

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



Joyce A. Adams MD<sup>1,\*</sup>, Nancy D. Kellogg MD<sup>2</sup>, Karen J. Farst MD<sup>3</sup>, Nancy S. Harper MD<sup>4</sup>, Vincent J. Palusci MD, MS<sup>5</sup>, Lori D. Frasier MD<sup>6</sup>, Carolyn J. Levitt MD<sup>7</sup>, Robert A. Shapiro MD<sup>8</sup>, Rebecca L. Moles MD<sup>9</sup>, Suzanne P. Starling MD<sup>10</sup>

<sup>1</sup> Department of Pediatrics, University of California, Davis Medical Center, Sacramento, California

<sup>2</sup> Department of Pediatrics, University of Texas Health Science Center at San Antonio, San Antonio, Texas

<sup>3</sup> Department of Pediatrics, University of Arkansas for Medical Sciences, Arkansas Children's Hospital, Little Rock, Arkansas

<sup>4</sup> Department of Pediatrics, University of Minnesota; University of Minnesota Masonic Children's Hospital, Minneapolis, Minnesota

<sup>5</sup> Department of Pediatrics, New York University School of Medicine, New York, New York

<sup>6</sup> Department of Pediatrics, Penn State Milton S. Hershey Children's Hospital, Hershey, Pennsylvania

<sup>7</sup> Department of Pediatrics, University of Minnesota; Children's Hospitals and Clinics of Minnesota, St. Paul, Minnesota

<sup>8</sup> Department of Pediatrics, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio

<sup>9</sup> Department of Pediatrics, Yale School of Medicine, New Haven, Connecticut

<sup>10</sup> Department of Pediatrics, Eastern Virginia Medical School; Children's Hospital of The King's Daughters, Norfolk, Virginia

## ABSTRACT

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 if 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,<sup>1</sup> 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)<sup>2</sup> and the American Academy of Pediatrics (AAP).<sup>3</sup> 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.<sup>4</sup> 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.<sup>5</sup>

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-CI-FX-K001.

\* Address correspondence to: Joyce A. Adams, MD, UC Davis Pediatrics, 2516 Stockton Blvd, 3rd Floor, Sacramento, CA 95817; Phone: +1 (916) 734-3112

E-mail address: jadams@ucsd.edu (J.A. Adams).

**Table 1**  
Examination Techniques

Genital Examination, Prepubertal Child		Anal Examination, Prepubertal Child	
Examination Positions	Supine Frog-leg or Lithotomy Prone Knee-chest (PKC)	Examination Positions (In Order of Preference)	Supine Knee-chest PKC Lateral Decubitus
Examination technique	Labial separation and traction PKC with gluteal lift Speculum examinations not indicated unless child sedated	Examination technique	Buttock separation PKC with gluteal lift
Confirmatory technique	Floating hymen with water or saline PKC with gluteal lift	Confirmatory technique	Reassess after bowel movement, ambulating, or alternate position
Genital Examination, Pubertal Child		Anal Examination, Pubertal Child	
Examination positions	Supine lithotomy PKC with gluteal lift	Examination positions	Supine knee-chest PKC Lateral decubitus
Examination technique	Labial separation and traction Speculum examination can be done if Tanner 3 or greater	Examination technique	Lateral buttock separation Gluteal lift in PKC
Confirmatory technique	Trace hymenal rim with cotton tip swab Foley catheter <sup>58</sup> PKC with gluteal lift	Confirmatory technique	Reassess after bowel movement, ambulating, or alternate position

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<sup>4</sup> 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.<sup>6</sup> 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,<sup>7</sup> 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.”<sup>8</sup> 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.<sup>9,10</sup> Research on the use of 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.<sup>11,12</sup> Importantly, the presence of significant physical findings does not predict recovery of foreign DNA and should not be the basis for collecting forensic evidence.<sup>10</sup> Additionally, DNA can still be recovered following genital wiping after the event.<sup>12</sup>

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.<sup>13</sup> Some young children will still benefit from evidence collection beyond 24 hours,<sup>13</sup> especially in areas where DNA amplification is performed as part of crime lab analysis. Some

**Table 2**  
Timing of Medical Examinations

<p>Indications for <i>emergency</i> evaluation<sup>13,59</sup></p> <ul style="list-style-type: none"> <li>• Medical, psychological, or safety concerns such as acute pain or bleeding, suicidal ideation, or suspected human trafficking</li> <li>• Alleged assault that may have occurred within the previous 72 hours (or other state-mandated time interval) necessitating collection of trace evidence for later forensic analysis</li> <li>• Need for emergency contraception</li> <li>• Need for postexposure prophylaxis (PEP) for STIs including human immunodeficiency virus (HIV)</li> </ul>
<p>Indications for <i>urgent</i> evaluation</p> <ul style="list-style-type: none"> <li>• Suspected or reported sexual contact occurring within the previous 2 weeks, without emergency medical, psychological, or safety needs identified</li> </ul>
<p>Indications for <i>nonurgent</i> evaluation</p> <ul style="list-style-type: none"> <li>• Disclosure of abuse by child, sexualized behaviors, sexual abuse suspected by a multidisciplinary team, or family concern for sexual abuse, but contact occurred more than 2 weeks prior without emergency medical, psychological, or safety needs identified</li> </ul>
<p>Indications for <i>follow-up</i> evaluation</p> <ul style="list-style-type: none"> <li>• Findings on the initial examination are unclear or questionable necessitating reevaluation</li> <li>• Further testing for STIs not identified or treated during the initial examination</li> <li>• Documentation of healing/resolution of acute findings</li> <li>• Confirmation of initial examination findings, when initial examination was performed by an examiner who had conducted fewer than 100 of such evaluations</li> </ul>

jurisdictions 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.<sup>14</sup> 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.<sup>15</sup> The results and interpretation of the medical evaluation should be summarized carefully with unambiguous language that can be understood by nonmedical professionals.<sup>16</sup> Photodocumentation is recommended as a standard of care,<sup>15</sup> 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 proceedings<sup>17</sup>; 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.<sup>18,19</sup> Culture is costly and limited by low sensitivity, especially in the identification of *Chlamydia* infection (as low as 20% sensitive in prepubertal girls).<sup>20</sup> 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),<sup>20</sup> ability to collect a sample non-invasively, ability to test for 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%)<sup>20</sup> 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,<sup>20</sup> 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.”<sup>2</sup> Black et al<sup>20</sup> 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.<sup>21</sup> 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.<sup>20,22,23</sup>

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 pharyngeal<sup>24,25</sup> and anorectal<sup>26,27</sup> 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<sup>®</sup> media remains the most specific method of diagnosing *Trichomonas vaginalis*.<sup>28</sup> When identified by wet mount examination, there is a potential to misidentify nonpathogenic intestinal species of *Trichomonas* (such as *T hominis*) due to morphologic similarities<sup>23</sup> 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.<sup>23</sup>

### 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.<sup>29</sup> 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

Findings Documented in Newborns or Commonly Seen in Nonabused Children*
<p>Normal Variants</p> <ol style="list-style-type: none"> <li>Normal variations in appearance of the hymen               <ol style="list-style-type: none"> <li>Annular: Hymenal tissue present all around the vaginal opening including at the 12 o'clock location</li> <li>Crescentic hymen: hymenal tissue is absent at some point above the 3 to 9 o'clock locations</li> <li>Imperforate hymen: hymen with no opening</li> <li>Microperforate hymen: hymen with one or more small openings</li> <li>Septate hymen: hymen with one or more septae across the opening</li> <li>Redundant hymen: hymen with multiple flaps, folding over each other</li> <li>Hymen with tag of tissue on the rim</li> <li>Hymen with mounds or bumps on the rim at any location</li> <li><b>Any notch or cleft of the hymen (regardless of depth) above the 3 and 9 o'clock locations</b></li> <li><b>Superficial notches of the hymen at or below the 3 and 9 o'clock locations</b></li> <li>Smooth posterior rim of hymen that appears to be relatively narrow along the entire rim</li> </ol> </li> <li>Periurethral or vestibular band(s)</li> <li>Intravaginal ridge(s) or column(s)</li> <li>External ridge on the hymen</li> <li>Linea vestibularis (midline avascular area)</li> <li>Diastasis ani (smooth area)</li> <li>Perianal skin tag(s)</li> <li>Hyperpigmentation of the skin of labia minora or perianal tissues in children of color</li> <li>Dilation of the urethral opening</li> </ol> <p>Findings commonly caused by medical conditions other than trauma or sexual contact†</p> <ol style="list-style-type: none"> <li>Erythema of the genital tissues</li> <li>increased vascularity of vestibule and hymen</li> <li>Labial adhesion</li> <li>Friability of the posterior fourchette</li> <li>Vaginal discharge</li> <li><b>Molluscum contagiosum</b></li> <li>Anal fissure(s)</li> <li>Venous congestion or venous pooling in the perianal area</li> <li>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</li> </ol> <p><b>Conditions mistaken for abuse</b></p> <ol style="list-style-type: none"> <li>Urethral prolapse</li> <li>Lichen sclerosus et atrophicus</li> <li>Vulvar ulcer(s)</li> <li>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</li> <li>Failure of midline fusion, also called perineal groove</li> <li>Rectal prolapse</li> <li><b>Visualization of the pectinate/dentate line at the juncture of the anoderm and rectal mucosa</b></li> <li><b>Partial dilatation of the external anal sphincter, with the internal sphincter closed, causing the appearance of deep creases in the perianal skin</b></li> <li><b>Red/purple discoloration of the genital structures (including the hymen) from lividity post-mortem, confirmed by histological analysis.</b></li> </ol>
Findings With No Expert Consensus on Interpretation With Respect to Sexual Contact or Trauma‡
<ol style="list-style-type: none"> <li>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</li> <li><b>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 transection. Complete clefts/transsections at 3 or 9 o'clock are also findings with no expert consensus in interpretation.</b></li> <li>Genital or anal condyloma acuminatum in the absence of other indicators of abuse; <b>lesions appearing for the first time in a child older than 5 years may be more likely to be the result of sexual transmission</b><sup>22</sup></li> <li>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<sup>22</sup></li> </ol>

(continued)

**Table 3 (continued)**

Findings Caused by Trauma and/or Sexual Contact§
<p>Acute trauma to external genital/anal tissues, which could be accidental or inflicted</p> <ol style="list-style-type: none"> <li>Acute laceration(s) or bruising of labia, penis, scrotum, perianal tissues, or perineum</li> <li>Acute laceration of the posterior fourchette or vestibule, not involving the hymen</li> </ol> <p>Residual (healing) injuries to external genital/anal tissues (These rare findings are difficult to diagnose unless an acute injury was previously documented at the same location.)</p> <ol style="list-style-type: none"> <li>Perianal scar</li> <li>Scar of posterior fourchette or fossa</li> </ol> <p><b>Injuries indicative of acute or healed trauma to the genital/anal tissues</b></p> <ol style="list-style-type: none"> <li>Bruising, <b>petechiae, or abrasions</b> on the hymen</li> <li>Acute laceration of the hymen, of any depth; partial or complete</li> <li><b>Vaginal laceration</b></li> <li><b>Perianal laceration with exposure of tissues below the dermis</b></li> <li><b>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.</b></li> <li>A defect in the posterior (inferior) half of the hymen wider than a transection with an absence of hymenal tissue extending to the base of the hymen.</li> </ol> <p><b>Infections transmitted by sexual contact, unless there is evidence of perianal transmission or clearly, reasonably and independently documented but rare nonsexual transmission</b></p> <ol style="list-style-type: none"> <li>Genital, rectal or pharyngeal <i>Neisseria gonorrhoeae</i> infection</li> <li>Syphilis</li> <li>Genital or rectal <i>Chlamydia trachomatis</i> infection</li> <li><i>Trichomonas vaginalis</i> infection</li> <li>HIV, if transmission by blood transfusion has been ruled out</li> </ol> <p>Diagnostic of sexual contact</p> <ol style="list-style-type: none"> <li>Pregnancy</li> <li>Semen identified in forensic specimens taken directly from a child's body</li> </ol>

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. Diagnoses 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<sup>30,31</sup> 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.<sup>32</sup> 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.<sup>33</sup> 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.<sup>34</sup> 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,<sup>35,36</sup> 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.<sup>36</sup> 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).<sup>37</sup> Additionally, the International Association of Forensic Nurses (IAFN) has established guidelines for the specialized training of pediatric sexual assault nurse examiners (SANE-P) in the care of the child victims of sexual assault,<sup>38</sup> 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, SANE-Ps, 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)<sup>3</sup> and on the identification and treatment of STIs.<sup>2</sup>

Qualified medical providers need to maintain currency of practice through continuing education and peer review. Photodocumentation is recommended by the AAP,<sup>3</sup> National Children's Alliance (NCA),<sup>15</sup> and IAFN.<sup>38</sup> Medical peer review involves participation in expert review of photodocumented findings, particularly those thought to be abnormal or indicative of sexual abuse. Medical providers who perform higher numbers of child sexual abuse examinations,<sup>39</sup> read current medical literature, and regularly review cases with an expert demonstrate greater diagnostic accuracy in child sexual abuse evaluations.<sup>40</sup>

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.<sup>41–43</sup>

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.<sup>44</sup> These studies also show that an experienced examiner provides more consistent and objective interpretation of examination findings.<sup>40,44,45</sup> 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.<sup>46</sup>

Clinicians without sexual abuse expertise can access expert consultation remotely. One example is myCaseReview, a secure Web-based telehealth 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 medical 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.<sup>46–48</sup> 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 thoughtful, thorough approach and knowledge of court proceedings that often is outside the realm of standard medical practice.<sup>49,50</sup> The AAP has a policy on Guidelines for Expert Witness Testimony,<sup>51</sup> and other medical specialties have published guidelines as well.<sup>52–56</sup> 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 examination, and providing expert opinion on the significance of any examination findings. Since a majority of sexual abuse victims have normal genital examinations,<sup>36,57</sup> 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 and/or 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 transections in photographs and/or videos?

### Conclusion

The recommendations in these revised guidelines incorporate current research and practice guidelines for clinicians 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 Interpretation Table remains an important component of this evolving treatise, the importance of the child's history in the diagnosis of sexual abuse cannot be overstated. Similarly, the patient's medical and mental health needs must be prioritized 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 families, 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 Advocacy 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 instrumental in getting us together and keeping the process going.

### References

1. Adams JA, Kaplan RA, Starling SP, et al: Guidelines for medical care of children who may have been sexually abused. *J Pediatr Adolesc Gynecol* 2007; 20:163
2. Workowski KA, Berman S, CDC, et al: Sexually transmitted diseases treatment guidelines, 2010. *MMWR Recomm Rep* 2010; 59:1
3. Jenny C, Crawford-Jakubiak JE, Committee on Child Abuse, et al: The evaluation of children in the primary care setting when sexual abuse is suspected. *Pediatrics* 2013; 132:e558
4. Finkel MA, Alexander RA: Conducting the medical history. *J Child Sex Abuse* 2011; 20:486
5. Delago C, Deblinger E, Schroeder C, et al: Girls who disclose sexual abuse: urogenital symptoms and signs after genital contact. *Pediatrics* 2008; 122:e283
6. Melville JD, Kellogg ND, Perez N, et al: Assessment for self-blame and trauma symptoms during the medical evaluation of suspected sexual abuse. *Child Abuse Negl* 2014; 38:851
7. Gavril AR, Kellogg ND, Nair P: Value of follow-up examinations of children and adolescents evaluated for sexual abuse and assault. *Pediatrics* 2012; 129:282
8. Adams JA: Guidelines for medical care of children evaluated for suspected sexual abuse: an update for 2008. *Curr Opin Obstet Gynecol* 2008; 20:435
9. Thackeray JD, Hornor G, Benzinger EA, et al: Forensic evidence collection and DNA identification in acute child sexual assault. *Pediatrics* 2011; 128:227
10. Girardet R, Bolton K, Lahoti S, et al: Collection of forensic evidence from pediatric victims of sexual assault. *Pediatrics* 2011; 128:233
11. Sibille I, Duverneuil C, Lorin De La Grandmaison G, et al: Y-STR DNA amplification as biological evidence in sexually assaulted female victims with no cytological detection of spermatozoa. *Forensic Sci Int* 2002; 125:212
12. Maiquilla SM, Salvador JM, Calacal GC, et al: Y-STR DNA analysis of 154 female child sexual assault cases in the Philippines. *Int J Legal Med* 2011; 125:817
13. Christian CW: Timing of the medical examination. *J Child Sex Abuse* 2011; 20:505
14. US Department of Justice: A national protocol for sexual assault medical forensic examinations adults/adolescents. Washington, DC, Office on Violence Against Women, 2013
15. National Children's Alliance: Standards for accredited members, revised. Washington, DC, Author, 2011
16. Finkel MA, Ricci LR: Documentation and preservation of visual evidence in child abuse. *Child Maltreat* 1997; 2:322

17. Ricci LR: Photodocumentation in child abuse cases. In: Jenny C, editor. *Child Abuse and Neglect: Diagnosis, Treatment and Evidence*. St. Louis, MO, Elsevier Saunders, 2011
18. Esernio-Jensen D, Barnes M: Nucleic acid amplification testing in suspected child sexual abuse. *J Child Sex Abuse* 2011; 20:612
19. Shapiro RA, Makoroff KL: Sexually transmitted diseases in sexually abused girls and adolescents. *Curr Opin Obstet Gynecol* 2006; 18:492
20. Black CM, Driebe EM, Howard LA, et al: Multicenter study of nucleic acid amplification tests for detection of *Chlamydia trachomatis* and *Neisseria gonorrhoeae* in children being evaluated for sexual abuse. *Pediatr Infect Dis J* 2009; 28:608
21. Centers for Disease Control and Prevention: Recommendations for the laboratory-based detection of *Chlamydia trachomatis* and *Neisseria gonorrhoeae*: 2014. *MMWR Recomm Rep* 2014; 63:1
22. Hammerschlag MR, Guillen CD: Medical and legal implications of testing for sexually transmitted infections in children. *Clin Microbiol Rev* 2010; 23:493
23. Hammerschlag MR, Gaydos CA: Guidelines for the use of molecular biological methods to detect sexually transmitted pathogens in cases of suspected sexual abuse in children. *Methods Mol Biol* 2012; 903:307
24. Giannini CM, Kim HK, Mortensen J, et al: Culture of non-genital sites increases the detection of gonorrhea in women. *J Pediatr Adolesc Gynecol* 2010; 23:246
25. Bachmann LH, Johnson RE, Cheng H, et al: Nucleic acid amplification tests for diagnosis of *Neisseria gonorrhoeae* oropharyngeal infections. *J Clin Microbiol* 2009; 47:902
26. Bachmann LH, Johnson RE, Cheng H, et al: Nucleic acid amplification tests for diagnosis of *Neisseria gonorrhoeae* and *Chlamydia trachomatis* rectal infections. *J Clin Microbiol* 2010; 48:1827
27. Cosentino LA, Campbell T, Jett A, et al: Use of nucleic acid amplification testing for diagnosis of anorectal sexually transmitted infections. *J Clin Microbiol* 2012; 50:2005
28. Gallion HR, Dupree LJ, Scott TA, et al: Diagnosis of *Trichomonas vaginalis* in female children and adolescents evaluated for possible sexual abuse: a comparison of the InPouch TV culture method and wet mount microscopy. *J Pediatr Adolesc Gynecol* 2009; 22:300
29. Ambrosetti F, Palazzo E, Gibelli D, et al: The risk of misinterpreting genital signs of sexual abuse in cadavers: a case report. *Int J Legal Med* 2013; 127:907
30. Mccann J, Voris J, Simon M, et al: Perianal findings in prepubertal children selected for nonabuse: a descriptive study. *Child Abuse Negl* 1989; 13:179
31. Myhre AK, Bemtzen K, Bratlid D: Perianal anatomy in non-abused preschool children. *Acta Paediatr* 2001; 90:1321
32. Hobbs CJ, Wright CM: Anal signs of child sexual abuse: a case-control study. *BMC Pediatr* 2014; 14:128
33. Myhre AK, Adams JA, Kaufhold M, et al: Anal findings in children with and without probable anal penetration: a retrospective study of 1115 children referred for suspected sexual abuse. *Child Abuse Negl* 2013; 37:465
34. Starling SP, Frasier LD, Jarvis K, et al: Inter-rater reliability in child sexual abuse diagnosis among expert reviewers. *Child Abuse Negl* 2013; 37:456
35. Berkoff MC, Zolotor AJ, Makoroff KL, et al: Has this prepubertal girl been sexually abused? *J Am Med Assoc* 2008; 300:2779
36. Berenson AB, Chacko MR, Wiemann CM, et al: A case-control study of anatomic changes resulting from sexual abuse. *Am J Obstet Gynecol* 2000; 182:820. discussion 831.
37. The American Board of Pediatrics: *Workforce Data 2013–2014*. Chapel Hill, NC, Author, 2014
38. International Association of Forensic Nurses: *Sexual Assault Nurse Examiner (SANE) Education Guidelines*. Elkridge, MD, Author, 2013
39. Campbell R, Patterson D, Dworkin E, et al: Anogenital injuries in childhood sexual abuse victims treated in a pediatric Forensic Nurse Examiner (FNE) program. *J Forens Nursing* 2010; 6:188
40. Adams JA, Starling SP, Frasier LD, et al: Diagnostic accuracy in child sexual abuse medical evaluation: role of experience, training, and expert case review. *Child Abuse Negl* 2012; 36:383
41. Bender LC, Linnau KF, Meier EN, et al: Interrater agreement in the evaluation of discrepant imaging findings with the Radpeer system. *AJR Am J Roentgenol* 2012; 199:1320
42. Ng WK, Chiu CS, Cheng Y, et al: Toward implementation of a regional quality assurance program in cytopathology: the Hong Kong experience. *Acta Cytol* 2006; 50:164
43. Nisbet D, McLennan A, Robertson A, et al: Reducing inter-rater variability in the assessment of nuchal translucency image quality. *Fetal Diagn Ther* 2011; 30:128
44. Sinal SH, Lawless MR, Rainey DY, et al: Clinician agreement on physical findings in child sexual abuse cases. *Arch Pediatr Adolesc Med* 1997; 151:497
45. Adams JA: Medical evaluation of suspected child sexual abuse: it's time for standardized training, referral centers, and routine peer review. *Arch Pediatr Adolesc Med* 1999; 153:1121
46. Frasier LD, Thraen I, Kaplan R, et al: Development of standardized clinical training cases for diagnosis of sexual abuse using a secure telehealth application. *Child Abuse Negl* 2012; 36:149
47. Kellogg ND, Lamb JL, Lukefahr JL: The use of telemedicine in child sexual abuse evaluations. *Child Abuse Negl* 2000; 24:1601
48. Thraen IM, Frasier L, Cochella C, et al: The use of TeleCAM as a remote Web-based application for child maltreatment assessment, peer review, and case documentation. *Child Maltreat* 2008; 13:368
49. Johnson SL: Paediatric expert witness. *J Paediatr Child Health* 2013; 49:611
50. Frasier LD, Makoroff KL: Medical evidence and expert testimony in child sexual abuse. *Juv Fam Court J* 2006; 57:41
51. American Academy of Pediatrics Committee of Medical Liability: *Guidelines for expert witness testimony*. Pediatrics 1989; 83:312
52. Kesselheim AS, Studdert DM: Role of professional organizations in regulating physician expert witness testimony. *J Am Med Assoc* 2007; 298:2907
53. Committee on Ethics: ACOG: ACOG Committee Opinion No. 374: Expert testimony. *Obstet Gynecol* 2007; 110:445
54. American Medical Association: *Opinion 9.07-Medical Testimony, 2004*.
55. Phillips E, Stark SW: Stepping up to be an expert witness. *Nurse Pract* 2013; 38:8
56. Williams MA, Mackin GA, Beresford HR, et al: American Academy of Neurology qualifications and guidelines for the physician expert witness. *Neurology* 2006; 66:13
57. Adams JA, Harper K, Knudson S, et al: Examination findings in legally confirmed child sexual abuse: it's normal to be normal. *Pediatrics* 1994; 94:310
58. Starling SP, Jenny C: Forensic examination of adolescent female genitalia: the Foley catheter technique. *Arch Pediatr Adolesc Med* 1997; 151:102
59. Floyed RL, Hirsh DA, Greenbaum VJ, et al: Development of a screening tool for pediatric sexual assault may reduce emergency-department visits. *Pediatrics* 2011; 128:221