A Medical Research Agenda for Child Maltreatment: Negotiating the Next Steps

Adrea D. Theodore, MD, MPH, and Desmond K. Runyan, MD, DrPH

ABSTRACT. Child maltreatment remains a significant pediatric health problem despite 25 years since the establishment of the National Center on Child Abuse and Neglect. Federal funding for research on the medical aspects of abuse and neglect has been inadequate and, over time, declining in adjusted dollars. Nevertheless, important research has been conducted without federal support. Landmark research has occurred in the areas of physical abuse, sexual abuse, and neglect. Some of these accomplishments are noted, and a research agenda for future work is suggested. Pediatrics 1999; 104:168–177; research agenda, child abuse, child neglect, sexual abuse.

ABBREVIATIONS. NIS, National Incidence Surveys; NCANDS, National Child Abuse and Neglect Data System; NCCAN, National Center for Child Abuse and Neglect; FTT, failure to thrive.

To champion the cause of abused children in the current medical and social environment requires considerable fortitude. In the medical arenas of clinical practice and research, pediatricians who become actively involved in child abuse must do so in the face of many factors that hinder the response to maltreatment. Short visit times, high stakes, low reimbursement rates, scientific uncertainty, and participation in adversarial legal proceedings all form the framework for the clinical encounter with a potentially abused child. Understandably, the task of detection of abuse in this setting generates an enormous mixed bag of action and emotion. Some professionals, despite the constraints of the system, engender within themselves a sense of responsibility for the problem and find great satisfaction in working with victims of maltreatment and their families, whereas others more reluctant to become involved avoid the issues, finding them burdensome and painful. A similar situation exists in the area of research, in which the pinch of poor funding and the absence of career development pathways for academic physicians interested in child abuse play a greater role in discouraging would-be investigators. Outside the medical arena, the issue of child abuse remains in the shadow of other political and economic considerations. Social welfare issues traditionally are underfunded, and parental rights and family privacy continue to take precedence over the rights of children. The political process that generates power pays relatively little attention to the needs of the nonvoting members of society. As an example, in a 1994 report to the Congress and the Nation, the US Advisory Board on Child Abuse and Neglect felt that it was necessary to declare a “state of emergency” with respect to child abuse because of the long-standing mismatch between the extent of the problem and the resources allocated to address the problem. Although there remains a sense of urgency about detecting and eliminating child abuse through clinical practice, research, and other means, the challenge remains to make child abuse a priority in both medical and nonmedical fields.

Nevertheless, progress has been made in the understanding and management of child maltreatment over the last 30 years. This is largely attributable to the efforts of individuals with a special blend of perseverance and compassion, mixed with a spirit of advocacy, clinical ability, and research inquiry. The complexity of the problem requires a bridge among disciplines, and a comprehensive approach has developed which addresses the psychosocial, medical, and legal aspects of this pervasive problem. Additional progress depends on the continued collective efforts of individuals and organizations invested in the welfare of children. A medical research agenda for child abuse and neglect can help focus these efforts to maximize the benefit to the field as a whole and the children we serve.

The primary objectives of this article are to highlight some of the recent advances in the field of child abuse and neglect and to suggest several of the next important steps in medical research. Investigators contemplating work in child maltreatment should also have an appreciation of the current state of affairs with respect to trends in child maltreatment, governmental support, and special considerations for research in this area.

THE CURRENT STATE OF AFFAIRS

Trends in Child Abuse and Neglect

There are two major sources of data for national rates and trends in child abuse and neglect that currently exist: the National Incidence Surveys (NIS) of Child Abuse and Neglect6 and the National Child Abuse and Neglect Data System (NCANDS).7

From the Departments of Social Medicine and Pediatrics, The University of North Carolina, Chapel Hill, North Carolina.

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Address correspondence to Adrea D. Theodore, MD, MPH, the Department of Social Medicine, CB# 7240, The University of North Carolina School of Medicine, Chapel Hill, NC 27599.

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Each indicates that the occurrence of child maltreatment is a persistent problem in the United States. The NIS is a national survey of randomly selected counties using sentinel reporters; it has been repeated on three occasions (1979–1980, 1986–1987, and 1993–1994). Professionals in health, education, social work, and law reported all cases with which they had contact over a 3-month period, regardless of whether the cases had been officially reported. The data indicate that the numbers of abused and neglected children have increased 149% in the 15 years between the first and last surveys6 (Fig 1). The increase has sparked discussion as to whether the changes in numbers represent increasing societal recognition of the problem or real changes in rates of maltreatment.8 The increase between the 1986 and 1993 surveys has been ascribed to a marked increase in the category of severe maltreatment and this, in the face of stable estimates for the milder forms of maltreatment, has been interpreted as representing a real increase in maltreatment (A. Sedlak, personal communication, August 1997).

NCANDS reports the number of confirmed or substantiated cases annually from participating state child protective services agencies across the country.7 In comparison with the NIS, its estimates are lower (as expected) because of the single source of data and the requirement that the cases be substantiated by the agency (Table 1). Since 1990, the total number of abused and neglected children by this means of surveillance has increased nearly 20%, despite the expansion of the US economy.7 Even with flaws in the existing data collection systems, greater than 1 million children are substantiated each year as victims of child maltreatment.5 Parenthetically, the data from this source suggest that the rate of sexual abuse appears to have leveled off or declined over the past 2 years.6 It is unknown whether this represents a real change or whether there are other forces producing changes in classification of abuse or even limiting investigations.

Enumerating reported cases of child abuse and neglect is merely one way to assess the magnitude of the problem. Compared with other medical conditions during childhood, the data indicate that more children are affected by maltreatment than all other serious illnesses combined. There also are many cases of abused and neglected children that do not come to the attention of social service agencies. For example, in studies of child abuse homicide, only 13% to 35% of the victims have physical evidence or documented history of maltreatment.9,10 Waiting for children to be identified by child protective services presumes that “all abused children are detected, and second, that abuse is repetitive”.10

In 1995, the Gallup Organization conducted a nationwide survey of parents, exploring the means and range of “discipline” experienced by children throughout the United States.11 Parents’ self-reported behaviors of apparent physical abuse occurred at a rate sixteen times the official rate of abuse (Table 1). Levels of sexual abuse perpetrated by an adult or older child known to the parent were greater than 10 times the official rate.

<table>
<thead>
<tr>
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<tr>
<td>Number physically abused</td>
<td>381 700</td>
<td>258 320</td>
</tr>
<tr>
<td>Rate per 1000</td>
<td>5.7</td>
<td>3.0–4.5</td>
</tr>
<tr>
<td>Number sexually abused</td>
<td>217 700</td>
<td>139 900</td>
</tr>
<tr>
<td>Rate per 1000</td>
<td>3.2</td>
<td>1.6–2.4</td>
</tr>
<tr>
<td>Number neglected</td>
<td>879 000</td>
<td>535 510</td>
</tr>
<tr>
<td>Rate per 1000</td>
<td>13.1</td>
<td>6.2–9.5</td>
</tr>
<tr>
<td>Total number maltreated†</td>
<td>1 553 800</td>
<td>1 011 628</td>
</tr>
<tr>
<td>Rate per 1000</td>
<td>23.1</td>
<td>11.7–17.9</td>
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* Calculations based on raw data in Gallup report (see text for more detail).
† Numbers do not add up because the maltreated category includes other types of abuse not shown (e.g., emotional abuse), and some children experience more than one type of abuse or neglect.

Fig 1. NCCAN funding and number of child maltreatment victims, by year, 1980–1995.6,13

NCCAN funding | Number of Victims
These statistics should serve notice that reported cases represent the lower end of the confidence interval for abuse and neglect. Errors of false-negative assessment are far more likely to be occurring than are errors of false-positive reports.

The Role of Government

The history of the federal government’s response to the national epidemic of child abuse began with the publication of “The Battered Child Syndrome” in 1962.12 This landmark article created a stir in the medical profession as well as in the people of the nation to take action against child maltreatment in the United States. With the encouragement of the Children’s Bureau and the promise of federal monies, laws were passed in every state requiring reporting of child abuse and neglect to social service agencies by medical professionals and certain other mandated reporters.6,12 Over the years, this legislation has expanded to include all professionals. In 22 states, all persons with reasons to suspect child abuse or neglect are required to report.

The federal government responded further a decade later with the Child Abuse Prevention and Treatment Act of 1974, which was responsible for the creation of the US Advisory Board on Abuse and Neglect and the National Center for Child Abuse and Neglect (NCCAN), a division of the Department of Health and Human Services.13 The creation of the Center was a major step toward better surveillance of child maltreatment. Specific monies for demonstration projects and research in child abuse were made available. For the next 2 decades, NCCAN helped support state department of social service agencies and supported most of the child abuse research that received federal funding. However, with the passage of the welfare reform act in 1996, this Center has been eliminated in favor of an Office of Child Abuse and Neglect, placed within the Children’s Bureau under the supervision of the Secretary of Health and Human Services.13 Funds and programs established under NCCAN have either been relegated to the states as part of child welfare block grants or left in a small underfunded program that supports not only the research agenda in child abuse and neglect but other research related to Head Start and the other programs of the Children’s Bureau. This legislation calls into question the commitment to the national response to child abuse and neglect called for by the US Advisory Board several years ago.13

Paradoxically, there also appears to be an inverse relationship between the increasing incidence of child maltreatment and the amount of federal support for research in this area.12,13 Money allocated for research has dwindled, and there have been few efforts to support training of professionals and researchers despite clear indications that child maltreatment is escalating.5 Between 1980 and 1986, while the incidence of child abuse and neglect increased 74%, the federal budget for this problem increased only 2%.5 From 1981 to 1995, the actual research dollar amount (corrected for inflation) actually decreased 44% although the reported incidence increased greater than 150% (Fig 1).13 During the period that NCCAN held the mandate to fund basic research into child maltreatment, only one longitudinal study of medical research about findings in child abuse has been funded by the federal government, and that was supported through the National Institutes of Mental Health.14 Even longitudinal psychosocial research was neglected. With the exception of studies in Lehigh15 and Minneapolis16 and the five-state LONGSCAN study begun in 1990,17 longitudinal studies of risk and prognosis have not been supported by the federal research agencies.14 Much of the preliminary research in child abuse was made possible by sponsors in private organizations and foundations, such as the Packard Foundation, the Edna McConnell-Clark Foundation, the William T. Grant Foundation, and the Anne E. Casey Foundation.

In summary, an unfortunate situation has been created. The research base in all other areas of medicine is supported (and thereby advanced) by funds from the National Institutes of Health.13 Grants and fellowships, which produce needed information and trained researchers, are the direct results of such funding.

In addressing the scope of child abuse, medical research is only one of the necessary pieces for the system to work for children. Financial resources also would demonstrate the government’s support of programs and organizations that aim for continued surveillance, prevention, and intervention. According to the most recent NIS, for example, the Department of Social Services investigated less than half of the reports of abuse and neglect received, and 44% of these cases were substantiated.6 We are left to wonder how many children have been missed because of inadequate resources and training among the other disciplines that relate to the issues of child maltreatment.

Special Considerations

The problem of child abuse and neglect is different from most medical conditions because it is an entirely socially constructed problem. There is as yet no biological basis for the abuse and neglect that children suffer, and the social and environmental context of their upbringing are greater determinants of the outcome “abused” or “not abused.” We recognize that we can intervene when medical diagnoses bring children to our attention, but our ability to investigate and modify the environment that produced those injuries is limited. Consider the infamous case of the orphan Mary Ellen, who was a clear victim of physical abuse and neglect.18 She was routed through the courts to resolve the issue of her placement in foster care after a private citizen became an advocate for her wellbeing. It wasn’t until after this situation arose that the Society for the Prevention of Cruelty to Children was founded in 1876. Another 70 years passed before there was medical attention to the plight of physically maltreated children.12 In truth, significant progress was not made until nearly a
century after the case of Mary Ellen when Kempe
and associates’ landmark article appeared in JAMA.

The natural evolution of the problem has re-
sulted in a multidisciplinary field, with contribu-
tions from medicine, law, public health, sociology,
psychology, and social work. Each discipline has
a role in addressing the issue of child maltreatment.
The presence of child advocates in each field
provides many different opportunities for interven-
tion. However, this also is cause for concern, be-
cause efforts in problem-solving may be uncoor-
nated, and fields that historically have been at odds
with one another must learn to cooperate with the
common goal of preventing and eliminating child
abuse. Good and accurate communication is essen-
tial, particularly when new scientific or case-spe-
cific information becomes available. At present,
there is not one common avenue by which to dis-
seminate information among the disciplines, and
often the language of each discipline must be
adapted to decrease jargon to become readable by a
wider audience. Finally, definitions across and
within disciplines are not standardized, and varia-
tions in laws from state to state contribute to the
confusion.

An additional consideration in child maltreat-
ment research involves ethical issues. The manda-
tory reporting statutes that we endorse may seri-
ously hamper medical research. Identification of
victims of child abuse and neglect in the course of
research studies requires official reporting. In-
formed consent, which includes this risk of report-
ing, may lower study participation rates and “in-
validate the results. . . [which calls] into question
the ethics of asking others who do consent when
the study in which they are participating has no
likelihood of producing valid conclusions.” How-
ever, uncovering risk or the occurrence of abuse or
neglect and leaving children in harm’s way are
equally unacceptable alternatives. Well conducted
research studies must resolve the approach to these
ethical considerations before their undertaking.
Obtaining a certificate of confidentiality or remov-
ing identifiers from data are techniques that have
been used successfully in the past.

DEVELOPMENT OF A RESEARCH AGENDA

In formulating a medical research agenda for
child abuse and neglect, the ultimate goal of elimi-
inating child maltreatment is a springboard for
ideas and inspiration. At the heart of such an
agenda is primary prevention, which entails pre-
venting child maltreatment before it occurs. The
ultimate goal cannot be achieved without it. Other
efforts to isolate risk factors, understand “trigger-
ing” situations, and clarify clinical presentations of
abuse or neglect all are pieces of the puzzle that
allow us to practice secondary prevention, consist-
ing of early identification and treatment. Targeting
higher risk populations is a promising strategy.
Secondary prevention is the core of current man-
agement practices. Nevertheless, the contribution
of breaking the “cycle of violence” in this manner
could be considered primary prevention for the
next generation. A research agenda should include
both primary and secondary prevention and at-
ttempt to fill in the gaps in our knowledge and
understanding of child maltreatment.

The following sections identify a number of re-
cent research contributions and persistent needs in
the areas of physical abuse, sexual abuse, and child
neglect. We subsequently address issues in man-
agement, prevention, and multidisciplinary re-
search, and follow with a summary of suggested
research questions.

PHYSICAL ABUSE

Making the diagnosis of physical abuse requires a
high index of suspicion because the presentation of
abuse is quite variable. In clinical situations, a
child may present with a chief complaint of an
injury or marks on the skin, a chronic somatic or
behavioral problem, or seizures or unresponsive-
ness, or the findings of physical abuse can be dis-
covered incidentally. In obtaining the history
from the parent or caregiver, certain information
can assist the provider in forming a conclusion
about the risk or likelihood of abuse. Classical
teaching stresses that when a child presents with
an injury, two of the most important elements of
the history to assess are 1) whether the explanation
given is plausible as a means of causing the injury,
and 2) whether the developmental level of the child
is consistent with the history. The underlying
assumption is that the parent is the practitioner’s
ally in concern for the welfare of the child. This
belief has been sorely questioned by the study pub-
lished recently involving the use of covert video
surveillance. Two hospitals in the United Kingdom
with technology for covert video surveillance ad-
mitted 39 children with a history of an apparent
life-threatening event. There were concerns on the
part of the practitioners that the illnesses may have
been induced. Southall and colleagues reports that
in 33 of the 39 cases initially presenting as an
apparent life-threatening event by parental history,
there was shocking video documentation of child
physical abuse. This included attempts at suffo-
cation and poisoning; one child suffered a fracture
of the upper extremity. At baseline, it would be
interesting to know how often do parents lie or
fabricate stories to doctors about their children,
and under what circumstances?

The potential implications of this information
are broad and linked directly to the emerging inter-
est in the Munchausen Syndrome by Proxy. The
essence of the problem is fabrication or induction
of illness in the child by the parent, usually the
mother. However, there still is much to be learned
about the prevalence and spectrum of this
syndrome. There are clearly differences between
concerned parents who overinterpret normal signs
and symptoms in their children and parents who
lie about the presence or magnitude of symptoms to
gain the attention of medical professionals. To
distinguish between the two categories is not al-
ways easy. Consider also exactly how different
should we consider the latter group of parents who
lie, from parents who first inflict injury and then lie about the mechanism of injury, when the end result in both cases is harm to the child.29

Sorting through historical information can be very challenging. Several recent studies are helpful when one of the major hurdles to overcome is could this injury have occurred by some other means? Chadwick and co-workers reported on injuries to children who presented to the children’s trauma center with a history of a “fall.”22 They evaluated the history given by the caretakers regarding the height of the fall in relation to the injury of the child. The risk of mortality from falling a distance of 1 to 4 feet versus falling from a significant height (>10 feet) was seven times higher based on the history! All seven children who died with a parentally provided history of short distance falls had subdural hematomas and cerebral edema; 5 of 7 had associated injuries including bruises and old fractures. The study concluded that it is unlikely for a child who presents after a fall from a short height to have a significant injury. If there is such an injury, investigation for additional evidence of abuse is warranted.

A similar conclusion was reached by Shugerman and researchers in the evaluation of epidural hematomas in children.28 In a retrospective chart review of children younger than 3 years of age, only 6% of those with a diagnosis of epidural hematoma carried a secondary diagnosis of child abuse, compared with 47% of children with subdural hematoma. Of the children with subdural hematoma, 82% of those attributable to child abuse had evidence of other injury on examination.

In a retrospective chart review of fatal, nonaccidental head injuries in children, investigators evaluated the timing of the injury relative to the onset of symptoms.29 In 75% of cases involving shaking and/or blunt trauma, presentation to the medical facility for severe life-threatening symptoms (ie, apnea) occurred fewer than 24 hours after the injury. Shaking is known to cause diffuse axonal injury that explains why in the majority of cases it is unusual for children to act completely normal after sustaining a severe injury.29,30 Careful scrutiny should be applied in cases in which the history seems contradictory based on the severity of the head injury.

The previous studies illustrate the importance of understanding the relationship between mechanism of injury and clinical presentation. Knowing the basis for the injury can assist clinicians in determining whether the given history of injury is credible. This remains at the heart of the debate regarding whether significant head injury can be the result of shaking alone or whether an impact event is truly required.26,30 Autopsy studies have often found evidence of impact in up to 85% of cases.30 Biomechanical studies have demonstrated that the forces required to cause such head injuries are not trivial, and forces generated during ordinary play activities are not strong enough to cause this type of injury.8,30

Developing the scientific basis for the diagnosis of child physical abuse is one reason to focus on the biomechanics of injury. More studies are needed on the injuribility of children, and several authors have suggested creating a national database of injuries similar to the National Emergency Injury Surveillance System for additional study.27 Two compelling reasons exist to promote a project such as this. First, the sensitivity and specificity of histories for a given injury can be refined. Given the potential for unreliable histories, this takes on paramount importance. Second, there is some speculation that the epidemiology of abuse is changing and that injuries are becoming more severe as violence in society increases.3 The results of the latest NIS indicate this trend, although the reasons for this change are unclear. Such a database could help keep track of child abuse-associated injuries and trends in severity.

SEXUAL ABUSE

A specialty area considered still in its infancy, medical research has made significant contributions to advance the knowledge of sexual abuse and its manifestations in children.14 The child who has experienced sexual abuse may present acutely; although in contrast to older victims, most childhood sexual abuse is not disclosed or discovered for some time after the event has occurred.2 The approach to child sexual abuse therefore required modifications of models for sexual assault, and guidelines currently exist to assist in the interviewing of parents and children and for the physical examinations of children in both the acute and the nonacute settings.14 Given that the physical examination is normal in a significant percentage of cases, historical elements play a key role in diagnosis.

In the clinical setting, concerned parents often bring children in with questions regarding behaviors that ignite the fear that their child has been sexually abused. The basis for the current understanding of children’s behavior is derived from research studies that have attempted to establish a sense of normalcy. Friedrich and colleagues’ work exploring normative sexual behavior in children (screened to exclude those with a history of sexual abuse) serves as this frame of reference.31 The early study published in Pediatrics in 1991 was conducted on a primarily white, well-educated, middle-class section of the population. It demonstrated a wide range of behaviors that were age-related and dependent on factors such as maternal education and family sexuality. A similar study design was used in repeating the study with a population of children from more diverse backgrounds (ethnically and socioeconomically), with similar results.32 Although designed to detect differences among the populations, the second sample still consisted of mostly well-educated (mean: 14.5 years of education), middle-class families (>50% of the family incomes greater than $45 000 per year) with married parents. In addition, children with chronic physical and mental handicaps were excluded from the studies.31,32 More research is needed if
there is reason to believe that the results would be different for a population with fewer socioeconomic resources and a variety of disabling medical conditions, particularly because these groups are considered at greater risk for sexual abuse. Epidemiologic studies that address the likelihood of sexual abuse with a given presentation also would be helpful.\textsuperscript{33} For example, if a child has normal physical examination results and no clear history of abuse, but simply manifests one or several behavioral concerns, what should be the threshold for referral and reporting? And is there a role for a screening tool in the primary care setting?

Normal examination findings can never be used to rule out sexual abuse.\textsuperscript{2} Abnormal examination results can confirm or support historical information or indicate a need for additional investigation in the absence of presenting concerns about sexual abuse.\textsuperscript{2,26} A series of research studies has produced data for a more accurate interpretation of genital anatomic findings. As stated, physical examination findings can be completely normal in sexual abuse, even with a confirmed history of anal or vaginal penetration. A longitudinal study by Berenson established that all girls are born with hymens and that there are anatomic variations that change over time.\textsuperscript{14} The remarkable ability of hymenal and perineal tissue to heal after physical trauma from a multitude of causes has been demonstrated, often leaving no evidence of prior trauma. Whereas previous studies focused on the transverse diameter of the hymenal opening, it has been shown to matter less in the evaluation of sexual abuse than the character and appearance of the hymen itself.\textsuperscript{25} The current anatomic findings considered suspicious for sexual abuse are located inferiorly; in the supine position, this refers to findings below an imaginary line across the vaginal opening from the 3 o’clock to the 9 o’clock position. Suspicious findings consist of irregularity, notches, absence of posterior hymen, tears, and lateral and posterior margins that measure <1 mm across. More research is needed because even expert examiners often have difficulty agreeing on physical examination findings from pictures of genitalia.\textsuperscript{14,34,35} The variation in appearance of the hymen with different states of relaxation can make these difficult to interpret. The use and necessity of the colposcope are controversial. There are several compelling reasons to use the colposcope, including preservation of physical examination findings by photographic or video means, comparison with future examination results, and gathering opinions from experts in difficult cases.\textsuperscript{2} The optimal use of the colposcope has yet to be defined.

As in the case of physical abuse, when there are findings on physical examination, one of the first issues to consider is whether the findings could have occurred by some other means. A prospective study of perineal findings after witnessed trauma conducted by Bond and associates, although small, begins to confront this issue.\textsuperscript{36} They evaluated 56 children and discovered that damage to the hymen was unusual in cases without penetrating trauma.

Despite the significant progress made through research, many unanswered questions related to sexual abuse and sexually transmitted diseases remain. For example, at present, medical opinion is that certain sexually transmitted diseases are indicators of sexual abuse in prepubertal children, including infection with gonorrhea and syphilis.\textsuperscript{26} However, the data are lacking for definitive diagnoses with other common pathogens like chlamydia and Trichomonas.\textsuperscript{26} Controversy also remains regarding the transmission of herpes viruses and human papillomaviruses because of their latent states and the variable duration of viral shedding. Longitudinal studies could be helpful in sorting this out.

A comprehensive medical research agenda for childhood sexual abuse was published recently in the spring 1998 issue of Child Abuse and Neglect.\textsuperscript{14} Proposed research priorities include the items noted above, as well as the epidemiology of sexual abuse, particularly among boys; behavioral manifestations of sexually abused children and the relationship to outcome; the impact of the diagnostic process on the sexually abused child; and the forensic utility of physical examination findings in legal proceedings. (Refer to this issue for a more detailed discussion of research needs in this area.)

\textbf{CHILD NEGLECT}

Child neglect is commonly associated with the medical diagnosis of failure to thrive (FTT).\textsuperscript{37,38} The differential diagnosis of FTT is very broad; it may be caused by medical conditions, psychosocial conditions, or a combination of both. Social considerations such as poor parenting skills and lack of material resources are readily entered into the differential by most clinicians. Previous studies suggest that approximately 10% of children hospitalized with FTT have a purely psychosocial etiology for the condition, in contrast to children in the outpatient setting where psychosocial etiologies are predominant.\textsuperscript{37,38} The majority of children diagnosed with FTT are younger than 18 months of age; however, child neglect does not magically end in early childhood. Older children also can fail to thrive in their social and academic environments. Clinically, children can vary in their presentation: behavior problems, school failure, poor hygiene, and unintentional injuries can bring children to medical attention. A potpourri of social dynamics may contribute to this presentation, including poor parenting skills, poverty, poor supervision, familial or parental substance abuse, parental absence or abandonment, and malicious withholding of basic necessities.\textsuperscript{26} These social dynamics can have long-lasting effects on children and their overall prosperity and achievement. Research on the most effective interventions in this setting are not well studied, and guidelines for when to involve social services are not readily available unless the child is in imminent danger.\textsuperscript{26,38} Certainly, continuity of care and careful history-taking are important. However, for children who present with a fall or burn because of improper supervision, there is little re-
An analysis also might detail the far-reaching ef-
counts of sexually abused children in the nation.
from a sexual offender would actually bolster the
glect involving a caretaker unable to protect a child
search may discover that gathering all cases of ne-
this reason alone, an in-depth analysis of the epi-
gical care. Using this raw data, we estimated that
ents reported that on two or more occasions, they
12% of parents left their child home alone even
reported being “so caught up with problems” that
they couldn’t express love to their child, and no
parents reported that on two or more occasions, they
were “so drunk or high” that they had trouble car-
ing for their child; and 3) reassuringly, no parent
reported being “so caught up with problems” that
they couldn’t express love to their child, and no
parent reported an inability to access needed med-
care. Using this raw data, we estimated that
approximately 40 per 1000 children, equivalent to
greater than 2.3 million children, are neglected
each year (Table 1).
Paradoxically, despite the prevalence of child
neglect, relatively little research focuses on this
particular area of child maltreatment. The expla-
nation for this oversight may relate to a society that
is itself reactive, and therefore focuses more atten-
tion on acts of commission rather than acts of omiss-
on. Wolock and Horowitz suggest that the legiti-
mization of child maltreatment by the medical
profession called attention primarily to child phys-
ical abuse with its title “The Battered-Child Syn-
drome”. In addition, the strong association be-
tween neglect and poverty makes it politically
 taboo, given the economic resources that would
have to be invested to address the elements of pov-
erty. Whatever the reason for the current lack of
interest, there is much to be gained by investiga-
tion. Considerable overlap with cases of physical or
sexual abuse may occur, such as when the caretaker
is unable or unwilling to protect the child. For
this reason alone, an in-depth analysis of the epi-
demiology of neglect would be quite useful. Re-
search may discover that gathering all cases of ne-
eglect involving a caretaker unable to protect a child
from a sexual offender would actually bolster the
counts of sexually abused children in the nation.
An analysis also might detail the far-reaching ef-
effects of the drug culture and the need for increased
resources in mental health to handle the substance
abuse caseload; or perhaps it would force us to
“confront the crucial deficit in social and environ-
mental supports required to provide adequate child
care” faced by many families in our nation today.
A better understanding of child neglect has the
potential to impact society and assist many families
in need.

**ISSUES IN MANAGEMENT OF CHILD
MALTREATMENT**

The clinician has a limited role in the manage-
ment of child maltreatment aside from the direct
medical consequences of abuse that require hospi-
talization or medication. Once the diagnosis is
made or suspected, there are two major steps to
take: 1) reporting to the appropriate agency, and 2)
documenting carefully. There still is evidence that
physicians do not report suspected child maltreat-
ment. A multitude of factors have been cited in the
literature, but few solutions have been tested.
Additional research in this area should explore
modifiable factors to reduce barriers to physician
reporting. Documentation of findings in both phys-
ical and sexual abuse is very important for medi-
colegal reasons, and recent studies show that skills
in documentation need improvement. Research
is needed to evaluate the most effective means of
medical education in this area. Curriculum devel-
opment could be useful in addressing the perceived
need for more education during residency train-
ing.

Two other issues that are pertinent to manage-
ment in child maltreatment cases are interactions
with social services and the legal system. A logical
scenario depicts a busy physician reporting a case
of abuse or neglect out of concern for his or her
patient’s wellbeing; lack of communication be-
tween a busy social services worker and this phy-
sician leads to frustration and decreased motiva-
tion to report. The pediatrician who values
continuity of care benefits from receiving feedback,
particularly if the child (for one reason or another)
does not return to the practice for medical care.
Quick and efficient ways to improve communica-
tion between social services and primary care pro-
viders may improve reporting behavior. In addi-
tion, studies that show the importance of physician
reporting in improving the welfare of children
could theoretically contribute to this motivation.
Finally, testifying in court in child abuse cases is
perceived as undesirable by physicians. Sugges-
tions for improving the experience to make it mu-
tually beneficial (for the physicians and lawyers
involved) have been discussed in the literature,
such as arranging a pretrial meeting to discuss the
facts of the case. Yet little information is available
about the collective experiences of pediatricians in
the courtroom and the impact of physician testi-
mony in child abuse cases.

**Opportunities for Prevention**

The ecologic model for understanding child mal-
treatment discusses the factors that contribute to
maltreatment including sociocultural factors, par-
ent and/or child characteristics, and triggering sit-
uations that serve as catalysts for maltreatment

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174  **SUPPLEMENT**
Opportunities for primary prevention in the primary care setting can be derived from the ecologic model in at least two ways. In the first, careful assessment of the home environment can identify modifiable and nonmodifiable risk factors for maltreatment. For example, family and social histories that reveal evidence of social isolation or lack of social supports put children at increased risk for maltreatment; a child with a physical disability in this family situation may face an even greater risk. The disability may be permanent, but a physician referral to the local or statewide family support network for families with similarly disabled children can begin to reduce the feeling of isolation.

Second, the ecology of the family may include the presence of or potential for triggering situations. In addition to crying and toilet-training in infancy and early childhood, research could define more specifically the most common situations that act as triggers for maltreatment. In this way, anticipatory guidance could be provided to parents about planning ahead to handle such stressful situations, should they arise. There may be a role for a hotline for distressed parents, as Kempe suggested, to make it “easy for parents to pick up the telephone and get help before they abuse their child.” A screening tool that asks for real or anticipated parental reactions to stressful child-initiated events such as temper tantrums might prove useful. The American Academy of Pediatrics has already established guidelines and an entire program dedicated to preventing unintentional injury using questionnaires to identify high-risk (unsafe) practices among parents. No similar program exists for intentional injury. Additional research to address the role of pediatricians in primary prevention is needed.

Multidisciplinary Research

As presented above, multidisciplinary research is well suited to address the problem of child maltreatment, because many different disciplines are called on to respond when a child is maltreated. To date, few multidisciplinary research studies have been conducted.

Conceptually, collaboration between medicine and public health in the prevention of child abuse makes intuitive sense. The problem is widespread, but individual attention to medical complications

| TABLE 2. Suggestions for Future Research in Child Maltreatment |
|-----------------|-----------------|
| **Epidemiology** |                 |
| Which maltreated children are being missed? |
| What should be included in the child neglect category? And what is the role of poverty? |
| Why is the number of sexual abuse reports leveling off or declining? |
| What are the manifestations and reasons for the increasing severity of physical abuse of children? |
| What is the incidence and spectrum of MSBP? |
| What is the incidence and spectrum of adolescent abuse and neglect? |
| **Diagnosis** |                 |
| What factors facilitate or impede disclosure? |
| When do parents lie or fabricate stories to physicians? |
| What is normal sexual behavior in a diverse population of children? |
| **Reporting** |                 |
| What factors influence physician reporting? |
| What factors influence why private citizens who know about abuse don’t report? |
| Does reporting in states where all citizens are required to report differ from other states? Is it more effective? |
| What do private citizens believe distinguishes discipline from child physical abuse (where should we draw the line)? |
| **Management** |                 |
| When is referral to a child abuse center appropriate? |
| When is testing and treating for sexually transmitted diseases appropriate? |
| When is a colposcopic examination necessary? |
| What is the appropriate follow-up for children who are sexually assaulted? |
| **Training** |                 |
| Will multidisciplinary training sessions facilitate better communication? |
| How do we improve the medical response to child maltreatment? What minimum training and skills are needed? |
| **Mechanisms of injury** |             |
| Should there be a national database of witnessed injuries in childhood? |
| **Treatment** |                 |
| What criteria are used to place children in foster care? |
| What family and social work characteristics predict the effectiveness of family preservation? |
| Will increased involvement by medicine and public health in treatment improve child outcome? |
| **Prevention** |                 |
| Is short-term home visiting as effective as long-term home visiting? |
| Can public health interventions in high-risk neighborhoods decrease child abuse? |
| Will interventions designed to increase social cohesiveness and social capital reduce abuse and neglect? |
| **Outcomes** |                 |
| What factors are associated with convictions for sexual abuse? |
| Is there a difference between intra- and extrafamilial perpetrators on child placement and convictions? |
| Does referral to a child abuse center increase the rate of convictions? |
| Are there neurobiochemical markers that change with chronic abuse? |
| Does the degree of symptomatology at presentation correlate with long-term outcome? Do resilient children become resilient adults? |
| **Global issues** |             |
| Are child abuse rates different in the United States versus other countries? |
is necessary. Two recent prospective longitudinal studies demonstrate the importance and value of collaboration. A 15-year follow-up to the initial 2-year randomized intervention trial of nurse home visitation conducted in the early 1980s by Olds and co-workers was published recently.49 It demonstrated that a medical model (using nurses to assess risk factors and modify their visits to address the needs of the family) applied on a large scale could reduce rates of child maltreatment. Home visiting also impacted the mother’s life course, leading to decreased use of the welfare system and decreased involvement with the criminal justice system. The Longitudinal Study of Child Abuse and Neglect, also known as LONGSCAN, is a multicenter study that is still ongoing.17 It purposes to explore the “antecedents and consequences” of maltreatment, using contributions from medicine, public health, social work, psychology, and the judicial system. The results of the 20-year project will have far-reaching implications in guiding legislative and social policies.

Multidisciplinary studies that address outcomes for children are very important. Medical, psychological, social, and legal issues can compromise a child’s physical and emotional wellbeing before and after maltreatment occurs. Research that evaluates only one area may miss significant consequences in another area. For example, studies that look at the judicial system in a sexual abuse case may applaud the sentencing, but neglect to show the school failure and delinquency that follows without the paternal figure in the household. Thus, multidisciplinary studies can inform the medical community by linking together multiple outcomes.

Suggestions for Future Research

A summary of suggested research questions appears in Table 2. Several suggestions for research discussed in the text are not repeated in the Table.

CONCLUSION

A medical research agenda for child maltreatment is merely a starting point. The ultimate goal of eliminating child maltreatment lies far ahead, but remains the focal point of our efforts. Until that goal is achieved, it is up to us to ensure that children’s stories are heard by reporting to child protective services the history from the one child who comes to the office and says, “someone touched me” to publishing the data on the tens of thousands reported nationwide because of parental substance abuse or poor parenting skills. Pediatricians who become actively involved in the patient care and research arenas have an opportunity to make a difference and raise the consciousness of both medical and social communities to the reality of child maltreatment and the need for additional study. Unfortunately, it is very unlikely that the problem of child abuse will be solved in the doctor’s office alone. Beyond the obvious reasons that social and cultural factors determine much of the risk of maltreatment, pediatric practice focuses primarily on early diagnosis, which is secondary prevention. Primary prevention strategies for physicians are not well studied, and primary prevention strategies in other areas are just now gaining acceptance.50 However, even the best studied prevention strategy (home visiting) thus far has been shown only to reduce child abuse and neglect, not eliminate it completely.49

A medical research agenda for child maltreatment is necessary. In a formal presentation, it performs several functions at once. It highlights priority research needs and demonstrates multiple areas of need. Clinicians are constantly addressing clinical conundrums where data could help but no data exist. We do children a disservice by not increasing research efforts in this area. As echoed by many other sources, there is a need for research training and expanded ownership of the area by federal agencies including the National Institutes of Health and the Centers for Disease Control and Prevention.8,13,14 It encourages multidisciplinary collaboration. Research and training support must be extended beyond medicine to the other disciplines involved in child maltreatment. It emphasizes the commitment of many individuals and organizations who have already invested in research to benefit maltreated children and their families.

As we negotiate the next steps in child maltreatment research, let us remember the faces of the maltreated children we have seen—some resilient and some broken by their experiences—and continue in our quest despite the current challenges. The ultimate goal of eliminating child maltreatment should serve as our anchor. And we should not be moved.

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