EVALUATION OF ONTARIO'S HANDHELD DEVICE BAN:

ADDRESSING CHALLENGES IN MEASUREMENT

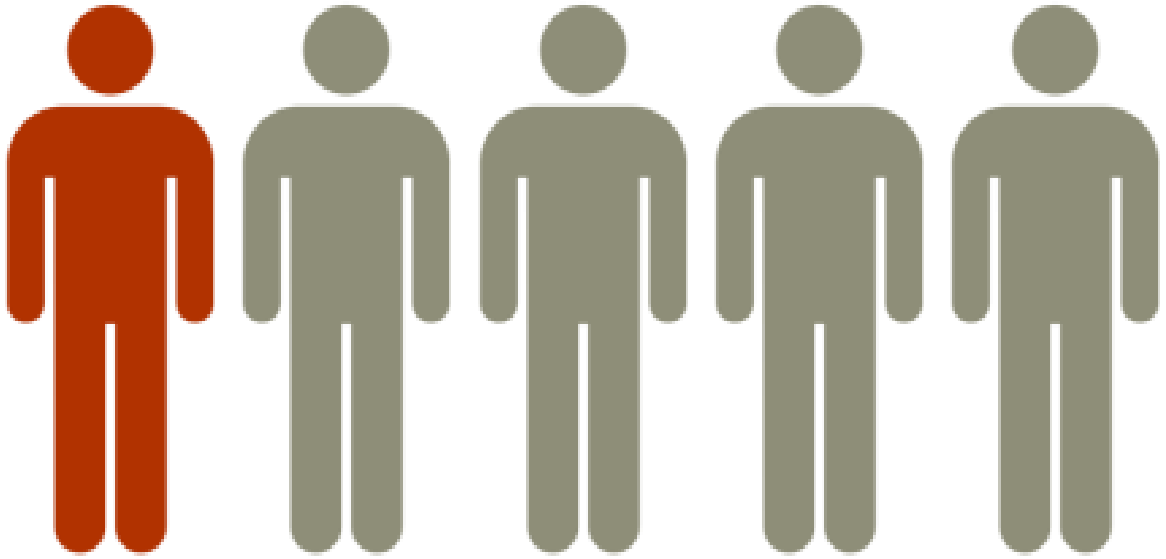
Maryam Haya
Road Safety Research Office
Ministry of Transportation of Ontario

CARSP Conference 2017

INATTENTIVE DRIVING IN ONTARIO

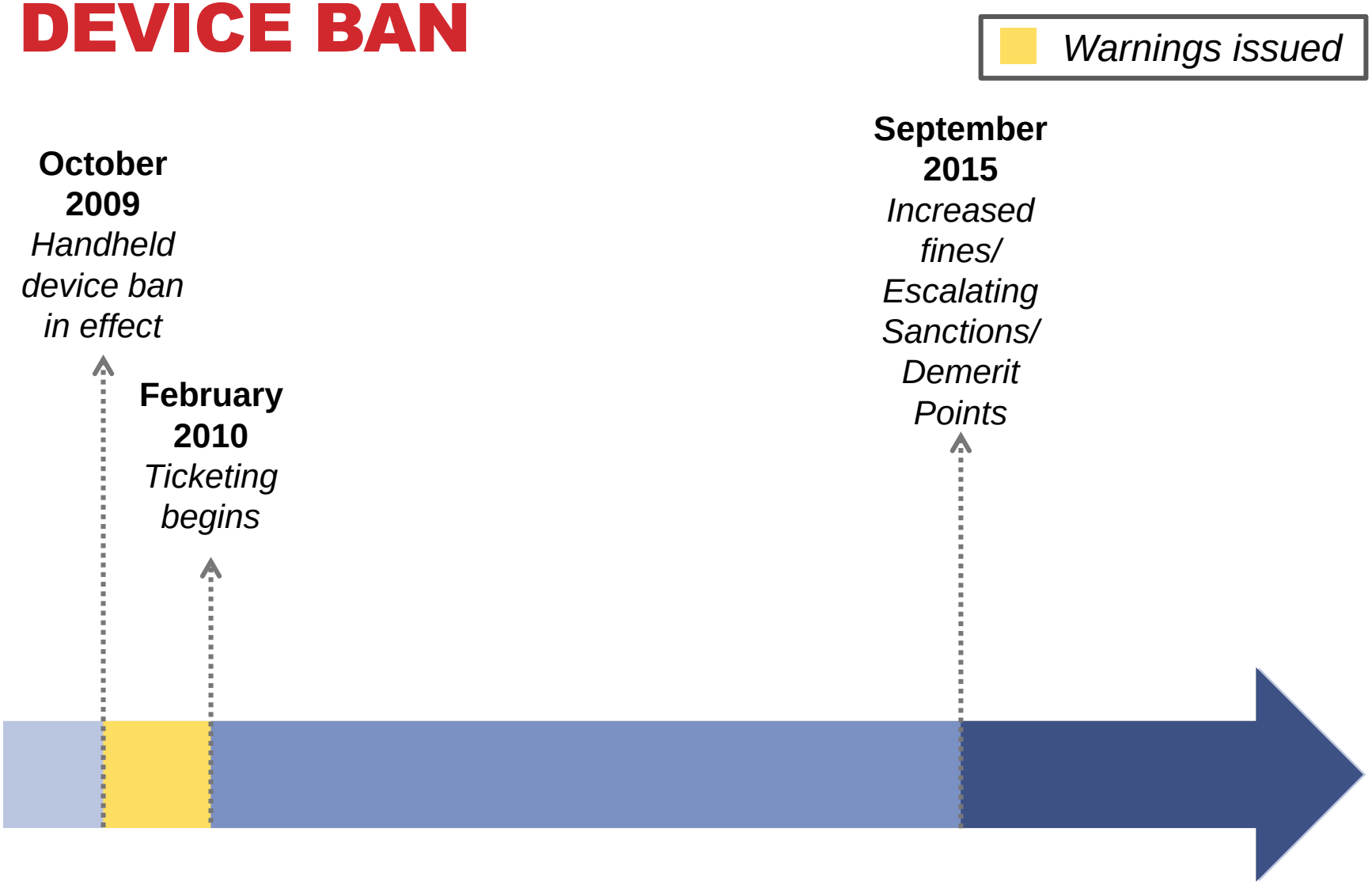
Every 30 minutes, someone is injured in an inattentive driving collision

INATTENTIVE DRIVING IN ONTARIO

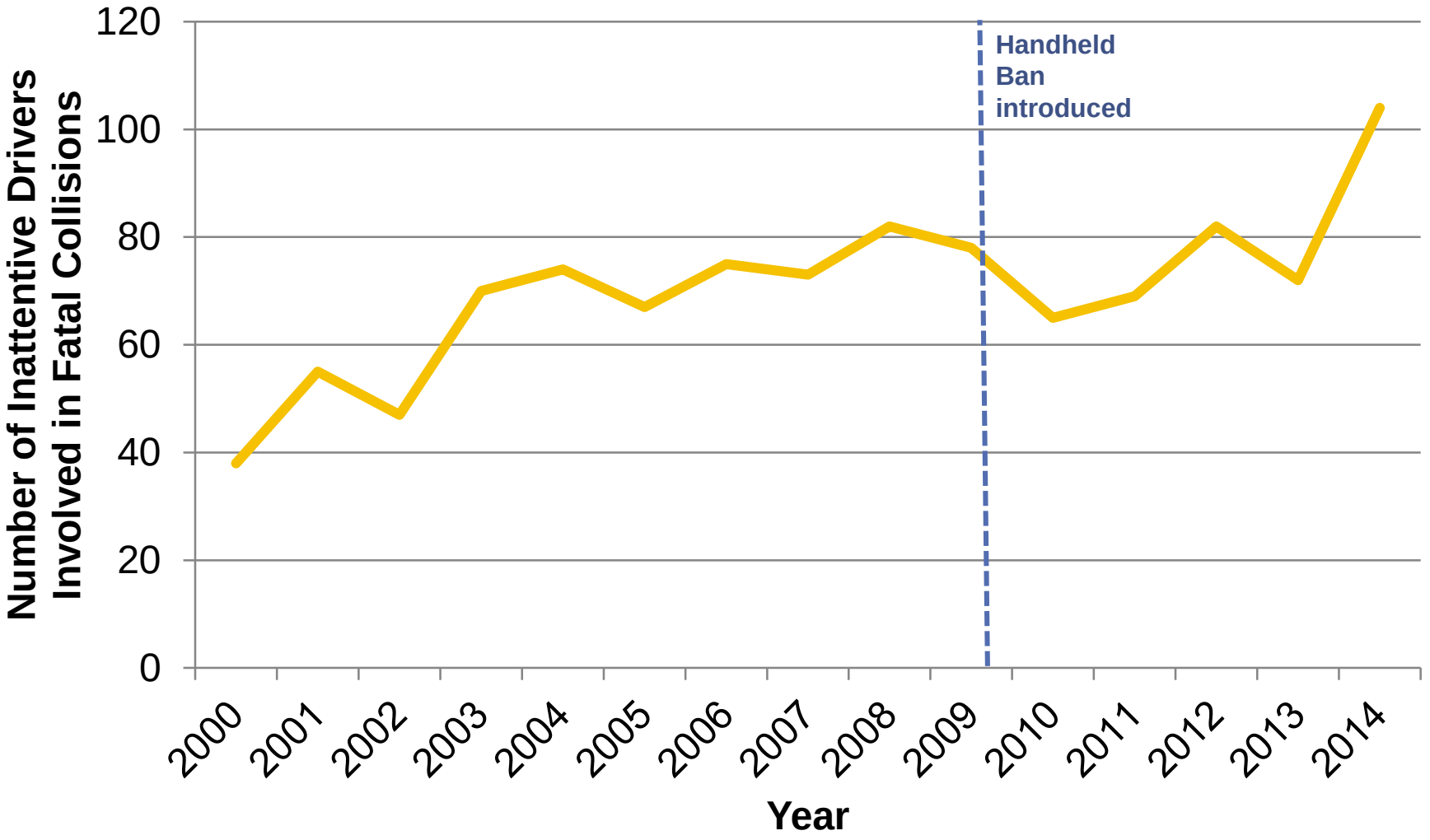


One in five fatalities on Ontario's roads involved an inattentive driver

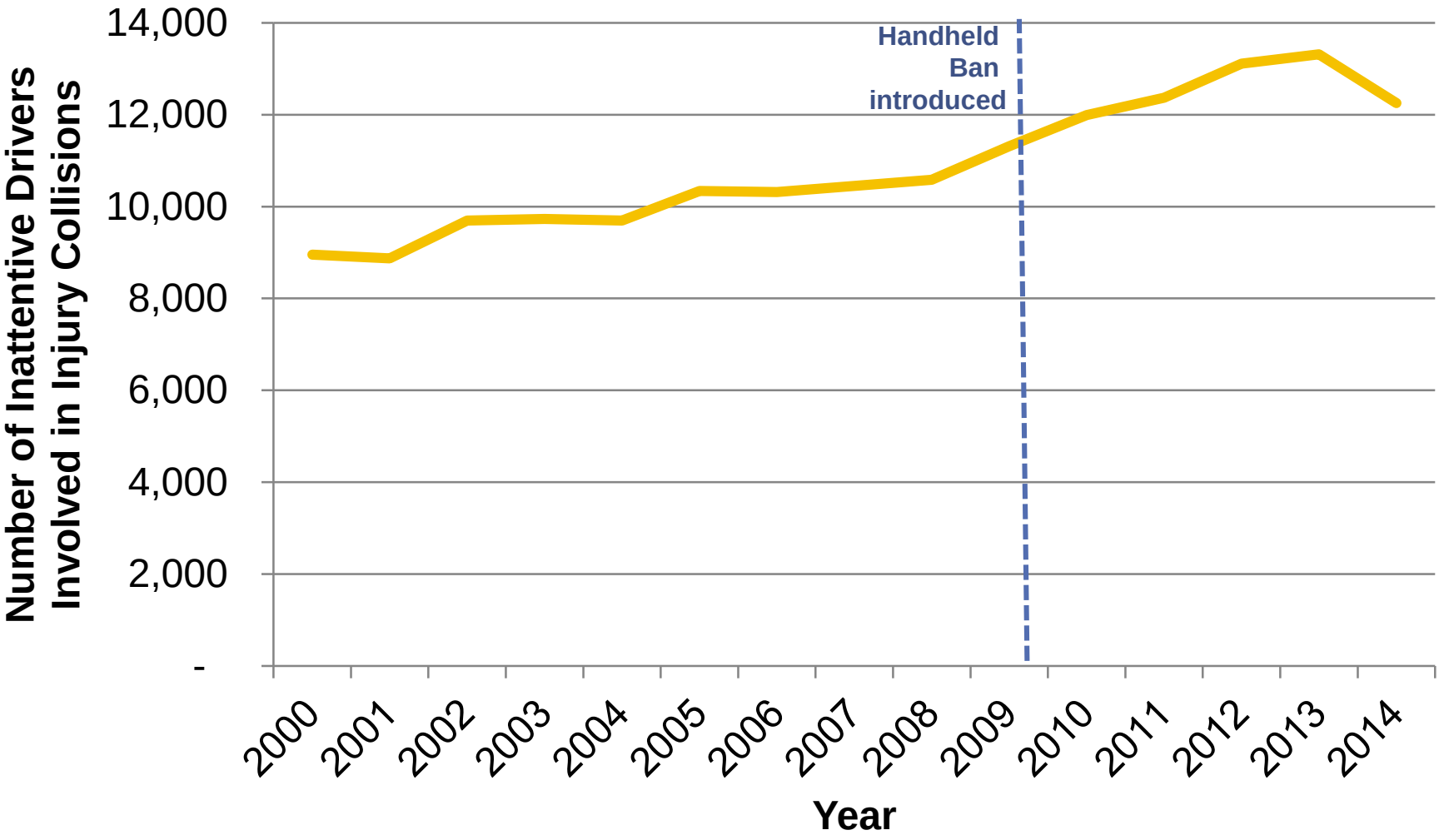
ONTARIO'S HANDHELD DEVICE BAN



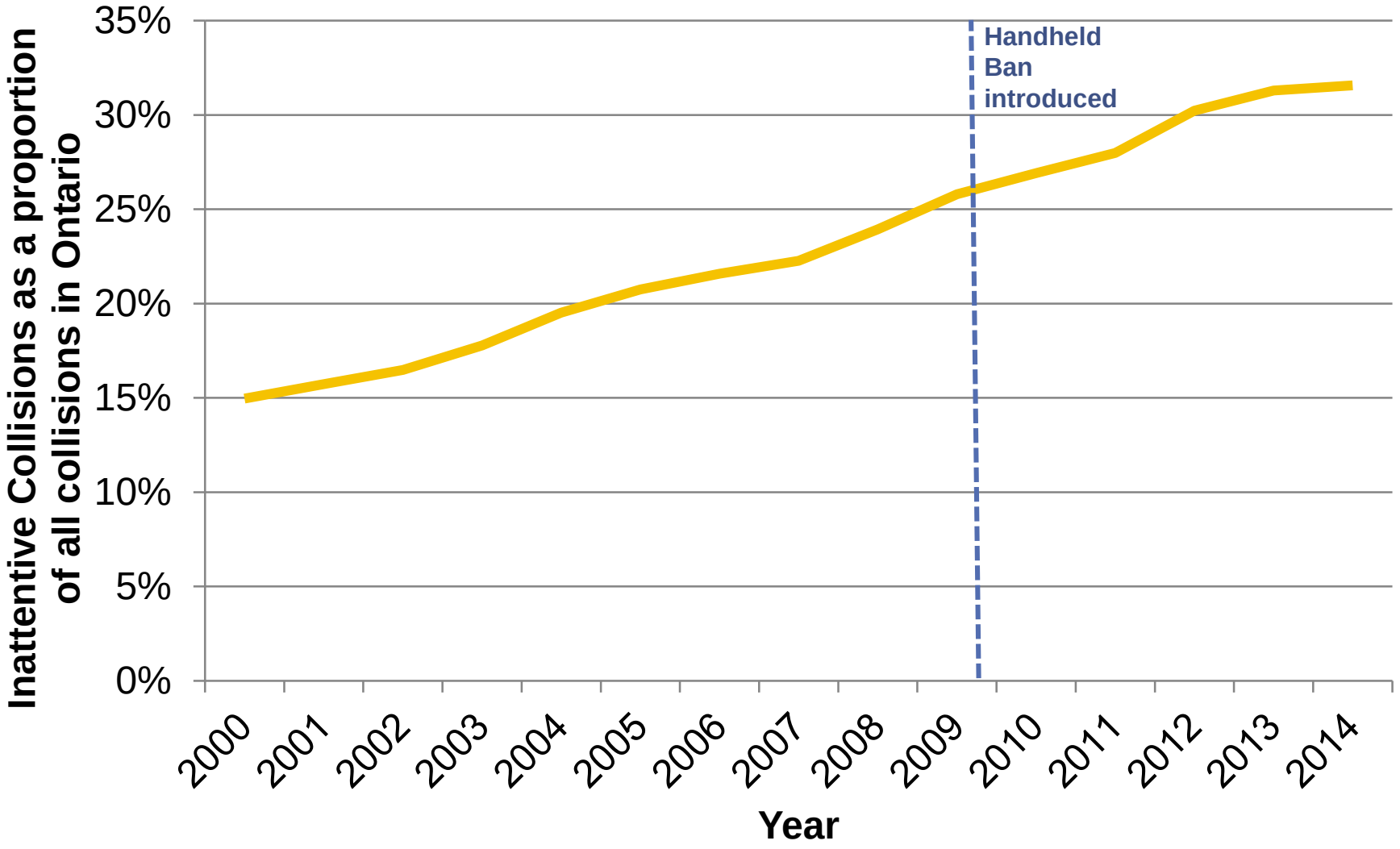
INATTENTIVE DRIVERS INVOLVED IN FATAL COLLISIONS IN ONTARIO



INATTENTIVE DRIVERS INVOLVED IN INJURY COLLISIONS IN ONTARIO



% OF FATAL AND INJURY COLLISIONS INVOLVING INATTENTIVE DRIVERS



MEASURING INATTENTIVE DRIVING

MEASURING INATTENTIVE DRIVING

LITERATURE REVIEW

- Cell phone use impairs driving performance (simulator and naturalistic driving studies).
  - **Slowed or variable speeds**
  - **Variable following distances**
  - **Slowed reaction times**
  - **Maintaining lane position**
  - **Decrease in visual field**

LITERATURE REVIEW

- Effect of handheld dual task driving on collision risk:
  - **Increase in rear-end collisions**

(Brown et al., 2001; Lee et al., 2001; Strayer, 2004; Neyens & Boyle, 2006)

LITERATURE REVIEW

- Effect of handheld dual task driving on collision risk:
  - **Increase in rear-end collisions**

(Brown et al., 2001; Lee et al., 2001; Strayer, 2004; Neyens & Boyle, 2006)

  - **Increase in lane variability and lateral deviation**

(Cheung, 2010; Rudin-Brown et al., 2013; Reed & Robbins, 2008)

LITERATURE REVIEW

- Effect of handheld dual task driving on collision risk:
  - **Increase in rear-end collisions**

(Brown et al., 2001; Lee et al., 2001; Strayer, 2004; Neyens & Boyle, 2006)

  - **Increase in lane variability and lateral deviation**

(Cheung, 2010; Rudin-Brown et al., 2013; Reed & Robbins, 2008)

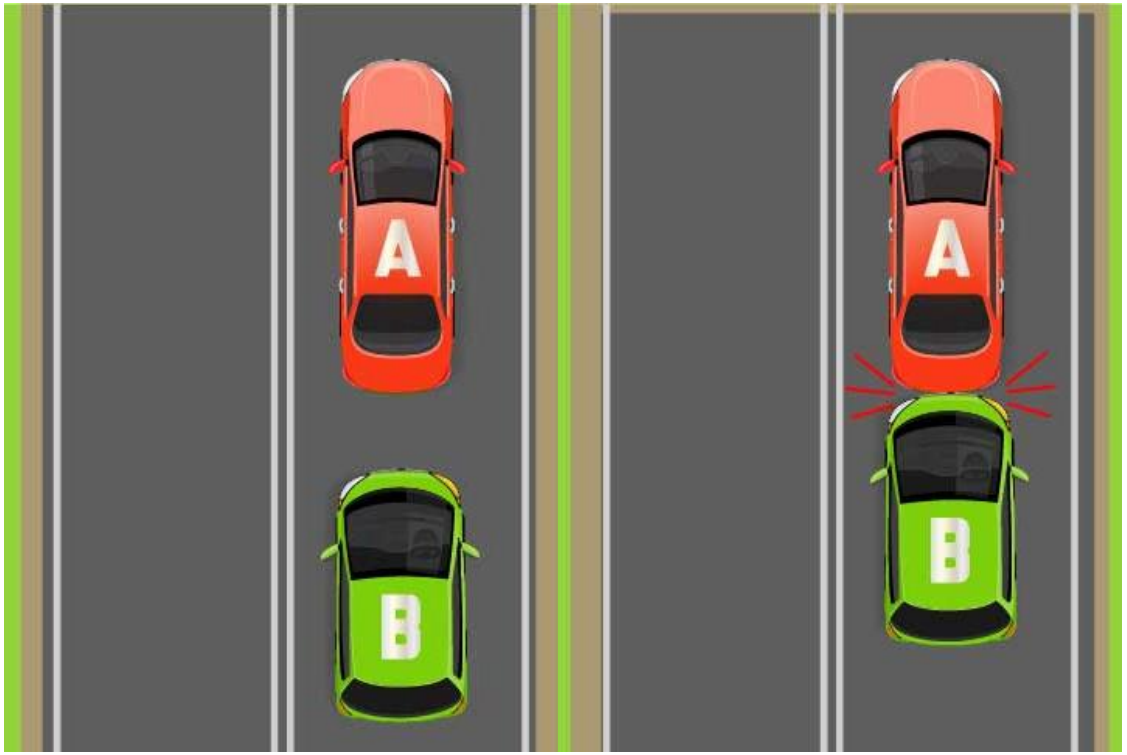
  - **Higher likelihood to miss traffic signals**

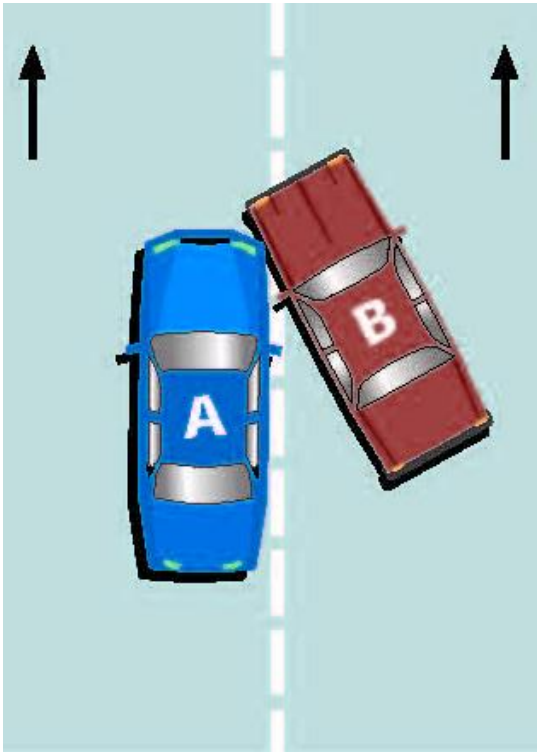
(Strayer, 2003; Beede and Kass, 2006)

Rear End Collisions

Following Too Closely

Improper Lane Change





Rear End Collisions

Following Too Closely

Improper Lane Change

Fatal and Injury Collisions

Rear End Collisions

Following Too Closely

Improper Lane Change

Fatal and Injury Collisions

Occurring in good weather conditions

Rear End Collisions

Following Too Closely

Improper Lane Change

Fatal and Injury Collisions

Occurring in good weather conditions

On provincial highways

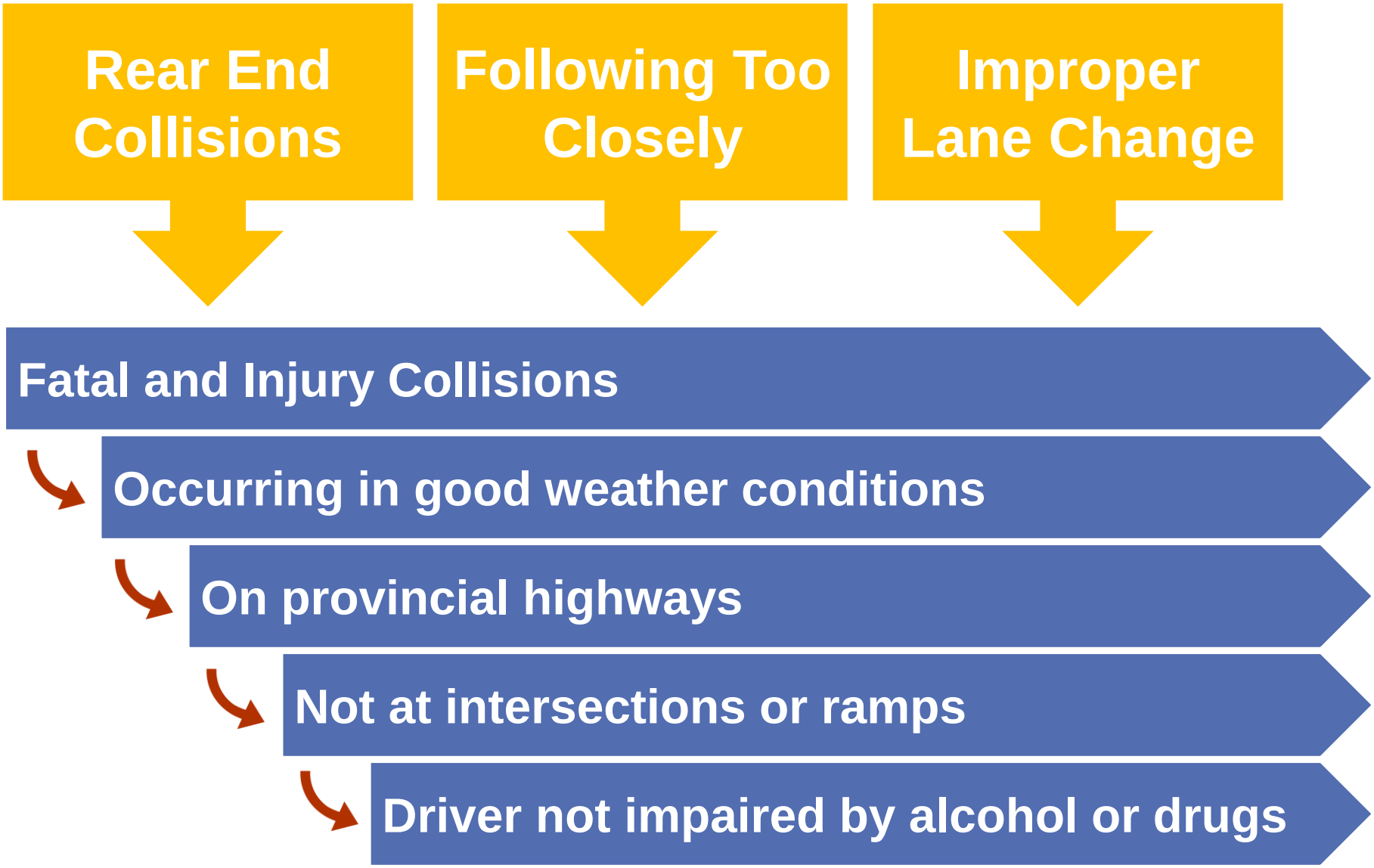
Rear End Collisions

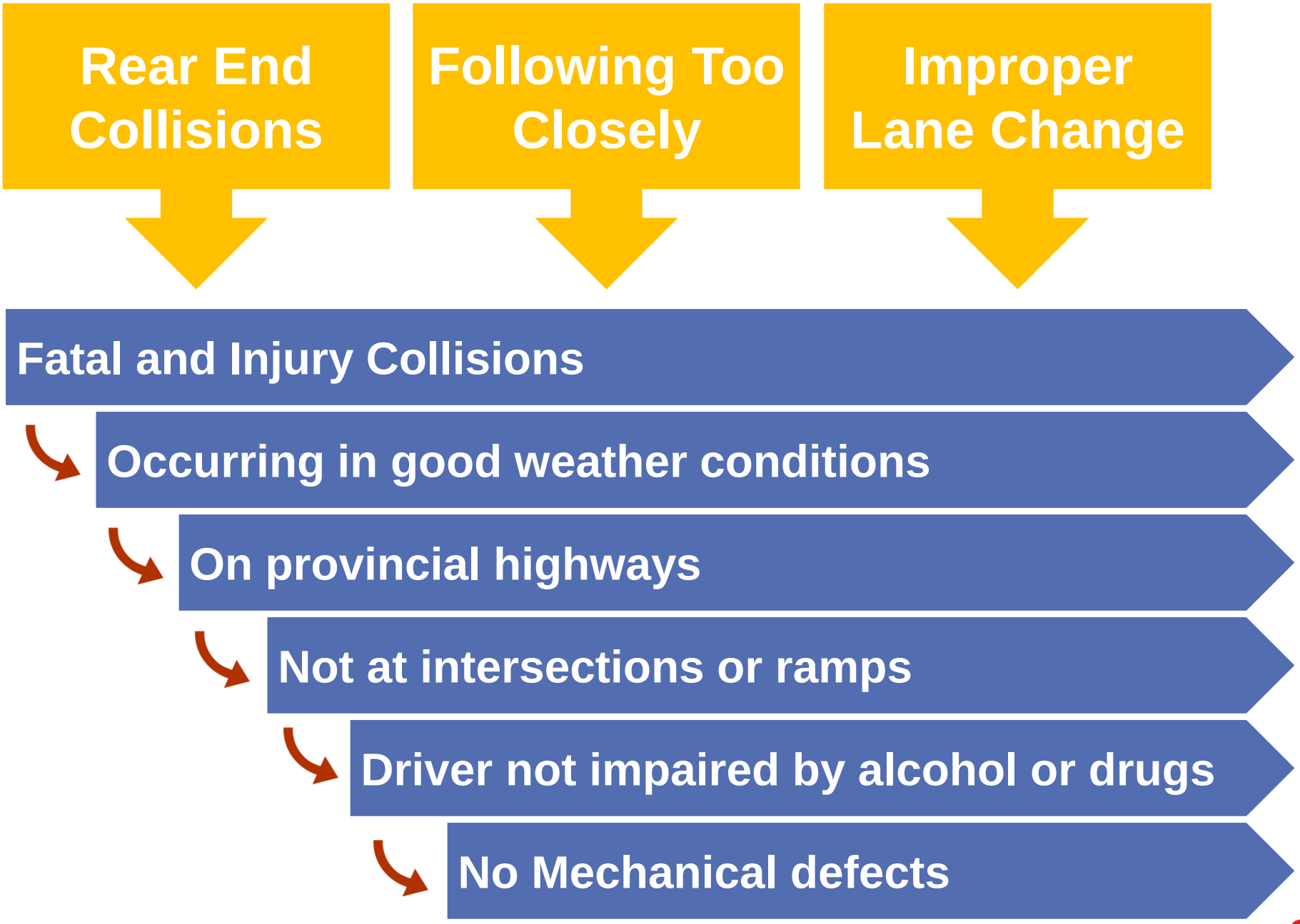
Following Too Closely

Improper Lane Change

Fatal and Injury Collisions

- **Occurring in good weather conditions**
  - **On provincial highways**
    - **Not at intersections or ramps**


Rear End Collisions
Following Too Closely
Improper Lane Change
Fatal and Injury Collisions
Occurring in good weather conditions
On provincial highways
Not at intersections or ramps
Driver not impaired by alcohol or drugs


Rear End Collisions
Following Too Closely
Improper Lane Change
Fatal and Injury Collisions
Occurring in good weather conditions
On provincial highways
Not at intersections or ramps
Driver not impaired by alcohol or drugs
No Mechanical defects

NEXT STEPS

Conduct interrupted time series analysis to determine the impact of handheld device ban on all outcome measures identified:

$$Outcome\ 1 = \frac{Rear\ End\ Collisions}{All\ collisions}$$

$$Outcome\ 2 = \frac{Inattentive\ Drivers}{Drivers\ driving\ normally}$$

$$Outcome\ 3 = \frac{Drivers\ following\ too\ closely}{Drivers\ driving\ properly}$$

$$Outcome\ 4 = \frac{Drivers\ conducting\ improper\ lane\ change}{Drivers\ driving\ properly}$$

We welcome your feedback!

Maryam Haya

Senior Safety Research Advisor

Road Safety Research Office

Ministry of Transportation

maryam.haya@ontario.ca