Dangerous Drop-Off of Student Passengers, Pedestrian Behaviours and the Built Environment Around Schools

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INTRODUCTION

• Dangerous student passenger drop-off behaviours have not been well described
• Some observational data re: speeding, stop-sign violations near schools
• Cross-sectional study (2011)
  ➢ Each additional dangerous driving behaviour was associated with a 45% increase child pedestrian motor-vehicle collision rates within 200m of a school during school travel times
  ➢ Higher social disadvantage and higher speed roadways had higher collision rates
OBJECTIVE

• To examine the prevalence of risky driver and pedestrian behaviours during the morning school drop-off

• To determine built environment features associated with these behaviours
METHODS

• Observational study
  • 100 regular program kindergarten-grade 6 schools in Toronto, Canada

• Trained observers in 2015, morning drop off time
  • observed % children dropped off by private vehicles
  • risky driver and pedestrian behaviour checklist
METHODS

• Outcomes- Binary
  1. Dangerous driver behaviours
  2. Observed pedestrian behaviours

• Covariates
  • Proportion dropped off by private vehicles
  • Built Environment (BE) mapped within 200m of the school
    • Traffic congestion, downtown/inner suburb, crossing guards, designated car dropoff, higher speed arterial roads, intersections, walking trails
  • Social Disadvantage
    • Learning Opportunities Index (LOI), scale 0-1

• Logistic Regression
Dangerous Driving Behaviours (n = 100)

- Dropping children opposite side of road: 79%
- Drivers parking blocking vision: 72%
- U-Turns: 67%
- Backing up dangerously: 64%
- Double parking: 46%
- Drivers not obeying traffic controls: 28%
- Parking blocking crossing controls: 19%
- Texting while driving: 15%
- Talking on phone while driving: 15%

98% of schools had at least one dangerous driving behaviour.
Observed Pedestrian Behaviours (n = 100)

- Crossing at uncontrolled midblock: 85% of children, 82% of adults
- Crossing between parked cars: 61% of children, 57% of adults
- Using cell phones/electronic devices: 4% of children, 25% of adults
- Not following crossing controls: 14% of children, 8% of adults
- Not following crossing guards instructions: 2% of children, 2% of adults

≥1 observed pedestrian behaviour, 90% schools
# Odds of Dangerous Drop-off Behaviours

<table>
<thead>
<tr>
<th>OUTCOMES OR (95% CI)</th>
<th>Double Parking</th>
<th>Parked Blocking Vision</th>
<th>Parked Blocking Controls</th>
<th>Dangerous Reversing</th>
<th>Texting While Driving</th>
<th>Talking on Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic congestion</td>
<td>5.96* (2.14, 16.61)</td>
<td>5.11* (1.97, 13.31)</td>
<td>-</td>
<td>4.14* (1.67, 10.32)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Inner suburb</td>
<td>2.05 (0.71, 5.95)</td>
<td>-</td>
<td>7.57 (0.96, 60.00)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Designated drop-offs</td>
<td>-</td>
<td>-</td>
<td>0.26* (0.09, 0.75)</td>
<td>0.37* (0.14, 0.93)</td>
<td>-</td>
<td>2.92* (1.05, 8.13)</td>
</tr>
<tr>
<td>School crossing guards</td>
<td>-</td>
<td>-</td>
<td>0.32 (0.10, 1.04)</td>
<td>-</td>
<td>0.18* (0.04, 0.85)</td>
<td>-</td>
</tr>
</tbody>
</table>

*significant
# Odds of Observed Pedestrian Behaviours

<table>
<thead>
<tr>
<th></th>
<th>Uncontrolled Midblock Crossings</th>
<th>Crossing Between Parked Cars</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adults</td>
<td>Children</td>
</tr>
<tr>
<td>Designated drop-off</td>
<td>0.17 *</td>
<td>0.26</td>
</tr>
<tr>
<td></td>
<td>(0.04, 0.83)</td>
<td>(0.05, 1.29)</td>
</tr>
<tr>
<td>Social disadvantage</td>
<td>6.72*</td>
<td>14.37 *</td>
</tr>
<tr>
<td></td>
<td>(1.00, 45.22)</td>
<td>(1.65, 125.32)</td>
</tr>
<tr>
<td>Traffic congestion</td>
<td>-</td>
<td>-</td>
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<td></td>
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</tbody>
</table>

*significant

**OUTCOMES OR (95% CI)**
SUMMARY

BE risk and protective factors of dangerous driving and observed pedestrian behaviours

a) Traffic congestion
b) Designated drop-off
c) School crossing guards
CONCLUSIONS

• Risky behaviours are pervasive
• May put children at risk for collisions
• Changes to the BE
  • designated drop-off areas
  • school crossing guards
  • reductions in traffic congestion

May reduce these behaviours and provide a safer child pedestrian environment
CONCLUSIONS

• Schools with greater social disadvantage may be located in areas less safe for pedestrians resulting in more uncontrolled midblock crossings

• We need to encourage more walking to school to decrease traffic congestion resulting in a safer child pedestrian environment
Last day of observations

Friday, June 19, 2015