Evaluation of a child backyard safety campaign

Diane Booth
University of Wollongong

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EVALUATION OF A CHILD BACKYARD SAFETY CAMPAIGN

A thesis submitted in partial fulfilment of the requirements for the award of the degree

MASTER OF SCIENCE (HONOURS)

from

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by

DIANE BOOTH

GRADUATE SCHOOL OF HEALTH & MEDICAL SCIENCES

UNIVERSITY OF WOLLONGONG

1992
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Mostly I would like to thank my son Christopher and SF/s and associates who often suffered the brunt of my difficult work load.

Diane Booth
ABSTRACT

As part of the overall strategy of the Illawarra Child Injury Prevention Program, a child backyard safety campaign was conducted in the Shellharbour community between October 1991 and January 1992. Mass media and limited reach media methods were used to provide information to the target community about child backyard injuries and methods to prevent these injuries. Information was disseminated via local newspapers, radio stations, community groups and organisations.

The aim of this study was to determine whether providing information to a community about a local child backyard injuries and methods to prevent these injuries led to a significant change in the number of people who reported making safety-related changes to their backyard.

A separate-sample pretest-posttest design with control was used to examine the effectiveness of the campaign. A structured questionnaire was used to collect information from 150 persons from the target group and 150 from the control group for the pre and post survey.

Following the campaign a significant difference (P<0.001) was found in the amount of campaign specific information known to the target group. Further analysis of the results found no relationship between exposure to campaign specific information and reports of people making changes to their backyard and no significant difference in the number of people in the target group who reported making safety related changes to the backyard.

Due to the limitations of the study design no conclusions can be made about why exposure to campaign specific information did not lead to a significant number of people making changes to their backyard. Results indicate that factors such as individual attitudes, personal priorities and sense of community may have influenced the chain of events leading from information to behaviour change. Other findings from the questionnaires and the implications of these findings in relation to current approaches to safety information campaigns are also discussed.

Based on the findings of this study, recommendations are made to improve the planning, implementation and evaluation of future education/behavioural change strategies and programs for injury prevention.
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INTRODUCTION
Injuries in Australia

Injury is a major public health problem in Australia. Injury is the fifth leading cause of death in Australia (ABS, 1989). In the 0-40 year age group injuries are the leading cause of death and every year account for more deaths than heart disease and neoplasms (ABS, 1989). Injuries also account for more hospital separations and occupied bed days than heart disease and neoplasm (ABS, 1989). It is not until the 40th year of life, that deaths due to heart disease and cancer increase in significance.

The Better Health Commission has estimated, that every year in Australia, injuries account for 10 million medical treatments, 2 million hospital bed days and 3000 hospital admissions. (Better Health Commission Injury Task Force, 1986) The annual cost to our society in 1983 was calculated at 7.5% of the gross domestic product or $11 billion. (Better Health Commission, 1986)

Child Injuries in Australia

Accidents and poisoning are the major cause of morbidity and mortality in children 1-14 years of age in Australia. (O'Connor, 1982; ABS, 1987; ABS, 1988; Vimpani and Parry, 1989) A survey of injury mortality rates in eight developed countries showed that in the 0-4 years and 5-9 years age groups, Australia, had one of the three highest injury mortality rates. In the 10-14 years age group Australia was ranked in the top five (Division for Injury Control, 1990).

In 1983, 48% of all deaths in the 0-4 years age group were injury related. (Pearn, 1985) Similarly, 50% of all deaths in the 5-9 years age group and 53% in the 10-14 years age group were attributed to injuries. (Pearn, 1985; ABS, 1983b). With the exception of respiratory conditions, injury accounts for more hospital admission in the 0-14 years age group than any other cause (Better Health Commission, 1986).

A health survey conducted by the Australia Bureau of statistics in 1983 showed that in the 2 weeks prior to the survey, 4.1% of children were reported to have suffered an injury. A break down of the results of this study showed that approximately, 13% of child injuries occur on the street, 18% at educational or institutional setting and 36% in the home (ABS, 1983c)

In 1986, the National Better Health Program designated injury prevention as one of the five national health priorities. Child injury was one of the targets specifically identified by the Commission. (Committee to Australian Health Ministers, 1978)
The identification of injury prevention as a national health priority led to the development and implementation of a national injury surveillance system in 1986. (Vimpani and Hartley, 1988) Currently more than 50 hospitals throughout Australia are collecting data on adult and childhood injuries. The aim of the national injury surveillance system is to enhance understanding of childhood and adult injury patterns and to aid in the planning and development of local, state and national injury prevention strategies.

THE ILLAWARRA CHILD INJURY PREVENTION PROGRAM

In 1985, the New Shellharbour Hospital was opened in the southern region of the Illawarra. Accident and Emergency staff observed a high rate of child injury presentations. To clarify these observations a child injury surveillance system was implemented in the Shellharbour hospital in late 1986. Data collection systems were also activated at three other Illawarra Area Health Service hospitals in the region for comparative analysis.

By 1988, data had been collected on more than 6,000 reported child injury cases. Analysis of the data identified the Shellharbour Municipality, a community predominantly composed of low socio-economic status families, as having a comparatively higher reported child accident rate than other areas in the Illawarra. (Eager and Went, 1989) Initial findings suggested the child injury rate in Shellharbour was 66 per 1,000 in comparison to 44 per 1,000 in other areas in the Illawarra and Australia at large. These results demonstrated that action to effect a reduction in child injuries in the Shellharbour community was essential.

Between March 1990 and January 1992 a community based child injury prevention program was implemented in Shellharbour. The program was modelled on an intersectoral and community participation approach to injury prevention implemented in the Swedish rural municipality of Falkoping between 1980 and 1983.

Findings of the Falkoping study suggested that increasing community awareness of a local injury problem led to increased awareness of the problem, community generated responses to address the problem and a subsequent 10%-30% reduction in specific types of injuries. (Schelp and Svanstrom, 1986; Schelp, 1987, 1988; Svanstrom and Svanstrom, 1989)

The aim of the Illawarra child injury prevention project was to determine whether increasing the Shellharbour community’s awareness of a local child injury problem led to intersectoral and community participation in finding solutions to the problem.

Between March 1990 and June 1991 a community information program was conducted to raise awareness of the local injury problem amongst local professionals, organisations and community groups. Information about the problem, and methods to prevent child injuries were disseminated to the general public via,
1. Local radio station/s, in the form of community service announcements and Local newspaper articles.

2. Exhibitions at local shopping centres and community activities.

3. Letters, personal contacts, posters, pamphlets, booklets and related preventative information distributed to members of community groups. For example, playgroups, kindergarten / preschools, service groups, neighbourhood watch, other relevant community groups.

Information on the local child injury problem was disseminated to local professionals via,

1. Exhibition at Health for All Fair (targeted at local professionals)

2. Letters, discussion groups and seminars with local intersectoral organisation and relevant professionals. For example, in-service educational programs for local family day care workers; informative discussion group with family and community services, prenatal educators, early childhood nurses.

Information disseminated during the campaign contained,

1. Messages including,

   a. Reported child injuries are higher in the Shellharbour community than other areas in the Illawarra and Australia;

   b. Child injuries occur most frequently,

      i) In the home and Backyard,

      ii) Whilst riding bicycles.

   c. Child injury is a preventable problem;

2. Relevant preventative information and true stories about how local children had been injured;

3. Requests to local professionals, organisations, community groups and individuals to actively participate in helping to prevent child injuries.
During the first 12 months of the project, intersectoral participation in finding solutions to the problem was highly satisfactory. For example,

i) Between March 1990 and January 1992 the number of organisations represented on the Child Injury Prevention Task Force increased by 13;

ii) The Police Citizens Youth Club, Task Force, Roads and Traffic Authority and Education Department initiated a Road Safety Park;

iii) Safety information was included in the curriculum of the Shellharbour Hospital prenatal classes.

However, community participation was limited. The majority of community groups indicated that they did not see their role in injury prevention as going any further than distributing information to the public.

Discussions with local professionals and community groups revealed a number of factors that may have inhibited a community-generated response to the local injury problem. For example,

1. in a low socio economic community child injury prevention is a lower priority issue in comparison to other social and economic issues.

2. Many people do not perceive child injuries to be a preventable problem.

3. Shellharbour has a limited sense of community. Therefore it would be unlikely that a child injury problem in the municipality would motivate the community to take action as a group.

Although community generated responses to the injury problem were limited, results of a survey conducted with 150 persons in Shellharbour showed that over 50% of people surveyed had made safety-related changes to their environment during the 12 months of the project. It was therefore postulated that exposing the Shellharbour community to an information program on child injuries and methods to prevent these injuries may have led to participation at the individual level.

However, prior to the implementation phase no base line data had been collected on the percentage of people making safety related changes to their environment. Consequently, the high level of people making safety related changes to their environment could not be attributed to the implementation of Illawarra child Injury
Prevention Program.

Therefore, a decision was made to design, implement and evaluate a suitable small scale research project to determine if providing a community with child safety information and methods to prevent these injuries leads to safety related changes at the individual level.

Ms Diane Booth, research officer for the Illawarra Child Injury Prevention Task Force was given the responsibility of designing implementing and evaluating the research project. Responsibilities included, analysis of local child injury data, generation of an appropriate study design; the design and distribution of information on child injuries and preventative measures; developing the draft questionnaires; administration of the pre and post surveys and collation and analysis of survey data.

Following analysis of local child injury data, backyard injuries were found to be one of the single most common causes of childhood injuries in the Shellharbour Municipality. As a result of these findings, a decision was made to focus the community information campaign on the cause and prevention of child backyard injuries.

Therefore, the aim of this study was to determine whether providing a community with information on child backyard injuries and methods to prevent these injuries leads to a significant change in the number of people in the community making safety-related changes to their backyard.
AIMS AND OBJECTIVES
AIMS AND OBJECTIVES

AIM:

To determine if a community information campaign on local child backyard injuries and ways to prevent these injuries leads to a significant change in the number of people who report making safety-related changes to their backyard.

OBJECTIVES:

Group Level

1. To determine if following an information program on local child backyard injuries and methods to prevent these injuries,
   i) there was a significant change in the number of people in the target group who recalled backyard safety information.
   ii) there was a significant change in the number of people in the target group who recalled campaign specific backyard safety information.
   iii) there was a significant difference in the number of people who had the ability to recall the salient messages of the campaign.
   iv) there was a significant change in the number of people in the target group who reported they had made safety-related changes to their backyard in the past 12 months.

2. To identify attitudes to the 'preventability' of child injuries.

3. To clarify what people perceive to be "the local community".

4. To identify priorities among health and social issues.
Individual Level

1. To determine if a relationship exists between,

   i) reported recall of backyard safety information and ability to recall the salient messages of the campaign.

   ii) ability to recall the salient messages of the campaign and reports of making child safety-related changes to the backyard in the past 12 months.

   iii) reported recall of campaign specific backyard safety information and reports of making child safety-related changes to the backyard in the past 12 months.

   iv) recall of extraneous child safety information and reports of making safety-related changes to their car, home or backyard in the past 12 months.
LITERATURE REVIEW
LITERATURE REVIEW

Historically the word ‘accident’ was used to describe what we now refer to as ‘injury.’. The use of the word ‘accident’ is now considered to be inappropriate as it tends to accent the randomness of the event and infer that the event was not preventable.

Injury can be defined as follows,

‘Unintentional or intentional damage to the body resulting from acute exposure to thermal, mechanical electrical or chemical energy or from the absence of such essentials as heat or oxygen.’ (The National Committee for Injury Prevention and Control, 1989:4)

Only recently has it been realised that injury can be understood with the same tools used to understand other types of disease and that the elements causing injuries can be dealt with by control and broad prevention strategies.

Injury is no longer seen as being caused by one single factor. Rather, injury is considered the product of the interaction of at least three variables, the host, the agent and the environment in which the agent and the host are present. (Sleet, et al 1991) Similar to the study of disease, the host, agent and the environment are viewed as factors that compounded over time lead to the causation of injuries. (Sleet et al 1991)

Haddon's phase factor matrix displayed at Figure 3.1 illustrates the advantages of viewing injury from an epidemiological framework. The Traffic injury matrix depicts the sequence of events and numerous factors that led to the occurrence of an injury. The pre-cash phase encompasses all factors that determine whether the crash occurs. For example, has the driver's judgement been impaired by alcohol, are the brakes of the car at optimum functioning level, is the street poorly or well lit. The crash phase consists of all factors that determine if a person is injured as a result of the crash, such as; is the car large or small, are seat belts being worn at the time of the crash. The post-crash phase includes all factors that determine if the severity of the injury can be reduced. For example, how efficient is the local accident and emergency department, how quickly does first aid arrive, can the flow of blood be stopped. (The National Committee for Injury Prevention and Control, 1989)
### HADDON'S MATRIX

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Haddon's Matrix (The National Committee for Injury Prevention and Control 1989:8)
Haddon’s 10 countermeasures

According to Haddon (1973) specific types of injuries can be prevented by modifying only one of the causal elements at any point in the sequence. In 1962, Haddon developed a list of countermeasures designed to prevent injuries by interrupting the sequence of events that lead to injury. There are,

1. Prevent the energy from being marshalled. For example,
   a. deterring a parent from raising their baby above floor level. A child can not fall and suffer injury if they remain at floor level.
   b. Preventing the movement of a car. A device attached to a car that would not allow a drunk driver to start a car would prevent the marshalling of the energy.
   c. Preventing poisons from being manufactured.

2. To diminish the quantity of energy being marshalled. For example,
   a. Reducing the height of high chairs and cribs
   b. Reducing the speed of vehicles
   c. Reducing the concentration of poisons

3. To prevent the energy from being dispersed. For example,
   a. Stopping firearms from being discharged
   b. Preventing the release of electricity

4. Alter the rate or spatial distribution of the energy released.
   a. Reducing the slope of ski slopes
   b. Decreasing the burning rate of explosives
5. ‘Separate in time or space the energy being released from the susceptible structure’. For example,
   a. The use of cycleways to separate the bicycle rider from motor vehicles.
   b. Placing power lines out of reach

6. Separate the energy being released from that which is vulnerable in the form of a material barrier. For example,
   a. shoes, shin guards and safety glasses
   b. Insulate electrical cords

7. Adequately modify the surface or structure the individual may come into contact with. For example,
   a. The softening or rounding of edges and corners.
   b. making the bars on cribs too narrow for the baby to get its head through

8. Strengthen the structure non living or living that may be damaged by way of the energy transfer. For example,
   a. Increasing a car’s capacity to resist impact
   b. Designing and building houses that withstand the energy released during a earthquake or hurricane

9. Start to counter the damage the released energy has caused. For example,
   a. Sprinkler systems and fire alarms in case of fire
   b. The provision of medical care
Stabilise, restore, rehabilitate what has been damaged as a result of the energy release. For example,

a. Provide acute care

b. Provide resources and service for the rehabilitation of the injured.

Current Injury Prevention Strategies

Injury prevention countermeasures can be described as either active or passive. Passive countermeasures do not dictate any action by the individual. (Sleet, et al 1991) The use of motor vehicle air bags is an example of a passive measure. If the vehicle is involved in a crash the air bag spontaneously inflates to help absorb the impact and protect the motor vehicle occupants. Child safe caps on medicine bottles is another example of a passive measure.

Active countermeasures require the individual to take some sort of action to prevent the injury. (ibid) Not cooking in the kitchen when a child is present, turning pot handles toward the back of the stove, strapping oneself or a child into a motor vehicle safety restraint are examples of active countermeasures.

Currently, active and passive measures are identified as belonging to one of three injury prevention strategies, engineering/technology, legislation/enforcement, education/behavioural change. (ibid)

Engineering / technology strategies

Engineering/technology strategies are designed to focus on the vector or vehicle of the injurious energy and under certain conditions the environment. They are generally passive and automatic in nature (requiring no intervention on the part of the individual or automatically come into play during the sudden, unexpected or dangerous release of potentially injurious energy). (ibid) Automotive air bags, impact absorbing surfaces underneath playground equipment and bicycle helmets are example of engineering/technology approaches to the prevention of injuries.
Legislation / enforcement strategies

Legislation/enforcement strategies are used to change socio-cultural and/or physical environments that may harbour the injurious energy and ultimately behaviour. (ibid) They are implemented for example to force manufacturers of consumer products to comply with safety regulation, employers to provide safe and healthy work environment for employees and individual to make changes to their environment and/or behaviour. The introduction of mandatory swimming pool fences is an example of how legislation/enforcement can be used to prevent injuries.

Education / behaviour change strategies

Education/behavioural change strategies aim to reduce the susceptibility of the host to the injurious energy and where applicable, influence the socio-cultural environment and are usually active by nature. (ibid)

Recent media campaigns aimed at drink drivers are examples of how education/behavioural change strategies can be used to facilitate behaviour change and influence social attitudes toward the acceptability of drink driving behaviour.

A number of studies have shown that educational strategies have had no effect on preventing injuries. Other studies claim significant reduction in injuries following the implementation of education programs. Sleet et al (1990:7) state,

'Lack of controls, difference in the use of educational methods and the absence of theory-based approaches generally account for these discrepancies'.

Alternatively, behavioural change approaches have often met with success using techniques based on behaviour modifications such as modelling and incentives and supervision of the environment. (Sleet et al, 1991) It is recommended that where possible, educational/behavioural change strategies be used as part of a combination of strategies only.

Multifaceted Strategies - A Health Promotion Approach

Over the years lone legislation/enforcement, engineering/technology education/behaviour strategies have met with varying success at reducing injuries.
However, reliance on passive or active measures only, to disrupt the sequence of events leading to injury, does not provide a comprehensive solution to the problem. A Health promotion approach advocates a holistic or multifaceted approach to the control of injuries where both environmental and behavioural factors are considered during the design and implementation of injury prevention strategies. (Sleet et al, 1991) As concluded by Manson and Tolsma (1984:141; Sleet, et al, 1991),

‘Persons can hardly be expected to avoid health risks imposed by personal choices when they do not know or understand these risks, when they lack the knowledge nor skills needed to choose a healthier lifestyle or worst of all when they seek guidance or support from their community and it is unavailable to them.’

It is obvious that to reduce injuries interventionists must employ legislation/enforcement and engineering/technology strategies (passive measures) were practical and increase community and individual awareness and foster behavioural change (active measures) as often as possible.

Below are two examples of injury prevention programs that have successfully reduced injuries using a multifaceted approach to injury prevention.

**Kids Can’t Fly Injury prevention Program**

In 1972 an injury prevention program was implemented by the New York Department of Health to effect a reduction in the number of childhood injuries and death resulting from falls from high rise apartments. A multifaceted approach based on engineering/technology and education/behavioural change strategies was employed to address the problem. Free window guards were distributed to families occupying high rise apartments. Information and education about the dangers of small children living in high rise environments with unguarded windows. Follow up home visits, education and free widow guards were also provided for the families of fall victims. Results of the program showed that between 1973 and 1975 childhood deaths due to falls from heights had declined by 35%. (National Committee for Injury Prevention and Control, 1991)

**The Falkoping Community Based Injury Prevention Program**

The Swedish community accident prevention model was first implemented in the municipality of Falkoping in the south west of Sweden between 1980 and 1983. (Schelp, 1987; Schelp, 1988).
The model was based on an intersectoral and community participation approach to injury prevention. A multifaceted approach consisting of predominantly educational/behavioural change and engineering technology were used to facilitate changes to individuals behaviour and home environment.

Between 1978 and 1980 continuous registration and mapping of the frequency and severity of injuries in both the control and target communities were taken. During this time information was collected on all acute in-patient and out-patient hospital and health centre visits. (Schelp & Svanstrom 1987)

To initiate community organisation, data on the frequency and severity of local injuries was presented to intersectoral organisations and community groups from the target community during information and discussion meetings.

The presentation of this information to the community led to the community identifying injury as a priority health issue. To help address the problem a number of groups and intersectoral organisation formed a major reference group or community board. (Schelp, 1987; Schelp, 1988; Svanstrom & Svanstrom, 1989)

The formation of the community board resulted in the mobilisation of resources and community participation in selecting priority area for action and the planning and implementation of injury preventative strategies and programs.

In the past the majority of accident prevention work had been directed towards road and occupational injuries. Therefore, the board decided to direct future intervention strategies towards reducing injuries in the home.

The intervention phase of the model consisted of four stages, information education, supervision and changes to the environment. Mass media, limited media reach methods and the mobilisation of community resources were used to implement the four phases of the intervention stage of the model.

1. Information was disseminated to the general public in the form of articles and reports on the program and program activities were published via two local newspapers. These articles aspired to,

   a. Increase public awareness of the types of accident risk in their environment;

   b. Provide individuals with relevant preventative information.
Information included local accident data covering the types of injuries and events that led to injuries in their local community. A pedagogy approach was used to describe how injuries of a similar nature could be avoided in the future. (Schelp, 1987; Schelp, 1988; Svanstrom & Svanstrom, 1989)

2. Films, posters, exhibitions and theatre performance were also used to increase public awareness and knowledge levels. For example, permanent exhibitions, demonstrations on available safety products and protective equipment, age and developmentally specific home safety checklists and reference for reading material were made available through local child health centres. To ensure clients had access to relevant accident prevention information each client was provided with information binder that included, newspaper articles, information on safety aspect of certain products such as toys and prams etc and preventative measures. Child health centre staff were also provided with the book ‘protect your child’. This book was used to help educated, child daycare and child nurses, parents, preschool staff and relevant welfare staff about child accident prevention. During the 3 year period of the program this information was also made available through schools, Red cross and child related social services. (Schelp, 1987; Schelp, 1988)

3. Pharmacies, insurance offices, libraries, post offices, banks all displayed the exhibition ‘children are entitled to security’. Poisons information was also made available through pharmacies. (Schelp, 1987; Schelp, 1988)

4. Shops that sold baby products stocked recommended child safety devices and protective equipment. (Schelp, 1987; Schelp, 1988)

5. Oral information was made available to parents that attended child health centres. Particular attention was given to developmental and age specific risk factors. For example, the risks involved in allowing children to ride bicycle before they are developmentally able. Oral information was also given on road safety, child car restraints etc. The development of a free child restraint lending service was facilitated by child health centres. Free borrowing of life jackets was also made available to persons living in the Falkoping Municipality. (Schelp, 1987; Schelp, 1988)

Education of the public was undertaken at a number of levels. For example,

1. Reference group members, professional and non professional persons in daily contact with parents, homes in general and the elderly were instructed on accident awareness and injury prevention
measures. For example child welfare staff, daycare and preschool staff and district nurses, staff from pensioner organisations and service apartment personnel. Certain education material included strategies for increasing public knowledge of how to develop safer and healthier environments. (Schelp, 1987; Schelp, 1988)

2. Trained personnel utilised this knowledge to hold accident awareness and injury prevention discussion groups with parents and other relevant individuals. (Schelp, 1987; Schelp, 1988)

3. Accident awareness and prevention information also incorporated into the curricula of relevant education programs. For example educational programs held by the child welfare agencies. (Schelp, 1987; Schelp, 1988)

4. Study days were held for school staff members and a local and county level. (Schelp, 1987; Schelp, 1988)

5. Accident awareness and preventative information discussion evenings were held by organisations such as Collective owners associations, parents and citizens associations and political parties. (Schelp, 1987; Schelp, 1988)

Supervision was carried out in the form of safety checklists. Checklist were mainly intended for use by personnel who visited homes occupied by children and the elderly for example district nurses and child health nurses. The aim of the checklists were to help personnel to identify those accident risks which existed in the client's home environment either by direct observation or by going through the checklist with the client. (Schelp, 1987; Schelp, 1988)

In conjunction with the municipality daycare nurseries and pre schools accommodating children were inspected for safety hazards. Action was then undertaken to modify or remove identified safety hazards. For example modifications to cots failing to met safety requirements. The purchasing of non toxic glues and paints for use by preschool children. (Schelp, 1987; Schelp, 1988)

Strategies to changes the physical environment were also employed. Certain elements of the information and supervision programs were designed to facilitate changes in the environment for example providing people with information about how to make their environment safer encouraging the use and enabling the
purchase of safety goods and protective equipment and the use of Safety checklists. (Schelp, 1987; Schelp, 1988)

Work carried out by the intersectoral reference group resulted in action being undertaken to new constructions designed to improve road traffic conditions and the installation of traffic lights at accident prone locations on public roads. Surveys were taken to identify where traffic accidents occur most frequently. As a result of the surveys new foot paths and cycleways were introduced into those areas where children and the elderly were most at risk. (Schelp, 1987; Schelp, 1988)

Three years after the commencement of the Falkoping program researchers reported, that awareness and knowledge of accident risk has increased and that the population has become increasingly interested in participating in accident prevention initiatives. They also report a decrease in all injury cases from 113.3 to 97.7 per 1,000 in the study population not able to be explained by an increase in registration of accidents at hospital and emergency centres. In relation to specific types of injuries results show home injuries were reduced by 27%, traffic accidents by 28% and home accidents on farms by 50%. (Schelp & Svanstrom 1986; Schelp, 1987; Svanstrom & Svanstrom 1989)

A review of Falkoping community based injury prevention program and Kids can't Fly program illustrates a multifaceted approach or health promotion approach to can be most effective at interrupting the sequence of events leading to injury.

These studies also demonstrate quite strongly that individual behaviour change and/or changes to the environment at the community or individual level are often an integral part of a multifaceted approach to injury prevention. For example, implementing engineering/technology or legislation/enforcement strategies still requires a decision from some sort of national, state or local government body or organisations. Similarly, as there are few laws which govern people's actions within the bound of their own home, individual participation is essential to the reduction of home and backyard injuries.

Unfortunately, very little is known about what strategies are successful at facilitating safe behaviours at the individual level. During the Falkoping study information, education and supervision strategies were used to facilitate changes to the home environment and individual behaviour. However, the success of the program was measured solely on an observed reduction in injuries. They claim a 27% reduction in home injuries but have not taken measures to determine if educational/behavioural strategies were effective at reaching the general public or facilitating changes to the individual's behaviour or environment. (Schelp & Svanstrom 1986; Schelp, 1987; Svanstrom & Svanstrom 1989) There is no information to determine what role each element of the program played in reducing injuries or in changing the behaviour of individuals. To determine if the exposure
to the behavioural change element of the program facilitated changes in behaviour pre and post levels of behaviour, as well as changes in knowledge and attitudes would have to be collected and compared with a those of control population.

Therefore, the successful design and implementation of multifaceted or health promotion approaches to injury prevention still requires identification and evaluation of effective educational / behavioural change strategies.

BEHAVIOURAL CHANGE PROGRAMS

Traditionally, behavioural change programs have been predominantly information based. Health educators thought and that if they provided people with factual information about the health risk associated with certain behaviours that people would see the error of their ways and have the desire to change. However, contemporary models and theories of behavioural change now recognise that information is not sufficient or even necessary to facilitate change (Egger, 1990). Change is viewed as a process comprised of a series of stages rather than a single event induced by the provision of information.(Maccoby and Alexander, 1980; Di Clemente and Prochaska, 1982) For example, Lee and Owen (1980) suggest that, although the stages and labels given to the change process vary from theorist to theorist, they all identify a number of similar stages in the change process.

1. Awareness of the problem;
2. Motivation to change;
3. Instruction on how to change to the new behaviour;
4. Initial embracement of the new behaviour;

Following embracement of the new behaviour

5. Maintenance of the new behaviour;

As illustrated, knowledge or awareness of the risk factors associated with a given behaviour is considered only the first stage in the change process. Thus for a lone information campaign to lead to a change in people’s behaviour a chain of events must occur. As McGuire (1984) States,

‘Their impact (information campaigns) on the desired behaviour depends on their eliciting a whole chain of responses, such as being exposed to the health communication, attending to it, becoming involved in it, comprehending it’s
contents, agreeing with what it says, acquiring the skills necessary for compliance, retaining these over time, and acting on the basis of them.....'

However, many interpersonal and intrapersonal factors may interrupt the chain of events leading from information to behavioural change. (Gillespie and Yarbrough, 1984) Some of the interruptions for each stage are illustrated as follows.

1. Exposure

For information to lead to behaviour change, the person must first be exposed to the information. For this to occur the person must first be tuned to the channel/s through which the message is conveyed. (Gillespie and Yarbrough, 1984) If the message is conveyed through appropriate channels, the person has an opportunity to be exposed to the message. If information is disseminated through inappropriate channels, the message may bypass the selected target audience completely. (Gillespie and Yarbrough, 1984)

2. Attention

Once people are tuned into a particular channel they must then attend to the message. (Gillespie and Yarbrough, 1984; Engel et al, 1984) In modern society people are saturated with competing messages. For example, on the one hand, people are being advised to give up smoking, reduce their drinking habits, lose weight, exercise, practice safe sex and drive carefully. On the other hand, consumer advertising is encouraging people to eat, smoke, drink and be merry, buy this fast car, smoke these cigarettes and you will be sexy, beautiful and popular.

People only have so many resources with which to deal with all these competing messages. Consequently, people choose to attend to some messages and not others. The quantity and quality of their attention is also likely to vary. People tend to take out of the message those aspects of the message they want to hear to support their own attitudes, beliefs and current lifestyle behaviours. (Gillespie and Yarbrough, 1984; Engel et al, 1984) For example, an overweight person may feel guilty or frightened by information about the health risks associated with obesity and may leave the room, turn off the radio or turn the page in the newspaper to avoid having to attend to the information.
An individual's attitudes and beliefs about a certain issues, whether the person believes the message meets some perceived need or has some personal meaning to them may also influence whether a person attends to a specific health related message. (Gillespie and Yarbrough, 1984) Therefore, well designed cues need to be included in the message to capture the target audience's attention.

3. Comprehension

A person must not only be exposed and attend to the health message, he/she must also comprehend the intention of the message. (Gillespie and Yarbrough, 1984; Engel et al, 1984) Oral and/or visual information must be transformed into meaning. As mentioned, people are prone to see and hear what they want to. Many people feel more comfortable when their previous experiences, beliefs and values are congruent with the information they receive. (Gillespie and Yarbrough, 1984) To avoid discord, people tend to focus on some details and disregard others. (Gillespie and Yarbrough, 1984; Engel et al, 1984) Hence, information may get lost or distorted in the transformation process and people fail to comprehend the meaning of the message.

4. Cognitive and affective acceptance or rejection

The next step in the knowledge - action sequence is outcome acceptance or rejection of the message, or as McGuire (1984) states "agreeing with what it says". One of the main aims of a communication campaign is for the receiver to accept the message.

People tend to reject or accept a message depending on whether or not they accept the message as factual, valid, correct or true. (Gillespie and Yarbrough, 1984) If the person believes the message to be true and correct he/she is likely to cognitively accept (believe) the message. Alternatively, if they doubt the validity or the truth of the message they are likely to cognitively reject the message. (Gillespie and Yarbrough, 1984)

When a person perceives the message or action recommended by the message to be good and desirable, affective acceptance has occurred. An attitude is an example of a person's evaluation about whether something is good or bad. (Mucchiello, 1970; Kirsch, 1974; Gillespie and Yarbrough, 1984; Baron and Byrne, 1987) Cognitive acceptance often precedes affective acceptance but it is not considered a prerequisite. (Gillespie and Yarbrough, 1984) Frequently the two are in conflict. For example, a smoker may believe smoking is unhealthy but may
have no desire to quit. In relation to affective acceptance, there may also be conflicting goals. For example, the short term goal of satisfying one’s hunger may take precedence over the goal of losing weight or the intangible goal of improved health status. Reinforcement of already existing attitudes and beliefs can facilitate cognitive and affective acceptance. (Gillespie and Yarbrough, 1984)

5. Acquiring the skills necessary for behavioural change.

Cognitive and/or affective acceptance of the communicated message does not necessarily lead to behavioural change. (Gillespie and Yarbrough, 1984) The person must have the skills and resources or access to the skills and resources to enable change to occur. For example, a person may have the desire but not the skills to successfully give up smoking or he/she may not have access to a smoking cessation program.

As demonstrated by Gillespie and Yarbourgh (1984), many factors may cause a breakdown in the chain of events leading from information to change. Thus, for a lone information campaign to lead to behavioural change in a significant number of people, the target population would need to be susceptible to change. That is factors conducive to change would need to be present in the environment and/or in a significant number of the target population.

However, it is unlikely that a significant number of the population would be susceptible to change. This assumption is supported by studies that have shown that strategies to change behaviour based on traditional health education techniques,

1. have had a limited influence on behaviour. (Haggerty, 1977)

2. suggest that lone information campaigns are unlikely to bring about long term changes in behaviour unless the campaign is run for over 12 months and then, only 10% of the population are likely to change their behaviour in some way. (Gatherer et al, 1979)

3. result in ‘a short term increase in knowledge for a minority of the audience’. (McGuire, 1984)

As McGuire (1984) points out, for many information based campaigns

‘The ultimate pay off in behavioural compliance will be a very small product of a series of probabilities’.
In short, behavioural change involves a process. For an information campaign to lead to change the individual must become involved in this process. As we have seen there are many possible interruptions to this process and for these to be overcome the environment and/or the individual would need to be conducive to the change. Consequently, current theories and models of behavioural change advise that information campaigns be used as part only of an overall program strategy. (Egger, 1990)

To increase the success of a behavioural change program it is recommended that programs be designed to identify and remedy factors likely to inhibit the change process. (Lee and Owen, 1984; Egger, 1990) The following four models help identify and explain factors which influence behavioural change and also provide guidelines to aid in the successful design and implementation of behavioural change interventions. They are the Health Belief Model; Maslow’s Heirarchy of Needs; Social Learning Theory and the PRECEDE model. Each will be discussed in turn.

The Health Belief model

The Health Belief model argues that people will take action to help prevent an illness, for example preventative health screenings and vaccinations, if they believe, following a cue’ to action,

1. they are susceptible to the illness; Perceived susceptibility refers to a person’s subjective perception about whether he/she is at risk of developing or catching a particular type of illness. (Rosenstock, 1990; Egger 1990)

2. the illness has potentially serious consequences; Perceived severity refers to what a person feels will be the consequences of contracting the illness. That is, what will cost them in terms of their health, finance and lifestyle. Perceived susceptibility and severity are often referred to as ‘perceived threat’. (Rosenstock, 1990; Egger 1990)

3. an available course of action will reduce susceptibility to the illness or the severity of the condition; The individual must believe he/she will benefit from taking the recommended action, that the action will
indeed help prevent or cure the illness. (Rosenstock, 1990; Egger 1990)

4. if the anticipated benefits will outweigh the barriers (or costs) of taking the course of action. For example, the individual, consciously or unconsciously weighs up the benefits and costs of taking a certain course of action. That is, he/she weighs up the perceived barriers such as pain, expense or inconvenience against the perceived effectiveness of the action and decided whether anticipated cost is worth the outcome. (Rosenstock, 1990; Egger 1990) Rosenstock (1974) states,  

'The combined levels of susceptibility and severity provided the energy or force to act and the perception of benefits (less barriers) provided a preferred path of action'.

5. They have the ability to successfully carry out the required behaviour or give up a behaviour. For example, for an alcoholic to give up drinking, he/she must first believe that not drinking and smoking will improve their health and that he/she actually has the capacity to stop drinking (self efficacy). (Rosenstock, 1990)

In addition demographic, socio-psychological and structure variables are believed to affect a person's perceptions and thus his/her health behaviour. For example, level of educational attainment is postulated as indirectly affecting behaviour by having an influence on perceived susceptibility, severity, benefits and barriers. (Rosenstock, 1990)

In short the key dimensions to the Health Belief model are, perceived susceptibility; perceived severity, perceived benefits; perceived barriers and variables such as demographics and socio-economic status.

A critical review of studies relating to the dimensions of the Health belief model was carried out by Janz and Becker (1984) A range of health programs from influenza inoculations to attendances at high blood pressure screening programs were reviewed. Health behaviours ranged from seat belt use to nutrition and smoking. Sick role behaviours ranged from weight loss regimes to parents giving their children medication for asthma and otitis media. (Rosenstock 1990)
The results of these studies, combined with earlier results, were used to assess the performance of the model. Janz and Becker (1984) found that across all behaviours and research, perceived barriers was the most powerful dimension for predicting health behaviours. Perceived benefits and perceived susceptibility were found to be of widespread importance. Perceived benefits were found to be a stronger predictor of sick role behaviour than for preventative health behaviours. (Rosenstock, 1990) Alternatively, perceived susceptibility was a more accurate predictor of preventative health behaviours than for sick-role behaviour. (Rosenstock, 1990) Generally the perceived severity dimension was the least vigorous estimator of behaviour. Although sick role behaviour related quite strongly to this dimension.

In summary, the Health Belief model illustrates the important role individual beliefs play in a person's decision to perform or not perform a given behaviour. Evidence suggests that failure to identify and address an individual's beliefs about a given behaviour may inhibit the change process.

Although previous studies have found empirical support for the performance of the Health Belief model, the relationship between behaviour and beliefs has never been consistently established. (Janz and Becker's, 1984) A person's beliefs do not always account for their behaviour, nor do they account for variations in behaviour. Certain behaviours have an habitual component to them. The psychological decision-making component of the behaviour no longer plays a part in the action, such as; brushing your teeth or smoking cigarettes. Dieting can be undertaken for non-health reasons such as to improve one's appearance. A person may be unable to take a favoured course of action due to economic or environmental constraints

Therefore, when attempting to change behaviour health educators should also consider other individual and socio-environmental factors that may influence behaviour. Maslow's Hierarchy of Needs explains how such factors may affect health related behavioural change.

**Maslow's Hierarchy of Needs**

Abraham Maslow, humanistic psychologist, formulated a theory of personality based on a hierarchy of needs. (Maslow, 1970; Carlson, 1984; Monte 1987; Egger 1990) The needs identified in the hierarchy are viewed as innate but the manner in which people gratify these needs is considered learned. (Maslow, 1970; Carlson, 1984; Monte 1987; Egger 1990).
The hierarchy of needs is comprised of five classes of basis needs. In ascending order of importance,

1. **Physiological needs**

Physiological needs are considered to include the need for water, food, sexual contact, shelter, warmth and lack of fatigue. (Maslow, 1970; Carlson, 1984; Monte 1987)

2. **Safety needs**

Safety needs encompass the need for a structured and stable environment, avoidance of pain and fear, dependence and security. (Maslow, 1970; Carlson, 1984; Monte 1987)

3. **Belongingness and Love needs**

Needs for belongingness and love include the need for affection, intimacy and strong interpersonal relationships with family, clan/community and a lover. (Maslow, 1970; Carlson, 1984; Monte 1987)

4. **Esteem needs**

Esteem needs involve the need to feel in control of one’s life, well regarded by others, mastery, competence and self respect. (Maslow, 1970; Carlson, 1984; Monte 1987)

5. **Self Actualisation**

Maslow proposed the need for self actualisation as the final need, a need they can only be realised when all other needs have been met. As stated by Maslow,

‘He must be true to his own nature. [Self-actualisation is a] desire to become more and more what one idiosyncratically is , to become everything one is capable of becoming’. (Maslow, 1970:46)
Two additional needs, aesthetic (beauty, order and symmetry) and cognitive needs (the need to explore, know and understand) were also discussed but not included in the hierarchy. (Maslow, 1971; Carlson 1984; Monte, 1987) The individual only attends to these needs when he/she has entered into the self-actualisation stage.

According to Maslow, psychological and/or physical dysfunction occurs if the individual is unable to satisfy a need. (Carlson 1984; Monte, 1987) Failure to satisfy any class of needs in the hierarchy leads to preoccupation with those needs and thus blocks personal growth. Until gratification is obtained the individual focuses on those needs to the exclusion of needs further up in the hierarchy. Behaviour is directed towards fulfilment of the need. For example, people who are starving are unlikely to be motivated to fulfil psychological needs such as esteem and belongingness.

However, when one class of needs has been met the individual is motivated to fulfil the next class of needs in the hierarchy. For example, once the need for safety has been satisfied, the need for belongingness and love surface as primary motivators.

Consideration of Maslow's Hierarchy of Needs assists in understanding why some individuals may respond to one particular health message and not another. For example, a person with a stable and adequate income may be more inclined to be concerned about their smoking or drinking habit and thus would be more likely to respond to quit smoking campaigns or alcohol abuse interventions.

Similarly, there is evidence to suggest that socio-economic status can prejudice the onset or aversion of the practice of healthier behaviours. (Eg. Labonte, 1986; Marmot et al, 1987) Individuals on low incomes, living in poor or crowded accommodation are often immersed in the burdens of day to day living and are less likely to be responsive to health messages such as quit smoking and alcohol abuse campaigns that relate more to belongingness and identity needs. In such cases, satisfying lower order needs would probably be more important to the individual than an imperceptible increase in their health. (Egger 1990)

Hence, economic status and the physical and social environment in which people live may influence whether or not people attend to health messages or are motivated to make health related changes to their behaviour or environment.

The Health Belief Model and Maslow's Hierarchy of Needs explain how interpersonal and intrapersonal factors may effect a persons decision to change their behaviour. The following two models further explain the myriad forces that influence change and illustrate the need to recognise and address the
interrelationship between such factors when designing behavioural change programs.

Social learning theory

Social learning theory consists of a broad theoretical field that assimilates numerous theoretical concepts. Social learning theory focuses on the psychosocial factors that affect health behaviour and methods for facilitating changes in behaviour. Human behaviour is defined in terms of a dynamic, triadic and reciprocal model, internal (personal) and external (environmental) forces are seen to paly a part in the subsistence of new behaviours.

Ten theoretical constructs have been postulated by Mischel (1973) and Bandura (1977a, 1986) to aid in understanding of health-related behaviours.

1. Reciprocal determinism

Behaviour is active and is dependent upon simultaneous interaction between personal and environmental constructs. Reciprocal determinism refers to the ongoing interaction between the environment in which the behaviour occurs, the person and the person's behaviour. (Perry et al 1990) The environment is not the result of the person nor is the person the result of the environment. Rather, these components are continuously interacting.

Behaviour may be changed by either influencing the personal characteristics of the individual or the environment. Changing the environment in which a person lives may change the characteristics of the person or changing the characteristics of the person may change the environment. If one of these variables is changed the situation is altered. The individual then re-evaluates their person, behaviour and the situation. Reciprocal determinism is useful in developing behaviour change programs as it does not focus on the behaviour in isolation, rather it focuses on changing the person and the environment in which he/she lives.
2. Environments and situations

In Social learning theory the environment refers to,

"an objective notion of all the factors that can affect a person's behaviour but that are physically external to the person". (Perry et al, 1990) For example, relatives, friends and peers are all factors in the environment.

The situation refers to,

"the cognitive or mental representations of the environment (including real, distorted or imagined factors) that may affect a person's behaviour. The situation is a person's perception of the environment, such as place, time, physical features, activity, participants, and his or her role in the situation" (Perry et al, 1990).

The environment can affect an person's behaviour with or without awareness of it (Perry et al, 1990). For example, if seat belts are made available in the car environment, the child will probably learn to include wearing a seat belt in the behavioural patterns related to travelling in a car. Alternatively, cues for acceptable behaviour are usually yielded from the physical and social environments. (Perry et al, 1990) For example, if a child perceives his/her friends are wearing bicycle helmets as they value their safety, the child may also start to wear a bicycle helmet. However, if an individual is unaware of the significant factors in the environment, the environment is unlikely to have very much effect on their behaviour.

The consequences of behaviour are also regulated by the situation. Consequences are associated with negative or positive values. These values can also be referred to as expectancies. (Perry et al, 1990) Expectancies affect what people learn. The environment supplies the individual with social supports, such as family and peers. From an environmental viewpoint, cues for reinforcements and discrimination are supplied by the individual's social support network. From a situational viewpoint, the individual creates expectancies and expectation from his/her social support network. Individuals are also able to utilise social support networks to help them cope emotionally and develop self control.
3. Expectations

'Expectations are the anticipatory aspects of behaviour that Bandura (1977a, 1986) calls antecedent determinants of behaviour'.

People learn that, in certain situations, particular events are liable to occur. The person then expects these events will transpire when the situation occurs again.

In relation to non habitual behaviours, people contemplate various facets of the situation in which the behaviour might be realised and acquire and examine possible tactics for coping with the situation. Such behaviour facilitates self confidence in the ability to perform the task and deal with the situation and thus reduces anxiety. Consequently, expectation about a given situation is often generated before the situation even occurs.

Expectancies can be derived from

1. Performance attainment: expectations generated from previous experiences in comparable situations;
2. Vicarious experience: behaviours learned from observing how other people behave in specific situations;
3. Social persuasion and hearing about situations from others;
4. Physiological arousal: emotional or physical responses to a situation. (Perry et al, 1990)

Recent community service advertisements to prevent adolescent alcohol abuse is an example of a preventative program that aims to change expectancy by changing positive outcomes of alcohol use to negative outcomes. Adolescents learn that drinking alcohol is fashionable, will make them a part of the 'in' crowd and will promote confidence. These expectations are often conveyed by adults and popular role models. Advertisements through the mass media that aim to alter these expectations focus on the negative side affects of alcohol, such as loss of memory, unsafe sex practices and unpleasant physiological effects (vomiting). This approach attempts to prevent or reduce adolescent alcohol intake by changing adolescent's expectations of alcohol use from positive outcomes to negative outcomes.
4. Expectancies

'Expectancies are differentiated from expectations in that expectancies are the values a person places on a particular outcome' (Perry et al, 1990)

Expectancies are the quantitative values, either positive or negative a person places on a given behaviour or situation. Expectancies are routinely portrayed on a continuum from 0 to 1. Perry et al (1990) state that 'Expectancies influence behaviour according to the hedonistic principle'. That is, where possible, individuals will decide to carry out the particular behaviour that minimises negative outcomes and maximises positive outcomes.

When designing behavioural change or preventative programs it is often advantageous to attempt to replace perceived or real positive outcomes of the undesired behaviour with perceived or real negative outcome. (Perry et al, 1990) Attempts should be made to replace the perceived or real negative outcomes of the desired behaviour with perceived or real positive outcomes. For example, an individual may perceive risk taking has positive outcomes such as positive attention and praise from peers. These positive outcomes could be changed to negative outcomes by stressing the foolishness and lack of responsibility associated with risk taking.

Identifying the expectancies, and thus motivators of a given behaviour, should be done in the early stages of the program design. (Perry et al, 1990) For example, identifying the motivators of dental hygiene may reveal that cosmetic needs are more powerful motivators of a behaviour than dental hygiene. Similarly pregnant women may be more concerned about alcohol affecting the health of the foetus than their own health. Hence, narcissistic or altruistic reasons may be more powerful motivators for behavioural change than personal health reasons.

McAlister and others (1980) have illustrated that focusing on the initial negative outcomes of smoking such as halitosis and unattractiveness is a more effective technique for preventing the onset of smoking in teenagers than focussing on the long term detrimental effects such a heart disease and lung cancer. (Perry et al, 1990) Behaviour change and preventative programs may prevent the initiation of an undesired behaviour by focusing on the short term negative outcomes of that behaviour.
5. Self control and performance

The term performance refers to the type of human behaviour that focuses on achievement of a goal. (Perry et al, 1990).

Bringing the performance of a health related behaviour within the control of the individual is one of the major goals of behavioural change and preventative health programs. Learning and maintenance of the new behaviour is enhanced by facilitating self control of that behaviour (e.g. Bandura 1986). Kanfer (1975; 1976) postulates that self control functions via a collection of sub-functions. (Perry et al, 1990) Sub-functions include,

1. self observation,
2. obvious and clear details of the target behaviour,
3. a criterion for performance,
4. a method for measuring the performance against the criterion,
5. self reward.

Kanfer (1975, 1976) found that the most important element for achieving self control; was setting a criterion for performance. (Perry et al, 1990)

Focusing on a particular behaviour promotes self control. The individual is aware of what is required to achieve the goal if the goal is specific and clearly defined. Setting specific goals can also encourage self motivation. Setting unrealistic, broad or difficult goals often frustrates the individual and may lead to him/her giving up. (Lee and Owen, 1985). For example, setting the goal of making the backyard a safer place to play would be considered too vague. The individual is liable to become confused or make small changes to the backyard that will not lead to the prevention of injuries. Setting the specific goal of reducing the amount of unwanted junk or chemicals in the backyard is more likely to effect a result.
6. Observational learning

The environment provides models for behaviour. Individuals can learn by observing others. Simply, by observing the behaviour and failures and success of others, the individual can learn appropriate behaviour. Observational learning approaches can be used to teach many types of behaviour. (Perry et al, 1990) For example, if a child observes his/her peers wearing bicycle safety helmets and perceives they are being positively reinforced for that behaviour he/she is also likely to wear a bicycle safety helmet. Alternatively, if children perceive others are being negatively reinforced for that behaviour such as being ridiculed, they are more likely to avoid the wearing of a bicycle safety helmet.

7. Reinforcements

Reinforcements are a fundamental construct in many learning theories. If a person's behaviour is positively reinforced the likelihood of that behaviour being repeated is increased. (Houston, 1986; Carlson, 1984; Monte, 1987) However, according to social learning theory, behaviours that result in aversive outcomes, such as punishment, ridicule and pain, do not always become extinct. Rather the individual may avoid performing the behaviour in situations where they expect an aversive outcome. (Perry et al, 1990)

Social learning theory embodies 3 types of reinforcement. (Houston, 1984; Perry et al, 1990)

1. direct reinforcement (operant conditioning)
2. vicarious reinforcement (observational learning)
3. self reinforcement (self control)

Reinforcement can also be divided into intrinsic and extrinsic reinforcements. External reinforcements are provided by forces outside of the person. The event is seen to have predictable value. Internal reinforcement is when the individual perceives an event has occurred that has some sort of value for him/her.
Behavioural and preventative health programs should attempt to provide and/or help the individual to identify the internal and external rewards for a given behaviour so as to facilitate maintenance of the new behaviour.

9. Self efficacy

The development of self efficacy is critical in the promotion of behaviour change. (Perry et al, 1990). Self efficacy is acquired by allowing the person to repetitively carry out the task. Repetition affects task persistence and initiation and fosters endurance, which in turn, assists in behaviour change. Where possible, tasks should be broken down into small manageable sequential steps or chunks. For self efficacy to occur the individual must be able to repetitively practice each step. When each step has been mastered the individual should be allowed to repetitively practice the entire task to promote self efficacy of the entire task. Enactive (participatory) and observational learning techniques can be used to introduce and promote the sequence of behaviour required to carry out the task. (Perry et al, 1990)

10. Managing emotional arousal

Certain stimuli can elicit fearful responses from individuals. Extreme emotional arousal can inhibit performance and learning. (Bandura 1977a) Defensive behaviours reduce fear and anxiety and decrease emotional arousal by helping the individual to deal effectively with the fear provoking situation. If a given behaviour or situation is likely to cause negative emotional arousal, behaviour change programs must provide skills training in how to competently deal with unpleasant emotional arousal that may prevent behaviour change from occurring. (Perry et al, 1990)

In summary, social learning theory illustrates behaviour is the result on an interactive process between environmental influences and personal factors including cognition and behaviour. All of these factors are considered determinants of behaviour and therefore need to be addressed if behaviour change is to occur.

PRECEDE Model

The PRECEDE model suggests behaviour is shaped by many factors and three variables, predisposing, enabling and reinforcing variables influence behaviour.
Thus consideration must be given to such factors when designing, planning and implementing behaviour change programs. (Green et al, 1980)

1. Predisposing factors

Attitudes, knowledge, beliefs, values and socio demographic variables are classified as predisposing factors and are all related to an individual's motivation to act. (Green et al 1980; Green and Kreuter, 1991) An individual's predisposition or personal preferences may inhibit or support health behaviours. Some predisposing factors are more responsive change than others, for example, beliefs, attitudes. Age, gender, family size are predisposing factors unable to be affected by health educational programs. (Green et al 1980; Green and Kreuter, 1991)

It is important to know an individual's beliefs about a given situation or issue. For example, "this won't work", it never worked before", when attempting to change behaviour or encouraging healthier lifestyles. It is also necessary to know if beliefs can be changed and if changing that belief will have any impact on health behaviour. (Green et al 1980; Green and Kreuter, 1991)

Values have been found to be linked to choices of behaviour. However, one value may be incongruous with another. (Green et al 1980; Green and Kreuter, 1991) For example, a person may say he/she values their life and therefore would not participate in skydiving but they may smoke cigarettes. When questioned about this paradox he/she may respond with an answer, as follows,

"I do value my life, and, yes, I do smoke, but life would be far less enjoyable for me if I did not smoke and I value feeling pleasant".

Often people are prepared to forego a specified amount of pleasure to remain healthy. Helping people sort out conflict between their action and their values is hypothesised as a useful and important health education technique.

An attitude as described by Muncchielli (1970) as 'a tendency of mind or relatively constant feeling towards a certain category of objects, persons or situations'.

Kirsch (1974) suggests that attitudes are evaluative dimensions. Attitudes are usually expressed in terms of good and bad, better or worse, important or not important, agree or disagree. Hence, attitudes are usually measured using a continuum. The individual is expected to mark his/her attitude on the continuum
between the designated antonyms. This type of information gives the researcher an idea of how the individual views or feels about a given category of objects persons or situations. Attitudes are not necessarily related to a person's behaviour. However, measuring attitudes can help the researcher identify some of the determinants of behaviour and the barriers that may inhibit or facilitate behavioural change.

The connection between beliefs, value, attitudes and behaviour is not, at present, fully understood. Notwithstanding, evidence does suggest that a relationship exists between such constructs and behaviour. (Green et al 1980; Green and Kreuter, 1991) Therefore, behaviour change strategies must consider how these constructs affect changes in health related behaviours.

2. Enabling factors

Enabling factors encompass, access to, and availability of, appropriate resources and services and the personal skills required to carry out the desired behaviour.

The PRECEDE model postulates that any program that aims to change behaviour is likely to fail if the necessary resources, services and skills training programs needed to facilitate change are not made available or accessible to the targeted individuals. (Green et al 1980; Green and Kreuter, 1991)

As Green et al (1980) state,

"Programs in which health information is disseminated without concurrent recognition of the influence of enabling factors is most likely to fail to affect behaviour".

3. Reinforcing factors

Reinforcing variables include the incentives, reward or punishment that follows a given behaviour. (Green et al, 1980; Green and Kreuter, 1991)

As Green et al (1980) comment, if an individual is rewarded for a given behaviour then he/she is more likely to repeat that behaviour. Alternatively, if an individual is punished for the same behaviour he/she is less likely to repeat that behaviour. Families and friends can have an influence on a person's behaviour by the way they reinforcement a behaviour. For example, if a person is taking measures to
prevent their child from being injured he/she likely to repeat that behaviour if family and friends approve of and praise their behaviour. On the other hand, if family or friends tell the individual they are being over protective and foolish, they are less likely to repeat this behaviour. Reinforcing factors relate to the conformity and behavioural models of behavioural change. If the society in which a person lives is a safety conscious society then a person is more likely to conform to safe behaviours because, they feel a need to belong and be accepted; they are likely to be positively reinforced for carrying out certain behaviours.

The PRECEDE model suggests that predisposing factors of the individual and other people in the society such as, attitudes, beliefs and values are likely to provide negative or positive reinforcement of a given behaviour. (Green et al, 1980; Green and Kreuter, 1991) Identification of predisposing, enabling and reinforcing factors allows the researchers or health educator to sort out which determinants of that behaviour are most amenable to change, therefore, attention must be given to all of these factors when the success of a program is to be measured by behaviour change. (Green et al, 1980; Green and Kreuter, 1991)

In summary, contemporary theories and models of behavioural change have shown that, beliefs, value, attitudes, the physical and social and environment in which people live and access to resources and skills to be main determinants of behaviours. Evidence suggests, that the success of a behaviour change program relies heavily on the identification and redressing of factors within the target group which may inhibit the behavioural change process. As it doubtful that reliance on one theoretical model or method will effect a change in behaviour it is recommended that programs be based on an eclectic framework. That is, based on a number of applicable behavioural change theories and methods.

CONCLUSION

As revealed by the literature review, behaviour change is a complex process influenced by many factors rather than a single event induced by the provision of information. Thus, for an information campaign to lead to change a chain of events must occur. For example, the persons must be exposed to the health message, attend to and comprehend the message, agree with what it says and also have the resources and skills to change their behaviour.

However, a review of contemporary theories and models of behaviour change has demonstrated that many intrapersonal and interpersonal factors may cause a breakdown in the chain of events leading from information to change. Thus, unless the individual and the environment in which the individual lives are
susceptible to change or the program is designed to identify and remove factors inhibiting change, it is doubtful information would lead to a change in behaviour.

The Illawarra Child Backyard Safety Campaign was limited to,

1. providing individuals with information about local child backyard injuries;

2. providing instruction on how to make safety-related changes to the backyard;

3. encouraging individuals use a free backyard clean up service to discard potentially dangerous items from the backyard.

Because of this limited scope and for reasons outlined in this chapter it is doubtful that the Illawarra Child Backyard Safety Campaign alone would be able to successfully create an environment conducive to change. It is also unlikely that a significant number of the Shellharbour population would be susceptible to change because their predominantly low socio-economic status are identified in the literature review as particularly change inhibiting.

Hence, the probability obtaining a measurable increase in the proportion of people in Shellharbour reporting that they made changes to their backyard environment following the backyard safety campaign is minimal.
METHODS
METHODS

Study design

This study utilised a separate-sample, pretest-posttest design with control group. (Campbell and Stanley, 1963).

Target community

The child backyard safety campaign targeted the Shellharbour Municipality (Postcodes 2527, 2528, 2529), in the southern region of the Illawarra.

Control community

Persons living in Austimere, Bulli, Woonona, Corrimal, Bellambi, Fairy Meadow and Mount Ousley, (Postcodes, 2515, 2516, 2517, 2518, 2519) in the northern region of the Illawarra were identified as the control community.

Target and control survey populations

The target survey population consisted of parents and guardians of children 0 to 15 years, who occupied houses or townhouses in postcodes 2527, 2528 and 2529 and who had one or more child residing with them on a permanent or semi-permanent basis.

The control survey population consisted of parents and guardians of children 0 to 15 years, who occupied houses or townhouses, in postcodes 2515, 2516, 2517, 2518 and 2519 who had one or more child residing with them on a permanent or semi-permanent basis.

Sample Size

The sample size for this study could not be calculated using one the standard formulae presented in statistical text books. (Eg. Blalock, 1981; Ott, 1988; Alderson, 1990) Due to a lack of available information, the standard error of the population could not be directly calculated nor estimated from the results of similar surveys.
In an attempt to obtain information on the size of the sample required to show a significant change in the pre survey population compared to the post survey population, contact was made with the senior research officer at the Illawarra Regional Information Service. Based on the size of the target and control populations, the senior research officer recommended a sample size of 600 person each from the target and control groups. However, due to financial and time limitations a sample size of 1,200 people was not feasible for this study. Therefore, the senior research officer recommended that a sample size of no less than 100 person each for the control and target population would be required to show any significant difference in the pre survey population compared to the post survey population and between the control and target groups.

The possible effects of a significantly less than recommended sample size are discussed in the ‘limitations of the study design’ section of this chapter.

Choice of Survey Method

Following careful consideration of a range of survey methods, a decision was made to carry out the survey at a number of strategically placed shopping centres in the control and target areas.

The method of surveying people at local shopping centres was chosen in preference to telephone interviews as Shellharbour Municipality is a predominantly low economic status community. Often people on low incomes can not afford a telephone. Hence, a telephone survey was likely to have resulted in sampling bias through an over representation of higher socio-economic individuals.

Similarly, the method of a mail out questionnaire was discarded following an extremely low response rate to a questionnaire mailed out during the earlier months of 1991. The use of face to face interviews ensured attainment of the proposed sample size of 150 persons each from the control and target survey population.

Pre - Testing of Questionnaire

To ensure ease of comprehension and clarity of the questionnaire, the questionnaire was pre tested on the first 25 people in the control and target groups. During the pre test the interviewers noticed that many people recalled recent exposure to extraneous child safety information. Therefore, the question ‘Have you heard of seen any child safety information lately? If so what was it about?’ was added to the questionnaire. This question was included to enable the researcher to identify extraneous variables that may have influenced the outcome of this study.
As the only change required to the pre questionnaire was the addition of one question, the information collected from the 50 people surveyed in the pre-test was included in the results of this study. The inclusion of the pre-test questionnaires accounts for the missing data in the pre survey data in section 5.3 of the results.

Pre intervention

During the second and third weeks in September, 1991, a structured questionnaire was used to survey people from the control and survey populations.

The survey was carried out at one shopping centre located in the control community (Corrimal Court) and two shopping centres in the target community (Shellharbour Square and Warilla Grove). One hundred and fifty (150) people from the control and 151 from the target population completed the pre survey questionnaire.

To ensure the control and target sample populations included working and non working males and females, interviews were conducted on Mondays, Wednesdays, Thursday evenings, Fridays and Saturdays.

Survey participants from the control and target groups were approached and asked to participate in a child health and safety survey. If the person agreed to participate they were asked a series of questions to determine their membership in the control or target survey population. For example,

i) What postcode do you come from?

ii) How many children under 5 years and 5 - 15 years are living with you?

iii) Do you live in a house, townhouse, flat/unit, caravan, other?

Persons identified as living outside the designated postcodes or in a flat/unit, caravan, other were informed that they did not belong to the survey populations and asked no further questions.

Persons identified as belonging to either the control or survey populations were then asked the participate in the pre survey. Those persons who agreed to participate were asked the following questions,

i) Have you recently heard or been given information on backyard safety? If so, what was it about and where did you get the information from?
ii) Have you heard or seen any other child safety information lately?

iii) Have you made any changes to your home, car or backyard in the last 12 months designed to make it safer for your children?

iv) Which people are a part of your local community?

v) Please indicate how you feel about the following statements (scale from totally disagree to totally agree)

   a. Children should be allowed to hurt themselves so they learn from it.

   b. You can't prevent kids from being injured; it's a part of growing up.

vi) How important do you think the following issues are? (5 point scale from not important to extremely important)

   a. Unemployment

   b. Crime rate

   c. inflation/cost of living

   d. public transport

   e. child injury rate

   f. losing my job

   g. my child taking drugs

An example of the pre survey questionnaire is displayed at Appendix 1

Intervention

Information about local child backyard injuries and methods to help prevent these injuries was disseminated to the Shellharbour community between October 1991 and January 1992. To ensure people had access to the resources to dispose of dangerous items in the backyard, a free "child safety" backyard clean up service was made available during the first three weekends of November 1991. The clean up service, funded by the Child Accident Prevention Task Force and local council, was
run in conjunction with local Apex clubs.

Mass media and limited reach media were used to disseminate information. Examples of media and methods are listed below.

a. Limited reach media (posters and pamphlets) were distributed to 50 community groups and organisations. Pamphlets were then passed on to group members or made available to the general public. (A list of the types of groups and organisation is at Appendix 3).

b. Pamphlets were distributed during two, 3 day displays at Shellharbour Square shopping centre and one day displays at both the Mayoress's Christmas party and the Shellharbour multicultural day;

c. Child backyard safety talks were held with interested mothers' groups and other community groups;

d. Articles, editorials and advertisements were published in local newspapers;

e. Community service announcements were broadcast by the local radio station, 2WL.

Mass media and limited reach media contained

a. messages including,
    i) the backyard is the most common place where children injure themselves in postcodes 2527, 2528, 2529.

    ii) injuries in the backyard are caused most often by
        a. falls,
        b. playing dangerously and unsafe backyard environments
        c. backyard Junk

    iii) child backyard injuries are preventable, most of the time.

b. methods to help prevent children being injured in the backyard.
c. the dates on which a free backyard clean up service would be available in particular areas.

Post intervention

Following the information campaign a structured questionnaire was used to survey people from the control and survey populations. The post survey was conducted in the second and third weeks of February 1992.

The survey was carried out at one shopping centre located in the control community (Corrimal Court) and two shopping centres in the target community (Shellharbour Square and Warilla Grove). One hundred and fifty (150) people from the control and 152 from the target population completed the post survey questionnaire.

To ensure the control and target sample populations included working and non working males and females, interviews were conducted on Mondays, Wednesdays, Thursday evenings, Fridays and Saturdays.

Survey participants from the control and target groups were approached and asked to participate in a child health and safety survey. If the person agreed to participate they were asked a series of questions to determine their membership in the control or target survey population. For example,

   i) What postcode do you come from?

   ii) How many children under 5 years and 5 - 15 years are living with you?

   iii) Do you live in a house, townhouse, flat/unit, caravan, other?

Persons identified as living outside the designated postcodes or in a flat/unit, caravan, other were informed that they did not belong to the survey populations and asked no further questions.

Persons identified as belonging to either the control or survey populations were then asked the participate in the post survey.
The questionnaire used during the post survey was modified from the pre survey questionnaire. For example,

1. To reduce the time involved in the survey, the following question, "How important do you think the following issues are, unemployment, crime rate...?" was eliminated from the post questionnaire.

2. Two questions were added to the post questionnaire to measure whether respondents had the ability to recall the salient messages of the campaign, namely,
   
i) the most common place children injure themselves.
   
ii) the most common causes of backyard injuries.

An example of the post questionnaire is displayed at Appendix 2

Data analysis

Data from the pre and post questionnaires was entered on a specially designed SAS data base using a 386 IMB President PC. Frequency distribution and chi square test of independence were used to analyse and compare information collected during the pre and post surveys.

Limitations of the study design

It is important to note that results of this study may have been influenced by the limitations of the study design. Examples of the limitations of the study design are discussed below.

1. No reliability and validity tests were carried out on the instruments used to survey the sample population. Therefore, the possibility that the outcome of this study is the product of the design of the questionnaire or due to the demand characteristics of the questionnaires, rather than a true picture of the control and target survey populations, can not be dismissed.
2. The survey method and sampling technique used may have introduced a number of sampling biases into the study as follows,

a. significantly more females were surveyed compared to males in both the pre and post surveys. No provision was made to interview people of Non English Speaking Background. Only people with an adequate command of the english language were able to participate in the survey. The survey appears to be biased in favour of English speaking women. The use of a more highly controlled random sampling technique may have yielded a higher percentage of males and people of non English speaking background and hence, significantly influenced the results of this study.

b. socio-economic data was not collected from participants. Subsequently, no information is available to determine if the survey sample is representative of the proportion of people from different socio-economic group in the control and target survey populations. The inability to discount a possible sampling bias if favour of a particular socio economic group suggests that the survey sample may not be truly representative of the target and control survey populations. Thus, the reliability of this study may be low and attempts to replicate the findings of this study could be problematic.

c. The method of surveying shopping centre clientele may have affected the representativeness of the sample population. For example,

i) surveys were conducted on Thursday evenings and Saturdays so as to capture certain sub-groups of the survey population, such as, working women and males. However, significantly more women were surveyed compared to males. There is also a high probability that more non working women were surveyed compared to working women as the majority of surveys were carried out on weekdays between 9.00am and 3.00pm. This type of sampling bias may have affected those findings related to attitudes to child injury, health and social priorities and sense of community.
ii) The fact that the survey sample was drawn from specific locations inside the shopping centre only may have precluded certain sub-populations from participating in the survey. However, the characteristics of such sub-populations and how their exclusion may have affected the results of this study are unknown.

iii) It is likely that interviewer selection bias may have influenced the composition of the survey sample and thus the findings of this study. That is, the interviewers would have been less likely to approach people they though would refuse to participate in the survey. For example, people who appeared to be in a hurry, aggrivated or unfriendly. Consequently, the survey sample is probably unrepresentative of people with certain personalities types or life circumstances.

3. The smaller than recommended sample size may have prejudiced the results of this study by preventing the detection of a significant change in the proportion of people making changes to their backyard. It is possible that a significant change may have been observed between groups had the results of this study been drawn from a sample of 600 persons or more.

Due to the limitation of the study design such as, failure to test the reliability and validity of the survey instruments, potential biases introduced by the sampling techniques and survey methodology and the use of a less than recommended sample size the validity and reliability of the results of this study can not be guaranteed. Therefore, caution should be taken not to generalise the findings of this study to the general population.
RESULTS
5. RESULTS

5.1 Subject Variables

a. Gender:

In the pre and post surveys females were over represented. More than 75% of the control and target group samples consisted of females. (Ref: Table 5.1)

In the pre survey no significant difference was found in the proportion of males or females surveyed in the target group compared to the control group ($P > 0.1$, $\chi^2 = 0.19$, df=1) (Ref: Table 5.1)

However, in the post survey significantly more ($P < 0.05$, $\chi^2 = 5.06$, df=1) males were surveyed in the target group compared to the control group. (Ref: Table 5.1)

TABLE 5.1

PERCENTAGE OF MALES AND FEMALES: PRE AND POST SURVEY

<table>
<thead>
<tr>
<th>PRE / POST</th>
<th>GENDER</th>
<th>GROUP</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>CONTROL</td>
<td>TARGET</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>PRE</td>
<td>Male</td>
<td>36</td>
<td>24%</td>
<td>33</td>
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<tr>
<td></td>
<td>Female</td>
<td>114</td>
<td>76%</td>
<td>118</td>
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<tr>
<td>TOTAL</td>
<td></td>
<td>150</td>
<td>100%</td>
<td>151</td>
</tr>
<tr>
<td>POST</td>
<td>Male</td>
<td>22</td>
<td>14.7%</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>128</td>
<td>85.3%</td>
<td>114</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>150</td>
<td>100%</td>
<td>152</td>
</tr>
</tbody>
</table>
b. Postcodes

No significant difference was found in the proportion of people in the control group surveyed from each postcode in the pre survey compared to the post survey. For all cases P>0.1, $x^2<2$, df=1. (Ref: Table 5.2)

No significant difference was found in the proportion of people in the target group surveyed from postcode 2527 and 2528 in the pre survey compared to the post survey. In both cases P>0.1, $x^2<2$, df=1. A significant difference (P<0.05, $x^2=5.31$, df=1) was found in the proportion of people in the target group surveyed from postcode 2529 in the pre survey compared to the post survey. The proportion was higher in the post survey. (Ref: Table 5.2)

TABLE 5.2
PERCENTAGE OF PEOPLE BY POSTCODE : PRE AND POST SURVEY

<table>
<thead>
<tr>
<th>GROUP</th>
<th>POSTCODES</th>
<th>PRE/POST</th>
<th>PRE</th>
<th>POST</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>CONTROL</td>
<td>2515</td>
<td>9</td>
<td>6.0%</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>2516</td>
<td>13</td>
<td>8.7%</td>
<td>7</td>
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<tr>
<td></td>
<td>2517</td>
<td>27</td>
<td>18.0%</td>
<td>24</td>
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<td></td>
<td>2518</td>
<td>77</td>
<td>51.3%</td>
<td>79</td>
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<td>2519</td>
<td>24</td>
<td>16.0%</td>
<td>29</td>
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<td></td>
<td>150</td>
<td>100%</td>
<td>150</td>
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<td>2527</td>
<td>55</td>
<td>36.4%</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>2528</td>
<td>75</td>
<td>49.7%</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>2529</td>
<td>21</td>
<td>13.9%</td>
<td>37</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>150</td>
<td>100%</td>
<td>152</td>
</tr>
</tbody>
</table>
c. Number of children 0 - 4 years

Pre Survey

Seventy one percent (71%) of people surveyed from the control group had one or more children 0 - 4 years and 29% had no children under five years. Seventy seven point three percent (70.7%) of people surveyed from the target group had one or more children 0 - 4 years and 29.3% had no children under five (no significant difference, $P>0.1$, $x^2=0.007$, df=1). (Ref: Table 5.3)

Post Survey

Seventy seven point three percent (77.3%) of people surveyed from the control group had one or more children 0 - 4 years and 22.7% had no child under five years. Seventy one point five percent (71.5%) of people from target group survey had one or more children 0 - 4 years and 28.5% had no child under five (no significant difference, $P>0.1$, $x^2=1.34$, df=1)). (Ref: Table 5.3)

TABLE 5.3

PERCENTAGE OF PEOPLE WITH CHILDREN 0 - 4 YEARS: PRE AND POST SURVEY

<table>
<thead>
<tr>
<th>PRE/POST</th>
<th>NO. OF CHILDREN 0 - 4 YEARS</th>
<th>GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>CONTROL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No.</td>
</tr>
<tr>
<td>PRE</td>
<td>NONE</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>ONE OR MORE</td>
<td>103</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>145</td>
</tr>
<tr>
<td>POST</td>
<td>NONE</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>ONE OR MORE</td>
<td>116</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>150</td>
</tr>
</tbody>
</table>
d. **Number of children 5 - 15 years**

**Pre Survey**

Fifty nine percent (59%) of people surveyed from the control group had one or more children between 5 and 15 years of age and 41% had no child 5 - 15 years. Fifty seven point three percent (57.3%) of people surveyed from the target group had one or more children 0 - 15 years of age and 42.7% had no child 5 - 15 years (no significant difference P>0.1, $x^2=0.087$, df=1). (Ref: Table 5.4)

---

**TABLE 5.4**

**PERCENTAGE OF PEOPLE WITH CHILDREN 5 - 15 YEARS:**

**PRE AND POST SURVEY**

<table>
<thead>
<tr>
<th>NO. OF CHILDREN 5 - 15 YEARS</th>
<th>GROUP</th>
<th>CONTROL</th>
<th>TARGET</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PRE/POST</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>PRE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NONE</td>
<td></td>
<td>59</td>
<td>41.0%</td>
</tr>
<tr>
<td>ONE OR MORE</td>
<td></td>
<td>85</td>
<td>59.0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>144</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>POST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NONE</td>
<td></td>
<td>64</td>
<td>42.7%</td>
</tr>
<tr>
<td>ONE OR MORE</td>
<td></td>
<td>86</td>
<td>57.3%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>150</td>
<td>100%</td>
</tr>
</tbody>
</table>
Post Survey

Fifty seven point three percent (57.3%) of people surveyed from the control group had one or more children 5 - 15 years and 42.7% had no child 5 - 15 years. Sixty six point two percent (66.2%) of people surveyed from the target group had one or more children 0 - 15 years of age and 33.8% had no child 5 - 15 years (no significant difference, P>0.1, $x^2=2.44$, df=1). (Ref: Table 5.4)

e. Percentage of people involved in community groups

Sixty two point six percent (62.6%) of the target group reported that they were not involved in any community/sporting groups at the time of the survey. Twenty six point seven (26.7%) of the target population reported they were involved in one community/sporting group. Only 10.7% reported being involved in two or more groups. (Ref: Table 5.5)

Fifty two point three percent (52.3%) of the control group reported that they were not involved in any community/sporting group at the time of the survey. Twenty nine point eight (29.8%) reported they were involved in one community group/organisation or sporting group. Only 17.9% reported being involved in two or more groups. (Ref: Table 5.5)

No significant difference was found in the proportion of people in the target group involved in community/sporting groups compared to the control group. (P>0.05, $x^2=3.31$, df=1)

f. Priority of health and social issues

During the pre survey, 150 people from the control group and 151 persons from the target group were asked how important they thought certain social and health issues were on a 5 point scale of not important to extremely important. The mean response for each issue was calculated.

Table 5.6 and Table 5.7 show that, apart from the issue of public transport the mean response for all issues (my child taking drugs, losing my job, crime rate, inflation child injury rate and unemployment), was either very and extremely important for both the control and target group.
TABLE 5.5
PERCENTAGE OF PEOPLE INVOLVED IN ONE OR MORE COMMUNITY/SPORTING GROUP:
CONTROL AND TARGET GROUP

<table>
<thead>
<tr>
<th>NO. OF GROUPS</th>
<th>GROUP</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CONTROL</td>
<td>TARGET</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>0</td>
<td>79</td>
<td>52.3%</td>
<td>94</td>
</tr>
<tr>
<td>1</td>
<td>45</td>
<td>29.8%</td>
<td>40</td>
</tr>
<tr>
<td>2 OR MORE</td>
<td>27</td>
<td>17.9%</td>
<td>16</td>
</tr>
<tr>
<td>TOTAL</td>
<td>151</td>
<td>100%</td>
<td>150</td>
</tr>
</tbody>
</table>

f. Priority of health and social issues (cont)

'My child taking drugs' had the highest mean importance in both the control and target group. In the control group, 'losing my job' and 'the crime rate' had the second and third highest mean, respectively. The situation was reversed in the target group. 'Crime rate' had the second highest mean and 'Losing my job' the third highest. In both the control group and target group, all issues except public transport had a higher mean than 'child injury rate'. However, the difference between the highest mean response and 'child injury rate' was only 0.71 in the control group and 0.66 in the target group.

The percent of people who answered 'extremely important', 'very important', 'important' and little or not important is displayed at Appendix 4.

The mean responses and the frequency distributions suggest many people thought the child injury rate was a very important or extremely important issue but not quite as important as issues such as the crime rate, inflation and unemployment and not nearly as important as losing their job or their child taking drugs.
g. Attitude to the preventability of childhood injuries

Fifty seven percent (57%) (171) of the control group and 60.4% (183) of the target group 'totally disagreed' with the statement "Children should be allowed to hurt themselves so they learn from it". Thirty five point seven percent (35.7%) (107) of the control and 30.7% (93) of the target group 'agreed a little' with the statement. Only 7.3% (22) of the control and 8.9% (27) of the target group 'agreed', 'agreed a lot' or 'totally agreed' with the statement. No significant difference was found between the target group and the control group (in all cases P>0.1, $x^2<2$, df=1). (Ref: Figure 5.1).

Fifteen point seven percent (15.7%) of the control and 20.8% of the target group 'totally disagreed' with the statement "You can't prevent children from injuring themselves; it is a part of growing up." Thirty three point one percent (33.1%) of the target and 31.4% of the control 'agreed a little' with the statement. Forty one point five percent (41.5%) of the control and 26.1% of the target group 'agreed' with the statement. Nine point seven percent (9.7%) of the control and 21.7% of the target group agreed 'agreed a lot' or 'totally agreed' with the statement. (Ref: Figure 5.2)

No significant difference was found between the proportion of people in the control group that gave the response of 'totally disagree' and the proportion of people in the target group (P>0.1, $x^2=2.57$, df=1).

No significant difference was found between the proportion of people in the control group that gave the response of 'agree a little' and the proportion of people in the target group (P>0.1, $x^2=0.2$, df=1).

A significant difference (P<0.001, $x^2=15.97$, df=1) was found between the proportion of people in the control group that gave the response of 'agree' and the proportion of people in the target group. Table 5.2 shows that the number of people in the control group was greater than the target group.

A significant difference (P<0.001, $x^2=16.53$, df=1) was found between the proportion of people in the control group that gave the response of 'agree a lot' or 'totally agree' and the proportion of people in the target group. Table 5.2 shows that the number of people in the target group was greater than the control group.
<table>
<thead>
<tr>
<th>Issue</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>My child taking drugs</td>
<td>4.96</td>
</tr>
<tr>
<td>Crime rate</td>
<td>4.47</td>
</tr>
<tr>
<td>Losing my job or being unemployed</td>
<td>4.43</td>
</tr>
<tr>
<td>Inflation</td>
<td>4.38</td>
</tr>
<tr>
<td>Unemployment</td>
<td>4.38</td>
</tr>
<tr>
<td>Child injury rate</td>
<td>4.25</td>
</tr>
<tr>
<td>Public transport</td>
<td>3.02</td>
</tr>
<tr>
<td>Issue</td>
<td>Mean Score</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>My child taking drugs</td>
<td>4.85</td>
</tr>
<tr>
<td>Losing my job or being</td>
<td>4.61</td>
</tr>
<tr>
<td>unemployed</td>
<td></td>
</tr>
<tr>
<td>Crime rate</td>
<td>4.42</td>
</tr>
<tr>
<td>Inflation</td>
<td>4.32</td>
</tr>
<tr>
<td>Unemployment</td>
<td>4.21</td>
</tr>
<tr>
<td>Child injury rate</td>
<td>4.19</td>
</tr>
<tr>
<td>Public transport</td>
<td>2.87</td>
</tr>
</tbody>
</table>
FIGURE 5.1

Sample size:

Control = 300
Target = 303
FIGURE 5.2

CANT PREVENT FROM BEING INJURED
AGREE/DISAGREE RESPONSES

PERCENTAGE

Total Disagree Agree Little Agree Agree A lot Total Agree

Sample size:
Control = 299
Target = 303
Sample size:

Control  = 300

Target   = 303
Sixty two percent (62%) (186) of the control and 61% (184) of the target group reported that they consider the people in their family to be part of their local community. Sixty percent (60%) (180) of the control and 58% (177) of the target group reported that they view the people in their neighbourhood to be part of their local community. Forty one point seven (41.7%) (125) of the control and 38.6% (117) of the target reported that they consider the people in their street to be a part of their local community. Only 24% (72) of the control and 21% (64) of the target reported that they consider the people in their suburb to be a part of their local community. Ten percent (10%) (30) of the control and 14.5% (44) the target group reported that they view the people in their municipality as a part of the local community. Thirteen point seven percent (13.7%) (41) of the control and 11% (34) of the target group reported that they consider the people in their region to be a part of the local community. (Ref: Figure 5.3) No significant difference was found between the control and target groups (in all cases P>0.05, $x^2<3$, df=1).

Nine point three percent (9.3%) (28) of the control and 20.8% (63) of the target group reported they did not feel a part of their local community. A significant difference (P<0.001, $x^2=15.5$, df=1) was found between the target and control groups. Figure 5.3 illustrates that the number of people was higher in the target group.

### 5.2 EXPOSURE TO BACKYARD SAFETY INFORMATION - PRE AND POST SURVEY

#### a. Percentage of people who reported exposure to any type of backyard safety information

Table 5.8 displays the number of people in the control and target group who recalled recently being exposed to backyard safety information during the pre and post surveys. Fifteen point five percent (15.5%) of the control and 16% of the target group recalled recently being exposed to backyard safety information during the pre survey (No significant difference, P>0.1, $x^2=0.02$, df=1).

Twenty two point three percent (22.3%) of the control and 55% of the target group recalled recently being exposed to backyard safety information during the post survey. A significant difference (P<0.001, $x^2=49.8$, df=1) was found in the proportion of people in the post target group that recalled recently being exposed to backyard safety information compared to the post control group.
A significant difference ($P<0.001$, $x^2=33.54$, df=1) was found in the number of people in the post target group that recalled recently being exposed to backyard safety information compared to the pre target group. The number of people was higher in the post survey. (Ref: Table 5.8)

No significant difference was found in the number of people in the post control group who recalled recently being exposed to backyard safety information compared to the pre control group ($P>0.1$, $x^2=2.3$, df=1).

**TABLE 5.8**

**THOSE WHO RECALLED BACKYARD SAFETY INFORMATION**

**PRE AND POST SURVEY: PERCENT**

<table>
<thead>
<tr>
<th>PRE/POST</th>
<th>RECALL</th>
<th>AREA</th>
<th>CONTROL</th>
<th></th>
<th></th>
<th>TARGET</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>PRE</td>
<td>NO</td>
<td>126</td>
<td>84.5%</td>
<td>126</td>
<td>84.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>23</td>
<td>15.5%</td>
<td>24</td>
<td>16.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>149</td>
<td>100%</td>
<td>150</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POST</td>
<td>NO</td>
<td>115</td>
<td>77.7%</td>
<td>68</td>
<td>45.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>33</td>
<td>22.3%</td>
<td>83</td>
<td>55.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>148</td>
<td>100%</td>
<td>151</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**B. The type of backyard safety information people reported receiving**

**I) Campaign specific backyard safety information: Pre and post survey**

During the pre survey when people were asked what type of backyard safety information they received, one person (0.7%) from the control group and no person from the target group recalled recently being exposed to campaign specific backyard safety information* (Ref: Table 5.9).

* See definitions for how 'campaign specific backyard safety information' was categorised
During the post survey 39% of the target and 5.3% of the control group recalled recently campaign specific backyard safety information. (Ref: Table 5.9)

A significant difference (P<0.001, \( x^2=72.77 \), df=1) was found in the proportion of people in the target group who recalled campaign specific information after the campaign. (Ref: Table 5.9) No analysis was carried out on the figures collected from the control group.

In the post survey a significant difference (P<0.001, \( x^2=49.1 \), df=1) was found between the target group and the control group.

ii) Extraneous backyard safety information: Pre and post survey:

During the pre survey when people were asked what type of backyard safety information they received, 15.3% of the control and 15.2% of the target group recalled 'extraneous backyard safety information' (No significant difference, P>0.1, \( x^2<0.01 \), df=1). (Ref: Table 5.10)

During the post survey, sixteen percent (16.7%) of the control and 16.4% of the target group recalled 'extraneous backyard safety information' in the post survey. (Ref: Table 5.10) No significant difference was found between groups. (P>0.1, \( x^2<0.01 \), df=1)

No significant difference was found between the pre survey target group and the post survey target group for recall of extraneous backyard safety information (P<0.1, \( x^2<0.01 \), df=1).

No significant difference was found between the pre survey control group and the post survey control group for recall of extraneous backyard safety information (P>0.1, \( x^2<0.01 \), df=1).

Appendices 5 and 6 displays the type of extraneous backyard safety information to which people in the control and target reported being exposed in the pre and post survey.

* See definitions for how 'extraneous backyard safety information' was categorised
TABLE 5.9
THOSE WHO RECALLED CAMPAIGN SPECIFIC BACKYARD SAFETY INFORMATION
PRE AND POST SURVEY: PERCENT

<table>
<thead>
<tr>
<th>PRE/POST</th>
<th>RECALL</th>
<th>AREA</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>CONTROL</td>
<td></td>
<td>TARGET</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>PRE</td>
<td>NO</td>
<td>149</td>
<td>99.3%</td>
<td>151</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>1</td>
<td>0.7%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>150</td>
<td>100%</td>
<td>151</td>
<td>100%</td>
</tr>
<tr>
<td>POST</td>
<td>NO</td>
<td>142</td>
<td>94.7%</td>
<td>93</td>
<td>61.0%</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>8</td>
<td>5.3%</td>
<td>59</td>
<td>39.0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>150</td>
<td>100%</td>
<td>152</td>
<td>100%</td>
</tr>
</tbody>
</table>

TABLE 5.10
THOSE WHO RECALLED EXTRANEOUS BACKYARD SAFETY INFORMATION
PRE AND POST SURVEY: PERCENT

<table>
<thead>
<tr>
<th>PRE/POST</th>
<th>RECALL</th>
<th>AREA</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>CONTROL</td>
<td></td>
<td>TARGET</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>PRE</td>
<td>NO</td>
<td>127</td>
<td>84.7%</td>
<td>128</td>
<td>84.8%</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>23</td>
<td>15.3%</td>
<td>23</td>
<td>15.2%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>150</td>
<td>100%</td>
<td>151</td>
<td>100%</td>
</tr>
<tr>
<td>POST</td>
<td>NO</td>
<td>125</td>
<td>83.3%</td>
<td>127</td>
<td>83.6%</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>25</td>
<td>16.7%</td>
<td>25</td>
<td>16.4%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>150</td>
<td>100%</td>
<td>152</td>
<td>100%</td>
</tr>
</tbody>
</table>
5.3 EXPOSURE TO EXTRANEOUS CHILD SAFETY INFORMATION - PRE AND POST SURVEY

A. Percentage of people exposed:

At pre survey** 41% of the control group and 38.4% of the target group recalled being exposed to extraneous child safety information* (no significant difference, \(P>0.1, x^2=0.16, df=1\)). (Ref: Table 5.11)

During the post survey 32.7% of the control and 39.1% of the target population recalled recently being exposed to extraneous child safety information (no significant difference, \(P>0.1, x^2=1.34, df=1\)). (Ref: Table 5.11)

B. Type of Extraneous Safety Information

People recalled being exposed to a variety of extraneous child safety information. Home, road and bicycle safety and/or stranger danger information was the most common type of information people recalled. A breakdown of the type of extraneous child safety information people recalled is at Appendix 7.

5.4 ABILITY TO RECALL THE SALIENT MESSAGES OF THE CAMPAIGN: (POST SURVEY)

a. Where do children injure themselves most often?

When asked 'Where do children injure themselves most often', 55.3% in the target and 37.3% in the control group gave the correct response (in the backyard).

A significant difference (\(P<0.01, x^2=8.98, df=1\)) was found between the target group and the control group. Table 5.12 displays this finding.

* See definitions for how 'extraneous backyard safety information' was categorised.

** During the first day of the pre survey no persons were asked 'have you recently heard or seen any other child safety information lately? This account for the unusually low sample size displayed in the pre survey section of Table 5.11.
**TABLE 5.11**

**THOSE WHO RECALLED EXTRANEOUS CHILD SAFETY INFORMATION**

**PRE AND POST SURVEY: PERCENT**

<table>
<thead>
<tr>
<th>PRE/POST</th>
<th>RECALL</th>
<th>AREA</th>
<th>CONTROL</th>
<th>TARGET</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>PRE</td>
<td>NO</td>
<td></td>
<td>72</td>
<td>59.0%</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td></td>
<td>50</td>
<td>41.0%</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td>122</td>
<td>100%</td>
</tr>
<tr>
<td>POST</td>
<td>NO</td>
<td></td>
<td>101</td>
<td>67.3%</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td></td>
<td>49</td>
<td>32.7%</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td>150</td>
<td>100%</td>
</tr>
</tbody>
</table>

**TABLE 5.12**

**'WHERE DO CHILDREN INJURE THEMSELVES MOST OFTEN?'**

**PERCENTAGE RESPONSES: CONTROL AND TARGET**

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>AREA</th>
<th>CONTROL</th>
<th>TARGET</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>AT SCHOOL</td>
<td></td>
<td>7</td>
<td>4.7%</td>
</tr>
<tr>
<td>HOME</td>
<td></td>
<td>74</td>
<td>49.3%</td>
</tr>
<tr>
<td>BACKYARD</td>
<td></td>
<td>56</td>
<td>37.3%</td>
</tr>
<tr>
<td>ON ROAD</td>
<td></td>
<td>5</td>
<td>3.3%</td>
</tr>
<tr>
<td>DON'T KNOW</td>
<td></td>
<td>8</td>
<td>5.4%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>150</td>
<td>100%</td>
</tr>
</tbody>
</table>
b. What are the most common causes of child backyard injuries?

When asked 'What are the most common causes of child backyard injuries?' 67.3% of the control group and 66.4% of the target group gave the correct response (junk, falls, dangerous play and unsafe environments). (Ref: Table 5.13)

No significant difference ($P>0.1$, $x^2=0.03$, df=1) was found in the proportion of people in the target group who were able to recall the most common causes of child backyard injuries compared to the control group.

**TABLE 5.13**

**WHAT ARE THE MOST COMMON CAUSES OF CHILD BACKYARD INJURIES?**

PERCENTAGE RESPONSES: CONTROL AND TARGET

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>CONTROL</th>
<th></th>
<th>TARGET</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Poisons Burns Drownings</td>
<td>14</td>
<td>9.3%</td>
<td>11</td>
<td>7.2%</td>
</tr>
<tr>
<td>Junk, Falls, Dangerous Play</td>
<td>101</td>
<td>67.3%</td>
<td>101</td>
<td>66.4%</td>
</tr>
<tr>
<td>Poisons and Drownings</td>
<td>31</td>
<td>20.7%</td>
<td>21</td>
<td>13.8%</td>
</tr>
<tr>
<td>Don't Know</td>
<td>4</td>
<td>2.7%</td>
<td>19</td>
<td>12.6%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>150</td>
<td>100%</td>
<td>152</td>
<td>100%</td>
</tr>
</tbody>
</table>
5.5 REPORTED CHANGES TO CAR, HOME AND BACKYARD ENVIRONMENTS

a. Percentage of people who reported making changes to either their car, home or backyard

At pre survey 51% of the control and 56.3% of the target group reported that they had made changes to their car, home and/or backyard in the last 12 months designed to make it safer for their children. No significant difference (P>0.1, $x^2=0.86$, df=1) was found between the control and the target groups. (Ref: Table 5.14)

At post survey 54.7% of the control and 55% of the target group reported that they had made changes to their car, home and/or backyard in the last 12 months designed to make it safer for their children. No significant difference was found between the control and target groups (no significant difference, P>0.1, $x^2<0.005$, df=1). (Ref: Table 5.14)

No significant difference (P>0.1, $x^2=0.04$, df=1) was found in the proportion of people in the post target group who reported having made changes to their car, home or backyard compared to the pre survey.

No significant difference (P>0.1, $x^2=0.38$, df=1) was found in the proportion of people in the post control group who reported having made changes to their car, home or backyard compared to the pre survey.

b. People who reported making changes to their backyard

At the pre survey 30.7% of the control and 38.4% of the target group reported that they had made changes to their backyard in the last 12 months designed to make it safer for their children (Ref: Table 5.15). No significant difference was found between groups (P>0.1, $x^2=1.97$, df=1).

At the post survey 40.7% of the control and 41.4% of the target group reported that they had made changes to their backyard in the last 12 months designed to make it safer for their children. (Ref: Table 5.15) No significant difference was found between groups (P>0.1, $x^2=0.29$, df=1).

No significant difference (P>0.1, $x^2<0.02$, df=1) was found in the proportion of people in the target group who reported having made changes to their backyard pre survey and post survey. However, a significant but non meaningful difference (P>0.05, $x^2=3.26$, df=1) was found in the proportion of people in the control group who reported having made changes to their backyard between the pre and post survey. (Ref: Table 5.15)
### TABLE 5.14
PEOPLE WHO REPORTED MAKING CHANGES TO THEIR CAR, HOME OR BACKYARD
PERCENTAGE RESPONSES: PRE AND POST SURVEY

<table>
<thead>
<tr>
<th>PRE/POST</th>
<th>CHANGES</th>
<th>AREA</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>CONTROL</td>
<td>TARGET</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>PRE</td>
<td>NO</td>
<td>73</td>
<td>49.0%</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>76</td>
<td>51.0%</td>
<td>85</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>149</td>
<td>100%</td>
<td>151</td>
</tr>
<tr>
<td>POST</td>
<td>NO</td>
<td>68</td>
<td>45.3%</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>82</td>
<td>54.7%</td>
<td>82</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>150</td>
<td>100%</td>
<td>150</td>
</tr>
</tbody>
</table>

### TABLE 5.15
PEOPLE WHO REPORTED MAKING CHANGES TO THEIR BACKYARD
PERCENTAGE RESPONSES: PRE AND POST SURVEY

<table>
<thead>
<tr>
<th>PRE/POST</th>
<th>CHANGES</th>
<th>AREA</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>CONTROL</td>
<td>TARGET</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>PRE</td>
<td>NO</td>
<td>104</td>
<td>69.3%</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>46</td>
<td>30.7%</td>
<td>58</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>150</td>
<td>100%</td>
<td>151</td>
</tr>
<tr>
<td>POST</td>
<td>NO</td>
<td>89</td>
<td>59.3%</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>61</td>
<td>40.7%</td>
<td>63</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>150</td>
<td>100%</td>
<td>152</td>
</tr>
</tbody>
</table>
C. Why people did not make changes to the backyard

At post survey, a number of people from both the control and target group, without being prompted, offered explanations as to why they had not recently made child safety related changes to their backyard. For example, 21% of the target group and 20% of the control group reported, they had not made changes because they believed their backyard was already 'safe'. Comments such as, "we have only just moved into or built a new home"; "our children are older now, they are past that stage"; "our children are not old enough"; "we have already made changes or we are going to make changes in the near future", were offered as an explanation. Table 5.16 gives a list of comments people made from both target and control groups.

5.6 Relationship between recall of any type of child safety information and reported safety-related changes to the car home or backyard. Post Survey only.

Of target group people who recalled any type of child safety information, 59.6% (62/104) reported they had made changes to home, car or backyard in the last 12 months. Of those people who did not recall extraneous child safety information, 44.4% (20/45) reported they had made changes to either their home, car or backyard (non-significant finding, $P>0.05 \chi^2=2.94$, df=1). (Ref: Figure 5.4)

In the control group of those people who recalled any type of child safety information, 63.9% (39/61) reported they had made to home, car or backyard in the last 12 months. Of those people who did not recall extraneous child safety information, 48.3% (43/89) reported they had made changes to either their home, car or backyard (non-significant finding, $P>0.05 \chi^2=3.61$, df=1). (Ref: Table 5.5)

5.7 Relationship between recall of backyard safety information and reported safety-related changes to the backyard

a. Pre survey

Of people in the target group who recalled backyard safety information, 50% (12/24) reported they had made changes to their backyard in the last 12 months. Of those people who did not recall backyard safety information, 35.0% (44/126) reported they had made child safety related changes to their backyard in the last 12 months. (non-significant finding, $P>0.1 \chi^2=1.96$, df=1) (Ref: Figure 5.6)
TABLE 5.16
COMMENTS ABOUT WHY PEOPLE DID NOT MAKE CHANGES TO THEIR BACKYARD: POST SURVEY ONLY

<table>
<thead>
<tr>
<th>GROUP</th>
<th>COMMENTS</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL</td>
<td>Believed or considered their home backyard and/or car to be safe.</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Children are older now they did it when they were younger or they were past that stage now.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Just moved in.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Just built a new home.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>We have a pool fence and the kids wear helmets and seat belts.</td>
<td>1</td>
</tr>
<tr>
<td>TARGET</td>
<td>Believed their home backyard and/or car to be safe.</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Nothing particularly dangerous in the backyard, home or car to hurt them anyway.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Just moved in.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Just built a new home.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Made few changes but renting and can not do much.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Since kids grown up do not hurt themselves much any more.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Made safety changes when built home.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Kids are not old enough yet.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Going to put up fence in next 3 weeks.</td>
<td>1</td>
</tr>
</tbody>
</table>
FIGURE 5.4

RECALL OF ANY SAFETY INFORMATION
POST SURVEY TARGET GROUP

Sample size:
Recalled = 104
Not recalled = 45
FIGURE 5.5

RECALL OF ANY SAFETY INFORMATION
POST SURVEY CONTROL GROUP

Made Changes

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Made Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Sample size:
Recalled $= 61$
Not recalled $= 89$

People who recalled extraneous information and made changes vs people did not recall and made changes.
FIGURE 5.6

RECALL OF BACKYARD INFORMATION
PRE SURVEY TARGET GROUP

Sample size:
Recalled = 24
Not recalled = 126
In the control, 43.5% (10/23) reported they had made changes to their backyard in the last 12 months. Of those people who did not recall backyard safety information, 29.3% (37/126) reported they had made child safety related changes to their backyard (non-significant finding, P>0.1 x²=1.73, df=1). (Ref: Figure 5.7)

b. Post Survey

Of those people in the target group who recalled backyard safety information, 48.2% (40/83) reported they had made changes to their backyard in the last 12 months. Of those people who did not recall backyard safety information, 33.8% (23/68) reported they had made changes to their backyard in the last 12 months (non significant finding, P>0.05 x²=3.20, df=1). (Ref: Figure 5.8)

In the control group of those people who recalled backyard safety information, 54.5% (18/33) reported they had made changes to their backyard. Of those people who did not recall backyard safety information, 37.4% (43/115) reported they had made changes to their backyard (non significant finding, P>0.05 x²=3.20, df=1). (Ref: Figure 5.9)

5.8 Relationship between recall of campaign Information and reported changes to the backyard

a. Pre survey

One person in the target group and no-one in the control group recalled campaign information in the pre survey.

b. Post Survey

Of those people in the target group who recalled campaign information, 50.8% (30/59) reported they had made changes to their backyard in the last 12 months. Of those people who did not recall campaign information, 35.5% (33/93) reported they had made changes to their backyard (non-significant finding, P>0.05 x²=3.46, df=1). (Ref: Figure 5.10)

Of those people in the control group who recalled campaign information, 62.5% (5/8) reported they had made changes to their backyard. Of those people who did not recall campaign information, 39.4% (56/142) reported they had made changes to their backyard. No analysis was carried out on figures collected from the control group.
FIGURE 5.7

RECALL OF BACKYARD INFORMATION
PRE SURVEY CONTROL GROUP

PERCENTAGE

MADE CHANGES

Sample size:
Recalled = 23
Not recalled = 126
Sample size:
Recalled = 83
Not recalled = 68
FIGURE 5.9

RECALL OF BACKYARD INFORMATION
POST SURVEY CONTROL GROUP

Sample size:
Recalled = 33
Not recalled = 115
FIGURE 5.10

RECALL OF CAMPAIGN INFORMATION
POST SURVEY TARGET GROUP

Sample size:
Recalled = 33
Not recalled = 115
5.9 Relationship between recall of campaign information and ability to recall salient campaign messages

a. The most common place children injure themselves.

Of those persons in the target group who recalled campaign information, 57.6% (34/59) were able to recall that the backyard is the most common place children injure themselves. Of those persons who did not recall campaign information 53.8% (50/93) said that the backyard was the most common place (non-significant finding, P>0.1 x²=0.12, df=1).

Of those persons in the control group who recalled campaign information 50% (4/8) were able to recall that the backyard was the most common place children injure themselves. Of those persons who did not recall campaign 36.6% (52/142) said that the backyard was the most common place children injure themselves. No analysis was carried out on figures collected from the control group.

b. The most common cause of child backyard injuries

During the post survey of those persons in the target group who recalled campaign information 54.2 % (32/59) were able to recall the most common cause of child backyard injuries. Of those persons who did not recall campaign information 63.4% (59/93) were able to recite the most common cause of child backyard injuries (non-significant finding, P>0.1 x²=1.24, df=1).

Of those persons in the control group who recalled campaign related backyard safety information 75% (6/8) were able to recall the most common cause of child backyard injuries. Of those persons who did not recall campaign information 66.9% (95/142) were able to recite the most common cause of child backyard injuries. No analysis was carried out on figures collected from the control group.

5.10 Relationship between reports of making changes to the backyard and ability to recall salient campaign messages

a. The most common place children injure themselves

During the post survey, control group persons who were able to recall the backyard was the most common place children injure themselves, 35.7% (20/56) reported recently making changes to their backyard. Of those persons who were not able to recall that the backyard was the most common place children injure themselves, 43.6% (41/94) reported recently changes (non-significant finding, P>0.1 x²=0.93, df=1). (Ref: Figure 5.11)
Of those persons in the target group who were able to recall that the backyard was the most common place children injure themselves, 48.8% (41/84) reported recently making changes to their backyard. Of those persons who were not able to recall that the backyard was the most common place children injure, 32.3% (22/68) reported recently making changes to their backyard.

People in the target group who were able to recall the backyard as the most common place children injure themselves made significantly more (P<0.05, \( \chi^2=4.29, \text{df}=1 \)) changes to their backyard compared to people who were not able to recall. (Ref: Figure 5.12)

**b. The most common cause of child backyard injuries**

In the post survey target group, of those who were able to recall the most common cause of child backyard injuries, 46.5% (47/101) reported recently making changes. Of those persons who were not able to recall the most common cause of child backyard injuries, 31.4% (16/51) reported recently making changes to their backyard. (non-significant finding, \( P>0.05, \chi^2=3.16, \text{df}=1 \)) (Ref: Figure 5.13)

In the post survey control group, of those who were able to recall the most common cause of child backyard injuries, 30% (45/101) reported recently making changes. Of those persons who were not able to recall the most common cause of child backyard injuries, 32.7% (16/49) reported recently making changes (non-significant finding, \( P>0.1, \chi^2=1.9, \text{df}=1 \)). (Ref: Figure 5.14)
Sample size:

Recalled = 56

Not recalled = 94
FIGURE 5.12

RECALL OF COMMON PLACE OF CHILD INJURY
POST SURVEY CONTROL GROUP

Sample size:
Recalled = 84
Not recalled = 68
RECALL OF COMMON CAUSES OF CHILD INJURY
POST SURVEY TARGET GROUP

Sample size:
Recalled  = 101
Not recalled  = 51
FIGURE 5.14

RECALL OF COMMON CAUSES OF CHILD INJURY
POST SURVEY CONTROL GROUP

Sample size:
Recalled = 101
Not recalled = 49
DISCUSSION
DISCUSSION

The aim of this study was to determine whether providing a community with information on local child backyard injuries and methods to prevent these injuries led to a significant change in the number of people in the target group who reported making safety-related changes to their backyard.

No significant difference was found in the proportion of target group people who reported making changes to their backyard (post survey compared to pre survey). However, an unexplainable difference was found in the proportion of control group people who reported making changes (post survey compared to the pre survey). The proportion of people making changes was higher in the post survey.

These results demonstrate that providing the Shellharbour community with information on local child backyard injuries together with methods to prevent these injuries did not lead to a significant change in the number of people who reported making changes to their backyard.

Hence, my discussion will be selective of those results which have bearing on the outcome of this study and on the design and implementation of behavioural change interventions.

McGuire (1984) strongly asserts that the impact of information campaigns on the desired behaviour 'depends on their eliciting a whole chain of responses, such as being exposed to the health communication message, attending to it, becoming involved in it, comprehending its content, agreeing with what it says, acquiring the skills necessary for compliance, retaining these over time, and acting on the basis of them'. (pg. 303)

Theories and methods of health-related behavioural change suggest that many factors can influence the chain of events leading from information to behavioural change. The outcome evaluation of this campaign enables us to determine that, at some point in the process, the chain of events broke down, but does not enable us ascertain at what point the break-down occurred.

To determine where the chain of events leading from information to behavioural change may have broken down it is necessary to review the process and impact evaluation of the campaign.
Exposure to the campaign:

Gillespie and Yarbrough (1984) comment, that for information to lead to behavioural change, people must first be exposed to the information. If the information is disseminated through inappropriate channel/s the message may bypass the target audience.

A significant difference (P<0.001) was found in the proportion of people in the target group who reported being exposed to backyard safety information when pre survey results were compared to post survey results. The proportion was higher in the post survey. No significant difference was found in control group for the same analysis.

When information was analysed in terms of the type of backyard safety information received, a significant difference (P<0.001) was found in the proportion of target people who recalled campaign specific information in the post survey compared to the pre survey. The proportion was higher in the post survey. For example, in the pre survey 0% of the target group recalled campaign specific information. In the post survey 39% of the target population recalled campaign specific information.

No significant difference was found in the control group for the same analysis. For example, in the pre survey 0.7% of the control population said they recalled campaign specific information. In the post survey 5.3% said they recalled this type of information.

On the other hand, no increase was found at post survey in the number of people in either the control or target group who recalled extraneous backyard information.

Process evaluation of the campaign suggests that the increase in the proportion of people in the target group who recalled backyard safety information following the campaign was due to the campaign.

Therefore, the null change in the number of people in the target group making backyard changes following the campaign could not be due to the target group not being exposed to campaign specific information.

Attention and increase in knowledge

Notwithstanding the 39% of the target group who recalled campaign information, no relationship was found between exposure to information and reports of people making
changes to their backyard.

Gillespie and Yarbrough (1984) and McGuire (1984) point out that, exposure to information does not automatically lead to changes in behaviour. For exposure to information to lead to behaviour change people must first attend and comprehend the information to which they are exposed.

Our results show that of 39% (59 persons) in the target group who recalled campaign information, 57.6% correctly recalled that the backyard was the most common place children injure themselves; 42.4% did not. Fifty four point two (54.2%) correctly recalled the most common cause of child backyard injuries and 45.8% did not.

However, as knowledge was not measured in the pre survey we do not how many people had this knowledge prior to being exposed to the campaign. Therefore our result do not allow us to calculate the number of people who had an increase in knowledge as a result of being exposed to the campaign. Hence were are unable to determine the number of people who were able to recall the salient messages of the campaign as a result of attending to the information. To determine how many people attended to campaign information pre and post knowledge would need to have been measured and compared, preferably on a matched sample.

Although, we can not determine the number of people who attended to campaign information, we can determine what percentage of people presumably did not attend to the information well enough to recall the salient messages. For example, of those people who recalled campaign information 42.2% did not attend to the information well enough to recall that the backyard is the most common place children injure themselves; and 45.8% did not attend to it well enough to recall the most common cause of child backyard injuries.

These results suggests that the chain of events leading from information to behaviour change may have broken down between exposure to the information and attention for more than 40% of the target population.

Comprehension to affective acceptance

It is obvious that for more than 50% of the target population the chain of events leading from information to change may have broken down somewhere else. For example, people must not only attend to and understand a message they must also believe the message to be true and/or good. That is, before change can occur they must comprehend the meaning of the message and have cognitive and/or affective
acceptance of the message. (Gillespie and Yarbourgh, 1984). Following cognitive and/or affective acceptance of the message, people should have been provided with instruction on how to change and have the skills and resources to change. That is, they need to have attended to the preventative information provided during the campaign and have access to the necessary resources and skills to change their environment.

Unfortunately no information to inform these aspects was collected. Therefore, due to limitations of the study design, we can not determine where the chain of events leading from information to behavioural change broke down for more than 50% of the target population.

Factors that may have affected the outcome of the study

We are able to identify a number of additional factors that may have affected the outcome of this study. As pointed out by Gillespie and Yarbourgh (1984), people only have so many resources to deal with all of the incoming messages to which they are exposed. Consequently people choose to attend to certain messages and not to others. Competing messages, attitudes, and whether the information meets some personal need or has salient meaning to the individual, can influence whether or not they choose to attend to the information.

In both the pre and post surveys over 30% of the control and target group reported being exposed to extraneous information ranging from home and road safety to stranger danger information. Information disseminated during the campaign could have been competing for peoples' attention.

Our results showed that 59% of the target group agreed to some degree with the statement 'You can't prevent children from being injured; childhood injury is a part of growing up'. Thirty nine point six percent (39.6%) of the control group agreed to some extent with the statement "children should be allowed to hurt themselves so they learn from it". In the post survey 21% of the target population commented that they believed their backyard was already safe. These attitudes to the preventability of injuries may well have affected whether people attended to the information.

The campaign messages were directed at people in certain postcodes. However, during the survey we found that the majority of people identified their community as extending no further than their neighbourhood (a few houses either side of them). Accordingly, addressing people by their postcode, may have failed to have salient meaning to many people. Hence the postcodes targeted for the survey may have negatively influenced attention to the information in detail.
The Health Belief Model (Rosenstock, 1990) recognises that for people to make changes, people must, for example, perceive they are susceptible to the illness, that the illness has severe consequences, that an available course of action will reduce susceptibility to the illness, that the benefits will outweigh the costs and that they have the ability to successfully carry out the required behaviour (self efficacy). The results of this study suggest that Shellharbour has a limited sense of community. Thus, it is unlikely that informing people that the backyard is the most common place where children from postcode 2527, 2528, 2529 injure themselves is going to increase their feeling of susceptibility to the problem. Also if 21% of people already believe their backyard is safe, they would have a limited or non-existent perceived susceptibility to child injuries. Similarly, if they believe that child injuries can not be prevented then they would not perceive the recommended course of action (clean-ups) would lead to a decrease in injuries.

Shellharbour residents are, by and large, of low economic status. (Eager and Went, 1989) As Maslow (1970) points out, people experiencing financial problems may not attend to information or take action on information based on health related issues higher up the hierarchy of needs. (Carlson, 1984; Monte, 1987) For example, survey results suggested that child injury was considered an important issue but not as important as children taking drugs, losing their job, inflation and the cost of living. Therefore people may not have attended to the information because they did not consider preventing childhood injuries as one of their priorities in life. In other words, people may not consider information on child backyard injuries to be useful in meeting their personal needs.

Time as a factor

Gatherer et al (1979) comment that a campaign of greater than 12 months duration can achieve 10% behaviour change. As this study was conducted over a three month period it is not surprising that no measurable improvement was detected in the number of people making changes to their backyard.

Lack of exposure and sample size

To show that an information campaign on the nature of child backyard injuries and it's prevention led to a significant difference at the P<0.05 level, 18/32 persons would need to have made changes to their backyard. This means nearly fifty percent of persons exposed to the information would need to have attended to the information, comprehended it, agreed with the information, had or had access to the skills and resources to make the changes and also felt motivated enough to make the change.

As McGuire (1984) asserts, the likelihood of this chain of events occurring in any one
person is minuscule. Therefore the likelihood of this chain of events occurring in nearly fifty percent cases is almost inconceivable.

Thus, an extremely large number of people would need to have been exposed to the information in order to demonstrate an effect of minuscule incidence. Consequently, it is possible that no difference was shown in the number of people making changes because not enough people were exposed to the campaign or not enough people in the exposed population were surveyed.

Also, due to the fact that the likelihood of information leading to behavioural change in any one individual is minuscule a larger sample size may have made it easier to identify a change in target group behaviour.

Need for comparable survey samples

When using a separate sample pre test post test with control design to determine the effects of an intervention it is important that the researcher does not attempt to compare two different populations. For example, educational attainment, gender, socio-economic status are all factors that have been identified as influencing peoples' decision to, or ability to, change their behaviour. Therefore, if the pre survey sample contained a high proportion of highly educated females from a high socio economic group and the post survey sample consisted mainly of poorly educated males from a low economic status group, comparing these two groups would be like comparing apples with oranges.

The only personal information collected on subjects was, gender, age range of children, postcode of residence.

Significantly more males were included in the pre survey control group than in the post survey and significantly more males were surveyed in the post survey in the target group than in the control group. However, as the proportion of males in the target and control group was small in both pre and post survey it is doubtful that the lower number of males in the control group affected the results of this study.

A significant difference was found in the number of people in the target group surveyed from various postcodes. The proportion of people surveyed from postcode 2529 was higher in the post test than in the pre test. Due to a lack of information we are unable to determine if the change in the number of people from postcode 2529 may have affected the results of this study.
Educational attainment and socio economic status are recognised to be factors affecting people's decision or ability to change their behaviour. However, no information was collected. Consequently, we do not know if we were comparing different sub populations. Thus we are unable to determine if the outcome of this study was affected by important demographic differences between two survey samples.

Reliability of study

Significantly more females compared to males were surveyed from the control and target groups in both the pre and post surveys. The outcome of this study may have been affected by gender bias. Hence, attempts to replicate the results of this study could be problematic. If a survey was conducted with a different composition of males and females, it is likely the results would be noticeably different. For example:

1. The number of people exposed to information may have been significantly lower. Fathers often spend less hours per day caring for their children and may consider issues relating to child backyard safety as the female's responsibility. Hence they would be less likely to be exposed to and/or attend to backyard safety information.

2. Attitudes to the preventability of child injuries may be considerably different. Males may have different attitudes from females.

3. Sense of community may have been more restricted. For example, many men work full-time and may have a more restricted sense of community than women.

Supplementary findings of the study

Although this study is fraught with methodological constraints a number of interesting findings have come to light in addition to those already discussed.

Exposure to child safety information and people making safety-related changes

Between 1990 -1992 The Illawarra was exposed to a number of injury prevention campaigns; for example, swimming pool fencing, road and bicycle related safety campaigns. Pre and post campaign over 30% of the target and control groups reported being exposed to various types of child safety information. Nonetheless, no relationship was found between exposure to child safety information and reports of people making safety-related changes to their car, home or backyard in the post
control and target groups. Similarly, pre and post campaign no relationship was found between exposure to backyard safety information and reports of safety related changes.

These results, combined with the outcome evaluation of the backyard safety awareness campaign are analogous to Haggerty’s (1977) conclusions, that studies which have measured actual alterations in behaviour based on traditional health education techniques show only a limited behaviour change.

Knowledge and people making safety related changes

A relationship was found in the target group between ability to recall the backyard as the most common place children injure themselves and reports of people making changes to their backyard. People in the target group who were aware made changes more often than people who were not aware. However, no relationship was found in the control group. Therefore we can not conclude that knowledge of the most common place children injure themself and reports of making changes are related. Rather, these results suggest the relationship may be the result of knowledge (backyard is the most common place where children injure themselves) interacting with certain variables common to the target group and not the control group.
CONCLUSIONS
CONCLUSIONS

Based on the results of this study it appears that providing the Shellharbour community with information on a local child backyard injury problem and methods to prevent these injuries did not lead to a significant difference in the number of people who reported making changes to their backyard.

The information campaign may have failed to gained the attention of a sufficient number of people in the target population. Therefore, it is postulated that the chain of events leading from information to behaviour change may have broken down between the stages of exposure to the information and attention to the information.

Competing messages, attitudes to the preventability to child injuries, sense of community and personal priorities may have also contributed to the breakdown of the chain of events leading to change.

To determine exactly why exposure to the information did not lead to change this study would need to have measured and/or identified those intervening variables influencing the chain of events from exposure to change. For example, the questionnaire would need to have determined if people,

a. attended to the information (pre and post levels of knowledge would need to have been measured);

b. comprehended the content of the messages;

c. achieved cognitive and affective acceptance of the message;

d. attended to the preventative information provided;

e. had, or had access to, the resources and skills to change their environment.

Consideration of the design and implementation methods of this study suggest that the limited time frame of the campaign, the sample size and the number of people exposed to information were also factors that could have influenced outcomes.

To have produced a measurable behavioural change, the campaign should have been extended over a 12 month period to increase the number of people exposed to
information and to have afforded those exposed the time and space to move through
the stages of the behavioural change process.

To have increased the probability of being able to detect a significant increase in the
number of people in the target people making changes to their environment a larger
sample of the population would need to have been surveyed.

So as to ensure we were not attempting to compare pre intervention measures on one
sub population in the community with post intervention measures on another, socio-
-economic data would need to have been collected on subjects.

The supplementary findings of this study indicate that, of those people sampled, the
myriad child safety information to which they had been exposed to over the last 18
months had only limited, if any, influence on the number of people making safety-
related changes to their behaviour and/or environment. For example, over 50% of
people in both the surveys reported they had recently made changes. However, no
relationship was found between exposure to information and changes. This finding
implies that other factors are influencing people’s decision to make safety-related
changes to their environment.

Notwithstanding, we must consider that our results did show a relationship between
knowledge and change. Therefore, under certain circumstances, knowledge of the
most common place children injure themselves may be one of the factors in promoting
change.

In summary, the limitations of the study design prevent us from identifying exactly why
providing the Shellharbour community with information on the nature of a local
backyard injury problem and it’s prevention did not lead to a measurable increase in
the number of people who reported making changes to the backyard environment.

However, the supplementary findings of the study enable us to conclude that certain
types of knowledge and thus, well designed information campaigns able to impart this
knowledge, may promote injury prevention behaviour on the part of citizens.
RECOMMENDATIONS
RECOMMENDATIONS

Based on the conclusions of this study the following recommendations are proposed to improve the design, implementation and evaluation of future injury prevention education/behavioural change interventions.

To increase the effectiveness of information campaigns it is recommended that,

Program planners identify which channels of communication their target audience is likely to be tuned into. For example, only 30 - 40% of the control and target population reported being involved one or more community groups. Therefore, using these channels as the main method for disseminating information would restrict the reach and impact of the backyard safety awareness campaign.

Campaigns should be extended over twelve months to increase the number of people exposed to the information and to afford those exposed the time to move through the stages of the behavioural change process.

Information should be disseminated using a cyclic process. For example, six weeks 'on' then six week 'off'. Off periods should be used to evaluate and modify the information. 'On' and 'off' periods also prevent people from becoming overexposed to campaign messages.

Information should be designed in such as way as to gain people's attention and ensure ease of comprehension. McGuire's (1984) guidelines for the development and implementation of public communication campaign and working with focus groups comprised of members of the target population could help increase the effectiveness of future information campaigns.

Information should be designed to include the recognised stages of the behavioural change process.

An information campaign should be used as one part only of the overall program strategy for change. Overall program strategies should aim to create an environment conducive to change.
To aid in the creation of environments conducive to change it is recommended that,

Research should be conducted to discriminate which attributes play a significant role in people’s decision to perform or not perform a behaviour (safe behaviours, safety-related changes to the environment). The availability of this type of information would help program planners to identify,

a. What type of knowledge is liable to be a facilitator of change and what factors interact with this knowledge to facilitate change.

b. What predisposing, enabling and reinforcing factors are facilitating or inhibiting change at the individual and community level.

Following identification of factors influencing the decision making process, current theories and methods of behavioural change should be used to develop strategies and programs for change. For example,

a. Factors identified as influencing the decision making process should be considered in relation to the PRECEDE model to help program designers determine what factors are susceptible to change.

b. Social learning theory could be utilised to ensure programs are designed in such a way as to,

   i) Promote feelings of self efficacy, self control and performance;

   ii) Draw on reinforcing factors that facilitate change and address those reinforcing factors at the individual, family and community level that are inhibiting change;

   iii) Change expectancies and expectation of risk taking behaviour;

To ensure efficacious application of funds it is recommended that, when planning mass media campaigns, national and state bodies work in close conjunction with locality based injury prevention programs so as to ensure that the local program develops strategies to create environments conducive to the recommended change.
DEFINITIONS
DEFINITIONS:

1. Campaign specific backyard safety information

Backyard safety issues promoted as part of the child backyard safety campaign. For example, backyard junk, falls in the backyard (fences, tree, swing sets, and roofs), dangerous play and unsafe play equipment (trampolines, swing sets, cubby houses).

2. Extraneous backyard safety information

Backyard safety issues not promoted as part of the child backyard safety campaign. For example, pool safety, pool fencing, poisons and burns.

3. Extraneous child safety information

All types of child safety information, excluding backyard safety information. For example, road safety, seat belt use, safety in the home, water safety and stranger danger.
REFERENCES


APPENDICES
APPENDIX 1

QUESTIONNAIRE: PRE SURVEY

1. Male [ ] Female [ ]
2. Current Postcode? [____]

3. How many children are there living with you under 5 years [____]
   5-15 years [____]

4. Do you live in a
   House [ ] Flat/Unit [ ] Other [ ]
   Townhouse [ ] caravan [ ]

5. Please indicate if you are involved in any community groups and/or activities?

6. Could you please indicate how important you think each of the following issues are? Circle appropriate number.

<table>
<thead>
<tr>
<th>Issue</th>
<th>not Important</th>
<th>a little Important</th>
<th>very Important</th>
<th>extremely Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>crime rate</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>inflation and the cost of living</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>public transport</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>child injury rate</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>losing my job or being unemployed</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>My child taking drugs</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
7. Please indicate how you feel about the following statements. Circle the appropriate number.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Totally disagree</th>
<th>Agree a little</th>
<th>Agree</th>
<th>Agree alot</th>
<th>Totally agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Children should be allowed to hurt themselves so they learn from it.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>B. You can't prevent kids from injuring themselves, it's a part of growing up.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

8. Have you heard or seen any child safety information lately? Y/N. [ ]
   If so WHAT was it about?

9. Have you made any changes to your car, home or backyard in the last 12 months designed to make it safer for your children? Y/N. [ ]
   If YES, what have you done?

10. Have you recently heard or been given any information on backyard safety. Y/N [ ]
    If Yes, WHAT was it about?
11. WHICH people do YOU feel are A PART of your LOCAL community?

I don't feel a part of the local community

The people in my
  Family. [ ]
  Neighbourhood. [ ]
  Municipality. [ ]
  Street. [ ]
  Suburb. [ ]
  Region (Eg. Illawarra). [ ]
APPENDIX 2

QUESTIONNAIRE: POST SURVEY

1. Male [ ] Female [ ]

2. Current Postcode? [______]

3. How many children are there living with you under 5 years [ ]
   5-15 years [ ]

4. Do you live in a House [ ] Flat/Unit [ ] Other [ ]
   Townhouse [ ] caravan [ ]

5. Please indicate how you feel about the following statements. Circle the appropriate number.

<table>
<thead>
<tr>
<th>Totally disagree</th>
<th>Agree a little</th>
<th>Agree</th>
<th>Agree alot</th>
<th>Totally agree</th>
</tr>
</thead>
</table>
A. Children should be allowed to hurt themselves so they learn from it. 1 2 3 4 5
B. You can't prevent kids from injuring themselves, it's a part of growing up. 1 2 3 4 5

6. The most common place children injure themselves is

At school [ ] In the home [ ] In the backyard [ ] On the road [ ]
Don't Know [ ]
7. The most common causes of child backyard injuries are

- Poisons, burns, drowning
- Junk, falls, dangerous play, unsafe environments
- Poisons, falls, drowning
- Don’t know

8. Have you recently heard or been given any information on backyard safety? Y/N [ ]

   If Yes, WHAT was it about?

   ..........................................................................................................................

9. Have you heard or seen any other child safety information lately Y/N. [ ]

   If so WHAT was it about?

   ..........................................................................................................................

10. Have you made any changes to your car, home or backyard in the last 12 months designed to make it safer for your children? Y/N. [ ]

    If YES, what have you done?

    ..........................................................................................................................
    ..........................................................................................................................
    ..........................................................................................................................
    ..........................................................................................................................
    ..........................................................................................................................
    ..........................................................................................................................
    ..........................................................................................................................
    ..........................................................................................................................

106
11. **WHICH** people do **YOU** feel are **A PART** of your **LOCAL** community?

I don’t feel a part of the local community

The people in my

- Family. [ ]
- Street. [ ]
- Neighbourhood. [ ]
- Suburb. [ ]
- Municipality. [ ]
- Region (Eg. Illawarra). [ ]
APPENDIX 3

Example of community groups and organisations who participated in the child backyard safety campaign

1. Westpac banks
2. Commonwealth banks
3. ANZ banks
4. Local council
5. Post offices
6. Department of social security
7. Commonwealth employment service (CES)
8. Department of housing
9. Toy library
10. Early childhood centres
11. Police citizen's youth club
12. Women's centre
13. Shellharbour Hospital
14. Shellharbour Child and Family service
15. Kindergarten/pre schools
16. Schools
17. Playgroups
18. Libraries
APPENDIX 4

Percentage of people who answered, 'extremely Important', 'very important', 'important', 'a little or not important' to health and social issues

During the pre survey, 150 people from the control group and 151 people from the target group were asked how important they thought certain social and health issues were on a 5 point scale of not important to extremely important.

In the control group 97% said 'my child taking drugs' was extremely important, 74% 'losing my job' 61.3 % 'crime rate', 60% unemployment, 56% 'inflation', 54.8% 'child injury rate' and 25% 'public transport'. In the target group 90.1% said 'my child taking drugs' was extremely important, 74.2% 'losing my job' 54.3 % 'crime rate', 51.3% 'inflation', 49% unemployment, 47% 'child injury rate' and 15.2% 'public transport'. In the control group 30.6% said 'unemployment' was very important, 27.3% 'crime rate', 26.7% 'inflation' and 21.2% 'child injury'. In the target 33.3% group said inflation was very important, 33.1% 'crime rate', 'child injury' and 30.5% 'unemployment'. Only 6.8% of the control and 6.6% of the target group said 'child injury rate' was only a little or not important. (Ref: Figures A4.1 - A4.4)

The results of the mean responses and the frequency distributions suggest many people thought the child injury rate was an very to extremely important issue but not quite as important as issues such as the crime rate, inflation and unemployment and not nearly as important as losing their job or their child taking drugs.
FIGURE A4.1

% ANSWERING EXTREMELY IMPORTANT PRIORiTY OF HEALTH AND SOCIAL ISSUES

<table>
<thead>
<tr>
<th></th>
<th>TARGET</th>
<th>CONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNEMPLOY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRIME</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INFLATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P/TRANS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INJURY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOSS JOB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DRUGS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PRECENTAGE

100
80
60
40
20
0
FIGURE A4.2

% ANSWERING VERY IMPORTANT
PRIORITY OF HEALTH AND SOCIAL ISSUES

PRECENTAGE

UNEMPLOY  CRIME  INFLATION  P/TRANS  INJURY  LOSS JOB  DRUGS

TARGET  CONTROL
% ANSWERING IMPORTANT
PRIORITY OF HEALTH AND SOCIAL ISSUES

Target

Control
% ANSWERING LITTLE/NOT IMPORTANT
PRIORITY OF HEALTH AND SOCIAL ISSUES

TARGET  CONTROL

<table>
<thead>
<tr>
<th>Issue</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment</td>
<td></td>
</tr>
<tr>
<td>Crime</td>
<td></td>
</tr>
<tr>
<td>Inflation</td>
<td></td>
</tr>
<tr>
<td>P/Transport</td>
<td></td>
</tr>
<tr>
<td>Injury</td>
<td></td>
</tr>
<tr>
<td>Loss Job</td>
<td></td>
</tr>
<tr>
<td>Drugs</td>
<td></td>
</tr>
</tbody>
</table>

FIGURE A4.4
### TABLE A4.1

NUMBER OF PEOPLE WHO ANSWERED EXTREMELY IMPORTANT PRIORITY OF HEALTH AND SOCIAL ISSUES

<table>
<thead>
<tr>
<th>AREA</th>
<th>Unemp\</th>
<th>Crime</th>
<th>Inflat</th>
<th>Public trans</th>
<th>Injury</th>
<th>Loss job</th>
<th>Drug</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL</td>
<td>90</td>
<td>92</td>
<td>84</td>
<td>37</td>
<td>80</td>
<td>111</td>
<td>146</td>
</tr>
<tr>
<td>TARGET</td>
<td>74</td>
<td>82</td>
<td>77</td>
<td>23</td>
<td>71</td>
<td>112</td>
<td>136</td>
</tr>
</tbody>
</table>

### TABLE A4.2

NUMBER OF PEOPLE WHO ANSWERED VERY IMPORTANT PRIORITY OF HEALTH AND SOCIAL ISSUES

<table>
<thead>
<tr>
<th>AREA</th>
<th>Unemp\</th>
<th>Crime</th>
<th>Inflat</th>
<th>Public trans</th>
<th>Injury</th>
<th>Loss job</th>
<th>Drug</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL</td>
<td>28</td>
<td>40</td>
<td>41</td>
<td>16</td>
<td>31</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>TARGET</td>
<td>46</td>
<td>50</td>
<td>47</td>
<td>24</td>
<td>50</td>
<td>25</td>
<td>9</td>
</tr>
</tbody>
</table>

### TABLE A4.3

NUMBER OF PEOPLE WHO ANSWERED IMPORTANT PRIORITY OF HEALTH AND SOCIAL ISSUES

<table>
<thead>
<tr>
<th>AREA</th>
<th>Unemp\</th>
<th>Crime</th>
<th>Inflat</th>
<th>Public trans</th>
<th>Injury</th>
<th>Loss job</th>
<th>Drug</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL</td>
<td>30</td>
<td>17</td>
<td>22</td>
<td>39</td>
<td>25</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>TARGET</td>
<td>27</td>
<td>16</td>
<td>25</td>
<td>50</td>
<td>21</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>
TABLE A4.4
NUMBER OF PEOPLE WHO ANSWERED A LITTLE OR NOT IMPORTANT
PRIORITY OF HEALTH AND SOCIAL ISSUES

<table>
<thead>
<tr>
<th>AREA</th>
<th>Unemp\</th>
<th>Crime</th>
<th>Inflat</th>
<th>Public trans</th>
<th>Injury</th>
<th>Loss job</th>
<th>Drug</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>56</td>
<td>10</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>TARGET</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>54</td>
<td>9</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>
TABLE A5.1

TYPE OF EXTRANEOUS BACKYARD SAFETY INFORMATION RECALLED:
PRE SURVEY

<table>
<thead>
<tr>
<th>AREA</th>
<th>TYPE OF INFORMATION</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL</td>
<td>Pool Safety</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Pamphlets from clinic</td>
<td>2</td>
</tr>
<tr>
<td>TARGET</td>
<td>Pool safety/fencing</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>General</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Statistics on child backyard injuries</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
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<tr>
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<td>Pamphlet from clinic</td>
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TABLE A6.1
TYPE OF EXTRANEOUS BACKYARD SAFETY INFORMATION RECALLED: POST SURVEY

<table>
<thead>
<tr>
<th>AREA</th>
<th>TYPE OF INFORMATION</th>
<th>FREQUENCY</th>
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</thead>
<tbody>
<tr>
<td>CONTROL</td>
<td>Swimming pool / pool fencing</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>General</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Statistics on backyard injuries</td>
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</tr>
<tr>
<td></td>
<td>ECIPP</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Other</td>
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</tr>
<tr>
<td></td>
<td>Do not remember</td>
<td>1</td>
</tr>
<tr>
<td>TARGET</td>
<td>Swimming Pool / Pool fencing</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Leaflets</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>ECIPP</td>
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</tr>
<tr>
<td></td>
<td>Other</td>
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</tr>
<tr>
<td></td>
<td>Do not Remember</td>
<td>2</td>
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APPENDIX 7

Type of extraneous child safety information recalled: pre and post survey

In the pre survey 50 people from the control group and 48 from the target group recalled extraneous child safety information.

As depicted in Table A7.1, of those persons who recalled extraneous child safety information in the pre survey, 30% of the control and 21% of the target group recalled recently being exposed to home safety information. Forty percent (40%) of the control and 21% of the target group recalled recently being exposed to road safety/seat belt information. Twenty six percent (26%) of the control group and 33.3% of the target group recalled recently being exposed to bicycle safety/helmets information. Fourteen percent (14%) of the control group and 12.3% of the target group recalled recently being exposed to on Stranger Danger (child abuse/abduction) information. Eight percent (8%) of the control and 18.8% percent of the target group recalled recently being exposed to ‘other not classified elsewhere’ child safety information. Two percent (2%) of the control and 8.3% of the target population recalled recently being exposed to child safety information but could remember what it was about. (Ref: Table A7.1)

In the pre survey 49 people from the control group and 59 from the target group recalled extraneous child safety information.

Of those persons who recalled recently being exposed to child safety information (excluding backyard safety information) in the post survey 38.8% of the control and 32.2% of the target group recalled recently hearing, seeing or being given information on home safety. Twenty eight percent (28%) of the control and 37.3% of the target group recalled recently being exposed to road safety/seat belt information. Eighteen point four percent (18.4%) of the control group and 40.7% of the target group recalled recently being exposed to bicycle safety/helmets information. Ten point two percent (10.2%) of the control group and 3.4% of the target group recalled recently being exposed to Stranger Danger (child abuse/abduction) information. Thirty point six (30.6%) of the control and 23.7% percent of the target group recalled recently being exposed to ‘other not classified elsewhere’ child safety information. Four point one percent (4.1%) of the control and 3.4% of the target population recalled recently being exposed to child safety information but could remember what it was about. (Ref: Table A7.1)
TABLE A7.1

NO. OF PERSONS X TYPE OF EXTRANEOUS CHILD SAFETY INFORMATION
RECALLED:

PRE AND POST SURVEY

<table>
<thead>
<tr>
<th>PRE / POST</th>
<th>AREA</th>
<th>TYPE OF INFORMATION: No. OF PERSONS</th>
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<tr>
<td>PRE</td>
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