

2005

## **Maximising parent involvement in the pedestrian safety of 4 to 6 year old children: December 2005**

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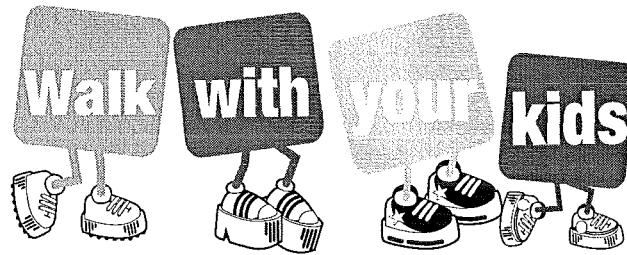
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EARLY CHILDHOOD PEDESTRIAN INJURY PREVENTION PROJECT

**Maximising Parent Involvement in the  
Pedestrian Safety of 4 to 6 year old Children**

**December 2005**

**Presented to  
The Western Australian  
Health Promotion Foundation**

**Maximising Parent Involvement in the Pedestrian Safety of 4 to 6 year old Children**

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## 1. INTRODUCTION

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In Australia, pedestrian injury is the leading specific cause of death among five to nine year old children (Al Yaman, Bryant & Sargeant 2002). In 1999-00 in Australia, there were 1,144 hospitalisations of children aged 0-14 years for pedestrian injuries, with a hospitalisation rate of 29.1 per 100,000 children. These rates decreased with age and were lowest for children aged 10-14 years. Pedestrian injuries among 0-14 year olds in 1999-00 were the second highest cause of hospitalisation in children (Al Yaman, Bryant & Sargeant 2002). While fatalities from pedestrian injuries among children 0-14 years have declined from 3.7 per 100,000 children in 1991 to 2.7 in 2000, the reductions are mostly among 10-14 year olds rather than those aged 1-4 years (UNICEF 2001). In WA this may be a result of road safety initiatives targeting older children.

Young children's lack of cognitive and perceptual abilities to deal with traffic situations, such as poor search behaviour, not choosing the safest places or seeking help to cross the roads, their small physical size and their emotional immaturity (e.g. easily distracted) are well documented (Schieber & Thompson 1996). These findings and the evidence that one half of young pedestrians injured were unaccompanied (Elliott 2000), demonstrate clearly that children under age ten need to be accompanied by an adult in traffic (Avery 1974). Data collected as part of a Western Australian case-control study, involving child pedestrians' aged one to 14 years, identified four key environmental and behavioural factors that independently predicted the likelihood of child pedestrian injury (Stevenson, Jamrozik & Spittle 1995). These included the volume of traffic encountered by the child during his or her exposure to the road environment, the presence of visual obstacles, availability of footpaths on the child's street of residence, and importantly, the child's behaviour (Stevenson, Jamrozik & Spittle 1995). Recently researchers have reassessed children's limitations in traffic and numerous studies have shown that young children can be trained from 4 years of age to use roads more safely (Thomson et al. 1996; Lee, Young & McLaughlin 1984; Tucker 1993; Young &

Lee 1987; Thomson & Whelan 1998). However, to be effective training needs to be in a social context, in real world situations, through discovery and problem solving rather than rules, at their own pace and with positive feedback from a caring adult (Elliott 2000). Young children's 'concrete' stage of learning skills inhibits their ability to transfer this learning from abstract practice (in the classroom) to real world roads (Thomson et al. 1996). Moreover, schools do not have the capacity to adequately train children (safely) on real roads (Elliott 2000). The adult to child ratio is too high without significant other (parent) support. Two recent reports by Elliot (2000; 1999) indicate that far greater emphasis needs to be placed on early development and preventive education at 0-5 years rather than educating at a later stage in childhood and teenage years (Elliott 2000; Elliott 1999). Hill et al (2000) found that with training even the youngest children, could demonstrate a rudimentary concept of danger and that this increased with age (Hill, Lewis & Dunbar 2000).

While there is evidence that involving parents can have a positive impact on children's learning in other health areas (Nader et al. 1989; Klitzner, Gruenewald & Bamberger 1990; Perry et al. 1988; Perry et al. 1989), only rarely have school-based road safety education programs included parents (guardians or siblings) as an integral part of the intervention (McCallum 1990; Elmquist 1995). While parents are not the only influence on children's behaviour, they provide the primary social learning environment for children (Hearn et al. 1992; McBride, Law-Davis & Shilton 1993; Fitzgibbon et al. 1996; Donnermeyer 2000). Engaging parents and importantly assisting parents to recognise the important role they play, has the potential to significantly enhance children's safety on and near roads (Elliott 1999; Elliott 2000). This is particularly important with regard to road safety, as parents provide one of the only means for children to get the necessary personalised one-on-one training and to actually practise crossing real roads. While teachers/schools do not have the capacity to teach road safety in this way, evidence suggests this is the most important and effective way for children to learn how to use roads more safely (Thomson et al. 1996). Parents' (and other significant adults') modelling of pedestrian skills, the normative standards set by parents about road safety, their parenting style and family management techniques, and the



nature of their communication with their children are key to the quality of children's road safety education (Hawkins et al. 1999; Hahn, Simpson & Kidd 1996). Parental beliefs about responsible parenting with regard to protecting their children from pedestrian injuries were found to be significant predictors of child pedestrian injury rates (West et al. 1997). Longitudinal research has identified an amalgam of parenting factors called "authoritative parenting", whereby parents retain a high level of control in a warm and supportive context (Rivara et al. 1991; Pruesser & Lund 1989). This proactive approach to influencing children's behaviour has been found to be more effective than reactive discipline or excessive punishment (Beck et al. 1999) and will be key to the parent teaching approach used in this intervention. All parents, even from more vulnerable communities, are capable of making a fundamental contribution to children's pedestrian safety, provided they have received adequate training and fully understand what they are trying to achieve (Thomson & Whelan 1998).

The *Walk with Your Kids* project responds to the reported need to engage 0-5 year old children and their parents in road safety education (Elliott 2000; Elliott 1999). The study design will determine the effectiveness of an early childhood school setting to develop and test a home and classroom intervention, to enhance the reported pedestrian safety behaviours of children aged four to six years and the skills and advocacy training of their parents.

This report addresses the methods and findings from the first and second year of the *Walk with Your Kids* project. During 2005, the following activities were completed:

- Compilation of individual school reports presenting baseline parent data;
- Pre-primary teacher and principal training;
- Development and delivery of pre-primary classroom and parent intervention;
- Conducted baseline 2 data collection with pre-primary teachers; and
- Conducted post-test 2 data collection with pre-primary parents/caregivers and pre-primary teachers.

## 2. OBJECTIVES

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The aim of the *Walk with Your Kids: Early Childhood Pedestrian Injury Prevention Project* is to develop, disseminate and evaluate a parent-based intervention to reduce pedestrian injury in primary school age children in Perth, Western Australia. This will be achieved by conducting a randomised control and intervention trial.

The specific objectives of the project are:

- To follow a cohort of kindergarten children and their parents/carers' for three years (from age four to six years) to measure the extent to which a two-year parent and school intervention, designed primarily to build the capacity of parents and school staff to support children's road safety, can:
  - Increase the number of children who use and cross the road safely with their parents.
- To enhance parents':
  - Knowledge of the cognitive and developmental limitations of children under ten years of age especially in relation to pedestrian safety;
  - Attitudes regarding the importance of parent involvement in pedestrian training for children under ten years of age;
  - Modelling of safer pedestrian behaviours;
  - Advocacy for safer road environments for their children; and
  - Self-efficacy to teach their children how to use roads more safely.
- To determine whether there is a dose-response relationship between the fidelity of program implementation by parents and teachers and study outcomes.
- To determine the extent of teachers' and parents' use of and satisfaction with the *Walk with Your Kids: Early Childhood Pedestrian Injury Prevention Project* (WWYK) intervention.

### 3. PROGRESS

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#### 3.1 Project Management

A strong management team is responsible for overseeing this project, and are supported by an advisory committee comprised of experts from road safety, health and education sectors. The Management Committee is responsible for the day to day administration of the project and comprises:

Ms Marnie House

Dr Donna Cross

Dr Margaret Hall

Ms Sharon Bell

The Project Advisory Committee comprises:

Terry Lindley

Alice Haning

Sue Hellyer

Terri-Anne Pettet

Nicole Pettit

Anne Miller

Sue Wicks

Inspector Ron Randall

Jill Darby

Iain Cameron

Jon Gibson

Dr Peter Howat

Dr Marg Hall

Dr Greg Hamilton

Dr Donna Cross

Stacey Waters

Erin Erceg

Maree James

Marnie House

### 3.2 Recruitment

The selection criteria for schools to participate in the *Walk with Your Kids* project were that schools:

- Must be located in either Canning, Fremantle, Swan and West Coast Education Districts;
- Must be government schools;
- Must be a primary school (no district or secondary schools included);
- Must have children enrolled from at least kindergarten to year 3 onwards;
- Must have 34 or more students enrolled in kindergarten during 2003; and
- Must have a kindergarten located on the school grounds (no off-site kindergartens).

To assist in the sample selection process a database containing all schools in Western Australia was obtained from the Department of Education. Schools that met the above mentioned criteria were stratified according to total population size of the kindergarten and socio-economic status. The school's physical postcode was used as a proxy measure of socio-economic status. Using the 2001 Socio-Economic Indexes for Areas (SEIFA) (Australian Bureau of Statistics 2003), postcodes within the Perth metropolitan area were divided into an upper (above the population mean of 1000) and lower (below or equal to the population mean of 1000) stratum. Based on a review of recent literature children living in areas of lower socio-economic status appear to be at greater risk of pedestrian injury (Rivara, Bergman & Drake 1989; Stevenson, Laing & Kai Lo 1992/1993). Therefore, only schools located in the lower stratum (below or equal to the population mean of 1000) were included in this study. The mean SEIFA of all eligible school postcodes was 956.3 with the minimum being 866.18 and the maximum 996.59. The median kindergarten size of all eligible schools was 42.5 students. Schools with fewer than 42 kindergarten students were classed as small schools, and schools with more than 42 kindergarten students were classed as large schools. The final strata for this project were all low socio-economic status schools divided into two strata, small and large schools according to number of kindergarten students.

Twenty seven schools were randomly assigned from each strata to participate in either the intervention (n=13) or the control group (n=14). The number selected was based on that required for suitable statistical power. One less intervention school was selected due to difficulty recruiting small schools. Upon a check of total numbers of students selected in the intervention condition without this fourteenth school, sufficient students had been recruited to satisfy power calculations.

The principal of each randomly selected school was sent a letter describing the *Walk with Your Kids* project and inviting them to participate as either an intervention or control school. Each Principal was then contacted by telephone by the Project Director to discuss and confirm his or her school's participation.

Of the original 27 schools randomly selected, two schools declined to participate, citing other priorities within the school. These schools were replaced by other schools within the same stratum.

At each school, all kindergarten students, both parents of kindergarten children, teachers of kindergarten students and the principal were recruited into this study in 2004. These students and their parents are being tracked from kindergarten into pre-primary and then into year 1 (2004-2006).

In 2005, there were 89 pre-primary teachers, 1342 pre-primary students and their parents from 27 Perth metropolitan schools involved in the *Walk with Your Kids* project. There were thirteen intervention schools who received the parent, classroom and whole-school *Walk with Your Kids* resources. The fourteen control schools were asked to participate in the regular school road safety program and as an incentive they received school-based bullying prevention materials developed by the Child Health Promotion Research Unit at Edith Cowan University. The bullying prevention resource was provided to control schools to compensate them for their involvement in the study and reduce the possibility of schools withdrawing from the study.

### 3.3 Instruments

A range of evaluation instruments are being used in the study including parent questionnaires for two parents/caregivers per family; an annual pre-post classroom teacher questionnaire; and a teacher log of classroom and home learning activity implementation. Parents of all kindergarten students (n=1238) were surveyed using a self-complete questionnaire at baseline in September 2004 and again in November 2004. The same parent cohort was then surveyed in October 2005 when the study children were in pre-primary. The parent cohort will be followed for three years until 2006.

The 28-item parent questionnaire and a shorter questionnaire were sent home via the teacher addressed to the parent/carer of each child. The shorter, four-page questionnaire was addressed to another adult in the house who cares for or walks with the child. Parents in the intervention group received an additional fourteen items in their post-test 1 and post-test 2 questionnaires to measure their use and satisfaction with the *Walk with Your Kids* intervention components. Parents were provided with the option of completing the questionnaire via a telephone interview.

To achieve high response rates, classroom teachers were actively engaged in the parent questionnaire follow-up; non-responding parents were sent follow-up letters; user-friendly short questionnaires were prepared; the Department of Education and Training and the principal's endorsement of the process were sought; and minor incentives for questionnaire completion were offered. All schools are provided with data summary reports following each data collection. Post-test 2 data reports will be distributed to study schools in March 2006.

Consultation with each study school revealed a significant proportion of the sample indicated English was their second language (n=100). Some 22 different languages were identified, with Arabic (n=20) and Vietnamese (n=26) being the most commonly spoken. To accommodate most of these parents, questionnaires were translated into Arabic and Vietnamese and the school's

interpreter was made available to help parents who spoke a language other than English.

The parent questionnaire was designed to measure the objectives outlined previously. Most items were based on those used in the Child Pedestrian Injury Prevention Project Pre-Test questionnaire (Cross et al. 2000), whilst some were adapted from other road safety questionnaires for parents (Lam 2001).

Teacher questionnaires were developed to assess knowledge, attitudes and skills in relation to road safety, along with measures of training satisfaction and classroom activities implementation.

The 36 instruments developed to date include:

- *Parent* baseline questionnaire (large) (See 2004 report)
- *Parent* baseline questionnaire (small) (See 2004 report)
- *Parent* baseline questionnaire (Arabic lge) (See 2004 report)
- *Parent* baseline questionnaire (Arabic sml) (See 2004 report)
- *Parent* baseline questionnaire (Vietnamese lge) (See 2004 report)
- *Parent* baseline questionnaire (Vietnamese sml) (See 2004 report)
- *Teacher* baseline questionnaire (See 2004 report)
- *Parent* post-test 1 questionnaire, intervention (lge) (See 2004 report)
- *Parent* post-test 1 questionnaire, control (lge) (See 2004 report)
- *Parent* post-test 1 questionnaire, intervention (sml) (See 2004 report)
- *Parent* post-test 1 questionnaire, control (sml) (See 2004 report)
- *Parent* post-test 1 questionnaire, intervention (Arabic lge) (See 2004 report)
- *Parent* post-test 1 questionnaire, intervention (Arabic sml) (See 2004 report)
- *Parent* post-test 1 questionnaire, control (Arabic lge) (See 2004 report)
- *Parent* post-test 1 questionnaire, control (Arabic sml) (See 2004 report)
- *Parent* post-test 1 questionnaire, intervention (Vietnamese lge) (See 2004 report)
- *Parent* post-test 1 questionnaire, intervention (Vietnamese sml) (See 2004 report)
- *Parent* post-test 1 questionnaire, control (Vietnamese lge) (See 2004 report)
- *Parent* post-test 1 questionnaire, control (Vietnamese sml) (See 2004 report)

- *Teacher* post-test 1 questionnaire, intervention (See 2004 report)
- *Teacher* post-test 1 questionnaire, control (See 2004 report)
- *Parent* post-test 2 questionnaire, intervention (lge) (Appendix 1)
- *Parent* post-test 2 questionnaire, control (lge) (Appendix 2)
- *Parent* post-test 2 questionnaire, intervention (sml) (Appendix 3)
- *Parent* post-test 2 questionnaire, control (sml) (Appendix 4)
- *Parent* post-test 2 questionnaire, intervention (Arabic lge) (Appendix 5)
- *Parent* post-test 2 questionnaire, intervention (Arabic sml) (Appendix 6)
- *Parent* post-test 2 questionnaire, control (Arabic lge) (Appendix 7)
- *Parent* post-test 2 questionnaire, control (Arabic sml) (Appendix 8)
- *Parent* post-test 2 questionnaire, intervention (Vietnamese lge) (Appendix 9)
- *Parent* post-test 2 questionnaire, intervention (Vietnamese sml) (Appendix 10)
- *Parent* post-test 2 questionnaire, control (Vietnamese lge) (Appendix 11)
- *Parent* post-test 2 questionnaire, control (Vietnamese sml) (Appendix 12)
- *Teacher* post-test 2 questionnaire, intervention (Appendix 13)
- *Teacher* post-test 2 questionnaire, control (Appendix 14)
- *Teacher* post-test 2 log, intervention (Appendix 15)

### **Piloting of Measures**

The parent and teacher questionnaires were developed based on instruments used in the previous Child Pedestrian Injury Prevention Project (Cross et al. 2000). Each of these questionnaires had been pilot tested for use in this project, however as changes were made to these instruments, further reliability and pilot testing was conducted. The pilot test incorporated a test retest procedure conducted with parents from two Perth metropolitan primary schools to measure the reliability of the questionnaire. The test retest procedure resulted in some changes to the length, organisation and wording of questionnaires.



### 3.4 Intervention Development

The *Walk with Your Kids* intervention comprises three components, parent, classroom and whole-school. The parent intervention aims to increase their understanding of the developmental and behavioural characteristics of children younger than ten years that increase their risk as pedestrians.

The whole-school intervention provides information and strategies for reviewing or developing school road safety policies, as well as strategies for engaging whole-school involvement in road safety activities.

The kindergarten classroom and parent intervention were developed and implemented during 2004. A description of the kindergarten support materials can be found in the 2004 annual report.

During 2005, the pre-primary classroom and parent intervention were developed and implemented. The pre-primary classroom intervention is designed to reinforce and support the training provided by parents to pre-primary children. It is structured around the five learning outcomes which address each of the five road crossing steps used in this study. The materials developed and used to support the *Walk with Your Kids* intervention in 2005 include:

- **‘Take a walk in my shoes’ Video** (Appendix 16)

The ‘Take a walk in my shoes’ video is a 13 minute video designed to enhance parents understanding of the developmental, cognitive and perceptual limitations children have in the road environment and to translate this knowledge into safer pedestrian practice and modelling with their child. Each parent in the intervention condition received a copy of this video in 2004. In 2005, parents who had previously not received a video were provided with the opportunity to view it. A copy was placed in each school’s library and also accompanied the pedestrian puppet in one of the home activities. The ‘Take a walk in my shoes’ video is a remake of a video produced by Film Victoria in 1989. Permission was granted by Film Victoria for the *Walk with Your Kids* project to amend the script and re-shoot footage for the new version.

- **‘Five things you can do to keep your child safe near roads’ Parent Booklet** (Appendix 17)

The parent booklet reinforces information presented in the video and provides parents with strategies to practise crossing roads safely with children and modelling safe pedestrian/driver behaviour. This booklet, developed in 2004, supports the video and was distributed to each parent in the intervention condition. In 2005, a copy of the booklet was also included with the pedestrian puppet home activity.

- ***Walk with Your Kids* Postcards 3 & 4** (Appendix 18 & 19 )

Two postcards were designed as a ‘booster’ intervention to focus and remind parents of pedestrian safety actions and skills they can practise with their children. Postcards 1 and 2 were addressed to each child and mailed home during the summer school holidays. Postcards 3 and 4 were sent home via the pre-primary teacher during term 1 and term 2 in 2005.

- **‘Road crossing steps’ Puzzle Fridge Magnet** (Appendix 20)

The fridge magnet is a puzzle containing the five road crossings steps addressed in this study. Children were asked to display the magnet on the fridge at home and place the steps in the correct sequence from step one: choosing the safest place to cross through to step 5: continuing to look and listen for traffic while crossing the road. The magnet was designed to remind parents and their children of the safer road crossing steps to practise when crossing roads.

- ***Walk with Your Kids* Classroom Activities – Pre-primary** (Appendix 21)

The *Walk with Your Kids* Pre-primary Classroom Activities were designed to provide a review for children of the five road crossing steps, to introduce children to sequencing these steps and then road crossing scenarios to build children’s problem solving skills. The learning activities are designed to be developmentally and cognitively appropriate for pre-primary children, with a

focus on learning through play. The activities reinforce and support children's learning at home with their parents.

The *Walk with Your Kids* learning activities are outcome based and consistent with the Health and Physical Education and other related learning area statements published by the Curriculum Council of WA.

The resource comprises:

- Classroom activities (5 learning outcomes);
- Teachers' notes which provide strategies for teaching pedestrian safety effectively;
- Student worksheets;
- Portfolio assessment sheets; and
- Background notes.

The five learning outcomes for the *Walk with Your Kids* pre-primary classroom activities are:

1. Review of road crossing steps 1-3 (preparing to cross phase)

Step 1: Choose the safest place to cross the road

Step 2: Ask an adult for help, hold an adult's hand

Step 3: Stop back from the kerb

2. Review of road crossing step 4 (starting to cross phase)

Step 4: Perform systematic search strategy

Look in all directions for traffic, listen for traffic, think about when it is safe to cross. When the road is clear, walk straight across the road quickly without running.

3. Review of road crossing step 5 (crossing phase)

Step 5: Keep looking, listening and thinking as you cross

4. Sequencing of the five road crossing steps

5. Problem Solving

Road crossing scenarios

- **'First Best Friends' Storybook**

The 'First Best Friends' storybook, written by Margaret Wild and published by the Road and Traffic Authority of New South Wales, is an A4 size children's book which addresses key pedestrian safety messages including holding an adult's hand, choosing the safest place to cross the road, looking for traffic in all directions and stopping back from the kerb. The storybook is designed to be used in Learning Outcome 2, starting to cross phase and also as a home activity.

- **Home Activity Sheets** (See classroom activities, Appendix 21)

The Home Activity Sheets complement the classroom learning area activities and were sent home for parents to use as a follow-up session with their child. These activity sheets encourage parent-child interaction and communication about pedestrian safety and promote the importance of practising road crossing in the real road environment.

- **'I always hold an adult's hand' calico bag**

During the WWYK classroom activities children decorated their hand prints onto their own calico bag. The bag was then taken home and used as a library bag. It was designed to remind parents of the importance of always holding their child's hand when crossing roads.

- ***Walk with Your Kids Discussion Prints*** (Appendix 22)

For each of the five road crossing steps, a discussion print was developed for the teacher to use to visually introduce the steps to the class. On the back of the discussion print, stimulus questions were listed to assist teachers generate discussion among students regarding each road crossing step.

- **Pedestrian Puppet and Diary** (Appendix 23)

Each pre-primary class received a pedestrian puppet and diary for use in the classroom activities as well as for a home activity. The home activity involved the pedestrian puppet visiting each of the children's homes for two nights throughout Term 3 and 4. Parents were instructed to take their children and the

puppet to practise crossing the road safely. Once they had practised crossing the road children were asked to draw a picture of the road crossing in the puppet diary. The adult with whom they practised crossing the road then wrote a description of the road crossing in the diary. During the class mat sessions, children reported back to the class what the pedestrian puppet participated in when it visited their home.

- **Class Road Safety Camera** (Appendix 24)

The class road safety camera was a home activity where children took a disposable camera home and used it to take photos of themselves and an adult practising crossing the road safely. Once all children had participated in this activity the camera films were developed and children received a copy of the photos he/she took.

- **Hand Holding Cookie Cutters** (Appendix 25)

The hand cookie cutters were used to make hand cookies as part of an activity in Learning Outcome 3. This activity was designed to reinforce the importance of always holding an adult's hand when crossing the road.

- **Safe Road Crossing Stickers** (Appendix 26)

Intervention schools were provided with a set of five different stickers for each student. The messages on these stickers were linked to each of the five road crossing steps and were distributed to children when they participated in various classroom and home WWYK activities.

- ***Walk with Your Kids* Pre-primary Teacher Training** (Appendix 27)

All principals and pre-primary teachers were invited to attend a full day training session. This training session provided a rationale for a pedestrian safety intervention; an overview of the *Walk with Your Kids* project; strategies to build pre-primary teachers' capacity to support children and their parents' understanding of and developing skills in pedestrian safety; and an opportunity for schools to begin planning their involvement in the program for 2005.

- ***Walk with Your Kids Whole-school Activities***

The whole-school activities assisted intervention schools to develop or review their schools' road safety policy and provided planning strategies, school and community awareness raising activities and approaches to reviewing the road environment around schools. Based on the health promoting school model the whole-school activities are focused around three areas (Booth & Samdal 1997):

- Walk friendly classroom and whole-school activities;
- Walk friendly road safety policies and a safe road environment around our school; and
- Walk friendly involvement by our parents and the community.

For each of the above key areas, action plans were developed which were tailored to each intervention school. Contact phone numbers, websites, sample policies and resources relevant to each school were provided for schools to use when implementing each activity.

In 2004, each intervention school received a file containing information relevant to the implementation of the *Walk with Your Kids* project including:

- Outline of the *Walk with Your Kids* project staff and contact details;
- Project overview;
- A4 copy of whole-school action plan;
- Strategies to address the three key areas;
- Sample whole-school activities; and
- Newsletter items.

During 2005, teachers and principals were reminded of these whole-school activities at the training day and also in each school's baseline report. Additional newsletter items, relevant to pre-primary students were developed and distributed with the school reports.

- ***Walk with Your Kids Environmental Review***

At each school a *Walk with Your Kids* representative conducted a review of the physical environment around each school, focusing on pick-up zones, extending for up to 100 metres either side of these zones. An inspection was also made of the road environment around each school to identify the presence of pedestrian signage; obstructions to pedestrians' view, designated crossing locations, and footpath availability. A brief report on the physical environment around each school was provided with the baseline data report.

- **Brief report to schools on baseline data collected by the *Walk with Your Kids* project (Appendix 28)**

An individualised baseline data report was provided in March, 2005 to each project school to increase staff awareness about road safety in the school and to prompt school action. Each report contained data for all schools in the project (intervention and control conditions) as well as the data specific to the school receiving the report. In March, 2006 schools will receive another report with individualised data incorporating baseline, post-test 1 and post-test 2 data along with recommendations for using the report.

### 3.5 Data Collection

#### Baseline

Baseline testing was conducted with kindergarten parents and teachers in September 2004. Trained personnel from the Child Health Promotion Research Unit delivered the parent and teacher questionnaires to each school and provided information to each coordinator about the data collection procedure.

Each kindergarten student was given two parent questionnaires, small and large, to take home. Parents were asked to complete these and return via their child to their kindergarten teacher. Teacher questionnaires were distributed and collected at each school via the school Project Coordinator. Returned parent and teacher questionnaires were collected from schools by a CHPRU research assistant. The tables below (Tables 1-5) present the parent baseline response rates.

**Table 1: Large Questionnaire Baseline Parent Response Rates**

	Kindergarten	
	n	%
Total Sample	1238	100%
<b>Completed</b>	<b>870</b>	<b>70.3%</b>
Did not complete	97	7.8%
Did not return	271	21.8%
<b>Returned (completed and not completed)</b>	<b>967</b>	<b>78.1%</b>



**Table 2:** Small Questionnaire Baseline Parent Response Rates

	Kindergarten	
	n	%
Total Sample	1238	100%
<b>Completed</b>	<b>570</b>	<b>46%</b>
Did not complete	255	20.6%
Did not return	413	33.4%
<b>Returned (completed and not completed)</b>	<b>820</b>	<b>66.6%</b>

**Table 3:** Parent Questionnaire Baseline Response Rates by Study Condition

	Intervention		Control		Overall Total	
	n	%	n	%	n	%
Total Sample	621	50.2%	617	49.8%	1238	100%
<b>Completed</b>	465	74.9%	406	65.8%	870	70.3%
Did not complete	47	7.6%	50	8.1%	97	7.8%
Did not return	109	17.5%	161	26.1%	271	21.8%
<b>Returned (completed &amp; did not complete)</b>	512	82.5%	456	73.9%	967	78.1%

**Table 4:** Vietnamese Questionnaire Baseline Parent Response Rate

	Kindergarten	
	n	%
Total VIETNAMESE	41	100%
<b>Vietnamese large completed</b>	<b>22</b>	<b>53.7%</b>
Vietnamese large did not complete	8	19.5%
Vietnamese large did not return	11	26.8%
<b>Vietnamese large returned (completed and not completed)</b>	<b>26</b>	<b>73.2%</b>
<b>Vietnamese small completed</b>	<b>9</b>	<b>22%</b>
Vietnamese small did not complete	17	41.5%
Vietnamese small did not return	15	36.5%
<b>Vietnamese small returned (completed and not completed)</b>	<b>24</b>	<b>63.5%</b>

**Table 5:** Arabic Questionnaire Baseline Parent Response Rate

	Kindergarten	
	n	%
Total ARABIC	17	100%
<b>Arabic large completed</b>	<b>14</b>	<b>82.4%</b>
Arabic large did not complete	1	5.9%
Arabic large did not return	2	11.7%
<b>Arabic large returned (completed and not completed)</b>	<b>15</b>	<b>88.3%</b>
<b>Arabic small completed</b>	<b>7</b>	<b>41.2%</b>
Arabic large did not complete	6	35.3%
Arabic large did not return	4	23.5%
<b>Arabic large returned (completed and not completed)</b>	<b>13</b>	<b>76.5%</b>

### Post-test 1

Post-test 1 was conducted with kindergarten parents and teachers in December 2004. The same procedure used for the baseline testing was followed. The tables below (Tables 6-10) present the parent post-test 1 response rates.

**Table 6:** Large Questionnaire Post-test 1 Parent Response Rates

	Kindergarten	
	n	%
Total sample available at post-test 1	1219	100%
<b>Completed</b>	<b>691</b>	<b>56.7%</b>
Did not complete	132	10.8%
Did not return	396	32.5%
<b>Returned (completed and not completed)</b>	<b>823</b>	<b>67.5%</b>

**Table 7:** Small Questionnaire Post-test 1 Parent Response Rates

	Kindergarten	
	n	%
Total sample available at post-test 1	1219	100%
<b>Completed</b>	<b>456</b>	<b>37.4%</b>
Did not complete	252	20.7%
Did not return	511	41.9%
<b>Returned (completed and not completed)</b>	<b>708</b>	<b>58.1%</b>

**Table 8:** Parent Questionnaire Post-test 1 Response Rates by Study Condition

	Intervention		Control		Overall Total	
	n	%	n	%	n	%
Total sample available at post-test 1	608	49.9%	611	50.1%	1219	100%
<b>Completed</b>	<b>347</b>	<b>57.1%</b>	<b>344</b>	<b>56.3%</b>	<b>691</b>	<b>56.7%</b>
Did not complete	55	9%	77	12.6%	132	10.8%
Did not return	206	33.9%	190	31.1%	396	32.5%
<b>Returned (completed &amp; did not complete)</b>	<b>402</b>	<b>66.1%</b>	<b>421</b>	<b>68.9%</b>	<b>823</b>	<b>67.5%</b>

**Table 9:** Vietnamese Questionnaire Post-test 1 Parent Response Rate

	Kindergarten	
	n	%
Total VIETNAMESE	36	100%
<b>Vietnamese large completed</b>	<b>11</b>	<b>30.6%</b>
Vietnamese large did not complete	8	22.2%
Vietnamese large did not return	17	47.2%
<b>Vietnamese large returned (completed and not completed)</b>	<b>19</b>	<b>52.8%</b>
<b>Vietnamese small completed</b>	<b>4</b>	<b>11.1%</b>
Vietnamese large did not complete	13	36.1%
Vietnamese large did not return	19	52.8%
<b>Vietnamese large returned (completed and not completed)</b>	<b>17</b>	<b>47.2%</b>

**Table 10:** Arabic Questionnaire Post-test 1 Parent Response Rate

	Kindergarten	
	n	%
Total ARABIC	16	100%
<b>Arabic large completed</b>	<b>6</b>	<b>37.5%</b>
Arabic large did not complete	2	12.5%
Arabic large did not return	8	50%
<b>Arabic large returned (completed and not completed)</b>	<b>8</b>	<b>50%</b>
<b>Arabic small completed</b>	<b>2</b>	<b>12.5%</b>
Arabic large did not complete	2	12.5%
Arabic large did not return	12	75%
<b>Arabic large returned (completed and not completed)</b>	<b>4</b>	<b>25%</b>

### Post-test 2

Post-test 2 were conducted with pre-primary parents and teachers in November and December 2005. The same procedure used for the baseline testing was followed. As data are still being collated at the time of writing this report we are unable to provide response rates.

## 4. RESULTS

### 4.1 Baseline and Post-test 1 Results

Baseline and post-test 1 data were collected from parents and kindergarten teachers in September and December 2004 respectively. The following pages present a summary of these data collected from kindergarten parents and teachers from all participating schools.

#### 4.1.1 Characteristics of Parents

A total of 894 kindergarten parents completed and returned at least the longer parent questionnaire at baseline and 684 at post-test 1.

The majority of parents responding to the survey were mothers aged 30 years or older. Table 11 shows the characteristics of the kindergarten parents who completed the larger questionnaire.

**Table 11:** Characteristics of Kindergarten Parent Respondents

	Baseline		Post-test 1			
			Intervention (n=347)	Control (n=337)	Total (n=684)	
	n *	%	%	%	n *	%
Mother respondent	800	91%	91%	91%	621	91%
Parent 30 years or older	606	69%	67%	74%	476	71%
Qualifications obtained after high school (eg. TAFE, university)	350	40%	41%	45%	291	43%

\* Total sample size varied from 872 to 882 at baseline and from 672 to 681 at post-test 1 because of missing data for individual items.

### 4.1.2 Children's Exposure to Traffic

The majority of kindergarten students do not walk to school (71%). At post-test 1, 88% of kindergarten students always walk with an adult and 12% walk sometimes without an adult to school. Half of the students lived on a road with hardly any traffic and 66% played outside, with access to roads, at least once in the month prior to survey completion (Table 12).

**Table 12:** Child's Exposure to Road Environment as Reported by Parents

	Baseline		Post-test 1			
			Intervention (n=347)	Control (n=337)	Total (n=684)	
	n *	%	%	%	n *	%
<b><i>School travel (usual)</i></b>						
Does not walk to school	611	74%	74%	69%	489	71%
Always walks with an adult to school	227	87%	86%	90%	196	88%
Walks without adult to school	35	13%	14%	10%	26	12%
<b><i>Street play area</i></b>						
Ever plays outside with access to roads	620	69%	63%	68%	450	66%
<b><i>Street traffic at home</i></b>						
A lot of traffic	127	15%	15%	11%	86	13%
Some traffic	317	36%	37%	35%	239	36%
Hardly any traffic	421	48%	46%	54%	333	50%

\* Total sample size varied from 262 to 894 at baseline and from 222 to 684 at post-test 1 because of missing data for individual items.

### 4.1.3 Parent Knowledge of Pedestrian Safety

Parents were presented with a number of statements about their road crossing knowledge to which they gave their level of agreement (Table 13). At post-test 1, 31% of parents answered almost all or all ten knowledge questions correctly compared to 20% at baseline.

There was an increase from baseline to post-test 1 in the proportion of intervention and control group parents who believed:

- Most 7 year old children do not have the ability to cross roads safely without adult help (52% to 61% respectively);
- When children aged 4-9 years see a car in the distance they cannot always tell if the car is moving or not (45% to 55% respectively); and
- Children aged 4–9 years have a narrower field of vision than adults, so it is more difficult for them to see approaching cars (51% to 64% respectively).

A significantly higher proportion of parents in the intervention group after one year of exposure to the *Walk with Your Kids* intervention believed:

- Children aged 4–9 years have a narrower field of vision than adults, so it is more difficult for them to see approaching cars ( $\chi^2=33.259$ ,  $p<0.01$ );
- Most children do not have the ability to cross the road safely on their own until the age of 10 ( $\chi^2=4.817$ ,  $p=0.028$ ); and
- Young children's small physical size can prevent them from being able to see all cars clearly ( $\chi^2=3.879$ ,  $p=0.049$ ).



**Table 13: Parent's Child Pedestrian Knowledge**

	Baseline		Post-test 1			
			Intervention (n=347)	Control (n=337)	Total (n=684)	
	n *	%	%	%	n *	%
Most 7 year old children do not have the ability to <u>cross roads safely</u> without adult help.	467	52%	63%	59%	366	62%
When crossing the road most children aged 4-9 are unable to <u>judge a safe gap</u> in the traffic.	658	74%	72%	70%	416	70%
When children aged 4-9 years <u>see a car in the distance</u> they cannot always tell if the car is moving or not.	406	45%	29%	25%	166	28%
Once taught how to cross roads safely most children 7 years and older are still unable to remember and <u>perform these skills safely</u> .	244	27%	100%	100%	258	100%
Children aged 4–9 years have a <u>narrower field of vision</u> than adults, so it is more difficult for them to see approaching cars.	457	51%	74%	55%	387	65%
Most children do not have the <u>ability to cross</u> the road safely on their own until the age of 10.	570	70%	74%	67%	423	71%
Children aged 4-7 years cannot easily tell from which <u>direction a traffic noise</u> is coming.	515	58%	64%	58%	368	62%
Young children's <u>small physical size</u> can prevent them from being able to see all cars clearly.	682	76%	84%	80%	494	83%
Most children aged 4-9 years can get <u>distracted easily</u> while crossing the road.	805	90%	91%	91%	541	91%
Most children aged 4–9 years can be <u>impulsive</u> with their actions.	779	87%	90%	90%	534	90%
Answered <u>nine to ten questions correct</u>	180	20%	27%	21%	162	24%

\* Total sample size varied from 790 to 860 because of missing data for individual items.

#### 4.1.4 Parent Attitudes to Teaching Pedestrian Safety

At post-test 1, 69% of parents felt that teaching parents about road safety was needed at their school compared to 62% at baseline. A significantly higher proportion of parents at post-test 1 in the intervention group (76%) felt that teaching parents about road safety was needed at the school than parents in the control group (61%) ( $\chi^2=17.781$ ,  $p<0.001$ ).

All parents at post-test 1 acknowledged the importance of beginning to practise crossing roads with kindergarten children (Table 14).

**Table 14:** Parents' Attitude to the Importance of Training their Child to Cross Roads Safely

	Baseline		Post-test 1			
			Intervention (n=347)	Control (n=337)	Total (n=684)	
	n *	%	%	%	n *	%
Teaching parents about road safety for children is needed at our school	552	62%	76%	61%	470	69%
Very important/important to begin practicing crossing roads when walking with kindergarten child	869	99%	100%	100%	665	100%

\* Total sample size varied from 874 to 894 at baseline and from 666 to 684 at post-test 1 because of missing data for individual items.

#### 4.1.5 Pedestrian Behaviours

Parents were presented with a number of statements about the frequency of road crossing behaviours they had practised with their kindergarten child. Most parents practise road crossing behaviours with their child every time/most times they cross the road (Table 15).

At post-test 1, 90% of parents reported modelling safer road crossing behaviours compared to 87% of parents at baseline.

A significantly higher proportion of intervention group parents practised the following road crossing behaviours with their child than control group parents:

- Asking an adult for help (74% compared to 67% respectively);
- Choosing the safest place and walking to that location to cross the road (84% compared to 77%);
- Thinking about when it is safe to cross the road (91% compared to 84%);
- Looking for traffic in all directions before crossing the road (94% compared to 90%);
- Listening for traffic before crossing the road (87% compared to 74%); and
- Continuing to look and listen for traffic while crossing the road (87% compared to 76%).

Parents in the intervention group were more likely to involve their child in the road crossing task than parents in the control group. The majority (56%) of intervention group parents asked their child to suggest a safer place to cross the road compared to 27% of the control group parents, and 81% of intervention group parents asked their child to tell them when it is safe to cross the road compared to 63% of control group parents.

A significantly higher proportion of intervention group parents (95%) hold their child's hand every/most times they cross a road than control group parents (91%).

**Table 15:** Parent Behaviours in Child Pedestrian Training (every/most times vs. not every/most times a road is crossed)

	Baseline		Post-test 1			
			Intervention (n=347)	Control (n=337)	Total (n=684)	
	n *	%	%	%	n *	%
<b><i>Model safe road crossing</i></b>	770	87%	91%	91%	612	90%
<b><i>Practise with child crossing roads</i></b>						
Asking an adult for help	522	60%	74%	67%	478	71%
Choosing the safest place and walking to that location to cross the road	614	70%	84%	77%	545	81%
Holding an adult's hand	813	92%	93%	90%	623	92%
Stopping back from the kerb before crossing the road	810	92%	93%	90%	619	91%
Thinking about when it is safe to cross the road	763	87%	91%	84%	596	88%
Looking for traffic in all directions before crossing the road	802	91%	94%	90%	620	92%
Listening for traffic before crossing the road	612	69%	87%	74%	540	80%
When the road is clear, walking straight and quickly across the road without running	786	89%	92%	92%	622	92%
Continuing to look and listen for traffic while crossing the road	644	73%	87%	76%	550	82%
After crossing, to walk on a footpath (or road verge if no footpath)	793	90%	92%	90%	614	91%
<b><i>Involvement of child in road crossing</i></b>						
Asked child to suggest safest place to cross the road	227	26%	56%	27%	282	42%
Asked child to tell them when it is safe to cross the road	560	64%	81%	63%	485	72%
<b><i>Hold child's hand when crossing the road</i></b>	824	93%	95%	91%	629	93%

\* Total sample size varied from 870 to 886 at baseline and from 672 to 679 at post-test 1 because of missing data for individual items.

Parents were presented with a number of statements about their child's actions when crossing a road. Significant positive increases were observed among child pedestrian behaviours between baseline and post-test 1. A significantly higher proportion of parents in the intervention group reported more positive child pedestrian behaviours than parents in the control group.

The only area in which the difference in proportions between the intervention and control group was not significant was whether the child does what they or other adults' ask near roads (90% compared to 85% respectively).

At post-test 1, 42% of parents believed their child is able to choose the safest place to cross the road (Table 15). This result and results from Table 16 suggest parents may need to involve their child by asking questions about crossing the road when they are under close supervision of an adult.

**Table 16:** Child Pedestrian Behaviour as Reported by Parents (every/most times vs. not every/most times a road is crossed)

	Baseline		Post-test 1			
			Intervention (n=347)	Control (n=337)	Total (n=684)	
Kindergarten child does the behaviour <b>all or most of the time</b>	n *	%	%	%	n *	%
Asks an adult for help when crossing the road	507	58%	70%	60%	439	65%
Asks to hold or takes an adult's hand before crossing the road	596	67%	80%	68%	504	74%
Stops back from the kerb before crossing the road	654	74%	82%	74%	535	78%
Thinks about when it is safe to cross the road	467	53%	69%	54%	421	62%
Looks for traffic in all directions before crossing the road	456	52%	73%	52%	427	63%
Listens for traffic before crossing the road	272	31%	60%	33%	314	47%
When the road is clear, walks straight and quickly across the road without running	527	60%	82%	66%	502	74%
Is able to choose the safest place to cross the road	184	21%	46%	21%	231	34%
Does what I or other adults' ask near roads	739	84%	90%	85%	593	88%
Is able to tell the adult he/she is with, when the road is clear	586	67%	84%	74%	533	79%
Continues to look and listen for traffic while he/she is crossing the road	339	39%	65%	39%	354	52%

\* Total sample size varied from 872 to 886 at baseline and from 675 to 682 at post-test 1 because of missing data for individual items.

#### 4.1.6 School Road Safety Advocacy

There has been a significant decrease at post-test 1 in the proportion of parents who are unaware of what is being done to address road safety at their kindergarten child's school compared to baseline (27% compared to 50% respectively). At post-test 1, 52% of parents are very satisfied with measures taken to address road safety at their child's school compared to 24% at baseline (Table 17).

There was a significant association between parent satisfaction and study group ( $\chi^2=208.788$ ,  $p<0.01$ ) with a higher proportion of parents in the intervention group (78%) 'very satisfied' compared to parents in the control group (25%).

**Table 17:** Advocacy for Safer Road Environment

	Baseline		Post-test 1			
			Intervention (n=347)	Control (n=337)	Total (n=684)	
	n *	%	%	%	n*	%
<b><i>Satisfaction with what is being done to address road safety at child's school</i></b>						
Do not know what is being done by school to address road safety	432	50%	7%	48%	178	27%
Very satisfied	210	24%	78%	25%	343	52%
Moderately satisfied	142	16%	11%	18%	97	15%
Somewhat satisfied	50	6%	4%	7%	36	5%
Road safety education is not offered	26	3%	0%	2%	6	1%

\* Total sample size varied from 872 to 886 at baseline and from 675 to 682 at post-test 1 because of missing data for individual items.

#### 4.1.7 Teacher Log

Kindergarten teachers completed a teacher log to record their level of implementation for each of the following five learning objectives during Term 4, 2005:

1. Choose the safest place to cross the road;
2. Ask an adult for help and hold an adult's hand;
3. Stop back from the kerb;
4. Look for traffic in all directions, listen for traffic and think about when it is safe to cross; and
5. Keep looking, listening and thinking about the traffic when you cross.

There was a high completion rate for all learning objectives with respect to the discussion prints, with all teachers using the discussion print for the first four objectives and 90% of teachers using the discussion print for the last objective (Table 18).

Whole class activities were the most popular activity for the following learning objectives:

- Learning objective 1 - choose the safest place to cross the road (84%);
- Learning objective 2 - ask an adult for help and hold an adults hand (79%); and
- Learning objective 3 - stop back from the kerb (90%).

The art and craft learning areas were used most for the first four objectives, with music and movement being used most for the last objective. The constant positives were mainly used 'most' or 'some' of the time in all learning objectives.

The worksheets were used on average by half of the teachers for the first two learning objectives. There was greater usage of the second worksheets in the first three learning objectives, while the first worksheet had greater usage for learning objective 4. The majority of teachers sent home the activity sheets and stickers.



The first four learning areas showed a greater implementation of activities than the last learning objective. Time constraints and other competing school activities were suggested by teachers as restricting their implementation of learning objective 5.

**Table 18:** Kindergarten Teacher Implementation of Classroom Activities

<b>Learning Objective</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Choose the safest place to cross the road	Ask an adult for help and hold an adults hand	Stop back from the kerb	Look for traffic in all directions, listen for traffic and think about when it is safe to cross	Keep looking, listening and thinking about the traffic when you cross
<b><i>Discussion print</i></b>	100%	100%	100%	100%	90%
<b><i>Whole class activity</i></b>	84%	79%	90%	68%	53%
<b><i>Learning Areas</i></b>					
Creative	32%	58%	53%	37%	37%
Writing	37%	42%	21%	42%	32%
Music & movement	63%	63%	58%	58%	58%
Art & craft	90%	90%	74%	63%	26%
Poems & rhymes	68%	58%	42%	47%	26%
<b><i>Constant positives</i></b>					
Most	47%	37%	26%	26%	21%
Some	47%	47%	42%	42%	53%
<b><i>Worksheets</i></b>	50%	50%	40%	37%	37%
<b><i>Home activity sheets</i></b>	100%	90%	100%	84%	74%
<b><i>Stickers</i></b>	100%	90%	100%	95%	79%

## **4.2 Post-test 2 Results**

Post-test 2 data were collected from parents and pre-primary teachers in November and December 2005. As data are still being collated at the time of writing this report we are unable to provide post-test 2 results.

## 5. EFFECT OF RESEARCH ON PROFESSIONAL DEVELOPMENT

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This project has and will continue to provide training opportunities for a significant number of students at Edith Cowan University and Curtin University.

The Project Director is a Master of Public Health student. Through her work on the project she is gaining invaluable skills in school-based intervention and evaluation. The Project Director is also developing project and personnel management and financial skills as she oversees the implementation of this project according to the objectives of the research. Further, the Project Director's research skills are being strengthened through her Master's study and project management.

One other Masters student is involved in the project. She has assisted in the development of the post-test 1 parent questionnaire and completed the cleaning of the baseline data. She has acquired valuable skills in research administration and data management skills as well as questionnaire development.

More than 15 undergraduate health promotion students from Edith Cowan University and 8 undergraduate health science students from Curtin University completed volunteer work on the project in the areas of questionnaire preparation, dissemination and archiving and general administrative tasks. All volunteers and casual staff of the Child Health Promotion Research Unit work towards the research unit's Research Competency Program.

## 6. IMPLICATIONS FOR HEALTH PROMOTION / LINKING RESEARCH TO HEALTH OUTCOMES

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In Australia, pedestrian injury is the leading cause of death among five to nine year old children (Al Yaman et al., 2002). Young children's lack of cognitive and perceptual abilities to deal with traffic situations and the evidence that one half of young pedestrians injured were unaccompanied, demonstrate clearly that children under age 10 need to be accompanied by an adult when near roads (Avery, 1974; Elliott, 2000). As a result of encouraging parents to supervise and hold their child's hand near roads as well as practice road crossing steps pedestrian related injuries and deaths may be avoided. This research will determine if the *Walk with Your Kids* intervention has an impact on increasing the number of parents who supervise and hold their children's hands near roads.

The *Walk with Your Kids* intervention has the potential to significantly impact on these factors in a positive way by:

- Determining, developing and evaluating strategies which develop in parents' the skills required to teach their children how to cross roads safely;
- Determining, developing and evaluating strategies which develop in parents' behaviours and attitudes that protect children from pedestrian injury;
- Determining, developing and evaluating strategies which enable schools to implement a whole-school response to road safety;
- Determining, developing and evaluating strategies which enable schools to effectively engage parents in strategies to improve children's road crossing skills;
- Determining, developing and evaluating strategies which assist schools in reviewing and writing road safety related policies to reduce pedestrian-related injuries around schools;
- Determining, developing and evaluating strategies which enable parents to support their children's development of skills to help them stay safe in the road environment;

- Improving understanding of the relative contribution of parent based interventions to improve young children's road crossing skills;
- Improving knowledge of dissemination, implementation and evaluation of parent-based prevention strategies; and
- Determining the critical success factors for conducting effective parent interventions.

## 7. COMMUNITY BENEFITS FROM THE RESEARCH

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The benefits of this research include:

- Development of an intervention that is compatible with the Western Australian Department of Education and Training's (DET) curriculum framework and other non-teaching structures; is easily integrated into classroom curriculum and the whole-school environment; and meets Western Australian DET Student Outcome Statements for Health and Physical Education Learning Area;
- Development of strategies for schools to effectively engage parents in the improvement of young children's road safety knowledge, attitudes and skills;
- Development of user friendly classroom, whole-school and parent materials supported by effective teacher professional development to improve parents', teachers' and students' road safety knowledge, attitudes and behaviours;
- Provision of the means of empowering parents and teachers to play an active role in the prevention of pedestrian injury among young children; and
- Encouraging pedestrians to be safer to reduce pedestrian-related deaths and injuries.

Future benefits include:

- Improving schools' and the community's' knowledge of pedestrian safety intervention program planning, dissemination, implementation and evaluation;
- Improving parents' ability to teach and practise safe road crossing with their children;
- Dissemination of 'Take a walk in my shoes' video through Main Roads WA as an educational tool;
- Working with Road Aware to provide advice on the development of the new state-wide strategy based on what we have learnt so far from the project; and
- Ultimately reducing the incidence of injury to child pedestrians in Western Australia.

## 8. DISSEMINATION

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A systematic plan for dissemination of this project will be developed in consultation with key collaborators in relevant government and non-government road safety agencies. Should the *Walk with Your Kids: Early Childhood Pedestrian Injury Prevention Project* be found to be successful, it will be disseminated to all schools in Western Australia in association with the Department of Education and Training and the Road Aware Program.

The results of this study will be disseminated to all project schools, at a community forum, within local media, conference presentations, project reports and peer-reviewed journals.

Main Roads WA provided funding to assist in the development of the 'Take a walk in my shoes' video. Once the evaluation of the project has been completed this video will be made available to MRWA for use in early childhood road safety education.

To date, the following seminars and presentations have been conducted:

### 2004

House, M., Cross, D., Hamilton, G., Waters, S., Poster presentation, 18th World Conference on Health Promotion and Health Education, Melbourne, April, 2004.

Cross, D. Road safety research, policing and education conference, Perth, November 16, 2004.

### 2005

Hall, M. Presentation, Road safety in schools coordination group meeting, Perth, 7 February 2005.

Hall, M., House, M. Presentation, Child Health Promotion Research Unit research seminar, Perth 7 February 2005.

Cross, D. & Hall, M. 2005. Editorial, The longest walk: child pedestrian safety. Medical Journal of Australia

Hall, M. Presentation Children in Traffic, Walking WA Committee Meeting, Perth 6 July 2005.



Hall, M. Presentation Road risks for children 4-10 year olds, ROC Forum, Perth 13 May 2005.

House, M., Cross, D., Hall, M. Poster Presentation, 36<sup>th</sup> Public Health Association of Australia Annual Conference, Perth, September, 2005.

Hall, M., Cross, D. Oral Presentation, 36<sup>th</sup> Public Health Association of Australia Annual Conference, Perth, September, 2005.

Cross, D., House, M., Hall, M., Darby, J. Oral Presentation, 2005 Road Safety Research, Policing and Education Conference, New Zealand, November 2005.

House, M., Cross, D. 2005. Walk with your Kids Project. Cohesion: Faculty of Computing, Health and Science Quarterly Newsletter, 8 (3) p. 19.

## 9. REFERENCES

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- Al Yaman, F, Bryant, M & Sargeant, H 2002, *Australia's Children: Their Health and Well-being 2002*, Australia Institute of Health and Welfare, Canberra, Cat No. PHE 36.
- Australian Bureau of Statistics 2003, 'Socio-Economic Indexes for Areas (SEIFA) 2001', Commonwealth of Australia, Canberra.
- Avery, G 1974, *The capacity of young children to cope with the traffic system: A review*, Traffic Accident Research Unit, Department of Motor Transport, New South Wales.
- Beck, KH, Shattuck, T, Haynie, D, Crump, A & Simons-Morton, B 1999, 'Associations between parent awareness, monitoring, enforcement and adolescent involvement with alcohol', *Health Education Research, Theory and Practice*, vol. 14, no. 6, pp. 765-775.
- Booth, ML & Samdal, O 1997, 'Health-promoting schools in Australia: models and measurement', *Australia and New Zealand Journal of Public Health*, vol. 21, no. 4, pp. 365-370.
- Cross, D, Stevenson, M, Hall, M, Burns, S, Laughlin, D, Officer, J & Howat, P 2000, 'Child pedestrian injury prevention project: student results', *Preventive Medicine*, vol. 30, pp. 179-187.
- Donnermeyer, J 2000, 'Parents' perceptions of a school-based prevention education program', *Journal of Drug Education*, vol. 30, no. 3, pp. 325-342.
- Elliott, BJ 1999, *Traffic safety education of pre-school children: An extensive review of best practice from around the world.*, VicRoads, Melbourne Vic.
- Elliott, BJ 2000, *Review of Good Practice: Children and Road Safety Education*, Western Australian Department of Transport Office of Road Safety, Western Australia.
- Elmqvist, DL 1995, 'A systematic review of parent-oriented programs to prevent children's use of alcohol and other drugs', *Journal of Drug Education*, vol. 25, no. 3, pp. 251-279.
- Fitzgibbon, ML, Stolley, MR, Avellone, ME, Sugerman, S & Chavez, N 1996, 'Involving parents in Cancer risk reduction: a program for Hispanic American families', *Health Psychology*, vol. 15, no. 6, pp. 413-422.
- Gibson, J 1979, *The ecological theory of visual perception*, Houghton Mifflin, Boston.

- Hahn, EJ, Simpson, MR & Kidd, P 1996, 'Cues to parent involvement in drug prevention and school activities', *Journal of School Health*, vol. 66, no. 5, pp. 165-170.
- Hawkins, JD, Catalano, RF, Kosterman, R, Abbott, R & Hill, KG 1999, 'Preventing adolescent health-risk behaviours by strengthening protection during childhood', *Archives of Pediatrics & Adolescent Medicine*, vol. 153, no. 3, pp. 226-234.
- Hearn, MD, Bigelow, C, Nader, PR, Stone, E, Johnson, C, Parcel, G, Perry, CL & Luepker, RV 1992, 'Involving families in cardiovascular health promotion: the CATCH feasibility study', *Journal of Health Education*, vol. 23, no. 1, pp. 22-31.
- Hill, R, Lewis, V & Dunbar, G 2000, 'Young Children's concepts of danger', *British Journal of Developmental Psychology*, vol. 18, pp. 103-119.
- Klitzner, M, Gruenewald, PJ & Bamberger, E 1990, 'The assessment of parent-led prevention programs: A preliminary assessment of impact', *Journal of Drug Education*, vol. 20, no. 1, pp. 77-94.
- Lam, L 2001, 'Parental risk perceptions of childhood pedestrian road safety', *Journal of safety research*, vol. 32, pp. 465-478.
- Lee, D, Young, D & McLaughlin, C 1984, 'A roadside simulation of road crossing for children', *Ergonomics*, vol. 27, no. 12, pp. 1271-1281.
- McBride, S, Law-Davis, G & Shilton, T 1993, 'Developing program materials to extend heart health education from classroom to family settings', *Health Promotion Journal of Australia*, vol. 3, no. 1, pp. 44-48.
- McCallum, T 1990, 'Educating parents as drug educators', *Drug Education Journal of Australia*, vol. 4, pp. 243-249.
- Nader, PR, Sallis, JF, Abramson, I, Rupp, J, Atkins, C, Roppe, B, Morris, JA, Wallace, J & Vega, W 1989, 'A family approach to cardiovascular risk reduction: Results from the San Diego Family Health Project', *Health Education Quarterly*, vol. 16, pp. 229-244.
- Perry, CL, Luepker, RV, Murray, DM, Kurth, C, Mullis, R, Crockett, S & Jacobs, DR 1988, 'Parent involvement with children's health promotion: the Minnesota home team', *American Journal of Public Health*, vol. 78, no. 9, pp. 1156-1160.
- Perry, CL, Luepker, RV, Murray, DM, Hearn, MD, Halper, A, Dudovitz, B, Maile, MC & Smyth, M 1989, 'Parent involvement with children's health promotion: A one-year follow-up of the Minnesota home team', *Health Education Quarterly*, vol. 16, no. 2, pp. 171-179.

- Pruesser, D & Lund, A 1989, 'And keep on looking: A film to reduce pedestrian crashes among 9-12 year olds', *Journal of safety Research*, vol. 19, pp. 177-185.
- Rivara, FP, Bergman, AB & Drake, C 1989, 'Parental attitudes and practices toward children as pedestrians', *Pediatrics*.
- Rivara, FP, Booth, CL, Bergman, AB, Rogers, L & Weiss, J 1991, 'Prevention of pedestrian injuries to children: Effectiveness of a school training program', *Pediatrics*, vol. 88, no. 4, pp. 770-775.
- Schieber, R & Thompson, NJ 1996, 'Developmental risk factors for childhood pedestrian injuries', *Injury Prevention*, vol. 2, pp. 228-236.
- Stevenson, M, Jamrozik, K & Spittle, J 1995, 'A case-control study of traffic risk factors and child pedestrian injury', *International Journal of Epidemiology*, vol. 24, no. 5, pp. 1-8.
- Stevenson, M, Laing, BA & Kai Lo, S 1992/1993, 'Factors contributing to the severity of childhood pedestrian injury in Perth, Western Australia', *Asia-Pacific Journal of Public Health*, vol. 6, no. 1, pp. 25-31.
- Thomson, J, Tolmie, A, Foot, H & McLaren, B 1996, *Child Development and the aims of road safety education*, UK Department of Transport, London, 1.
- Thomson, J & Whelan, K 1998, 'A Community-based approach to teaching of pedestrian skills by means of practical training', in *Road Safety Education Conference*, ed. DETR, York UK.
- Tucker, S 1993, *A pedestrian training resource for children aged 5-8*, TRL, Crowthorne, PR/SRC/16/93.
- UNICEF 2001, *A league table of child deaths by injury in rich nations*, UNICEF Innocenti Research Centre, Florence, Innocenti Report Card No. 2.
- West, R, Train, H, Junger, M, Pickering, A, Taylor, M & West, A 1997, *Childhood accidents and their relationship with problem behaviour*, DETR Child Development Research Programme, UK.
- Young, D & Lee, D 1987, 'Training in road crossing skills using a roadside simulation', *Accident Anal and Prevention*, vol. 19, no. 51, pp. 327-341.

## 10. APPENDICES

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## **APPENDIX 1**

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### **Parent Post-Test 2 Questionnaire, Intervention (large)**

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## **APPENDIX 2**

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### **Parent Post-Test 2 Questionnaire, Control (Large)**

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## **APPENDIX 3**

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### **Parent Post-Test 2 Questionnaire, Intervention (Small)**



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## **APPENDIX 4**

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### **Parent Post-Test 2 Questionnaire, Control (Small)**

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## **APPENDIX 5**

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### **Parent Post-Test 2 Questionnaire, Intervention (Arabic Large)**

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## **APPENDIX 6**

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### **Parent Post-Test 2 Questionnaire, Intervention (Arabic Small)**

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## **APPENDIX 7**

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### **Parent Post-Test 2 Questionnaire, Control (Arabic Large)**

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## **APPENDIX 8**

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### **Parent Post-Test 2 Questionnaire, Control (Arabic Small)**

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## **APPENDIX 9**

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### **Parent Post-Test 2 Questionnaire, Intervention (Vietnamese Large)**

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**APPENDIX 10**

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**Parent Post-Test 2 Questionnaire, Intervention (Vietnamese Small)**

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**APPENDIX 11**

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**Parent Post-Test 2 Questionnaire, Control (Vietnamese Large)**



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## **APPENDIX 12**

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### **Parent Post-Test 2 Questionnaire, Control (Vietnamese Small)**

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**APPENDIX 13**

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**Teacher Post-Test 2 Questionnaire, Intervention**

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## **APPENDIX 14**

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### **Teacher Post-Test 2 Questionnaire, Control**

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## **APPENDIX 15**

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### **Teacher Post-Test 2 Log, Intervention**

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## **APPENDIX 16**

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### **'Take a Walk in my Shoes' Video Cover**

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## **APPENDIX 17**

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### **'Five Things you can do to Keep Your Child Safe Near Roads' Parent Booklet**

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## APPENDIX 18

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### *Walk with Your Kids Postcard 3*

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## APPENDIX 19

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### *Walk with Your Kids* Postcard 4



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## APPENDIX 20

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### **'Road Crossing Steps' Puzzle Fridge Magnet**

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## APPENDIX 21

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### *Walk with Your Kids* Classroom Activities – Pre-primary

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## APPENDIX 22

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### *Walk with Your Kids* Discussion Prints

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## **APPENDIX 23**

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### **Pedestrian Puppet and Diary**

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## **APPENDIX 24**

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### **Class Road Safety Camera**

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## **APPENDIX 25**

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### **Hand Holding Cookie Cutters**

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## **APPENDIX 26**

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### **Safe Road Crossing Stickers**

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**APPENDIX 27**

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***Walk with Your Kids* Pre-primary Teacher Training**



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## APPENDIX 28

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### **Brief Report to Schools on Baseline Data Collected by the *Walk with Your Kids* Project**

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