
Child Abuse and Neglect

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The publication of “The Battered Child” by C. Henry Kempe and coworkers¹ introduced child maltreatment (CM) to the pediatric literature, and in the 46 years following its publication, the knowledge in the field has expanded. CM pervades every area of pediatrics. Pediatricians are mandated reporters and play an important role in the identification of child abuse and neglect. This article seeks to inform the primary care clinician about the current state of knowledge of child abuse and neglect. The epidemiology and diagnosis of the different types of abuse, the effects of abuse on children, documentation, reporting, and prevention are covered. The intent of the article is to help primary care clinicians more accurately identify and report child abuse and neglect.

Epidemiology

Two large administrative sources provide information about the US annual incidence of child maltreatment, the National Child Abuse and Neglect Data System (NCANDS) and the National Incidence Studies of Child Abuse and Neglect (NIS). NCANDS contains aggregate and case-level data on child abuse reports received by state Child Protective Service (CPS) agencies.² Over 45 states and territories provide information annually about the outcomes of child abuse reports, types of maltreatment, child and family factors, and services being provided. National estimates of the overall numbers of CM victims (substantiated or indicated CPS reports) as well as victims

identified with the major forms of CM (physical abuse, sexual abuse, neglect, medical neglect, and psychological maltreatment) are provided in [Figure 1](#). The NIS have provided separate, periodic estimates from a growing number of sentinel professionals in a representative group of US counties to determine the actual number of CM victims.³ In 1993, NIS-3 sampled over 5600 professionals in 842 agencies serving 42 counties to identify children in any or all of the agencies under two standards: the harm standard (relatively stringent in that it generally requires that an act or omission result in demonstrable harm in order to be classified as abuse or neglect) and the endangerment standard (which allows children who were not yet harmed by maltreatment to be counted if the CM was confirmed by CPS or identified as endangerment by professionals outside CPS, either by their parents or by other adults).

Child Physical Abuse

In 2006, nearly 3.6 million children were investigated and 905,000 CM victims were identified in NCANDS, translating into a national annual incidence of 12.1 cases of CM per 1000 children. Of these, 144,800 (16%) were physically abused.² This represents a decrease from a high of 261,605 cases in 1996, following similar trends in other national crime statistics.⁴ Independent surveys have found higher than expected rates, such as a survey in the Carolinas that found an incidence of harsh physical discipline in 4.3% of respondents (2.4% shaking infants)⁵ and in a retrospective prevalence survey where 24% of adolescents reported being physically assaulted.⁶ The range of incidence rates of abusive head trauma has been found to be 27.5-32.2 per 100,000 in a large US inpatient database.⁷ Child abuse fatalities were at 1530 in 2006 (2.04 per 100,000), but this is thought to be an underestimate due to underrecognition, lack of standard terminology, and flaws in investigation procedures.²

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U.S. Child Maltreatment Victims (NCANDS)

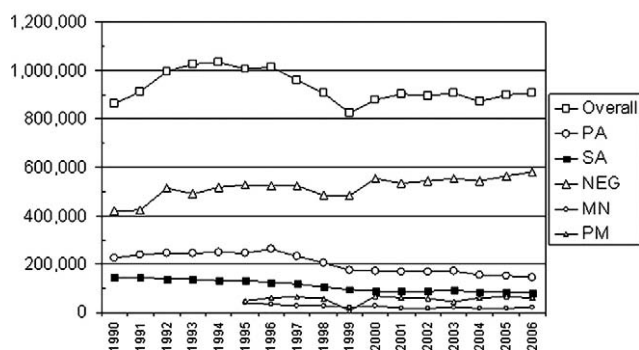


FIG 1. National estimates of the overall numbers of child maltreatment victims. Abbreviations: PA, physical abuse; SA, sexual abuse; NEG, neglect; MN, medical neglect; PM, psychological maltreatment.

In NIS-3, boys and poor children have increased risk for child physical abuse, but minority populations did not. Mothers were responsible for more child physical abuse in NIS-3, but in other studies, more fathers and adult males were responsible for fractures and abusive head trauma.³ Males were more likely responsible for deaths of older infants and young children.⁸ Children living in households with unrelated adults were 47.6 times more likely to die from inflicted injuries than were those in two parent households.⁹ Overall, Zhou et al found that infant maltreatment can best be predicted when there are young mothers less than 20 years old, who are unmarried, who are without adequate prenatal care, who are poor, who smoke during the pregnancy, or when there are three or more siblings.¹⁰ In an NCANDS sample, parent emotional problems, alcohol abuse, and other family violence were found to be associated with the recurrence of physical abuse of infants before age 3 years.¹¹

Child Sexual Abuse

Unlike physical abuse, neglect, and psychological maltreatment, child sexual abuse has been shrouded by the cloak of social taboo surrounding human sexuality and sexual contact with children and therefore may be underreported. Child sexual abuse now consistently comprises 10-15% of CM reports annually in the US and Canada,^{2,12} but it is estimated that less than one-third of all child sexual abuse cases are reflected in current incidence figures. The number of child sexual abuse victims recorded in NCANDS, while rising during the late 1980s, actually declined during

much of the 1990s and early into the 21st century, from a peak of 144,760 cases in 1991 to 79,640 in 2006. In NIS, sexual abuse nearly doubled during 1986-1993, rising to an estimated 217,700 cases under the “harm standard” and 338,900 cases under the “endangerment standard.” Despite the variability of study results, it does appear that overall child sexual abuse incidence is declining in the US, and a variety of explanations have been offered for this decline.^{4,13,14} These include the following: more conservatism in CPS substantiation of sexual abuse; exclusion of cases reported to NCANDS that do not involve caretakers; changes in data collection methods; fewer reports of sexual abuse to CPS; changes in the number of previously undisclosed cases of sexual abuse available for new disclosures; or a real decline in child sexual abuse.^{13,14}

Psychological Maltreatment

The true incidence of psychological maltreatment is difficult to determine given the difficulty in establishing the diagnosis and making a determination in the child welfare system. The number peaked at 67,683 confirmed reports in the US in 2000, and rates are currently 0.5-1.0 per 1000.² Under the harm standard in NIS-3, boys were more likely than girls to be emotionally neglected, and children in single parent households had a 64% increased risk over those with both parents present. Children in poor families had increased risk for emotional abuse and emotional neglect. Kairys et al noted that isolated psychological maltreatment had the lowest rate of substantiation of any type of CM, comprising 6.1% of reports in the US compared to 15% in England.¹⁵ Few studies have looked at the incidence of psychological maltreatment in special populations, and given its central significance in all subtypes of CM, the rates are likely much higher and inadequately identified in current administrative databases.

Neglect

Neglect is divided into “neglect” and “medical neglect” in NCANDS, and there was a high of 581,010 cases of neglect in 2006 (7.8 per 1000), comprising 64.9% of confirmed reports.² There were 19,910 medical neglect cases in 2006 (0.3 per 1000, 6.6% of reports). In the US, medical neglect accounts for 2.3% of all substantiated cases of CM; only the most egregious and intractable cases are likely to be reported and confirmed.¹⁶ In a separate analysis, Jones

and coworkers noted that while physical and sexual abuse were declining, there appeared to be geographic-specific factors masking similar declines in child neglect.¹⁷

A manifestation of neglect is failure to thrive. Poverty is the greatest single factor for failure to thrive in the US and worldwide.¹⁸ Other risk factors that should be considered include inadequate social interactive behavior, young parents, prior history of abuse, prematurity, prolonged hospitalization, lack of extended family, social isolation, single parents, substance abuse, family violence, and employment instability.

Physical Abuse

Definition

Physical abuse is defined as any nonaccidental injury inflicted or allowed to be inflicted by a parent or caretaker. There is specific legislation in each state that further defines physical abuse, including such factors as the age of children protected by such laws.

Evaluation

The medical workup can be very straightforward when a child presents with apparent signs of inflicted injuries and/or a history of abuse. If such symptoms or history come to light during the course of an otherwise routine visit, it is imperative that the health care provider be able to initiate the appropriate evaluation and coordinate care with other members of the medical team. Regardless of the manner of presentation, the evaluation must include the history given by the parent(s)/caretaker(s), history from the child (when possible), a thorough physical examination, and laboratory tests and radiographic studies as indicated. In the seriously injured child, the history-taking may be done by medical personnel other than the treating physician, necessitating careful review of all the gathered information once the child is stabilized.

History

The historian in most child-related visits is a parent or guardian. If both parents are present and there is a concern of abuse, every effort should be made to interview the parents separately. It is imperative that separate interviews be conducted if there is a possibil-

TABLE 1. History: Physical abuse

History of current episode
Prior episodes of trauma
Medical history
Birth history
Past medical problems, including hospitalizations
Source of ongoing care
Chronic medical conditions, if any
Developmental history—age appropriate or delayed
Family medical history

ity of domestic violence. Such precautions should also be observed when interviewing a verbal child. The important aspects of the history are listed in Table 1.

History of Current Episode. The interviewer should address the details of the presenting symptoms with careful questioning focused on the sequence of events surrounding the incident. There are criteria that should alert the interviewer to the possibility of abuse. These are listed in Table 2.

Prior History. Prior history of trauma that the child may have experienced should be reviewed. A parent's comment that the child is "clumsy" when explaining bruising and recurrent fractures should be noted.

Medical History. Medical history that is obtained at routine pediatric visits is very important in the assessment of possible abuse. This should include information about the birth, such as whether the child was premature or experienced birth trauma or other neonatal events. Past medical issues such as hospitalizations and prior injuries should also be noted. One should inquire as to the source of ongoing pediatric care, a potential resource that knows the family and may be able to document consistency of care. This is especially helpful in any child with chronic medical problems. The clinician should ask about the child's temperament, developmental milestones, and the family's method of discipline. The family history should also be explored for the presence of excessive bleeding, skin disorders, and frequent fractures in family members and/or siblings.

Physical Examination

When child maltreatment is suspected, the physical examination has the three following objectives: (1) medical—to assess the physical injury to the child and develop an appropriate treatment plan; (2) psychological—to afford the child a sense of safety; and (3) legal—to provide physical documentation that may be used as evidence. The examination should be com-

TABLE 2. Criteria for suspecting child maltreatment

HISTORY

Vague or no history to explain injury
Explanation changes during course of interview
Different histories given to various members of staff—triage nurse, doctor, social worker
Parents give different stories of the same episode
Parent offers no explanation for delay in care
Parent appears indifferent to child's discomfort
Parent blames child or another child for the injury
Parent reports that child is a "chronic" liar and so not to be believed

PHYSICAL EXAMINATION

Evidence of major injuries with history of minor trauma
Specific evidence of inflicted trauma, eg, cord marks, pattern burns
Injury inconsistent with developmental age of child
Injury located in area not commonly associated with routine childhood trauma
Injuries in different stages of healing when history of only one episode of trauma
Evidence of healed lesions/scars from previous trauma

LABORATORY TESTING

Tests do not reveal any medical explanation for the observed injuries
For a child with a chronic disease, there is no lab evidence of an acute exacerbation of their disease to account for the current physical findings

RADIOLOGIC STUDIES

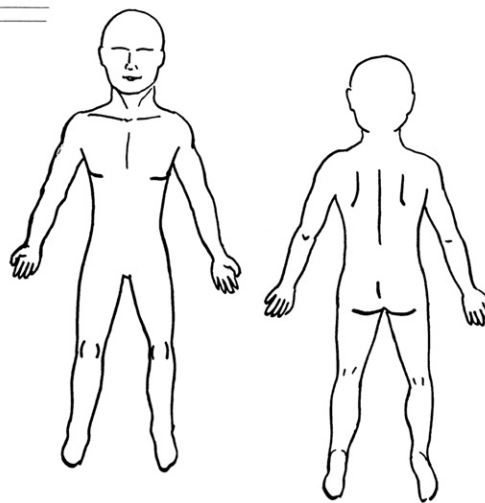
Routine exam reveals incidental finding, eg, a chest film for evaluation of possible pneumonia reveals a healing rib fracture
No evidence of bone disease that would explain fractures
CT/MRI studies reveal injuries not consistent with a single episode of trauma, eg, multiple abdominal visceral injuries from a simple fall

plete, including a genital inspection. It should include an informal developmental assessment, noting both motor and cognitive functioning. When possible, the child should be informed of the reason and the extent of the exam.

The examiner should document the following findings:

- Appearance/hygiene—briefly describe the general condition of child, such as state of clothing, evidence of poor hygiene, condition of teeth, etc.
- Behavioral assessment—record the child's affect, eg, friendly, frightened.
- Age-appropriate behaviors—assess the child's behavior, including description of significant reactions to parent(s) and staff. It is also important to note the behavior of the parent during the exam, such as supportive or indifferent.
- Physical examination—must involve a complete exam with the child undressed. Height and weight should be plotted and Tanner stage noted.

Chart no: _____
Name: _____
DOB: _____
Date: _____



Diagrammed by: _____ Witness: _____

FIG 2. Bodygram for documentation of skin findings (Reprinted with permission from the Frances L. Loeb Child Protection and Development Center, Bellevue Hospital, Department of Pediatrics, New York University School of Medicine, New York, NY.)

- Documentation of current/old findings—all bruises and scars should be documented, using institution-generated diagrams (Figs 2 and 3) or standardized bodygrams. The lesions should be described as well in the medical record. Photographic documentation should be utilized when available.

Specific findings that should alert the examiner to the possibility of abuse are listed in Table 2.

Laboratory Testing

Laboratory studies should be used to assess the status of the child as well as identify any underlying disorders that might influence the presentation of the current injury to the child. Specialized testing may be warranted based on the nature of the injury and/or the history of a specific medical problem previously diagnosed. The health care provider should be concerned when the lab tests do not reveal any medical explanation for the observed injuries. For example, in a child with a chronic disease, such as a bleeding disorder, the absence of lab evidence of an acute exacerbation of their disease that would account for the current physical findings may indicate abuse.

Radiographic Evaluation

Routine exams may reveal incidental findings, eg, a chest film for evaluation of possible pneumonia re-

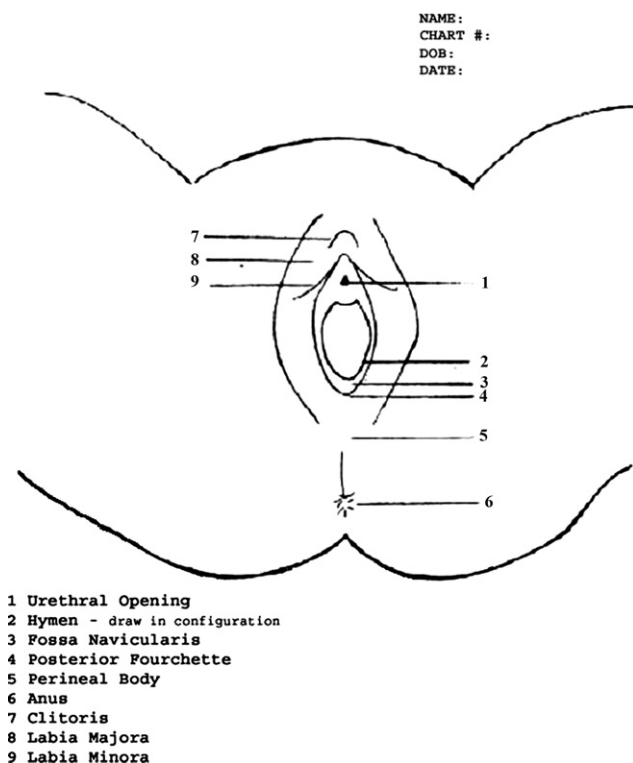


FIG 3. Diagram for documentation of female genital injuries (Reprinted with permission from the Frances L. Loeb Child Protection and Development Center, Bellevue Hospital, New York University School of Medicine, New York, NY.)

veals a healing rib fracture that cannot be explained by the parent, or when a computed tomographic (CT)/magnetic resonance imaging (MRI) study reveals injuries not consistent with a single episode of trauma, eg, multiple abdominal visceral injuries from a simple fall (Table 2). For a child with a clinical fracture that is suspicious for abuse, the lack of evidence of a bone disease that might explain the observed fracture should be noted by the radiologist. When child abuse is suspected, the clinician should make use of a standardized panel of X-rays to assess for trauma, often referred to as a skeletal survey, which includes dedicated views of the skull, ribs, long bones, and extremities for all children less than 2 years old.

Types of Physical Abuse

Abuse may present as a single form of injury but may also appear as a series of findings that represent a particular type of abuse. For example, an infant may have rib fractures, ecchymoses on both the anterior and the posterior thorax, and evidence of an intracranial hemorrhage—all consistent with inflicted trauma

also known as Shaken Baby Syndrome/Abusive Head Trauma. When an injury is identified, it is essential that the health care provider consider other possible injuries to help determine if the injuries are inflicted. It is also important to consider different mechanisms of injury. For example, an infant with a torn lingual frenulum may be the victim of forced feeding by a caretaker but could be a victim of oral sexual assault.

Common presentations of physical abuse are bruises, burns, fractures, chest/abdominal injuries, and head trauma. At the time of presentation, the elements of the needed evaluation, namely history, physical examination, and lab/radiographic studies, may weigh differently in the diagnosis of possible abuse based on the clinical status of the child and the presenting symptoms.¹⁹

Bruises. The most common presentation of physical abuse is bruising. For this section, abrasions, contusions, and lacerations will be included, although they involve the breaking of the epidermis, while bruising leaves the skin intact. In general, wound healing is faster in children than in adults. The appearance of a bruise can be affected by the general condition of the skin and whether there is any chronic dermatologic problem that might either predispose the skin to bruising and/or lead to a longer process of healing. The examining clinician must be aware and knowledgeable of conditions that may mimic abusive injuries. A child with chronic, recurring eczema may appear to the untrained eye to have extensive bruising rather than a chronic irritation exacerbated by the effect of scratching the area. Skin findings that may be misdiagnosed as bruising include infectious processes that may involve purpuric lesions and hematological diseases that result in easy bruisability and longer resolution of the discoloration of the bruised area. A consultation with a specialist, be it in infectious diseases, hematological disorders, rheumatology, or dermatology (or some combination of them), may be indicated when the etiology of the perceived injury is not clear. Dr. Carole Jenny provides an excellent review of the cutaneous manifestations of child abuse in the textbook by Reece and Ludwig.²⁰

The evaluation of these injuries should involve the assessment of the distribution and presence/absence of patterns. The dating of a bruise is not a precise science since the site of the injury, the natural pigmentation of the child, the condition of the skin, as well as the type and nature of the abuse itself can affect the resolution



FIG 4. This young child was reported “clipped” by his father for using inappropriate language. This bruising from compression on the pinna and over the mastoid, while excessive, was consistent with that history.



FIG 5. This boy has been trying to learn how to use a skateboard and has atopic dermatitis. This pattern of numerous ecchymoses and contusions, while excessive, are located over bony prominences and normal areas of impact.

of the bruising.²¹ The color of a bruise cannot be used to establish the exact date of the injury.²¹

The distribution of bruises can be a critical factor in determining if a child has been abused. Certain sites are highly correlated with abuse, such as buttocks, the lower back, the posterior aspects of the extremities, and the ears²² (Fig e4). (Figures with an “e” designation can be found in the online version at <http://www.cppah.com>.) Bruising at other sites, such as the bony prominences of the forehead, the elbows, and the lower legs, is consistent with the normal childhood trauma seen in mobile children (Fig 5). A phrase coined by Sugar et al “if you don’t cruise, you don’t bruise” should be applied when seeing nonwalking infants or motor-delayed children with bruising.²³

Inflicted bruising may have clear patterns or may be nonspecific. Since the hand is the most common vehicle of abuse, the appearance of the observed bruise may clearly show how the child was injured—a slap with an open hand (linear, spaced parallel marks) (Fig e6), punching (the appearance of rounded lesions in a linear pattern consistent with knuckles), pinching (two discrete, spaced lesions with central clearing), and other lesions. Similarly, when an object is used, the pattern of the injury may clearly show the outline of the object used—a belt (linear, parallel lesions), a cord (loop marks) (Fig 7), a paddle (well-spaced, delineated parallel lesions). Often caretakers report that they have used anything “at hand” so patterns may be very diverse. Another form of



FIG 6. This child was being punished by his mother reportedly for using matches. He reported being hit by her on his legs. Note the patterned ecchymoses with the outline of several digits in addition to a more diffuse contusion.

patterned bruising that is often encountered is the lesion produced by biting the child. A careful inspection and measurement of the lesion can determine if the bite is human or animal, adult or child, or self-inflicted. Since the most common skin manifestation of physical abuse is multiple bruises in different stages of healing (a demonstration of the ongoing nature of the abuse), it is imperative to use a diagram to document the stage of healing, distribution, and pattern of these injuries.



FIG 7. This teenager presented with old pattern hyperpigmented scars that are not consistent with routine or accidental injury. He later disclosed multiple episodes of being hit with a cord and a stick because of his reported “bad behaviors.”

Burns. A burn is the destruction of skin and underlying tissue by the application of a physical agent. These agents may be chemicals, heat, or electrical in nature. Since the spectrum of burns can range from a simple isolated injury to the involvement of major portions of the child’s body, the clinician should assess the following factors in evaluating a burn: the type of agent, the distribution and extent of the burn, and the history given of how the burn occurred. Many burns in childhood are accidental but are the result of poor judgment or a failure of the caretaker to provide adequate supervision. Here, as in other forms of abuse, the developmental age and the size of the child are very important in determining if the burn was accidental in nature. Inflicted burns often have very specific patterns such as burns consistent with immersion or dunking. Burns may result from the following actions: splash, immersion, or contact with a heated instrument or utensil, a flame, a chemical/caustic agent, or an electrical source. The pattern of these burns may be quite apparent and can be diagnostic of abuse regardless of history.²⁴

The pattern of a splash burn is affected by two factors—the agent that produced the burn and the action that resulted in the burn. Accidental burns/scalds commonly involve hot liquids in contact with a child’s face, neck, and upper chest²⁵ (Fig e8). If a child pulls a cup of hot water on himself, this will produce a different pattern than if he had pulled a cup of thick soup on himself—discrete lesions of the water



FIG 8. This 13-month-old has a burn on the chest from spilled hot coffee.

versus a mantle effect of the thick soup. The action may be modified by the height of the object from which the hot water/soup fell, the vehicle that contained the hot substance (Was there a handle?), and the child’s size (Is he tall enough to reach that handle?). Such information is necessary to determine if the history provided is consistent with an accidental burn.

Immersion burns present with distinctive patterns that result from placing the child in hot water. The patterns include stocking/glove burns that are symmetrical burns of the extremities. Forced immersion of the child in a tub can produce a burn pattern that may be well demarcated with little or no evidence of splash.

Contact burns can present with identifiable patterns such as an iron or a cigarette lighter or as a diffuse burn from a chemical such as a caustic agent contained in a drain cleaner. The most common instrument burn results from contact with an iron, a contact that often may be accidental but preventable. Frequently, adults iron their clothes on the bed, leaving the hot iron unattended. A child can easily have contact with the iron either while climbing on the bed or by pulling the iron down from the bed (Fig e9). Such actions should produce a partial burn of the contacted area, not the full impression of the iron unless the iron falls squarely on the child’s body. Other sources of contact burns are room heaters, hair curling irons, electric cooking utensils, and radiators (Fig e10). Each of these objects can produce a distinctive lesion that will mirror the object contacted. Lit cigarettes can produce a lesion that can be difficult to distinguish from Varicella or impetigo given the similarity of the size and



FIG 9. This child was playing with his sibling who reportedly challenged him to pick up a hot iron left by his grandfather and place it on his face. Note the hyperpigmentation as well as more acute tissue damage in circular areas from the steam holes and the concurrent lesion from the edge of the iron on his neck.



FIG 10. This pattern mark shows linear areas of hyperpigmented scars from a healed waffle iron burn.

distribution of the lesions. An excellent review of other lesions that are often confused with burns was done by Yeoh et al.²⁶ Electrical burns result from contact with an object with an active electric current. In younger children, this is often the result of contact with an electrical cord with inadequate insulation as the child bites into a cord that has a frayed cover. This leads to the conduction of electricity via saliva, resulting in an extensive burn of the perioral muscles.

Erosion into the labial artery is a rare complication of this type of electrical burn.

In the evaluation of any burn, the clinician must determine if the degree and distribution of the burn is consistent with the history given by the caretaker and whether the timing of the exposure to the vehicle/agent correlates with the injury. Often such information can only be obtained by an environmental assessment, which is an evaluation of the site where the burn occurred to record the temperature of the water, the location of the radiator, etc. The extent of the burn should be documented using a standardized burn diagram. As with other forms of physical abuse, when the caretaker reports that the child burned him/herself, the developmental age is a critical component of the evaluation.

Fractures. As with other forms of physical abuse, the clinician must evaluate whether the injury is accidental, the result of lack of supervision or lack of judgment by the caretaker, or inflicted trauma. The evaluator must explore the reported mechanism of the injury, the developmental age of the child, and other possible medical explanations for the injury.

Acute fractures may be clinically apparent as soft-tissue swelling over a fracture site, as a deformity of the involved limb, or as a decrease in movement of that limb. Healing fractures may be identified on physical exam as palpable lesions consistent with callus formation, especially over the ribs.²⁷ The absence of swelling or bruises near a fracture site is not uncommon in fractures of the extremities and ribs. When there is concern about abuse, especially in children under 2 years of age, radiologic studies are warranted.²⁸

Certain fractures in younger children must be considered more likely as abusive in nature, namely, metaphyseal fractures, spiral fractures in infants, and posterior rib fractures. Fractures of the long bones in the nonambulatory child may be accidental but are highly suspicious for abusive trauma.²⁹ Radiologic evaluation is necessary to assess both the fracture itself and the overall status of the bony skeleton to identify any metabolic/genetic process that might produce bone fragility. A rare example of bone fragility is Osteogenesis Imperfecta, while osteopenia can be seen in many clinical settings, including severe prematurity. When nonaccidental trauma is suspected, appropriate skeletal studies, known as a skeletal survey, should be done as outlined by the American College of Radiology.³⁰ A pediatric radiologist should be utilized when-

ever possible to read these studies since familiarity with the presentation of growth variables in the pediatric patient is very important in determining if the findings are consistent with nonaccidental trauma or may have another explanation. As with skin bruises, the dating of a bone injury by the presence of callus formation is not specific but rather can provide a range of dates during which the injury occurred. It is important to remember that there is no callus formation in the skull bone—acute injuries can be dated by the appearance of the overlying soft-tissue swelling or, in older lesions, by the appearance of the fracture margin, again only a rough determination. Follow-up X-rays in 1 to 2 weeks may be warranted to identify acute fractures, especially of the ribs and digits, which were not visualized on the initial films.

Chest and Abdominal Trauma. Inflicted chest injuries in children are uncommon to appear as a single episode of trauma but are often seen in conjunction with other nonaccidental injuries such as inflicted head trauma with compression fractures of the ribs. The presence of rib fractures can lead to reduced respiratory effort and present as respiratory distress/insufficiency. Direct blows to the chest wall rarely present with damage to the heart or the thoracic duct.³¹ Many of these injuries are fatal and are only identified at postmortem exam.

Abuse must be considered in the evaluation of abdominal injuries in younger children who present without a history of significant trauma. There is often a delay in care until the child is symptomatic as the result of bleeding into the abdomen or some manifestation of dysfunction of an involved organ. Direct blows to the abdomen such as a punch, a kick, or use of an object can injure both solid and hollow viscous as these organs are both impacted and compressed against the vertebral column. One study in *Pediatrics* demonstrated that solid organ injuries were most common in both accidental and inflicted trauma. It also showed that hollow viscous or the combination of hollow viscous injuries and solid organ damage was more common in cases of inflicted injuries.³²

Even with a history of a severe blow to the abdomen, bruising of the skin is often not seen. Examination may reveal guarding and change/loss of bowel sounds. Lab studies must address injuries to all the abdominal organs including the kidneys, injuries often missed in these evaluations. CT scans of the abdomen are very useful in determining the extent of these injuries when the physical findings are diffuse and nonspecific.

There is a higher mortality rate for nonaccidental abdominal injuries given the often delayed onset of symptoms after the inflicted injury as well as the delay in seeking care for an inflicted injury rather than for an injury sustained in an accident.

Head Trauma. Head trauma remains the leading cause of child abuse fatalities despite the advances in neuroimaging and neurosurgery. Chadwick et al concluded the risk of death from short falls (<1.5 m) in children <5 years of age is less than one case in a million per year (0.48 deaths per 1 million young children).³³ It is imperative that the clinician make the distinction between simple head injuries seen when children fall and injuries caused by inflicted trauma.

Skull Fractures. Various studies have shown that falls from short distances produce simple linear skull fractures. Nonaccidental trauma must be considered when the child sustains a multiple, complex, or occipital fracture from a short fall. Depressed fractures may be inflicted or result from impact with an object during/at the end of a fall, as reported by Wheeler and Shope.³⁴

Inflicted Traumatic Brain Injury. Terminology. Prior to 1974, the presence of subdural hematomas in infants who had no apparent history or evidence of trauma was given the diagnosis of “idiopathic subdural hematoma of infancy.” With the publication of the article by Caffey in 1974 based on interviews of caretakers, this entity became known as the “Shaken Baby Syndrome” and later the “Shaken Baby/Impact Syndrome” as the awareness of this clinical entity grew and applied to related clinical situations.³⁵ This syndrome came to include the following clinical triad of findings—subdural hematoma, retinal hemorrhages, and rib fractures. The mechanism for the injury was described as the violent shaking of an infant resulting in the movement of the brain within the skull and related hemorrhage within the eye and optic nerve. The subdural bleeding was stated to be caused by the disruption of the bridging veins within the subdural space. The rib fractures were attributed to the compression of the chest by the caretaker as the infant was shaken. This mechanism of injury was thought to be consistent with the history given by providers over the years, a history in which the caretaker sought to silence the crying infant by grabbing the child around the thorax and shaking the child until the child stopped crying. Until recent years with the advent of evidence-based medicine, this theory of causality was not questioned. Since the Shaken Baby Syndrome is based

on histories given by caretakers rather than research, alternative terms for this clinical entity are now being used, including Abusive Head Trauma or Nonaccidental Head Injury. Such terms can be used to indicate head trauma without reference to the mode of injury other than nonaccidental in nature. The mechanism of these injuries is being evaluated in many venues, both by the scientific review of the possible physics of these injuries and by the application in models such as crash car dummies. An extensive review of this research was done by Pierce and Bertocci.³⁶ For those who have a more extensive background in biomechanics, the chapter written by Betty Spivak is both enlightening and informative.³⁷

Presentation and Evaluation. The clinical picture of a child with an inflicted brain injury may range from irritability to an obtunded state, depending on the time lapsed from the episode to presentation for care and the force and mechanism of injury. The presenting symptom is often a seizure with no apparent focus, ie, no fever and no evidence of infection. Exam may reveal a bulging fontanel in the younger infant, while in the older infant, there is often an altered state of consciousness or deep coma. In studies comparing severe accidental injuries with abusive head trauma, the children with abusive head trauma are more likely to have multiple subdural hematomas of different ages, subdural and subarachnoid hemorrhages, more extensive retinal hemorrhages, and other findings such as bruising and skeletal injuries.³⁸

In the evaluation of such an injured child, the head CT can provide clinically relevant information, especially when an MRI study is not available or is not possible given the child's critical condition.³⁹ If feasible, MRI of the head and neck can provide better assessment of dating of intracranial injuries, better identification of cervical spine injury/fractures, and enhanced demonstration of the extent of intracerebral edema.³⁷

An ophthalmologic exam, with documentation by either diagram or photography, must be done to document the presence of intraocular lesions. As noted in the previous section, when abusive head trauma is suspected, a skeletal survey is necessary. If there is concern that a blood dyscrasia may be causing excessive intracranial bleeding, a coagulation profile or hematology consultation is indicated. In a similar context, a screen for rare metabolic diseases, such as glutaric aciduria type 1, should be considered since

they may present with retinal hemorrhages and subdural fluid collections.

Child Sexual Abuse

Definitions

The World Health Organization has defined child sexual abuse and exploitation as the involvement of a child in sexual activity that he or she does not fully comprehend, is unable to give informed consent to, or for which the child is not developmentally prepared and cannot give consent, or that violates the laws or social taboos of society.⁴⁰ Child sexual abuse is evidenced by this activity between a child and an adult or another child who by age or development is in a relationship of responsibility, trust, or power, the activity being intended to gratify or satisfy the needs of the other person. This may include but is not limited to the following:

- The inducement or coercion of a child to engage in any unlawful sexual activity.
- The exploitative use of child in prostitution or other unlawful sexual practices.
- The exploitative use of children in pornographic performances and materials.

Screening

Administrative reports cover only the cases that are disclosed to child protection agencies or to law enforcement and are thought to only represent 10-15% of the actual numbers of cases since many children only disclose child sexual abuse after 1 or more years, if ever.⁴¹ Screening has been proposed to identify victims in the general pediatric population or to assist physicians in better diagnosis when children present for medical care,⁴² but there is no single currently accepted screening instrument or "test" that identifies a child as a child sexual abuse victim. As with other violence screening, practitioners should be prepared to respond to positive screening results with appropriate referrals for medical and mental health services and investigation.⁴³

The Medical Examination

Most commonly, the anogenital examination is normal or reveals nonspecific changes that can be seen in normal children, as well as after healed trauma.^{44,45} Therefore, the most important determinant for indicat-

ing whether sexual abuse has occurred remains disclosure from the child, offender, and others. Anyone evaluating children for suspected sexual abuse must have a working knowledge of forensic interviewing, child development, prepubertal and postpubertal anatomy, and the ability to identify and interpret physical findings, including those which are normal (which can confuse the inexperienced examiner), indicative of trauma (in the small number of cases with findings), or unclear or uncertain (based on our understanding of these issues to date).⁴⁶⁻⁴⁸

An exam should never be forced upon a child, and steps must be taken to prepare the child for the examination, such as explaining its comprehensive nature (“The doctor will examine your entire body, including your private parts”), to empower the child (“Nothing will be done to hurt you, but if it does hurt or you feel uncomfortable, say STOP and we will find another way”), and to explain its purpose (“I need to check you to make sure your body is OK”). While the medical examination of a boy’s genitals may appear to be easier to interpret, the medical examination of a girl’s genitals is more complex. A girl is typically examined while lying on her back in the “frog-legged” or the lithotomy position. The physician separates the labia majora and often applies traction, revealing the hymen and the vaginal opening. Any abnormal findings should be confirmed in the knee-chest position. Current practice dictates that positive findings be recorded photographically or with video, and colposcopic or digital imaging should be of diagnostic quality.⁴⁹ The child is examined for body injuries as well as those to the vulva, hymen, and perineum, and bruises and skeletal injuries distant from the genitals have been identified after sexual assault.⁵⁰ Penetrating genital injury most often occurs to the posterior vulva and hymenal rim, so these areas require careful inspection. Physicians should carefully note the appearance of the hymen, particularly the lower half (commonly described as 3 to 9 o’clock), for evidence of transections or clefts that extend to the vaginal wall. Abrasions or bruising of the hymen can also occur, and any injury should again be documented by diagram or photograph. Most findings are likely normal variants, such as bumps, incomplete clefts, hymenal asymmetry, and rolled hymenal edges. Contrary to popular belief, the size of the hymenal opening or the amount of hymenal tissue is not predictive of the likelihood of sexual abuse. Pubertal hymenal changes result in

thickening and increased elasticity, which will alter the appearance after trauma.

In performing an anal examination in children, the examiner carefully notes the symmetry and tone of the anus when the buttocks are separated. This can be performed with the child supine or in the more traditional lateral position. Again, positive findings need to be confirmed in the prone position. In addition to symmetry, the physician should note the presence of tags, fissures, or scars. With the exception of a bleeding laceration after a report of sodomy, the presence of anal tags, bumps, and scars may be nonspecific findings that do not confirm whether a child has been sexually abused unless they can be positively related to previously identified acute findings. Documented anal injury after sexual assault is distinctively uncommon, and any injuries that do occur can heal quickly and often without visible residua.^{45,51}

Physical Findings: Normal, Nonspecific, Positive Findings, and Mimics

There are a number of normal variants that are present at birth and that have been confused with potentially concerning findings (Table 3). The size of the urethral opening is quite variable and can vary widely in normal children without neurologic or urologic disease. Periurethral bands are normal supportive ligaments extending from the urethra to the labia; they can be confused with posttraumatic scars or injury. As one inspects the visible vagina, it is common to see intravaginal ridges or columns that represent supportive ligaments in this location with hymenal bumps or mounds at their insertion points. As the examiner looks externally, a linea vestibularis is sometimes present in the midline where the labia join posteriorly. Also called a “linea alba,” this white, smooth linear change reflects a congenital lack of pigmentation at a presumptive fusion line not related to trauma. Similarly, hyperpigmentation of the labial or perianal tissues is usually congenital and unrelated to trauma.

Infants are most often noted to have annular hymenal openings with residual hormonal effects from estrogen in utero. Estrogen can cause thickening and elongation of hymenal tissues, which can be described as redundant and floppy. By definition, an annular hymen extends completely around the opening to the vagina (Fig 11). When such tissue is incomplete, generally with a lack of tissue anteriorly near the urethra, we describe the hymenal tissue as crescentic, or in the

TABLE 3. Physical findings after child sexual abuse^a

- I. Findings documented in newborns or commonly seen in nonabused children. The presence of these findings generally neither confirms nor discounts a child's clear disclosure of sexual abuse:
 - Periurethral or vestibular bands
 - Longitudinal intravaginal ridges or columns
 - Hymenal tags
 - Mounds, bumps on hymenal rim
 - Linea vestibularis
 - Notch or clefts in superior half of hymen (3-9 o'clock, patient supine)
 - Superficial notch or cleft in inferior rim
 - External hymenal ridges
 - Congenital variations in hymenal opening shape, including septate and others
 - Failure of midline fusion (perineal groove)
 - Diastasis ani
 - Perianal skin tag
 - Increased labial or perianal pigmentation
 - Dilation of urethral opening
 - Thickened hymen
- II. Indeterminate: Insufficient or conflicting data from research studies. These findings support a disclosure of sexual abuse if one is given and are highly suggestive of abuse even in the absence of a disclosure, unless a clear, timely plausible description of accidental injury is provided by the child and/or caretaker:
 - Acute laceration or extensive bruising of labia, penis, scrotum, perianal tissues, or perineum
 - Fresh laceration of the posterior fourchette
 - Scar of posterior fourchette or perianal tissues (difficult to assess without seeing prior injury)
- III. Specific findings that are diagnostic of trauma or sexual contact:
 - Laceration of the hymen (acute)
 - Ecchymosis of the hymen
 - Perianal lacerations extending deep to the external sphincter–hymenal transection (healed)
 - Missing segment of hymenal tissue
 - Confirmed gonorrhea, syphilis, trichomonas, Chlamydia, HIV (without congenital or transfusion transmission)
 - Pregnancy
 - Sperm on or in child's body

^aModified from Adams et al.⁴⁴

shape of a crescent. Most girls have a crescentic hymenal opening during childhood and this is thought to be a part of normal development. Hymenal notches, clefts, and lack of anterior tissue between 10 and 2 o'clock in the supine position should not be interpreted as reflecting trauma. During embryogenesis, the cloacal membrane normally undergoes perforation that results in a single opening, but a significant proportion of girls have more than one opening defined to be the presence of a hymenal septum or septa (Fig 12). Hymenal septa can dehisce from their insertions spontaneously as they regress during development. Another derangement of anogenital development can result in a lack

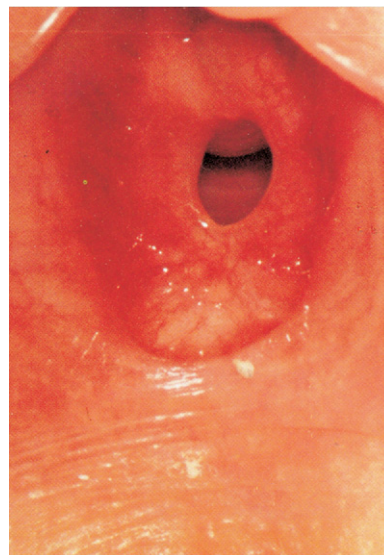


FIG 11. Congenital hymeneal variants: annular. This child has hymenal tissue completely surrounding the genital opening.



FIG 12. Septate hymen. This child has a more asymmetric septum, visualized in the supine position.

of genital opening or imperforate hymen. Girls with an imperforate hymen generally have few physical symptoms and are often undetected during childhood unless that girl is examined for other reasons. Current experience suggests that a significant proportion of girls with imperforate hymen have spontaneous perforation during late childhood and puberty.

As with hymenal and urethral opening size, the anal opening size also varies based on a number of normal and pathologic conditions. A small number of children are born with failure of midline fusion in which the external perianal epidermis appears to be more muco-

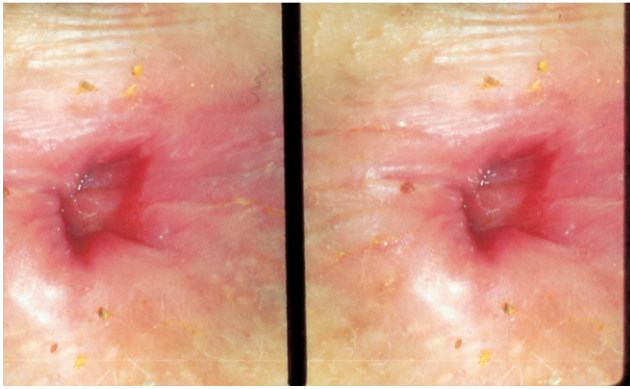


FIG 13. Flattened anal folds. This young boy alleged recurrent digital-anal fondling and has flattened anal folds and erythema.

sal than cornified epithelium. A congenital absence of muscle tissue in the posterior and anterior midline has been called diastasis ani. Many normal infants and children are found to have anal fissures, which often present after painful defecation and bleeding related to passing stool, but which can also be found after sexual trauma. Most fissures are superficial and heal quickly without residua. A small number of children may have skin tag formation associated with fissures, constipation, or both. Such tags should be differentiated from venous protrusions such as hemorrhoids, which are more swollen, vascular, and more concerning for increased intra-abdominal venous pressure.

There are several medical conditions that, while not present at birth, have low or little association with trauma (Table 3). Erythema of the vestibule, penis, scrotum, or perianal tissues and increased vascularity generally reflect tissue irritation and inflammation associated with poor hygiene, chemical effects (urine, chlorine, stool, medications), self-manipulation, or nonsexual trauma. Vulvovaginal irritation is best classified as vulvitis (inflammation of the vulva usually from poor hygiene), vaginitis (inflammation of the vaginal mucosa with discharge usually from hormones or infection), or vulvovaginitis (a combination of both). Yeast, for example, can cause significant swelling and inflammation, but monilial vulvovaginitis has no association with sexual trauma in prepubertal girls. Perianal venous congestion or pooling and flattened anal folds (Fig e13) are now considered to be findings that are normal or associated with constipation.

In prepubertal girls, irritation coupled with the relative thinness of tissues can lead to friability of the posterior fourchette or commissure and labial adhe-

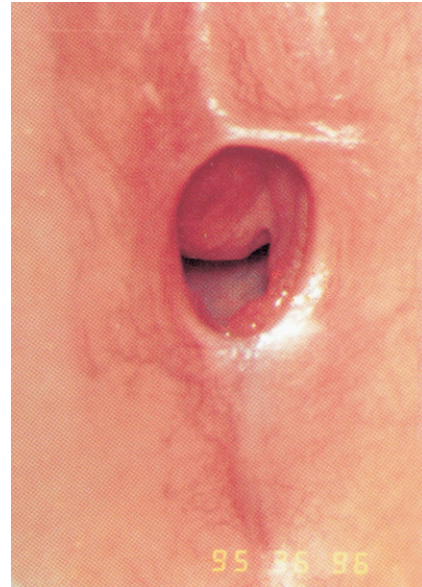


FIG 14. A child with combined anterior and posterior labial adhesions.

sions posteriorly, anteriorly, or both (Fig e14). Labial adhesions are usually identified as thin, symmetric fusion lines in the midline with little or no irregularity at the labial border. Labial adhesions may require treatment, and successful dehiscence is generally achieved with topical application of estrogen or steroid creams for limited periods (<2 weeks). Most cases resolve spontaneously during puberty or with dehiscence during routine exam or activity, and only a few (<1%) require treatment when urinary tract infection or physical symptoms are present.

Genital bleeding in prepubertal girls can be due to a variety of causes, many of which are nonsexual, such as infection, straddle injury, urethral prolapse, or labial adhesion. Urethral prolapse is generally of little clinical importance unless urinary infection or bleeding is noted. A specific prepubertal dermatologic condition of the vulvar and perianal tissues called lichen sclerosis et atrophicus has been associated with easy tissue breakdown and genital bleeding because the epithelium is poorly supported. Lichen sclerosis et atrophicus presents with vaginal pruritis and anal and/or vulvar hypopigmentation. Symptoms can be improved with topical high-potency steroid cream for short periods of time, and estrogen cream can help for bothersome symptoms. Straddle injuries cause replicable patterns of labial bruising and/or laceration over bony prominences and at ligamentous support points,



FIG 15. Acute laceration or bruising of the labia. This 2-year-old fell on a bed rail and was noted to have a bruise at the labial-gluteal crease over the ischium.

with crushing and stretching of tissue (Fig e15). These injuries can be positively identified during examination and are generally linked to a history of specific accidental trauma without delay in seeking medical care.

There are several findings that are difficult to interpret because there are insufficient or conflicting research findings regarding their link to sexual trauma and abuse. For example, while previously thought to be indicative of trauma, deep hymenal notches or clefts in the posterior hymenal tissue are now considered difficult to interpret without knowledge of corresponding previous acute hymenal findings. In adolescents, deep or complete hymenal notches or clefts at 3 and 9 o'clock have been described as normal. It is exceedingly difficult to accurately determine the width of hymenal tissue, and posterior hymen width less than 1 mm wide has been labeled an indeterminate finding. Genital or perianal wart-like lesions (Fig e16) or vesicular lesions or ulcers are also difficult to interpret unless positive identification can be made of human papillomavirus (HPV) or herpes simplex virus (HSV). Steps should be taken to differentiate HPV from molluscum contagiosum, syphilis, and other known wart-like lesions. Ulcerative lesions resembling HSV have been seen with varicella, Beçhet's disease, and other conditions. While size of the anal opening and dilation to less than 2 cm are not thought to be concerning, marked, immediate anal dilation to greater than 2 cm without anesthesia, neurologic disease, or stool present in the rectum are concerning but not specific for anal trauma.



FIG 16. Wart-like lesions, perianal: Multiple, small wart-like lesions limited to the perianal mucosa.



FIG 17. This child has a laceration of the posterior fourchette, hymen, and vaginal tissue.

Findings diagnostic for sexual abuse are generally now thought to be limited to acute laceration or bruising of labia, penis, scrotum, perianal tissues or perineum, or healed residua. As an isolated finding, fresh laceration of the posterior fourchette or commissure not involving the hymen is also diagnostic of trauma. Acute hymenal ecchymosis, bruising, transection, or laceration (Fig e17), when isolated, are thought to be indicative of sexual trauma, but rare case reports with unusual circumstances have been noted with accidental rather than sexual trauma as with perianal lacerations extending deep to the external sphincter. A second category of diagnostic findings involves identifying residua of healed sexual trauma, which are difficult to interpret when the location, depth, and nature of the acute injury are not available for comparison. A healed hymenal transection or complete cleft extending to the vaginal wall in the posterior of the

hymen is thought to indicate sexual trauma. Complete or partial healing of such injuries has been noted, but a remaining complete cleft indicates that the primary injury was deep and completely through the hymen.⁴⁵ A scar of the posterior fourchette or fossa navicularis or missing segment of the posterior hymen is also diagnostic for prior sexual trauma.

Laboratory Evaluation

Finding a sexually transmitted infection (STI) in a child who discloses a history of sexual abuse or exhibits worrisome behavior is supportive evidence for child sexual abuse and may be diagnostic. STIs are uncommonly identified in sexually abused children, as only approximately 5% or less of victims of childhood sexual assault may acquire an STI from their victimization.⁴⁷ The likelihood that an STI represents evidence of sexual abuse is dependent on the specific infection, age of the child, and other factors, such as how the organism was identified.⁵² Some sexually transmitted infections can be vertically passed to a child during routine childbirth and some, most notably HPV (genital warts) and *Chlamydia trachomatis*, may have long incubation periods before overt symptoms appear.⁵³ HPV and HSV can also be spread sexually or nonsexually by autoinoculation or innocent transmission by close household contacts. In general, the diagnostic test of choice for identification of sexually transmitted infections is culture. Newer tests, such as nucleic acid amplification tests for gonorrhea and Chlamydia, are acceptable methods for postmenarchal adolescent and adult victims, but data regarding use in prepubertal children are limited, and they may have unacceptable numbers of false positive tests.⁴⁷ Since most children without symptoms of an STI (vaginal or penile discharge or pain) are unlikely to have a sexually transmitted infection, universal screening for STIs is not necessary but instead should be selectively performed based on the history and other factors.^{47,54}

Although all sexually transmitted infections raise suspicion of sexual abuse, acquired gonorrhea and syphilis are the most diagnostic infections, whether or not there are other corroborating concerns. Acquired human immunodeficiency virus and *C. trachomatis* can also be diagnostic and reportable when perinatal or transfusion transmission is ruled out for human immunodeficiency virus and/or the presentation occurs after ages 3 to 5 years for Chlamydia. *Trichomonas vaginalis*, HSV, and HPV are suspicious for sexual contact and should also be reported unless there is a clear

history of autoinoculation or innocent transmission from caregiver. Other conditions such as bacterial vaginosis and yeast are inconclusive for sexual abuse and should not be reported unless there are other concerns.⁴⁷

Management of Acute Sexual Assault

Acute child sexual assault has been defined as sexual contact within 72-96 hours in most jurisdictions, and a variety of protocols have been disseminated to assist the examiner.⁵⁵⁻⁵⁷ These evaluations must focus on identifying and treating trauma, preventing pregnancy and STI, and collecting forensic trace evidence. A small number of children will require deep sedation, which should be used when there is significant bleeding and operative management is anticipated. In this case, the examination, photography, and evidence collection should be done under sedation in the emergency department or operating room. Most jurisdictions have created specialized evidence collection kits for trace evidence, which can be modified for use in children. Specimens are generally collected from the genital opening, anus, and pharynx of the victim in addition to parts of the body that may have come into contact with the offender's bodily fluids (such as bite marks). Hair, fibers, and other trace evidence is often also collected but generally of less value in child compared to adult cases. Examiners should be familiar with the evidence collection kit provided in their jurisdiction and must take steps to maintain "an unbroken chain of evidence" in which there is positive proof that the kit has not been tampered with from the time of collection to delivery and analysis in the forensic (usually police) crime laboratory.⁵⁸ All those handling the kit must acknowledge this in writing and keep the kit under lock and key until picked up for forensic analysis.

Rates of recovery of forensic evidence from prepubertal children evaluated for sexual assault vary from 6 to 42%.⁵⁹⁻⁶¹ This has been associated with the age and gender of the child, the age and gender of the offender, and the nature of the sexual abuse. Unlike adult rape, the likelihood of obtaining forensic evidence directly from the prepubertal child's body diminishes greatly after the first 24 hours. After 24 hours, there may still be a possibility of recovering forensic evidence, but the evidence usually comes from the analysis of bed linens, the child's clothing, or the child's underwear present at the time of the assault. The likelihood of recovering any physical evidence

diminishes further after the first 72 hours, although new DNA polymerization tests may be significantly more sensitive than tests currently performed in many jurisdictions. In one study, recovery of forensic evidence within 72 hours of assault was best predicted by positive exam findings (such as hymenal transections, abrasions, or bruises, vaginal lacerations, or anal lacerations or bruises), victim older than 10 years of age and having reached puberty, and older offenders (age greater than 15 years).⁶⁰ In order to increase the yield of forensic evidence, the Wood's lamp has had limited use for identifying areas of the body with potential traces of semen, but several bodily fluids fluoresce, as do food, creams, and other potential confounders.⁶²

Psychological Maltreatment

Psychological maltreatment of children is defined as acts of abuse, neglect, or both that convey to a child that he or she is worthless, flawed, unwanted, or unworthy of attention and affection.⁶³ Psychological aggression has been found to be common. In a 1995 telephone survey, 90% of families had used one or more forms of psychological aggression in the last 12 months by the time the child was 2 years old.⁶⁴ Psychological maltreatment may occur on its own or in conjunction with child physical and sexual abuse.¹⁵ A guideline by the American Professional Society on the Abuse of Children⁶⁵ describes behaviors that result in psychological maltreatment, which are listed below:

- Spurning: belittling, shaming, or ridiculing a child
- Terrorizing: threatening or perpetrating violence against the child or their loved ones or loved objects
- Isolating: confining a child's movement within their environment or placing unreasonable limitation on interactions with adults or peers
- Exploiting or corrupting: modeling or encouraging antisocial or developmentally inappropriate behaviors such as involvement in criminal activities, parentification, infantilization
- Denying emotional responsiveness: ignoring a child or failing to express affection, care, or love to a child
- Mental health, medical, or educational neglect: ignoring, preventing or failing to provide treatments or services

Parental attributes noted in cases reported for psychological maltreatment include poor parenting skills,

authoritarian parenting style, substance abuse, depression, suicide attempts, low self-esteem, poor social skills, lack of empathy, social stress, domestic violence, and other family dysfunction. The presence of animal abuse or substance abuse in families is also a risk factor. Children at risk include those with parents undergoing divorce, unwanted or unplanned children, and children who are socially isolated or have a disability.¹⁵

Psychological maltreatment has well-documented adverse effects on emotional health including low self-esteem, anxiety symptoms, and depression. It may also affect learning, producing low academic achievement, and physical health, manifesting as failure to thrive and somatic complaints.⁶⁶ Specific types of psychological maltreatment are associated with emotional maladjustment in early adulthood. Terrorizing is associated with anxiety and somatic complaints; ignoring is associated with depression and borderline personality disorder.⁶⁷

Diagnosis and documentation of psychological maltreatment can be difficult and may become apparent only when the child develops emotional difficulties. Physical signs are rare but abnormal weight gain or loss can be seen. Psychological abuse may be observed in the pediatrician's office, but collateral reports from schools, child care workers, or other professionals working with the family are necessary to confirm a suspicion of psychological maltreatment.¹⁵

Neglect

Introduction

Child neglect is the most common type of child maltreatment.⁶⁸ It is commonly defined as caretaker omissions in care of a child that result in actual or potential harm to a child. All states mandate reporting of neglect, but a report to CPS requires proof of harm from the neglect. A broader definition of neglect which has been proposed is to define neglect as occurring when a child's basic needs have not been adequately met. Basic needs include adequate food, clothing, shelter, health care supervision, and education. Basic needs are provided primarily by the parent, but there are conditions such as poverty that impede their ability to do so. This broader definition allows for interventions with the family even if criteria for reporting to CPS are not met.⁶⁹

Types of Neglect, Assessment, and Management

There are various types of neglect that the clinician may identify. Generally the clinician first needs to determine whether or not the child's basic needs are being met. Any concerns should be conveyed to the family in a straightforward manner. The contributing factors to the neglect should be identified and prioritized by importance and by what can be remedied. Neglect often requires long-term treatment and follow-up, and continuity of care with the same provider is important. The family and the clinician should develop a treatment plan together. Less intrusive interventions should be attempted and CPS involved only when there is serious harm or risk or if the less intrusive interventions have failed. Neglect is defined by the Child Abuse Prevention and Treatment Act (1996) as physical, medical, educational, and emotional. Each will be described below.

Physical Neglect. Inadequate provision of food may present with inadequate growth or failure to thrive, which can be defined as inadequate weight gain for age and gender after a previous stable growth pattern. Height velocity may be maintained. It is necessary to take a good diet history and consider underlying medical causes for poor growth. How the parent feels about the child's growth and whether the family has the resources to obtain food should also be assessed. The family should be screened for risk factors such as parental depression, mental retardation, domestic violence, alcohol or other substance abuse, and lack of knowledge of normal growth and development. Infants with low birth weight or prolonged hospitalization are also at risk for neglect.¹⁸ Management must be based on the underlying cause of the failure to provide food. For example, a family can be assessed to see if they are eligible for such benefits as food stamps or Women, Infants, and Children (WIC).⁶⁹ CPS involvement may be necessary if the child is failing to gain weight and the parent does not adhere to the plan after it is determined that they understand the treatment plan and the benefits of it.

Inadequate clothing manifests by the child wearing inappropriate clothing for the weather or poorly fitting clothing. Consideration should be given to the parents' resources and whether they are familiar with the climate.

Inadequate hygiene is diagnosed when the child does not have basic hygiene, being obviously dirty or foul

smelling. There should be an assessment for other types of neglect, a determination how the family feels about the hygiene, and how it affects the child, such as if there is teasing, identification of barriers (such as lack of access to washing facilities), and an assessment for mental illness in the parents.⁶⁹ Intervention should include education with the family about the importance of hygiene and how poor hygiene affects the child both medically and socially. The family may benefit from a referral for community resources.

Homelessness interferes with the basic need for shelter. Families should be assessed for the duration and frequency of homelessness and should be referred to community agencies that can provide housing assistance. The needs of families requiring shelter are not often met by community systems that primarily develop shelters for individual homeless persons rather than families.⁶⁹

Drug exposure of newborns or older children is a form of neglect that can have serious negative effects in children and generally results in referral to CPS. The type, frequency, and duration of drug use should be determined as well as if the parent is willing to have treatment. Positive newborn toxicology demonstrates reportable drug exposure, while positive tests in parents of older children need to be accompanied by other evidence of the adverse effects on those children. A variety of risk factors have been identified for maternal substance abuse during pregnancy, but no universally accepted standards have been implemented nationally regarding screening. Physicians should consider screening infants with urine and/or meconium drug testing when mothers have inadequate prenatal care, demonstrate active signs or symptoms of drug use, or admit to ongoing use, or when the infant exhibits signs of drug exposure.⁷⁰ Parents should be referred for treatment and the children may require out of home care while the parent gets treatment.

Inadequate protection from environmental hazards involves exposure to poisoning, smoking near children with pulmonary disease (such as asthma), exposure to domestic violence, failure to use a car seat or other legally required safety device, and access to a gun.⁶⁹ An assessment of the above issues and developmentally appropriate injury prevention counseling can prevent some of this type of neglect. The American Academy of Pediatrics has produced The Injury Prevention Program, which has information to give to parents for different age groups. Community services such as car seat programs can also help. If domestic

violence is identified, the family should be referred to a domestic violence program or shelter.

Supervisory neglect according to the American Academy of Pediatrics (AAP) occurs when a “care-giver’s supervisory decisions or behaviors place a child in his or her care at significant ongoing risk for physical, emotional, or psychological harm.”⁷¹ Some considerations for the determination of whether supervisory neglect rises to the level of a report to CPS are as follows: whether the child has a disability, whether the child can make judgments about his or her own behavior, the inherent dangers of the child’s unsupervised environment, the length of time and frequency that the child was unsupervised, the child’s level of discomfort when left unsupervised, the child’s accessibility to a parent or a designated supervising individual, whether the child has an emergency number to call, the physical, emotional, and mental capabilities of the designated caregiver, and the age appropriateness of responsibilities given to a child.⁷¹ The most severe form of supervisory neglect is abandonment, which should also be reported to CPS unless covered by statutory safe haven laws, which allow parents to leave unharmed children in designated locations. Safe haven laws generally allow the parent to remain anonymous and free from prosecution for abandonment or neglect. Prevention of supervisory neglect involves educating parents about adequate supervision based on age and development and suitable childcare arrangements.⁶⁹

Medical Neglect. Medical neglect may involve non-compliance or nonadherence with treatment recommendations that result in actual or potential harm. If a parent does not adhere to a treatment plan, the assessment should include examining barriers to accessing health care such as lack of health insurance or transportation. Parental understanding of why the treatment is important should be verified. Parents may have low health literacy that prevents them from fully understanding the benefits of a certain treatment. It is necessary to explore the parents’ health belief systems as they may rely on alternative medicines. The AAP, however, maintains that severely ill children should receive lifesaving treatments despite religious objections by parents.⁷² The intervention may include making the treatment more practical for the family to adhere to by decreasing the frequency of dosing and giving clear instructions. Any health insurance issues should be addressed. There should be close follow-up either in person or by phone.

A second form of medical neglect is delay or failure to get health care. This also includes dental neglect, which is the failure of the parent to seek treatment “to ensure a level of oral health essential for adequate function and freedom from pain and infection.”⁷³ It is necessary to determine whether the delay in or lack of treatment would change the course of the disease, and if a reasonable layperson would recognize the need to seek treatment. The reason for delay in care should be ascertained.

To prevent and intervene in medical neglect, families must be educated about the disease process and treatment and about when to seek health care. The education must occur in the appropriate language and written material must be at the appropriate literacy level. A treatment plan should be a collaborative effort between the physician and parent. It may be necessary to involve other caregivers or community resources such as visiting nurse services if parents cannot provide medical care to their child on their own. A written contract with the family can aid adherence. It may be necessary to involve CPS if other interventions fail.^{16,69}

Emotional Neglect. Emotional neglect occurs when a child does not receive adequate affection and nurturing. Parental depression, parental substance abuse, or poor parental supervision can all lead to a child feeling a lack of comfort and safety. The need for nurturing is universal, but its manifestations are affected by culture. Emotional neglect can also occur if a parent has difficulty accepting the child, such as after an unwanted pregnancy or if the child has a disability. Assessing for emotional neglect involves asking the parent how they feel about their own parenting and listening to the way the parent describes the child and observing the interactions between the child and parent. Intervening in emotional neglect involves informing a parent what you have observed about their relationship with their child and giving anticipatory guidance at different ages, such as pointing out that infants will not be “spoiled” if picked up and that even independent adolescents still need guidance from their parents. Parents with issues such as depression should be referred for treatment.⁶⁹

Educational Neglect. Educational neglect occurs when a child is not enrolled in school, when a child misses an excessive amount of school, or when a child does not get adequate special education services. Most of the reports to CPS for educational neglect are made by schools, but the requirement to report varies from

state to state. An educational assessment should include what school the child attends, school performance, and number of school days missed. If a child has not been enrolled or has been truant, the reason should be determined as well as what actions have been taken by the parent or school. It may be helpful to get permission from the parent to talk with the school. If adequate services are not provided, the parent should be encouraged to advocate for their child and it may be necessary to make a referral for an educational evaluation.⁶⁹

Effects of Neglect on Children

Neglect has negative effects on children's development and psychological well-being. In infants and preschoolers, neglect is associated with cognitive and language problems, poor coping abilities, and fewer positive social interactions. Emotional neglect in infancy results in declines in performance on the Bayley scales of infant development and insecure attachment in toddlerhood.⁷⁴ In school-aged children, neglect is associated with severe cognitive problems.⁷⁴ Research addressing the long-term consequences of neglect is sparse and relies on the results of a longitudinal study by Maxfield and Widom, who are following a group of maltreated children into adulthood. Outcomes for physical abuse and neglect were similar.⁷⁵ Both forms of maltreatment were associated with criminal behavior, personality disorders, and substance abuse.⁷⁴ De Bellis has described psychobiological changes in neglected children. These include higher catecholamine and cortisol activity and alterations in the limbic-hypothalamic-pituitary-adrenal axis.⁷⁶ There are also changes in brain anatomy seen on MRI in maltreated children with Post-traumatic Stress Disorder (PTSD), which include a smaller total midsagittal area of the corpus callosum and decreased cranial and cerebral volumes.⁷⁶

Treatment of Neglect

The literature on treatment of neglect is sparse and there are methodological problems with many of the existing studies.⁷⁷ There is evidence that two different types of play therapy, resilient peer treatment and imaginative play training, are effective. Resilient peer treatment, which involves pairing a withdrawn child with a resilient child in a classroom, has been noted to improve social interactions and to decrease internalizing and externalizing behavioral problems.⁷⁸ Imagina-

tive play training improves neglected children's interaction and cooperation with peers.⁷⁹

Domestic Violence

Domestic violence (DV) may be used synonymously with family violence, which is violence between any family members. DV is synonymous with interpartner violence, which is how it will be used in this section. In their 1998 policy statement, the AAP recognized the responsibility of pediatricians to address DV.⁸⁰ Thirty-three percent of women in the United States experience DV once in their lifetime. DV and child abuse have been shown to co-occur 30 to 60% of the time.⁸¹ The number of episodes of DV is related to the rate of physical abuse. In households with over 50 episodes of DV, nearly 100% of children are physically abused by their fathers. Conversely, DV occurs in 40 to 60% of households where there is child abuse.⁸² The risk factors for concurrence of interpartner violence and child abuse are low socioeconomic status, maternal mental illness, and alcohol or drug use by the caretakers.⁸³ Child abuse may be less prevalent in community surveys as opposed to DV shelter surveys.⁸⁴

DV is known to have negative effects on children. Children may be injured not only intentionally but also if they come between the two fighting adults. In an analysis of data from the National Survey of Child and Adolescent Well Being, it was found that interpartner violence was associated with child internalizing and externalizing behaviors.⁸⁵ In a comprehensive review of the effect of exposure to DV on children, Holt et al described that domestic violence adversely affects the quality of parenting and the ability to meet children's basic needs. Women have less ability to develop authority over their children or may use authoritarian parenting tactics to be sure that their children behave and do not disturb the abuser.⁸⁶

The developmental effects differ by age group. Infants and toddlers may be irritable or demonstrate regressed behavior, sleep disturbances, and a fear of being alone. Preschool children may manifest temper tantrums, aggression, despondency, or anxiety. Younger school-age children may blame themselves for the abuse. School-age children have been shown to have more difficulty in school including acting out, peer difficulties, and depression. They also engage more in bullying. Adolescents may have difficulty forming healthy

relationships with partners and may try to intervene to prevent the abuse or be a support to their mother. Violence exposure in the home predicted adolescent male abusive behaviors and male and female victimization in intimate relationships. The protective factor that has been cited repeatedly is having an attachment to a nonviolent parent or other caregiver. Resilience is also associated with having positive peer and sibling relationships.⁸⁶

Pediatricians are in a unique position to detect DV, as the pediatric visit is a time when a DV victim may come without the abuser. Screening questions to identify DV that have been recommended by the AAP are the following: "We all have disagreements at home. What happens when you and your partner disagree? Is there shouting, pushing, or shoving? Does anyone get hurt? Has your partner ever threatened to hurt you or your children?"⁸⁰ Pediatricians should have a protocol in place for positive DV screens that they review with local authorities on DV. In addition to screening, some signs and symptoms that suggest that a child is exposed to DV are disruptive behavior, aggression, temper tantrums, withdrawal, and somatic complaints. These are not specific for DV and are present also in children who have been abused. Another sign of DV is if the male partner is domineering and answers all the questions during the pediatric visit and is unwilling to leave the mother alone with the clinician.

If DV is identified, it is important to ask if the child or children have witnessed the DV. Many parents may not realize that their children have observed conflicts between them. It is also important to ask if there are firearms in the house because this is related to a greater risk of serious injury. If the parent wants to leave the home, it is important to make contact with community agencies that can guarantee their safety, such as police, DV shelters, or social service agencies. There is a national hotline for clinicians and victims (1-800-799-SAFE), which is a good resource for locating services. Many victims of DV cannot leave the abuser. In that case, they should be given a list of resources should they decide to leave. It should also be recommended that the parent prepare in advance if they have to leave quickly. It may be suggested that they keep a bag in a safe location with clothing, money, identification, and other important papers.⁸²

In all cases of suspected DV, the child should be examined. The physical exam of the child should place special emphasis on growth and development and a complete body exam with a special emphasis on

looking for skin lesions. Documentation of DV can be challenging since it is possible that the abuser will see the chart. If that is the case, the documentation may be vague, such as "family problems" or "difficult home situation."⁸²

States have different laws mandating reporting of DV and pediatricians must be aware of their state laws. All states mandate a child abuse report if a child has been harmed as the result of a DV incident. However, states vary in whether it is required to make a child abuse or police report if a child is exposed to DV, whether or not they were hurt.

Documentation

Documentation is an important aspect of the evaluation for child abuse and neglect. The medical record may be the only documentation of abuse and serves as the primary legal evidence. The medical chart may be reviewed by professionals from public agencies (ie, Child Protection, law enforcement, and the judicial system) and so must provide complete and accurate information. If the physician is called to testify, the record serves to refresh the physician's memory, provide evidence, and, if sufficiently detailed and complete, may eliminate the need for the physician or child to testify in court or reduce the time of court testimony.⁸⁷ The American Medical Association, American Academy of Pediatrics, and the American Professional Society on the Abuse of Children have published guidelines for documentation.^{46,88-90}

The two types of documentation that are most important are written and photographic. Written documentation should be legible and without medical abbreviations since nonmedical professionals will need to review the medical record. Statements made by the child or parent should as much as possible be in direct quotation. Terms with legal inferences such as "alleged" or "perpetrator" should not be used. It is important to document height and weight with percentiles and a developmental assessment of the child. Physical findings should be documented on a body diagram (Figs 2 and 3) as well as described in the physical exam. Documentation of physical injuries should include the dimension, size, location, and color of the injury. When documenting the diagnosis, "R/O" or "rule out" should never be used as it may be misinterpreted by nonmedical professionals that the diagnosis of abuse has been ruled out. Documentation

of injuries should include whether the history obtained is consistent with the physical findings.

The American Professional Society on the Abuse of Children has also produced guidelines for photographic documentation.⁹¹ All visual lesions should be photographed. Photographs are important because they can be reviewed after the physical examination is completed to confirm findings, compare with subsequent exams, and enable a second opinion without subjecting the child to another physical exam. Images may be useful for testimony in court as evidence of trauma or to refresh the examiner's memory. Photos should always be used as an adjunct to the written chart and never used as the sole documentation. Children should be prepared for photographs, and showing them the photographic equipment and letting them try it can increase their comfort. All photos should include a label with the time, date, and a unique identifying code for the child. Photos should be taken with adequate lighting. For any skin lesion, there should be shots of three orientations: full body, medium range, and close-up.⁹² It is also useful to take multiple photos from different angles as tolerated by the child. A child may refuse photography and that should be respected and documented.

Mandated Reporting

Over 40 years ago, all 50 states passed legislation mandating that individuals who interact with children in a professional capacity report suspected cases of child abuse. Mandated reporters generally include physicians, nurses, and other professionals working in hospitals, in addition to a variety of other licensed professionals who include dentists, teachers, counselors, law enforcement officers, and mental health professionals. Requirements vary from state to state, and no national criteria exist for determining whether to report suspected abuse or neglect based on medical indications. General guidelines have been suggested that include the patient meeting the legal definition of being a child, the act or omission having been committed by the parent or caretaker, the history being inconsistent with the injury, or that other features of a reported episode fulfill other criteria for abuse or neglect.⁹³ Multiple missed medical appointments, unreasonable delay in seeking medical treatment, abandonment, illnesses that could be prevented by routine medical care, and inadequate care have been identified

as potential minimal criteria for a neglect report.^{47,71} Statements made by the child or parent disclosing potential maltreatment, physical injuries or death inconsistent with accident or medical disease, sexually transmitted infections, and pregnancy are generally accepted as a basis for suspected maltreatment reports.

The reporting requirements of mandatory reporting laws supersede the confidentiality of medical records and the patient-provider relationship. Recent US federal legislation specifically allows state-mandated child abuse reporting and exempts such state reporting laws from federal privacy requirements under the Health Insurance Portability and Accountability Act of 1996. Penalties for not reporting range from fines in some states to criminal charges in others but also include civil penalties so that the child and/or the child's guardian may litigate to redress financial losses sustained by the failure to report. Most of the legislation describes that there needs to be "reasonable suspicion of abuse" for a report to be made. A physician does not need to have absolute certainty that abuse occurred. However, there is little guidance on what "reasonable suspicion" means. Levi and Brown surveyed pediatricians in Pennsylvania and found wide variation in the threshold they set for what constituted "reasonable suspicion."⁹⁴

Recent studies have described the decision process that physicians use to make a report and perceived barriers to reporting. Flaherty and Sege found that physicians do not report all injuries even if they felt that they were "very likely" to be abuse.⁹⁵ The most important consideration for the physicians when deciding to report was if the injury was not consistent with the history or the child's developmental level.⁹⁶ Suspected physical abuse was the most commonly reported type of abuse.⁹⁵ Physicians who had training in child abuse in their residency were more likely to report child abuse.⁹⁷ Past negative experience with CPS and perceived lack of benefit to the child were reasons given for not reporting.^{97,98} Other barriers to reporting are concern about hurting their relationships with families or because they feel they can work with the families more effectively than CPS.⁹⁷ Extra time is required for history taking, notifying the family of the report, and making the report. Testifying in court can be even more time-consuming and costly for physicians as it takes time away from their practice. Physicians also feel that there is often poor communication with CPS and that they are not kept informed about the status of an investigation. Some physicians may also

have the misconception that a report to CPS automatically means removal from the home.⁹⁵

Despite these barriers, reporting suspected child abuse is necessary to ensure the safety of children. The ideal collaboration between CPS and medical professionals would involve a sharing of information. CPS can gather information about the nature of the incident and has the capacity to do a scene investigation. Medical professionals can explain medical findings for CPS workers and render an opinion about whether the physical findings go along with the results of the investigation.⁹⁹

Prevention

Child maltreatment prevention is recommended by all those who are familiar with the problems associated with CM, and efforts aimed at preventing abuse are promoted by agencies, governmental officials, and individual practitioners. Prevention is explicitly not the responsibility of any one agency, profession, or program but is framed as the responsibility of all to create a society less conducive to child maltreatment. For example, the National Sexual Violence Resource Center has recently published information about how to involve a broader constituency in prevention through using the "Spectrum of Prevention."¹⁰⁰

Programs That Work

Home visiting programs aim to prevent child abuse and neglect by influencing parenting factors linked to maltreatment, as follows: (1) inadequate knowledge of child development; (2) belief in abusive parenting; (3) empathy; (4) sensitive, responsive parenting; (5) parent stress and social support; and (6) the ability to provide a safe and stimulating home environment. By changing these factors, home visiting programs also seek to improve child development outcomes and health outcomes associated with abuse and neglect and have noted reductions of 40% of child maltreatment in certain models.¹⁰¹⁻¹⁰³ In a comprehensive review, Gomby found that home visitation programs were most effective when they targeted families with many risk factors and used highly trained professionals who carefully followed a research-based model of intervention.¹⁰³ Long-term follow-up with low-income single mothers who received home visitation services suggested that they are also effective in reducing child abuse and neglect in families where domestic violence

is *not* present, decreasing the number of subsequent pregnancies, arrest rates, and the amount of time on welfare.^{104,105} Home visiting by nurses has been consistently effective at reducing preterm and low weight birth, increasing well child care medical visits, and reducing deaths and hospitalizations for injuries and ingestions.¹⁰⁶⁻¹⁰⁹ Some programs like Healthy Families America have used paraprofessionals to provide services but found no demonstrable decrease in maltreatment or increased use of preventative health services.¹¹⁰ The Nurse-Family Partnership (NFP) is an evidence-based nurse home visitation program that improves the health, well-being, and self-sufficiency of low-income, first-time parents and their children. NFP models have been evaluated longitudinally across three sites using randomized trials¹⁰² in the US and NFP models have been replicated in 250 counties. One analysis showed that for every \$1 spent on the NFP, there were \$4 in savings for taxpayers.¹¹¹

At-risk parents who do not receive parent coaching or education have higher rates of CM, parent arrest, and child hospitalization for violence.¹¹¹ Palusci and coworkers found that parents with a variety of problems, including incarceration, substance abuse, and stress, had improved empathy, understanding of child development, and other skills after an 8-week program of interactive classes using a family nurturing program.¹¹² Dias et al were able to demonstrate a 47% reduction in abusive head trauma and Shaken Baby Syndrome compared to a control group over 5 years after an educational program for new mothers about the dangers of shaking.¹¹³

Health services during the prenatal period and early childhood have not been shown to result in reduced child abuse and neglect, and it is often not possible during the prenatal and immediate postnatal periods to reliably identify families who will maltreat their children.¹¹⁴ However, addicted mothers need access to drug and alcohol treatment programs that can prevent neurologic damage to fetuses such as fetal alcohol syndrome, and neurologic damage at birth interacts with deficient parenting to multiply the risk of criminality and maltreatment.¹¹¹ Furthermore, mental health services need to be available for depressed or mentally ill parents who have greatly increased risk for physically abusing or killing their children.¹¹⁵

The biggest questions of how best to prevent sexual abuse remain unanswered. There are numerous signs that prior efforts have been useful, but new methods still need to be further explored and researched.¹¹⁶

Until recently, no study actually showed that participation in a prevention program resulted in reduced rates of sexual abuse for participants.¹¹⁷ A recent study, however, showed that college women (n = 825) who had participated in a child sexual abuse prevention program as children were significantly less likely to experience subsequent sexual abuse than those who had not had such a program.¹¹⁸ Additionally, although some argue that sexual abuse has not decreased as a result of sexual abuse prevention efforts,¹¹⁹ actual rates of sexual abuse do seem to be decreasing and one proposed explanation is that prevention efforts may be at least part of the reason.¹³

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