Childhood pedestrian Injuries:

Not everything that counts can be counted...

“Walk with your kids” project Team

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  - Peter Howat

• Project Staff
  - Marnie House (Director)
  - Sharon Capps
Children under 10 years of age are not able to cross roads alone

Prevalence of pedestrian injuries

- Transport accidents - leading cause of death in Australia among 0-14 year olds (twice as many killed in transport accidents than by drowning (ABS, 2005))

- Children are pedestrians in 20-50% of road traffic fatalities (AIHW, 2009)
Prevalence of pedestrian injuries

- In Australia 2005-2008, 334 children aged 0-14 years hospitalised with severe injuries were pedestrians (Henley & Harrison, 2011)

- In 2007-2011, 62 Australian children aged 0-14 years died from pedestrian injuries (Australian Transport Safety Bureau, 2011)

Outcomes

To enhance parents’:
- Knowledge of the cognitive and developmental limitations of children under 10;
- Attitudes about the importance of parent involvement in pedestrian training for children under 10;
- Modelling of safer pedestrian behaviours;
- Advocacy for safer road environments for children;
- Self-efficacy to teach their children how to use roads more safely.
Window of emotional opportunity

- Researchers have reassessed children’s cognitive and perceptual limitations in traffic
- Children can be trained from 4 years of age to use roads more safely.
- Vulnerable families – younger children

CPIPP Predictors of less adult supervision crossing roads

- Live in quiet street
- Other older children and larger families
- Younger parents
- Less educated
- Male respondents
- Belief in children’s ability to cross roads alone
- No CPIPP program
CPIPP finding

Many parents believed their children were capable of crossing roads alone.

Road safety and your school?

• What characteristics of junior primary children increase their risk of injuries on the road?

• Most recent memory of a pedestrian injury involving a child at a school where you have taught?
School environment

- What features around your school help to increase children’s road safety?
- What features around your school may put children at risk of road-related injuries?

Factors associated with child pedestrian injuries

- Inadequate search behaviour
- Mid block crossing injuries
- Less exposure to traffic
- Boys 2x higher injuries than girls
- Injuries predominately occur:
  - In residential areas
  - On local roads
  - Before and after school and lunch time
**Children <10 years**

**Perceptual ability and size**

- Underdeveloped peripheral vision
- Non-directional hearing
- Difficulty judging speed and distance of vehicles
- Physical size

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**Children <10 years**

**Cognitive development**

- Tendency to be easily distracted
- Unpredictable behaviour
- Limited ability to respond quickly
- Inability to think about more than one thing at a time
- “I see driver so he/she can see me”
Parent Video

Road safety best taught...

- Short, frequent segments
- Combination of school and home learning
- With direct relevance to real life situations – social context (not rote learning)
- Practical experience with positive feedback from an adult: one-on-one
- Discovery and problem solving rather than only ‘rules’
5 actions adults can take to keep children safe near roads

- Supervise near roads
- Hold child’s hand when crossing
- Teach road crossing skill and practice
- Involve children
- Model safe crossing behaviour

Project Overview

- Two-year project
- Pre-test parents August/Sept 2004
- Program delivery teachers & parents term 4 2004
- Post-test week 7 term 4 2004
- Parent booster
- Program delivery term 3 2005
- Post test August/Sept 2005/2006
- Parent booster 2005/06
Characteristics of kindergarten parent respondents

- 1250 students (age 4-6) / parents
- 28 schools
- 91% (766) mother respondent
- 68% (568) parent 30 years or older
- 43% (357) qualifications obtained after high school (eg. TAFE, university)

Child’s exposure to road environment as reported by parents @baseline

School travel (usual)
- 74% (602) do not walk to school
- 25% (200) always walk with an adult to school
- 1% (12) walk without adult to school
Child's exposure to road environment as reported by parents

Street play area
- 61% (527) has played outside with access to roads

Street traffic at home
- 15% (125) a lot of traffic
- 36% (311) some traffic
- 48% (413) hardly any traffic

Parent pedestrian safety knowledge correct

- 54% (458) - Most 7 year old children don’t have ability to cross roads safely without adult help.
- 77% (648) - Children aged 4-9 are unable to judge a safe gap in traffic.
- 48% (403) - When children aged 4-9 years see car in distance can’t always tell if the car is moving.
Parents believe...

• 66% (563) - Teaching parents about road safety for children is needed at our school
• 99% (853) Important to begin practicing crossing roads when walking with kindergarten child

Parent pedestrian training behaviours...

• 92% (791) Hold child’s hand when crossing the road
• 87% (748) Model safe road crossing
• 64% (551) Asked child to tell them when it is safe to cross the road
• 60% (506) Ask an adult for help
• 25% (217) Asked child to suggest safest place to cross the road
Children's crossing behaviours

- 59% (n=475) Asks adult for help when crossing road
- 66% (n=567) Asks to hold or takes adult’s hand before crossing road
- 74% (n=629) Stops back from kerb before crossing road
- 53% (n=449) Thinks about when safe to cross road
- 52% (n=440) Looks for traffic in all directions before crossing road

Children's crossing behaviours

- 30% (n=255) Listens for traffic before crossing the road
- 60% (n=509) When road clear, walks straight and quickly across without running
- 20% (n=167) Are able to choose safest place to cross
- 68% (n=578) Are able to tell adult when the road is clear
- 38% (n=324) Continues to look and listen for traffic while crossing the road
**Program components**

- Whole school program ideas
- Parent 'walk and talk' materials (video, booklet, newsletter items, home activities)
- Summer 'booster' parent/children's pack
- Teacher materials

**Results**

**Response rates:**

- Schools - 32 approached to recruit 27 (84%)
- Parent Long Q - B 73% PT1 56% PT2 60% PT3 56%
- Parent Short Q - B 46% PT1 37% PT2 43% PT3 43%
Results

• All parents surveyed at each time point
• To assess intervention effect, used only parents in study from baseline and used responses from same parent over time (n=899)
• “Core group”: n=734 (82%) completed Q at base and at least one PT

Core group characteristics

• Respondents were
  - mostly the mother (92%),
  - aged over 30 years (70%),
  - engaged in full-time home duties (62%),
  - 37% had less than a Yr 12 education and 42% had post-secondary training
  - 28% were the third or younger child
  - 52% lived on a street with some / a lot of traffic
Dependent variables

- Hand holding (every time)
- Adult supervision (always)
- Parent models safe road crossing every time
- Child performs 2+ safe road crossing steps
- Parent's knowledge (80%+ correct)

% of parents who reported holding child’s hand every time

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<td>PT2 PP (n=459)</td>
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<td>PT3 Yr 1 (n=384)</td>
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% of parents who reported holding child’s hand every time

Logistic regression results for hand holding

- Int parents more likely to report holding child’s hand at each PT than Comp
  - PT1: OR=2.4 **
  - PT2: OR=2.6 **
  - PT3: OR=3.2 **

** Significant at 1% level
### % of children who only cross locations with adult

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### % of children who only cross locations with adult

![Chart showing the percentage of children who only cross locations with an adult over time. The chart has two lines representing the intervention and comparison groups. The line for the intervention group is slightly lower than the comparison group at each time point.]
Logistic regression results for adult supervision

- No differences Int to Comp
- PT1: OR=1.0
- PT2: OR=1.6†
- PT3: OR=1.5

†p=0.056

% of parents who model safe road crossing every time

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% of parents who model safe road crossing every time

Logistic regression results for parent modelling

- No differences Int to Comp
- PT1: OR=1.0
- PT2: OR=1.1
- PT3: OR=0.9
% of children who perform 2 or more steps every time

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**Logistic regression results for child’s steps**

- Children in Int more likely to complete 2 or more steps every time than Comp
- PT1: OR=2.3**
- PT2: OR=2.0*
- PT3: OR=1.2

** Significant at 1% level
* Significant at 5% level

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**% of parents with 80%+ correct**

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Logistic regression results for parents’ knowledge

- Parents in Int more likely to answer 80%+ correct than Comp
  - PT1: OR=2.0**
  - PT2: OR=2.1**
  - PT3: OR=2.0*

** Significant at 1% level
* Significant at 5% level
**Limitations**

- Metro, lower SES, government schools sampled
- Relatively low response rates
- Parent report

**Conclusion**

- ECPIPP intervention appeared to influence parents’ behaviour (hand-holding), children’s road crossing behaviour and parents’ knowledge.
- Effects on whether parents always held their child’s hand and their knowledge of young children’s limitations, seemed to be sustained one year after the intervention.