



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



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Dangerous student car drop-off behaviours and child pedestrian-motor vehicle collisions: an observational study

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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

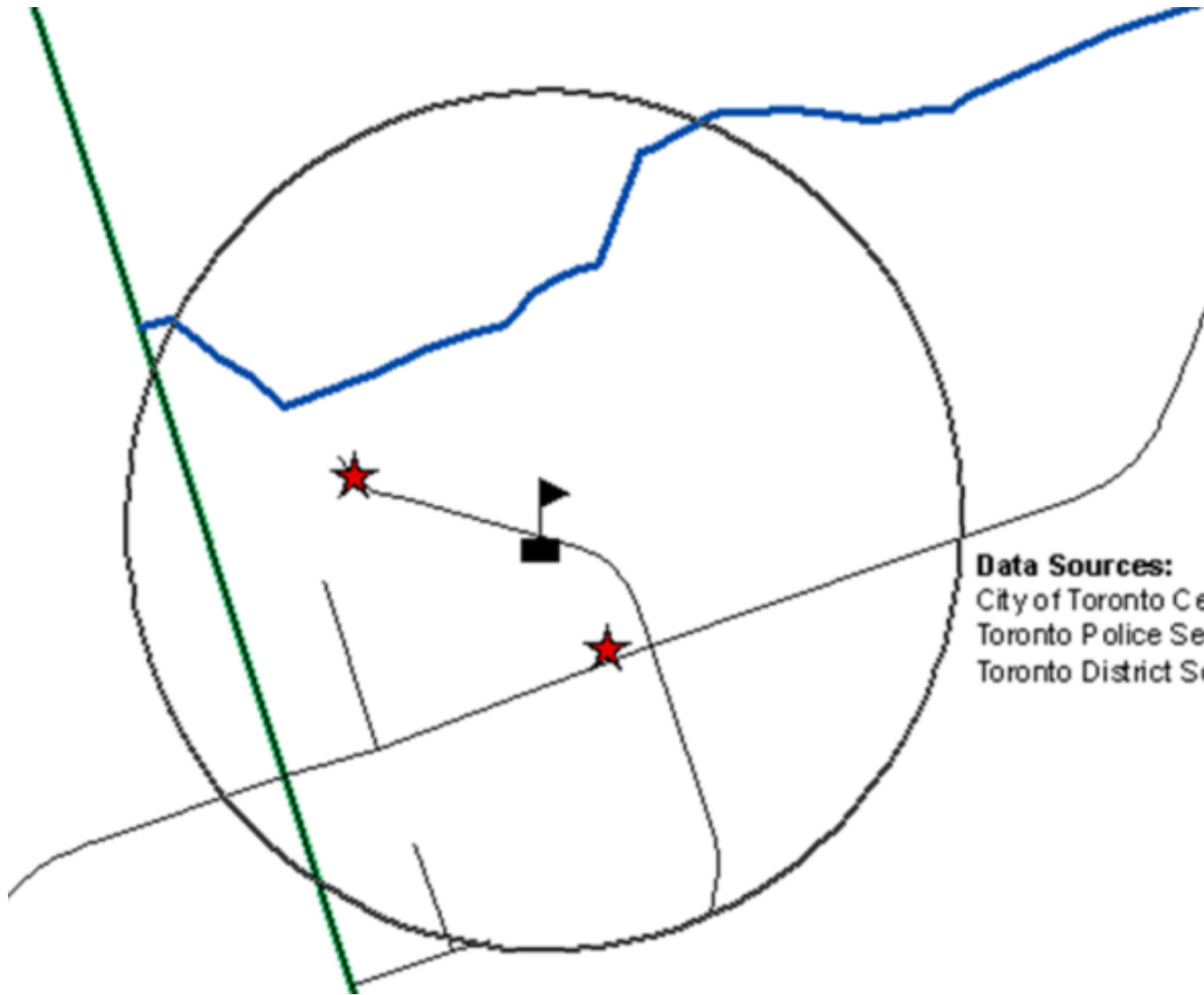
- **Outcomes- Binary**

1. Dangerous driver behaviours
2. Observed pedestrian behaviours

- **Covariates**

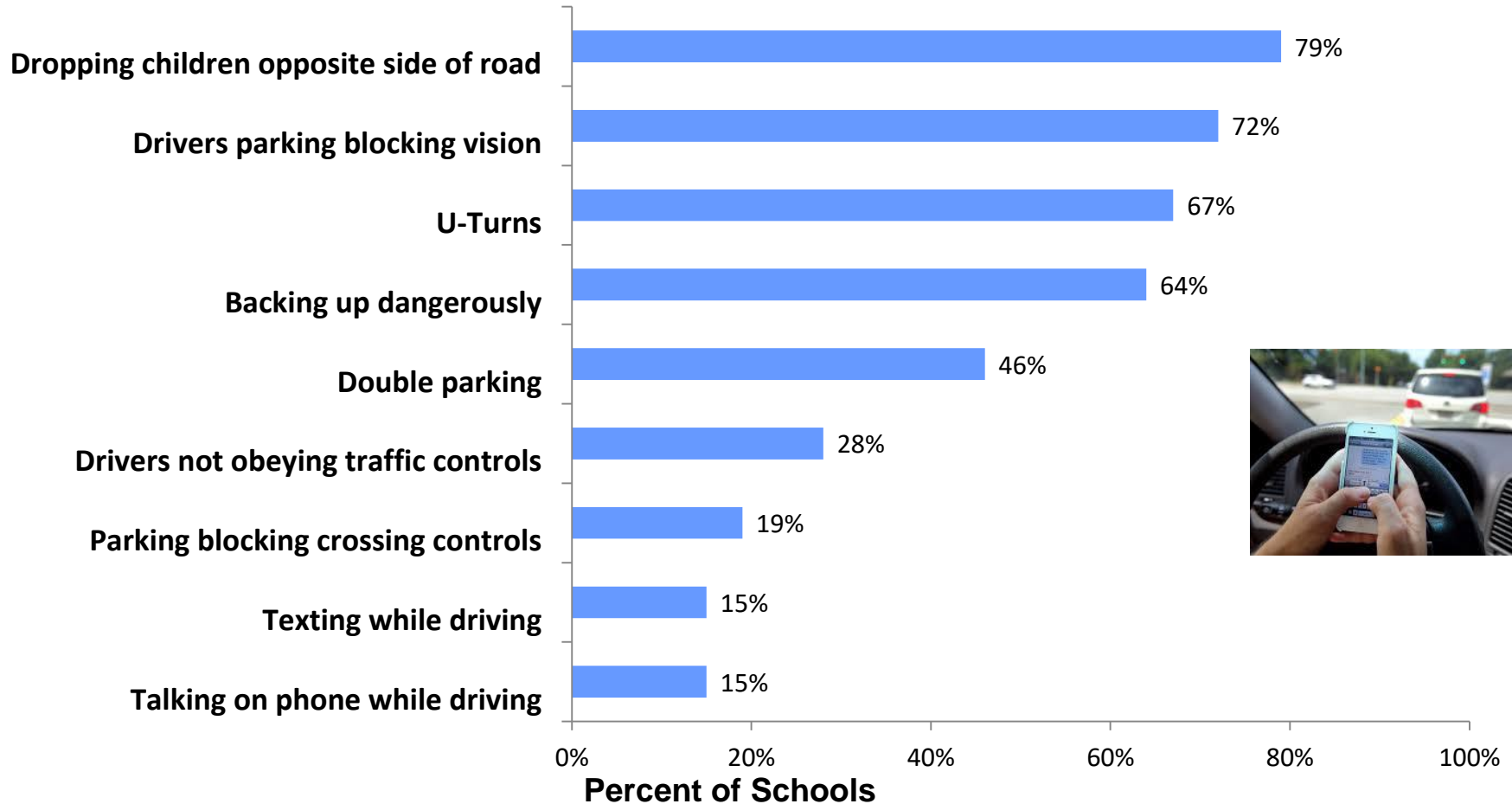
- Proportion dropped off by private vehicles
- Built Environment (BE) mapped within 200m of the school
 - Traffic congestion, downtown/inner suburb, crossing guards, designated car dropoff, higher speed arterial roads, intersections, walking trails
- Social Disadvantage
 - Learning Opportunities Index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

- **Logistic Regression**



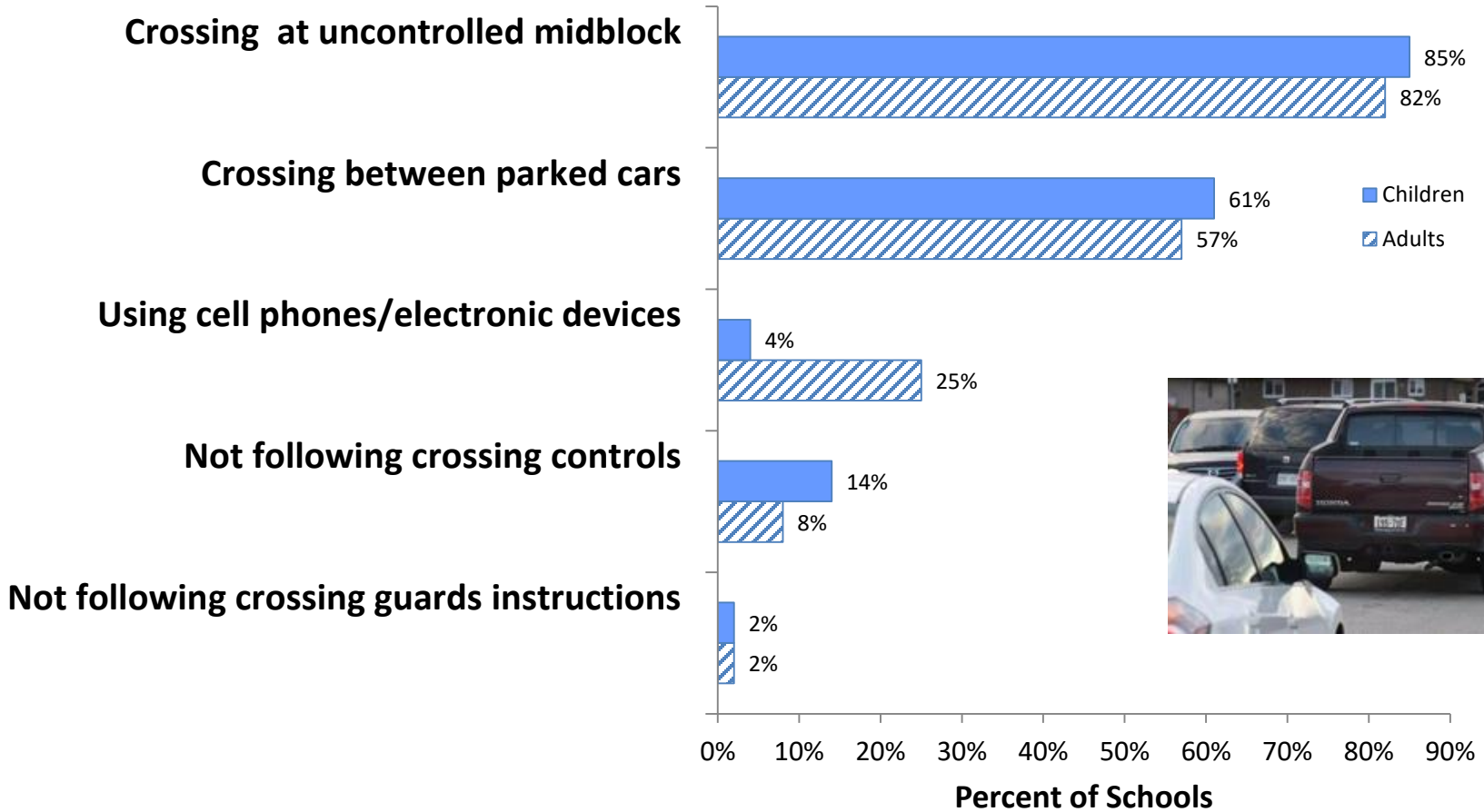
Data Sources:
City of Toronto Centreline Data
Toronto Police Services
Toronto District School Board

Dangerous Driving Behaviours (n = 100)



≥ 1 dangerous driving behaviour, 98% of schools

Observed Pedestrian Behaviours (n = 100)



≥ 1 observed pedestrian behaviour, 90% schools

Odds of Dangerous Drop-off Behaviours

OUTCOMES OR (95% CI)

| | Double Parking | Parked Blocking Vision | Parked Blocking Controls | Dangerous Reversing | Texting While Driving | Talking on Phone |
|-------------------------------|------------------------|------------------------|--------------------------|------------------------|-----------------------|-----------------------|
| Traffic congestion | 5.96* (2.14, 16.61) | 5.11* (1.97, 13.31) | - | 4.14* (1.67, 10.32) | - | - |
| Inner suburb | 2.05 (0.71, 5.95) | - | 7.57 (0.96, 60.00) | - | - | - |
| Designated drop-offs | - | - | 0.26* (0.09, 0.75) | 0.37* (0.14, 0.93) | - | 2.92* (1.05, 8.13) |
| School crossing guards | - | - | 0.32 (0.10, 1.04) | - | 0.18* (0.04, 0.85) | - |

*significant

Odds of Observed Pedestrian Behaviours



| | OUTCOMES OR (95% CI) | | | |
|----------------------------|---------------------------------|---------------------------|------------------------------|-----------------------|
| | Uncontrolled Midblock Crossings | | Crossing Between Parked Cars | |
| | Adults | Children | Adults | Children |
| Designated drop-off | 0.17 * (0.04, 0.83) | 0.26 (0.05, 1.29) | 0.41* (0.17, 0.97) | 0.31* (0.12, 0.75) |
| Correlates | | | | |
| Social disadvantage | 6.72* (1.00, 45.22) | 14.37 * (1.65, 125.32) | - | - |
| Traffic congestion | - | - | 2.99* (1.24, 7.22) | 2.71* (1.11, 6.63) |

*significant

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**