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The Identification and Reporting of Physical Abuse by Physicians: A Review and Implications for Research

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Abstract: Identification and reporting of possible cases of child physical abuse are critical precursors to intervention with maltreating families. Professionals from a variety of disciplines are mandated to report suspected cases of child maltreatment. Unfortunately, not all physically abused children are identified or reported. This paper reviews the literature that has examined factors that may influence the identification and reporting of physical abuse by physicians. The literature review is preceded by an overview of the multistep, multibehavior process of identification and reporting. The factors that may influence identification and reporting are discussed according to their association with the case, physician, or setting. Future directions for research in the area of identification and reporting are suggested throughout the paper.

Key Words: Identification, Reporting, Physical abuse, Physicians.

INTRODUCTION

Child maltreatment affects the lives of over 1.5 million children in the United States each year and presents a major social and medical problem (National Center for Child Abuse and Neglect [NCCAN], 1988). The immediate consequences and long-term correlates of maltreatment are well-documented (Hoffman-Plotkin & Twentyman, 1984; Wolfe, 1988). Fortunately, professionals can intervene effectively to mitigate many of the potential ramifications of abuse (cf. Hansen, Conway, & Christopher, 1990). Many variables that increase risk for physically abusive behavior are also amenable to intervention such as parent training, stress management, and anger control training (cf. Walker, Bonner, & Kaufman, 1988). However, abusive parents may not seek treatment themselves. Intervention cannot begin until these families are brought to the attention of treatment agencies. Thus, the multistep, multibehavior process of identification and reporting is a critical antecedent to treatment of abusive families.

The importance of identification and reporting was emphasized in the 1960s, when states began enacting legislation that mandated certain professionals to report cases of possible maltreatment. By 1970, all 50 states had a reporting law that specified who must report, to whom

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reports should be made, and the information that should be included in a report (Council on Scientific Affairs, 1985). Despite mandatory reporting laws, and the importance of identification and reporting in initiating treatment, investigations of reporting behavior reveal that as many as one-third of possible child physical abuse cases remain unidentified and/or unreported (e.g., NCCAN, 1988; Saulsbury & Campbell, 1985). In such cases, the possibility of abuse as the cause of a child's injury may not be identified, or professionals may suspect abuse, but neither document nor report their suspicions. Given the critical role of identification and reporting in the treatment of abusive families, the factors associated with accurate identification and reporting are worthy of investigation. Information on the influence of these factors could have a significant impact on the training programs for mandated reporters.

The purpose of this paper is to review the literature on the identification and reporting behavior of physicians with regard to physical abuse. A definition of physical abuse is presented, and the role of a physician in this area is outlined. A conceptualization of the identification and reporting process and a classification scheme for organizing the variables that may influence identification and reporting are provided. An overview of the research methodologies in this area is included to aid in the synthesis of the research findings. Throughout the review, several issues that require additional empirical attention are emphasized and areas for future research are suggested.

PHYSICAL ABUSE AND THE ROLE OF THE PHYSICIAN

Physical abuse has been defined by NCCAN (1988) as the behavior of a caretaker that results in injury to the child such as hitting, beating, kicking, or burning. Although the consequences of maltreatment may be physical, behavioral, or emotional in nature (Hansen et al., 1990; Wolfe, 1988), the physical manifestations may be the most directly observable consequences. Identification of maltreatment typically depends on the observation of the consequences of child maltreatment rather than direct observation of physically abusive behavior. Identification of physical abuse can be conceptualized as a "discrimination task" or "differential diagnosis," in which injuries incurred accidentally are distinguished from those that were the consequences of physical abuse, or "nonaccidental." This discrimination requires information on the history or etiology of the injury. Medical training and clinical experience with physical injury place a physician in an optimal position to make this discrimination. Physicians were among the first professionals to question the etiology of certain childhood injuries (e.g., Caffey, 1946). In 1962, this questioning culminated in a seminal paper on child abuse that introduced the term battered-child syndrome (Kempe, Silverman, Steele, Droegemueller, & Silver, 1962). Since the 1960s, physicians have had to modify their criteria for suspecting physical abuse as a possible cause of childhood injury. It is now recognized that the prominent features outlined in the early medical literature on the battered child syndrome, such as severe injuries and young children, are not necessarily the most common characteristics of physical abuse. Moderate rather than severe injuries comprise about 60% of the injuries resulting from physical abuse. Maltreatment can occur at any age, however, younger children are significantly more likely to die of injuries resulting from abuse than older children (NCCAN, 1988).

In addition to providing medical care for physical injuries, the current role of the physician in cases of maltreatment includes identifying and reporting suspected abuse to Child Protective Services (CPS) agencies. Through CPS and other agencies, abusive parents can learn more effective methods of discipline and receive other services which target the antecedents and consequences of abuse (cf. Azar & Wolfe, 1989).

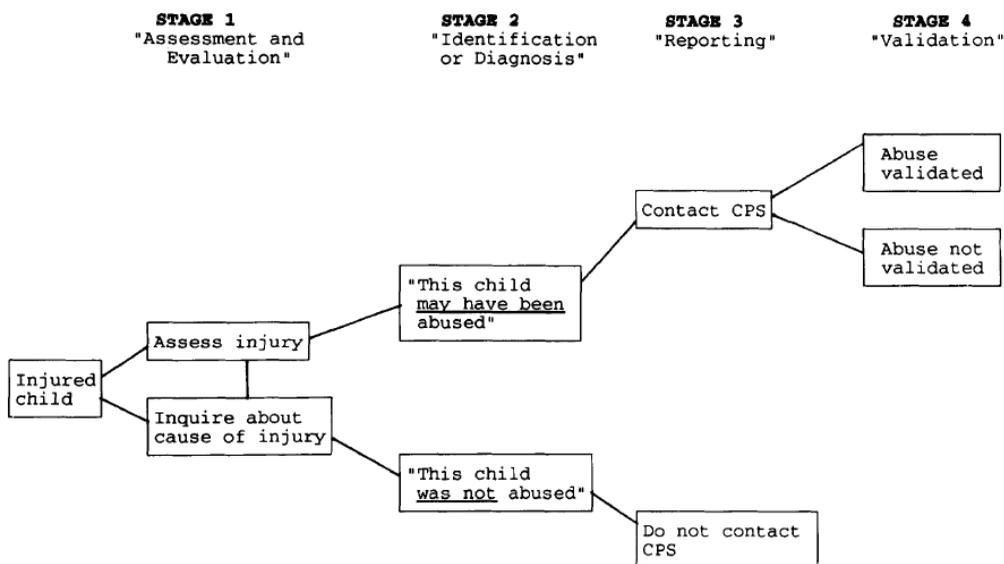


Figure 1. Multistep, multibehavior process of identification and reporting child

THE IDENTIFICATION AND REPORTING PROCESS

The process of identifying and reporting abuse can be divided into four stages:

1. Assessment and evaluation
2. Identification,
3. Reporting, and
4. Validation.

A response at each stage is related to the responses in the preceding stages. Figure 1 shows the conceptualization of the identification and reporting process as a chain of responses.

Assessment and Evaluation

Stage 1 involves the assessment and evaluation of the injury and explanation. Physicians can question the cause of an injury by focusing on when, where, and how the injury occurred, the exact series of events surrounding the injury, and who was present at the time of the injury (Ledbetter & Tapper, 1989). Physicians gather information about the etiology, then they evaluate the information they have collected. Type, severity, and location of the injury, together with the credibility of the parent's answers to a physician's questions, can be used to discriminate abusive from accidental injuries. Certain responses to such questions have been associated with the occurrence of abuse in other cases (e.g., Hammond, Perez-Stable, & Ward, 1991) and may function as cues for identification. If questions regarding etiology of the injury are not asked, a physician may fail to get the information needed to make the discrimination between abusive and accidental injuries. When a physician decides that an injury may have resulted from the behavior (e.g., kicking, burning) of a child's caregiver, Stage 2 of the process has been reached.

Identifying Maltreatment

Stage 2 involves identifying the possibility of abuse. Although the identification of abuse can be conceptualized as a "diagnosis," the two terms are not actually synonymous. The med-

		Physician's Evaluation	
		child might have been abused	child was not abused
Actual Events	child was abused	CELL A "true positive"	CELL C "false negative"
	child was not abused	CELL B "false positive"	CELL D "true negative"

Figure 2. Decision matrix for identification of possible child maltreatment.

ical community uses the term diagnosis to indicate the definitive judgment that a condition is present (Dubowitz, 1990). A physician's judgment that a child may have been abused does not have to be "definitive." Diagnostic precision is not required when physicians identify and report maltreatment (Saulsbury & Campbell, 1985). State reporting laws indicate that the reporter need only "reasonable cause to suspect" that a child was abused (e.g., West Virginia Child Welfare Statutes, 1986, p. 620). Therefore, physicians are identifying the "possibility" that the child was abused. In most communities, when physicians report this possibility to a CPS agency, an investigation is initiated. The results of that investigation, in which a physician may be involved, ultimately discriminate between abused and nonabused children.

To further clarify the discrimination of abused from nonabused children, Figure 2 contains a 2×2 decision matrix. Cells A and D in Figure 2 represent correct identification. When a physician identifies the possibility of abuse in a child who was actually abused (Cell A), this is considered a "true positive," and the case must be reported to CPS. When a child who was injured accidentally is not identified as abused (Cell D), this accurate discrimination is termed a "true negative," and the identification and reporting process is terminated.

A "false negative," one type of inaccurate discrimination, occurs when a child who was abused is not identified (Cell C). The rate of false negatives is extremely difficult to estimate, because these cases do not reach the attention of CPS agencies and are never investigated. A "false positive," the second type of inaccurate identification, occurs when a physician suspects abuse, but the child was injured accidentally (Cell B). Although false positives could be defined as cases in which the physician identified and reported abuse, but a CPS agency did not substantiate the abuse; unsubstantiated cases may not necessarily represent inaccurate identification. A physician may accurately identify abuse, but the case may not be substantiated because there was insufficient evidence (e.g., no remaining evidence of the injury, child denied abuse occurred) at the time of the investigation to validate the report. Unfortunately, factors which prevented a report from being substantiated are not often communicated back to the reporting source.

Reporting Maltreatment

Reporting, Stage 3 of the process, involves contacting the appropriate agency and providing the necessary information. In most cases, reports are made to CPS agencies, though

police may be called for emergency investigations or in especially serious cases (Besharov, 1990). State reporting laws mandate physicians to make the transition from Stage 2 (identification) to Stage 3 (reporting).

Theoretically, because of the reporting laws, the ratio of responding between identification and reporting should be 1:1. If this were the case, then reporting could be conceptualized as cued by identification, and controlled by the reporting laws. Unfortunately, such a 1:1 ratio between identification and reporting is not supported in the literature (e.g., NCCAN, 1988). A recent survey of physician reporting behavior indicated that only 89% of detected (i.e., identified) cases of physical abuse were reported (Badger, 1989). Such figures suggest that reporting is only partially controlled by state reporting laws. Other factors must influence a professional's decision to report.

Validating Maltreatment

Stage 4 involves the events that follow a report of suspected abuse. A social service agency, such as CPS, rather than a physician, typically is involved in the investigation and validation (i.e., substantiation) of the report. In some cases, the services of physicians are utilized by CPS as part of their investigation. This paper does not review the role of physicians involved in the evaluation of children after reports of abuse have been made, however, the validation phase is important in a discussion of the identification and reporting process. The source of reports, that is, the professional who has identified and reported a potential case of abuse, has an important impact on validation. Analysis of statewide child abuse reporting data in Virginia, for example, revealed that physicians reported 8% of the total number of cases reported to CPS between the year 1979 and 1983, and 53% of these cases were validated, the highest validation rate from any reporting source in the state (Saulsbury & Hayden, 1986). Hampton and Newberger (1985), in a review of hospital reporting data, also noted that CPS agencies were most likely to substantiate cases reported by medical professionals, regardless of the severity of the case. These data suggest that reports filed by physicians function as strong cues for CPS to investigate the case and validate abuse.

The factors that increase the validation rates of reports by physicians are not known. Saulsbury and Hayden (1986) suggest that physicians may have a more elevated threshold for suspecting abuse and therefore need more diagnostic certainty before reporting as compared to other professionals mandated to report. Higher validation rates also could result from the fact that physicians, with their training and clinical experience, may be more able than other professionals to accurately discriminate abusive from accidental injuries. On the other hand, perhaps a physician's status within the community of helping professionals influences the decisions of CPS workers investigating the cases. Any of the above interpretations may be correct, but all require further investigation.

The American Medical Association has emphasized the importance of accurate identification and reporting and strongly encourages physicians to become familiar with the reporting laws in their state (Council on Scientific Affairs, 1985). Conceptualization of the identification and reporting process as a chain of events illustrates that events throughout the process are functionally related to events at the preceding stages; however, other variables can influence responding as well. These variables must be examined and, when possible, modified to increase accurate identification and facilitate the reporting of identified cases.

REVIEW OF IDENTIFICATION AND REPORTING LITERATURE

Identification and reporting involves three major elements. The process is initiated by the observation of (a) an injured child by a (b) "potential reporter" (e.g., physician or teacher) in a (c) given setting. If the variables that influence responding throughout the process are or-

ganized according to their association with one of these three elements, then all variables fall into one of three classes: (a) case, (b) professional, or (c) setting. This classification provides a framework for examining the identification and reporting literature. An initial review of the two research methodologies utilized to study identification and reporting behavior facilitates discussion and integration of the research findings.

Overview of Research Methodologies

One methodology can be titled the "case" method because it utilizes actual cases of injured children. The case method may involve reviewing medical records (e.g., Saulsbury & Hayden, 1986) or asking physicians to provide data about their own identification and reporting behavior (e.g., Badger, 1989). The case methodology also can be used in a retrospective fashion to determine injury characteristics that are associated with identification of abuse. For example, Griest and Zumwalt (1989) examined features of childhood drowning that were associated with a postmortem diagnosis of child abuse.

The second methodology, the "analog method," assesses identification and reporting behavior in a more indirect, but more controlled, fashion. For example, investigators may provide physicians with vignettes that contain information analogous to real cases of childhood injury and ask them to respond to variety of questions regarding the cases. Zellman (1990) utilized the analog methodology in a study where subjects read vignettes depicting various parental behaviors analogous to real parent-child interactions. The subjects were asked to rate the abusiveness of the behavior in each vignette and asked to indicate whether they would report any of the cases. Morris, Johnson, and Clasen (1985) demonstrated the utility of using the analog methodology with physicians. The researchers provided physicians with analog cases of child injuries and asked them to indicate whether the injury could have been abusive in nature and whether the case should have been reported.

Identification and reporting cannot be fully understood unless the variables that function to control these behaviors can be investigated. Both of the research methodologies contribute to this goal. The case methodology provides information on characteristics related to abusive injuries as well as direct evidence of reporting behavior; however, manipulation of certain variables may not be feasible. Bringing "cases" of simulated abused children into a physician's office to assess identification and reporting behavior would be less than ideal. Particular variables (e.g., location of injury), which could be studied in the real setting, can be examined more systematically and easily using the analog methodology. The analog methodology permits systematic manipulation of certain variables in the vignettes and the observation of subsequent effects on analog identification and reporting behavior. One potential weakness of an analog assessment is that the responses to the analog situation may not translate into actual behavior in reality.

Once certain injury or situation characteristics have been associated with abusive injuries via the use of case studies, the next step should be to investigate the influence of these characteristics in a systematic fashion using the analog methodology. The presence or absence of these characteristics can be manipulated and the relative impact on identification or reporting examined. As noted in the following sections, the influence of many variables is best understood after contemplating findings from both analog and case research.

Case Variables

"Case variables" refer to all the features particular to the child, parent, family, or injury, including the type of maltreatment. Certain case variables, such as the child's age or severity of the injury, can be ascertained from the medical records or direct observation of the child. Data on

other variables must be gathered by questioning the parent or child. The following discussion delineates several different types of case variables and presents research that has examined their effects on identification and reporting of physical abuse. Although physical abuse is the focus of this discussion, it is important to note that the type of maltreatment is a case variable that affects identification and reporting. Cases of suspected physical abuse are more likely to be reported by medical professionals than cases of physical neglect (Hampton & Newberger, 1985; Saulsbury & Campbell, 1985), whereas suspected cases of sexual abuse are more likely to be reported than cases of physical abuse (Saulsbury & Campbell, 1985). With regard to physical abuse, the type and severity of injury are two case variables related to identification and reporting.

Type and Severity of Injury

If features of a condition are specifically related to a certain disease, these features are called "pathognomonic" signs for that condition. Certain injuries have been acknowledged by physicians as pathognomonic of physical abuse, including shaken baby syndrome, and loop-mark bruises on the skin (Altieri, 1990). Spiral fractures are recognized as being suggestive of abuse in young children who have not started ambulating (Johnson, 1990). Drawings, photographs, and X-rays of abused children with pathognomonic injuries have been produced (e.g., Johnson, 1990; Thomas, Rosenfield, Leventhal, & Markowitz, 1991) and can be used to facilitate identification. Such pathognomonic injuries may be identified more readily than injuries that resemble those that feasibly could result from common accidents.

Morris and colleagues (1985) investigated the identification and reporting behavior of 58 physicians using vignettes that depicted injured children. This study was unique in that each vignette was accompanied by a photograph of an injured child, and contained parental explanations for the injury. Vignettes containing pathognomonic injuries (symmetric immersion burns, linear bruises) were identified as abusive most frequently (81%–95%). Many of the pathognomonic injuries (e.g., symmetric burns) can also be classified as very severe injuries. The severity of the injury, rather than its classification as a pathognomonic injury, may be an important factor. Of the physicians studied by Morris, Johnson, and Clasen (1985), 58% indicated that the seriousness of the injury influenced their identification and reporting behavior. The relative influence of the severity of an injury on identification and reporting must be investigated further. It is important to recognize that the majority of children who are physically abused receive moderate injuries (NCCAN, 1988) which may not be pathognomonic for abuse.

Child abuse may result in very uncommon injuries. Reece (1990) compiled a list of atypical manifestations of physical abuse including fatal pepper aspiration and microwave oven burns. Munchausen syndrome by proxy, another atypical form of child maltreatment, occurs when a caregiver makes up symptoms or induces physical illnesses in the child (McGuire & Feldman, 1989). The caregiver's behavior may result in unnecessary evaluations or treatment for the child, including surgery (Rosenberg, 1987). For the protection of the child, Munchausen syndrome by proxy must also be identified and reported.

Parental Explanations as Cues

In a case study of pediatric burn patients, Hammond and colleagues (1991) attempted to determine case variables that were associated with a history of abuse. Each burn patient was examined for the presence of any of 13 "characteristics which would raise suspicion for abuse." The list of 13 characteristics included a history of previous accidents, unrelated injuries, burns localized to genitals or buttocks, whether the burn appeared older than the stated age, and several forms of discrepancies in the parental responses to the injury (e.g., different explanations for the

injury from different caretakers). The presence of one of these 13 characteristics was predictive in identifying 40% of the actual abuse cases. Presence of two or more of the characteristics increased the predictive value to 62% (Hammond et al., 1991).

One type of discrepancy occurs when parents provide explanations for the injury that are incompatible with other features of the injury, such as location (Ledbetter & Tapper, 1989). For example, certain areas on a child's body are more susceptible to accidental injury than other areas. Bony prominences, such as elbows, chins, and knees, are more likely to be injured and bruised when children fall off bicycles or bump into objects. Thighs, genitals, and the torso are less likely to be hurt accidentally (Pascoe, Hildebrandt, Tarrier, & Murphy, 1979). Physicians should screen for abuse when parents indicate that a child who has an injury in these areas was injured accidentally.

Example discrepancies that have been identified in the literature include:

1. Attributing the accident to a sibling (e.g., Hammond et al., 1991; Hight, Bakalar, & Lloyd, 1979);
2. A delay in bringing the child to medical attention (e.g., Hammond et al., 1991; Right et al., 1979; Ledbetter, Hatch, Feldman, Fligner, & Tapper, 1988);
3. Explanation of injury changes over time (e.g., Hammond et al., 1991);
4. Explanation does not match the developmental capabilities of the child (e.g., Right et al., 1979);
5. Injury is older than stated (e.g., Hammond et al., 1991);
6. No explanation can be provided for the injury (Ledbetter & Tapper, 1989); and
7. Severity of injury does not match the explanation (e.g., Feldman & Brewer, 1984; Helfer, Slovis, & Black, 1977; Kempe et al., 1962; Ledbetter et al., 1988).

Role of Child Misbehavior

Physical abuse frequently occurs when a parent is attempting to discipline a child (Walker et al., 1988). The role of child misbehavior is a case variable that has been recognized recently as a potential precursor to maltreatment. Inclusion of the role of child misbehavior in the etiology of physical abuse does not imply that the child is responsible for, or deserving of, the abuse. Rather, child misbehavior is characterized as a "trigger" that serves as an antecedent to physical abuse (Krugman, 1984). Studies that have examined the identification and reporting behavior of physicians have not included child misbehavior as a variable of interest, although its influence has been investigated with other populations. In an analog study, Dukes and Kean (1989) examined identification and reporting with undergraduates, a population that is not mandated to report and possibly may not have any experience with abuse. The study is reviewed here to illustrate the influence of child misbehavior on identification and reporting and exemplify how this variable can be operationalized for inclusion in research with physicians. Physical abuse, depicted in the study as a child receiving a split lip when he was hit in the face and knocked down by a parent, was presented in two scenarios, one "precipitated" by misbehavior, the other "unprecipitated" (Dukes & Kean, 1989). In all the precipitated versions, the child left a bicycle in the driveway, which the parent subsequently backed over with the car. In the unprecipitated versions, the parent backed over a trash can left by an unspecified person. Subjects ($N = 144$) were asked to rate the abusiveness of the vignette, the extent to which the child was "at fault for the injury," and whether they would report the incident. The unprecipitated vignette was rated as significantly more abusive than the precipitated vignette. There was also a significant relationship between ratings of the extent to which the child was "at fault for the injury" and the likelihood of reporting the incident, such that cases in which the child was viewed as less at

fault were more likely to be reported. In future studies, the influence of this variable could be assessed without the responsibility for the injury being placed on the child. Avoidance of phrases like "at fault for the injury" may help clarify this issue.

Demographic Case Variables

Age and gender: As noted in the NCCAN (1988) study, the incidence of abuse is positively correlated with age and gender, with younger and female children more likely to be abused. Hampton and Newberger (1985) found that cases of physical abuse and/or neglect involving younger children and younger parents were more likely to be reported by hospitals than cases involving older children. Seventy-two percent of the suspected cases involving children less than 5 years old were reported, compared to 43% of the cases involving 13–17-year-olds (Hampton & Newberger, 1985). It may also be that younger children receive more severe, life-threatening injuries and are more likely to come to the attention of hospital staff and be reported.

Howe, Herzberger, and Tennen (1988) used the analog methodology to examine the influence of the child's and parent's age and gender on identification and reporting behavior of 101 professionals from social service agencies. Vignettes depicting abuse of a son were rated significantly more severe than identical vignettes involving a daughter. Vignettes involving physical abuse by a father were rated significantly more abusive than those involving mothers. An exceptional feature of this study was the development of the material in the vignettes. Howe and colleagues (1988) attempted to obtain valid examples of appropriate and abusive forms of discipline to include in their vignettes by asking psychologists and social workers to rate an initial pool of disciplinary techniques. Documentation of the process by which the content of the vignettes is developed and validated may contribute to the authenticity of the analog methodology by providing information on the extent to which the vignettes are representative of actual cases. The methodology used by Howe, Herzberger, and Tennen (1988) could be adapted to investigate identification and reporting with physicians.

Ethnicity and socioeconomic status. Examination of hospital reporting data indicates that African-American and Hispanic families have a higher probability of being reported for abuse than white families (Hampton & Newberger, 1985). In addition, lower income families have a higher probability of being reported than families with incomes of \$25,000 or more (Hampton & Newberger, 1985). Family income appears to be a very influential case variable. Hampton and Newberger (1985) found that the effects of severity of the case impacted the discrimination between reported and unreported cases only after the income variable was eliminated from the analyses. In addition to these case variables, other characteristics related to the physician can impact identification and reporting as well.

Professional Variables

"Professional variables" refers to features of the individual physician. Gender, medical specialty, years since training, ratings of diagnostic accuracy, learning history related to child discipline, and consequences of reporting (e.g., financial costs) are considered professional variables.

Ratings of Diagnostic Accuracy

As noted previously, diagnostic accuracy is not required for reporting. Yet, physicians indicate that their estimate of their diagnostic accuracy influences their decision to report maltreatment. Thirty-eight percent of the 252 physicians surveyed by Saulsbury and Campbell (1985) indicated they would not report a case of physical abuse until they were "certain of

the diagnosis.” Over 85% of the 120 physicians surveyed by Badger (1989) indicated that “being uncertain whether abuse had occurred” was a primary reason for not reporting. Unfortunately, neither study quantified nor provided a definition for “certainty of diagnosis.” It could be that physicians believe that a false positive diagnosis of abuse would have negative consequences for the child, parent, or themselves which would outweigh any potential positive outcomes.

Views on Child Discipline

Physical abuse most frequently occurs as a result of a parent attempting to discipline or modify a child's behavior. A physician's views of child discipline may influence identification and reporting. Views of child discipline may be affected by having children, or by a personal history of maltreatment. Assessment of the potential impact of this variable may involve asking physicians to (a) rate the acceptability of different methods of discipline, (b) provide information on their own background with regard to maltreatment, or (c) describe their parental status.

Ratings of discipline acceptability. The various methods of physical child discipline can be categorized on a continuum of severity. Morris and colleagues (1985) assessed the average acceptability level of various physical discipline techniques by asking physicians to rate 23 techniques on a 3-point scale: acceptable as discipline, not acceptable, reportable as abuse. Examples of the disciplinary techniques included: take away privileges, spank bottom with open hand, slap face, lock in room for one hour. The levels of acceptability varied, but were negatively correlated with likelihood of reporting. Physicians with a higher acceptability level for physical discipline as assessed by the rating scale were less likely to indicate they would report abuse depicted in vignettes (Morris et al., 1985).

Parental status. Views on child discipline are also affected by being a parent. Although a relation between parental status and identification and reporting behavior has not been examined with regard to physicians, such a relation has not been found in research using other populations (e.g., college students, Dukes & Kean, 1989). The role of parental status in identification and reporting should be further examined. In addition to their medical training and clinical experience, physicians who are parents have a learning history related to child injuries and explanations involving their own children. These physicians may be in the most optimal position to identify abusive injuries or discrepant explanations.

Personal history of maltreatment. No studies could be found that questioned physicians about a personal history of abuse, although Howe and colleagues (1988) did ask their sample of social service professionals “if they were emotionally, physically, or sexually abused, or neglected as a child” (pp. 110–111). Thirty percent of the 101 subjects indicated they had been abused, with the majority describing emotional abuse. Subjects who reported a history of maltreatment rated parental behavior in the vignettes as more abusive than subjects who did not report such a history (Howe et al., 1988). The subjects were not provided with definitions or criteria for the various types of maltreatment, and the severity of their maltreatment was not assessed. If this variable is included in future studies, assessment devices that operationalize maltreatment history, such as the Psychological and Physical Maltreatment Scales used by Briere and Runtz (1988), would be useful to include. Although physicians may differ on views of child discipline, they may be more similar with regard to medical training.

Medical Training

Formal training in medical school or residencies may provide physicians with the learning history necessary to discriminate accidental from abusive injuries. Evaluation of 167 residency programs revealed that residents acquired an average of 8 training hours in child abuse during their first and third years, and 7 hours during their second year. Almost half of the training consisted of faculty supervision in treating an abused child, another 25% consisted of lectures (Dubowitz, 1988). Although one might expect general knowledge about maltreatment to increase as students advance through training, a survey of 161 medical residents found no relation between performance on a "maltreatment knowledge questionnaire" and year in the residency program (Woolf et al., 1988). The maltreatment knowledge questionnaire was initially piloted on 20 unspecified experts in the field of maltreatment to validate the content of the questions (Woolf et al., 1988). The examination of more specific components of training, such as clinical experience with pediatric patients, may increase the understanding of which training components are related most closely to accurate identification and reporting.

Training related to child development. If the identification of child abuse is conceptualized as a discrimination task in which abused children are distinguished from nonabused children, then experience with normal child development and accidental injuries may facilitate the discrimination by making deviations from normality more salient. Discrepancies between the explanation for the injury and the child's developmental capabilities would be more pronounced if a physician is familiar with normal child behavior. Research on identification of physical abuse has not addressed this issue.

Clinical experience with pediatric patients. Of the 324 cases of maltreatment identified by physicians in the Badger (1989) survey of 120 physicians, 70% were identified by pediatricians. One might assume that pediatricians, who have extended clinical experience with pediatric patients, are most accurate in discriminating abused from nonabused children. On the other hand, this merely may reflect the fact that pediatricians see more children than either family or general practitioners, thereby increasing the likelihood they will encounter an abused child (Badger, 1989). Two techniques for examining the influence of pediatric clinical experience include (a) excluding physicians who do not see pediatric patients from the analyses (e.g., Saulsbury & Campbell, 1985), and (b) collecting data on the level of pediatric experience. In this manner, the influence of specific components of clinical training (i.e., experience with pediatric patients) can be examined separately from general clinical training.

Training related to reporting procedure. Morris and colleagues (1985) found that 8 of the 31 family physicians (25%) interviewed revealed they would not know who to call if presented with a case of possible maltreatment. An even more surprising finding was that 6% of the pediatricians, 12% of the family practitioners, and nearly 30% of the general practitioners surveyed by Badger (1989) were "unaware" of their legal obligation to report. These data suggest that in addition to training physicians to identify abuse, further instruction regarding the completion of the process (i.e., making the report) is necessary. Even if physicians are aware of their obligation to report, the potential consequences of reporting may affect the likelihood that a physician will identify or report future cases.

Consequences for Reporting

Outlining the possible reinforcers and punishers of identifying and reporting, a type of "cost-benefit" analysis, is the first step in understanding the role consequences may play in in-

fluencing this behavior. Reporting could be construed as a "high-cost" behavior. Pediatricians in busy practices may spend 15–20 minutes with each child (Dubowitz & Newberger, 1989); however, an abused child will require significantly more time. Questioning the parents, providing emergency hospitalization if necessary, and contacting CPS can be very time-consuming activities that decrease the probability of reporting. In addition, these activities may not be financially reimbursed, and result in the loss of opportunities to see other patients for which a physician would be financially reimbursed.

Physicians have provided numerous additional potential negative consequences for reporting, including: potential for malpractice suits, fear of family retaliation, involvement with the court system, and a history of negative interactions with CPS (Badger, 1989; Saulsbury & Campbell, 1985). If action is not taken immediately following a report, a physician may feel as if CPS is not taking their professional expertise seriously (Zellman & Antler, 1990). Continued negative experiences with reporting, including feelings as if no action follows a report, may eventually extinguish reporting behavior. To address the impact of these issues, researchers could assess the identification and reporting histories of their subjects, as the consequences of these experiences may strongly influence identification and reporting behavior in the studies.

Demographic Variables

Physician gender. No studies could be found that systematically examined the relation between the gender of the physician and identification or reporting behavior. Data from studies on other professionals suggest that females tend to rate certain parental behaviors depicted in vignettes as significantly less appropriate than male subjects (Howe et al., 1988). Dukes and Kean (1989) found an interaction between gender and age of the subject, with younger female undergraduates tending to rate vignettes as more abusive than males and older female students. Sadd, Hansen, and Warner (1992) also found that female undergraduates were more likely than male undergraduates to rate behavior depicted in vignettes as abusive and more likely to indicate they would report the cases.

Age of physician. The evidence for an effect of physician age on identification and reporting is mixed. The analog study by Morris and colleagues, (1985) revealed that younger physicians were significantly more likely than older physicians to indicate they would report possible physical abuse. A case study of actual reporting behavior of physicians in Virginia found no direct relation between likelihood of reporting any form of maltreatment (i.e., physical abuse, sexual abuse, or neglect) and age of the physician (Saulsbury & Campbell, 1985). The age of a physician may be correlated with the number of years since the physician was formally trained, and thereby confounded with both content of medical training and years of clinical experience. The content of medical training, which has changed to reflect the medical community's involvement in this area (Alexander, 1990), may be related to the age differences noted in some studies.

Badger (1989) addressed this confound by examining the relation between identification and reporting behavior and years since medical training. Physicians were divided into three groups based on date of graduation from medical school: (a) before 1966, (b) between 1967 and 1977, and (c) after 1977. Physicians trained prior to 1966 were significantly less familiar with the clinical manifestations of abuse, voiced significantly greater distrust of CPS, and acknowledged an increased probability of retaliation from the parents. Physicians graduating after 1976 were significantly more knowledgeable about abuse (Badger, 1989). These findings suggest that investigators should include information on when their subjects were trained as a supplement to the traditional description of subjects' age.

Setting Variables

The final category of variables, "setting variables" refers to the context in which physicians identify and report cases of possible physical abuse. The influence of two setting variables, type of practice and size of community, has been examined.

Only a small percentage of reported cases of physical abuse are reported by private practice physicians (Ten Bensel & Wilcox, 1986). Private practice physicians may not see as many abused children, perhaps because these children are more likely to present in an emergency room or clinic setting. In addition, private practice physicians may work under different contingencies than physicians in larger practices; therefore, the consequences of reporting may be more salient. In group practices or hospital settings, any negative consequences for reporting potentially could be diffused across many individuals. In a private practice, the effects of a negative consequence may be restricted to one or two physicians. Physicians in group practice, or hospital settings, may have many more colleagues available for immediate consultation regarding possible abuse cases (Dubowitz & Newberger, 1989). These colleagues may also serve as models for appropriate identification and reporting behavior, and could provide support for handling the various consequences of reporting.

In addition to the type of practice, the size of the community may affect identification and reporting as well. Badger (1989) noted that physicians practicing in small towns (i.e., population < 20,000) were less likely to report cases of physical abuse than physicians in urban settings. These small-town physicians expressed significantly more concern about negative consequences of reporting than those in larger communities. Physicians in larger towns may be less concerned about the negative consequences for reporting because they are less financially dependent on a given set of families for income.

CONCLUSION

Identification and reporting are critical steps in improving the health status of physically abused children and treating physically abusive parents. However, the process of identification and reporting involves a complex series of responses. At any point during the process, a physician's behavior may be influenced by an assortment of factors. These factors—whether they are associated with the case, the physician, or the setting in which the physician works—must be understood. If possible, situations that prohibit accurate identification or punish reporting must be modified, through either education or changes in current reporting procedures. Efforts must be made to increase a physician's exposure to variables that facilitate or reinforce identification and reporting. Focusing on the positive outcomes, for both families and physicians, may be the most productive approach. Physicians may be the first to suspect abuse in an injured child, and if that child is accurately identified and reported, the overall health status of the child may improve. The parents can be connected with services that can change their abusive behavior help them cope with other stressors that may be impacting their parenting ability.

For physicians, positive outcomes could be programmed into the reporting process. Zellman and Antler (1990), for example, suggest that special phone lines staffed by well-trained employees be installed specifically for the use of mandated reporters. Such a system may result in a reduction in the time required to make a report. Economic compensation for a physician's time, in both the office and court, could be awarded. Social service agencies could ensure that physicians are informed about the progress of their report through the various agencies and the status of the child and family (e.g., abuse validated, child removed from home, information on why the case was not validated, etc.). Many physicians may not have accurate information about the probability of encountering negative consequences for reporting. Information regarding the frequency with which negative consequences actually occur would be useful data

that could be gathered in a survey of physicians who have had experiences with reporting. These data then could be incorporated into instructional packages designed to educate physicians about the "realities" of identifying and reporting maltreatment.

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Resume: L'identification et le signalement de cas de maltraitance physique d'enfants sont des étapes critiques, puisqu'elles précèdent l'intervention dans les familles abusives. Des professionnels appartenant à une variété de disciplines sont obligés de signaler les enfants suspects de mauvais traitements. Malheureusement tous les cas ne sont ni identifiés ni signalés. Cet article passe en revue la littérature analysant les facteurs qui influencent les médecins au cours de l'identification et du signalement d'enfants battus. Ce résumé de la littérature est précédé par un passage en revue des différentes étapes et des divers comportements qui sont à la base de l'identification et du signalement. Les facteurs qui peuvent influencer ce processus sont discutés en fonction de leur association au cas, au médecin ou au contexte. Des directives qui concerne l'identification et le signalement de cas d'enfants battus sont proposées pour l'avenir.

Resumen: La identificación y reporte de casos posibles de abuso físico son precursores críticos ala intervención con familias maltratantes. Los profesionales de una variedad de disciplinas están obligados a reportar los casos en que se sospecha maltrato contra los niños. Lamentablemente, no todos los niños abusados físicamente son identificados ni reportados. Este trabajo revisa la literatura que ha examinado los factores que pueden influir en la identificación y el reporte de abuso físico por los médicos. La revisión de la literatura está precedida por una visión del proceso multi-pasos y multi-conductual, de identificación y reporte. Los factores que pueden influir la identificación y el reporte son discutidos de acuerdo a su asociación con el caso, el médico, o el contexto. Se sugieren futuras direcciones para la investigación en el area de la identificación y el reporte através del trabajo.