

CAUSAL FRAMEWORKS IN CHILD UNINTENTIONAL-INJURY PREVENTION POLICY IN NEW ZEALAND

Belinda Reeve¹

Abstract

This paper begins by outlining Nick Spencer's (1999) argument that there is a split in causal frameworks in child health research. One body of research looks at the micro-level causes of child health outcomes, while another body of research examines the more macro-level causes such as socio-economic inequalities in society that lead to differences in outcomes between population groups. The paper then attempts to show that this causal split is also found in child unintentional-injury research, and how this may lead to different prevention methods being advocated. The policy analysis section of this paper demonstrates how this split is also found in policy documents from different government departments. Documents from ACC focus on micro-level causes of injury such as individual behaviour, while the Ministry of Health emphasises macro-level factors such as socio-economic status. These documents are then compared to British policy documents on child unintentional-injury prevention (produced by the Department of Health), which provide a very different causal story. It is argued that the different portrayal of the causes of unintentional injury by different government departments in New Zealand serves to allocate responsibility for injury and justify the different injury prevention measures advocated by ACC and the Ministry of Health. The paper concludes with a discussion of the limitations of the causal stories presented, and the possible need for central government policy that solely focuses on child unintentional-injury prevention.

INTRODUCTION

Unintentional injury is a major health problem among New Zealand children. Injuries are the leading cause of death in the age group one to four years, and the second leading cause of hospitalisation of children, after respiratory diseases (Ministry of Health 1998a:47). Despite the importance of child unintentional injuries to child health, research on the causation of injuries has some limitations, similar to those found in research into the causation of child health in general. Nick Spencer (1999:175) argues that there is a split between research that examines either the micro-level or the macro-level causes of child health problems. Research into micro-level causes focuses on the immediate environment of the child, influenced mainly by parental health and

1 The author is a Law/Arts student at the University of Auckland.

culturally determined behaviour. Research into macro-level causes is concerned with structural and material influences that are mainly centred outside the child's immediate environment and are beyond parental control (Spencer 1999:175). Using playground injuries and unintentional poisonings as a case study, the literature review section of this paper investigates how these two conflicting explanations of child health determinants exist in research into the causes of child unintentional injuries. It also shows how the study of a particular cause leads to different interventions being advocated, and the possible limitations of studying a singular cause in isolation from other causes or levels of causation.

An analysis of the selected policy documents that touch on child unintentional injury similarly shows a split between focusing on the micro-level or macro-level causes of injury. Policy documents from ACC focus on the individual-level causes of injury such as behaviour, while documents on child health from the Ministry of Health centre on population-level causes of ill health such as economic inequalities in society. This contrasts to British unintentional-injury prevention policy, which specifically focuses on children as a target group, and discusses both the micro-level and macro-level causes of child unintentional injury.

It is possible that the reasoning behind the contrasting causal frameworks of the two government departments in New Zealand is different to that of scientific research. Deborah Stone (2002:204) argues that, in the political world, causes are strategically portrayed in order to allocate blame and responsibility for a particular problem. Causal theories are not right or wrong, nor are they mutually exclusive (Stone 2002:204). The policy analysis section of this paper attempts to show how ACC and the Ministry of Health strategically frame the causes of child unintentional injuries in policy documents in order to legitimise their role in unintentional-injury prevention and assign responsibility to different groups. The analysis also shows that although the reasoning behind contrasting causal models in scientific research and policy documents may be different, there is a similar outcome, in that the causal frameworks presented have several limitations, leading to an incomplete representation of causation in child unintentional injuries.

LITERATURE REVIEW

Nick Spencer notes that the main determinants of child health have been the subject of a long and intense debate (Spencer 1996, cited in Spencer 1999:175), with two apparently conflicting explanations. One school of thought focuses on the immediate environment of the child, influenced mainly by parental health-related and culturally determined behaviour. The other school of thought is concerned with structural and material influences that are mainly centred outside the child's immediate environment and are beyond parental control (Spencer 1999:175).

Micro-environmental explanations of child health centre on the parents, particularly the mother, and the physical and emotional environment in which they nurture their children. Micro-level variables tend to be studied in isolation from their socio-economic context and are broadly viewed as the individual responsibility of the parent, or the result of wider cultural factors independent of economic and other environmental influences (Finerman 1994, cited in Spencer 1999:177).

On the other hand, macro-level explanations of child health outcomes shift the focus from the individual to the wider society. Child health is seen as being determined primarily by social, political and economic forces outside the control of the individual and by established structures of society that favour privileged minorities (Spencer 1999:177). The implicit message in this causal framework is that child health is most likely to improve in response to social and economic changes that minimise poverty and favour the majority.

However, research focusing on a single causal factor or a single level of causation has several limitations. There is evidence that the macro-level and micro-level variables that influence child health do not operate independently, but are closely linked by causal chains made up of a range of mediating variables operating on different levels (Spencer 1999:182). Research focusing on a single causal factor sheds little light on how those factors interact with others to cause health problems such as injuries and their outcomes (Whitelaw 1991:190), and how the mediating variables between micro-level and macro-level causes operate.

Although the general trend in scientific research is to investigate a single causal factor, research in the field of epidemiology attempts to address how different factors interact to cause a particular health problem. The belief that population patterns of disease and health can be explained by a complex web of numerous interconnected risk and protective factors has become one of epidemiology's central concepts (Susser 1985, Buch et al. 1988, cited in Krieger 1994:887). This has led to the widespread adoption of multi-causal conceptual frameworks in epidemiological research (Krieger 1994:887). For example, William Haddon (1972, 1973, cited in Runyan 2003) has developed two complementary conceptual frameworks for understanding how injuries occur and for developing strategies for intervention. Haddon's matrix considers both the proximal causes of injuries, in terms of interactions between the host, the agent and the environment, and the distal causes of injury, such as the socio-political milieu affecting the process, which could include cultural norms and mores and the political environment (Runyan 2003:61).

Child Unintentional Injury Causation

Despite the existence of complex causal frameworks such as Haddon's matrix, and proven links between macro-level and micro-level causes in other areas of child health, a large amount of research on child unintentional injuries still focuses on one cause or a single level of causation. It is evident in the case studies of this literature review (child unintentional injuries and playground falls) that there is very little research that investigates the connections between micro-level and macro-level causes of child unintentional injuries.

Child Unintentional Poisoning

Research on the micro-level causes of unintentional poisoning mainly focuses on the traditionally studied causes of child unintentional injury; namely the child's development, environmental hazards and parental behaviour. The characteristics of the child – in particular, his or her intelligence level and psychomotor skills – have all been implicated in any predisposition to accidents (Sand 1991:82). Children's physiological differences to adults during the maturation process, such as metabolic rate (Guzelian et al. 1992, cited in Schneider and Freeman 2000:4), also contribute towards children's greater susceptibility to the adverse effects of environmental exposure (Schneider and Freeman 2000:4). In the context of poisoning, an ingested dose of a toxic agent in an adult would pose less of a threat than the same size dose for a child, as the reduced body mass of the child is less able to deal with the insult (Schneider and Freeman 2000:4).

Environmental hazards are thought to be a main cause of child unintentional poisonings, particularly unsafe packaging and storage. Medications involved in suspected poisoning are most frequently packed in containers without child-resistant sealants (63%) or transparency blisters (20%) (Wiseman et al. 1987b). Wiseman et al. (1987a) found that in many instances the substances involved in poisoning were out of their usual storage places or had been put into some other container.

In a large body of research, the risk of injury to children is related to the parental ability to judge and recognise correctly both the developmental skills of the child, the level of skill necessary for the safe completion of a task, and the level of supervision of children by parents (Jordan and Valdes-Lazo 1991:107). In early life, safety is ensured solely by the "passive" protection by adults such as parents and teachers and by the physical environment. Thus Sibert (1975, cited in Meredith 1993:254) argues that with regard to childhood unintentional poisoning in Western Europe, accidental poisoning is particularly likely to occur when parents are inattentive or neglectful, as at times of family crisis.

Playground Injuries

As with child unintentional poisonings, research that looks at the micro-level causes of playground injuries examines environmental hazards, children's development, and parental supervision and behaviour. Studies have suggested positive associations between factors such as risk-taking behaviour (Turner et al. 2004:99), aggressive behaviour, overactivity and the occurrence of playground injuries (e.g. Bijur et al. 1986, Jaquess and Finney 1994, Rivara 1995, cited in Mowat et al. 1998:39).

Physical hazards in the environment are seen as crucial in the causation of playground injuries. Macarthur et al. (2000:381) argue that the majority of playground injuries are caused by falls from the equipment, and that therefore height of fall and under-surface are considered key issues in the prevention of injuries from falls. For example, Laforest and colleagues found that the risk of injury was 1.7 times more likely on grass than on sand (Laforest et al. 2001, cited in Norton et al. 2004:106).

Inadequate supervision is thought to contribute to playground injuries, because children need the attention of an adult as they play (Leung and Robson 1993, cited in Mowat et al. 1998:39). It is also possible that boys and girls are differently socialised by their parents with respect to injury-risk behaviours. A study by Morrongiello and Dawber (2000:99) examined the relationship between mothers' reactions to their children engaging in injury-risk behaviours on playgrounds and their children's injury and risk-taking histories. They found that mothers responded to their sons' risk-taking less often, and were slower to intervene, in comparison to how often and how quickly mothers intervened to redirect their daughters' risk-taking behaviour.

Macro-Level Causes of Unintentional Injuries

At the other end of the causal spectrum, research into the macro-level causes of unintentional injury investigates the differences in rates of injury and causes of injury between population groups, and attempts to address these differences. One of the most persistent epidemiological features of childhood unintentional injuries is the increased risk among children from disadvantaged social backgrounds (MacFalane and Fox 1978, Sharples et al. 1990, Jarvis et al. 1995, Roberts and Power 1996, cited in Reading et al. 1999:321). An association between injury rate and socio-economic status has been demonstrated in studies from New Zealand (Roberts et al. 1992, cited in Jolly et al. 1993:438) and Australia (Jolly et al. 1993:443). For example, Reading et al. (1999) investigated the relationship between social disadvantage and accidental injury rates in preschool children using a multi-level modelling (statistical) approach in order to distinguish effects operating at the level of the individual from those operating at the level of the neighbourhood (Goldstein 1995, cited in Reading et al. 1999:322). The multi-

levelled modelling approach showed that increased risks of accidents were a feature of deprived neighbourhoods rather than just individual families (Reading et al. 1999:327). These contextual area-level effects could reflect cultural attitudes to safety and child supervision, which may have more to do with the neighbourhood where people live rather than their personal family circumstances (Reading et al. 1999:328).

Interventions to Address Micro-Level Causes of Injury

Research that examines the micro-level causes of child unintentional injuries appears to be implicitly based on a medical model of health. The medical model typically refers to a unidirectional, biological cause-and-effect relationship between the agent (the proximal cause of the health problem) and the host (the individual susceptible to the health problem) (Runyan 1985:605). Such a perspective points to the individually targeted, behaviour-change interventions that are typical of medical practice (Runyan 1985:605). For example, King and Ball (cited in Chalmers 1992:5) argue that there is a fundamental need to educate the community, especially parents, about possible hazards and potential measures available to improve safety in general. In a study by Podmore and Leland (1990:73), interviewees called for increased education for children and parents on poisoning prevention, to teach what should be not touched or ingested, and what should be placed out of reach.

In injury prevention, another strategy to address micro-level causes typically involves minimising hazards in the environment. Standards have become central to efforts to minimise environmental hazards that cause injury, for both playground injuries and childhood poisonings. Standards such as the NZS 5828: Part 1: 1986 Specifications for Playgrounds and Playground equipment (and the more recent 2004 version) provide general guidelines covering both play equipment and surfacing, which have a critical influence on injuries in falls from playground equipment (McKay 2003:194). Thomson (1988, cited in Podmore and Leland 1990:64) says that this standard has been instrumental in changing established practices and public attitudes towards safety aspects of playgrounds.

Interventions to Address Macro-Level Causes

Studies that involve focusing on the macro-level causal factors of child unintentional injuries seem to emphasise a public health model, where events are conceived as the result of the bi-directional associations among multiple variables. This model focuses attention on the multiple (macro-level) factors that contribute to health concerns, as well as understanding the characteristics of the individual who manifests the problem (Runyan 1985:605). Thus solutions to public health problems include diverse domains such as housing, transportation, labour relations and welfare (Runyan 1985:605).

Reading et al.'s (1999:329) study suggests that with regard to unintentional-injury prevention, area-based interventions designed to improve the general quality of the social and physical environment may be as effective as those designed specifically with safety in mind. Mohan (2000:4) argues that injury-control activities will not be successful around the world unless we address the issues of social, economic and technological environments and the power available to people to influence decision-making regarding their own wellbeing. Socio-economic status, which is relatively difficult to influence through accident-prevention programmes, nevertheless merits the attention of those responsible for prevention, because the immediate environment of the child, the home and surroundings are closely linked to the socio-economic status of the family (Sand 1991:82).

Discussion

Child unintentional-injury research only infrequently provides a connection between different levels of causation, despite the existence of complex causal models such as Haddon's matrix. Research into micro-level causes rarely deals with population-level factors, which may influence injury rates, and research into macro-level factors only infrequently links these more indirect causal factors to the causes of actual injury events such as playground injuries. There is also little understanding of how macro-level and micro-level causes relate to each other. For example, the mechanism by which area or individual poverty mediates the effect on injury rate is not well understood. Inadequate income to buy the required safety equipment is postulated as one possible mechanism (Jolly et al. 1993:443).

Although research on child unintentional injuries does not link macro-level and micro-level causes, Spencer (1999:179) gives several examples of child health issues where mediators are known to link micro-environmental factors associated with child health with the macro-environment. For instance, dysfunctional parenting and the level of parental stimulation and supervision are micro-level factors correlated with adverse physical and mental health outcomes in childhood. Maternal education level has been linked to parenting styles (Sampson and Larb 1999, cited in Spencer 1999:179) and is partly determined by macro-economic and societal factors (Palloni 1981, cited in Spencer 1999:179). Maternal education levels act as a powerful mediating factor between macro-economic and micro-environmental factors. It could be argued that research into child unintentional injuries that similarly linked micro-level and macro-level causes and examined mediating factors could provide a more satisfactory causal model, which may lead to more effectively targeted interventions to prevent injury.

Conclusion

Child unintentional injury can be perceived as being caused by both micro-level factors, such as physical hazards, and macro-level factors, such as socio-economic disadvantage. A large body of research focuses on the immediate environment of the child, including children's cognitive and physical development, physical hazards and parental behaviour. The other school of thought is concerned with structural and material influences, which are mainly centred outside the child's immediate environment and are beyond parental control (Spencer 1999:175), such as socio-economic status. Although some injury researchers hypothesise a possible relationship between micro-level and macro-level causes of unintentional injury (e.g. Satterthwaite et al. 1996), there are few examples of research that attempt to link macro-level and micro-level variables, or explain the pathways between the two. Arguably, research that does attempt to link variables across different levels of causation would lead to preventive and health promotion strategies that address the complexities of child unintentional injuries and would also avoid strategies that decontextualise micro-level causes from the macro-environment (Spencer 1999:189).

POLICY ANALYSIS

Despite the obvious importance of unintentional injuries as a child health problem, there are few current government policy documents that have child unintentional injuries as their central concern. However, there are clusters of documents from different government departments that touch upon child unintentional-injury prevention. ACC has recently published the *New Zealand Injury Prevention Strategy* (Dyson 2003a) and some associated documents. These focus on injury prevention across the entire New Zealand population and mainly seek to address micro-level causes of injury, such as behaviour and environmental hazards. At the other end of the spectrum is the *Child Health Strategy* (Ministry of Health 1998b), which is supported by the *Child Health Programme Review* (Ministry of Health 1998a). These documents focus on the macro-level causes of ill health, such as inequalities in society. They outline groups in the child population at risk of poor health, and some key intervention strategies to prevent unequal health outcomes. These two groups of documents can be contrasted with policy documents from the British Department of Health, which specifically deal with child unintentional-injury prevention and, therefore, provide a more comprehensive explanation of the causes of child unintentional injuries.

Injury Prevention Policy

The ACC's *The New Zealand Injury Prevention Strategy* provides a framework for the policy development and service-delivery activities of government agencies and non-government organisations with an involvement in injury prevention (Dyson 2003a:1).

The implementation plan outlines a programme of activities for 2004/2005 that relate to the strategy's actions and will help achieve the strategy's objectives (Dyson 2003b:6). The *Preventing Injury from Falls* strategy aims to reduce the incidence of and severity of injury from falls and the impact of fall-related injury on the health and wellbeing of New Zealanders (Dyson 2004:2). It directly supports the *New Zealand Injury Prevention Strategy* and will assist in co-ordinating and guiding the increasing level of activity nationwide that is aimed at preventing injury from falls (Dyson 2004:2).

Child Health Policy in New Zealand

The *Child Health Programme Review* identifies effective interventions across a range of child health areas and some implications for related policy and services (Ministry of Health 1998a:1). In concert with the *Child Health Strategy* (Ministry of Health 1998b) it provides a framework for planning, funding, providing, researching and evaluating preventive services for children. The strategy is in compliance with the intention and direction of the United Nations Convention on the Rights of the Child, which advocates that the essential needs of children should be given high priority in the allocation of resources (Ministry of Health 1998a:3). It takes a public health approach, which focuses on reducing the risk and impact of injury and disease, improving the quality of life, prolonging life and reducing the need for health services (Ministry of Health 1997, cited in Ministry of Health 1998a:3).

Causal Frameworks: Injury Prevention Policy

The main causes of unintentional injury that the *New Zealand Injury Prevention Strategy* and its associated documents identify are culturally determined behaviours and attitudes (namely unsafe attitudes towards personal safety) and physical hazards in the environment. The Strategy recognises that a broad range of interacting factors affect how many injuries occur. Attitudes towards safety and behavioural factors are critical, and environmental and engineering factors are also important in reducing all types of injury (Dyson 2003a:6). It also states that unintentional injury may result from more complex underlying social factors such as poor living conditions (Dyson 2003a:6).

However, on further examination it becomes apparent that the causes that are most central to the strategy's focus are the micro-level causes of injury rather than the macro-level causes. The main causes of injury identified are hazards in the environment, and negative attitudes and beliefs about unintentional injuries; namely, that unintentional injuries are not preventable. *Preventing Injury from Falls* says that "most falls are preventable – they could be avoided, or the severity of the resulting fall reduced, if the environment was safer and individual risk taking and personal fall risk factors are minimised" (Dyson 2004:2). Central to these documents are the interactions between the immediate causes of injury – such as individual behaviour and hazards in the environment – which mean that the injury event takes place.

Causal Frameworks: Child Health Policy

The causes of ill health identified in policy documents that focus on child wellbeing provide a strong contrast to those identified in injury prevention policy. Policy that is directed at improving child wellbeing draws on population-level data and provides a holistic model of health causation. It has a strong focus on macro-level determinants and particular groups in the population that are at risk, such as tamariki Māori (Ministry of Health 1998a:15).

The *Child Health Strategy* says that epidemiological studies have indicated that a number of health, social and economic disadvantages are more commonly found in the families and whānau of children/tamariki with poor health (Ministry of Health 1998b:14). These underlying macro-level factors (which have a cumulative effect) include prolonged low income, long-term unemployment, poor housing and poor neighbourhoods, and low educational and vocational attainment of parents (Ministry of Health 1998b:14). The *Child Health Strategy* identifies certain individual-level characteristics that may mitigate the risk or be protective for those who are part of a population group experiencing multiple risk factors; for example, bonding and social factors, (physical) environmental factors, and a child's individual characteristics, such as cognitive skills (Ministry of Health 1998b:15). Settings in which children/tamariki and their families and whānau live, work and play (including playgrounds) are identified as contributing significantly to children's health status (Ministry of Health 1998a:23). Overall, however, the public health approach of the strategy means that the focus is on determining risk factors at many levels of analysis for an entire population at risk, rather than for an individual (Runyan 1985:603).

Injury Prevention Interventions

The focus on micro-level causes of injury prevention policy is evident in the injury prevention methods the ACC strategies identify. Interventions the *Injury Prevention Strategy* promotes are directed at individual-level factors such as changing beliefs and behaviour and minimising environmental risks. The Strategy attempts to "raise awareness and acceptance that most injuries can be prevented" (Dyson 2003a:15). It aims to "control exposure to hazards through the improved design, and maintenance of environments, systems and products", and "create and promote standards that facilitate the safer design and use of environments, systems and products" (Dyson 2003a:17). Key activities in the *Implementation Plan* are similarly environmental control and educating the public. For example, "develop and promote public education initiatives to promote product safety primarily across the six injury prevention areas" (Dyson 2003b:15). *Preventing Injury from Falls* says that for school-aged children, the strategies that show promise rely predominantly on the modification of domestic or play environments, such as alteration of playground surfaces (Dyson 2003b:13). Although the *New Zealand Injury Prevention Strategy* aims to support the development of positive social

environments, these are identified as social environments that promote resourcefulness, resilience and respect and responsibility for self and others (Dyson 2003a:17). This suggests that individual-level change is the desired outcome, rather than changes to the wider aspects of society which influence differences in the rates of injuries between population groups.

Child Health Interventions

The *Child Health Programme Review* endorses environmental modification through codes of practice, legislation and regulation as part of a comprehensive programme that includes education and home visiting, in order to reduce unintentional injuries (Ministry of Health 1998a:5). However, the *Child Health Strategy* says very little about specific interventions to reduce injury rates. It acknowledges that children from disadvantaged families are more likely than other children to be at risk of unintentional injury and that "Specific interventions aimed at improving the safety of the community environment and homes were identified as effective in reducing accidents" (Ministry of Health 1998b:24).

The main focus of the *Child Health Strategy* is on health promotion and reducing overall health inequalities by addressing the intermediate factors between socio-economic determinants and health, such as material resources (Ministry of Health 1998b:18). This means that interventions are targeted at disadvantaged groups including tamariki Māori and children from low socio-economic groups, with very little emphasis on specific interventions to reduce injury rates. The strategy says that addressing socio-economic factors that cause poor health outcomes will require societal changes and intersectoral co-operation. This is because the health of children/tamariki and their families is influenced by education, income, employment, housing and other factors (Ministry of Health 1998b:22). Interventions that are identified as effective for at-risk children are those that have multiple components, operate in multiple settings, and provide families with practical assistance (Ministry of Health 1998b:15–16). For overall health gain, home visiting is identified as a key intervention, especially in terms of children from families experiencing multiple social and economic disadvantages, with one of the postnatal benefits being fewer accidental injuries (Ministry of Health 1998b:18).

Causal Theories in Politics

From the above analysis, it can be argued that the split in causation that is present in academic literature is also present in policy documents from different government departments involved in child unintentional injury. ACC focuses on the immediate, micro-level causes of injury events, such as individual behaviour and hazards in the environment. The interventions that injury prevention policy endorses are likewise aimed at modifying these micro-level factors. The Ministry of Health, however, focuses

on the more macro-level factors that determine differential rates of injury and illness between population groups. Policy documents such as the *Child Health Strategy* argue that interventions across many levels, including structural changes in society, are likely to influence health outcomes, especially for disadvantaged groups.

Although government departments seek to locate a central cause of unintentional injury and then minimise or eliminate it in a way that reflects academic research on this topic, the reasons why this is done may be different in the political world. Deborah Stone (2002:196) says that although complex causal explanations are possible with regard to most events, they are not useful in politics, because “they do not offer a single locus of control, a plausible candidate to take responsibility for a problem, or a point of leverage to fix a problem”. No single, identifiable actor can exert control over the whole system or web of interactions, and without overarching control, there can be no purpose or responsibility (Stone 2002:196). Stone says that in the world of policy, finding the true or ultimate cause of harms is not what is at issue (p.204). Rather, what is important is locating moral responsibility and real economic costs on a chain of possible causes, and the location is dictated more by the political strength of different groups than by any statistical proof or causal logic (p.206).

In politics, causal theories are neither right nor wrong, nor are they mutually exclusive. They are ideas about causation, and policy politics involves strategically portraying issues so that they fit one causal idea or another (Stone 2002:197). The different sides of the issue act as if they are trying to find the “true” cause, but they are always struggling to influence which idea is selected to guide policy. Political conflicts over causal stories are therefore more than empirical claims about sequences of events; they are fights about the possibility of control and the assignment of responsibility (Stone 2002:197). Arguably, Stone’s portrayal of the function of causal models in policy politics is reflected in policy documents about child unintentional-injury prevention.

The Accident Compensation Corporation

ACC’s Thinksafe campaign has a focus that is similar to that of the *New Zealand Injury Prevention Strategy*: to “change the mindset of a nation that has perhaps grown to accept ‘accidents’ – at home, at work, on the road, in sport and recreation – as part and parcel of the rugged New Zealand character” (ACC 2001:1). ACC Thinksafe attempts to redefine the public’s conception of unintentional injury, from “accidents” (unforeseeable, unpredictable events) to events that have a cause that can be anticipated (ACC 2001:1). “And if there is a cause, there has to be responsibility” (p.2). ACC’s causal story portrays individual behaviour as one of the central causes of injury and thus places responsibility for accidents primarily at the feet of the individual: “It is your responsibility, the responsibility of the person next to you ... The responsibility of the parent taking the kids to the playground” (ACC 2001:2). In order to catalyse the issue of

unintentional injury, ACC attempts to shift the perceived cause of unintentional injury from an unforeseeable and unpredictable event, to individual inadvertence, where ordinary people do not understand the harmful consequences of their wilful actions, even though those consequences are predictable by experts (Stone 2002:192–193).

This causal story may place responsibility for unintentional injury with individuals, but it also legitimises ACC's public awareness campaigns, and empowers them in their role as "the voice in the ear, the conscience sitting on the shoulder" (ACC 2001:17); in other words, the fixer of the problem (Stone 2002:204). ACC's policy documents primarily focus on the individual-level causes of injury events, but by doing so they minimise the macro-level causes of injury, which arguably play a significant role in determining rates of injury, and how these may possibly affect individual behaviour, or be relevant to injury prevention policy.

The Ministry of Health

When child unintentional injury is viewed as part of child health in general by the Ministry of Health, rather than as part of unintentional-injury prevention, the causal story that is presented in policy documents is very different. The general policy trend in the Ministry of Health is to shift the causes of illness and injury away from individual behaviour, and towards socio-economic differences between groups in society. This is clear from documents such as *Reducing Inequalities in Health*, which says that "the reasons for health inequalities are complex and generally beyond the control of the groups affected" (Ministry of Health 2002:iii), and that "although individuals make choices about how they act, those choices are conditioned cumulatively and are partially determined within economic, historical, family, sociocultural and political contexts" (Ministry of Health 2002:17).

Similarly to ACC, this causal shift away from individual inadvertence and towards the structural aspects of society could be seen as an attempt to legitimate the Ministry of Health's focus on public health and risk groups within populations. By presenting the primary cause of unequal outcomes in health as socio-economic disadvantage, the Ministry is able to target health promotion interventions at those suffering disadvantage, or to call on other government departments to tackle the root causes – that is, to address the social, cultural, economic and historical inequalities themselves (Ministry of Health 2002:20). On the other hand, the *Child Health Strategy*, by focusing on the wider causes of ill health, addresses in only a limited way the micro-level causes of injury events themselves, such as behaviour or hazards in the immediate physical environment. Ministry of Health policy documents contain limited information about the causes of specific injury events, such as unintentional poisonings.

BRITISH CHILD UNINTENTIONAL-INJURY PREVENTION POLICY

British health policy documents that examine child unintentional injury provide a contrasting causal story to those found in policy documents from ACC and the Ministry of Health. Current British health policy places a strong emphasis on the reduction of health inequalities, both at a population level and for particular causes of morbidity or mortality. For example, the 1999 white paper *Saving Lives* emphasised the need to reduce health inequalities in the population and to reduce child accidental injuries (Millward et al. 2003:1). These two goals provide a central focus for the child health policy document, the *Children's National Service Framework* (Department of Health 2004). The key message of this document is that it is necessary to “tackle health inequalities, addressing the particular needs of communities and children and their families who are likely to achieve poor outcomes” (p.9).

British Child Health Policy

The *Children's National Service Framework* (Department of Health 2004) is supported by *Prevention and Reduction of Accidental Injury in Children and Older People* (Millward et al. 2003). This policy document constitutes an evidence briefing which highlights measures that have the potential to prevent or reduce accidental injury, with particular reference to children and older people (p.1). The document outlines the factors that contribute to accidental injury, evidence of effective interventions, and gaps and inconsistencies in the evidence (Department of Health 2004:2).

Causal framework

Despite the focus of the Department of Health on health inequalities, *Prevention and Reduction of Accidental Injury* discusses the micro-level causes of child accidental injury, such as the maturation process (Millward et al. 2003:9). However, it also stresses that the causes of accidental injury are multi-factorial and goes on to discuss the role of macro-level factors in injury causation (p.9).

Prevention and Reduction of Accidental Injury says that in addition to environmental and behavioural factors, propensity to risk also includes socio-economic factors, such as poor housing: “while everyone is at risk of injury, the evidence reveals that the poorest in society are at greater risk” (British Medical Association 2001, cited in Millward et al. 2003:10). A strong association between childhood injury and social deprivation has been revealed (Towner and Dowsell 2001, cited in Millward et al. 2003:15) and the risk of injury can increase with socio-economic deprivation (LaFlamme and Diderichsen 2000, cited in Millward et al. 2003:15). The document says that in Britain the gap between accidental injury mortality rates in children from advantaged and disadvantaged environments has widened (Roberts and Power 1996, in Towner and Dowsell 2001, cited in Millward et al. 2003:15).

In a sharp contrast to policy documents from ACC, *Prevention and Reduction of Accidental Injury* minimises the significance of personal behaviour in injury causation: only a small amount of injury is seen as being caused by risky behaviour (BMA 2001, cited in Millward et al. 2003:10). Instead, the document cites evidence that suggests that “the social gradient reflects differential exposure of children to various hazards” (Laflamme and Diderichsen 2000 cited, in Millward et al. 2003:15).

Thus, British policy regarding child unintentional injuries seems to be much more focused on health inequalities in injury rates than that of New Zealand policy documents. It offers a more complete causal explanation of accidental injury, especially in light of the fact that *Prevention and Reduction of Accidental Injury* specifically discusses accidental injuries to children as a focus group, rather than as part of the larger population. It also specifically discusses particular injury events, unlike policy documents from New Zealand’s Ministry of Health, which focus on more macro-level concerns.

It can be argued that although *Prevention and Reduction of Accidental Injury* deals with the traditional causes of child unintentional injury, because it has been produced by the Department of Health (in concert with the Health Development Agency), it also draws on the Department’s concern to reduce child health inequalities. Because child unintentional injury is dealt with by only one central government agency, only one causal story is presented, drawing on both micro-level and macro-level causal factors, which in turn will determine the provision of services. Thus, *Prevention and Reduction of Accidental Injury* presents a more comprehensive and satisfactory explanation of child unintentional injury causation in the policy sphere.

DISCUSSION

Although ACC and the Ministry of Health have different models of causation regarding child unintentional-injury prevention, there does not appear to be any conflict over which model of causation should primarily guide child unintentional injury policy, as outlined in Stone’s theory of causation in politics. Unintentional injury causal frameworks from the Ministry of Health and from ACC exist simultaneously, and are not mutually exclusive.

Rather than a tug of war over the way the causes of child unintentional injury are framed and who should take responsibility for prevention, it could be argued that one of the main issues is that there are a large number of non-government and government organisations that have child unintentional-injury prevention as the central or secondary focus of their activities. Therefore, there are many programmes from different groups, which attempt to address a variety of causes of injury, and this in itself may be a problem.

The IPRC report *Auckland City Community Profile: Opportunities for Promoting a Safety Culture* stressed the duplication of agencies and resources as a major barrier to the successful implementation of injury prevention activities. Participants suggested that, historically, the health sector in particular had been involved in funding a number of groups undertaking the same injury-prevention activities (Coggan et al. 2002:119). Programmes from the Ministry of Health and ACC that target child unintentional-injury prevention sometimes run at the same time and with some degree of crossover and collaboration between departments. For example, there are eight New Zealand community prevention projects currently operating under the Ministry of Health, for which the initial stimulus for action was the Public Health Commission. These programmes were developed before the ACC Thinksafe Community Projects, but ACC is one of the key partners in these programmes (Coggan et al. 2003:28).

It could be argued that the best way to deal with the problem of duplication of programmes and to provide some cohesion for injury prevention activities across different government and non-government organisations would be for national government to provide a policy document that has child unintentional injuries as its sole focus, similar to the British document *Prevention and Reduction of Accidental Injury*. By involving the Ministry of Health, ACC and other related organisations, such a document would be able to draw on the micro-level and macro-level causal frameworks of each department, presenting a more comprehensive model in which to address child unintentional-injury prevention. Such a model could recognise that while the more widely studied micro-level causes of child unintentional injury are important, these need to be considered and addressed in light of macro-level causes such as socio-economic status in order for service provision to be more effective.

CONCLUSION

The field of child unintentional-injury prevention is characterised by the considerable number of non-government and government organisations that attempt to minimise this burden on the health of children. However, this paper points towards the need for the co-ordination of effort and the co-operation of groups involved in injury prevention.

Scientific research into child unintentional injuries appears to be largely split between research that focuses on micro-level causes of unintentional injuries, and that which focuses on macro-level causes. One group of research focuses on the immediate causes of the injury event, such as the behaviour of the child and hazards in the environment. The other body of research looks at how the differences in injury rates in populations relate to more macro-level factors, such as socio-economic status.

This causal split resembles that of the different causal frameworks in policy documents from ACC and the Ministry of Health. ACC focuses on the more micro-level causes

of injury in general, while the Ministry of Health looks at differences in the health outcomes of various population groups. The different ways in which the causes of injury are portrayed in turn leads to different strategies to eliminate or minimise what each department sees as the central cause of injury. It is possible that this duplication of causal frameworks and injury prevention programmes is a barrier to successful injury prevention. Arguably, a government policy document that is only about child unintentional-injury prevention (as is the British policy document *Prevention and Reduction of Accidental Injury*) and involves both ACC and the Ministry of Health, would provide a more satisfactory causal framework, and would lead to more cohesive and comprehensive service provision.

REFERENCES

- ACC (Accident Compensation Corporation) (2001) *A National Tragedy: ACC Thinksafe Launch*, Accident Compensation Corporation, Wellington.
- Ball, D.J. (2004) "Policy issues and risk-benefit trade offs of 'safer surfacing' for children's playgrounds" *Accident Analysis and Prevention*, 36:661-670.
- Chalmers, D. (1992) "Falls from playground equipment: An overview" in *Proceedings of the National Childhood Injury Prevention Forum, Wellington, 23-26 September 1991*, Child Accident Prevention Foundation, Dunedin, pp.1-9.
- Coggan, C., S. Bennett, R. Hooper and C. Lovell (2002) *Auckland City Community Profile: Opportunities for Promoting a Safety Culture*, Injury Prevention Research Centre, Auckland.
- Coggan, C., S. Bennett, P. Patterson and H. Borne (2003) *The ACC Thinksafe Community Projects: Formative Evaluation*, Injury Prevention Research Centre, Auckland.
- Department of Health (2004) "Executive summary" *National Service Framework for Children, Young People and Maternity Services*. www.dh.gov.uk [accessed 1/12/2005]
- Dyson, R. (2003a) *New Zealand Injury Prevention Strategy / Rautaki Arai Whara o Aotearoa*, Accident Compensation Corporation, Wellington.
- Dyson, R. (2003b) *New Zealand Injury Prevention Strategy 2004/5 Implementation Plan / Rautaki Arai Whara o Aotearoa*, Accident Compensation Corporation, Wellington.
- Dyson, R. (2004) *Preventing Injury from Falls: The National Strategy 2005-2015*, draft consultation document, Accident Compensation Corporation, Wellington.
- Jolly, D.L., J.N. Moller and R.E. Volkmer (1993) "The Socio-economic context of child injury in Australia" *Journal of Paediatric Child Health*, 29:438-444.
- Jordan, J.R. and R. Valdes-Lazo (1991) "Education on safety and risk" in M. Manciaux and C.J. Romer (eds.) *Accidents in Childhood and Adolescence*, World Health Organisation, Geneva.
- Krieger, N. (1994) "Epidemiology and the web of causation: Has anybody seen the spider?" *Social Science and Medicine*, 39(7):887-899.

- Laforest, S., Y. Robitaille, D. Lesage and D. Dorval (2001) "Surface characteristics, equipment height and the occurrence and severity of injuries" *Injury Prevention*, 7:35–40.
- Macarthur, C., X. Hu, D.E. Wesson and P.C. Parkin (2000) "Risk factors for severe injuries associated with falls from playground equipment" *Accident Analysis and Prevention*, 32:377–382.
- McKay, M. (2003) "Playground injuries" *Injury Prevention*, 9(3):194–196.
- Meredith, T.J. (1993) "Epidemiology of poisoning" *Pharmacology and Therapeutics*, 59:251–256.
- Millward, L.M, A. Morgan and M.P. Kelly (2003) "Prevention and reduction of accidental injury in children and older people" Health Development Agency. www.publichealth.nice.org.uk/ [accessed March 16, 2006]
- Ministry of Health (1998a) *Child Health Programme Review*, Ministry of Health, Wellington.
- Ministry of Health (1998b) *Child Health Strategy*, Ministry of Health, Wellington.
- Ministry of Health (1998c) *Code of Practice for Child-Resistant Packaging of Toxic Substances: For Importers, Manufacturers, Packers and Retailers of Toxic and Corrosive Substances*, Ministry of Health, Wellington.
- Ministry of Health (1998d) *Our Children's Health: Key Findings on the Health of New Zealand Children*, Ministry of Health, Wellington.
- Ministry of Health (2000) *Children in New Zealand: Report of Cross-Sectoral Outcome Measures and Targets*, Ministry of Health, Wellington.
- Ministry of Health (2002) *Reducing Inequalities in Health*, Ministry of Health, Wellington.
- Ministry of Health (2003) *Implementing the New Zealand Health Strategy 2003*, Ministry of Health, Wellington.
- Mohan, D. (1991) "Injury control for young people: Technology, biomechanics and safety" in M. Manciaux and C.J. Romer (eds.) *Accidents in Childhood and Adolescence*, World Health Organisation, Geneva.
- Mohan, D. (2000) "Injury control and safety promotion: Ethics, science and practise" in D. Mohan and G. Tiwari (eds.) *Injury Prevention and Control*, Taylor & Francis, New York.
- Morrongiello, B.A. and T. Dawber (2000) "Mothers' responses to sons and daughters engaging in injury-risk behaviour on a playground: Implications for sex differences in injury rates" *Journal of Experimental Psychology*, 76:89–103.
- Mowat, D.L., F. Wang, W. Pickett and R.J. Brison (1998) "A case-control study of risk factors for playground injuries among children in Kingston and area" *Injury Prevention*, 4:39–43.
- Norton, C., J. Nixon and J.R. Sibert (2004) "Playground injuries to children" *Archives of Disease in Childhood*, 89(2):103–108.
- Podmore, V.N. and G. Leland (1990) "Hazardous environments: A New Zealand study of early childhood injury prevention" commissioned by Policy Development Section, Accident Compensation Corporation, Wellington.

- Reading, R., I.H. Langford, R. Haynes and A. Lovett (1999) "Accidents to preschool children: Comparing family and neighbourhood risk factors" *Social Science and Medicine*, 48:321–330.
- Runyan, C.W. (1985) "Health assessment and public policy within a public health framework" in P. Karoly (ed.) *Measurement Strategies in Health Psychology*, Wiley, New York.
- Runyan, C.W. (2003) "Introduction: Back to the future: Revisiting Haddon's conceptualization of injury epidemiology and prevention" *Epidemiologic Reviews*, 25:60–64.
- Sand, E.A. (1991) "Psychosocial factors in childhood and adolescence" in M. Manciaux and C.J. Romer (eds.) *Accidents in Childhood and Adolescence*, World Health Organisation, Geneva.
- Satterthwaite, D., R. Hart, C. Levy, D. Miffin, D. Ross, J. Smit and C. Stephens (1996) *The Environment for Children: Understanding and Acting on the Environmental Hazards that Threaten Children and Their Parents*, Earthscan Productions, New York.
- Schneider, D. and N. Freeman (2000) *Children's Environmental Health: Reducing Risk in a Dangerous World*, American Public Health Association, Washington DC.
- Spencer, N. (1999) "Health of children: Causal pathways from macro to micro environment" in M. Honari and T. Boleyn (eds.) *Health Ecology: Health, Culture and Human–Environment Interactions*, Routledge, London and New York.
- Stone, D. (2002) *Policy Paradox: The Art of Political Decision Making*, Norton, New York.
- Turner, C., R. McClure and S. Pirozzo (2004) "Injury and risk-taking behaviour: A systematic review" *Accident Analysis and Prevention*, 36:93–101.
- Whitelaw, S. (1991) "Evaluation of educational projects in Australia" in M. Manciaux and C. J. Romer (eds.) *Accidents in Childhood and Adolescence: The Role of Research*, World Health Organisation, Geneva.
- Wiseman, H.M., K. Guest, V.S. Murray and G.N. Volans (1987a) "Accidental poisoning in childhood: A multicentre survey: 1. General epidemiology" *Human Toxicology*, 6(4):293–301.
- Wiseman, H.M., K. Guest, V.S. Murray and G.N. Volans (1987b) "Accidental poisoning in childhood: A multicentre survey: 2. The role of packaging in accidents involving medications" *Human Toxicology*, 6(4):303–14.