

Bilateral parietal skull fractures are suggestive of nonaccidental injury.

Identifying Child Abuse

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Despite a federally mandated system for reporting child abuse or neglect to a child protective service agency, our most vulnerable population remains unprotected. One recent report showed a 3% rise in child maltreatment–related fatalities, suggesting increased severity of abuse. Primary care providers are well positioned and legally bound to act on children’s behalf by watching for potential “red flags” and, when clinical evidence warrants it, by making the decision to report suspected abuse.

According to data from the US Department of Health and Human Services, child protection services received more than 3.3 million reports of alleged maltreatment in 2009 that involved about six million children, and about 62% of reports required subsequent action.¹ Child abuse is an ever-growing problem that affects children of both genders and in all ages, races, and socioeconomic levels. Few issues generate the concern, anger, and frustration as the abuse or neglect of children.

Primary care providers and emergency department personnel are often the child's initial point of entry into the health care system. Clinicians who see and treat young patients can play an essential role in the recognition and reporting of child abuse. By frequently reviewing the risk factors for child abuse, its signs and symptoms, and its typical and atypical presentations, clinicians can be prepared to act when appropriate and help break the cycle of child abuse.

LEGAL MANDATES, DEFINITIONS

A relatively new concept, child abuse has been designated as a major public health issue by the United Nations Children's Fund and the World Health Organization.²⁻⁵ In 1874, when it was decided by the American Society for the Prevention of Cruelty to Animals (ASPCA) to include children within the defined animal kingdom, the movement to protect children began in the United States.⁶

Both federal and state agencies have created definitions for child abuse and neglect. The key federal legislation to address

child abuse and neglect, the Child Abuse Prevention and Treatment Act (CAPTA), as Amended by the Keeping Children and Families Safe Act of 2003,^{7,8} defines *child abuse and neglect* as "any recent act or failure to act on the part of a parent or caretaker, which results in death, serious physical or emotional harm, sexual abuse or exploitation, or an act or failure to act which presents an imminent risk of serious harm."⁷ Although ongoing revisions of the CAPTA legislation (the most recent "re-authorization" published in 2010⁹) become increasingly inclusive of both children's and families' concerns, this definition has remained consistent.

This is not the case with state definitions, however. Because these vary, it can be difficult to compare rates of reported maltreatment from state to state. Also varying among states, and among counties within some states, are recommendations for substantiation of child maltreatment. The validity of the reported data can be impaired by a lack of coordination or cooperation among different agencies and jurisdictions.

IDENTIFYING THE VICTIMS

The spectrum of child abuse includes multiple forms, which often overlap (see Table 1^{1,9,10}), and can almost always have the potential for death.¹¹ According to findings from the National Child Abuse and Neglect Data System, despite worsening economic conditions in 2009, the child maltreatment data compiled that year showed an overall 2% decline in cases of substantiated maltreatment from the previous year.^{1,11}

However, during that same

TABLE 1 Overlapping Manifestations of Child Abuse ^{1,9,10}	
Reported types of maltreatment, with definitions, among all "unique victims" in 2009	
Maltreatment type	Proportion of abused children affected
Neglect Failure by the caregiver to provide needed, age-appropriate care though financially able to do so or offered financial or other means to do so	78.3%
Physical abuse Physical acts that caused or could have caused physical injury to a child, eg, bruising	17.8%
Sexual abuse Involvement of the child in sexual activity to provide sexual gratification or financial benefit to the perpetrator, including contacts for sexual purposes, molestation, statutory rape, prostitution, pornography, exposure, incest, or other sexually exploitative activities	9.5%
Psychological or emotional maltreatment Acts or omissions, other than physical abuse or sexual abuse, that caused, or could have caused, conduct, cognitive, affective, or other mental disorders, including emotional neglect, psychological abuse, and mental injury; frequently occurring as verbal abuse or excessive demands on a child's performance	7.6%
Medical neglect Failure by the caregiver to provide for appropriate health care of the child though financially able to do so, or offered financial or other means to do so	2.4%
Other*	9.6%
Unknown	0.3%

* Any form of abuse that is inconsistent with the categories described by the National Child Abuse and Neglect Data System may be reported by a state as "Other."

Sources: US Department of Health and Human Services. *Child Maltreatment 2009*. 2010¹; S. 3817: CAPTA Reauthorization Act of 2010⁹; National Data Archive on Child Abuse and Neglect. 2009.¹⁰

period, child maltreatment-associated *fatalities* rose 3%, from 1,628 deaths in 2008 to 1,671 in 2009,¹ suggesting an increase in the *severity* of abuse. The emotional, social, and financial ramifications of child abuse affect the local and national community, as well as each child and each family.

Children younger than 1 year,

the most vulnerable to maltreatment, represent the largest proportion of substantiated abuse. One-third of all children reported as abused in 2009 were younger than 4, and children between ages 4 and 7 represented one-fifth of cases.¹ Figure 1a¹ categorizes the incidence of child abuse by age level, and Figure 1b¹ by ethnicity/race (see page 31).

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Risk Factors

A number of factors, though not necessarily direct causes, have been shown to increase children's risk for abuse or neglect. These include personal characteristics of the child and parent, and family- or environment-related factors^{1,12} (see Table 2,^{1,12} page 32). It is often combinations of risk factors (eg, characteristics of a parent or caregiver in addition to a specific social environment) that are most likely to increase the likelihood of abuse.

Children with special needs (physical disabilities or chronic illness, neurologic impairment, mental health issues) that increase the caregiver's burden are at increased risk for abuse.^{1,12} Children with behavior disorders and mental retardation have been found at increased risk for various forms of abuse—neglect and physical or sexual maltreatment¹³—whereas children with speech or language disabilities are at increased risk for neglect (whether physical, emotional, or even educational¹⁴).

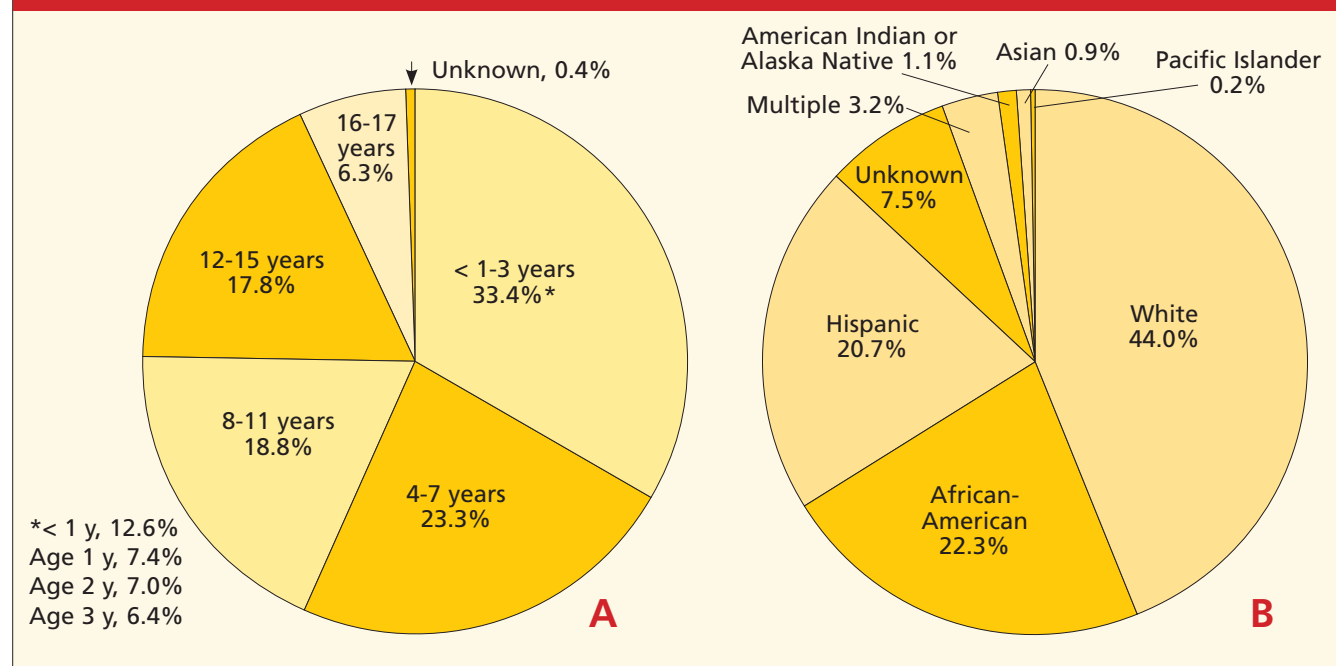
Children with physical limitations who experience physical abuse are reportedly subject to more serious injury than their healthier counterparts.¹⁴ Their inability to see, hear, move, or communicate, or to dress or bathe themselves independently may make them susceptible to rough, careless, or intrusive personal care, or neglect of their personal needs. Low self-esteem, whatever its cause, also appears to be a significant risk factor for intentional abuse.¹⁵

It is often the case that children with disabilities do not report abuse because they are unable to recognize an act as abusive. Depending on the severity of a child's disability and his or her ordinarily atypical presentation, the abuse may never be discovered.¹⁵

Poverty appears to be a contributing factor. Children from

FIGURES 1A AND 1B

Child Abuse Victims by Age (A) and by Ethnicity/Race (B)



Source: US Department of Health and Human Services. *Child Maltreatment 2009*. 2010.¹

families of low socioeconomic status are at least three times as likely as other children to be abused and seven times as likely to experience neglect.¹⁴ It has been conjectured that these children are more likely to have contact with social workers, law enforcement officers, and representatives of other agencies with an increased awareness of the manifestations of child abuse. Abuse within affluent families may be underreported, as such families have the wherewithal to protect themselves from detection and prosecution.¹⁶

PRESENTATION

There is no “gold standard” for making a confirmed diagnosis of child abuse,¹⁷ and no “typical” presentation of an abused child (see case study, beginning on page 32). Dress that is inappropriate for the season and consistently poor hygiene are indicative of neglect. Symptoms of abuse may be overt or silent, and signs of physical abuse are often hidden beneath clothing. Children who are physically abused often explain their injuries by saying “I fell,” or may even respond to

questioning by saying, “I don’t know.” The parent or caregiver may attribute bruises or even broken bones to falls or rough play with other children. Bruises, the most common visible form of child abuse,¹⁸ may suggest the nature of injury by their location, patterns, and various stages of healing.

Fractures are the second most common presenting symptom among children experiencing physical abuse.¹⁷ According to findings from a meta-analysis by Kemp et al,¹⁹ determining whether fractures have occurred accidentally depends on three factors:

Age. Among children younger than 1 year, 25% to 56% of fractures are attributable to intentional harm. In one landmark study, one fracture in nine was found to have resulted from abuse, among children younger than 18 months—compared with one in 205 among children ages 19 months to 5 years.^{19,20}

Site. In cases not involving a motor vehicle accident or other traumatic event, it has been determined in ongoing systematic reviews by Welsh researchers that rib fractures have a 71%

probability of being inflicted, followed by humeral fractures (about 50% probability), then by femoral fractures or skull fractures (about 33% probability).^{19,21}

Fracture type. Fracture types suggestive of abuse differ by site. Among humeral fractures, for example, a midshaft fracture is more likely to have been inflicted, whereas a supracondylar fracture is more likely the result of accidental injury. Both parietal and linear skull fractures may occur accidentally or through physical abuse.¹⁹ Epiphyseal-metaphyseal fractures, vertebral compression fractures, and lateral clavicle fractures have been associated with child abuse.^{22,23} Multiple or bilateral fractures have an increased association with abuse.^{19,20,24}

Injuries that are inconsistent with the given history should raise red flags, and they should be carefully investigated, with findings documented. Minor falls cause minor injuries, not potentially life-threatening ones.

As with fractures, *burns* may have specific features that help the clinician distinguish between accidental and intentional. Uniform depth, well-defined edges,

TABLE 2
Risk Factors for Abuse or Maltreatment^{1,12}

Child's individual risk factors	<ul style="list-style-type: none"> • Age < 4 y • Special needs (physical disabilities or chronic illness, mental retardation, other mental health issues)
Parental risk factors	<ul style="list-style-type: none"> • Personal history of abuse or neglect • Poorly developed parenting skills • Depression, substance abuse, other mental health issues • Parenthood at early age, single parenthood • Limited education • Anger management issues
Family risk factors	<ul style="list-style-type: none"> • Low income • Family dissolution or disorganization • Presence of several children • Presence of transient, nonrelated caregivers (eg, mother's partner) • Social isolation
Environmental risk factors	<ul style="list-style-type: none"> • High-violence community • Poor social connections • High poverty/residential instability • High unemployment • Easy availability of alcohol

Sources: US Department of Health and Human Services. *Child Maltreatment 2009*. 2010¹; CDC Injury Center: Violence Prevention. 2011.¹²

and multiple lesions are more likely to indicate nonaccidental contact burns, particularly when found in “protected” sites (eg, perineal and gluteal areas).¹⁸ Accidental cigarette burns are usually ovoid or irregular in shape and superficial, while those intentionally inflicted are round, deep, and well-demarcated and are often grouped on the hands, feet, or face.^{18,25} Burns on the chest, upper limbs, and palms of the hands are likely to be accidental; the face, the backs of the hands, the lower stomach, back, buttocks, legs, and feet are often the target of intentional burns.^{18,26}

HISTORY

A key factor in suspected abuse is the child's history. During history taking, clinicians should be alert to the evidence-based indicators of potential child abuse, as shown in Table 3²⁷⁻²⁹ (page 34).

Not every child who exhibits these characteristics is an abused child, nor will every abused child exhibit any or all of these characteristics. Through artful, careful history taking and astute observation of the child, the clinician is usually able to distinguish between the heightened anxiety that may occur in any child during the history-taking process and the demeanor of a child who may have been coerced or threatened to maintain secrecy.

Engaging the child in a reassuring manner, the clinician can use a conversational style of questioning, such as, “Tell me how you got that bruise on your arm,” rather than a direct question: “Did [name] hit you on the arm with [his/her] fist?”

An observation of unusually sexualized behaviors or a report of excessive masturbation is more likely to be associated with sexual

abuse than are genital findings (which are infrequently found).

PHYSICAL EXAMINATION

When a child presents with an acute injury or bruising is detected and the clinician's findings are inconsistent with the given history, suspicion should be raised. The injuries inflicted by physical abuse are often hidden beneath the child's clothing (specifically, underwear); for this reason, it is important to have children undressed during a physical exam.

The routine physical exam of an abused child may reveal defensive bruising or other wounds, trauma to the mouth, breasts, buttocks, genitalia, or anus, with possible bleeding or discharge. More commonly, the physical exam findings are normal—as is true in the majority of examinations for sexual abuse.³⁰ In one large study, abnormal findings (eg, recent or healed genital injuries; presence of a sexually transmitted disease) were found in only about 4% of children who had been referred for an examination for suspected sexual abuse.^{18,31} Clearly, an appearance of “normal” does not mean “nothing happened.”³²

According to CDC guidelines,³³ investigation of suspected sexual abuse (for example, when a genital herpes infection is detected) should be conducted by appropriately trained, experienced clinicians—ideally, by a pediatric subspecialist in child abuse. Although the primary care clinician may examine the child briefly for visible bruises or wounds, it is essential for a specialist to perform the genital exam.³³ Use of mild sedation with close monitoring may be advisable during the genital examination.³⁰

Mimics of Child Abuse

Several conditions, including metabolic, genetic, and congenital disorders, have been reported

At 6:20 PM, an 8-month-old biracial boy was brought to the emergency department (ED) by both parents and his maternal grandmother. His mother told the triage nurse that the child had been crying intermittently for several hours and seemed constipated. No fever, nausea, or vomiting had occurred. The mother said he had been eating and drinking as usual, and his diapers were routinely wet.

Birth history. The mother began to receive prenatal care beginning in her seventh month. Spontaneous vaginal delivery occurred at 38 weeks with flow-by O₂ after delivery and no complications. An Apgar score of 8 was recorded one minute after birth. The infant's birth weight was 6 lb 12 oz; length was 18”.

Since then, the child had no significant medical history. The mother stated that his immunizations were up to date and that she considered his growth “normal.”

The *review of systems* was noncontributory with the following exceptions:

General. The parents described the child as fussy and lethargic, with decreased appetite.

HEENT. The mother “thought” he had been pulling at his ears.

Mouth. Two lower central incisors had erupted.

Gastrointestinal. The parents reported no bowel movement in two days and believed the child was constipated.

Abdomen. The parents stated that his “tummy” seemed to hurt when they changed his diaper or moved him around.

Neuromuscular. In response to

to mimic the physical manifestations of child abuse and neglect^{17,22,34} (see Table 4,^{17,18,22,25,33-35} page 34). While health care professionals are legally and ethically bound to report abuse, conditions that may mimic abuse must be ruled out first, to avoid the mistaken removal of children from loving homes.

Mongolian spots, for example (see Figure 2, page 34), are frequently mistaken for bruising and reported to authorities, causing unnecessary disruption for

Case Study: Fussy Male Infant with Presumed Constipation

questioning, the parents said the child had not yet sat up, held his bottle, eaten from a spoon, or rolled over. He had not attempted to crawl and did not play with feet. They said the child did reach for objects. The parents denied any unusual body movements, as in seizures.

PHYSICAL EXAMINATION

The baby's vital signs included a rectal temperature of 101.9°F; respirations, 32/min; and pulse, 112 beats/min. He weighed 14 lb 2 oz (< 3rd percentile for his age). In the chart, he was described as a tiny biracial male in moderate distress, whimpering intermittently throughout the exam.

The boy's skin was warm and dry with no lesions and no visible bruising, rashes, or birthmarks. He was normocephalic, with scanty hair. His scalp appeared nontender to palpation; the anterior fontanel was slightly open and the posterior fontanel closed.

Musculoskeletal exam. The child appeared to be in pain with movement, especially of the extremities. His muscle tone was adequate, but range of motion was limited in all extremities. Bluish lesions were noted in the fingernail beds on both hands. No visible or palpable deformities of the spine were noted.

Neurologic exam. The baby was fretful and appeared uncomfortable. He lay on his back, making no effort to roll over or move his extremities. He was alert and wide-eyed, following light with his eyes and minimal movement of the head. His pupils were reactive to light and accommodation. His blink reflex was intact, and the Babinski reflex

was upward. The Moro reflex was deferred, the palmar grasp was present, with the infant curling his fingers around the examiner's finger, and his startle reflex was intact. The cranial nerves appeared grossly intact, commensurate with his age. The infant's affect was flat, with no smiling and minimal eye contact.

Of note, bonding between the parents and child appeared poor. The parents began to argue angrily in the ED, necessitating a call for security to separate them.

The differential diagnosis included:

- Constipation versus bowel obstruction
- Appendicitis
- Possible sepsis
- Urinary tract infection
- Musculoskeletal pain of unknown etiology
- Developmental delay

LABORATORY AND IMAGING STUDIES

To rule out the differentials, an emergency physician ordered the following laboratory tests and x-rays, with results shown:

- Chem 20 (results within normal limits) with complete blood count: white blood cells, $11.9 \times 10^9/L$ (reference range, 6.0 to $14.0 \times 10^9/L$); hemoglobin, 10.4 g/dL (13.8 to 17.2 g/dL)
- Blood cultures, with negative results after 24 hours
- Urinalysis, normal results
- Chest x-ray, normal results (no evidence of pneumonia)
- Flat and upright x-rays of the abdomen, normal results

One incidental finding was noted: fracture of the proximal left femur through the epiphysis, which the

radiologist interpreted as most likely *secondary to nonaccidental trauma*. All results were quickly forwarded to the ED. The radiologist's interpretation of the femoral fracture prompted ED personnel to contact the Department of Social Services (DSS) and local law enforcement.

The infant's parents were questioned separately. Each parent gave a different explanation for the child's injuries to representatives of the two agencies, creating further suspicion.

As a result of the radiologist's reported finding, a skeletal survey was ordered, and orthopedics was consulted.

A spica cast was applied in the ED, and the child was admitted overnight for observation. He was released the following day in good condition, in the custody of DSS to the foster parents.

TWO-WEEK FOLLOW-UP AND OVERALL DIAGNOSIS

At a follow-up orthopedic appointment scheduled for two weeks later, the child was found to have gained 2 lb 8 oz (20% of his previous body weight) and was doing quite well. In addition to the recent left proximal femoral fracture, a review of the skeletal survey by the orthopedist revealed multiple fractures in various stages of healing: bilateral midshaft humeral fractures; bilateral scapular fractures; a right midshaft femoral fracture, and a right distal medial epiphyseal femoral fracture. These fractures, too, were pronounced consistent with nonaccidental trauma.

An MRI of the brain was ordered in response to the foster mother's

finding of a contusion on the right occiput; results were negative. In accordance with the standard of care, suspicion for inflicted head trauma led to a referral to a pediatric ophthalmologist. This specialist performed a thorough examination in which left retinal hemorrhages consistent with abusive head trauma were identified.

The boy was then referred to a child maltreatment specialist for further evaluation. Review of the x-rays and the child's health records revealed that no medical treatment had been sought for any of the previous fractures, immunizations were not up to date, and the child had not had any well-child visits with a pediatrician.

Based on a review of the growth chart, the child was further diagnosed with failure to thrive, leading to an overall diagnosis of *battered child syndrome*, that is, a combination of signs of physical abuse, including multiple fractures sustained at different times in a child too young to have received them accidentally; failure to thrive; and abusive head trauma.

The cast was removed after four weeks, when the fractures were found well healed. By then, the boy had gained 5 lb 4 oz and appeared to be developing well. Physical therapy was ordered and completed.

The child has had a normal developmental process since then, and he is now thriving in an adoptive home. He continues to be followed on a yearly basis by an orthopedist and by a pediatric ophthalmologist, who monitors residual scarring from the left retinal hemorrhage; the scarring remains unresolved.

both family and child.^{34,36} They typically appear as macular blue-gray pigmentation of the skin, usually on the sacrum. Resulting from entrapment of melanocytes in the dermis during fetal development, these "spots" may be present at birth or may appear during the neonatal period. Mongolian spots are most common in Native American, African-American, Asian, and Hispanic patients, are benign, and often disappear by age 4.

Other cutaneous manifesta-

tions that can mimic an intentional injury include molluscum contagiosum, a viral infection manifesting as a rash that may mimic the genital warts of human papillomavirus, and erythematous, edematous, and/or vesiculobullous lesions^{18,35} (see Figure 3, page 34). Severe diaper rash, photodermatitis, and certain allergic reactions can mimic intentional burns.²⁵

Often mistaken for a nonaccidental injury is *hair tourniquet syndrome*—the circumferential

strangulation of one or more appendages (eg, finger, toe, penis) by human hair or fibers.³⁴ This uncommon condition, usually unintentional and of unknown incidence, can represent a surgical emergency; failure to recognize it in a timely fashion may lead to ischemia or necrosis, necessitating amputation of the affected appendage.³⁷

Metabolic bone disease, such as osteogenesis imperfecta, can sometimes explain frequent fractures.¹⁷

MAKING THE DIAGNOSIS

In the primary care setting, the detection of child abuse is unexpected. However, it is often here that children are initially seen for an injury, or suspicions are raised during a routine physical.³⁰ In the case of spontaneous disclosure of abuse, explicit, word-for-word documentation is required. The child, who may feel guilty, embarrassed, or ashamed, must be reassured that he or she is not at fault.

Either a child abuse specialist or the primary care clinician bas-

TABLE 3
Indicators of Possible Child Abuse²⁷⁻²⁹

<p>Physical abuse Frank report of injury by parent or caregiver Unexplained fractures, bites, burns, bruises Repeated, similar injuries Long-sleeved shirts, long pants Apparent fear of adults</p>	<p>Emotional abuse Depressed affect Low self-esteem Behavioral extremes (passivity, aggression) Infantile or inappropriately adult behavior Suicide attempts</p>
<p>Sexual abuse Frank report of sexual abuse by parent or caregiver Social isolation, withdrawn demeanor Reports of nightmares, bedwetting Reluctance to change clothing Difficulty walking or sitting Overt sexual behavior Precocious sexual knowledge</p>	<p>Neglect Frequent school absences or tardiness Poor parental bonding Inappropriate dress for weather or season Sickly or dirty appearance Poor dental health, lack of immunization or needed eyeglasses Stealing or begging</p>

Sources: Child Welfare Information Gateway. 2007²⁷; Fortin and Jenny. *Pediatr Rev*. 2012²⁸; Keshavarz et al. *J Emerg Med*. 2002.²⁹

es the ultimate diagnosis of child abuse on findings from the history and physical examination. These findings will direct the clinician's decision to order diagnostic laboratory studies and/or diagnostic x-rays.

Diagnostic Studies

Depending on the child's age and the type of presentation, recommended imaging studies include

an x-ray skeletal survey of a child younger than 2 (see "Skeletal Survey Reading of 5-Month-Old Boy," page 35) or an older child with thoracoabdominal injuries that the history does not explain satisfactorily.²³ For children ages 2 to 5, focused plain films of the area of suspected injury (eg, skull, chest, extremities) are considered appropriate.^{23,38}

Noncontrast head CT may be

appropriate in the presence of skull fractures, (as in Figures 4a and 4b, page 36) intracranial injuries, seizures, or other neurologic signs and symptoms (followed by MRI if further assessment is needed). CT with contrast may be considered when x-rays reveal certain abnormalities, the child is considered at high risk for abuse (for example, when inconsistencies are found in the history), or when soft-tissue injuries are suspected.^{23,39}

About 5% of sexually abused children contract a sexually transmitted disease.³⁰ Appropriate laboratory tests that can be performed in the office setting include:

- *Urinalysis* for presence of semen
- *Nucleic acid amplification testing (NAAT)* for chlamydia and gonorrhea (with positive results requiring that sexual abuse be considered in children beyond neonatal age, according to CDC guidelines³³); anorectal and pharyngeal infections with *Neisseria gonorrhoeae* are commonly found in sexually abused children
- *Serologic testing* for HIV³³
- *Urine pregnancy testing* in patients of childbearing age.

As these lab specimens are collected, chain of custody must be maintained. Results may be used as evidence in the event of prosecution.

REFERRALS AND FOLLOW-UP

What referrals are made—to clinical specialists, law enforcement, social services, and other agencies—is based on the nature of the abuse, the dynamics of the family involved, the identity of the alleged perpetrator, and the perceived need to ensure the child's safety. It is the role of these interrelated agencies to confirm the child's diagnosis, provide for the child's immediate safety, and ensure links within the systems involved to follow him or her into adulthood, if necessary.

TABLE 4
Mimics of Child Abuse^{17,18,22,25,33-35}

Confusing cutaneous lesions (eg, hemangiomas, Mongolian spots, molluscum contagiosum)
Alopecia areata
Tinea infections
Hair tourniquet syndrome*
Intracranial bleeding*
Conjunctival hemorrhages*
Accidental fractures
Osteogenesis imperfecta
Irregular hymenal anatomy
Perinatally transmitted infection with <i>Chlamydia trachomatis</i> , bacterial vaginosis, etc
Periostitis
Hematologic diseases
Congenital coagulation disorder
Thrombocytopenia
Benign external hydrocephaly
Connective tissue disorders
Metastatic bone tumors
Metabolic disorders (eg, homocystinuria, methylmalonic aciduria)

* These conditions may be accidental or nonaccidental in etiology.

Sources: Pandya et al. *Clin Orthop Relat Res*. 2011¹⁷; Gondim et al. *An Bras Dermatol*. 2011¹⁸; Wardinsky. *J Fam Pract*. 1995^{Wardinsky}; US Department of Justice. *Burn Injuries in Child Abuse*. 2001²⁵; Workowski and Berman. *MMWR Recomm Rep*. 2010³³; Oates. *Arch Dis Child*. 1984³⁴; Hornor. *J Pediatr Health Care*. 2009.³⁵

Timely referral to specialized clinicians may spare the child from having to undergo multiple examinations or interviews.³³ Although the burden of proof and identification of the perpetrator(s) lie with professional investigators, determination of the cause or possible causes of a child's injury is often critical to the legal case. Specialists in child abuse, often teamed with a forensically

FIGURE 2



A Mongolian spot can be mistaken for a bruise.

Courtesy of Joe R. Monroe, PA-C, MPAS.

FIGURE 3



Erythema multiforme often mimics intentional burns.

Courtesy of Joe R. Monroe, PA-C, MPAS.

trained interviewer to obtain a specialized history from the child who is verbal, are trained to provide the expert opinions required by the court.

Like referral options, follow-up will depend on the type of

abuse that a child has experienced. Medical follow-up, as in the child in the case study, may involve orthopedists, ophthalmologists, or clinicians in other relevant specialties. A psychologist may manage counseling ser-

vices for the patient and family or foster family.

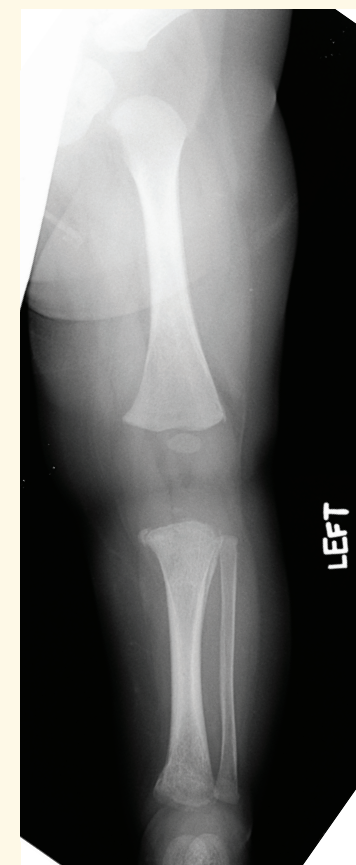
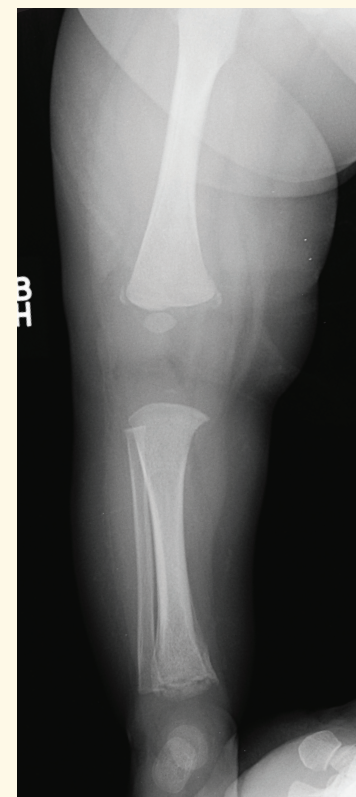
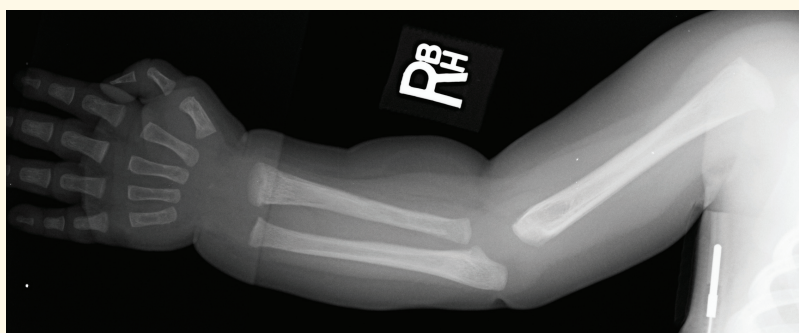
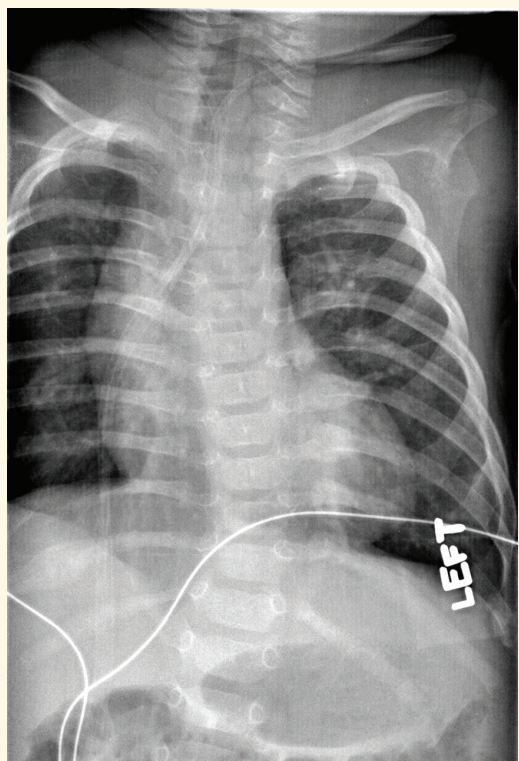
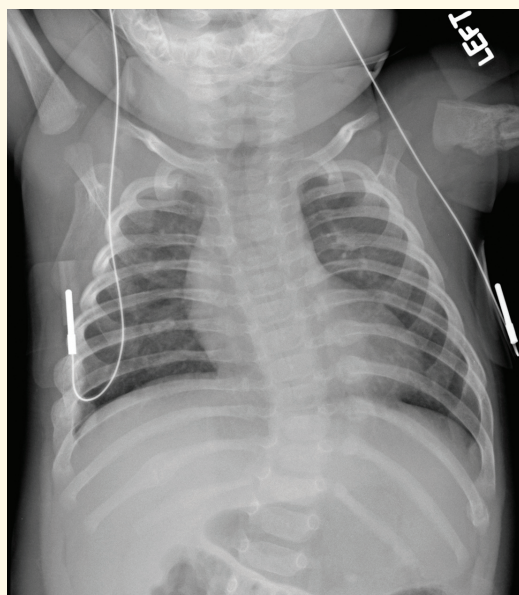
A SHARED RESPONSIBILITY

Recognition of child abuse is the first step to prevent further victimization.

Comprehensive education is criti-

cal for health care providers, school nurses, teachers, or anyone who comes into contact with children on a daily basis; increased awareness has been universally identified as a means to prevent child abuse. It is also imperative to

Skeletal Survey Reading of 5-Month-Old Boy



multiple posterior rib fractures. On the left side, posterior rib fractures were appreciated at the seventh, eighth, ninth, and 10th ribs. A posterior left 11th-rib fracture was also suspected. On the right side, multiple healing fractures were identified at the right seventh, eighth, and 11th ribs. A left posterior fifth rib fracture was also present. In the left 10th rib, another fracture is noted at its anterolateral aspect. Most of these fractures demonstrated significant callus formation.

A healing fracture with callus formation of the proximal left humerus

was noted. There was suspicion for a possible metaphyseal corner fracture of the proximal right humerus, and there was a questionable metaphyseal corner injury of the right distal radius. Evaluation of the lower extremities demonstrated a bucket handle fracture of the distal right femur, and distal tibia with callus formation, in addition to possible fracture of the right distal fibula. On the left side, note was made of corner fractures of the distal left femur and of the proximal and distal left tibia. A possible injury at the first proximal phalanx on the left side was also noted.

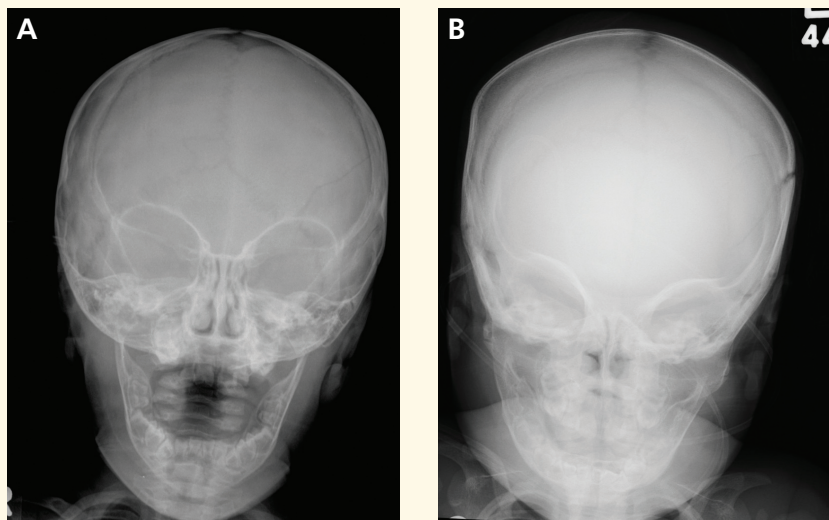
The case was deemed "highly concerning" for child abuse.

A workup for possible child abuse was ordered for a 5-month-old boy, born prematurely at 26 weeks. He presented to the ED for evaluation of right leg pain noticed by his grandmother when he was in her care.

The skeletal survey demonstrated

Images and skeletal survey reading courtesy of Charles A. Jennissen, MD, FAAP, FACEP, Director of Pediatric Emergency Medicine, Department of Emergency Medicine, University of Iowa Hospitals and Clinics, Iowa City.

FIGURES 4A AND 4B Skull radiographs demonstrating nonaccidental injuries in infants



A Boy, age 11 months, with a fracture at the left parietal skull
B Girl, age 5 months, with bilateral parietal skull fractures; subsequent noncontrast CT of the skull also showed bilateral subdural hematomas.
 Both children were placed in the care of child protective services.
 Images courtesy of Nandan R. Hichkad, PA-C.

educate legislators regarding the extent of this problem and to garner their support for community prevention programs.

For the primary care clinician, it is unfortunate but true that a high level of suspicion for abuse must be maintained; the best available screening tools are the astute clinician's eyes and brain. During routine annual exams, children should be observed for any indication of abuse, and their interactions with parents should be evaluated as well. Anticipatory guidance during well-child visits has been found to help build parents' trust in the clinician's knowledge and compassion, increasing their adherence to effective advice and improving their parenting behavior.⁴⁰

Public policies and social programs can effectively enhance family functioning, playing a key role in the protection of children.⁴¹ Existing research into the causes and effects of child abuse should be used to formulate preventive programs for schools, churches, and local health care providers.

CONCLUSION

No recipe exists for the prevention of child abuse. Health care providers must not hesitate to report suspicion of abuse. This action does not always lead to removal of children from their homes; rather, involving families and children in "the system" can give them access to services of which they might otherwise remain unaware. Home visits, anger management programs, parenting classes, counseling services, and early childhood education can instill and reinforce more positive attitudes and action, for the benefit of all involved. **CR**

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