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Mortality from Child Abuse is Underestimated

ABSTRACT & COMMENTARY

Synopsis: *Review of North Carolina medical examiner records revealed that the actual rate of death from child abuse was more than three times higher than officially listed in state statutes.*

Source: Herman-Giddens ME, et al. Underascertainment of child abuse mortality in the United States. *JAMA* 1999;282:463-467.

Child abuse is often difficult to diagnose. parents seldom provide truthful explanations about how the injuries have occurred, and physicians often find it difficult to consider such a diagnosis. When a child dies of injuries, it can be even more difficult to confront a family about the possibility of abuse.

It is this issue of the underascertainment of fatal child abuse that is addressed by Herman-Giddens and colleagues. They reviewed the North Carolina Medical Examiners (ME) system to locate cases of homicides of children younger than 11 years of age due to suspected abuse. Over a 10-year period (1985-1994), Herman-Giddens et al found that 220 of the 259 homicides listed in the ME's registry were due to abuse. This figure was 3.2 times higher than the 68 children who were officially listed in the state's statistics as dying from abuse. Thus, there was a substantial underreporting (by 59%) of child abuse deaths of all the homicides. The rate of deaths due to abuse increased 12.5% per year from 1.5 per 100,000 children in 1985 to 2.8 in 1994. African-American children had a rate three times higher than did white children. Parents made up 63% of the assailants, mothers' boyfriends 18%, relatives and friends 12%, and babysitters 6%. Overall, two-thirds of the perpetrators were male.

Herman-Giddens et al extrapolated their North Carolina data to estimate the number of child abuse deaths in the entire United States. For the 10-year period, the number of deaths was estimated to be 9467 compared to 2973 listed in the mortality statistics for the country.

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INSIDE

COMMENT BY JOHN M. LEVENTHAL, MD, FAAP

Clearly, one of the first steps in understanding a problem is an accurate count of its occurrence. For many years, pediatricians have been aware that child abuse is underreported and undercounted. Not surprisingly, this study shows that deaths due to abuse are undercounted as well, but I was surprised at the extent of the underascertainment. I also found the results a bit puzzling. If the deaths were classified correctly, as due to abuse, by the ME's office, why was this correct information not passed on to North Carolina's vital records?

It would have been helpful to learn more about the details of the cases, particularly information about whether some of these deaths might have been preventable. For example, what proportion of cases had been seen by a physician for a suspicious injury prior to the child's death?

What are the implications of these results for pediatricians who seldom care for patients who die? I would suggest two take-home messages. First, in all unexplained deaths, particularly in young children, child abuse should be considered in the differential diagnosis. Second, communities should have a systematic approach to reviewing the clinical and social characteristics of all unexplained deaths. Although child fatality review boards have been established in many states to help ensure that unexplained deaths are reviewed in a comprehensive manner, these review panels do not exist in all communities and, in many communities, only children who have been reported to protective services are eligible for review. All child deaths need a comprehensive review; pediatricians can work with their legislators, protective services agency, the ME's office, and others to help accomplish such a systematic review. Such initiatives could lead to more comprehensive data concerning this kind of carnage and perhaps enable a proactive approach in prevention. ❖

Violent Behavior and Bullying in Adolescents

ABSTRACTS & COMMENTARY

Synopsis: *Significant declines in fighting and weapon carrying among American adolescents were documented between 1991 and 1997. Among Australian teenage students, almost a quarter reported that they either bullied other students or were themselves bullied. Bullying behavior was associated with increased psychosomatic symptoms. Among Finnish adolescents, there was an increased rate of depression and suicidal ideation among both those who bullied and those who were bullied themselves.*

Sources: Brener ND, et al. Recent trend in violence-related behaviors among high school students in the United States. *JAMA* 1999;282:440-446; Kaltiala-Heino R, et al. Bullying, depression, and suicidal ideation in Finnish adolescents: School survey. *BMJ* 1999;319:348-351; Forero R, et al. Bullying behaviour and psychosocial health among school students in New South Wales, Australia: Cross sectional survey. *BMJ* 1999;319:344-348.

Brener and associates from the centers for Disease Control measured trends in nonfatal violent behavior among adolescent students in the United States over the period 1991-1997 using nationally reported data from the biannual Youth Risk Behavior Surveys. The percentage of students reporting being involved in a physical fight decreased from 42.5% to 36.6% and the percentage injured in a fight decreased from 4.4% to 3.5%. Between 1993 and 1997, the percentage of students who carried a weapon decreased from 26.1% to 18.3% and the percentage who carried a gun decreased from 7.9% to 5.6%. All of these decreases were believed to be significant.

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Forero and associates in New South Wales, Australia, and Kaltiala-Heino and colleagues from Finland quantitated bullying—both given and received in adolescent school children using surveys. In both populations, bullying was relatively common and consisted mostly of verbal teasing. Psychological symptoms, including depression and suicidal ideation, were increased in prevalence in both bullying and bullied teenagers when compared to teenagers who were not bullies or victims of bullying.

COMMENT BY WALTER R. ANYAN, MD, FAAP

In these articles from three continents, adolescents' in-school experience with violence of varying type and degree is a common focus. Brener et al's data from the United States indicate that two behaviors in which males are much more likely to be involved than females decreased between 1993 and 1997. They were: fighting on school property during the past 30 days, which dropped from 16.2% to 14.8%, and carrying a weapon on school property in the past 30 days, which fell from 11.8% to 8.5%. The good news was that over the four years, gun-carrying decreased and the bad news was that carriage of other weapons did not change. Students became less likely to carry weapons as they moved from 9th to 12th grade, and we don't know whether they realized that they didn't need them, whether they became more responsive to potential legal consequences, or whether they quit school and took their weapons elsewhere. It was also encouraging to notice that reported concern about being threatened or injured with a weapon on school property also decreased perceptibly as grade in school advanced.

Both Kaltiala-Heino et al and Forero et al have studied in-school violence of another type: the verbal teasing and associated actions that make up bullying. Their articles provide some fresh insights on bullies and those who are bullied. In Kaltiala-Heino et al's study, among males 14-16 years old, 9% of males bullied other students at least weekly and 6% of males reported being bullied as frequently, suggesting that there is a shortage of victims. However, among females, 2% of girls bully and 5% report being bullied, so the student population seems to have reached an equilibrium, with 11% involved in bullying. In addition, one learns that bullies don't walk away symptom-free, as depression was noted to be as common in bullies as in those bullied, and was greater in both groups than in students who weren't involved in bullying at all. Depression was most prominent in double-dippers (bullies who were themselves bullied). Not surprisingly, where depression exists, suicidal ideation lurks nearby, and the study found similar connections between bullying, being bullied, and suicidal thoughts.

In Australia, Forero et al found a higher overall level of both bullying (23.7%) and being bullied (12.7%), and noted that bullies were more likely to be male, to manifest psychosomatic symptoms, to be unhappy with school, and to smoke tobacco. Those who were bullied tended to be males who liked school but felt lonely and socially isolated. Bullied-bullies were males who experienced moderate social isolation and had the highest level of psychosomatic symptoms.

All of this work lends more support to the inescapable conclusion that youth don't just get used to violence and that it isn't good for them. Violence in adolescence is increasingly being likened with psychological distress, depression, aggressive behavior, reduced expectations about the future, and post-traumatic stress disorder. Along with the myriad screening we provide to patients, we might find a minute to ask patients about the teasing and the teased in their schools. ❖

Iontophoresis for Local Anesthesia

ABSTRACT & COMMENTARY

Synopsis: *Iontophoresis of lidocaine provides an effective alternative to topical or injected local anesthesia for office pediatric surgical procedures.*

Source: DeCou JM, et al. Iontophoresis: A needle-free, electrical system of local anesthesia delivery for pediatric surgical office procedures. *J Pediatr Surg* 1999;34:946-949.

Thirty-four children undergoing a minor office surgical procedure (mostly excision of skin lesions or abscess drainage) were given local anesthesia with lidocaine-epinephrine delivered locally by iontophoresis. Sixty percent of patients who were able to rate procedural pain and 84% of parents rated procedural pain as none to mild. Seven patients required additional local anesthetic given through the previously anesthetized area. One child developed a small superficial burn. Iontophoresis is an effective and safe alternative method of local anesthesia for pediatric surgical procedures.

COMMENT BY HOWARD A. PEARSON, MD, FAAP

As has been previously commented upon in *Pediatric and Adolescent Medicine Reports*, there is increasing awareness and concern about pain experienced by infants and children undergoing invasive procedures including circumcision, spinal tap, bone marrow aspiration, venipuncture, and other injections. This has led to increasing use of topical local anesthetics (5% lidocaine-

priolcaine or EMLA cream). Although this is usually fairly effective in reducing procedural-related pain, it must be applied at least 60 minutes before the procedure for maximum effect. Local anesthesia administered by subcutaneous needle injections, because of the child's fear of needles, commonly increases anxiety and the discomfort associated with injections may be as bad as the procedure.

Iontophoresis is a needlefree method for local anesthesia in which a small electrical current is used to draw ionically charged 2% lidocaine-epinephrine into the skin and underlying subcutaneous tissue. Previous studies have compared iontophoresis with EMLA local anesthesia for dermatologic procedures and considered the anesthesia obtained by iontophoresis to be superior.[1,2]

DeCou and colleagues, pediatric surgeons from Greenville, S.C., evaluated the efficacy and safety of iontophoretic local anesthesia in a group of children 3 months to 15 years of age (mean, 6.8 years) who had minor surgical procedures in their office. They used a commercially available delivery system (Phoresor II Auto manufactured by Iomed Inc., Salt Lake City, Utah) consisting of a programmed nine-volt battery-driven power supply and two electrodes. Positively charged lidocaine and epinephrine molecules applied to the positive (delivery) electrode are attracted to the negative (dispersive) electrode placed at a distance and are drawn into the skin. The maximal current is 4 mA. The mean iontophoresis time was 16.1 minutes (7-30 minutes). Thirty-eight procedures were performed on 34 consecutive patients—mostly excision of skin lesions or drainage of an abscess. Procedure-related pain was judged to be none to mild by more than 80% of parents, physicians, and nurses. Ninety-five percent of patients who had had previous conventional local anesthesia described iontophoresis as superior, and three-fourths said that they would use it again. Eighteen percent of patients required additional local anesthesia but this was not associated with significant pain when injected through the previously anesthetized area. Fifty percent of patients experienced a tingling sensation at the point of electrode placement. One patient developed a small, superficial burn adjacent to the dispersive electrode. DeCou et al found that the mean time for iontophoresis was more compatible with office practice than the hour required for EMLA anesthesia.

Iontophoresis has been successfully used for two years in the ambulatory hematology/oncology center at the Yale-New Haven Children's Hospital and is preferred over EMLA application by almost all of our patients—even those who usually applied EMLA at home before coming to the clinic. It is effective for venipuncture and lumbar punctures but less effective for bone marrow aspirations. It does not anesthetize the periosteum but reduces the pain of subsequent needle injections of lidocaine. Although most older children do not find the frequent tingling sensation uncomfortable, some infants and small children find it to be discomforting and express objections to the sensation. ❖

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Brief Reports

Varicella Zoster Immunoglobulin may not Prevent Severe Neonatal Varicella

Source: Reynolds L, et al. Neonatal varicella: Varicella zoster immunoglobulin (VZIG) does not prevent disease. *Arch Dis Child Fetal Neonatol Ed* 1999;81:69-70.

As many as 50% of infants develop clinical varicella if the mother develops chickenpox four or fewer days before delivery and up to two days after delivery. In these clinically infected newborns, the fatality rate is as high as 31% if no prophylaxis or therapy is given. The use of varicella zoster immunoglobulin (VZIG) can modify the clinical course and usually prevents more serious neonatal disease. However, although decreased, the risk of fatality is not totally eliminated.

Reynolds and associates from the St. Mary's Hospital Medical School in London describe two Asian newborns with severe neonatal varicella infections. One of the mothers developed chickenpox two days before delivery; the other one day after delivery. Both infants received intramuscular VZIG in the first day of life, but no information concerning further care or follow-up was apparently given to the families or out-of-hospital health care providers. At 10 and 11 days of life, the infants developed severe disease requiring ventilatory support. Intravenous acyclovir was administered for 2-3 weeks.

Both babies recovered after a stormy hospital course.

In both of these patients, there was a three-day delay from the onset of symptoms and the institution of antiviral therapy with acyclovir, a delay resulting from an apparent lack of awareness of the high risk of varicella in the infants that is not totally prevented by appropriate therapy with VZIG. The average interval between the onset of the mother's rash to the baby's rash in untreated cases is 11 days. However, administration of VZIG to the newborn baby can prolong the incubation period to as long as 30 days.

When a neonate has received VZIG because of maternal perinatal chickenpox, it should be made clear to the parents and health workers that if the baby becomes sick or develops any kind of a rash, the child should be seen and hospitalization for prompt institution of acyclovir therapy should be strongly considered to prevent avoidable morbidity and even mortality. Even the 1997 *AAP Red Book* is less than definitive on this point. VZIG (125 U) is recommended for infants whose mothers have the onset of varicella from five days before to two days after delivery. Approximately half of these newborns can be expected to develop varicella even if VZIG is administered, but "the disease is often modified. Nevertheless VZIG recipients should be followed closely." —**lmb**

Lead Poisoning in Competitive Shooters

Source: Shannon M. Lead poisoning in adolescents who are competitive marksmen. *N Engl J Med* 1999;341:852.

Four adolescent girls, 14-16 years of age, were found to have elevated blood lead levels, 18-28 µg/dL. All four girls were competitive marksmen at a single indoor firing range in Boston. None was symptomatic. One girl had an initial blood lead level determined by finger stick to be 100 µg/dL, indicating considerable skin contamination, which was presumably the source of exposure. Environmental exposure ingestion of chips and dust from lead-containing paint is the most common cause of lead poisoning in children. However, exposure can also occur from other sources, including smelters and burning of storage batteries. In older individuals, lead poisoning has been associated with industrial exposure but has also been associated with gun use and has been reported among firearm instructors.[1] The sport of competitive shooting is said to be increasingly popular, perhaps because of the concern about personal safety and the publicity and debate about gun use.

Two generations ago, one of the most popular toys of young boys involved melting lead in electric furnaces at home and using the molten lead to cast lead soldiers for play. We have no data concerning plumbism resulting from such a hobby, but I would bet that it was considerable. Although the elevation of blood lead in the adolescent girls was not extreme and no chelation therapy was used, it is increasingly accepted that chronic exposure should be avoided. It is incumbent upon pediatricians to question their adolescent patients about their hobbies. —**hap**

Infrequency of Serious Infections in Infants Younger than 8 Weeks with Otitis Media

Source: Nozicka CA, et al. Otitis media in infants aged 0-8 weeks: Frequency of associated serious bacterial disease. *Pediatr Emerg Care* 1999;15:252-254.

Nozicka and associates at the children's hospital of Wisconsin emergency department (ED) in Milwaukee studied 40 nontoxic-appearing small infants with otitis media (OM) confirmed by a pediatric otolaryngologist using a binocular operating microscope. Thirty-eight percent (15/40) had rectal temperatures equal to or greater than 38°C. All infants had typanocentesis with middle ear fluid (MEF) culture and complete sepsis evaluation including CBC, blood culture, catheter urine culture, and lumbar puncture with cerebrospinal fluid (CSF) culture. All infants were treated with parenteral ampicillin and either gentamicin or cefotaxime and admitted to the hospital.

Bacterial pathogens were recovered from the MEF in 25/40 (62.5%) infants, and 15 infants had negative cultures of the MEF. All infants who were afebrile on admission to the ED had negative blood, urine, and CSF cultures. Only two of 15 febrile infants had positive cultures from sites other than the MEF.

Nozicka et al conclude that previously healthy, nontoxic-appearing afebrile, nontoxic infants aged 2-8 weeks of age with otitis media infrequently have an associated serious bacterial infection and the oral antibiotic therapy with close follow-up may be a reasonable therapeutic option. However, infants younger than 2 months of age with OM who are febrile, toxic, or who have signs of systemic illness require a full septic workup and consideration of parenteral antibiotic therapy. —**lmb**

Special Report

Gastroesophageal Reflux—"What's Up?"

By A. Craig Hillemeier, MD, FAAP

Many pediatricians will remember the day when most infants had problems with "spitting up." Sometime in the last couple of decades the terminology has changed and these infants are now said to be afflicted with gastroesophageal reflux. The medical literature has exploded with literally hundreds of articles describing ways to quantify gastroesophageal reflux, conditions that are caused by this disorder, and therapies for what is viewed as an increasingly prevalent problem.

It is common for infants to have recurrent symptoms of daily spitting up or vomiting during their first year of life. There is a wide variation of these symptoms, from the occasional wet burp to persistent emesis. A thorough evaluation of most of these infants reveals no definable anatomic, metabolic, infectious, or neurologic etiology. These infants are then labeled with the descriptive term gastroesophageal reflux, which in its simplest form merely means the presence of gastric contents proximal to the stomach. Since almost any infant has at least some symptoms of gastroesophageal reflux, it is tempting to speculate that there is a cause-and-effect relationship between almost any illness and gastroesophageal reflux. However, the conditions that will benefit from the myriad of tests that assist in identifying which children deserve aggressive therapy for their gastroesophageal reflux are indeed limited. This review will examine some of the newer studies of the physiology, diagnosis, and treatment of gastroesophageal reflux during infancy.

The upper gastrointestinal tract distal to the midesophagus is composed of smooth muscle and is not under voluntary control. The esophagus functions as a muscular tube, and the band of muscle at the distal esophagus is known as a lower esophageal sphincter. This muscle, circular in its orientation, remains tonically contracted, thus acting as a lid to the contents of the stomach. Many of us remember physiology class, where we were told that the reason gastric contents kept refluxing back past this barrier in infants was because this muscle was weak. The theory was that since infants were generally small and weak, their lower esophageal sphincter was also rather diminutive and weak. However, it has been shown that the stress-generating characteristics of the lower esophageal sphincter during infancy are actually higher than during the adult years. Recent studies have shown that most episodes of gastroesophageal reflux during infancy and childhood are indeed due to inappropriate relaxation of this muscle. In other words, the lower esophageal sphincter not only relaxes during swallowing, it also relaxes inappropriately when the stomach is full of food. In the absence of a normal swallow, this relaxation of the lower esophageal sphincter allows food to regurgitate into the esophagus (i.e., spitting up).[1] This inappropriate relaxation of the lower esophageal sphincter is likely due to an abnormal neuronal reflex. It is unclear why this abnormal reflex should cause symptoms more frequently during the newborn period. This would explain why medications that primarily increase lower esophageal sphincter tones such as bethanechol have not been found to be effective in treating gastroesophageal reflex. It is possible that, in the future, medications will be developed that decrease the incidence of inappropriate relaxations of lower esophageal sphincter but at present none is available.

The list of conditions that have been claimed to be caused by gastroesophageal reflux is long and many of these relationships are poorly established. Unfortunately, the relationship between gastroesophageal reflux and pulmonary disease remains difficult to establish in an individual case. In a child with recurrent pneumonia and proven reflux by pH probe, lipid-laden macrophages aspirated from the bronchial tree may indicate those children who are suffering from significant aspiration. It is challenging in a child with recurrent bronchospasm who has gastroesophageal reflux to determine if aggressive therapy with acid-suppressing agents or a fundoplication will be helpful, and patients with asthma and proven reflux may benefit from therapeutic trials.

One of the conditions that has received a lot of interest in the last few years with respect to gastroesophageal reflux has been the "colicky baby." There are several studies that demonstrate that colic in most infants is not related to gastroesophageal reflux. It does not appear that fussy behavior in infants is commonly related to reflux. However, there are rare infants who have episodes of discomfort during feedings who respond to empiric therapy for esophagitis. However, if a therapeutic dose (e.g., zantac, 2 mg/kg bid) is maintained and there is no relief, it is unlikely that the problem is related to gastroesophageal reflux and associated esophagitis.

In addition to recurrent pneumonia and asthma, there have been other disorders of the upper airway that have been claimed to be caused by gastroesophageal reflux. Persistent recurrent cough, stridor, and subglottic steno-

sis are disorders that may well in many instances deserve an evaluation by a pediatric gastroenterologist specialist to determine if the child really has significant reflux.[2] Many of these children may benefit from aggressive medical and even surgical therapy.

The therapy of gastroesophageal reflux has seen some changes in the last few years. It should be remembered that a healthy, thriving infant who has no adverse sequelae from his or her "spitting up" probably needs no diagnostic tests other than a thorough history and physical examination and requires no specific pharmacological or surgical therapy. Parental reassurance and perhaps modification of feeding habits are usually sufficient. Smaller, more frequent feeding and increased solids may give some benefit. Positional therapy is not a very effective therapeutic modality. There are some data to demonstrate that the prone position with the head elevated does reduce the amount of gastroesophageal reflux. The epidemiologic data that suggest an increased incidence of sudden infant death syndrome (SIDS) in young infants sleeping in the prone position has resulted in general abandonment of positional therapy.

Keeping in mind that there is no specific pharmacological therapy for inappropriate relaxation of the lower esophageal, it is not surprising that most pharmacological therapies have not been met with resounding success. A medication increasingly used to treat gastroesophageal reflux during infancy over the last few years has been cisapride. It has been estimated that more than 140 million courses of cisapride have been prescribed over the past 10 years in North America and Europe, many of these in childhood. Cisapride is a gastrointestinal prokinetic agent that increases motility events such as gastric emptying and acts as a post-ganglionic serotonin receptor agonist. It does not have the frequent and distasteful central nervous system side effects seen with metoclopramide.[3]

It is not clear whether cisapride is effective in treating gastroesophageal reflux during infancy. A literature review of cisapride treatment efficacy could certainly conclude that cisapride results in some improvement in infants with gastroesophageal reflux.[4] However, whether this improvement is enough to justify the widespread use of cisapride is not clear, and there are certainly many infants with gastroesophageal reflux who show no improvement with cisapride.

A child with a serious medical condition resulting from gastroesophageal reflux deserves aggressive treatment for gastroesophageal reflux. That treatment may include a trial of cisapride and effective acid suppression prior to fundoplication. The side effects of cisapride are usually rare, transitory, and benign. The major side effect that has concerned people regarding the use of cisapride is the possibility of adverse cardiac effects, especially the prolongation of the QTc interval and resulting arrhythmias. This risk is thought to be increased in young preterm infants in whom the hepatic cytochrome enzyme, which is important for the metabolism of cisapride, appears to have diminished activities. By 6-12 months, this enzyme level increases to normal levels. The incidence of cardiac arrhythmias associated with cisapride has been estimated at less than 1 in 11,000 premature infants and most of the reported arrhythmias have been associated with overdosage or use with concurrent medications now known to be contraindicated when cisapride is used.[5] In June 1998, Janssen Pharmaceutical issued an announcement that the labeling for cisapride was reflecting increased warnings in the use of the drug resulting in adverse cardiac events. The North American Society of Pediatric Gastroenterology has recommended that if cisapride is used, precautions should be taken to minimize the risk of associated arrhythmias. These include: 1) avoiding medications that compete with it for the hepatic enzyme (erythromycin and clarithromycin and the azole antifungals); 2) dosage should be limited to 0.8 mg per kg per day divided into 3-4 doses in a 24-hour period; 3) avoiding use of the drug in patients with acute illness that might result in electrolyte abnormalities and in patients who are known to have symptoms of cardiac conduction abnormalities. There may be some small therapeutic benefit to be derived from cisapride therapy in appropriately chosen patients but when it is used it should be used with appropriate caution and monitoring.

The second major therapeutic advance that has been made over the past few years in the treatment of gastroesophageal refluxes is laproscopic fundoplication.[5] This procedure has become common in many pediatric centers. While it results in a slight increase in operating room time compared to conventional surgery, it results in markedly decreased duration of hospitalization and perhaps a decreased incidence of postoperative adhesions.

There is some justification to the point of view that many physicians express when they compare the gastroesophageal reflux saga over the last 20-30 years to Shakespeare's play "Much Ado About Nothing." Despite this prevalent opinion, there are some children who have serious medical problems associated with or exacerbated by gastroesophageal reflux and recent advances in diagnosis and treatment have the potential to decrease morbidity associated with this problem. ❖

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CME Questions

19. Study of adolescents concerning school behavior reveals:

a. the rate of both carriage of guns and other weapons decreased in the United States between 1991 and 1997.
b. equal numbers of girls and boys were bullied by peers.
c. symptoms of depression were about equal in male bullies as in males who were bullied.
d. there was no association between a history of bullying or being bullied and suicidal ideation.

20. Iontophoresis for local anesthesia:

a. is effective in preventing pain associated with bone marrow aspiration.
b. is possible because lidocaine/epinephrine have negative ionic charges.
c. must be applied for a minimum of 60 minutes.
d. is considered to be superior to conventional local anesthesia by patients who have experienced both methods.

21. True statements concerning homicides resulting from child abuse include all of the following *except*:

a. The perpetrator is usually a relative.
b. They are currently accurately reported in state and national vital statistics.
c. The perpetrator is usually a male.
d. They have increased in incidence between 1984 and 1995.

22. Gastroesophageal reflux:

a. is an established cause for infantile colic in many babies.
b. results from a relative weakness of the distal esophageal sphincter.
c. symptoms can be improved in some infants by treatment with the GI prokinetic agent cisapride.
d. can be safely treated with cisapride in an infant also receiving azithromycin.

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11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities. If none, check box → ☐ None

Full Name	Complete Mailing Address
Medical Economics Data, Inc.	Five Paragon Drive Montvale, NJ 07645

12. Tax Status *(For completion by nonprofit organizations authorized to mail at nonprofit rates.) (Check one)*
The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes:
☐ Has Not Changed During Preceding 12 Months
☐ Has Changed During Preceding 12 Months *(Publisher must submit explanation of change with this statement)*

PS Form **3526**, September 1998 *See instructions on Reverse)*

13. Publication Name: Pediatric & Adolescent Medicine Reports — 14. Issue Date for Circulation Data Below: November 1999

15. Extent and Nature of Circulation			Average No. of Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Published Nearest to Filing Date
a. Total No. Copies *(Net Press Run)*			528	500
b. Paid and/or Requested Circulation	(1)	Paid/Requested Outside-County Mail Subscriptions Stated on Form 3541. *(Include advertiser's proof and exchange copies)*	282	229
	(2)	Paid In-County Subscriptions *(Include advertiser's proof and exchange copies)*	0	0
	(3)	Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Non-USPS Paid Distribution	0	0
	(4)	Other Classes Mailed Through the USPS	0	0
c. Total Paid and/or Requested Circulation *(Sum of 15b(1) and 15b(2)*			282	229
d. Free Distribution by Mail *(Samples, Complimentary and Other Free)*	(1)	Outside-County as Stated on Form 3541	0	0
	(2)	In-County as Stated on Form 3541	0	0
	(3)	Other Classes Mailed Through the USPS	0	0
e. Free Distribution Outside the Mail *(Carriers or Other Means)*			17	17
f. Total Free Distribution *(Sum of 15d and 15e)*			17	17
g. Total Distribution *(Sum of 15c and 15f)*			299	246
h. Copies Not Distributed			229	254
i. Total *(Sum of 15g, and h.*			528	500
Percent Paid and/or Requested Circulation *(15c divided by 15g times 100)*			93	93

16. Publication of Statement of Ownership Publication required. Will be printed in the November issue of this publication. ☐ Publication not required.

17. Signature and Title of Editor, Publisher, Business Manager, or Owner: Publisher — Date: 9/24/99

I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including multiple damages and civil penalties).

Instructions to Publishers

1. Complete and file one copy of this form with your postmaster annually on or before October 1. Keep a copy of the completed form for your records.
2. In cases where the stockholder or security holder is a trustee, include in items 10 and 11 the name of the person or corporation for whom the trustee is acting. Also include the names and addresses of individuals who are stockholders who own or hold 1 percent or more of the total amount of bonds, mortgages, or other securities of the publishing corporation. In item 11, if none, check the box. Use blank sheets if more space is required.
3. Be sure to furnish all circulation information called for in item 15. Free circulation must be shown in items 15d, e, and f.
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5. If the publication had Periodicals authorization as a general or requester publication, this Statement of Ownership, Management, and Circulation must be published; it must be printed in any issue in October or if the publication is not published during October, the first issue printed after October.
5. In item 16, indicate date of the issue in which this Statement of Ownership will be published.
6. Item 17 must be signed.

Failure to file or publish a statement of ownership may lead to suspension of second-class authorization.

PS Form **3526**, September 1999 *(Reverse)*

In Future Issues:

Spontaneous Closure of Atrial Septal Defects

Enuresis