

Accidental Immersion and Unintentional Drowning of Rural Children:
An Investigation for the Child Accident Prevention Foundation
of New Zealand

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1. INTRODUCTION

In May 1970, a two-year old boy drowned in a creek 150 meters from his home. It appeared to be a normal night for the mother of three. She had bathed two of the three children and was in the process of bathing the third, whilst the other two waited for their father to return from work to wish them good night. The father returned from work, the two-year-old boy ran outside to greet his father. Their paths did not cross. The father went inside and realised one of the boys was missing; his immediate thought was that the child was hiding, so he searched the house. But the boy had already discovered the creek, an area he had been warned about and taught to respect. The house was located on a 2-hectare holding. There was no reason in the circumstances why the boy would go to the creek. He had never exhibited such behaviour before. He had been warned about the creek. The parents are still left wondering why (Parent C).

This tragic accident is just one example of water accidents that occur in the rural setting. In New Zealand drowning amongst preschoolers is one of the leading causes of death. The monetary and emotional costs to society are devastating and cannot be underestimated. The need to reduce the high number of deaths and the monetary and emotional costs prompted this research.

Accident statistics indicate that children living on farms face special risks, "Farms contain a number of hazards – such as ponds, animals and machinery – not encountered by most urban children" (University of Otago Consultancy Group, 1995: 3). Therefore, highlighting a specific need for examination. This research attempted to clarify the issues of rural water safety, to analyse why there is such a high incidence of rural water accidents, and to offer productive ways of reducing such injuries.

The lack of New Zealand literature and the neglect of a rural water safety component in nationwide campaigns led to the adoption of this subject. This research presents the possibility for proactive measures to be taken in this area. In addition, it provides insightful knowledge for parents and educators alike. Ultimately, it seeks to reduce the number of child drownings that occur in the rural environment.

The research involved an assessment of prevention strategies, statistical data, and previous research. The purpose of this was to create measures that will reduce the incidence and raise the awareness of rural water accidents.

Due to the time and financial constraints of the research project it was necessary to focus on one specific region. The Waikato region was chosen because of its traditional rural background and its high proportion of under-five-year-olds living in farm residences. The 1996 census identified that 26.3 percent of all rural residents in the Waikato region are under the age of five (Statistics New Zealand, 2001a). In New Zealand 15.9 percent of under-fives live in the rural environment. The Waikato region is made up of seven districts: Hamilton, Matamata, Taumarunui, Te Awamutu, Te Kuiti/Otorohanga, Thames/Coromandel and Tokoroa/Putaruru.

2. LITERATURE REVIEW

2.1 INTRODUCTION

In the period 1996 to 2000, 103 children under the age of 16 years drowned in New Zealand. Of these 65 were under the age of 5, and 26 drownings were in rivers, creeks, streams, ponds or drains compared to 19 in home pools or spa pools (Water Safety NZ, 2001c). The farm environment poses extra risks for children and water (see Appendix I for a list of specific risks and injuries). Rural children face additional hazards with which those in urban areas are not confronted. The farm is both a work and a home environment, and “without a separation between these two environments, children can be exposed to tremendous risks” (Schwab, 1992: 1). Not all rural hazards are easily eliminated, isolated or even minimised.

2.2 GENERAL OVERVIEW

The literature that addresses water safety consists of: training programmes, rural safety studies, parental manuals (booklets, pamphlets, and articles), media reports, and child development texts. It is predominately based on overseas studies and largely neglects the issue of rural water safety. The material available is fragmented into the fields or disciplines of agriculture, child behaviour, juvenile literature and water safety. No literature that solely focuses on the main facets of this study was uncovered by our extensive searches. The methodology section of this report details the procedures used to obtain the necessary information (refer to pg. 22).

The available New Zealand studies in this area are outdated and are primarily concerned with hazards that are not relevant to this study. The studies were conducted around the mid-1990s and are largely concerned with agricultural transport vehicles (ATVs) and other heavy machinery.

2.3 NECESSITY OF THE RESEARCH

Drowning is the third highest cause of accidental death in New Zealand. However, avoiding the water will not prevent drowning since most people who drown have no intention of entering the water (Water Safety New Zealand, 2001a, p.4).

The Accident Compensation Corporation of New Zealand (ACC) have identified the need for further research in the area of injury on farms (ACC, 2002b). Consequently, the University of Otago Consultancy Group conducted a research project in 1995, titled *The Prevention of Injury Among Farmers, Farm Workers, and their Families*, which was supported by the ACC. Houghton and Wilson of the University of Otago Consultancy Group (1994: 3) state that, “There is a gap between parental advocacy of their responsibility for safety on the farm and their actions in minimizing their children’s exposure to hazards”. Basically, parents think it is their responsibility to keep children safe. However, their actions are not always optimum and consistent with this view.

ACC has realised that the rural and farm environments pose significant dangers to New Zealanders. They state that: “Every year over 3,800 New Zealand pre-school children are injured so badly they are admitted to hospital. Seventy of these children die – the equivalent of two bus loads every single year [...] Kiwi kids are twice as likely to die through injury than children who live in Australia. And three times as likely as a child from England or Wales” (ACC, 2001b: 1)

Boyes (2000) has identified the problem with an aquatic environment as “that it only takes a few seconds for someone to get into trouble and once they are fully immersed a relatively small time before loss of life occurs” (7). When adults watch children it is paramount that there is constant vigilance, which is hard to maintain over a long time. In addition, swimming has little bearing on water accidents (Boyes, 2000). Swimming lessons are not the only mechanism for increasing water confidence among children and reducing the number of water accidents.

The University of Otago Consultancy Group (1995) study of rural safety identified drowning among young children aged between 0-4 as one of the many types of farm accidents. They further contend that children in this age group face increased risks when they do not have a separate, preferably fenced, play area (University of Otago Consultancy Group, 1995). The hazards that place rural children at risk decrease with their age, however the risk level for all children remains high. Drowning is not identified as a significant cause of death for children aged between 5-15 years. But, it still poses a threat when water is not respected.

2.3.1 Costs of rural water accidents to society

Rural water accidents cause both a monetary and an emotional cost to society. The medical costs are not well documented, which is somewhat reflective of the lack of research in this area. However, it seems obvious that the high incidence of rural water accidents and hospitalisations would surely indicate a high cost to society. The emotional anguish also places a heavy burden on society when there is the loss of a child or injury caused by water accidents (ACC: 1987).

2.4 NEW ZEALAND GEOGRAPHY AND FARMING

“By far the majority of New Zealand’s towns and cities stand on the banks or at the mouths of our many rivers. Most New Zealanders have a river that runs through their childhood” (Young and Foster, 1986: 7). New Zealand is an island surrounded by water and contains an abundance of lakes and rivers. The majority of New Zealand children will have experiences with natural bodies of water at some stage throughout their lives, “Most farms (74 percent of those surveyed) have streams or rivers running through them and, due to the need to allow stock access to drinking water, they are almost always accessible to children” (Houghton and Wilson, 1994: 12)

In general, New Zealanders neglect the presence of rural waterways and streams, and “nearly all of the ‘beautiful New Zealand’ books to appear in the last 15 years focus on

mountains, shorelines, and sometimes lakes, virtually to the exclusion of waterways and streams”(Young and Foster, 1986: 7). This philosophy seems to expand to the domain of water safety with the neglect of rural bodies of water. An explanation suggests that the lack of awareness of rural water safety belongs to this century “secured by an enormous investment in keeping the dynamic and sometimes capricious flows under control, and urban living whose illusions suggest that we owe little to nature and are ‘safe as houses’ from its excess” (Young and Foster, 1986: 7).

Furthermore, a case study by Dent and McEwen (1981) has identified Hamilton as the “hub of the Waikato Basin, a rich pastoral district of gently undulating lowlands which supports the most dense rural population in New Zealand” (115). Thus the wider Waikato region has a plentiful supply of natural water bodies and therefore a significant risk to children in relation to rural water hazards.

New Zealand is a country that has a high percentage of people employed in farming activities. People are employed in such industries as: dairy farming, sheep farming, beef farming, horticulture and horse studs. Consequently, a significant number of people reside in rural areas. In the Waikato region there are 4.5 people per square kilometer (University of Otago Consultancy Group, 1995).



An illustration of the natural waters on New Zealand farmlands.

2.5 NEW ZEALAND LITERATURE ON PROGRAMME DEVELOPMENT

At present New Zealand has a limited number of water safety development projects operating. The projects largely focus on domestic swimming pool confidence and skills for urban bodies of water. Among the most prevalent are the water hazard mapping project operating in Waitakere City, the nationwide Lotto Learn to Swim scheme, and the ACC initiative Capable Country Kids, which will be discussed in turn.

2.5.1 Water hazard mapping project

The water hazard mapping project is managed by Water Safe New Zealand and is focused on the Auckland region of Waitakere. The project is jointly funded by the Ministry of Health and Waitakere Licensing Trust. The participants involved in this study are the parents and children of Waitakere childhood centers. The project is an awareness-raising exercise that involves producing a large map of the area and encouraging the parents and children to identify the water hazards near their home. Examples of hazards that have been identified in this study include: storm water drains; inlets and outlets; swimming pools; streams and tidal waterways (Exeter, 2001).

The development of this project was prompted by a mother of a twin who drowned in an inadequately fenced pool in their residential area. The mother was unaware that this pool existed (Exeter, 2001). This project is a great initiative and a proven success in one small area of New Zealand. However, the costs of implementing this project on a nationwide basis are unrealistic.

2.5.2 Lotto learn to swim (take the plunge)

Lotto Learn to Swim is a nationwide campaign that is organised by Swimming New Zealand and Water Safety New Zealand. It is a non-profit community event and is sponsored by Lotto. It is aimed at “beginners only [...] and for children aged at least 5-years and adults” (Water Safety NZ, 2001d:7). The campaign is an inexpensive way of

teaching a large number of diverse individuals in the community to swim. However, no lessons are available for children under the age of five and the swimming programme does not include a component designed to address rural safety issues.

2.5.3 Capable country kids

Capable Country Kids is a programme developed by ACC that aims to encourage and support primary school programmes. ACC produces a resource guide that is distributed to schools. The guide deals uniquely with rural hazards, “By learning about the environmental and behavioural factors that create risk, children can develop the knowledge, skills and attitudes to prevent injuries to themselves and others”(ACC, 2002a: 1). However, this initiative is limited as it is only applicable to the over-five sector of the population. Furthermore, children at pre-school age do not have the cognitive ability to take upon this degree of information (refer to child development section of this review, pg. 11).

2.6 LIMITATIONS OF SWIMMING PROGRAMMES

The rural environment poses more danger than the controlled environment in which swimming lessons are held. As mentioned above in the New Zealand geography section a rural child is often confronted with rivers, creeks, streams and ponds. Rivers, for example, exert a very powerful force against any fixed object. This force once in place remains constant unlike the ocean where the force is released with each tidal surge. Even calm-looking rivers are very powerful (ACC, 2001c). This difference reduces the value of urban based swimming programmes when skills taught are applied to the rural setting.

2.7 ACCESS TO INFORMATION

Water Safety New Zealand has published a number of preventive handouts/manuals. The manuals deal with river safety, “kids” safety, and hazard identification. An example of the message conveyed in these publications is as follows: “identify any potential water hazards on your farm and teach your children to stay clear of these hazards. Ensure your

children know how to swim and survive” (Water Safety New Zealand, 2001b:5). Furthermore, ACC keeps up to date publications which concern rural safety issues which are freely available to the public. These pamphlets and booklets cover most aspects of farm safety and many are focused on children and safe practices on the farm. While the message portrayed in these publications may be beneficial it is clear that the majority of rural parents are not gaining access to them. Therefore, the potential of these publications to educate rural families is somewhat limited (refer to findings section, pg. 37).

2.8 INTERNATIONAL LITERATURE ON PROGRAMME DEVELOPMENT

The international literature in accident prevention programme development, similarly to New Zealand programmes, contains a range of models, some specifically applied to injury prevention. Common elements in programme design include data collection to define the nature of the problems, priority selection, objective setting, strategy selection, implementation, evaluation and feedback (Lyndall and Horton-James, 1997).

2.9 INTERNATIONAL TRENDS

Child injury prevention on farms has been identified as a significant issue in many countries. Major international shifts in the pattern of agricultural production have induced such changes. For example, the University of Otago Consultancy Group (1995) identify that “The type of farming undertaken in New Zealand is changing (there are more dairying and horticultural farms and fewer sheep farms), there are more small farms whose owners are not full-time farmers” (14). In the New Zealand context it is evident that in the Waikato region alone, a definite shift from pastoral to horticultural production has occurred (Roche, McKenna, and Hesp, 2000). This shift introduces new farming methods and increased usage of machinery that poses new dangers for rural pre-schoolers. These hazards include ATV machinery accidents and electrocution. This implementation of machinery on farms is often obvious and thus parents perceive it as the greatest threat to their children. Therefore, parents may neglect the familiar and long-

standing water bodies on their farm. The 1995 rural safety study by the University of Otago Consultancy Group identified that parents perceived machinery as the main cause of injury, “Because of the size of the machine and the terrain [...] it is potentially dangerous” (2).

2.10 STATISTICAL ANALYSIS

Number of New Zealand Preschool Rural Drowning

Age	Region	Site
4 yrs	Manawatu	Drain
2 yrs	Waikato	Drain
1 yr	Bay of Plenty	Drain
1 yr	Northland	Drain
4 yrs	Waikato	River
1 yr	Taranaki	River
0 yr	Waikato	River
2 yrs	Auckland	River
2 yrs	Taranaki	River
3 yrs	Bay of Plenty	River
1 yr	Wairarapa	River
1 yr	Marlborough	River
3 yrs	Auckland	Stream
2 yrs	Manawatu	Stream
1 yr	Canterbury	Stream
2 yrs	Canterbury	Creek
1 yr	Nelson	Creek
1 yr	Canterbury	Creek
2 yrs	Northland	Pond
1 yr	Canterbury	Pond
1 yrs	Northland	Septic tank
2 yrs	Canterbury	Water race
1 yrs	Waikato	Trough
3 yrs	Wellington	Post hole
4 yrs	Marlborough	Muddy paddock
1 yr	Canterbury	Irrigation race

(Statistics derived from Water Safety NZ, 2002)

Between 1996 and 2000 there were 65 cases of pre-schoolers (under five-years) drowning in New Zealand (the sites of drowning include: baths; harbours; the beach; home pools;

paddling pools; spa pools; thermal pools; school pools; homicide attempts; and buckets). Of these, 26 occurred in rural New Zealand (the sites include: drains; rivers; creeks; streams; ponds; troughs; fence hole posts; irrigation races; and septic tanks).

The New Zealand urban drowning statistics include a huge array of drownings that happen both in the home and outdoor setting. Whereas, the rural statistics are comprised of drownings which only occur on the farmland. When compared with the urban statistics, rural drownings collate to a horrific 40 per cent of all New Zealand drownings.

2.11 CHILD DEVELOPMENT

The University of Otago Consultancy Group (1995) state that children on farms face the same hazards as adults, but their risk of injury is much greater. This is largely due to their stage in development:

- They are smaller than adults.
- They have limited experience.
- Their sense of danger is poorly developed.
- They become increasingly mobile and independent.
- They act impulsively and take risks.
- They are influenced by peer pressure.

In addition, children living in a rural environment are confronted with unique hazards, “Children living on farms face special risks. Farms contain a number of hazards – such as ponds, animals and machinery – not encountered by most urban children” (University of Otago Consultancy Group, 1995: 3). Furthermore “Pre-school children can’t be expected to understand cause and effect, because they’re not developmentally ready to do so” (Shutske, 1999: 2). Shutske (1999) goes on to further contend that farm injuries happen when “a child is doing something that is beyond his or her mental, physical, or emotional ability” (2).

2.12 CHILD SWIMMING BEHAVIOUR AND CHARACTERISTICS

Young children do not know what they are learning “So there is no motivation on the part of the child to learn water skills” (Van Dyk, 1987: 13). Every child is unique and the differences between their cognitive ability are enormous (Bremner, Slater, and Butterworth, 1997). Children learn at different rates, through different mediums and digest information in varying ways according to age, so “the natural curiosity of the toddler together with the attractions of water can be a very dangerous combination” (Geddis, 1984: 225). However, water in general can act as an effective medium by which the infant receives many different stimuli, “Early aquatics can help an infant in the very important development phase, of which perceptual and motor development are the most critical” (Van Dyk, 1987: 37).

2.13 IMPLICATIONS FOR THE EDUCATION OF YOUNG CHILDREN

There is no guarantee that instruction in specific concepts will necessarily hasten the transition from one level of thinking to the next for infants between the ages of 0-5 (Almy, Chittenden, and Miller, 1966). Moreover, Almy et al., (1966) hold that it is questionable whether an infant has the capabilities for speculative, imaginative, and judgmental thinking that are needed to understand and abide by instruction. This puts in question the notion of some of the parents who were interviewed and suggests their views on rural water safety would benefit from access to this information. Throughout the interviews parents expressed the view that once they told their children not to go near a water hazard they felt the hazard would become in effect non-existent (refer to finding section, pg.32).

2.14 DEVELOPMENTS IN EDUCATION

Water Safety New Zealand now emphasises the need for water familiarity to start at home and at an early age: “Water safety starts at home (bath time): attendance at water confidence classes will make it much easier for your child to learn to swim when they reach the appropriate age” (Water Safety New Zealand, 2001a: 11). In other words, the process of educating children on water safety need not be expensive as the first stages of water familiarity and confidence can be initiated at home. Attending pre-school swimming classes can be influential in the development of water safe behaviour. However, Water Safety New Zealand makes it clear that “swimming lessons do not prevent drowning. A young person who can swim still needs the same supervision” (Water Safety New Zealand, 2001b: 7). Parents must not become complacent as a result of children attending swimming lessons.

In addition, ACC contends that traditionally children have been instructed in what not to do. They state that “it is essential that children are presented with safe ways of doing things rather than being left to imply them from the negative” (ACC, 1987: 2). Parent and expert interviews reinforce this view as many felt that once a child was briefed on the nature of the danger they would become wary of the hazard (refer to findings section, pg. 32).

2.15 HOW ACCIDENTS OCCUR

The literature identified three factors of how and why accidents occur for preschoolers in the rural environment. They are: lack of supervision; children’s curiosity for the unknown, coupled with their reduced sense of danger; and the unawareness of potential hazards. Water Safety New Zealand (2001b) argue that constant supervision is the key to keeping children safe around rural water hazards. Without this supervision, the University of Otago Consultancy Group study (1995) contend, children are at great risk as they do not have the ability to keep themselves safe around water. Children are inquisitive in nature and this poses increased danger when rural water bodies are nearby.

Water Safety New Zealand (2001b) state that “Children learn by exploring their environment, and new adventures are only a few steps away” (4). In addition, their sense of fear is not yet installed in their behavioural patterns and they cannot yet determine the consequence of their actions (Bremner et al., 1997). Without the awareness of potential hazards both parents and children can encounter unanticipated danger. This often leads parents to become complacent with respect to supervision as they feel there are no dangers in the rural environment. Van Dyk (1997) explains: “It would appear that a lack of water awareness shows up when individuals find themselves outside the influence of parents or teachers”(8). Thus, both children and parents need to be aware of the inherent dangers of water in the rural setting.

2.16 CONTROL MEASURES

Adults rather than children can most effectively control the hazards which cause injuries to children in rural areas. Adults are the ones who control the farm environment. Their choices and actions will determine what hazards children are exposed to. The national and international literature on programme development identified the following main areas to be used to counter rural water hazards: remove the hazard; replace the hazard; change the design of the hazard; supervision; education and safe practices (Lyndall and Horton-James, 1997; University of Otago Consultancy Group, 1995, ACC, 1987; Schwab, 1992; Shutske, 1999).

2.16.1 Remove the hazard

Removal of the water hazard is the most effective control measure, as the child will no longer have access to it. The literature identified many alternative ways to achieve this goal of hazard removal. The main areas discussed are as follows:

- Fence unused dams.
- Remove unused water troughs, containers or tanks.
- Empty open containers around the farm after rain.

- Cover effluent ponds or pits.

However, it is not always practical and cost effective to remove rural water hazards completely. The literature reinforces this point: Lyndall and Horton-James (1997) state “It is simply not possible to remove all the hazards that pose a risk to children on farms and rural blocks. Hazards such as vehicles and machinery, water, chemicals and animals are vital to daily farming activities” (p. 10). Therefore, alternate methods of reducing the danger element of the hazard can be more beneficial and easier to administer.

2.16.2 Replace the hazard

In some cases a more dangerous hazard can be replaced by a less dangerous one. This option is often more readily achievable and favourable to rural parents. It can reduce the risk of injury to children. The literature identified the following ways of replacing the hazard:

- With one known to be less dangerous.
- Use smaller concrete troughs to water stock.

Although this method seems reasonable it cannot be easily applied to many situations. For example, creeks, rivers and effluent ponds are a fixed feature on the farm and it seems impossible to replace them (Schwab, 1992).

2.16.3 Change the design of the hazard

Changing the design of the hazard can improve child safety levels in the rural environment. This option does not remove the hazard but places barriers around the child’s access to it. Some examples of this method are:

- Put child-proof lids on wells and tanks.
- Provide an enclosed, safe play area for young children.

- Fence ponds, rivers, creeks and streams securely so a child is not able to fit through them.

(Schwab, 1992; Lyndall and Horton-James, 1997; and ACC, 2002).

But, in reality many farms have a great deal of natural bodies of water and this method would be therefore time consuming and costly. Many parents of children between 0 and 5 yrs who are farming do not often own the farm and therefore there is no incentive for them to provide such fencing. This point has been further strengthened by the key informant interviews (refer to the findings, pg.38).

2.16.4 Supervision

Statistics reveal that almost all preschool drownings have a lack of supervision as a common factor. Water Safety New Zealand (2001b) contend that “children learn by exploring their environment, and new adventures are only a few steps away [...] supervision – without any distractions – is the single most important precaution you can take” (3).

The most cited method of reducing water accidents among young children was constant supervision. The Lyndall and Horton-James (1997) study argues that “The supervision of children by adults is essential on farms. Even older children require adult supervision [...] Rules about what areas are off-limits are also important and need to be consistent” (p. 10). The methods identified by the literature are as follows:

- Always keep toddlers within arm’s reach near dams, creeks, ponds, channels, open tanks, pumps or postholes full of water.
- Never allow swimming alone.
- Make dams, irrigation channels, pumps, troughs and open tanks off limits without supervision.

Supervision is the most essential component of keeping children of this age safe. The selected cohort of 0-5 years do not possess the mental ability to retain information and apply it safely (refer to child development section of this review, p.11).

2.16.5 Education

At this age children are unaware of potential dangers. Therefore parents need to educate their children on rural water hazards. The Lyndall and Horton-James (1997) study contends that “children need to be taught about the many hazards around them and how to stay safe” (10). Schwab (1992) further strengthens this view by stating: “an explanation is more effective than a ‘don’t play here’ rule” (2). The literature identifies the following tools for educating young children:

- Teach children water safety skills, how to swim.
- Show them the appropriate emergency steps to take if an accident occurs.
- Show kids why the bodies of water on the farm are dangerous.
- Never allow children to swim in dams, where they may become stuck in mud.
- Teach good practices to older siblings as younger children often imitate their actions.

Education enables a child to understand why it is necessary for them to keep away from the dangers and be supervised when near them. The two principles of education and supervision complement each other superbly. The application of one without the other is somewhat problematic as the child would not realise the inherent danger of rural water hazards.

2.16.6 Safe Practices

The literature emphasises the need for consistent safety practices, “regular habits or behaviour, which will help reduce the risk of injuries to children” (Lyndall and Horton-James, 1997: 10). Parents must instill such practices at the initial stages of the child’s

interaction with the rural environment. Once in force they will not take a great deal of time to continue. Safe practices identified include:

- Never ride agricultural bikes near irrigation channels.
- Clearly mark hot water outlets.
- Provide an enclosed, safe play area for young children.
- Keep up regular maintenance and safety checks.

Safe practices implemented by parents allow for a consistent and strong message to be received by the child. The child will learn by imitation and have an informal checklist to follow.

2.17 CONCLUSION

In conclusion, this review identifies that children face increased risks of accidental injury as opposed to adults. Also, rural children encounter significant and unique hazards that their urban counterparts do not have to negotiate. There have been various national and international programmes designed to reduce rural accidents and water accidents.

However, by and large they neglect the pre-school component of the population and largely ignore rural water safety. In the limited literature available measures have been identified to reduce the incidence of rural water accidents. In theory these measures have potential for accident reduction, but in the practical farming environment they are not always easily achievable. Therefore, preschool rural water safety must be given more focus and attention in order to produce a framework of measures that fit both the ability of this age group and the farming environment.

3. JUVENILE LITERATURE REVIEW

3.1 INTRODUCTION

The literature available to children and parents alike is very important in the education of rural water safety. Throughout their lives children are continually exposed to juvenile literature whether it be in the home, the preschool, or the school environment. The books that discuss bodies of water in general may be classified in two distinct categories of which parents may be unaware. Firstly, there are those that are concerned with telling a story and unfortunately too often neglect to offer a water safety message. Secondly, a minimal number of publications are available which aim to educate children on water safety, but by and large bypass the issue of rural water safety.

The majority of children's books available are overseas-produced publications, and contain some issues and hazards that are not relevant in the New Zealand context. The available New Zealand literature is limited and what is available largely neglects rural water hazards. New Zealand is a country that is surrounded by water, has a strongly established rural population, a population who are heavily involved in aquatic activities (Statistics New Zealand, 2001b). We are unique and therefore it is inappropriate to use the overseas literature to educate our children.

3.2 DISCUSSION

The overseas juvenile literature (for example, British and American) portrays a clear water safety message to children of all ages. However the older age groups (10 years and above) are more adequately catered for than our selected cohort of 0-5 years. This overseas literature also discusses aspects of safety with respect to rural areas. The New Zealand juvenile literature in this field lacks a clear portrayal of water safety issues. In fact, some of the Australasian literature highlights negative messages with concern to water safety issues. This is unacceptable as both New Zealand and Australia are nations

that are completely surrounded by water. Both countries are known for population who spend a lot of time involved in aquatic activities (Water Safety New Zealand, 2001a).

A few Australasian publications which are not intended to be educational texts stand out in that they portray particularly negative messages with respect to water safety. A New Zealand text by a highly regarded New Zealand author, which depicts the story of zoo animals having a flood in their enclosure falls in to this category. The animals in the story leave the hose running and find themselves becoming surrounded by water. Instead of acting responsibly in this situation the animals panic and scream for help “The kangaroo jumped up and down. This is awful! We could drown! As the water ran on the floor” (Cowley, 1995: 10). The situation is resolved when the keeper arrives and rescues the animals. Children need to realise that there is not always help at hand. They need to be aware of sensible ways to behave around water and safety measures they can take in a dangerous situation.

Another publication in this category which is aimed at the 0-5 year age group illustrates animals going swimming. The animals in this story run and jump into a large swimming pool, “the dog jumped in splash [...] the water went out” (Parker, 1995:14). The animals do not use any flotation devices when doing so. Familiarisation with this text could lead young children to believe it is not dangerous to jump into swimming pools or other large bodies of water without supervision and or floatation devices.

However, the New Zealand literature intended for older children can be relevant to the selected cohort. Parents are able to read these more advanced books to their pre-schoolers. Furthermore, older children in the family will be influential in the development of safe water behaviours in the rural environment. The message that they have received through the literature and media is just as important. Children’s literature is useful to study in order to learn about both children’s and parent’s attitudes towards water in the rural environment. Parents are receiving the water messages found in the children’s literature as they read the books to or with their child.

The New Zealand juvenile literature (for 0-5 years) that is centred on water and swimming often fails to mention these areas with respect to the rural environment. This is irresponsible as a significant proportion of New Zealand children live on farms or in the rural environment. In fact, 15.9 percent of under-fives live in the rural environment (Statistics New Zealand, 2001a). This concern is in line with the majority of non-juvenile literature in which swimming pools are emphasised as the main water hazard for concern. Statistics show that rivers and other rural based bodies of water are equally as dangerous and fatal to children. DrownBase, the official database of Water Safety New Zealand, has identified that between 1996 and 2000, 103 children under the age of 16 drowned. Of these, 66 were under the age of 5, and 22 were in rivers, creeks, streams, ponds or drains, compared to 19 in home pools or spa pools (Water Safety, 2001c).

One piece of children's literature that stands out above the rest for its significant water safety message is entitled *Kapai's Waterwise* by Uncle Anzac. The publication was endorsed by Water Safety New Zealand. This children's story follows the adventures of Kapai the kiwi as he explores the aquatic environment. The text is rhythmic and contains an integrated water safety message throughout the story. This text is extremely relevant to this topic as it contains a section on dangers around the farm. Kapai's friends explain that a lot of water hazards on the farm are too big or too awkward to be fenced. The book goes on to point out to children that "some of the things to look out for are: irrigation ditches, troughs for animals to drink out of, sheep and cattle dips, creeks, streams and dams" (Anzac, 2001, p. 19).

3.3 CONCLUSION

In conclusion the publications available to children portray both positive and negative water safety messages. The overseas literature is leading the way in the education of children through juvenile literature. New Zealand however has some way to go. This literature at large neglects aspects of water safety especially rural bodies of water. There appears to be a need for New Zealand juvenile literature that contains a focus on our unique geography and rural water hazards.

4. METHODOLOGY

4.1 SETTING THE SCENE

The objective of this research was to provide research-based material which can be used to reduce the incidence of water-related accidents and deaths of rural children, and to create a foundation for further research. The purpose of this objective was to formulate prevention strategies to reduce the number of child drowning that occur in the rural environment.

The Waikato region was chosen as the area of focus due in part to the time and financial constraints of the research project. Furthermore, the Waikato region has a strong traditional rural background and a high proportion of its rural population is under the age of five (refer to the introduction, p.2).

4.1.1 Definitions

For the purpose of this study a rural environment is a rural property engaged in agriculture/horticulture production or farmland sub-divided into lifestyle blocks.

A key informant is an individual that is involved in the safety of children in the rural setting. An expert informant is a professional that specialises in the area of either water safety or rural safety.

4.2 LITERATURE REVIEW

The first methodology employed was a secondary analysis of existing research and data on child rural safety. The purpose of this analysis was to examine what had been produced beforehand to develop a greater understanding of the subject, to avoid unoriginal findings, and to identify gaps in the literature.

The review involved an examination of the various forms of literature that address child rural water safety. This included examining official accident statistics, previous research into the problem, official correspondence, juvenile literature, and other responses in relation to the problem. This review outlined the problems of children and rural water safety, the areas in need for research, and measures to be taken which should reduce the number of rural water accidents.

The literature review identified:

- that the material mostly consists of overseas studies;
- that the New Zealand based literature in this field is limited and not readily available to the general public;
- the necessity of this research;
- that there is international and national programme development on rural safety and water safety;
- the limitations inherent within New Zealand based swimming programmes;
- international and national farming methods;
- accident statistics;
- child and educational development;
- the geographical make up of New Zealand; and
- counter measures to reduce the numbers of rural water accidents.

Water Safety New Zealand is New Zealand's principal organisation and provider of water safety information. Its publications outline simplified procedures for parents to undertake in order to ensure their child's safety around water. These publications include: *Water Safety Across the Curriculum*; *Water Safe In On and Under*; *Keep Kids Safe Near Water*; *Lotto Take the Plunge*; and *Drownbase Statistics*. The information is publicly available and is often free of charge. However, this information at large does not focus on the rural environment and the additional hazards that rural children face.

The Injury Prevention Research Unit (IPRU) is the leading source of accident data and related publications in New Zealand. The publications that they have available include: *The Prevention of Injury Between Farmers, Farm Workers and Their Families (Summary and Literature review)*; *Accidental Drowning and Unintentional Submersions of Children Under 5 years*. The data from these publications are tabulated and state the number of accidents, the characteristics of the causal factors, and when they occur. But these publications do not differentiate between rural and urban accidents, or provide in-depth analysis. These are to be found through restricted access documents from Water Safety New Zealand and New Zealand Police reports.

There is a limited amount of literature on research into rural water safety, although there is an extensive amount on children and water safety concentrating on domestic swimming pools. This type of literature includes: *Rural Injury Prevention Primary Education Resource* and *Faces of the River: New Zealand's Living Water*.

Literature on safety measures employed to reduce the number of water accidents and raise the level of awareness was also examined. This literature includes rural safety projects, water safety studies, and explanations of these safety measures. Some examples are: *Rural Child Injury Prevention – A Community Based Approach* and *Evaluation of Water Safe Auckland's Water Hazard Mapping Pilot Project*.

Juvenile literature was examined to explore the messages presented to parents and children alike on rural water safety. The information available was limited and a strong water safety message was not evident. By and large the books available discuss the use of domestic swimming pools and the beach. Furthermore, a significant number of these children's books do not even attempt to illustrate a water safety message when the plot of the story is centered on bodies of water. Overseas literature in this area appears to be well ahead of New Zealand material, as these publications almost always tackle the main water safety issues. Examples of such publications include: *A Kids Guide to Staying Safe Around Water*; *Safety Near Water*; *Stella Star of the Sea*; and *Lets Learn About Water*. However, the New Zealand based literature does contain one book which outlines a

positive message and discusses the rural environment in a limited fashion: *Kapai's Waterwise*.

4.3 EXPERT AND KEY INFORMANT SEARCHES

In order to gain understanding of the subject matter the researchers contacted the following organisations/individuals: Water Safety New Zealand, Ministry of Education, Ministry of Agriculture and Fisheries (MAF), Accident Compensation Corporation (ACC), Injury Prevention Research Unit (IPRU), Federated Farmers, Statistics New Zealand, University of Otago Consultancy Group, Ministry of Health, University of Waikato Geography, Psychology and Education Departments, New Zealand Plunket Society, New Zealand Play Centre Federation, Safe Kids, Water Safe Auckland, American Pediatrics Society, Crown Public Health, Learn to Swim Coordinator and various swim teaching professionals, specialist children's book retailers, University of Waikato library services and inter-loans, Professional Speaking and Consulting for the Learn to Swim Community (USA), and parents. Liaison with many of these bodies led to the knowledge of and contact with others. The researchers termed this to be a snowball method. The information received from the above sources consisted of: statistics, journal articles, literature we were unaware of, and personal evaluations. However, not all the organisations/individuals replied to the researchers. Those who contributed are detailed in the following sections.

4.3.1 Media release

A media release was issued in December to raise awareness of the research and to request individuals' participation. The release was issued to newspapers in the Waikato region, radio and TV stations throughout New Zealand and rural publications. The media release provided contact with one respondent and an interview proceeded (refer to key informant section below).

4.3.2 Interview schedule

Two interview schedules were formulated to guide discussions with both the expert and key informants. The questions were derived from the literature and the gaps that it contained (refer to Appendix II and III). However, the schedule was not rigid as information obtained from interviews often led to the reevaluation of the schedule. It must also be noted that the interview schedule was only a guide and the questioning was flexible.

4.3.3 Expert informant interviews

In order to gain an insight into the issues of rural water safety, individuals who specialise in the area of water safety and rural safety were contacted and semi-structured interviews were conducted. The purpose of the interviews was to identify and establish the measures currently in practice throughout New Zealand to restrict the number of water accidents, any first-hand experience that they had with water accidents, any literature or material or studies that we had not yet discovered, and any recommendations that they could offer.

Information from expert informants was collected through semi-structured interviews conducted over the telephone. The expert informants interviewed included Water Safety New Zealand project manager, project manager for the injury prevention division of Water Safe Auckland, the Learn to Swim Coordinator for the Hamilton District Council, and the Promotional Manager for Crown Public Health.

4.3.4 Key informant interviews

To gain an understanding of the pressures felt by parents in the rural environment, the researchers felt it necessary to have contact with parents and other members of the rural community. Key informant interviews were conducted with: parents, child bookshop owners, a rural Plunket New Zealand representative, a rural Play Centre representative,

the Ministry of Education communications manager, a swimming instructor for baby classes, a Professional in Speaking and Consulting for the Learn to Swim Community (USA), social science and education librarians, child psychologists, a statistician for demography section of the Department of Sociology and Social Policy, and geographers (University of Waikato).

The key informant interviews were conducted at the site/homes of the participants. The participants were asked to describe their property, demographic information of family members where relevant, safety measures already in practice, any incidents that have occurred, programmes/courses that are implemented in the Play Center and Plunket teaching curriculum, and advice that can be offered to parents that will reduce the number of rural water accidents.

4.3.5 Site inspection

The purpose of the site inspection was to gather supplemental information only obtainable in the field (e.g., viewing and measurements of rural water bodies). The procedure used in the site inspection included walking around the location, viewing the location from different approaches and taking photographs as necessary.

4.4 ANALYSIS

The analysis of the information collected took various forms. This included listening to the tapes and transcribing the material from the tapes, the formation of categories of the material obtained from tapes, and comparisons made with the literature. This allowed us to find gaps in the literature, areas in which continued research should occur and, recommendations to be formulated.

The analysis applied to the raw data was categorized into the following groups: identification of all rural hazards, supervision, fences and gates, nature of rural hazards, swimming lessons, education, siblings, and work situation.

5. FINDINGS

5.1 INTRODUCTION

The purpose of this section is to outline the findings obtained from the expert and key informant interviews. The interviews were semi-structured and were conducted either over the telephone or at the residence of the participant.

The experts interviewed include water safety officials, a New Zealand Plunket Society representative, Crown Public Health promotional officer, swimming teaching officials and various other professionals in the area of rural children and water safety. The other set of interviews was focussed on key informants. This group was largely made up of parents with children under-five-years who live in the rural environment. Others in this group have older children but experienced problems with water on the farm when their children were in the selected cohort. One participant involved had experienced the death of a child in a rural body of water.

5.2 WATER HAZARDS IN THE CONTEXT OF ALL HAZARDS

All of the parents interviewed did recognise water hazards on the farm as a potential danger site for their children. However, many parents identified other rural hazards to be more dangerous and of more concern than those that involve water, “yea, we think being on a motorbike is more dangerous, water’s not really an issue, not my biggest issue on the farm, more worried about where’s the tractor and where’s that” (Parent F). This is supported by the literature, specifically the University of Otago Consultancy Group study (1995) and Lyndall and Horton-James (1997) study (refer to the literature review, pg. 9). Rural parents are often concerned about busy open roads that are often located right outside their front door. Other areas of concern for rural parents are the machinery located on the farm and tankers that regularly visit the premises. Most parents had the general view that “everything here is a hazard” (Parent A). In addition, one parent stated

that: “Well I think actually I’m really blasé about it’ cause it’s our backyard and we just take everything for granted, be it the creek, the trough, whatever” (Parent F). The fixed state of the natural and man-made bodies of water on the farm have led parents to become relaxed around the potential dangers that they produce (University of Otago Consultancy Group, 1995).

5.3 SUPERVISION

The literature available on pre-schoolers and water safety stresses vigilant supervision as the key to keeping children safe around water. This point is highlighted in all the major texts and articles that address this area (refer to the literature review, pg. 16).

Publications from Water Safety New Zealand strongly reinforce the supervision issue, “supervision without any distractions is the single most important precaution you can take” (2001b: 3). Both the groups of key and expert informants interviewed strongly reiterated this. Those interviewed believe that constant supervision is extremely important when caring for children around any body of water be it rural or otherwise. A Plunket nurse further strengthens this idea by offering the following illustration of constant supervision: “if mum is inside and dad is outside as is the usual case – they often think each parent is looking after the child. But, parents should take them [the child] by the hand to change over”. When describing the importance of vigilant supervision of pre-schoolers a few of the parents interviewed used the term “paranoid”. They noted, “you’ve got to have eyes in the back of your head” (Parent A). In addition, many parents mentioned the importance of supervision at bath time, as the bath is as potentially dangerous as any trough or creek found in the rural environment.

5.4 SWIMMING LESSONS

Swimming teaching officials stress to parents that classes aimed at pre-schoolers are not formulated to make them safe around water. Swim classes aimed at this age group are primarily designed to introduce children to the aquatic environment and familiarise them with water. However, parents often have a different idea about swimming lessons, as one parent states: “when [she] was little we took her to swimming lessons and she’s really

confident in the water” (Parent E). Parents are frequently under the impression that one set of lessons (on average a module lasts for 5-weeks) will enable the child to have the water skills necessary to cope with the outdoor environment. The Co-ordinator of Te Rapa Pool’s Learn to Swim Programme in Hamilton, explains “we are not teaching them to swim, we are teaching them to be happy, confident and aware of their environment” (Expert A). She stresses how influential early swimming experiences can be to the overall level of water confidence achieved by children. However, she further contends that the parents have to make a commitment to come, and that the child will not be safe in and around water after one module of lessons.

5.4.1 Significance of swimming lessons

Experts in the area of water safety strongly reinforce the benefits of pre-school swimming lessons. Babies can attend lessons from as early as 6 months old. The lessons are designed to familiarise the child with water and start the foundations of water safe behaviour. Experts describe the babies’ classes as a mechanism for developing the senses around water. One expert on this topic stated “I call it a nice bonding time” (Expert A). She realises the difficulties rural parents face whilst aiming to attend children’s activities that are located in town. She goes on to say “If you pick anything that you are going to travel once a week into town for your child’s sake – wouldn’t it be swimming” (Expert A). She justifies this by claiming that all New Zealand children will be confronted with water at some stage in their life. Furthermore, children at this age lack the coordination and mental ability to be involved in other off-farm activities. Experts believe that many parents do not realise how accessible and inexpensive baby and pre-school classes are. Most swimming pools around the country offer programmes of this nature. The general view is that if your child is introduced to water at an early age they will find future lessons at school and other venues more beneficial. “If they have started very young, by five and six, okay your child might not be the best swimmer but they are confident and they are safe” (Expert A).

Most of the parents interviewed shared the view that early swimming lessons are important in the development of water safe behaviour. Many parents had enrolled their children and seen the benefits. One parent who introduced her children to swimming lessons at an early age comments on the benefits of this. “We took [her] from 6 or 9 months and I think more than anything it’s just familiarity with water, I don’t think you can teach a child at that age to swim” (Parent E). However, some of the parents interviewed felt that the swimming skills provided in the school curriculum were sufficient to keep their children safe around water. One parent stated that they were not going to force the issue of swimming lessons, until they attend school, despite the abundance of water hazards evident in the rural environment (Parent A).

5.4.2 Practical steps

Both expert informants and parents feel that there is a significant amount parents can do to increase their children’s awareness of water safety in the home environment. “There is a lot parents can do at home to water familiarise their children and to begin safety aspects of being in the water” (Expert A). Swimming teachers believe that this education received in the home environment is beneficial for the effectiveness of swimming classes. The literature reinforces this point and often describes the measures that parents can take to educate their children on water safety. The advice spans from how infants can be familiarised with water at bath time to educational techniques that can be utilised in teaching the older pre-schooler about water’s dangers (refer to literature review, pg.13).

5.5 CHILDREN AND RISK IDENTIFICATION

Expert informants feel that it is influential for children to be shown the risks present in the rural environment and in turn educated on the danger of the hazards. They believe that it is important to explain the danger of water to children as “a child is never scared of what they don’t know” (Expert A). The parents largely agreed with this and thought that children should be educated on the danger of the hazard and also experience fun with water. One parent points out that it’s important to explain the purpose of the hazard. For example when introducing a child to a trough she explains “This is for the animals, this

is how they get water” (Parent D). She goes on to tell the children that the purpose of the trough is not to swim and play in. She explains her method is “not so much emphasis on the dangers but on the respect they should have for water, for animals, for everything” (Parent D).

Some of the parents interviewed differed in opinion with the experts on this matter. They expressed a need to keep children away from the hazard and not alert them to the presence of rural bodies of water until they are old enough to understand the element of danger. One parent explains that she would rather her two year old was not aware of a trough on her farm, “If he did see it and find out that it’s full of water he would play in it” (Parent B).

5.6 CHILD DEVELOPMENT

Although there was an emphasis on constant supervision of pre-schoolers around water expressed by the majority of parents interviewed, some parents felt that their children were aware of the dangers and thought they would not investigate rural water hazards. Parents explained, “No they don’t really go near the drains” (Parent A). Parents also felt that they had educated their children sufficiently in the dangers of water hazards on their property, “I actually trusted them with water because I knew they all respected water” (Parent D).

The literature on child development and advice from expert informants unfortunately contradicts this view that the parents endorsed. Texts concerned with child development explain “no one knows how a child will react [around water] there are no guarantees” (Van Dyk, 1987: 57). Experts reinforced this and explained that it is dangerous to rely on pre-schoolers’ ability to process the danger element and know not to go near the hazard. “A 5 year old thinks they are invincible” (Expert A). Some of the parents interviewed also thought that children could not be held responsible for their own safety in the context of rural water hazards. Parent F explains that: “You can tell them as many things as you like, but if something distracts their attention all the good things mum told them has just gone out the window”.

By and large these parents felt that even though education on the danger is important it is still necessary to apply constant supervision, as pre-schoolers are ultimately unpredictable. One parent points out the inherent danger of rural water hazards and children, “Kids have got a natural fascination with water; troughs they want to splash in it, creeks they want to put their feet in it, that’s the fatal attraction” (Parent C).

5.7 POLICY AND NATIONAL CAMPAIGNS

Experts feel that more can be done at a national level to promote the importance of pre-schoolers and water safety. At present there is a national campaign aimed to increase the water safety of New Zealanders. This is known as Lotto Take the Plunge. This event is held once a year and is promoted as an inexpensive way to provide water skills to a large proportion of New Zealanders. The programme targets school children and adults, and offers swimming and survival skills for a relatively small fee. Experts on water safety believe that this campaign should include the pre-school component of the population. It is evident that children learn the most in the first five years of their lives (Bremner, et al., 1997). It seems unbeneficial to the wider community to exclude pre-schoolers from this programme. There is some feeling that Lotto Take the Plunge is not adequately followed up and that this contributes to a sub-optimum overall effectiveness of the campaign. “Afterwards they are not actually following it up as a country by saying Lotto was responsible for introducing water skills and confidence to x amount of people ...as New Zealanders are we going to continue this – are we going to be responsible for our children” (Expert A). The parent interviews questioned parents on their involvement in swimming and water safety programmes. None of the parents interviewed mentioned attendance in the Lotto Take the Plunge campaign and any other nationwide events, or identified their knowledge and opinions of the events.

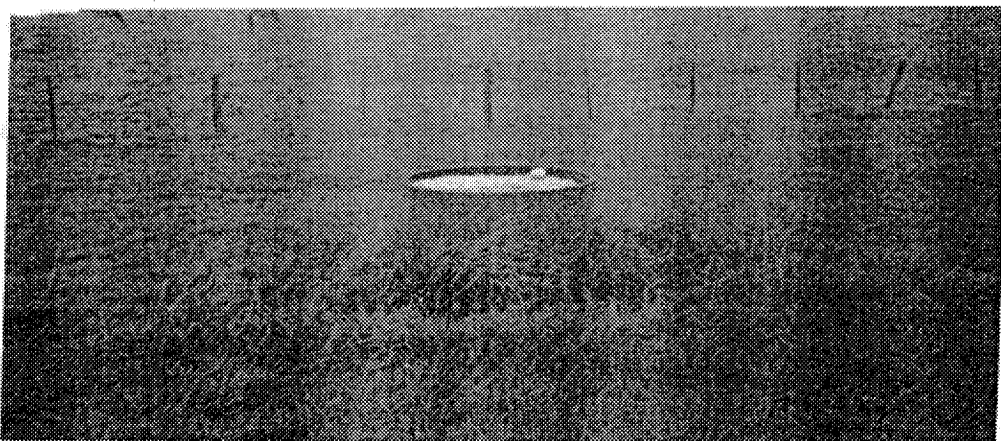
An interview conducted with a rural Plunket nurse identified that the organisation does not offer programmes that approach the issue of water safety, as there are too many facets of rural safety to consider (Plunket). Furthermore, an interview with a rural Play Centre

representative revealed that there are “No set standards [incorporated in the module to educate children about water safety dangers]” (Play Center).

5.8 FENCES AND GATES

5.8.1 Impracticability of fencing

Both parents and experts are concerned with how the rural community can adequately fence water hazards on their farms. Fencing all the possible hazards seems very costly and impractical . For example, troughs are implemented with the primary purpose of providing livestock with drinking water. One parent shares his concerns, “If the cows are going to have access to it how are you going to a stop a kid getting to it” (Parent C). Therefore, it seems incredibly impractical to fence troughs. Other water hazards on the farm pose the same problem when it comes to fencing. If you fence the bodies of water off, children will not be able to access the hazard but nothing else will have access to the water. One parent comments on this confusion and states that how to sensibly fence off hazards in the rural environment is a “dream we haven’t realised yet” (Parent C). The literature available in this area is obviously largely undecided on this issue, as extensive searches did not uncover any concrete solutions to the problems of fencing off rural bodies of water.



An animal trough used to hydrate the livestock.

With the recent influx of dairy farmers to the South Island, as in the Waikato region, pollution levels in streams have increased. This has led to fencing of streams in order to reduce stock pollution. The fencing of streams was a once an unheard of occurrence that is now on the way to becoming commonplace, proving that attitudes can alter. Although this does not directly relate to children it illustrates that farming practices can change (Fulton, 2002).

5.8.2 Necessity of fencing

Many parents identified fences and gates as the primary source of keeping children safe around water in the rural environment. Parents felt that if you had a well-fenced section you could feel somewhat reassured that the children could not access the hazardous bodies of water. Fences coupled with supervision seem to rate highly with the parents interviewed as the primary way of achieving a safe home environment in the rural setting. One parent explains, “You do need to watch them and always be aware of where they are and I think it’s important to have a fenced section”(Parent B). The idea behind a well-fenced section related to more than the existence of water hazards. Parents feel that by providing secure fences children are somewhat protected from the hazards that the rural environment contains. A parent who has lost a child due to a water accident in the rural environment cannot stress enough the importance of fencing the house section. He advises parents to childproof fences around the house section, “regardless of how inconvenient it might be” (Parent C). The literature reinforces these views expressed by parents and constantly highlights the importance of creating barriers between pre-schoolers and bodies of water in the rural environment (refer to literature review, pg. 15). However, some parents do not feel that fencing will restrict their child’s access to water. Parent G explains that: “they can actually climb over the fence, there’s no point”. The provision of fences to cut off children from the hazard is not always practical in the rural setting.

5.9 EDUCATION

Parents have quite different ideals as to how to educate their children about water safety in the rural environment. For example, as previously mentioned some parents believe it is important to expose pre-schoolers to the hazard and warn them, whilst others feel that keeping away from the danger is more appropriate. A parent who felt that it is important to familiarise children with the hazards on the farm in order to educate them on the dangers also has a swimming pool on her rural property. She believes that the swimming pool was influential in the education of her children on the dangers of rural bodies of water. She explains, “The pool was a major teaching tool for the education of them to actually respect water in its many facets” (Parent D). The same parent also felt that safety issues should be paramount in the education of children in the rural environment. She feels that often parents can too easily neglect safety issues in the pursuance of other issues, “I think a lot of parents have a lot of rules and regulations concerning perhaps tidiness and things like that. My way of thinking was that it didn’t actually matter for anything like that it was actually safety rules” (Parent D).

The researchers have identified juvenile literature as an influential tool in the education of children about water safety (refer to literature review, pg. 19). Children are constantly exposed to literature in the many educational and home environments they encounter whilst growing up. During the parent interviews, participants were questioned on their use and knowledge of juvenile literature that depicts a sound water safety message. All of the parents interviewed commented on the lack of such educational texts. One parent points out that there are books available that discuss many other safety aspects to the neglect of water safety issues. She comments, “there are lots of books about lots of other things, like stranger danger and that sort of stuff” (Parent E).

5.10 WORKING SITUATION

In the New Zealand context dairy and some other farmers are often employed on a contractual basis for a period of 1 – 3 years. This in turn means that the parents do not have the incentive to safeguard the property totally. In addition, both parents will often work on the farm leaving the children to look after themselves, or to accompany their parents in their work. Parents F and G explain: “Our oldest two are both five, my five year old looks after the others”. Parent G goes on to comment, “I might nip up to the other house [in-laws] or go see my husband, and leave the kids here”. It is not always practical for constant supervision to be maintained in the context of the rural farming environment. Furthermore, the recent growth of lifestyle blocks has produced a shift in rural employment patterns. It is often the case that one of the parents will work in town, while the other tends to the land. Parent D comments on her situation as a parent whose husband worked away from the land “I feel it wasn’t the safest way of doing things but at the time it was my only option and I feel that a lot of rural women especially if they are rearing calves, and their partners are working away from home then often it’s the only option that they have to keep them centered at home [by themselves]”.

5.11 SIBLINGS

A few of the parents interviewed mentioned the instance in which younger siblings strive to keep up with their older counterparts whilst involved in activities in the rural environment. This poses a significant element of danger with concern to bodies of water. Younger children do not possess the advanced motor skills and mental development of their older siblings. This can often lead to the creation of hazardous situations as the younger children attempt to achieve the feats of their brothers and sisters. One parent commented on this issue and explained that her younger daughter was constantly involved in minor accidents as a result of this. She states, “Her mental development wasn’t as strong as it should have been” (Parent D). The interviews revealed that parents are aware of this issue and act accordingly in order to prevent potentially dangerous situations.

5.12 NATURE OF RURAL WATER HAZARDS

Both parents and experts interviewed commented on how rural bodies of water are different to those found elsewhere. One parent explains, “[The] river is a deceptive thing, it has different currents at different times” (Parent D). They feel that children raised in a rural environment have many unique hazards to negotiate, such as: effluent ponds, creeks, unused fence holes, troughs, empty containers, rivers, vats, drains, sheep dips, ponds, and wells. Parent D commented on the effluent pond and states “once a child would go into an effluent pond you would never see them, they would sink without a trace, it’s just absolute sludge, it’s pretty horrific”.



An effluent pond that is used by dairy and some other farmers to discharge animal waste produced at the milking and holding sheds.

5.13 SUMMARY

From the interviews conducted with expert and key informants the following issues arose: water hazards in the context of all hazards, supervision, swimming lessons, children and risk identification, child development, policy and national campaigns, education, fences and gates, working situations, siblings and nature of rural water

hazards. In most cases interviewees stressed the importance of supervision in conjunction with fencing as the primary method of keeping children safe around rural bodies of water. Parents also felt that there was limited material available to educate themselves and their children about rural water safety.

6. RECOMMENDATIONS

Ultimately, this report seeks to produce recommendations in order to reduce the number of rural water accidents. These recommendations have been derived from the secondary and primary analysis of the available literature and interviews conducted with expert and key informants.

6.1 RECOMMENDATION ONE

Supervision should be the first and foremost form of countering rural water hazards. The literature, key informants, and expert informants have identified this continuously.

6.2 RECOMMENDATION TWO

Nationwide water safety campaigns should include preschool children within the framework. The researchers have been unable to locate a nationwide campaign that offers water confidence for preschoolers at a subsidised rate. However, the researchers did identify a nationwide campaign that provides subsidised aquatic skills for the over-five year members of the New Zealand population.

It is evident that the first five years of the child's life is a very important developmental stage. Therefore, it seems irresponsible to neglect this portion of the population.

6.3 RECOMMENDATION THREE

The publication of a New Zealand based children's book with a major focus on rural water safety. The researchers feel that relevant bodies, as discussed above, should be involved in the creation of this text.

The book will be concerned with water safety in general, but must contain a significant component on water hazards in the rural water environment. A strong water safety message should be integrated within the story. The aim is to maintain the interest of the child whilst informing them of water hazards.

6.4 RECOMMENDATION FOUR

Parents and preschool education providers should educate the children of the dangers of water and what to do if an accident occurs involving water. Children must be aware of how to act in emergency situations so they do not panic and forget any safety skills that they have been previously taught.

6.5 RECOMMENDATION FIVE

Risk identification by parents and children in their own rural environment. Parents and children need to produce a map of their land and then locate on the map the water related hazards that are present. This will raise awareness and knowledge of hazards that may otherwise go undetected.

6.6 RECOMMENDATION SIX

Increased liaisons between water, preschool, and rural safety bodies. The researchers identified a lack of communication between these official bodies. In some instances some were not aware of others.

The researchers feel that it is paramount for these bodies to communicate more effectively. It will enable resources to be shared, projects to be collectively worked upon, and increased knowledge of those involved. The implementation of this recommendations will not only be cost-effective but should also lead to the reduction of rural water accidents.

7. CONCLUSION

This research has identified that water accidents involving preschoolers are a significant problem in the rural New Zealand community. However the research highlights preventative measures that can be taken to reduce the incidence of such water accidents. Supervision, fencing, education and swimming lessons are the main forms of countering the problem. The researchers realise that this problem will not miraculously dissolve. But, hopefully this research will contribute in some way to the reduction of rural water accidents

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9. APPENDICES

APPENDIX I

The water hazards identified throughout the literature consisted of:

- Dams
- Creeks and rivers
- Effluent ponds
- Irrigation channels
- Wells
- Tanks
- Pumps
- Open containers after rain
- Post holes after rain
- Troughs and pits

The dominant types of injuries highlighted throughout the literature included:

- Drowning
- Electrocutation
- Paralysis from striking when diving into shallow water
- Bacteria, viruses and fungi infections

(University of Otago Consultancy Group, 1995; Lyndall and Horton-James, 1997; ACC, 1987).

APPENDIX II

Interview Guide (Key Informants) – Rural Children and Water Safety Research

Demographics

- Number of children and ages
- Ages of parents
- Marriage status
- Ethnicity
- Financial situation

Description of Community

- Water activities and education available in participants community
- Size of community

Description of farm

- Geographical layout
 - Existing bodies of water
 - Access of children to water

Prevention Methods

- Parenting skills (methods used by parents' to prevent water accidents)
- External initiatives (methods learnt by parents' and children through the medium of schools, community swimming pools and both adult and juvenile literature)
- Physical barriers (fences, bridges etc)

Accidents

- Any accidents that they are willing and would like to talk about involving water
- Also near misses

Recommendations

- Advice to other parents that they have to offer
- Ideas concerning possible direction of policy

Contacts

- Asked to offer any contacts (friends or family) who may be interested in talking to us

APPENDIX III

Interview Guide (Expert Informants)

Prevention Methods

- Methods designed to reduce the number of water accidents

Policy

- What there is
- What they think there should be

Accidents

- Any accidents that they are willing and would like to talk about involving water.
- Also near misses

Recommendations

- Advice to other parents that they have to offer
- Ideas concerning possible direction of policy

Contacts and Statistics

- Asked to offer any contacts and additional informational they have available

APPENDIX IV

Key Informants Interviewed:

Parent A – Four children, Hauraki Plains District, 200 hectare farm.

Parent B – Three children, Hauraki Plains District, lifestyle block.

Parent C – Three children, Ohaupo, one child drowned in rural setting, lifestyle block.

Parent D – Three children, Cambridge, 200 hectare farm.

Parent E – Three children, Gordonton, lifestyle block.

Parent F – Three children, Te Awamutu, 150 hectare farm.

Parent G – Two children, Te Awamutu, 500 hectare farm.

Plunket - Rural Plunket nurse, Ngaruawahia/Raglan area.

Play Center -- Representatives from Korakonui Play Center.

Expert Informants Interviewed:

Expert A – Learn to Swim Coordinator Hamilton District Council.

Expert B – Project Manager for Water Safety New Zealand

Expert C – Project Manager for the Injury Prevention Division of Water Safe Auckland.

Expert D – Promotional Manager for Crown Public Health.