Outline

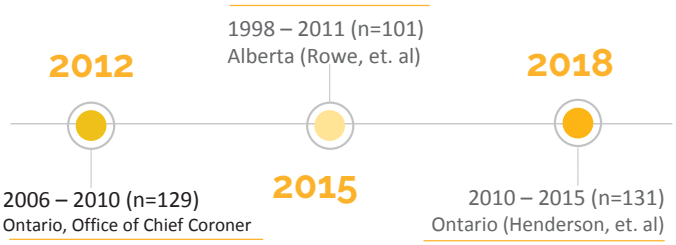
1. Characterize the context of cycling fatalities in Canada
2. Introduce the research methodology
3. Describe the research findings
4. Map recommendations on London's Road Safety Strategy 2014 - 2019

1.2 million adults
Cycle daily in Ontario in warm weather (OMT, 2016)

4,324 Canadians hospitalized
(Canadian Institute for Health Information, 2011)

57 cycling fatalities per year
(Transport Canada, 2016)

Canadian fatal cycling research



Retrospective Chart Review: Methodological considerations

1. Well-defined, clearly-articulated research question
   What are the factors that contribute to the crash and fatality of the cyclist?

Theory: Haddon Matrix

	Cyclist	Driver	Physical Environment	Social Environment	Counter-measures
Pre-event	Substance use	Speeding	No Bikelane present	License	Infrastruc Education
Event (crash)	Helmet	Inattention	Obstruction	Tension btn mv/cyc	Mandatory helmets
Post-event	Ambulance response time	Witness statement	Scene photographs	Substance test	Cycling collision report

Retrospective Chart Review: Methodological considerations

1. Well-defined, clearly-articulated research question
   What are the factors that contribute to the crash and fatality of the cyclist?
2. ~~Sampling size~~ Population
3. Standardized abstraction forms
4. Train and monitor data abstractors
5. Confidentiality and ethics

7

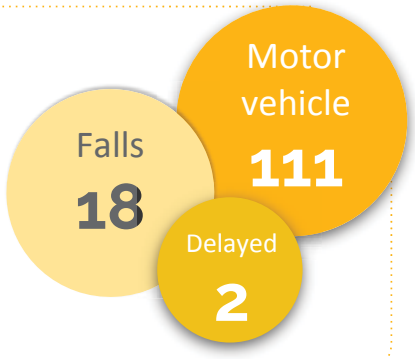
Charts included:

- Driver statements
- Eyewitness accounts
- Collision reconstruction reports
- Coroner reports
- Pathologist reports
- Newspapers-of-record
- Scene photographs

8

165 total

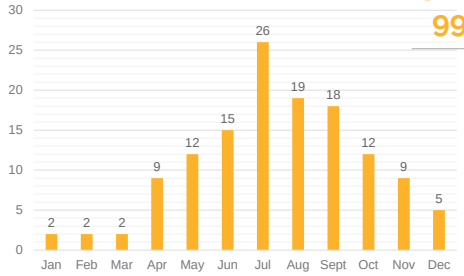
- **25** Natural causes
- **6** Undetermined
- **2** Homicide
- **1** Out-of-country



9

Fatalities by month

63/131 (Jul, Aug, Sept)
99/131 (Apr – Sept)

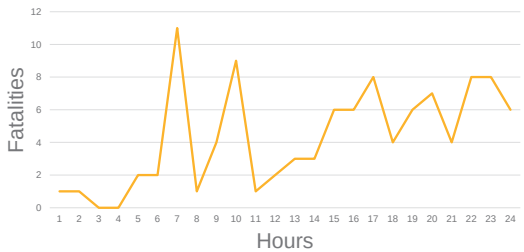


11

Motor vehicle and fall collisions time of day distribution

131

- 64
- 11
- 43
- ~~13~~



12

Cyclist risk factors

- Helmets
  - Cyclists wore helmets in **42/116 (36%)** cases
  - None of the 12 children wore helmets
- Visibility aids
  - Police recorded clothing/visibility aids in **31/131** cases
  - 7 police reports mention reflectors (4), bicycle lights (3) or a bell (1); **3** cyclists wore retro-reflective clothing
- 14 reports included information about cyclist distraction

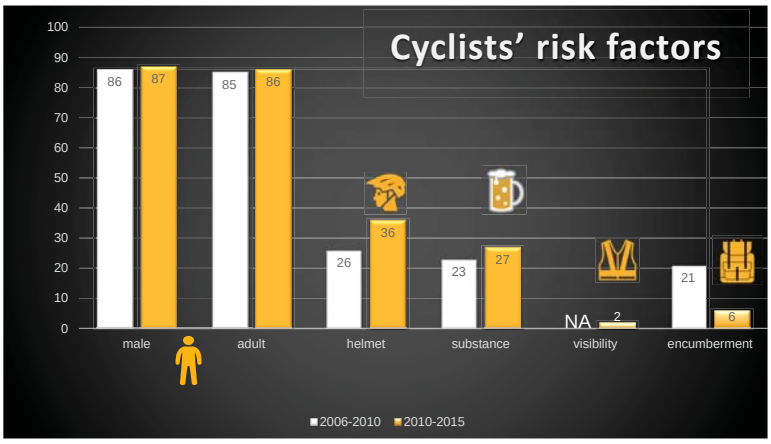
14

Cyclist risk factors: substance use

- Toxicology performed on 130/131 cyclists
- **34/130** tested positive for drugs and/or alcohol
- 32/34 cyclists were male

(Aside: Only 11/111 motorists were tested; 10 had alcohol and/or drugs in their system)

15



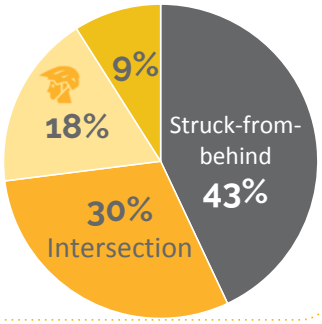
Classification of location

Struck-from-behind 48/111

Intersection 33/111

Cyclist not following traffic rules 20/111

Motorist not following traffic rules 10/111



18

Collision details motor vehicle

Struck-from-behind **48/111**

- low visibility (night, early morning, late evening, dusk) (24)
- Daylight (22)
- Time unknown (2)

Intersection **33/111**

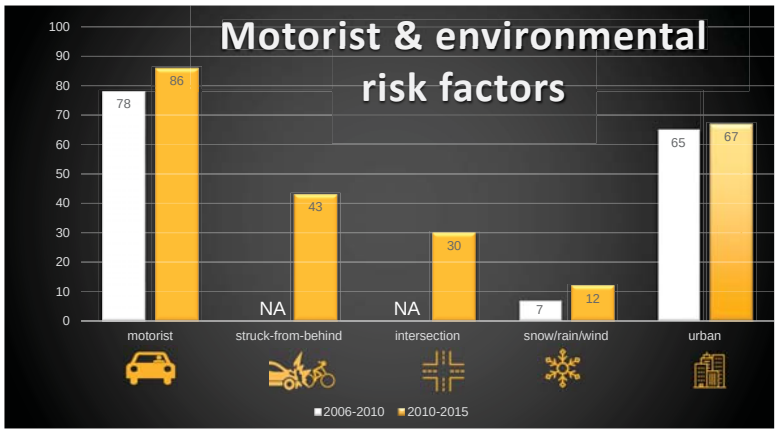
- cyclist running a red light / stop sign, failed to yield (15)
- driver running a red light / stop sign, failed to yield (12)
- cyclist struck little detail at intersection (6)

Environmental conditions

67%

33%

- Weather
  - Police recorded weather in **55/131** cases
  - Rain (10), snow (1), high wind (1)
- Collision location
  - **122/131** occurred in Southern Ontario; **9/131** Northern Ontario
  - Rural fatalities **43/129**; Urban **86/129**



Key findings

2006 – 2010

1. Helmet use all ages
2. Drugs and alcohol
3. Distracted cycling
4. Sharing the road

2010 – 2015

1. Helmet use all ages
2. Drugs and alcohol
3. Visible clothing
4. Struck-from-behind (i.e. not intersection)

Recommendation #1
Mandatory helmets for all ages

London Road Safety Helmets Countermeasures

- Helmet use for those under 18yrs (London Police, Enforcement)
- Helmets on Kids Campaign, Bicycle Helmet Education and Promotion (MLHU, Education)
- Role-modelling helmet use (South West Injury Prevention Network)
- Helmets on Kids Partnership, Helmet Giveaway Program (LHSC)
- Leaflet presenting hand signals and proper helmet fitting (City of London, Transportation)

Recommendation #2
Never use alcohol or drugs while cycling

London Road Safety Substance Use Countermeasures

- Education campaign - Distracted and Impaired (Young Drivers)
- Education related to distracted driving, impaired driving by alcohol and drug in secondary schools (London Police)
- Education campaign – distracted driving (LHSC)
- Education and enforcement opportunity
  - Discourage impaired cycling in education material
  - Consider increased roadside testing for motorists involved in cycling fatal or injury collisions

Recommendation #3
Encourage cyclists to wear fluorescent and retroreflective clothing

London Road Safety Conspicuity Countermeasures

- Pedestrians “Be Safe Be Seen” (LHSC)
- “Be Safe Be Seen” cyclists and pedestrians visibility message (MLHU)
- Educational opportunity:
  - Encourage cyclists to wear fluorescent materials in daylight; fluorescent and reflective clothing in low light; and retroreflective clothing, and ankle and knee highlights at night.

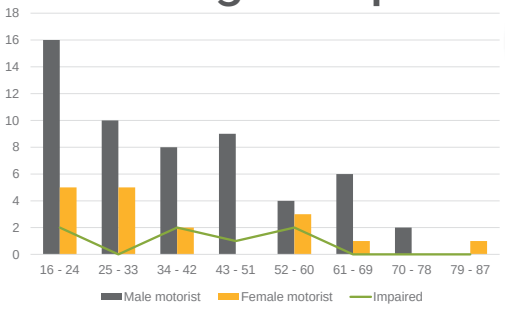
Recommendation #4
Enforce the one-metre passing law to prevent hitting-from-behind

London Road Safety One-metre passing law Countermeasures

- Share the road signage and educational project in the city of London and Middlesex County (MLHU)
- Education and enforcement opportunity:
  - Build motorist awareness of one-metre passing law
  - Educate motorists about the risks associated with passing cyclists without enough space
  - Encourage policing of the one-metre law

31

Motorist age & impaired

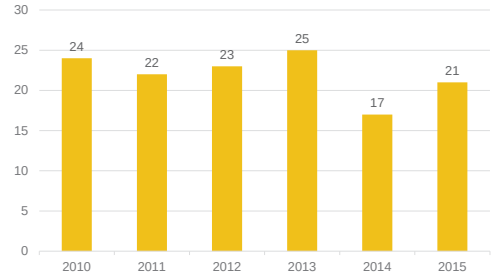


72/111 Police age recorded

7/10 Police age recorded impaired

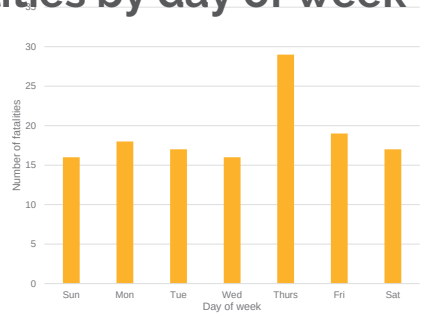
33

Fatalities by year



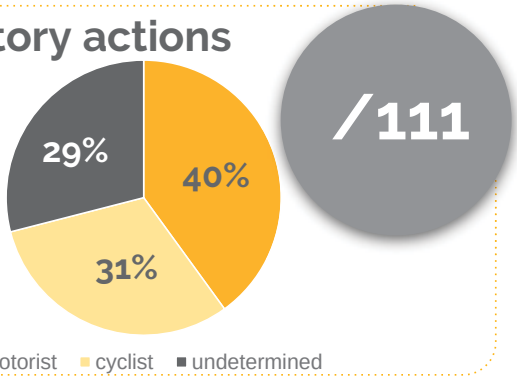
34

Fatalities by day of week



35

Contributory actions



36