Our mission – to reduce the incidence and severity of preventable injuries to New Zealand’s children aged 0 – 14 years.

Children in the Fast Lane

Julie Chambers
Senior Policy Analyst
SafeKIDS New Zealand

- Aim to prevent **unintentional injuries** to children (0 to 14 years of age)
  - advocacy and
  - co-ordinating annual SafeKIDS Campaign

- Service of Starship Children’s Hospital
- Funded by contract from MOH Public Health
- Sponsorship from Government, non-government and private sector organisations
- Work on all injury causes
NZ Child Mortality 1-14 (2002-3)

- Medical 53%
- Injury 34%
- Suicide 2%
- Assault 2%
- Undetermined 8%

## Cause of death New Zealand 1998-2002

<table>
<thead>
<tr>
<th>Rank</th>
<th>&lt;1</th>
<th>1-4</th>
<th>5-9</th>
<th>10-14</th>
<th>15-24</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Perinatal 40.8%</td>
<td>Unintentional Injury 38.0%</td>
<td>Unintentional Injury 40.5%</td>
<td>Unintentional Injury 44.0%</td>
<td>Unintentional Injury 43.4%</td>
</tr>
<tr>
<td>2</td>
<td>Congenital 23.7%</td>
<td>Congenital 14.0%</td>
<td>Cancers 24.4%</td>
<td>Cancers 19.4%</td>
<td>Suicide 27.9%</td>
</tr>
<tr>
<td>3</td>
<td>Ill defined 19.3%</td>
<td>Cancers 11.0%</td>
<td>Congenital 9.1%</td>
<td>Congenital 8.0%</td>
<td>Cancers 8.1%</td>
</tr>
<tr>
<td>4</td>
<td>Unintentional Injury 4.9%</td>
<td>Infectious 10.0%</td>
<td>Nervous 8.7%</td>
<td>Suicide 7.7%</td>
<td>Nervous 4.2%</td>
</tr>
<tr>
<td>5</td>
<td>Nervous 2.7%</td>
<td>Nervous 8.3%</td>
<td>Homicide 3.7%</td>
<td>Nervous 6.8%</td>
<td>Congenital 3.1%</td>
</tr>
<tr>
<td>6</td>
<td>Respiratory 2.6%</td>
<td>Respiratory 4.4%</td>
<td>Endocrine 2.9%</td>
<td>Heart 3.1%</td>
<td>Heart 3.0%</td>
</tr>
<tr>
<td>7</td>
<td>Infectious 2.2%</td>
<td>Homicide 4.2%</td>
<td>Infectious 2.5%</td>
<td>Respiratory 2.5%</td>
<td>Homicide 2.6%</td>
</tr>
<tr>
<td>8</td>
<td>Heart 1.1%</td>
<td>Heart 3.2%</td>
<td>Respiratory 2.1%</td>
<td>Homicide 2.2%</td>
<td>Endocrine 2.0%</td>
</tr>
</tbody>
</table>

Source: Otago University Injury Prevention Research Unit (IPRU) Fact Sheet 38 2007
### Injury fatalities of NZ children aged 0 to 14 (1998-2002)

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>Age Group (years)</th>
<th>Total</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>00-04</td>
<td>05-09</td>
<td>10-14</td>
</tr>
<tr>
<td>MTV Occupant</td>
<td>35</td>
<td>21</td>
<td>41</td>
</tr>
<tr>
<td>Suffocation</td>
<td>73</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Drowning</td>
<td>51</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>MTV Pedestrian</td>
<td>22</td>
<td>19</td>
<td>11</td>
</tr>
<tr>
<td>Assault</td>
<td>30</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Fire/Flame</td>
<td>19</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>MTV Pedestrian</td>
<td>1</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>Self-inflicted</td>
<td>0</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>Pedestrian, other</td>
<td>14</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Other Land Transport</td>
<td>3</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Fall</td>
<td>2</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Other Transport</td>
<td>0</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Other Specified</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Struck by or against</td>
<td>5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Poisoning</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Hot Object/substance</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Natural/Environmental</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Firearm</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Pedal Cyclist, other</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Machinery</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Unspecified</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>265</td>
<td>107</td>
<td>175</td>
</tr>
</tbody>
</table>
Trends in Injury Mortality for Children 0-14 Yrs, New Zealand 1990-2004

Source: NZ Health Information Service via NZ Child and Youth Epidemiology Service 2007
Deaths from accidents and injuries per 100,000 under 19 years
(average of latest three years available)

Innocenti Report on
Organisation for
Economic Cooperation
and Development (OECD)
Countries 2007
Cycle Safety

Safety gear
Safety skills
Safe environments
Left Parietal Hemorrhage
NZ Cycling Policy

– Cyclists are ‘vulnerable road users’

– No Riding on the footpath in NZ (unless specific circumstances apply)

– NZ Police advise “Children under the age of eleven supervised while cycling on a road”

– Children are also ‘traffic naïve’

– Widespread assumption that children twelve years and over are traffic competent
NZ Cyclist fatalities & hospitalisations 1995 - 2006

Cyclists hospitalised or killed from crashes involving motor vehicles on public roads (1995-2006)

Cyclists Crash Statistics for the year ended 31 Dec 2006 Ministry of Transport NZ
Total USA Cyclist fatalities
1995 - 2005

NZ Child cyclists verses cars

Five years 1999 to 2003 – Aged 0 to 14

Crashes NOT involving motor vehicles resulted in 2,528 injuries and one death

Crashes involving motor vehicles resulted in 250 injuries and 22 deaths

Safekids NZ Fact Sheet 2007 NZHIS data – supplied by Injury Prevention research Unit – Otago University
Captain Reality

Children on bikes in traffic
Google Image Search

“Children cycling in traffic” 103,000 images
Are we fooling ourselves?

These were the most ‘car intensive’ pictures.

Are we fooling ourselves?
Factors Associated with the Crash Risk of Adult Bicyclists. Rodgers, G.,

This U.S Study of 3000 riders (self-report questionnaire), found that bicycle risk was systematically related to
– rider's age,
– riding distances,
– riding surface,
– bicycle type, and
– geographical region of residence
Non-fatal cyclist injury rates by age and sex, in the US, 2001-4. Rates for persons with non-fatal pedal cyclists injuries sustained from an encounter with a motor vehicle while on the road who were treated in US hospital emergency department.

* Estimate may be unstable for females aged 15-44 years because coefficient of variation was 31%.

USA rates of pediatric bicycle-related hospitalization by age and gender, 2003


### Risk of People killed or injured in reported injury crashes per 100 million km travelled by travel mode

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Cycling Risk per 100 million km travelled</th>
<th>Light 4 wheeled Passenger risk per 100 million km travelled</th>
<th>Risk Ratio Cycling / Passenger</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14</td>
<td>291</td>
<td>11</td>
<td><strong>26.5:1</strong></td>
</tr>
<tr>
<td>15-29</td>
<td>187</td>
<td>45</td>
<td><strong>4.2:1</strong></td>
</tr>
<tr>
<td>30-44</td>
<td>270</td>
<td>17</td>
<td><strong>15.9:1</strong></td>
</tr>
<tr>
<td>45-59</td>
<td>283</td>
<td>13</td>
<td><strong>21.8:1</strong></td>
</tr>
<tr>
<td>60+</td>
<td>116</td>
<td>19</td>
<td><strong>6.1:1</strong></td>
</tr>
</tbody>
</table>

(A) Cyclists aged 10-14 years: population-based fatality rates for a sample of OECD countries.

(B) Cyclists aged 10-14 years: population-based fatality rates expressed per unit of exposure for a sample of OECD countries.

Children on bikes in traffic

Cycling experiences and knowledge of the road code of nine year olds  John Langley, Phil Silva, Shelia Williams

1982 – 397 cases

“The results show a relatively high level of ignorance…”

“...the difference in injury rates between males and females cannot be explained by differences in knowledge of appropriate safety behaviours.
“Although there is much evidence of age as a risk factor during middle childhood, little is known of why age functions as a risk factor for pedestrian injuries.”

Selective attention to traffic requires orienting, filtering, searching and preparing.
Children on bikes in traffic

Psychological determinants of risk taking by children: an integrative model and implications for interventions

“There are surprisingly few studies on the developmental aspects of risk taking in children between 6 and 12 years of age."

Model of individual, family factors and social/situational factors contributing to risk taking behaviours.
Children on bikes in traffic

*Bicyclist and environmental factors associated with fatal bicycle-related trauma in Ontario*, B Rowe, A Rowe, G Bota; Canadian Medical Association Journal 1993

Sample – 202 fatalities between 1986 and 1991

‘Age specific strategies appear warranted…

..very young children (those less than ten years) were hit by motor vehicles in midblock ride outs...

Bicyclists 10 to 19 years of age were killed most frequently as they swerved or turned in front of a vehicle…”
The footpath – is it safe?

“…footpath cycling is a safe alternative. The report recommends footpath cycling as a safer option than cycling on local streets and arterial roads…”

Hazard (edition No. 6) December 1990
Victorian Injury Surveillance System
Should NZ consider changing the law about riding on footpaths?

Information Check …
Footpath Riding
Child Cyclist vs car
Footpath Riding
Child cyclist vs car
Foot Path Riding
Child cyclist vs car
# Common Types Of Collisions Between Bicyclists & Motorists

<table>
<thead>
<tr>
<th>What Happens</th>
<th>What It Looks Like</th>
<th>What Bicyclists Should Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bicyclist Comes From Alley or Driveway</td>
<td>Always stop and look.</td>
<td>Look left-right-left for traffic before entering a roadway.</td>
</tr>
<tr>
<td>Often called a “midblock rideout,” this is the most frequent crash type for young riders and occurs soon after the bicyclist enters the roadway from a driveway, alley, or curb without slowing, stopping, or looking for traffic. The bicyclist’s sudden entry leaves the motorist too little time to avoid a collision.</td>
<td><img src="image1.jpg" alt="Image" /></td>
<td><img src="image2.jpg" alt="Image" /></td>
</tr>
<tr>
<td>Bicyclist is Riding the Wrong Way</td>
<td>Go with the flow.</td>
<td>Always ride on the right side of the road, with traffic, just like cars do. It’s the law.</td>
</tr>
<tr>
<td>Motorists do not expect traffic to be approaching from the wrong direction. This creates a situation for a crash, which is the main reason why it is unlawful to ride facing traffic.</td>
<td><img src="image3.jpg" alt="Image" /></td>
<td><img src="image4.jpg" alt="Image" /></td>
</tr>
<tr>
<td>Motorist Overtaking (Passing a Bicyclist)</td>
<td>Avoid riding at night.</td>
<td>Avoid dark conditions, narrow roads, and roads with highway speeds over 35 mph. Use white front lights, red rear reflectors or lights, and special retro-reflective clothing if you must ride at night.</td>
</tr>
<tr>
<td>This type of crash occurs because the motorist fails to see and react to the bicyclist until it is too late. This type is more frequent at night, on narrow rural roads and often involves driver inattention and/or impaired driving.</td>
<td><img src="image5.jpg" alt="Image" /></td>
<td><img src="image6.jpg" alt="Image" /></td>
</tr>
<tr>
<td>Bicyclist Makes Left Turn or Suddenly Swerves</td>
<td>Be predictable.</td>
<td>Always ride in a straight line. When preparing to change your lane position, look behind you and yield to overtaking traffic. When making a turn, use the proper hand signal.</td>
</tr>
<tr>
<td>The bicyclist swerves to the left without checking traffic or without signaling and moves into the path of an overtaking vehicle. The motorist does not have time to avoid a collision.</td>
<td><img src="image7.jpg" alt="Image" /></td>
<td><img src="image8.jpg" alt="Image" /></td>
</tr>
<tr>
<td>Failure to Obey Stop Signs</td>
<td>Obey all traffic signals and signs.</td>
<td>Watch for traffic signals. Walk your bicycle across busy intersections.</td>
</tr>
<tr>
<td>Also called “stop sign rideout,” this crash occurs when the bicyclist enters an intersection that is controlled by a traffic signal and collides with a motor vehicle approaching from an uncontrolled lane. The bicyclist fails to stop or slow before entering the intersection. This dangerous action does not give the motorist enough time to avoid a collision.</td>
<td><img src="image9.jpg" alt="Image" /></td>
<td><img src="image10.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

For more information on bicycle safety, visit the National Highway Traffic Safety Administration (NHTSA) Website at: [www.nhtsa.dot.gov](http://www.nhtsa.dot.gov)
Bicycle crashes involving children;

• North Carolina data showed under 16s tend to be overrepresented in crashes where the cyclist was at fault.

• Crash types where this group are overrepresented include;
  – riding out or through intersections with stop signs,
  – riding out at non-intersection locations such as driveways, turning or merging in front of traffic, and
  – non-roadway crashes, including those in parking lots and driveways

Source: http://www.pedbikeinfo.org/pbcat/pdf/summary_bike_types5yrs.pdf
## Crash movements for cyclists verses cars NZ

<table>
<thead>
<tr>
<th>Right Angle (70° to 110°)</th>
<th>Crossing (No Turns)</th>
<th>15.7%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making Turn</td>
<td>Right Turn Against</td>
<td>14.5%</td>
</tr>
<tr>
<td>Crossing Right Side</td>
<td>Crossing (Vehicle Turning)</td>
<td>11.7%</td>
</tr>
</tbody>
</table>

This crash type involves a collision at a right angle, typically when both parties involved are moving straight through an intersection.

Approximately 75 percent of this crash type involves another vehicle turning in front of the cyclist. In 25 percent of cases it is the cyclist that is turning at the time of the crash.

Approximately 85 percent of this crash type involves another vehicle turning in front of the cyclist while crossing an intersection. In the remaining 15 percent of cases it is the cyclist that is turning across the intersection at the time of the crash.

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**Cyclists Crash Statistics for the year ended 31 Dec 2006**

Ministry of Transport  New Zealand Government
NZ Crash Results
One Small CAS sample

- All NZ
- Age 0-14
- 2002 - 2006
- Riding on footpath (code 204)
- Total 202 entries
- Sample of ten – every twentieth
‘Cycling on Footpath Sample’

Ten cases
Serious injury = 2 Minor injury = 8
Range age = 8 to 14
Average age = eleven years
Median age = eleven years

Three rode into car on footpath at right angles
   One of these visibility was obstructed

Seven rode from footpath & hit car on road
   Two of these – cyclist was crossing on a pedestrian crossing
Proposal

More …

Age related research / policy
  • Developmental factors of traffic competence

More use of safe footpaths
  • Grade separation
  • Speed controls
  • Bells on bikes
  • And more….
Children cycling safely
Thank you