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Fencing In, Turning Down, Belting Up

Early Childhood Injury Prevention

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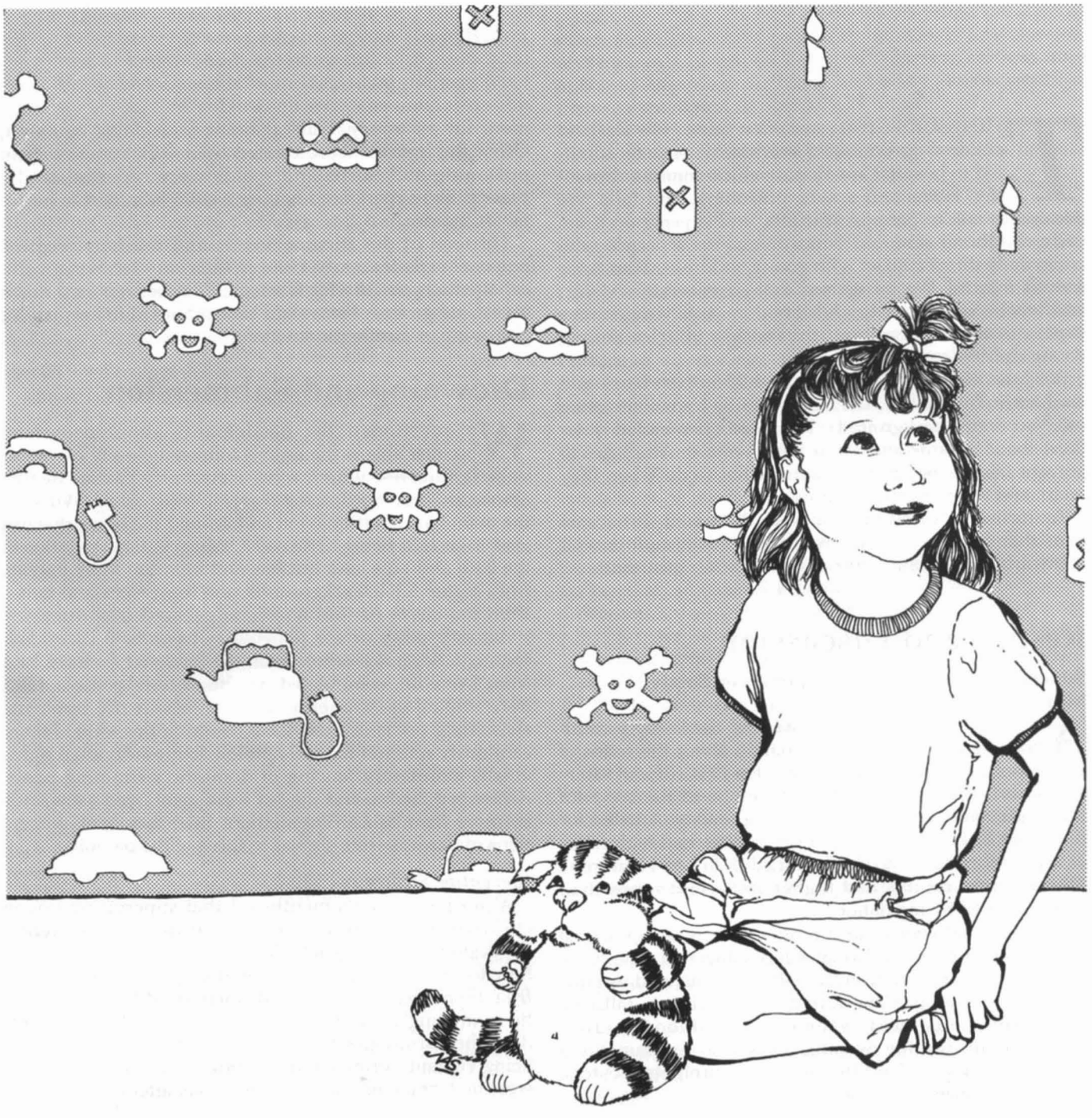
NZCER



Nikki Slade

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THE INJURIES that most often cause New Zealand children aged under 5 years to die or to be admitted to hospital are: motor vehicle injuries, drowning, burns and scalds, poisoning, and falls. We decided to talk to parents, teachers, and supervisors from early childhood care and education centres, people who are in daily direct contact with young children, about these serious injuries. We recognised that parents, supervisors, and teachers from early childhood centres would have experiences to share about preventing injuries among young children.

We interviewed 54 parents, and 23 supervisors and teachers, in three cities. The families came from contrasting socio-economic backgrounds. We asked open-ended questions about hazards and about their views on strategies to prevent injuries before they occur, what to do when they occur, and what to do afterwards.

Equity issues came up and were discussed. It became clear that parents have many difficulties in maintaining safety and these include stress and financial constraints.

Results and Discussion

Supervisors and Teachers' Responses on Safety Measures and Safety Education

A supervisor or teacher from each of the 18 early childhood centres gave us information about the ratios of supervisory adults during sessions, the first aid and safety education received by staff members, and the types of injury prevention education recommended as suitable for the centre or kindergarten. The playcentres had high ratios of supervisory adults to children (1 adult to 3 to 4 children). The childcare centres had higher staff-child ratios than those required by regulation.

At almost all centres and kindergartens, several staff members had received formal safety education. The types of safety education that most staff recommended as suitable for the local parents were meetings, classes, talks, or workshops, to be held at the early childhood centres, preferably during the evening. They also recommended using television and written media (pamphlets, posters, newspapers, magazines and books).

Experiences with the Five Injury Categories

We found that 57% of the parents described personal experiences of their pre-schoolers receiving medical treatment for an injury. Falls at home were most common. Often the injuries were treated by a G.P. Some cases of poisoning and burns and scalds were reported, and 4 parents had experienced having a child admitted to hospital for injuries.

Thirteen of the 18 supervisors and teachers recalled personal experience of a child in their care receiving medical attention, usually for falls, and 1 teacher reported that a 4-year-old girl in her care had been admitted to hospital for poisoning or an allergic reaction.

Drowning and Submersion

We questioned the participants about drowning because this is the injury, followed closely by motor vehicle injuries, which most frequently causes deaths among children aged under 5 years. When asked 'What are the main hazards (things) in and around the home that can lead to a child being drowned?', many parents mentioned the bath and taps, and buckets and laundry. More parents from higher S.E.S. backgrounds, and from Auckland rather than the cities further south, suggested that domestic swimming pools or spa pools were hazards in their environment. Several mothers from the lower S.E.S. areas, and from Dunedin, commented 'we don't have pools around here'. Some spontaneously spoke about the domestic swimming pools in their local communities, others more cautiously referred to local opinion about individual rights versus mandatory fencing of domestic swimming pools. Rivers and creeks, and the sea were mentioned as hazards by more than half of the mothers. Staff members' perceptions of hazards were similar to those of the parents.

Preventive Strategies

Almost all parents mentioned that supervising young children is important. Other strategies frequently suggested were, to teach children about water safety or how to swim, and to fence swimming pools. More parents from higher S.E.S. backgrounds mentioned fencing domestic swimming pools and using pool covers. Many parents described strategies for supervising the bath, including being vigilant during the filling process and when children were in it, and emptying it immediately after use.

Over 70% of the parents and staff members recommended using cardio-pulmonary resuscitation (C.P.R.) after a child was found drowning, but many were not very confident about how to do this.

Summary

In the case of drowning, enforced fencing of swimming/spa pools seemed relevant to some parents and staff especially in higher socio-economic communities north of Dunedin. (See Recommendation 1.1). Parents and staff members felt responsible for supervising the children in their care.

Most parents were aware of the hazards of bath water, and some pointed out the difficulties experienced when trying to maintain constant vigilance. The findings also suggest a need for more parents and caregivers to become proficient at administering C.P.R. (See Recommendation 1.2).

Motor Vehicle and Traffic Injuries

Both parents and staff frequently identified driveways as a hazard around the home. Traffic, particularly fast traffic on the street, unfenced property, and children playing in unlocked cars were also common concerns of parents and staff. Several parents spoke strongly and sometimes at length about speeding traffic in residential areas, but some comments from individual mothers illustrate the impact of socio-economic circumstances on perceived traffic hazards around the home:

We have no car. We have no cars around the home, and no cars in the drive.

Around the early childhood centres, cars arriving and departing, sites on busy streets and dangerous street design, concerned the staff and parents.

In the wider community, reckless, fast drivers were mentioned as a hazard by about 40% of the participants. The same number of parents described poor street design and town planning as hazards in the community.

Preventive Strategies

Almost all parents gave us clear messages about seatbelt usage:

Obviously car seats and seatbelts are critical. I can't stand seeing children who aren't belted in. (Mother, Auckland)

There was support for the Plunket Society car restraint rental scheme:

Put the little babies in the Plunket seats – hire them from Plunket. (Mother, Dunedin)

More than half of the parents and staff members suggested teaching the children about pedestrian safety and seatbelt usage. Some staff members were active in teaching the children:

We take the children down the road to practice crossing the road (at the pedestrian crossing). We supervise the children. The traffic officer comes to talk to the children. (Samoan Supervisor)

Only 5 parents suggested using environmental measures like gates and fences. For some parents, implementing such measures to keep their young children away from the road is not easy:

When I shifted into the house I'm in there was no fence or gate. I went to Social Welfare – they said 'No, no loans for fences'. The Housing Corporation could be more helpful too. They said I bought the house without a fence and they were unable to provide a loan for a fence after buying the house. I would have to put the house on the market and buy another house. Family Benefit should be available in advance, and not only to the mightily persistent. It makes a parent's life very stressful if the property is inadequately fenced. It's very difficult for people bringing up their children on the Domestic Purposes Benefit. I couldn't possibly save up for a fence because the children would be 10 by then. (Mother, 1-parent family)

(See Recommendation 2.4).

Summary

In summary, almost all parents supported using child car restraints to reduce injuries in traffic crash events. (Recommendation 2.1). Many parents and staff members talked about heavy traffic and speeding drivers as hazards in residential areas. (See Recommendation 2.6). Participants talked about the difficulties experienced when children, houses, and early childhood centres are located within or close to heavy traffic zones, and their views are consistent with those of Swedish researchers and planners. (See Recommendation 2.5). Parents, supervisors, and teachers tended to say that their preventive strategies were teaching and supervising child pedestrians, and setting a good example.

Poisoning

New Zealand's national health statistics show that medicines wrongly taken are a frequent cause of poisoning among children aged under 5 years. The parents often mentioned home cleaning materials as a danger. Most parents identified detergents, bleach, and cleaning agents as hazards in the home, and many parents specified dishwashing liquid or powder as a hazard:

Dishwasher powder – (our younger child) did get a little in his eye – (we) took him to the doctor and rang the National Poisons Centre. He's now recovered. (Parent, Dunedin)

A few parents and staff members commented on the inappropriate containers in which some cleaning agents are stored.

Pills and medicines were often mentioned as a hazard around the home by parents, and they were the hazard most frequently suggested by teachers and supervisors. A childcare supervisor described several incidents, a depressed mother who left her sleeping tablets in a bottom drawer where a child found them, and a 'disturbed boy' who insisted on carrying his antibiotic syrup in the car and drank the contents of the bottle on the way home from daycare. She stressed the need for child-resistant tops on containers of medicine, including antibiotics which are kept in the fridge at home, because the children can reach them. Almost half of the participants mentioned petroleum products and paint. Couples sometimes differed in their concerns about hazards around the home:

Mother: *The whole house is a nightmare.*

Father: *No, all the dangerous things are out of reach – promoted to high surfaces. The garage materials, the cellar should be kept locked. (They aren't yet).*

Parents rarely named hazards in the kindergartens and centres, with the one exception of detergents and cleaning agents.

In the wider community, plants and berries were a common concern, mentioned by almost half the parents and staff members. Also suggested were petrochemicals, cleaning agents and pills or medicines. Other less frequently specified concerns included agricultural products, industrial chemicals and pollution, and abused drugs.

Preventive Strategies

When asked 'What can be done to prevent young children from taking things that will poison them?', parents and staff members most frequently suggested keeping poisonous substances up high. Many staff members and more than half of the parents also suggested educating the children and keeping poisonous substances in a locked cupboard.

Asking what to do if a child had taken a poison led to many rather confused responses. However, most parents suggested telephoning for help from the hospital Accident

and Emergency department, a general practitioner, or the ambulance service. Many parents knew of the National Poisons Information Centre in Dunedin, which offers a 24 hour telephone information service. Some parents, and a few staff members, were confused about what first aid to give. Advice about this has changed, and different procedures are used for ingestion of caustic and non-caustic substances. Some parents clearly were uncertain about whether, when, and how to induce vomiting.

Summary

Most parents and staff were aware of the main hazards that lead to poisoning. All parents specified some strategies to prevent poisoning, and almost all suggested where to seek help in event of poisoning. Treatment strategies were the source of some confusion. (See Recommendation 3.3).

Thermal Injuries

Hot liquids such as spilt tea and coffee frequently lead to thermal injuries which put children aged under 5 in hospital. Three-quarters of the parents we interviewed spontaneously mentioned the hazards of hot tap water, although fewer parents and staff members mentioned hot liquids like tea, coffee, and Milo. Almost all of the parents suggested that jugs, kettles, stoves, fires and heaters are hazards in the home.

Most parents and staff members who mentioned hazards in the early childhood centres also pointed out that the kitchens were out of bounds or barricaded. In almost all instances, heaters were located up high.

Rubbish and other fires were named as hazards in the wider community. Other people's kitchens, cigarettes and matches, and barbecues and hangi (Maori ovens) were also mentioned by parents and a few staff members. A few parents in Dunedin suggested wet-back water heating systems as hazards. A Dunedin parent described sunburn as 'a real hazard that we don't give too much credence to'.

Preventive Strategies

About half of the parents and staff members mentioned using jug holders, short cords, and stove guards. Parents' comments emphasized that environmental measures can be implemented more easily where the resources are available:

The children can't get into the kitchen now (shows interviewer the new kitchen design). They're not allowed in when I'm cooking – there's only one entrance. It's all common sense – being one step ahead.
(Mother, high S.E.S. community)

Put the pot handles in. If you're rich get a guard for your stove (glances at her stove without one). Make sure jugs don't have long cords.
(Mother, lower S.E.S. community)

Almost half of the respondents suggested turning down the hot water thermostat control. About 6 mentioned that they had done this, sometimes with assistance:

Check the water heating. I got my father to turn down the water heat.

One mother had turned the water temperature down, but her husband turned it up again because 'he liked to have his bath hot'. Other parents found that for tap water, supervision and teaching were the only strategies available to them:

Keep an eye on the children. At home teach them not to touch the hot water.

When they were asked what to do about burns and scalds, all mothers and all staff members mentioned applying cold water or immersing the injured part in cold water. In addition, 8 parents and 5 supervisors specified 'do not use butter', and no-one recommended applying butter. There was no evidence of confusion or uncertainty here.

Summary

Parents and staff members seemed aware of the hazards in the kitchen and of fires and heaters. Many recognized hot tap water as a hazard, and about half suggested reducing the temperature at which the thermostat was set. (See Recommendations 4.1 and 4.2). There remains a need to promote awareness of the hazards of hot liquids. Parents and staff members were clear about post-event strategies, and unanimous in recommending the use of cold water. (See Recommendation 4.3).

Falls

Falls were the type of injury most frequently experienced. Seventy percent of staff members named beds, bunks and couches as hazards around the home that lead to falls, especially among infants, but fewer parents mentioned these items.

Leaving a baby unattended on a bed or table. It's just so easy (and safer) to put the baby on the floor before going to answer the telephone.
(Kindergarten Teacher)

Half of the parents suggested that chairs, tables, benches, decks, terraces, steps and stairs are hazards:

Decks without protection. Chairs, tables, climbing on them. Bunks. Babies in walkers can fall down stairs.
(Mother)

In the centres, climbing equipment was suggested most frequently, with more than half of the parents and staff members specifying this as a hazard. One teacher pointed out that during sessions at her kindergarten there had been 3 cases of girls (but no boys) requiring medical treatment for injuries sustained from falls. These injuries were attributed to gender stereotyping and inappropriate shoes:

Children's shoes without proper tread, including plastic shoes and gumboots without proper tread after a season's use. The sexist upbringing here with girls not used to climbing.
(Kindergarten teacher, higher S.E.S. community)

In the wider community, playgrounds were a source of concern to three-quarters of the parents and two-thirds of the staff members.

When asked 'how do you prevent babies and young children from having falls?' parents and staff members most frequently replied that they would supervise and/or teach the children. About a quarter of the parents also suggested using fences and gates, and barricades on steps and stairs. Many suggested a variety of strategies:

Young children just walking have a lot of falls. Use barriers – sometimes they're more dangerous because children pull themselves up and pull the thing over. Teach children how to go up and down stairs when they're crawling – teach them the correct way. Have safe surfaces that absorb the impact (and) non-slippery surfaces in public places (in the) community – shopping centres, the library.
(Playcentre mother)

Asking 'What kinds of things can be done to stop young children being injured when they fall?' produced further responses about safe surfacing. Providing safe landing surfaces including rubber matting and woodchips under play equipment, was suggested by many parents and even more staff members. Other strategies occasionally recommended were supervision, teaching children landing skills, catching the children, and repairing equipment or surfacing.

When asked 'if a child falls and injures his or her head, what kinds of things do you do?' more than half of the

parents and staff members suggested checking the child's breathing and/or level of consciousness. Seeking help by ringing an ambulance, accident and emergency, or doctor, or going to an accident and emergency department or a general practitioner, were the next most frequent responses.

Summary

Many parents, supervisors and teachers had experienced the young children in their care having falls. They regarded furniture as a major hazard in the home, along with decks, terraces, steps and stairs. (See Recommendation 5.5). Playgrounds were seen as a hazard in the community. (See Recommendations 5.3, 5.4).

Injury Prevention Education: Experiences and Recommendations

The parents and staff members described their experiences of injury prevention education, and with publicity in the media. They provided information about the injury prevention education the children in their care and other family members received. In addition, they made recommendations about increasing and targeting injury prevention education.

Almost all of the 23 supervisors and teachers talked about injury prevention education being available for families within the playcentre, childcare, or kindergarten organization. A few staff members also referred to the professional health services, Plunket, and education in the home. The parents most frequently recalled Plunket as a source of injury prevention education (the Royal N.Z. Plunket Society is an organization which provides a postnatal and early childhood health service).

Other sources included the media at home; and information from playcentres, kindergartens, or childcare centres, health professionals, and the maternity hospitals. Most of the 9 parents who specified using the Plunket book, and all of the 5 mothers who recalled attending talks on C.P.R. in the maternity hospital, described them as either useful or very useful.

Only 5 families had participated in a programme called Safe Playing, which originated in the U.S.A. and has been introduced in some areas in New Zealand. The 2 mothers and 1 supervisor who had attended a Safe Playing course at an early childhood centre described the experience as either useful or extremely useful. Another 2 mothers who used the materials at home were positive but expressed some reservations about the safe boundaries specified in the materials. They had altered the boundaries to suit their requirements.

About two-thirds of the parents commented on first-aid education they had received. Fourteen parents had attended a St. Johns Ambulance Association course, and 9 described the experience as very ueful, 3 as quite useful, and 2 made neutral comments. Another 6 parents had completed courses in first aid conducted through playcentres, and 6 parents mentioned attending Red Cross courses. In at least 8 families, the fathers had received injury prevention education at work.

Parents and staff members recalled T.V. safety messages more frequently than education through other media. Most often remembered were T.V. pieces about motor vehicle injuries and traffic safety, about burns and scalds, and about drowning. Only 4 parents recalled seeing any information about poisoning, and only 1 mother remembered reading an article about falls. Presumably this reflects not on the participants' memories, but on the limited media coverage of poisoning and falls.

Most of the parents and all of the supervisors and teachers made recommendations about injury prevention education. Television was seen as most important, then talks or meetings. At least half of the parents and all staff said that parents in general should receive more education about preventing injuries. Many said injury prevention education should be provided for mothers in maternity hospitals, and some wanted it in secondary schools. 'Targeted' provision was also suggested:

Information should be available in different languages about what to do.

(Mother, Pacific Island family)

Programmes about prevention, about different dangers to kids – I never see anything around here. I look out on all the billboards, in the weekend papers.

(Mother, low S.E.S. Community, Wellington)

Try teaching safety education through Pacific Island churches and Maori Women's League and through the iwi and the whanau. Also use Maori professionals – teachers and nurses to feed it in. Parents don't talk enough to their children and don't know enough.

(Maori Teacher)

More than half of the staff members and a third of the parents recommended more education for young children. Television and talks were favoured methods. (See Recommendations 6.5 to 6.8).

Environmental Changes: Difficulties and Recommendations

The parents and staff members described difficulties they experienced in preventing injuries among the young children in their care, and made specific recommendations about the environment. Difficulties experienced by parents in the home were due to time pressures and stress and financial constraints. A few mentioned the design of streets and houses, product safety, and community behaviour. Again, mothers commented that financing fences for their properties was very difficult:

Not having a fence to keep my son safe inside the section. We don't own the house. The landlord wouldn't pay for a fence.

(Single mother)

Fences, stove guards, car seat belts for the back seats of older cars, and heaters 'that you can place up high' were safety devices described by several parents as beyond their purchasing power. Parents sometimes suggested that it would help to have rental schemes for such items, loans to buy them, or government subsidies. (See Recommendations 2.3, 2.4, & 4.4).

Occasionally, money was a problem for the early childhood centres:

Finance (is difficult) – to get rid of concrete below the balcony and get safety matting.

(Kindergarten teacher)

Staff members also mentioned time pressures and stress as barriers to making children's lives safer in the home.

Parents' and staff members' recommendations about environmental changes were of five sorts: (1) legislation and regulations, (2) design and planning (of towns, streets, playgrounds, and houses), (3) education and publicity, (4) finance and equity of provision, (5) product safety.

Legislation and regulations were a major concern in regard to traffic injuries, drowning, and poisoning. About a quarter of parents and teachers wanted more comprehensive legislation on seat belt usage:

I often wonder about children in cars – I'd like to see seat belts compulsory for children (including those travelling in older cars).

(Mother, Wellington)

The enforcement of safe driving also concerned some interviewees:

Drivers need to be controlled, drinking driving controlled, speeding controlled.
(Supervisor, Dunedin)

In the case of drowning, a quarter of the parents and staff spontaneously recommended enforcement of the Fencing of Swimming Pools Act.

Those concerned about legislation to reduce childhood poisonings recommended that child-resistant closures on medicines and other poisonous substances should be compulsory.

Those with recommendations about design and planning to prevent motor vehicle injuries suggested separating child pedestrians and cyclists from traffic, or designing streets to reduce traffic density and speed in residential areas. Parents and staff members who made design or planning recommendations to reduce injuries from falls referred to the design of playgrounds. A few also mentioned the design of houses and public buildings.

General Summary

This in-depth small-scale study of parents (mainly mothers) and staff from early childhood education and care centres has described their views on hazards leading to five injury types. They made suggestions about what to do to reduce drowning, traffic injuries, poisoning, thermal injuries and falls. More parent education, targeted education, and education of children were recommended. Parents' difficulties in maintaining safety included stress factors and financial constraints. Spontaneous recommendations about environmental injury prevention measures most frequently involved legislation, design and planning.

The participation of parents, caregivers, and early childhood centre staff helped formulate recommendations towards catering equitably for young children from diverse backgrounds. The complete set of recommendations follows.

Recommendations

This section summarizes the recommendations arising from statistics on unintentional injuries; a review of the literature; an investigation of the role of standards, regulations, and education; and the views and experiences of parents and staff members involved in early childhood education and care centres.

I. Drowning and Submersion

1.1 (a) There is a need for continued enforcement of the Fencing of Swimming Pools Act in New Zealand to ensure adequate fencing and the fitting of a device that will automatically close the external gate or door. It is further advised that encouraging the installation of self-closing devices on ranchsliders would reduce preschool drownings.

(b) It is recommended that clarification of the visible benefits of the compulsory fencing of swimming pools is needed, to counter public campaigns to dilute or revoke New Zealand's 1987 Fencing of Swimming Pools Act. It is necessary to point out that drownings that have occurred subsequent to the Act have been a consequence of either inadequate fencing and gating, or of internal access through open ranchsliders.

1.2 Parents should have equitable access to information and educational programmes designed: (a) to promote awareness of the need to supervise young children in the bath and of the hazards of buckets, baths and containers of water;

(b) to inform them about the safety features of products like buckets, tubs, and baths;

(c) to enable them to administer C.P.R. It is recommended that this parent education be provided more extensively during the antenatal and early postnatal stages, in the form of meetings and talks, together with a television publicity campaign.

1.3 Education in water safety for young children is likely to remain a high priority but caution is recommended against assuming that early familiarity and/or confidence in the water equates to an awareness of potential dangers for children aged under 5 years.

1.4 Further work on developing a suitable Standard for lifejackets for very young children is recommended.

1.5 Caution is recommended in calling for increased expenditure on television advertising, even though this study reports a general belief that television is the most effective vehicle for sustaining public awareness about the safety of young children in the water. Until further research has been done on the actual impact of existing water safety campaigns, it would be appropriate that campaigns with large expenditure should be required to incorporate an evaluation component.

II. Motor Vehicle and Traffic Injuries

2.1 It is recommended that increased policing of non-use of child restraints in private motor vehicles should be a priority of the Ministry of Transport.

2.2 There is a need to educate parents about the dangers of current ad hoc methods of transporting young children in private vehicles.

2.3 It is recommended:
(a) that financial barriers to installing seat belts in the rear seats of pre-1979 vehicles should be addressed,
(b) that policy on seat belt requirements in pre-1979 vehicles be reviewed.

2.4 It is recommended that financial assistance in the form of loans or subsidies be provided to enable some parents to fence their properties thereby limiting young children's access to roads with high traffic density.

2.5 It is recommended that consultation with town planners, planning educators, and local government authorities is required, to promote planning strategies which separate traffic from residential areas, early childhood centres, playgrounds, and schools.

2.6 It is recommended that the Ministry of Transport assist parents, educators, and the community to take responsibility for road safety education in order to promote awareness of the vulnerability of young children in the traffic environment.

2.7 It is recommended that attention should be paid to collection of data which provide examples of preventive strategies such as more specific details in incident reports.

2.8 There is scope for further systematic evaluation of the impact of the Safe Playing programme on children and families.

III. Poisoning

3.1 It is recommended that discussions between health authorities and the pharmaceutical industry continue in order to reach a consensus of opinion on the use of child-resistant closures (CRCs), especially to agree on a level of standardization regarding fits between bottles and caps.
The development of a standard to cover the safety features of blister packaging is also recommended.

3.2 More information is required about the cost to the health service of childhood poisonings, to justify the

case for public funding of child-resistant closures on liquid medicines. A survey of the direct costs of Accident and Emergency attendance and primary care is recommended.

3.3 Education and publicity are necessary to inform the public about first-aid strategies to be used immediately after a poisoning event. Caregivers require clarification on how and when to induce vomiting in the case of ingestion of non-caustic substances, together with information about appropriate alternative procedures in the case of caustic substances.

3.4 It is recommended that owners of automatic dishwashers need to be informed at the point of sale about the dangers of dishwasher detergent residues in machines, even though the initiatives of New Zealand manufacturers in developing CRCs for dishwashing detergent were timely.

3.5 Attention should be drawn to the current ill-advised practice of packaging household cleaners in bottles identical to those in which some beverages are sold.

3.6 Close attention should be paid to potential dangers posed to children by new potentially toxic products on the market, such as button batteries.

IV. Thermal Injuries

4.1 It is recommended that local electrical supply authorities provide clear information for their consumers and for electrical supply authority staff about the illegality of adjusting hot-water thermostats where the removal of a cover is necessary. Clarification is also needed on what is permissible for unqualified individuals to do in respect of electrical wiring and appliance repair or adjustment in the home.

4.2 It is recommended that there is a need for greater publicity about preventive measures now available to the public, such as mixing valves and external thermostats. A simple education campaign that focuses on a recommended temperature for hot water cylinders – along the lines of '55 degrees is the Perfect Number!' – could raise awareness about dangers of hot-water scalding.

4.3 A publicity campaign is recommended to improve public awareness of the need for caution with hot beverages including tea, coffee, hot chocolate, and soup, to reduce thermal injuries to infants and young children.

4.4 It is recommended that rental schemes, loans, or subsidies should be provided to enable some parents to have ready access to safety equipment like smoke detectors and stove guards.

4.5 In view of the epidemiological data, and Pomare and de Boer's (1988) work, the iwi authorities, the whanau, the education committee of the New Zealand Maori Council, and the Maori health professionals and educators may wish to promote prevention of thermal injuries through channels suggested by the representative from the Kohanga Reo Trust, for example, on Te Upoko o te Ika, and on Maori television programmes or children's television programmes.

4.6 There is scope for systematic inclusion of fire-exiting skills and education in thermal safety within the developmental programmes of early childhood education and care centres. Participation and on-going reinforcement from staff and parents is recommended, and inclusion of an evaluation component is advised.

4.7 It is recommended that the Ministry of Consumer Affairs continue its efforts to inform retailers about the non-inflammability requirement for children's clothing, especially where material is sold for home sewing purposes.

4.8 Manufacturers of white-ware are advised to explore the possibility of incorporating external safety features into home appliances, such as guard rails on stoves.

4.9 It is recommended that the Ministry of Consumer Affairs continue attending to the safety features of imported, cheaper electrical appliances, such as Christmas tree lights.

V. Falls

5.1 It is recommended that greater publicity be given to intervention strategies which minimize the occurrence or consequences of falls with young children, such as passive measures in the home (e.g., stairway barriers) and in public areas (e.g., non-skid flooring).

5.2 It is recommended that the Building Industry Commission pay close attention to measures regarding the safety of young children in its uniform building code.

5.3 It is recommended that the Standard NZS5828 in respect of specifications for playgrounds and playground equipment be universally applied.

5.4 It is recommended that detailed data be gathered on the actual uptake of NZS5828 as of 1989.

5.5 It is recommended that New Zealand research should be conducted on falls sustained by young children in the home, and in particular, on falls from one level to another.

Other General Recommendations

Other general implications and recommendations, not listed in order of priority, are:

6.1 It is recommended that further research be implemented to study the role models provided by fathers, siblings, and other relatives, and in the media, in the prevention of the five categories of injuries.

6.2 In accordance with the precepts of partnership in the Treaty of Waitangi, Maori participation in formulating and developing injury prevention recommendations is advised, including consultation with nga Kohanga Reo at the whanau level.

6.3 It is recommended that national statistics on Accident and Emergency attendances are required for the five leading categories of injuries.

6.4 It is recommended that evaluation of specific prevention strategies, such as tap water temperature modification and shock absorbing surfaces in playgrounds, be implemented by funding bodies such as the Medical Research Council and the Accident Compensation Corporation to monitor outcomes.

Injury Prevention Education for Pre-school Aged Children

6.5 It is recommended that injury prevention education for children under the age of 5 years is likely to be more effective where there is on-going involvement of, and reinforcement from, parents, caregivers, and early childhood staff.

6.6 It is advised that educational approaches used with young children to prevent them from being injured should be consistent with and/or part of early childhood education and care centres' programmes.

6.7 It is recommended that injury prevention education should be combined with direct technical action strategies (such as introducing fire safety skills but also increasing the availability of smoke detectors for homes).

6.8 It is recommended that priority should also be given to educating parents, caregivers, and early childhood staff, in recognition that infants and young children are dependent on others for protection from injuries.

Notes

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This research was carried out for the Accident Compensation Corporation (ACC) in New Zealand which, under an act of parliament, pays compensation for accidental injuries. The ACC is also a major funder of injury prevention research and education.

People wishing to undertake injury prevention activity should study the full report on this study. The full report is:

Podmore, V.N. & Lealand, G. 1990 *Hazardous Environments: A New Zealand Study of Early Childhood Injury Prevention.* Research Report No. 106, Wellington: ACC.

Chapter 3 of the full report reviews the research literature on early childhood injuries and includes a large number of Australian and New Zealand studies.

The conceptual framework for this study is derived in part from

Haddon, W.Jr. 1980 Advances in the epidemiology of injuries as a basis for public policy. *Landmarks in American Epidemiology*, 95, pp. 411-420.

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