Mini-Review

Updated Guidelines for the Medical Assessment and Care of Children Who May Have Been Sexually Abused

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A B S T R A C T

The medical evaluation is an important part of the clinical and legal process when child sexual abuse is suspected. Practitioners who examine children need to be up to date on current recommendations regarding when, how, and by whom these evaluations should be conducted, as well as how the medical findings should be interpreted. A previously published article on guidelines for medical care for sexually abused children has been widely used by physicians, nurses, and nurse practitioners to inform practice guidelines in this field. Since 2007, when the article was published, new research has suggested changes in some of the guidelines and in the table that lists medical and laboratory findings in children evaluated for suspected sexual abuse and suggests how these findings should be interpreted with respect to sexual abuse. A group of specialists in child abuse pediatrics met in person and via online communication from 2011 through 2014 to review published research as well as recommendations from the Centers for Disease Control and Prevention and the American Academy of Pediatrics and to reach consensus on how and how the guidelines and approach to interpretation table should be updated. The revisions are based, when possible, on data from well-designed, unbiased studies published in high-ranking, peer-reviewed, scientific journals that were reviewed and vetted by the authors. When such studies were not available, recommendations were based on expert consensus.

Key Words: Child sexual abuse, Differential diagnosis, Sexually transmitted infections, Expert opinion, Medical history taking, Peer review, Expert testimony

Introduction

A set of guidelines and recommendations, published in 2007, were developed using a process of consensus development after a review of the medical literature available at the time regarding the medical evaluation and interpretation of medical and laboratory findings in children brought for examination for suspected sexual abuse. This report presents updated guidelines, developed after a review of recently published research and recommendations from the Centers for Disease Control and Prevention (CDC) and the American Academy of Pediatrics (AAP). The authors searched the medical literature to identify well-designed, unbiased studies published in high-ranking journals that addressed the topic of medical evaluation of suspected child sexual abuse and the interpretation of medical findings. The group reached consensus on the revision of the 2007 guidelines, based on literature critique and review.

Medical History

An accurate and complete history is essential in making the medical diagnosis and determining appropriate treatment of child abuse. The history includes physical symptoms, emotional/behavioral symptoms, and information about the abuse needed to assess and manage suspected victims of abuse. Obtaining details about the abuse is typically coordinated with a multidisciplinary team and may be obtained by a forensic interviewer or a medical professional. Due to differences in purpose and approach, the medical history may differ, yet complement, the forensic interview. For example, a medical history identifying physical symptoms of painful urination may be directly related to a recent episode of sexual abuse and provide additional information of forensic significance.

The authors indicate no conflicts of interest. The authors received financial support from the Midwest Regional Children’s Advocacy Center, Office of Juvenile Justice and Delinquency Prevention (DOJ) by grant number 2013-CJ-FX-K001.

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http://dx.doi.org/10.1016/j.jpag.2015.01.007
The process of obtaining the history from the child and nonoffending caregiver also provides an opportunity to assess fears or concerns related to the abuse and to stress the importance of engaging in evidence-based trauma-focused mental health therapy. A recent study found that trauma symptoms in children were highly associated with the degree of self-blame the child felt about the abuse incident(s), an issue that can be addressed during the medical evaluation. This can also be an opportunity to assess whether the caregiver is supportive and protective of the child through the disclosure process. At the conclusion of the examination, the medical provider should explain to the caregivers the significance of physical findings, if any, and that a normal examination does not exclude abuse.

Examination

All children who are suspected victims of child sexual abuse should be offered an examination performed by a medical provider with specialized training in sexual abuse evaluation (Table 1). The urgency of the medical evaluation can be prioritized as emergency, urgent, or nonurgent (Table 2). An emergency evaluation should be done without delay, and urgent and nonurgent evaluations should be done within 1 to 7 days. Some children will benefit from follow-up examinations with a specialized provider to reassess findings and conduct further testing, particularly if acute injury or sexually transmitted infection (STI) is suspected (Table 2).

Previous versions of the guidelines suggested changing the “72-hour rule” for evidence collection in prepubertal children to the “24-hour rule.” Subsequent studies have confirmed that DNA is predominantly recovered when examinations of prepubertal children are conducted less than 24 hours from the time of the assault, especially in areas where DNA amplification in sexual assault is limited in young children, but Y-chromosome specific DNA has been recovered in young female victims presenting 24 hours after assault. Importantly, the presence of significant physical findings does not predict recovery of foreign DNA and should not be the basis for collecting forensic evidence. Additionally, DNA can still be recovered following genital wiping after the event.

At this time, forensic evidence collection is recommended for sexual contact that may have resulted in the exchange of biologic material within 24 hours in prepubertal children and within 72 hours in adolescents. Some young children will still benefit from evidence collection beyond 24 hours, especially in areas where DNA amplification is performed as part of crime lab analysis. Some
juxtapositions have expanded the evidence collection window on adolescent and adult sexual assault to 5 to 7 days because sperm may be recovered from the cervix more than 72 hours after an assault.14

Collection of clothing, bedding, or other household items that may harbor potential trace evidence can occur at a later time and is not the role of the medical provider. Clinicians should become familiar with regional resources and recommendations regarding collection of evidence.

Documentation

The medical record should include history, physical examination, and laboratory findings.15 The results and interpretation of the medical evaluation should be summarized carefully with unambiguous language that can be understood by nonmedical professionals.16 Photodocumentation is recommended as a standard of care, especially for examinations with positive findings, because abnormal examination findings are rare. Diagnostic-quality still images or videos allow for expert review for quality assurance, teaching, and legal proceedings17; however, photographs never substitute for detailed written descriptions of the examination findings.

Testing for STIs

Culture of potentially infected sites has traditionally been the diagnostic gold standard for cases of possible sexual abuse/assault.16,19 Culture is costly and limited by low sensitivity, especially in the identification of Chlamydia infection (as low as 20% sensitive in prepubertal girls).20

Nucleic acid amplification testing (NAAT) has been in use for years in the sexually active adolescent and adult populations due to its higher sensitivity (100% by transcription mediated amplification),20 ability to collect a sample non-invasively, ability to test both Neisseria gonorrhoeae and Chlamydia trachomatis with 1 sample, and its lower cost compared with culture. The US Food and Drug Administration has not approved the commercially available NAATs for use in prepubertal children, because the low prevalence of STIs in this population (<5 %)20 compared with adolescents and adults makes it difficult to perform large randomized controlled trials for validation. However, their use has been studied in this population,20 and the CDC discusses their use in the 2010 Sexually Transmitted Diseases Treatment Guideline: “NAATs can be used as an alternative to culture with vaginal specimens or urine from girls whereas culture remains the preferred method for urethral specimens or urine from boys and for extra-genital specimens for all children.”21 Black et al20 performed a multisite study comparing genital culture to NAAT in prepubertal and postpubertal children being evaluated for sexual abuse, which serves as the foundation for the CDC’s recommendations on this topic. Even though there boys were included in the study population (51/536), none of the boys tested positive for an STI and extragenital site comparison testing was not included. Therefore, the CDC recommendations for NAATs for STIs in young children are limited to recommendations on genital testing in girls.

In 2014, the CDC removed its recommendation for routine additional testing when a NAAT is positive for C trachomatis; however, there is still a recommendation to consider retesting with an alternate target for N gonorrhoeae and for “consultation with an expert” when using NAATs in cases of child sexual abuse evaluation.21 When NAATs are used to diagnose infection in prepubertal children or older children and the result could have significance in legal proceedings, confirmatory testing should be performed to exclude a possible false-positive result.20,22,23

Although the CDC still recommends culture for nongenital sites, many practitioners find it difficult to access cultures. NAATs have been evaluated in adult studies for pharyngeal24,25 and anorectal26,27 infections. NAATs (especially strand displacement amplification [SDA] and transcription mediated amplification [TMA]) have been found to have superior sensitivity to detecting infection at these sites compared with culture and specificity rates that are well within the range of acceptable for clinical practice. The practitioner must be familiar with the validation and confirmation practices of the laboratory processing specimens from their patients. If NAATs are used for testing in young children and the results could have forensic significance, the practitioner should develop a strategy for confirmatory testing, because the low prevalence of infection in this population lowers the positive predictive value of the result.

Culture by using Diamond’s or InPouch TV® media remains the most specific method of diagnosing Trichomonas vaginalis.28 When identified by wet mount examination, there is a potential to misidentify nonpathogenic intestinal species of Trichomonas (such as T hominis) due to morphologic similarities23 and the possibility of fecal cross-contamination. Additionally, the wet mount is estimated to be only 50% sensitive in detecting trichomonads. Rapid testing is now available by nucleic acid probe hybridization and TMA, but there have been no published studies regarding the use of these techniques for detecting T vaginalis in children. While these tests may offer more rapid turnaround and higher sensitivity than culture, confirmatory testing should be considered in cases where the result could have forensic significance and the population has a low prevalence of infection (eg, young children). At present, NAAT for T vaginalis is limited to TMA. However, several research polymerase chain reaction tests are being studied that show greater sensitivity compared with wet mount or culture.23

Interpretation of Findings

See Table 3. Additions to the guidelines table since the prior version are noted in bold, including a section on conditions that often are erroneously attributed to sexual abuse trauma.29 Several deletions also were made. Flattened anal folds were removed from “findings commonly caused by medical conditions other than trauma or sexual contact” because no studies have addressed the association of flattened anal folds with sexual contact. The language “anal dilatation to less than 2 centimeters” was removed since the significance of anal dilation of a certain size is
Table 3
The 2015 Approach to Interpretation of Medical Findings in Suspected Child Sexual Abuse

<table>
<thead>
<tr>
<th>Findings Documented in Newborns or Commonly Seen in Nonabused Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Variants</td>
</tr>
<tr>
<td>1. Normal variations in appearance of the hymen</td>
</tr>
<tr>
<td>a. Annular: Hymenal tissue present all around the vaginal opening including at the 12 o’clock location</td>
</tr>
<tr>
<td>b. Crescentic hymen: hymenal tissue is absent at some point above the 3 to 9 o’clock locations</td>
</tr>
<tr>
<td>c. Imperforate hymen: hymen with no opening</td>
</tr>
<tr>
<td>d. Microperforate hymen: hymen with one or more small openings</td>
</tr>
<tr>
<td>e. Septate hymen: hymen with one or more septae across the opening</td>
</tr>
<tr>
<td>f. Redundant hymen: hymen with multiple flaps, folding over each other</td>
</tr>
<tr>
<td>g. Hymen with tag of tissue on the rim</td>
</tr>
<tr>
<td>h. Hymen with mounds or bumps on the rim at any location</td>
</tr>
<tr>
<td>i. Any notch or cleft of the hymen (regardless of depth) above the 3 and 9 o’clock locations</td>
</tr>
<tr>
<td>j. Superficial notches of the hymen at or below the 3 and 9 o’clock locations</td>
</tr>
<tr>
<td>k. Smooth posterior rim of hymen that appears to be relatively narrow along the entire rim</td>
</tr>
<tr>
<td>2. Perirethral or vestibular band(s)</td>
</tr>
<tr>
<td>3. Intravaginal ridge(s) or column(s)</td>
</tr>
<tr>
<td>4. External ridge on the hymen</td>
</tr>
<tr>
<td>5. Linea vestibularis (midline avascular area)</td>
</tr>
<tr>
<td>6. Diastasis ani (smooth area)</td>
</tr>
<tr>
<td>7. Perianal skin tag(s)</td>
</tr>
<tr>
<td>8. Hyperpigmentation of the skin of labia minora or perianal tissues in children of color</td>
</tr>
<tr>
<td>9. Dilation of the urethral opening</td>
</tr>
</tbody>
</table>

Findings commonly caused by medical conditions other than trauma or sexual contact:

10. Erythema of the genital tissues
11. increased vascularity of vestibule and hymen
12. Labial adhesion
13. Friability of the posterior fourchette
14. Vaginal discharge
15. Molluscum contagiosum
16. Anal fissure(s)
17. Venous congestion or venous pooling in the perianal area
18. Anal dilatation in children with predisposing conditions, such as current symptoms or history of constipation and/or encopresis, or children who are sedated, under anesthesia or with impaired neuromuscular tone for other reasons, such as post-mortem

Conditions mistaken for abuse:

19. Urethral prolapse
20. Lichen sclerosus et atrophicus
21. Vulvar ulcer(s)
22. Erythema, inflammation, and fissuring of the perianal or vulvar tissues due to Infection with bacteria, fungus, viruses, parasites, or other infections that are not sexually transmitted
23. Failure of midline fusion, also called perineal groove
24. Rectal prolapse
25. Visualization of the pectinate/dentate line at the juncture of the anoderm and rectal mucosa
26. Partial dilatation of the external anal sphincter, with the internal sphincter closed, causing the appearance of deep creases in the perianal skin
27. Red/purple discoloration of the genital structures (including the hymen) from lividity post-mortem, confirmed by histological analysis.

Findings With No Expert Consensus on Interpretation With Respect to Sexual Contact or Trauma

28. Complete anal dilatation with relaxation of both the internal and external anal sphincters, in the absence of other predisposing factors such as constipation, encopresis, sedation, anesthesia, and neuromuscular conditions
29. Notch or cleft in the hymen rim, at or below the 3 or 9 o’clock location, which is deeper than a superficial notch and may extend nearly to the base of the hymen, but is not a complete transaction. Complete clefts/transsections at 3 or 9 o’clock are also findings with no expert consensus in interpretation.
30. Genital or anal condyloma acuminatum in the absence of other indicators of abuse; lesions appearing for the first time in a child older than 5 years may be more likely to be the result of sexual transmission.
31. Herpes type 1 or 2, confirmed by culture or PCR testing, in the genital or anal area of a child with no other indicators of sexual abuse

Table 3 (continued)

<table>
<thead>
<tr>
<th>Findings Caused by Trauma and/or Sexual Contact</th>
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<tbody>
<tr>
<td>32. Acute laceration(s) or bruising of labia, penis, scrotum, perianal tissues, or perineum</td>
</tr>
<tr>
<td>33. Acute laceration of the posterior fourchette or vestibule, not involving the hymen</td>
</tr>
<tr>
<td>34. Perianal scar</td>
</tr>
<tr>
<td>35. Scar of posterior fourchette or fossa</td>
</tr>
</tbody>
</table>

Injuries indicative of acute or healed trauma to the genital/anal tissues:

36. Bruising, petechiae, or abrasions on the hymen
37. Acute laceration of the hymen, of any depth; partial or complete
38. Vaginal laceration
39. Perianal laceration with exposure of tissues below the dermis
40. Healed hymenal transection/complete hymen cleft - a defect in the hymen between 4 o’clock and 8 o’clock that extends to the base of the hymen, with no hymenal tissue discernible at that location.
41. A defect in the posterior (inferior) half of the hymen wider than a transsection with an absence of hymenal tissue extending to the base of the hymen.

Infections transmitted by sexual contact, unless there is evidence of perinatal transmission or clearly, reasonably and independently documented but rare nonsexual transmission:

42. Genital, rectal or pharyngeal Neisseria gonorrhoeae infection
43. Syphilis
44. Genital or rectal Chlamydia trachomatis infection
45. Trichomonas vaginalis infection
46. HIV, if transmission by blood transfusion has been ruled out
47. Pregnancy
48. Semen identified in forensic specimens taken directly from a child’s body

This table lists medical and laboratory findings; however, most children who are evaluated for suspected sexual abuse will not have physical signs of injury or infection. The child’s description of what happened and report of specific symptoms in relationship to the events described are both essential parts of a full medical evaluation. Items in bold type have been added or revised in this updated version of the table.

* These findings are normal and are unrelated to a child’s disclosure of sexual abuse.

† These findings require that a differential diagnosis be considered, as each may have several different causes.

‡ These physical and laboratory findings may support a child’s disclosure of sexual abuse, if one is given, but should be interpreted with caution if the child gives no disclosure. Physical findings (numbers 28 and 29) should be confirmed using additional examination positions and/or techniques. Additional information, such as mother’s gynecologic history or child’s history of oral lesions may clarify likelihood of sexual transmission for children with condyloma or herpes. After complete assessment, a report to Child Protective Services may be indicated in some cases. Photographs or video recordings of these findings should be evaluated and confirmed by an expert in sexual abuse evaluation to ensure accurate diagnosis.

§ These findings support a disclosure of sexual abuse and are highly suggestive of abuse even in the absence of a disclosure, unless a timely and plausible description of accidental injury is provided by the child and/or caretaker. Physical findings (items 32 through 41) should be confirmed using additional examination positions and/or techniques. Diagnosis of the sexually transmitted infections must be confirmed by additional testing to avoid assigning significance to possible false positive screening test results. Photographs or video recordings of these findings should be evaluated and confirmed by an expert in sexual abuse evaluation to ensure accurate diagnosis.

unknown. Anal dilation is a dynamic sign and measuring maximum anal dilation during the examination is difficult. Earlier studies on measurement using photographs used different techniques, so results cannot be compared. One recent study reports reflex anal dilation in 36% of sexually abused children when examined in the lateral position with buttock separation for 30 seconds. In
another study, total anal dilation occurred in 12% of the suspected abuse group and was significantly associated with reported anal penetration, after controlling for examination position and presence of anal symptoms. 33 Further research is needed to assess the significance of anal findings with respect to abuse and the impact of examination positions, techniques, and other factors on the frequency of these findings.

The “Indeterminate” category has been relabeled as “No Consensus” regarding the significance of a particular examination finding for sexual abuse. The term “Indeterminate” was often misinterpreted by clinicians to mean case information is insufficient or inadequate. 34 The lack of expert consensus does not mean that there is no scientific evidence regarding the findings in this category. These findings have been associated with sexual abuse in some studies in which study populations were too small, whereas other studies have documented the finding in a nonabused population or have not found an association with sexual abuse.

One examination finding that is listed under the “No Consensus” heading is a notch in the inferior rim of the hymen that may extend nearly to the base of the hymen. This finding has some support as being associated with sexual abuse, 35,36 but there is currently no consensus among experts as to the level of certainty that the finding is due to trauma. One challenge in interpreting the significance of a deep notch is defining it. Previously, a deep notch was defined as a notch that extended through more than 50% of the width of the hymen. 36 However, in clinical practice it is virtually impossible to measure or estimate the percentage of the hymenal width through which a notch extends. This finding must be differentiated from other variations such as a scalloped edge of hymen or a narrow section of the hymen rim adjacent to a mound. Even if a notch in the inferior rim of the hymen clearly extends nearly to the base of the hymen, the expert panel did not reach consensus that it should be considered clear evidence of prior injury.

Providers

The provision of medical care to child sexual abuse victims has become increasingly specialized. In December 2013, there were 324 diplomates of the American Board of Pediatrics with subspecialty certification in Child Abuse Pediatrics (CAP). 37 Additionally, the International Association of Forensic Nurses (IAFN) has established guidelines for the specialized training of pediatric sexual assault nurse examiners (SANEs) in the care of the child victims of sexual assault, 38 which include a competency-based clinical preceptorship with an experienced provider.

Medical evaluations should be performed by a qualified provider with experience in child sexual abuse. These professionals may include child abuse pediatricians, SANEs, or physicians and mid-level practitioners with advanced training in child abuse evaluation. The medical provider, regardless of degree, should have formal education and training in the medical evaluation of child sexual abuse. Medical providers need to be familiar with guidelines and recommendations on the medical evaluation of children available from the American Academy of Pediatrics (AAP) 2 and on the identification and treatment of STIs. 2

Qualified medical providers need to maintain currency of practice through continuing education and peer review. Photodocumentation is recommended by the AAP, 1 National Children’s Alliance (NCA), 15 and IAFN. 38 Medical peer review involves participation in expert review of photo-documented findings, particularly those thought to be abnormal or indicative of sexual abuse. Medical providers who perform higher numbers of child sexual abuse examinations, 39,40 read current medical literature, and regularly review cases with an expert demonstrate greater diagnostic accuracy in child sexual abuse evaluations. 30

All medical programs evaluating victims of child sexual abuse, including programs that use nurse examiners or SANEs, benefit from the supervision and guidance of a qualified medical director who demonstrates competency and currency of practice in the evaluation of child sexual abuse. A medical director is necessary to develop protocols and delegated orders, formulate medical diagnoses, and provide medical treatment plans and prescriptions.

Expert Review of Examination Findings

The purpose of peer review in any medical context is the improvement of quality of care for patients. Standardization of medical processes is designed to reduce variability, improve care, reduce mortality and morbidity, and decrease costs. The cost of misdiagnosis can be both financial, in the case of expensive medical procedures, and societal, if child abuse is inaccurately diagnosed based on an examiner’s misinterpretation of physical findings. Those in image-based specialties such as radiology and pathology have studied interrater reliability issues and have proposed methodology for improvement. 41-43

While the child’s history remains the most important piece of evidence in child sexual abuse evaluations, physical findings resulting from sexual abuse, when present, are important in the investigative and legal arenas. Examiners must critically evaluate findings in the context of the known medical literature. Many studies suggest that inexperienced examiners are far more influenced by the history than are more experienced examiners in assessing examination findings. 44 These studies also show that an experienced examiner provides more consistent and objective interpretation of examination findings. 40,44,45 Although it is not clear at what level of experience an examiner becomes an expert, it is certainly through training, clinical experience, knowledge of the current literature, continuing education, and engagement in review or oversight of cases. One study demonstrated that variability in interpretation of such findings appears to be linked to level of training, profession, experience, and knowledge of the literature. 46

Clinicians without sexual abuse expertise can access expert consultation remotely. One example is myCaseReview, a secure Web-based telemedicine product in which medical providers submit images for review by a medical panel of board-certified CAP experts (http://www.mrcac.org/medical-academy/mycasereview/). Other telehealth and telemedicine applications are available commercially.
Table 4
Recommendations for Providers

- Obtain a medical history from the child/adolescent patient for the purpose of
diagnosis and treatment
- Develop skills in the use of examination positions and techniques for the best
assessment of anogenital findings
- Know the differential diagnosis of entities confused with sexual abuse, to
avoid an incorrect diagnosis
- Remain current in the state of the art and science of child sexual abuse
evaluation and treatment
- Obtain high-quality, interpretable photodocumentation of examination
findings
- Develop a peer review system to have all abnormal cases reviewed by an
expert provider
- Teach multidisciplinary teams that all children benefit from a medical
evaluation by a qualified provider
- Provide court testimony that is objective, fact-based, educational, and clear
for medical and nonmedical audiences

that can provide secure HIPAA-compliant case review.

The use of such programs satisfies the requirements of the
National Children’s Alliance (NCA) but may not go far
enough in providing comprehensive assessment of the
quality of examinations. Feedback to examiners, followed
by documented improvement against shared baselines, is
the backbone of an iterative process for continuous quality
improvement in the field.

Court Testimony

Providing expert medical testimony requires a thought-
ful, thorough approach and knowledge of court proceedings
that often is outside the realm of standard medical prac-
tice.49,50 The AAP has a policy on Guidelines for Expert
Witness Testimony,51 and other medical specialties have
published guidelines as well.52–56 The role of the expert
medical provider in courtroom proceedings is as an
educator to the judge and jury, explaining why and how the
evaluation was completed, providing details of the exami-
nation, and providing expert opinion on the significance of
any examination findings. Since a majority of sexual abuse
victims have normal genital examinations,56,57 a common
theme in testimony is the explanation of the findings and
that a physical examination alone does not prove or
disprove that sexual abuse occurred.

Table 5
Suggested Research Questions

- What is the role of the medical history in the forensic investigation of child
sexual abuse?
- With new forensic evidence analyses available, should the timing of forensic
collection change for children or adolescents?
- Can NAATs be used for extragenital site testing for gonorrhea and chlamydia
in children or/and adolescents?
- Can NAATs be used to detect Trichomonas or herpes in children and
adolescents?
- Should NAATs be used for routine screening in prepubertal boys?
- What is the significance of findings listed in the “No Expert Consensus”
category with regards to likelihood of sexual contact/abuse?
- How do examination position and techniques and/or anal symptoms affect
anal findings?
- Can deep notches be readily differentiated from complete transsections in
photographs and/or videos?

Conclusion

The recommendations in these revised guidelines incor-
porate current research and practice guidelines for clini-
cians who evaluate children and adolescents for suspected
sexual abuse (Table 4). During the revisions of these
guidelines, several areas of focus for additional research
were identified (Table 5). In addition, several terms are
clarified, components of the Interpretation Table have been
reorganized, and recommendations for improving overall
quality of care have been elaborated. While the Interpreta-
tion Table remains an important component of this evolving
treatise, the importance of the child’s history in the diag-
nosis of sexual abuse cannot be overstated. Similarly, the
patient’s medical and mental health needs must be priori-
tized during the medical assessment. The provider has a key
role in gathering the medical history, evaluating the medical
and mental health needs of the child, and educating fami-
lies, multidisciplinary partners, judges, and jurors in the
appropriate assessment, interpretation of findings, and
management of sexually abused children and adolescents.

Acknowledgments

The authors thank Tim Kutz, MD, Mark Hudson, MD, and
Deborah Lowen, MD, for their contribution to the consensus
document. We also are grateful to Jane Braun, MA, and Kori
Stephens, MPH, of the Midwest Regional Children’s Advo-
cacy Center for their financial and administrative support of
this project.

The authors would like to add a special dedication to our
friend and collaborator, Rich Kaplan, MD, who was instru-
mental in getting us together and keeping the process going.

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