

1: J Pediatr Surg 2002 Apr;37(4):572-5

Falling televisions: The hidden danger for children.

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BACKGROUND/PURPOSE: The United States Consumer Product Safety Commission (USCPSC) recently has reported a significant number of injuries and deaths in the home related to televisions (TV) falling on children. To date, little is known regarding the significance of this mechanism of injury in childhood trauma. The current investigation was designed to examine the risk factors, spectrum of injuries, and operative intervention required in children injured by falling televisions. **METHODS:** The records of all patients 0 to 16 years of age with television-related injuries and entered in the Pennsylvania Trauma Outcome Study (PTOS) between 1989 and 1999 were reviewed. The authors examined Glasgow coma scale (GCS), injury severity score (ISS), length of hospital stay (LOS), major injuries sustained, and operative procedures performed. Fourteen of the children in the PTOS were seen at the Benedum Pediatric Trauma Center at the Children's Hospital of Pittsburgh. In these 14 children, a review of the medical records was performed for a detailed description of the accident scenario. **RESULTS:** Forty-three children sustained television-related injuries during this period. Nearly 56% of these children were \leq years; 60% were boys. The mortality rate was 11% with 80% of the deaths occurring in children \leq years. Furthermore, these children sustained the highest ISS and LOS and lowest GCS. The majority of injuries sustained were head injuries followed by extremity fractures. Dressers and standard television stands were common supportive structures from which the television fell and injured the child. **CONCLUSIONS:** These data show that the majority of television-related injuries occur in toddlers (1 to 3 years) who were left unattended at home. The mortality rate was surprisingly high, especially in children \leq years from subsequent head injuries. **Prevention** focused on improved public awareness of this danger, and modified design of the standard support structures can decrease the number of injuries, which will benefit children overall.

2: Arch Dis Child 2002 Mar;86(3):168-9

Head injuries in infants: the risks of bouncy chairs and car seats.

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AIMS: To establish whether the incorrect use of bouncy chairs (BC) and car seats (CS) is a significant cause of injuries in babies. **METHODS:** Prospective study over a 12 month period. All babies under the age of 1 year, presenting to the department with a head injury were eligible. **RESULTS:** A total of 131 cases were recorded, 17 (13%) of which were associated with either BC or CS, the second largest aetiological group. All BC cases (11/11, 100%) were caused by a fall from a surface with the baby in the chair. In the CS group, 2/6 (33%) were caused by such a fall. The carer was aware in only one of the 13 cases involving a fall from a surface that there was any chance of injury from this mechanism. **CONCLUSION:** Falls from inappropriately placed bouncy chairs or car seats form a significant proportion of head injuries in infants, resulting in unnecessary and **preventable** morbidity.

3: Pediatrics 2001 Aug;108(2):382-8

The effectiveness of a home visit to prevent childhood injury.

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OBJECTIVE: To examine the effectiveness of a home visit program to improve home safety and decrease the frequency of injury in children. We examined the effects of the program on 1) parental injury awareness and knowledge; 2) the extent that families used home safety measures; 3) the rate of injury; and 4) the cost

effectiveness of the intervention. DESIGN: A randomized, controlled trial. SETTING: A multicenter trial conducted at 5 hospitals in 4 Canadian urban centers. PARTICIPANTS: Children <8 years old, initially enrolled in an injury case-control study, were eligible to participate. Intervention. Subsequent to a home inspection conducted to determine baseline hazard rates for both groups, participants in the intervention group received a single home visit that included the provision of an information package, discount coupons, and specific instruction regarding home safety measures. Main RESULTS: The median age was 2 years, with males comprising ~60% of participants. The experimental groups were comparable at outset in terms of case-control status, age, gender, and socioeconomic status. Parental injury awareness and knowledge was high; 73% correctly identified injury as the leading cause of death in children, and an intervention effect was not demonstrated. The adjusted odds ratios (ORs) for the home inspection items indicated that significant safety modifications only occurred in the number of homes having hot water not exceeding 54 degrees C (OR: 1.31, 95% confidence interval [CI]: 1.14, 1.50) or the presence of a smoke detector (OR: 1.45, 95% CI: 0.94, 2.22). However, the intervention group reported home safety modifications of 62% at 4 months and significantly less injury visits to the doctor compared with the nonintervention group (rate ratio: 0.75; 95% CI: 0.58, 0.96). The total costs of care for injuries were significantly lower in the intervention group compared with the nonintervention group with a cost of \$372 per injury prevented. CONCLUSIONS: An intervention using a single home visit to improve the extent to which families use safety measures was found to be insufficient to influence the long-term adoption of home safety measures, but was effective to decrease the overall occurrence of injuries. Future programs should target a few, well-focused, evidence-based areas including the evaluation of high-risk groups and the effect of repeated visits on outcome.

4: Pediatrics 2001 Jun;107(6):1480-1

Lawn mower-related injuries to children.

Bull MJ, Agran P, Gardner HG, Laraque D, Pollack SH, Smith GA, Spivak HR, Tenebein M, Brenner RA, Bryn S, Neverman C, Schieber RA, Stanwick R, Tinsworth D, Garcia V, Tanz R, Katcher ML, Newland H; Committee on Injury and Poison Prevention.

Lawn mower-related injuries to children are relatively common and can result in severe injury or death. Many amputations during childhood are caused by power mowers. Pediatricians have an important role as advocates and educators to promote the **prevention** of these injuries.

5: Burns 2001 Jun;27(4):376-8

Epidemiology of domestic chemical burns in Saudi Arabia.

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The authors reviewed the domestic chemical injury experience in two major government hospitals in Saudi Arabia to determine the most common causative agents and the circumstances of the injury in order to give recommendations for their prevention and reduction of their morbidity. A total of 59 cases were included. The mean age was 25 years and the male to female ratio was 3:1. Alkali drain cleaners were the major cause of chemical burns in the series and this was seen in 75% of the total study population. The remaining 25% of cases resulted from concentrated sulfuric acid, car battery acid and topical application of medical herbs by non-professionals. Unfortunately, immediate water lavage was not done in the majority of alkali and acid burns and hence skin grafting was required in most patients. It was concluded that efforts for **prevention** of chemical burns in Saudi Arabia should be directed towards education of the population regarding the proper use of alkali cleaners for clogged drains. These cleaners and battery acid containers should also be kept in a safe place away from the reach of children. Furthermore, a warning to the public regarding the non-professional use of medical herbs should be given. Finally, increased awareness among the Saudi population as to the need for prompt water irrigation of chemical burns should help reduce the morbidity from these injuries.

6: J Pediatr Surg 2001 May;36(5):726-9

Farm accidents in children: eleven years of experience.

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BACKGROUND/PURPOSE: The aim of this study was to review accidental injuries to children on farms. **METHODS:** Between January 1988 and December 1999, childhood farm injuries referred to a trauma center were reviewed. **RESULTS:** Forty-five children under 19 years of age were identified. Mean age was 7.3 years. Male to female ratio was 2:1. A total of 31 of 45 (69%) survived. A total of 14 of 45 (31%) died. The mechanism of injury was tractor in 15 (33%), animals in 13 (29%), other machinery in 9 (20%), falls in 4 (9%), burns in 2 (4%), equipment in 1 (2%), and mechanism not documented in 1 (2%). Twelve deaths involved tractors or machinery (86%), and 2 involved animals (14%). Thirty of forty-five (67%) accidents occurred between June and October. A total of 28 of 45 (62%) occurred between 1 PM and 6 PM. Nine fatalities (64%) were supervised. Predominant injuries were orthopedic in 25 of 45 (56%), neurologic in 19 of 45 (42%), and thoracoabdominal in 10 of 45 (22%). Eighteen (40%) underwent orthopedic surgery. Six patients (13%) had long-term disability. Seven survivors and 7 fatally injured patients (31%) had multiple injuries. Seven of 14 fatalities (50%) had solitary head injuries. The average transport time from scene to rural hospital was 1.5 hours, from rural hospital to trauma center, 2.3 hours. Twelve of fourteen fatalities (86%) were declared dead at the scene, and 2 died en route. **CONCLUSION:** Efforts must be focused to **prevent** tractor and animal injuries. Copyright 2001 by W.B. Saunders Company.

7: Acta Paediatr 2001 Jan;90(1):61-8

Socio-demographic risk factors for home-type injuries in Swedish infants and toddlers.

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In this paper we use data from Swedish national registers to study socio-demographic patterns of hospital admissions as a result of injuries sustained at home (poisoning, falls, scalding and ingestion/intrusion of foreign objects) in children 0-3 y. The study population comprised 546 336 children born in Sweden during the period 1987-91. The different injury mechanisms peaked at different ages: ingestion of foreign objects at 10-12 mo, scald injuries at 13-15 mo, non-drug poisoning at 16-18 mo and drug poisoning at 24-30 mo. In a multivariate analysis it was demonstrated that children of young mothers (<24 y) were more likely to have been admitted to hospital because of fall injuries and poisonings, while children with more than two siblings had a slightly increased risk for all injuries. Children of mothers born in a non-western country were more likely to have been admitted to hospital because of scald injuries; odds ratio (OR) 1.7 (95% CI: 1.4-2.1), while they were less likely to have been admitted because of fall injuries; OR 0.8 (0.7-0.8) and non-drug poisoning; OR 0.5 (0.4-0.6). Children in families who received social welfare benefits were more likely to have been admitted to hospital because of fall injuries; OR 1.3 (1.2-1.4), drug poisoning; OR 1.8 (1.7-2.0), non-drug poisoning; OR 1.4 (1.3-1.5) and scald injuries; OR 1.1 (1.1-1.5), while injuries with ingestion/intrusion of foreign objects tended to vary little with socio-economic indicators. **CONCLUSION:** Infants and toddlers in families with young mothers and in families on social welfare are at particular risk for home injuries in Sweden. The knowledge that the risk of poisoning, scalding and ingestion of foreign objects is related to specific ages can be used in timing of **parent counselling**.

8: Burns 2001 Feb;27(1):33-8

Epidemiology of paediatric burns in Indore, India.

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A retrospective study was carried out based on 110 paediatric burns (0-14 years) seen at the Burn unit, Choithram Hospital & Research Centre, Indore over a period of 7 years (1993-1999). Epidemiological data included age, sex, seasonal variation, place of burn and the cause and mode of burn. Hospitalised paediatric burns constituted 13.5% of total burn accidents. These children were categorised into three groups, the infants and toddlers (0-2 years), early childhood (>2-6 years) and late childhood (>6-14 years). In the first two groups scalding was the predominant cause of injury while in late childhood there were many more flame and electric burns. Males were mainly affected. Most of the burns (53.6%) occurred in the winter season between October and February. Ninety-five percent of accidents occurred at home. The overall mortality rate was 21.8%. An intense campaign to **make people aware** of the risk factors and their avoidance is required to reduce the number of burn accidents in children.

9: Inj Prev 2000 Dec;6(4):291-2

Injuries associated with falls from beds.

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OBJECTIVES: To assess the severity of injuries due to falls from upper bunks and lower beds and cots, and to ascertain the age group most at risk of such injuries. **SETTING:** The accident and emergency (A&E) department in the Royal Aberdeen Children's Hospital which has the only paediatric A&E department in the north east of Scotland, serving a catchment area of over half a million people. **METHODS:** All children attending with an injury sustained due to a fall from a bed or top bunk over five months had their case notes reviewed by the author. **RESULTS:** Eighty five children were identified, a majority of whom were reported to have fallen out of bed while sleeping. Twenty five sustained a fracture, 27 a head injury, 12 a laceration requiring treatment, and 21 sustained a soft tissue injury to a limb. Fourteen (16%) required admission. Sixty six (78%) of the injuries occurred in children under the age of 6 years. **CONCLUSION:** These results show a higher incidence of significant injury than previously reported, and demonstrate the inadvisability of letting children under the age of 6 years sleep in upper bunks. In an attempt to **make parents more aware** of the risks it is recommended that these dangers should be brought to public attention.

10: Inj Prev 2000 Dec;6(4):288-90

Toddler drowning in domestic swimming pools.

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AIMS: To identify how toddlers who drowned gained access to private swimming pools; to recommend preventive strategies to reduce the incidence of toddler drowning and near drowning. **METHOD:** The study reviewed critically all completed investigations into the drowning deaths of toddlers aged 1-4 years reported to the state coroner (n=33) as a result of unintentional submersion incidents in domestic swimming pools in Victoria, Australia, from 1 January 1992 to 31 December 1997. **RESULTS:** There was a predominance of 1 year olds, and boys. Forty six per cent of the children drowned in the three summer months. The majority of pools were in-ground; most were located on the child's home property. Over half the pools lacked fencing of any kind; of those that did have fences, only three appear to have met Australian standards. **CONCLUSIONS:** More than half of the children studied drowned in unfenced pools and spas. In not one case did a child gain unaided access to a pool fitted with a fully functional gate and fence that met the Australian standard. Where children gained access to fenced pools, the majority did so via faulty or inadequate gates, or through gates that were propped open. This finding highlights the need for pool owners to install Australian standard approved fences and gates, and to maintain existing fences and gates regularly. Door locks and supervision were inadequate primary **prevention** strategies.

11: Med J Aust 2000 Aug 21;173(4):192-5

Comment in:

Med J Aust. 2000 Nov 6;173(9):503.

Driveway motor vehicle injuries in children.

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OBJECTIVES: To describe the frequency, nature and outcome of driveway injuries in children. **DESIGN:** Retrospective case series of driveway-related injuries in children under 16 years of age admitted to the New Children's Hospital (NCH), New South Wales, from November 1995 to February 2000, and deaths reported to the New South Wales Paediatric Trauma Death (NPTD) Registry from January 1988 to December 1999. **MAIN OUTCOME MEASURES:** Circumstances of injury; type and number of injuries identified. **RESULTS:** 42 children were admitted to our institution with driveway-related injuries over four years and four months. These represent 12% of all children admitted with pedestrian motor vehicle injuries. Fourteen deaths (including one of the children admitted to NCH) were reported to the NPTD Registry over 12 years, accounting for 8% of all paediatric pedestrian motor vehicle deaths reported to the registry. Typically, the injury involved a parent or relative reversing a motor vehicle in the home driveway over a toddler or preschool-age child in the late afternoon or early evening. Four-wheel-drive or light commercial vehicles were involved in 42% of all injuries, although they accounted for just 30.4% of registered vehicles in NSW. These vehicles were associated with a 2.5-times increased risk of fatality. In 13 of the 14 deaths, the cause was a severe head injury not amenable to medical intervention. **CONCLUSIONS:** Driveway injuries in children account for a significant proportion of paediatric pedestrian motor vehicle injuries and deaths in NSW. **Prevention** represents the only effective approach to reducing deaths from this cause.

12: Inj Prev 2000 Sep;6(3):203-8

Socioeconomic differences in childhood injury: a population based epidemiologic study in Ontario, Canada.

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OBJECTIVE: To determine whether risks for childhood injury vary according to socioeconomic gradients. **DESIGN:** Population based, retrospective study. The percentage of individuals living below the poverty line (described ecologically using census data) was the primary measure of socioeconomic status. **SETTING:** Catchment area of a tertiary medical centre that provides emergency services to all area residents. Area residents aged 0-19 years during 1996 were included. **OBSERVATIONS:** Injuries that occurred during 1996 were identified by an emergency department based surveillance system. The study population was divided into socioeconomic grades based upon percentages of area residents living below the poverty line. Multiple Poisson regression analyses were used to quantify associations and assess the statistical significance of trends. **RESULTS:** 5894 childhood injuries were identified among 35380 eligible children; 985 children with missing socioeconomic data were excluded. A consistent relation between poverty and injury was evident. Children in the highest grade (indicating higher poverty levels) experienced injury rates that were 1.67 (95% confidence interval 1.48 to 1.89) higher than those in the lowest grade (adjusted relative risk for grades 1-V: 1.00,1.10,1.22,1.42, 1.67; Ptrend < 0.001). These patterns were observed within age/sex strata; for home, recreational, and fall injuries; and for injuries of minor and moderate severities. **CONCLUSIONS:** Socioeconomic differences in childhood injury parallel mortality and morbidity gradients identified in adult populations. This study confirms that this health gradient is observable in a population of children using emergency department data. Given the population based nature of this study, these findings are likely to be reflected in other settings. The results suggest the need for targeted injury **prevention** efforts among children from economically disadvantaged populations, although the exact requirements of the optimal prevention approach remain elusive.

13: J Accid Emerg Med 2000 May;17(3):199-200

The domestic iron. A danger to young children.

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OBJECTIVES: To study the epidemiology of thermal injury caused by the domestic iron in children 5 years old or less. **METHODS:** Retrospective review of case notes held in the accident and emergency (A&E) department of a large teaching hospital over a 36 month period. Data regarding demographics, site and extent of injury, mechanism of injury and outcome were retrieved. **RESULTS:** 62 thermal injuries were identified in 59 patients. Of these, 60 were contact burns and two were scalds. The male to female ratio was 2:1. The mean age was 24 months. Fifty five per cent were aged between 1 and 2 years old. The hand was the commonest site of injury (63%) and, of these, two thirds were on the palm. Interestingly 10% occurred on the face. Iron contact burns accounted for 23.5% of all contact burns in this age group over this period. The majority of contact burns were partial thickness and most were less than 1% body surface area. Inadequate supervision is a recurring theme in many of these cases. A suspicion of non-accidental injury was raised in 10 cases and confirmed in nine of these. **CONCLUSIONS:** Iron burns are common in young children, particularly boys aged between 1 and 2 years old. Most can be treated in the A&E clinic. The potential for serious injury does exist. Non-accidental injury always needs to be considered. Efforts at **prevention** and increasing public awareness are needed.

14: Burns 2000 May;26(3):251-9

Burns sustained by hot bath and shower water.

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An 8-year retrospective review of patients admitted to Stoke Mandeville Hospital (Aylesbury, UK) because of burns sustained by hot bath and shower water was undertaken. Fifty-seven patients of all ages were identified and stratified into paediatric (< 16 years) and adult groups. Nine patients died. The main characteristics of the burns, causes and outcomes of treatment were analysed for each group. Children were predominantly under three years of age (83%), sustaining most frequently only superficial burns (41%) with areas of less than 10% total body surface area (72%). Parents' supervision was inadequate in 85% of cases. Eighty-three percent of the adults were over the age of 60. Two thirds had some form of psycho-motor disorder that predisposed to an accident which should have been anticipated. In comparison to children, adults suffered more extensive and deeper burns that resulted in a mortality of 44% (8/18). In both groups, the lower parts of the body were most frequently involved. The observed decline in the number of admissions for the period of investigation is encouraging. It supports an ultimate need for further development and actual implementation of **preventative measures** for hot water burns in the homes of people who are at greatest risk.

15: J Paediatr Child Health 2000 Feb;36(1):66-8

Accidental asphyxia in bed in severely disabled children.

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OBJECTIVE: To determine whether there are specific situations which may increase the risk of accidental asphyxia during sleep in children with physical and mental disabilities. **METHODOLOGY:** Review of all cases where death was attributed to accidental asphyxia caused by unsafe sleeping situations in children listed in the Department of Histopathology database over a 10-year period from March 1989 to February 1999. **RESULTS:** A total of 26 cases were found (M:F, 19:7; age range, 1-48 months; average age, 7.4 months). Of those cases, two involved children with significant mental and physical impairment. Case 1: A 4-year-old boy with Klippel-Trenaunay-Weber syndrome, macrocephaly and severe developmental delay, was found dead with his head hanging over a wooden board attached to the side of his bed. Case 2: A 4-year-old boy with lissencephaly and severe developmental delay was found dead wedged between a retractable mesh cot side and the side of his bed. In both cases the devices resulting in death had been put in place to prevent the boys from falling out of bed. **CONCLUSIONS:** Accidental asphyxia in physically and mentally impaired children may be caused by devices that have been used to **prevent** injury from falling out of bed. Careful assessment of the specific developmental problems that children suffer should be undertaken before

their beds are modified. It may be safer for these children either to have no barrier, or to have drop-sided cots/beds that meet recognized safety standards.

16: Pediatrics 1999 Nov;104(5 Pt 1):1059-63

Firearms in the home: parental perceptions.

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BACKGROUND: Each year, thousands of children are injured or killed from unintentional gunshot wounds. Discovering a gun while playing in the home places children at risk of being injured by the firearm. **OBJECTIVES:** To determine parental firearm storage practices and parental perceptions of the behavior of their children around guns. **METHODS:** Cross-sectional survey of parents of children from 4 to 12 years of age. A sample of 424 parents, bringing their children to one of five pediatric ambulatory care centers, were asked to complete a 20-point self-administered questionnaire at the time of their visit. **RESULTS:** A total of 400 parents (94%) completed the questionnaire; 113 parents (28%) reported keeping a firearm (most often a handgun) in the home. Firearm owners were predominantly male, 30 years of age or older, white, and married. Of the gun owners, 52% stored their firearms loaded or unlocked, and 13% kept one or more guns loaded and unlocked. Three fourths of gun-owning parents believed that their 4- to 12-year-old child could tell the difference between a toy gun and a real gun, and 23% believed that their child could be trusted with a loaded gun. Although the majority of gun-owning parents (53%) endorsed safe storage as the best firearm injury prevention strategy, 61% of parents who do not own firearms endorse not owning guns as the best way to prevent pediatric firearm injuries. **CONCLUSION:** A majority of gun-owning parents store their firearms loaded or unlocked, substantially **underestimating the risk of injury to their children**. Many firearm-owning parents trust their child with a loaded gun and believe that their young child can tell the difference between a toy gun and a real gun.