Joint Statement on Shaken Baby Syndrome

Canadian Association of Chiefs of Police
Canadian Institute of Child Health
Canadian Paediatric Society
Canadian Public Health Association
Child Welfare League of Canada
Health Canada
Saskatchewan Institute on Prevention of Handicaps
The Canadian Bar Association

Canada

Our mission is to help the people of Canada
maintain and improve their health.
Health Canada

Également offert en français sous le titre
Déclaration conjointe sur le syndrome du bébé secoué

For additional copies, please contact:
Publications
Health Canada
Address Locator 0900C2
Ottawa, Ontario K1A 0K9
Tel.: (613) 954-5995
Fax: (613) 941-5366

This publication is also available on Internet at the following address:
www.hc-sc.gc.ca

This publication can be made available in/on computer diskette/large print/audiocassette/braille upon request.

Suggested citation: Health Canada. *Joint Statement on Shaken Baby Syndrome*, Minister of Public Works and Government Services, Ottawa, 2001.

Published by authority of the Minister of Health

Cat. 0-662-66160-5
ISBN. H39-596/2001

Working Group Members

Canadian Institute of Child Health
Canadian Paediatric Society
Health Canada - Centre for Health Human Development
Division of Childhood and Adolescence
Family Violence Prevention Unit
Child Maltreatment Section
Saskatchewan Institute on Prevention of Handicaps

Health Canada especially wishes to thank the Saskatchewan Institute on Prevention of Handicaps for coordinating and overseeing this project.

Health Canada also wishes to the acknowledge the following individuals for their expert contribution:

Ron Ensom, MSW, RSW
Child and Youth Protection Service
Children's Hospital of Eastern Ontario
Ottawa, Ontario

Dr. Marcelina Mian, MDCM, FRCPC, FAAP
Suspected Child Abuse and Neglect Program
Hospital for Sick Children
Toronto, Ontario

Co-Signatories

Canadian Association of Chiefs of Police
Association Canadienne des Chefs de police

Canadian Institute of Child Health
Institut canadien de la santé infantile

Canadian Public Health Association
Association canadienne de santé publique

Canadian Paediatric Society
Société canadienne de pédiatrie

Child Welfare League of Canada
Ligue pour le bien-être de l'enfance du Canada

Saskatchewan Institute on Prevention of Handicaps
Our Goal is Healthy Children

THE CANADIAN BAR ASSOCIATION
L'ASSOCIATION DU BARREAU CANADIEN
The voice of the Legal Profession
La voix de la profession juridique

Health Canada
Santé Canada

Statement of Purpose

Shaken Baby Syndrome is a preventable tragedy. There are several purposes for the Joint Statement on Shaken Baby Syndrome: (1) to create a common understanding, based on current evidence, of its definition, cause, outcomes and consequences for the family and community; (2) to stimulate the development of effective ongoing local and national prevention strategies; and (3) to encourage the provision of support for affected children and families. The statement provides a basis for work in developing multidisciplinary guidelines for the identification and management of Shaken Baby Syndrome. It is a tool that can be used to extend knowledge about Shaken Baby Syndrome throughout Canada.

Audience

Professionals who work in the areas of health, child welfare, police services, justice, education and social services; governments; organizations; communities; and interested members of the general public.

Terminology

Shaken Baby Syndrome is often referred to as shaken/impact syndrome because impact trauma, or blows to the head, is commonly found associated with it and may be an important factor in its causation. The term "Shaken Baby Syndrome," or "SBS," has gained common acceptance and will be used throughout the statement. The terms "baby," "infant" and "child" will be used interchangeably.

What is Shaken Baby Syndrome?

Shaken Baby Syndrome is a collection of findings, all of which may not be present in any individual child with the condition. Injuries that characterize Shaken Baby Syndrome are intracranial haemorrhage (bleeding in and around the brain); retinal haemorrhage (bleeding in the retina of the eye); and fractures of the ribs and at the ends of the long bones. Impact trauma may produce additional injuries such as bruises, lacerations or other fractures.

Shaken Baby Syndrome is a condition that occurs when an infant or young child is shaken violently, usually by a parent or a caregiver. Some experts believe that impact trauma to the head is a necessary component of the mechanism of injury. Signs of impact may or may not be visible because the impact, which produces sudden deceleration of the head (i.e. the head's movement comes to a sudden stop), may be against a soft object such as a mattress.

What is the incidence of Shaken Baby Syndrome?

Currently, there is no definitive answer to the question of how many babies are affected by Shaken Baby Syndrome in Canada. The incidence of Shaken Baby Syndrome may be severely underestimated due to missed diagnosis and underreporting.

Which children are most at risk?

Shaken Baby Syndrome can occur at any age but occurs most frequently in infants less than one year of age. A baby's demands, especially crying, can become the trigger for a frustrated parent or caregiver to shake a child. Infants are particularly susceptible because of their relatively large heads, heavy brains and weak neck muscles and because they are shaken by people who are much larger and stronger than they are.

How forceful a shaking causes injury?

The severity of the shaking force required to produce injury is such that it cannot occur in any normal activity such as play, the motions of daily living or a resuscitation attempt. The act of shaking that results in injury to the child is so violent that untrained observers would immediately recognize it as dangerous.

Is Shaken Baby Syndrome child abuse?

Shaken Baby Syndrome, with or without impact trauma, is a form of child abuse. When it is suspected, it will be investigated by the police because it is a form of assault which is a criminal offence in Canada. It will also be investigated by the provincial or territorial child welfare authority because a child with an inflicted injury, and other children in the same environment, may be in need of protection.

How is the brain injured?

Violent shaking has its most serious effect on the infant's head, causing it to whip backward and forward and to undergo rotational forces. The shaking causes the shearing of blood vessels around the brain, leading to a subdural haematoma (a haemorrhage around the brain). The brain itself may be injured as it smashes against the skull during shaking. Nerve cells in the shaken brain may be damaged or destroyed. As a consequence of these injuries, brain swelling and a lack of blood and oxygen may result, producing further damage. The resulting brain dysfunction can be manifested in a number of ways.

What are the signs and symptoms of injury?

Infants who have been shaken may have symptoms ranging from irritability or lethargy and vomiting, to seizures or unconsciousness with interrupted breathing or death. Babies with relatively mild shaking have symptoms similar to a viral illness. Caregivers and even physicians who are not aware of what has happened to the baby may not detect the head injury, or rib and long bone fractures, and may attribute the baby's fussiness to a more benign cause such as the "flu."

The more serious the child's neurological injury, the more severe the symptoms and the shorter the period of time between the shaking and the appearance of symptoms. From the time of the shaking these children do not look or act as usual – they may not eat or sleep or play normally.

Babies who are shaken may be brought to medical attention by a caregiver who offers no history of injury, a vague account of events or an explanation that is not consistent with the physical findings. Unless the physician is aware of the possibility of abuse and knowledgeable about the signs of Shaken Baby Syndrome, the cause of these children's symptoms can be missed.

What are the long-term health consequences?

The outcome for infants who suffer brain damage from shaking can range from no apparent effects to permanent disability, including developmental delay, seizures and/or paralysis, blindness and even death. Survivors may have significant delayed effects of neurological injury resulting in a range of impairments seen over the course of the child's life, including cognitive deficits and behavioural problems. Recent Canadian data on children hospitalized for Shaken Baby Syndrome show that 19% died, 59% had neurological, visual impairment and/or other health effects and only 22% appeared well at discharge. Recent data indicate that babies who appear well at discharge may show evidence of cognitive or behavioural difficulties later on, possibly by school age.

What care will affected children and families need?

It is likely that most children with Shaken Baby Syndrome will require special services for the duration of their lives. These services may include health and mental health care, speech and language, infant stimulation, rehabilitation and special education. Additional supports such as residential placement, adapted housing and employment advocacy may also be needed. Long-term effects are experienced by birth, adoptive and foster families of children affected by Shaken Baby Syndrome. Non-abusing parents may require additional support from health, social and legal services.

Why do people shake babies?

This is not fully understood. It is related, in part, to the stress a caregiver can feel in looking after an infant. When exhausted or frustrated by a baby's crying, some people react violently and shake the child. Other situations known to trigger shaking are toileting and feeding difficulties. As with other forms of child abuse, shaking may be repeated and accompany other kinds of maltreatment.

Are some people more likely to shake babies?

Shaken Baby Syndrome occurs in all socio-economic groups and, probably, in all cultures. Canadian research has shown that the babies who are shaken are most often male and under six months of age. The research also identified biological fathers, stepfathers and male partners of biological mothers as more likely to shake an infant. Female babysitters and biological mothers are also known to shake babies.

Some risk factors commonly associated with child abuse, including Shaken Baby Syndrome, are social isolation, family violence, substance abuse, psychiatric conditions, an adult having been abused as a child/youth, poor parental attachment to a child, and inadequate knowledge of child development. Shaken Baby Syndrome also occurs in families with no apparent risk factors.

What can we do about Shaken Baby Syndrome?

The identification, evaluation, investigation, management and prevention of Shaken Baby Syndrome require a multidisciplinary approach that relies on the knowledge, skills, mandate and jurisdictional responsibilities of key disciplines. There is a need for shared commitment and coordination among health, child welfare, police, social services, justice and education professionals, as well as the community at large. Knowledge of Shaken Baby Syndrome should be provided in the professional education of all the involved disciplines, and ongoing education needs to be provided as new developments occur in the field.

The medical evaluation of an infant with suspected Shaken Baby Syndrome requires a multidisciplinary health team approach. Expertise in Shaken Baby Syndrome is needed within the specialties of emergency medicine, intensive care, critical care, neurosurgery, neurology, ophthalmology, orthopedics, radiology, pathology, paediatrics, family medicine and allied health professions. Not all these professionals will be available or needed in every case.

What are the legal implications of shaking a baby?

Shaking a child is not a recognized method of discipline; forceful shaking is child abuse and a criminal assault. The legal implications of Shaken Baby Syndrome involve child welfare and criminal investigations. These investigations will determine whether it is safe for children to remain in their parents'/ caregivers' care, and whether an individual is charged with a criminal offence such as assault or homicide. All disciplines involved in this aspect of the problem, including social workers, police officers, lawyers (for the Crown and defence), as well as judges and probation officers require knowledge of the etiology, effects and outcomes for these children so as to provide the optimal intervention.

How can shaking a baby be prevented?

Strategies must be designed to educate the entire Canadian population – adults and youth – about the dangers of losing control when caring for an infant. Key messages should explain that the most common trigger causing an individual to shake a baby is the child's crying, and that physical discipline has no place in caring for children. The emphasis should be: "Never shake a baby!", and to seek help if a baby's demands create anger or frustration making it difficult for a person to maintain control. Parents need to learn that there are alternative strategies for dealing with exhaustion and feelings of frustration toward a baby, and that caution must be taken in choosing alternate caregivers. Great caution should be used in letting inexperienced caregivers, those who have difficulty controlling their anger and those with any resentment toward an infant look after a baby, even for a short time.

Targeted approaches to prevention should be provided to those considered to be at higher risk for abusing a child. Those identified by research as more likely to injure children – young parents, males, parents and caregivers burdened by high stress and those with aggressive tendencies – need to be cautioned.

These messages can be delivered through professional organizations, public education campaigns such as public service announcements, parenting education programs, parent support networks, school curricula, and many organizations which provide services to people.

Recommendations

Data collection and surveillance

Existing surveillance systems – such as the Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP), the Canadian Paediatric Surveillance Program, the Canadian Collaborative Study on Shaken Impact Syndrome, and the Canadian Incidence Study of Reported Child Abuse and Neglect – should be used to collect national data on an ongoing basis. Researchers, practitioners and policy makers must have access to these data at provincial/territorial and regional levels.

Research

Research is needed in the areas of general knowledge of the injury caused by shaking a baby; psycho-social aspects of Shaken Baby Syndrome including family history, risk factors, the profiles of perpetrators and the triggers of violent behaviour; and the long-term consequences for survivors. Shaken Baby Syndrome prevention programs must also be evaluated to determine their effectiveness.

Prevention

Prevention efforts should be built on a broad population health basis and should comprise a variety of approaches such as popular media and school curricula. Strategies should provide the general public and targeted audiences not just with the caution regarding shaking a baby but with guidance for coping with the demands of a baby. National, provincial/territorial, regional and local preventive strategies should include an increased implementation of accessible parent support programs. Approaches targeted to those at higher risk for violence include child development, parenting programs and anger management.

Care and treatment

Personnel with training in developmental disabilities and early intervention and in education programs are needed to help survivors of Shaken Baby Syndrome and their families. Accessible professionals with expertise in child abuse must be identified at the provincial/territorial or regional level to consult with social workers, child protection agencies, and legal and forensic authorities.

Law enforcement and justice

Education regarding Shaken Baby Syndrome should be provided to those involved in the child welfare and justice systems including child protection personnel, police, medical examiners/coroners, prosecutors, lawyers and judges.

Community response

Multidisciplinary services and supports should be available to survivors of Shaken Baby Syndrome, and to biological, adoptive and foster families affected by it.

Professional Training

Protocols and guidelines should be developed to ensure appropriate and consistent response to Shaken Baby Syndrome. These guidelines should provide for the continued development of expertise in the identification, treatment and management of all aspects of Shaken Baby Syndrome, and for its prevention.

Sources

American Academy of Pediatrics. Committee on Child Abuse and Neglect. Shaken baby syndrome: Rotational cranial injuries -- technical report. *Pediatr* 2001;108:206-210.

American Academy of Pediatrics. Committee on Child Abuse and Neglect. Distinguishing Sudden Infant Death Syndrome from child abuse fatalities. *Pediatr* 1994;94:124–126.

American Academy of Pediatrics. Committee on Child Abuse and Neglect. Shaken Baby Syndrome: Inflicted cerebral trauma (RE9227). *Pediatr* 1993;92:872–875.

Atwal GS, Rutty GN, Carter N, Green MA. Bruising in non-accidental head injured children; a retrospective study of the prevalence, distribution and pathological associations in 24 cases. *Forensic Sci* 1998;96:215–230.

Banaschak S, Brinkmann B. The role of clinical forensic medicine in cases of sexual child abuse. *Forensic Sci Int* 1999;99:85–91.

Barlow KM, Minns RA. The relation between intracranial pressure and outcome in non-accidental head injury. *Dev Med Child Neur* 1999;41:220–225.

Barlow KM, Gibson RJ, McPhillips M, Minns RA. Magnetic resonance imaging in non-accidental head injury. *Acta Paediatr* 1999;88:734–740.

Bass M, Kravath RE, Glass L. Death-scene investigation in sudden infant death. *New Engl J Med* 1986;315:100–105.

Beckman CR, Groetzinger LL. Treating sexual assault victims. A protocol for health professionals. *Physician Assist* 1990; 14:128–130.

Bonnier C, Nassogne MC, Evrard P. Outcome and prognosis of whiplash shaken infant syndrome; late consequences after a symptom-free interval. *Dev Med Child Neurol* 1995;37:943–956.

Brewster AL, Nelson JP, Hymel KP et al. Victim, perpetrator, family, and incident characteristics of 32 infant maltreatment deaths in the United States Air Force. *Child Abuse Negl* 1998;22:91–101.

Brown JK, Minns RA. Non-accidental head injury, with particular reference to whiplash shaking injury and medico-legal aspects. *Dev Med Child Neurol* 1993;35:849–869.

Bruce DA, Zimmerman RA. Shaken impact syndrome. *Pediatr Ann* 1989;18:482–494.

Butler GL. Shaken baby syndrome. *J Psychosoc Nurs* 1995;33:47–50.

Byard RW, Krous HF. Suffocation, shaking or sudden infant death syndrome: Can we tell the difference? *J Pediatr Child Health* 1999;35:432–433.

Caffey J. On the theory and practice of shaking infants. *Am J Dis Child* 1972;124:161–169.

Canadian Medical Association. Infants dead on arrival. *Clin Practice Guidelines, CPG Infobase*, http://www.cma.ca/cpgs, 1999.

Carty H, Ratcliffe J. The shaken infant syndrome: Parents and other carers need to know of its dangers. *Br Med J* 1995;310:344–345.

Chabrol B, Decarie JC, Fortin G. The role of cranial MRI in identifying patients suffering from child abuse and presenting with unexplained neurological findings. *Child Abuse Negl* 1999;23:217–228.

Chabrol B, Fortin G, Bernard-Bonnin AC et al. [Management and prevention of abuse in Quebec: A program of sociolegal paediatrics at the Sainte-Justine Hospital in Montreal]. *Arch Pediatr* 1998;5:1366–1370. [Article in French]

Chadwick DL, Kirschner RH, Reese RM et al. Shaken baby syndrome—A forensic pediatric response. *Pediatr* 1998;101:321–323.

Chiocca EM. Shaken baby syndrome: A nursing perspective. *Pediatr Nurs* 1995;21:33–38.

Collins KA, Nichols CA. A decade of pediatric homicide: A retrospective study at the Medical University of South Carolina. *Am J Forensic Med Pathol* 1999;20:169–172.

Committee on Child Abuse and Neglect, 1993–1994. Shaken baby syndrome: Inflicted cerebral trauma. *Del Med J* 1997;69:365–370.

Conway EE Jr. Nonaccidental head injury in infants: "the shaken baby syndrome revisited." *Pediatr Ann* 1998;27:677–690.

Coody D, Brown M, Montgomery D et al. Shaken baby syndrome: Identification and prevention for nurse practitioners. *J Pediatr Health Care* 1994;8:50–56.

Crocker D. Innovative models for rural child protection teams. *Child Abuse Negl* 1996;20:205–211.

David TJ. Shaken baby (shaken impact) syndrome: Non-accidental head injury in infancy. *J Royal Soc Med* 1999;92:556–561.

DiScala CM, Sege R, Li G, Reece RM. Child abuse and unintentional injuries: A 10-year retrospective. *Arch Pediatr Adolesc Med* 2000;154:16–22.

D'Lugoff MI, Baker DJ. Case study: Shaken baby syndrome—One disorder with two victims. *Public Health Nurs* 1998;15:243–249.

Driver D. Too many shaken babies in Canada, doc says. *The Medical Post*, September 14, 1999:60.

Duhaime AC, Christian C, Moss E, Seidl T. Long-term outcome in infants with the shaking-impact syndrome. *Pediatr Neurosurg* 1998;24:292–298.

Duhaime AC, Christian CW, Rorke LB, Zimmerman RA. Nonaccidental head injury in infants—The "shaken baby syndrome." *New Engl J Med* 1998;338;1822–1829.

Duhaime AC, Gennarelli TA, Bruce DA et al. The shaken baby syndrome. A clinical, pathological, and biomechanical study. *J Neurosurg* 1987;66:409–415.

Fitzpatrick D. Shaken baby syndrome fatalities in the United States. *National Information, Support and Referral Service on Shaken Baby Syndrome* 1998;Autumn.

Giles EE, Nelson MD. Cerebral complications of nonaccidental head injury in childhood. *Pediatr Neurol* 1998;19:119–128.

Gilliland MG, Folberg R. Shaken babies—Some have no impact injuries. *J Forensic Sci* 1996;41:114–116.

Gilliland MG. Interval duration between injury and severe symptoms in nonaccidental head trauma in infants and young children. *J Forensic Sci* 1998;43:723–725.

Goldstein B, Kelly MM, Bruton D, Cox C. Inflicted versus accidental head injury in critically injured children. *Crit Care Med* 1993;21:1328–1332.

Grey TC. Shaken baby syndrome: Medical controversies and their role in establishing "reasonable doubt." *National Information, Support, and Referral Service on Shaken Baby Syndrome* 1998;Spring:4–5.

Haviland J, Russell RI. Outcome after severe non-accidental head injury. *Arch Dis Child* 1997;77:504–507.

Health Risk Resources International, Newcastle-upon-Tyne. Best practice guidelines. *Br J Nurs* 1999;8:293–294.

Herman-Giddens ME, Brown G, Verviest S et al. Underascertainment of child abuse mortality in the United States. *JAMA* 1999;282(5):463–467.

Hochstadt NJ, Harwicke NJ. How effective is the multidisciplinary approach? A follow-up study. *Child Abuse Negl* 1985;9:365–372.

Holloway M, Bye AM, Moran AK. Non-accidental head injury in children. *Med J Aust* 1994;160:786–789.

Jayawant S, Rawlinson A, Gibbon F et al. Subdural haemorrhages in infants: Population based study. *Br Med J* 1998;317(7172):1558–1561.

Jenny C, Hymel KP, Ritzen A, Reinert SE, Hay TC. Analysis of missed cases of abusive head trauma. *JAMA* 1999;28:621–626.

King J, MacKay M. A 10-year retrospective review of shaken baby syndrome in Canada. *Pediatr Res* 2000;47:202A.

Kivlin JD. A 12-year ophthalmologic experience with the shaken baby syndrome at a regional children's hospital. *Tr Am Ophth Soc* 1999;XCVII:545–581.

Kovitz KE, Dougan P, Riese R, Brummitt JR. Multidisciplinary team functioning. *Child Abuse Negl* 1984;8:353–360.

Krous HF, RW Byard. Shaken infant syndrome: Selected controversies. *Pediatr Dev Pathol* 1999;2:497–498.

Lancon JA, Haines DE, Parent AD. Anatomy of the shaken baby syndrome. *Anat Rec* 1998;253:13–18.

Lazoritz S, Baldwin S, Kini N. The Whiplash Shaken Infant Syndrome: Has Caffey's syndrome changed or have we changed his syndrome? *Child Abuse Negl* 1997;21:1009–1014.

Leventhal JM. The challenges of recognizing child abuse: Seeing is believing. *JAMA* 1999;281:657–659.

Levin AV. Retinal haemorrhages and child abuse. Chapter 10 (pp. 151–219) in *Recent Advances in Paediatrics*. Edinburgh: Churchill Livingstone. 2000.

Ludwig S. A multidisciplinary approach to child abuse. *Nurs Clin North Am* 1981; 16:161–165.

Luerssen TG, Bruce DA, Humphreys RP. Position statement on identifying the infant with nonaccidental central nervous system injury (the whiplash-shake syndrome). The American Society of Pediatric Neurosurgeons. *Pediatr Neurosurg* 1993;19;170.

MacMillan HL. Child abuse: A community problem. *Can Med Assoc J* 1998;158:1301-1302.

Massagli TL, Michaud LJ, Rivara FP. Association between injury indices and outcome after severe traumatic brain injury in children. *Arch Phys Med Rehabil* 1996;77:125–132.

Mills M. Funduscopic lesions associated with mortality in shaken baby syndrome. *J AAPOS* 1998;2:67–71.

Morton R, Benton S, Bower E et al. [Letter] Multidisciplinary appraisal of the British Institute for Brain Injured Children, Somerset, UK. *Dev Med Child Neurol* 1999;41:211–212.

Nashelsky MB, Dix JD. The time interval between lethal infant shaking and onset of symptoms. A review of the shaken baby syndrome literature. *Am J Forensic Med Pathol* 1995;16:154–157.

Olds DL et al. Long-term effects of home visitation on maternal life course and child abuse and neglect: Fifteen-year follow-up of a randomized trial. *JAMA* 1997;278:637–643.

Olds DL et al. Prenatal and infancy home visitation by nurses: Recent findings. *The Future of Children* 1999;9:44–65.

Onyskiw JE, Harrison MJ, Spady D, McConnan L. Formative evaluation of a collaborative community-based child abuse prevention project. *Child Abuse Negl* 1999;23:1069–1081.

Parrish R. The proof is in the details: Investigation and prosecution of shaken baby cases. *National Information, Support and Referral Service on Shaken Baby Syndrome* 1998;Winter:4–5.

Plunkett J. Shaken baby syndrome and the death of Matthew Eappen: A forensic pathologist's response. *Am J Forensic Med Pathol* 1999;20:17–21.

Reese RM, Kirschner RH. Shaken baby syndrome/shaken impact syndrome. *National Information, Support and Referral Service on Shaken Baby Syndrome* 1998;Summer:4–5.

Sadler DW. The value of a thorough protocol in the investigation of sudden infant deaths. *J Clin Pathol* 1998;51:689–694.

Sanders R, Jackson S, Thomas N. The balance of prevention, investigation, and treatment in the management of child protection services. *Child Abuse Negl* 1996;20:899–906.

Shannon P, Smith CR, Deck J et al. Axonal injury and the neuropathology of shaken baby syndrome. *Acta Neuropathol* 1998;95:625–631.

Showers J. "Don't shake the baby": The effectiveness of a prevention program. *Child Abuse Negl* 1992;16:11–18.

Showers J. Behaviour management cards as a method of anticipatory guidance for parents. *Child Care, Health and Development* 1989;15:401–415.

Showers J. Child behaviour management cards: Prevention tools for teens. *Child Abuse Negl* 1991;15:313–316.

Showers J. *The National Conference on Shaken Baby Syndrome: A Medical, Legal, and Prevention Challenge.* Executive Summary. National Association of Children's Hospitals and Related Institutions. 1998.

Spaide RF, Swengel RM, Scharre DW, Mein CE. Shaken baby syndrome. *Am Fam Physician* 1990;41:1145–1152.

Starling SP, Holden JR, Jenny C. Abusive head trauma: The relationship of perpetrators to their victims. *Pediatr* 1995;95:259–262.

Statistics Canada. Homicide statistics. *The Daily* Thursday, October 7, 1999.

Swenson MS, Levitt C. Shaken baby syndrome: Diagnosis and prevention. *Minnesota Med* 1997;80:41–44.

The Lancet. Editorial. 1998;352:9125.

Zeneah CH, Larrieu JA. Intensive intervention for maltreated infants and toddlers in foster care. *Child Adolesc Psychiatr Clin N Am* 1998;7:357–371.