MEDICAL COMMISSION ON ACCIDENT PREVENTION HOME ACCIDENTS*

A review of selected literature, 1948-1964

The Causes of Accidents to Pre-school Age Children

JOHN O'KEEFE, M.R.C.S., L.R.C.P., D.P.H.

IN REVIEWING the literature on accidents to children in the home, I have attempted to confine myself to the pre-school child, and to finding out whether any investigations have been done on the essential causes of accidents, i.e. what set of circumstances actually lies behind accidents in the home. I have reviewed literature from the English speaking world generally, but cannot claim in any way that this review is complete.

Broadly speaking, statistics quoted in all reviews are agreed that home accidents are due to:

Falls—either on the same level or from different levels
Burns and scalds
Poisoning—ingestion and inhalation
Suffocation and strangulation
Other (e.g. foreign bodies, etc.)

in that order of frequency.

Predisposing factors

Influence of age and sex. Within the house, falls occur with equal frequency to boys and girls and are more common in ages 1–3 years.

*This paper was presented to the Medical Commission on 7 July 1965. It had been prepared by Dr O'Keefe for a panel of advisers under the chairmanship of Dr C. A. Boucher. The purpose was to provide a guide to the Commission upon work already done and upon the possible lines of research in the future. The Commission is grateful to the College of General Practitioners (one of its sponsoring bodies) and believes that this review will also be of interest to the College members. The Commission is appreciative of Dr O'Keefe's interest in this field which he kindly undertook in a period of vacation from overseas appointments.

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Outside the house, in the yard or the garden or in the street adjoining the house, accidental falls are much more common in boys than girls and occur increasingly from the age of four years upwards. Inside the house, the falls are commonly due to jumping on and falling off beds and cots, swinging and clambering over furniture and tripping over obstacles on the floor. Outside the house, falls are frequently the result of climbing trees and walls, attempting to ride bicycles, etc.—all common pursuits of young adventurous boys.

Burns and scalds commonly occur to children from 0–3 years within the house and occur equally between the sexes. They are due to being immersed in too hot baths, to hot liquids spilling on them from cookers in the kitchen or the feeding table or to unprotected basins of hot water on the floor. Unguarded fires are always dangerous. At the age of four years and over, burns are often caused, particularly to boys, as a result of " playing with fire ", e.g. matches and lighters. The clothing of small girls presents a special hazard.

Poisoning occurs equally in the sexes aged 1–4 years and is largely associated with the child's desire to put everything in his or her mouth—' orality ' as it has been called. The commonest materials giving rise to poisoning are those found in most households—polishes, disinfectant fluids, insecticides, paraffin (kerosine), turpentine, etc., whilst medicaments (aspirin and other salicylates, iron preparations, barbiturates) are the main cause of fatal poisonings to children. The need for medicine cabinets with child-proof locks is stressed.

Suffocation and strangulation, usually with a fatal outcome, occur in the infant (0–18 months), and may be due to being smothered in bed by soft mattresses or pillows on the one hand, and from restraining harness in prams and cots or from getting the head jammed in cot sides on the other. It should be noted, however, that there is argument that accidental suffocation in infants is uncommon and that many deaths reported as due to suffocation are in fact due to intercurrent and unsuspected disease, or inhalation of vomitus. Milk sensitization may also play a part.

Amongst other causes of accidents in children must be listed injuries due to household machinery (mangles, power operated mixers, car doors, mowers, etc.); foreign bodies, swallowed such as fishbones, or inhaled such as peanuts, or pushed up the nose or ear; and drownings. Most of these accidents occur in children from the age of three years upwards and are more common in boys than girls. The danger of the shallow ornamental pond to young children is well recognized.

Environment and socio-economic reasons. It has been said that a

child's environment is associated to a large extent with the ' atmosphere ' created by the human element, whereas in the aged environment is largely the presence, absence or the actual whereabouts of material assets. This being so, socio-economic circumstances and the general moral ' tone ' of the home should be expected to play a large part in the epidemiology of home accidents to children.

In fact, several surveys in this country and abroad have confirmed that accidents occur more frequently in broken homes. ' Broken homes ' means that the parents are social misfits, or are separated or divorced, are alcoholics and that generally the home life is difficult and unhappy due to lowered moral standards.

Many workers have found that accidents are more likely to occur in familes where the father is unemployed or where the family belongs to Social Class V rather than in others.

Accidents are also said to be prevalent in homes which are overcrowded and also in those where conditions are primitive, as for example, where there is no internal water supply.

Anxiety, worry and excitement in the home also tend to increase the accident rate, as also do visitors to the home and home moving. All these factors are said to give a child a feeling of insecurity and instability.

Disease. Illness in the mother or child also leads to vulnerability. Maternal illness includes causes such as migraine, sinusitis, coughs and colds which tend to make her less patient than usual and also less perceptive in her supervisory capacity. It has also been shown that many women are more accident prone immediately before and during menstruation and that this proneness is probably due to lethargy blunting her sense of judgment. This is often aggravated by the common habit of taking tranquillizers and similar panaceas at this time.

Illness in the child leads to irritability and bad temper, particularly when confined to bed against its will, and this, together with other factors such as heightened temperature, often causes it to behave rashly and injure itself in consequence.

Exhaustion. It has been postulated that a child when hungry and with a lowered blood sugar level is more liable to an accident. Exhaustion in both the mother and child also is a factor, and this is borne out by the fact that accidents in the home occur more frequently in the late afternoon and early evening—that is, at a time when both mother and child have come to the end of a tiring day (whether at domestic chores or play). This exhaustion factor is more common in homes with large families. It is also more common on Fridays, Saturdays and Sundays—when the home tends to be

overcrowded and also on Mondays when the mother has her washing day (in addition to her other chores).

Climate. Although climate is mentioned as a possible predisposing factor, no definite evidence appears to be available in the literature. My own feeling is that normal temperature and humidity variations would have little effect on the overall rate of home accidents, except that more accidents would be likely to happen outside than within the house when warm weather prevailed.

Seasons. There is no clear evidence that home accidents are more frequent at any particular season or month of the year than at others.

Housing. The effect of badly planned and designed homes (and of old houses) on home accidents is already well known and I need not labour the point of steep staircases, poor natural and artificial lighting, lack of internal water supply and so on.

Home furniture and equipment. Here again, the dangers of overfurnished, cluttered-up rooms, trailing electric flex, worn floor covering, and badly placed cooking equipment are all well known, and need not be further stressed. With the present day vogue of small residences with small rooms cluttered very often with large Victorian furniture and bric-a-brac (handed down by Great Aunt Mary) and then crowded with the family relations and friends, it is hardly surprising that the young inexperienced child sooner or later comes to grief.

Accident proneness

Most surveys on home accidents find that certain individuals are more accident prone than others, though not all are agreed on this. Accident proneness is not so obvious in the pre-school child, though of course such a child compared to an adult is more prone to accidents because of his relative clumsiness and inexperience. The accident-prone child or accident repeater, as he is called, is to be found in the older pre-school and school child. Investigations carried out on children who have had more than their fair share of accidents are said to have shown that accident repeaters are significantly more aggressive, less inhibited and more mentally and physically active than in normal controls. Some workers in the United States state that accident repeaters indulge in accidents as aggressive reactions to home frustrations, and suggest that such types should be readily amenable to psychiatric treatment.

As said earlier, accidents have been found to occur more frequently in certain homes than others, in particular where home conditions are not socially and economically ' healthy '. Psychiatric workers have suggested that accidental injuries may be the result of the resolution of emotional tensions in adults, particularly those result-

ing from unexpressed hostility and guilt. It is also suggested that some children who are emotionally unstable have an unconscious desire for an accident, presumably to bring themselves in the public eye, or as a means of expiating their feelings of guilt.

Another worker concluded that frequently parents of accident-prone children have a casual and fatalistic attitude to injuries in the home. Many of them take no trouble to remove or repair objects which are likely to cause or have caused injury and have a pre-conceived idea that " accidents will happen—even in the best regulated families ". Casualness is demonstrated by the reluctance of parents to get expert attention to the child's injuries. Very frequently this casual and fatalistic attitude is linked with parental ignorance of potentially dangerous practices in the home and several workers have stressed that such ignorance is an important factor. In many surveys of home accidents, it was found that parents stated that they did not know or realize that such-and-such was dangerous for children to play with, or to suck or eat. I feel that very often the pleas of ignorance are made to cover up a causal fatalistic carelessness on the part of the parents, i.e. a total lack of responsibility.

Accident-prone children have been described as falling into three categories—(*a*) the show-off, who takes risks to show how clever he is, (*b*) the discouraged child who forces himself to take part in an activity in which he knows he will fail and (*c*) the reckless child who delights in defying all the rules. A World Health Organization report points out that the aggressive child (gang leader) is a cause of accidents to others—encouraging them to take unjustified risks (' last across the road ' etc.). It also stresses the importance of the ' near accident ', as it is only chance that keeps it from being a real accident. One author regards the sick-prone family as also accident-prone.

Lastly, another author sums up the accident-prone child as one who has superior gymnastic skills and strengths, has more aggressive behaviour, attempts to dominate social situations, is a poor loser and is rude, overactive, restless and impulsive.

Conclusions

An attempt has been made to discover from the literature reviewed whether any common basic factor or factors exist that might be considered responsible for accidents to the pre-school child in the home. Evidence of such basic factors has been observed and general measures designed to overcome them suggested.

There appears to be little doubt but that the majority of home accidents in children are preventable. In epidemiological terms, an accident can be regarded as the interaction of host and agent in a

suitable environment. In accidents, the environment must have a factor immediately apparent (loose stair rod, worn carpet, etc.) and another factor which is abstract but nevertheless very real and possibly more dangerous: the mental factor. If the mental factor, compounded of careless, fatalistic, ill-educated or ignorant outlooks could be overcome, and parents thus made more responsible in their attitudes to their children, progress would be made in the prevention of accidents in the home. Such re-education of parents would lead to more adequate supervision of their children, would teach them to train their children more adequately to fend for themselves and would also lead parents to reassess the potential physical dangers within the home.

What of the tired overworked mother and the home accidents resulting from her defective supervision and even absence from home? It has been advised that she should be encouraged to have a ' siesta ' after lunch, and that her pre-school child should also rest. In some areas it might even be possible to establish local authority rest centres.

Where mental stresses are apparent in a mother or child, it may be of value to them to obtain psychiatric help. Such help can even be given by the social worker, health visitor or clergyman, as the case may be.

A community may be approached by mass media health education on a local or national scale, but one worker stresses that the ' horror ' approach should not be used. However, most workers agree that the approach most likely to succeed is the individual one, through the health visitor, social worker or family doctor who is accepted in the home as a friend and counsellor, and who is often in the happy position of being able to " strike while the iron is hot ", pointing out hazards in the home while dealing with little Tommy's finger cut from playing with a kitchen knife. It is also suggested that home accident prevention should feature more widely in the medical student's curriculum.

In conclusion, a short note of warning. As Colebrook points out, burnt fingers means " once bitten, twice shy ". Children learn by adventure and adventure means cuts and bruises, and it is important for the healthy child's upbringing that he is not completely protected in a physical way from all the buffeting of life.

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"The disorders of teeming women do not belong to midwives, but they ought to commit themselves to the care of a physician; a midwife's business being only to be well instructed in her profession."

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