexual Assault Nurse Examiner (MA SANE) Program and the Children and Family Research Center. It reports on pioneering work implementing a new specially designed pediatric forensic evidence kit and presents data on the frequency of injury and biological forensic evidence in a sample of child sexual abuse cases using the kits.

The MA Pediatric Sexual Assault Evidence Collection Kit (MA PEDI Kit) was developed by a multi-disciplinary team convened by MA SANE and the Massachusetts Executive Office of Public Safety and Security (EOPSS). The team included the state's crime laboratories and district attorneys' association, a state organization representing children's advocacy centers (see below), law enforcement, child protective services, emergency nurses, child abuse pediatricians and clinical social workers.

Sexual assault nurse examiners (SANEs) have special training and substantial experience in providing medical care and collecting forensic evidence in sexual abuse cases. Most pediatricians and emergency department physicians lack the time, training, and professional focus on care following sexual assault that SANEs offer. Established in 2006, the MA Pediatric SANE Program provides quality

forensic child sexual abuse examinations to children and youths in 7 of Massachusetts' 11 judicial districts. Pediatric SANEs conduct examinations at children's advocacy centers, special multidisciplinary programs designed to coordinate the investigation and service response of multiple professionals to serious child abuse (Cross et al., 2008), and in a Pediatric SANE Emergency Response Program located in a community hospital. A program of the MA Department of Public Health (MDPH), MA SANE is currently the only U.S. SANE program that provides centrally managed statewide service delivery. The Pedi SANE program also works to develop statewide medical examination protocols and local networks of care for sexually abused children throughout the state.

The MA Pedi Kit started from the medical principle of *primum no nocere,* or "first, do no harm". The kit is a colorful, child-friendly box with materials and instructions for 13 steps of evidence collection. Painless and non-invasive methods are used (e.g., the child's DNA is obtained from a swab inside the mouth instead of drawing blood); child-appropriate drawings and body maps are used to document injuries; and children can decline any part or the even the whole examination if they are uncomfortable. The child is provided ample emotional support, but clinicians using the kit are instructed to avoid more than minimal questioning of the child about the often traumatizing experience of the abuse—questions about the abuse are left for a child forensic interviewing specialist to do at a separate interview. The kits are distributed to emergency departments throughout the state. The MA Pediatric SANE Program provides both in-person and DVD-based training on the kits to nurses and physicians throughout Massachusetts. Clinicians are instructed to use the kit for children age 11 or younger when sexual abuse occurred within 72 hours prior to the medical exam, and when one or more of the following criteria applies: 1) there is a concern about vaginal or anal penetration (however slight), 2) there is a possibility that a child's mouth was penetrated within the past 24 hours, 3) there is genital or anal bleeding or discharge with an injury consistent with sexual abuse, or 4) there is the possibility of ejaculate on the child's body. Clinicians are also allowed to use the kit in other situations, based on their clinical judgment. For example, a clinician might choose to use the pediatric kit for a developmentally disabled adolescent who needs a less invasive approach.

This brief analyzes forensic evidence data from all available MA Pedi Kit cases in Massachusetts from December 2005 to April 2012. The MA Pedi SANE Associate Director and Clinical Coordinator (Meunier-Sham and Moore) visited both crime laboratories in the state and coded data on injury and forensic evidence from crime lab files for every pediatric case they could find that had used the kit. Data entered were drawn from standardized injury documentation forms that were included in the kit and completed by the examining medical professional, and from standardized evidence variables presented by the laboratories in their reports to police and prosecutors. MA Pedi SANE then collaborated with CFRC on organizing and analyzing data files from the coded data. The analysis of biological evidence focuses on amylase, semen/sperm, and blood on the body or in children's underwear or diapers, because these are the results that are both the most common from Massachusetts' crime laboratories and typically the most useful in criminal cases.

## Results

The sample (N=283) was 80% girls, while 96% of alleged perpetrators were male (in those cases in which an alleged perpetrator could be identified). Children's average age was 5.76, though the age ranged as high as 17, and 93% were prepubertal. The relationship of the alleged perpetrator to the child varied: frequent categories were parents and stepparents, other known adults, and juveniles known to the child. In 95% of cases, the alleged perpetrator was known to the child. Almost all cases (98%) for which these kits were done had assaults that occurred within 72 hours prior to the exam. Therefore this analysis applies only to acute cases--many cases of child sexual abuse come to light only well after the abuse. The indications for using the kit were met in 90% of cases and in 10% the decision to use the kit was based on the clinician's judgment. Of the 283 kits analyzed, 56% were completed by Pedi SANEs or pediatricians specializing in child abuse, and 44% by non-expert clinicians.

The clinical examinations showed that 28% of children had physical findings consistent with injury from sexual abuse; 3% had injuries requiring surgical repair. At least one form of biological evidence was recovered in 33% of cases. Table 1 shows specific forms of biological evidence recovered; note that these categories are not mutually exclusive, since any case could have more than one of these forms of evidence

TABLE 1: Biological Evidence Recovered from the Massachusetts Pediatric Sexual Assault Evidence Collection Kit

| Form of Evidence | % |
|---|---|
| Amylase on body | 9% |
| Amylase on underwear/diaper | 9% |
| Blood on body | 9% |
| Blood on underwear/diaper | 7% |
| Semen/sperm on body | 5% |
| Semen/sperm on clothes | 10%[a] |
| **Any biological evidence** | **33%** |

[a] 9% underwear or diaper

Sometimes forensic evidence was found unexpectedly. In cases in which no information indicated penile contact, semen/sperm was found in children's diaper or underwear 9 times and on children's bodies 4 times.

Forensic evidence was found in 34% of cases in which the above mentioned indications for using the kit were met (n=240). But forensic evidence was also found in 27% of cases in which indications for using the kit were not met but clinicians used it anyway based on their clinical judgment (n=26). This was not a statistically significant difference, and suggests that clinicians' judgment about when to use the kits was often well-founded.

The difference in the forensic evidence rate between expert and non-expert clinicians was small and not statistically significant: 35% vs. 31%, suggesting that the kit gives even non-experts the tools and guidance to provide exams that often yield evidence.

## Conclusion

A forensic medical examination can be an essential part of the response to allegations of child sexual abuse. In cases that were seen within 72 hours of an assault and for which the special pediatric evidence kit was completed, over a quarter of children had examination findings consistent with injury and one-third had biological forensic evidence that could be from the perpetrator. These findings can be crucial to corroborate a child's report of abuse or a serious concern of abuse, to help guide child protection and criminal investigations, and, in some cases, to help prosecute offenders or take civil court actions to protect children (e.g., obtaining restraining orders or removing the child from the home).

These data provide considerable empirical support for the success of the Massachusetts Pediatric Sexual Assault Evidence Collection Kit. It is very difficult to compare results across researchers, as studies vary in sample characteristics (e.g., child age), laboratory procedures, and specific biological evidence tested, and crime lab technology has changed over the years. It is nevertheless worth noting that the rate of forensic evidence recovery compares favorably with those from other studies (Christian, et al., 2000; Kelly & Jones, 1999; Palusci, et al., 2006; Thackeray, Hornor, Benzinger, & Scribano, 2011; Young, et al., 2006), which have forensic evidence rates ranging from 18% to 25%. It is particularly important that forensic evidence rates in the current study were comparable for experts and non-experts—while it is preferable for a range of clinical and investigative reasons for experts to conduct these exams, examinations should not be delayed if experts are not available. It is reasonable for children, families and professionals to expect a comparable opportunity of obtaining forensic evidence regardless of who conducts the exam.

Whenever there is a suspicion of child sexual assault, whether children have been abused or not, children deserve access to a quality medical examination that addresses their health care needs, their concerns about their body and well-being, and the possibilities of obtaining evidence to determine the truth. Communities around the country should organize a systemic response to child sexual abuse that provides quality medical care and equips clinicians with the best tools available to learn the truth. A pediatric forensic evidence kit that minimizes invasive procedures while still providing evidence at rates comparable to previous methods can be an important tool. The Massachusetts Pediatric SANE program's experience suggests that such a systemic response can have substantial benefits for children, families and communities.

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## References

Berliner, L. (2011). Child sexual abuse: Definitions, prevalence and consequences. In J. Myers (Ed.), *The APSAC handbook of child maltreatment. Third edition.* (pp. 215-232). Thousand Oaks, CA: Sage.

Christian, C.W., Lavelle, J.M., de Jong, A.R., Loiselle, J., Brenner, L., & Joffe, M. (2000) Forensic evidence findings in prepubertal victims of sexual assault. *Pediatrics, 106,* 100 –104.

Cross, T.P., Jones, L.J., Walsh, W., Simone, M., Kolko, D.J., Szczepanski, J., Lippert-Luikart, T., Davison, K., Cryns, A., Magnuson, S., Sosnowski, P., & Shadoin, A. (2008). The Multi-Site Evaluation of Children's Advocacy Centers: Overview of the results and implications for practice. *OJJDP Crimes Against Children Series*. Bulletin.

Finkel, M.A. (2011). Medical issues in child sexual abuse. In J.E. Myers (Ed). *The APSAC Handbook on Child Maltreatment* (Third Edition). (pp. 253-266). Los Angeles: Sage.

Girardet, R., Bolton, K., Lahoti, S., Mowbray, H., Giardino, A., Isaac, R., Arnold, W., Mead, B., & Paes, N. (2011). The collection of forensic evidence from pediatric victims of sexual assault. *Pediatrics,* 128, 233–238.

Kelly, K., & Jones, J. (1999). Forensic laboratory evidence in sexually abused children and adolescents. *Journal of Investigative Medicine, 47*, 124A.

Palusci, V.J., Cox, E.O., Shatz, E.M., & Schultze, J.M. (2006). Urgent medical assessment after child sexual abuse. *Child Abuse & Neglect, 30*, 367–380.

Thackeray, J., Hornor, G., Benzinger. E., & Scribano, P. (2011). Forensic evidence collection and DNA identification in acute child sexual assault. *Pediatrics, 128*, 227–232.

Walsh, W.A., Jones, L.M., Cross, T.P., & Lippert, T. (2010). Prosecuting child sexual abuse: The importance of evidence type. *Crime & Delinquency, 56,* 436-454.

Whitcomb, D. (1994). *When the victim is a child: Issues for judges and prosecutors. Second edition.* Report for the National Institute of Justice, U.S. Department of Justice Washington, D.C. U.S Government Printing Office.

Young, K.L., Jones, J.G., Worthington, T., Simpson, P., & Casey P.H. (2006). Forensic laboratory evidence in sexually abused children and adolescents. *Archives of Pediatric and Adolescent Medicine, 160*, 585–588.