

Mobile phone use while driving after a new national law in New Zealand

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Background

- Nearly 1.3 million people die and 50 million are injured as a result of road crashes each year (WHO, 2008)
- Road accidents are the leading cause of death in 15-29 year olds (WHO, 2008)
- Distraction makes a significant contribution road traffic crashes but accurate rates are difficult to obtain
 - Range from 2% in Great Britain to over 30% in Spain (Government Statistics)
- Mobile phones are a commonly studied source of driver distraction

Effects of mobile phone use on driving

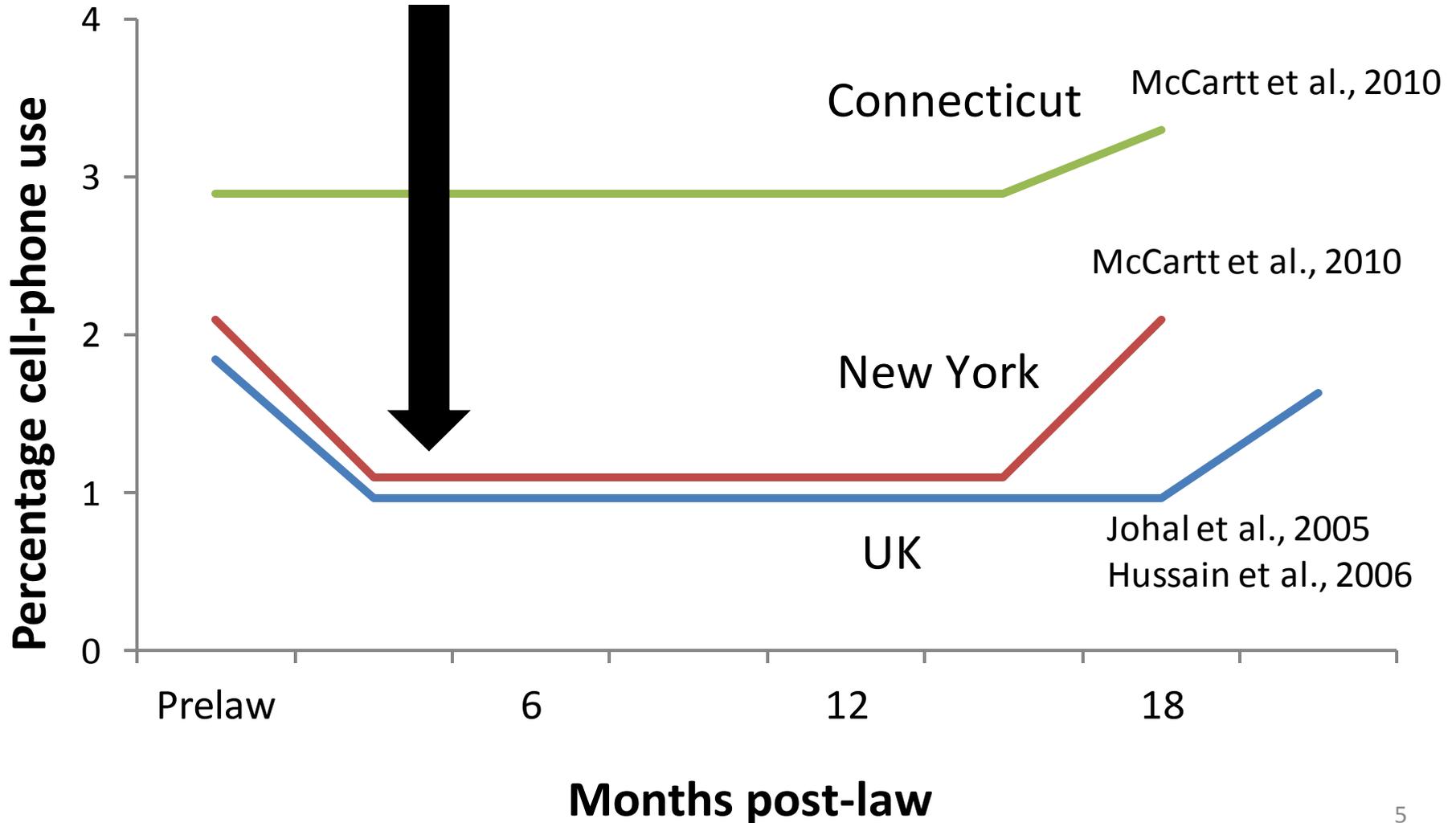
- Use of cell phones while driving impairs various aspect of driving performance including:
 - reaction times (e.g., Alm & Nilsson, 1995; Brookhuis et al., 1991)
 - visual search (Langer et al., 2005; Maples et al., 2008)
 - lane keeping (Brookhuis et al., 1991)
 - speed control (Charlton, 2004)



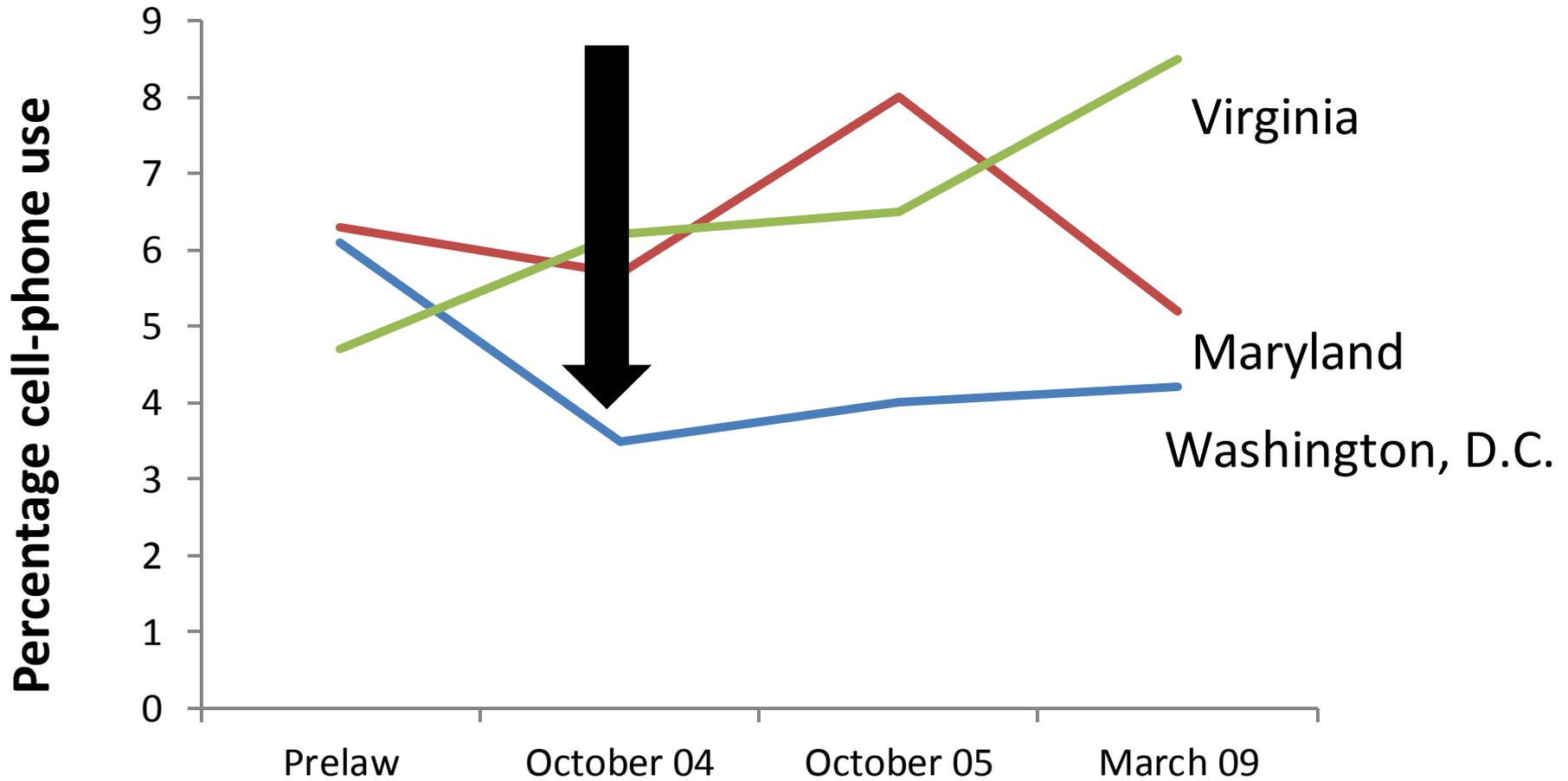
Mobile phone use and driving

- Highest estimates suggest that using a mobile phone leads to 4 x increase in crash risk (Redelmeier et al , 1997; McEvoy et al, 2005)
- Debate on how accurate these estimates are (Young, 2012; Kidd & McCartt, 2013)
- The role of mobile phone use in near-misses is difficult to quantify
- Between 2003-2008, mobile phone use contributed to 25 fatal crashes and 482 injuries in NZ (MoT, 2009)
- Legislation introduced prohibiting use of hand-held phones while driving from 1st Nov 2009

Effectiveness of law change

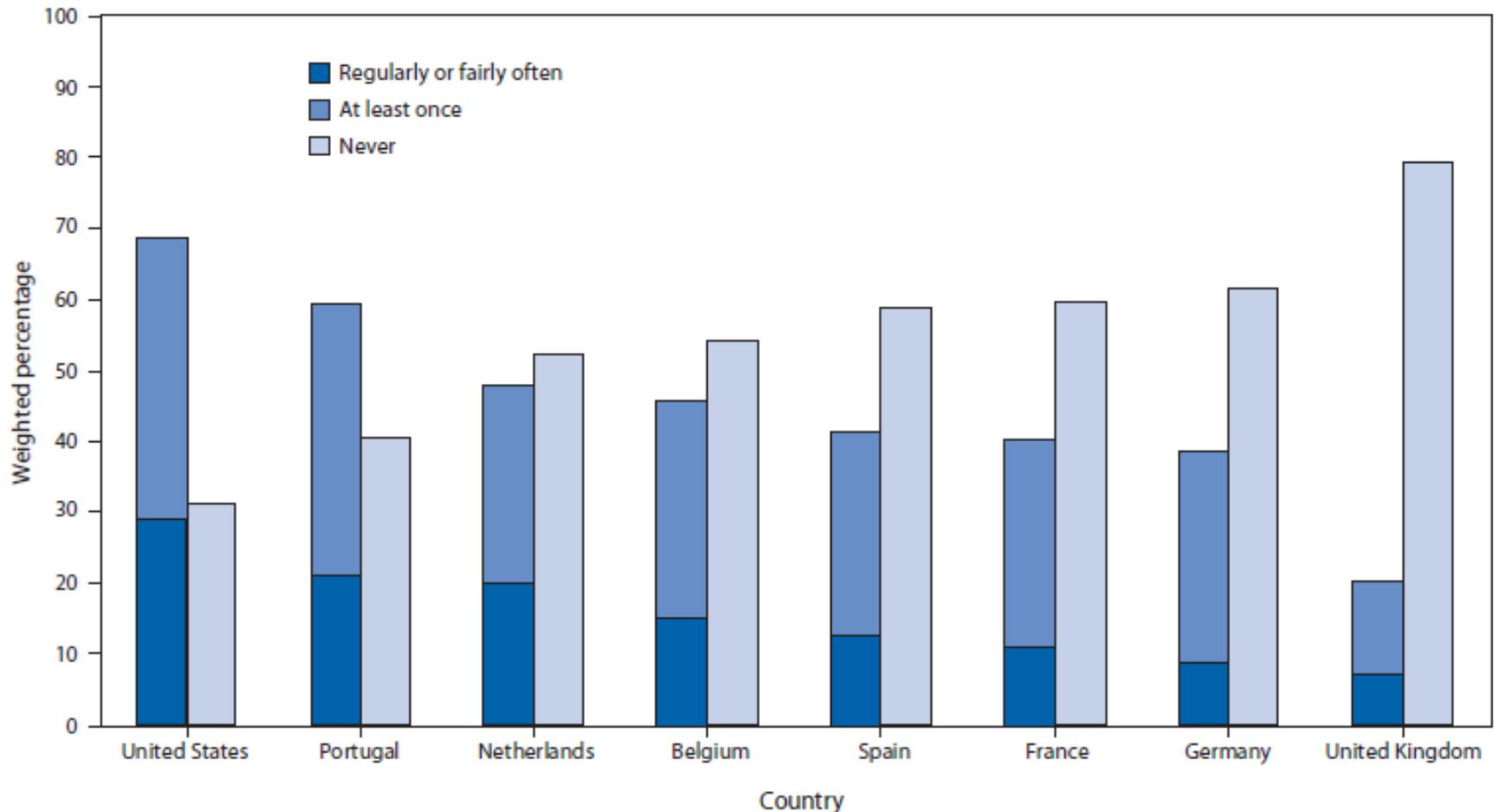


Long-term effects of law change (McCartt et al., 2010)



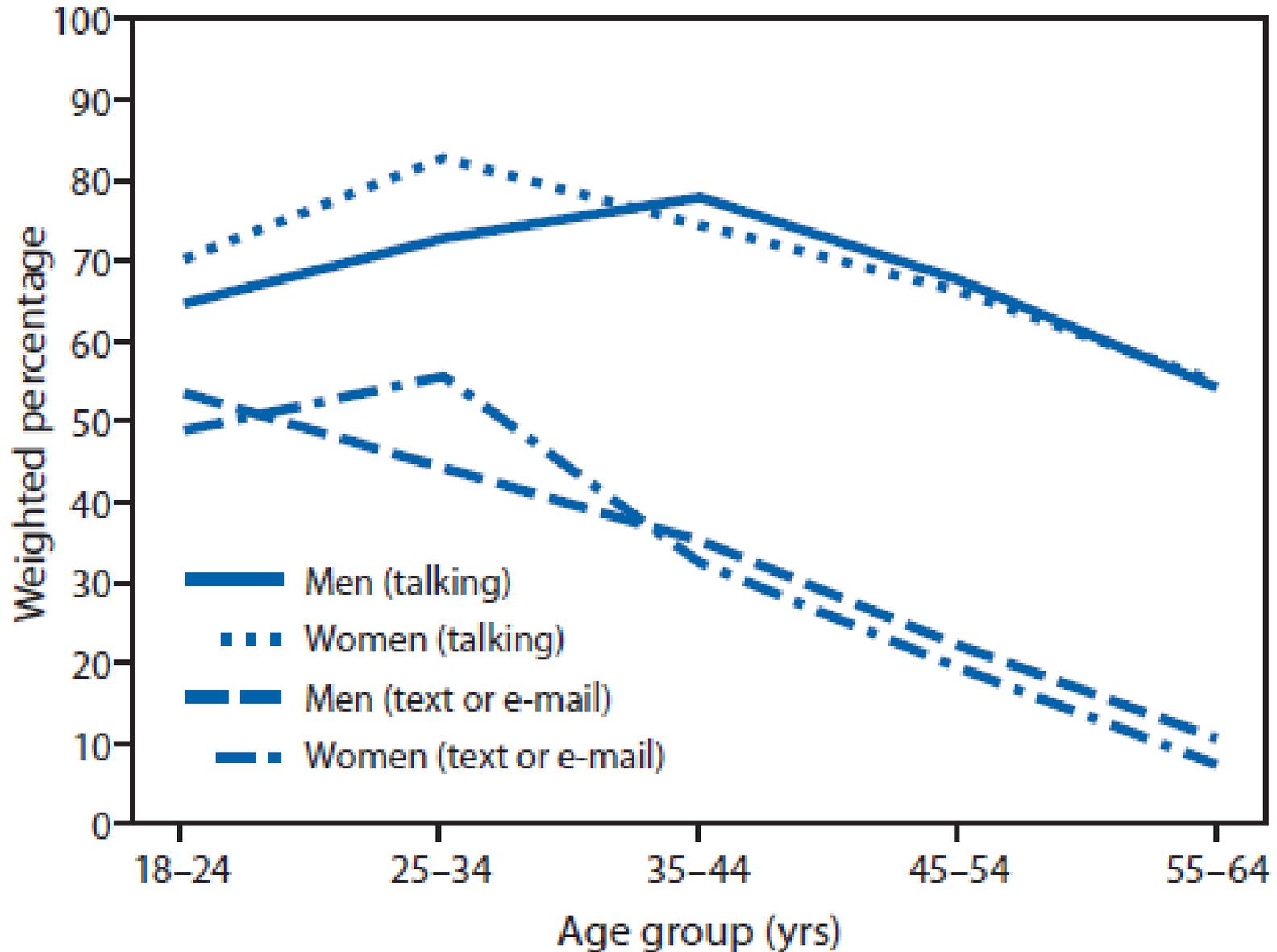
Self-reported phone use while driving

FIGURE 1. Weighted percentage of adults aged 18–64 years who reported that they had talked on their cell phone while driving regularly or fairly often, at least once, or never in the past 30 days,* by country — HealthStyles and EuroPNStyles, 2011



* Respondents were asked, "In the past 30 days, how often have you talked on your cell phone while you were driving?" Response choices were "never," "just once," "rarely," "fairly often," and "regularly." Percentages of those who engaged "at least once" were defined as those who responded "just once," "rarely," "fairly often," or "regularly." Percentages of those who responded "regularly" or "fairly often" are shown as a subset of "at least once."

Gender and age differences



Mobile phone use in New Zealand

- Pre-legislation:
 - In Auckland 3.9% of drivers observed using hand-held mobile phone (Townsend, 2006)
 - 57-60% of drivers self-report conversing on a mobile phone when driving (Hallett et al, 2011; Sullman & Baas, 2004)
- Self-reports suggest males use higher than females (Sullman & Baas, 2004) but not supported by observational data (Townsend, 2006; Young et al., 2010)
- Younger people more frequent users than older drivers (Sullman & Baas, 2004; Young et al., 2010)

The current study

- Aims
 1. To identify the prevalence of mobile phone use by drivers 34 months after the 2009 legislation
 2. To explore associations between mobile phone use, socio-demographic variables (gender, age) and road setting
- Methods
 - Observational study Wellington CBD and two suburbs, Karori and Titahi Bay
 - Data collected 0730 -0930 and 1630-1830 over 5 weekdays
 - Observations of cars (not buses, trucks, vans) at traffic lights and 100m away



CBD 7.30 am – 9.30 am (at traffic light),
Taranaki Street & Courtenay Place
southbound traffic



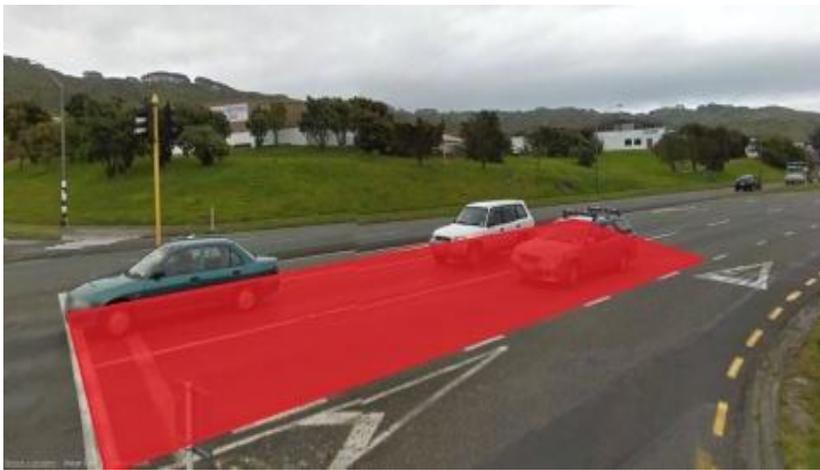
CBD 7.30 am – 9.30 am (moving traffic)
100 meters north of intersection



CBD 4.30 pm – 6.30 pm (at traffic lights),
Taranaki Street and Courtenay Place
northbound traffic



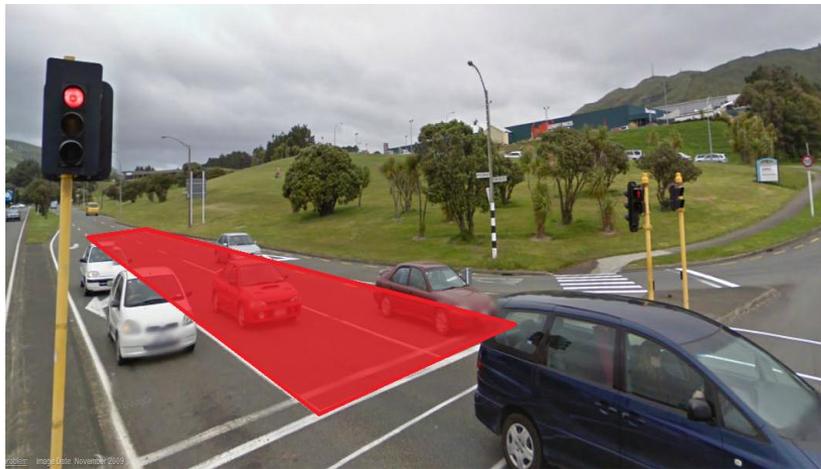
CBD 4.30 pm – 6.30 pm (moving traffic)
100 meters north of the intersection



Titahi 7.30 am – 9.30 am (at traffic light),
Titahi Bay Road and Lyttleton Avenue
southbound traffic



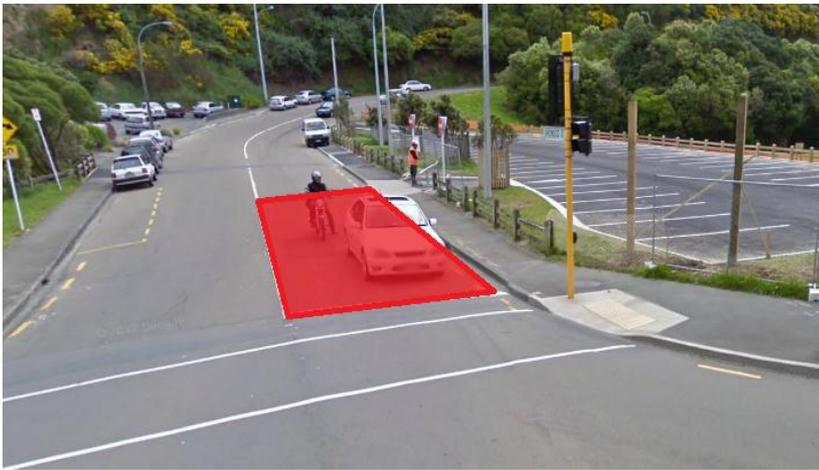
Titahi 7.30 am – 9.30 am (moving traffic)
100m south of the intersection



Titahi 4.30 pm – 6.30 pm (at traffic light)
Titahi Bay Road and Lyttleton Avenue at
northbound traffic



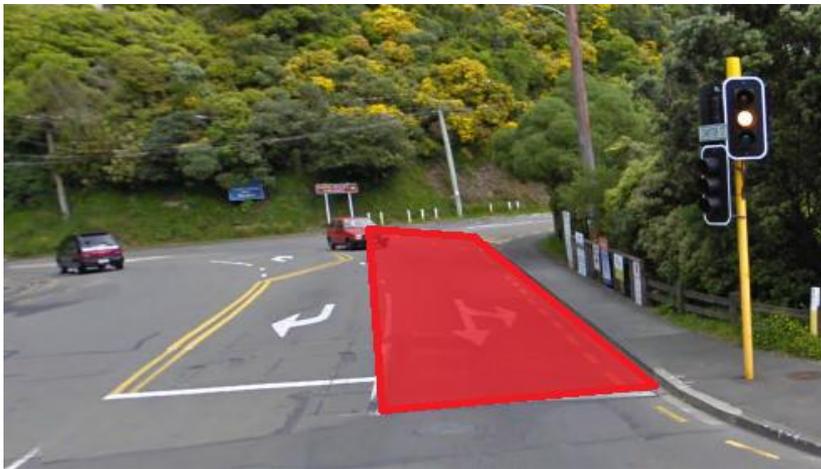
Titahi 4.30 pm- 6.30 pm (moving traffic)
100m north of the intersection



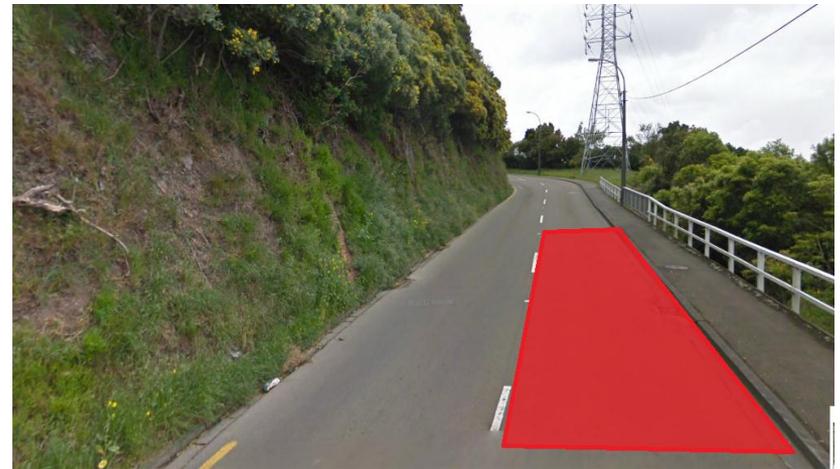
Karori 7.30 am – 9.30 am (at traffic light), Birdwood Street & Chaytor Street



Karori 7.30 am – 9.30 am sessions (moving traffic), 100m up Birdwood Street



Karori 4.30 pm- 6.30 pm (at traffic light), Birdwood Street & Chaytor Street, traffic turning into Birdwood Street



Karori 4.30 pm – 6.30 pm (moving traffic), 100m up Birdwood Street

Data Collection



- Total number of eligible cars
- Mobile phone use (defined as ‘visible in driver’s hand’)
 - Next to ear / away from ear
 - Driver characteristics

Data Collection sheet

Location _____

Observer 1 _____

Time _____

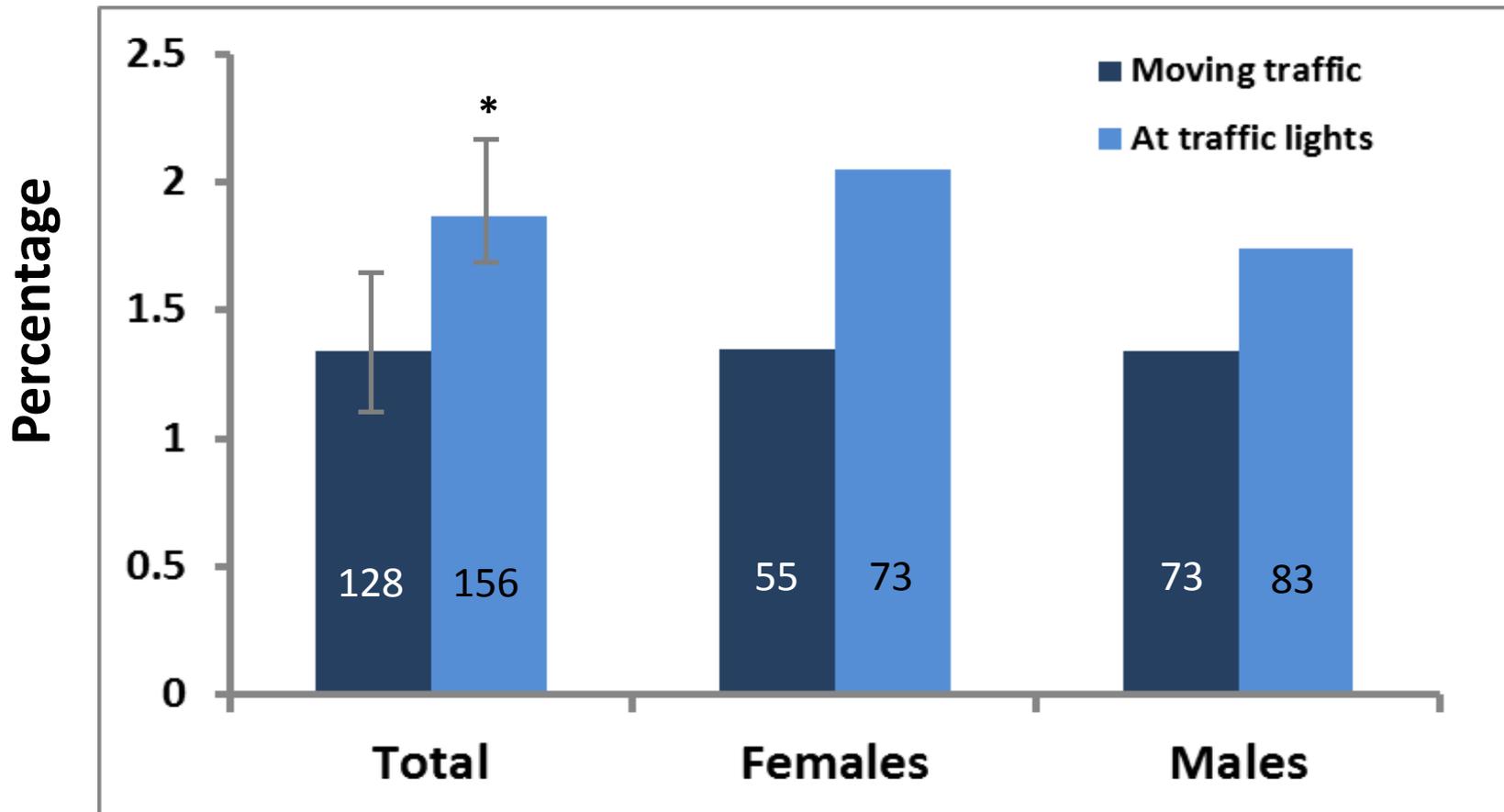
Observer 2 _____

Age			Gender		Phone		Comments
<25	26-65	>65	Male	Female	@Ear	Other	

Phone use by road setting and gender

Moving traffic total observations = 9250

At traffic lights total observations = 8335



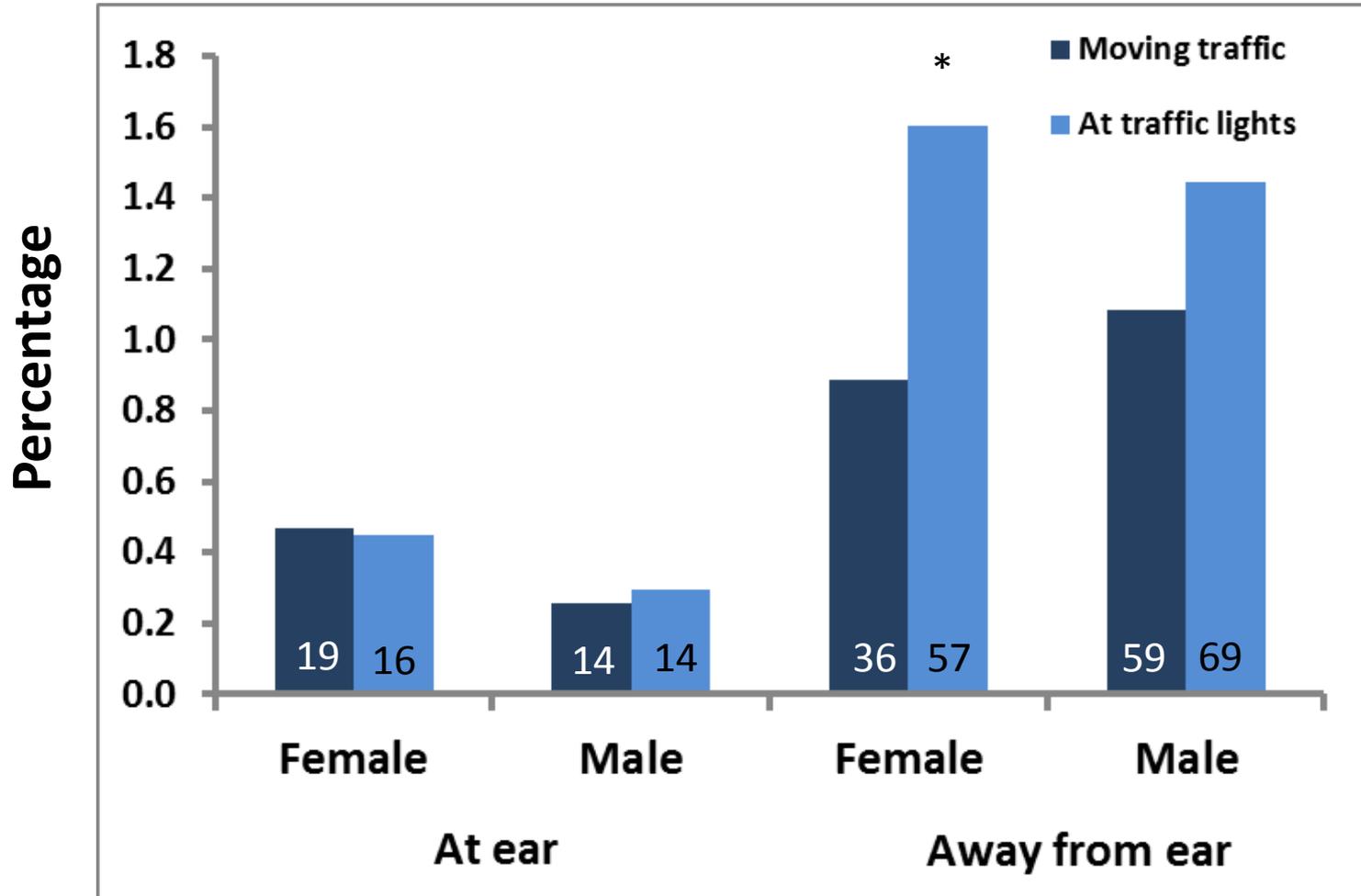
Females compared to males

Moving traffic RR=1.01 (0.71-1.43), p=0.47

At traffic lights RR=1.18 (0.86-1.61), p=0.15

Denominator data for analysis based on the road user survey. Proportion of female drivers 42.7%, males 57.3%

Talking or texting?

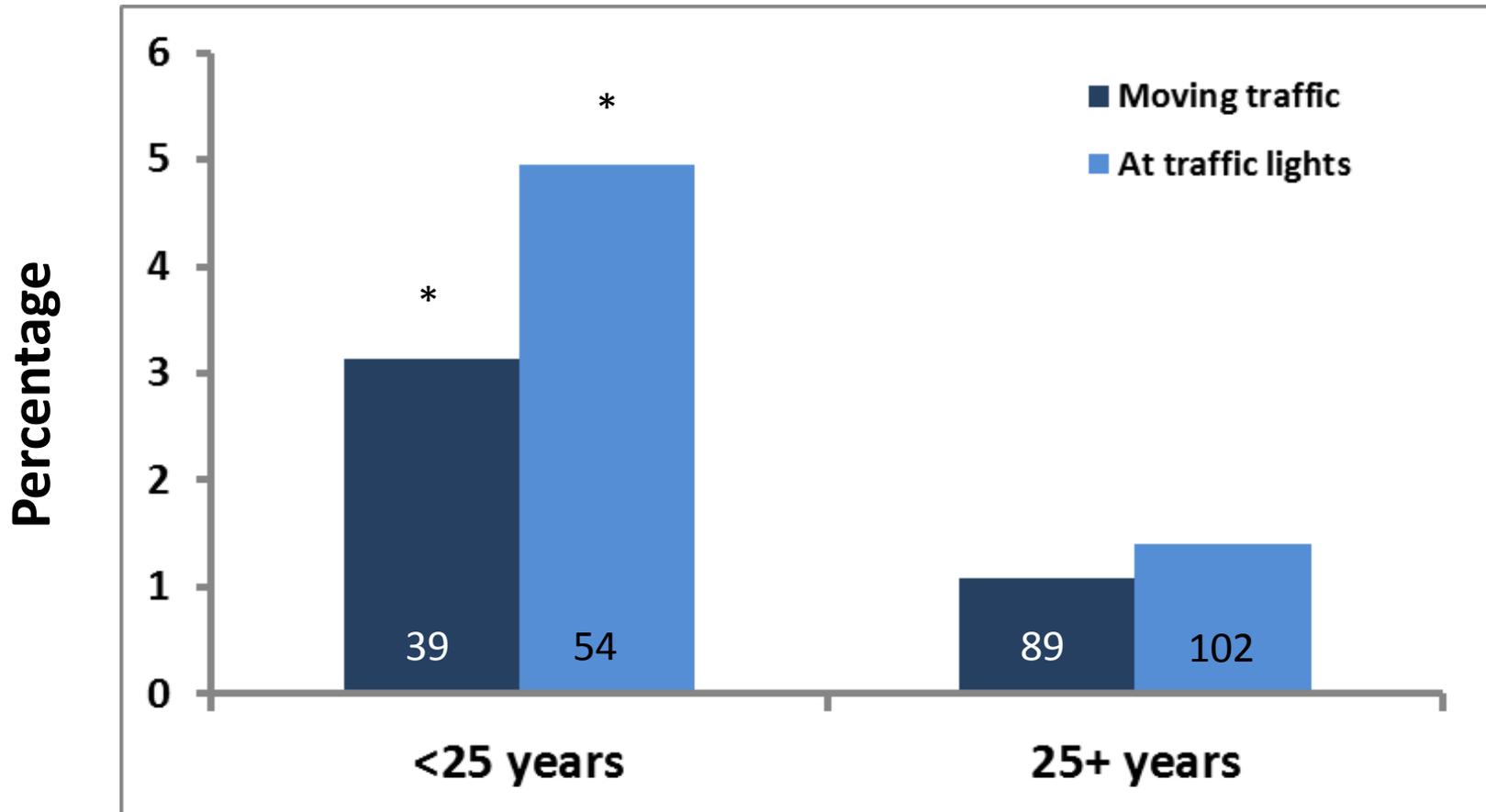


Females v males

Moving traffic RR=1.82 (0.91-3.62), p=.084
 At traffic lights RR=1.53 (0.75-3.14), p=.120

Moving traffic RR=0.82.(0.54-1.24), p=.17
 At traffic lights **RR=1.63 (1.15-2.30), p=.006**

Age and mobile phone use



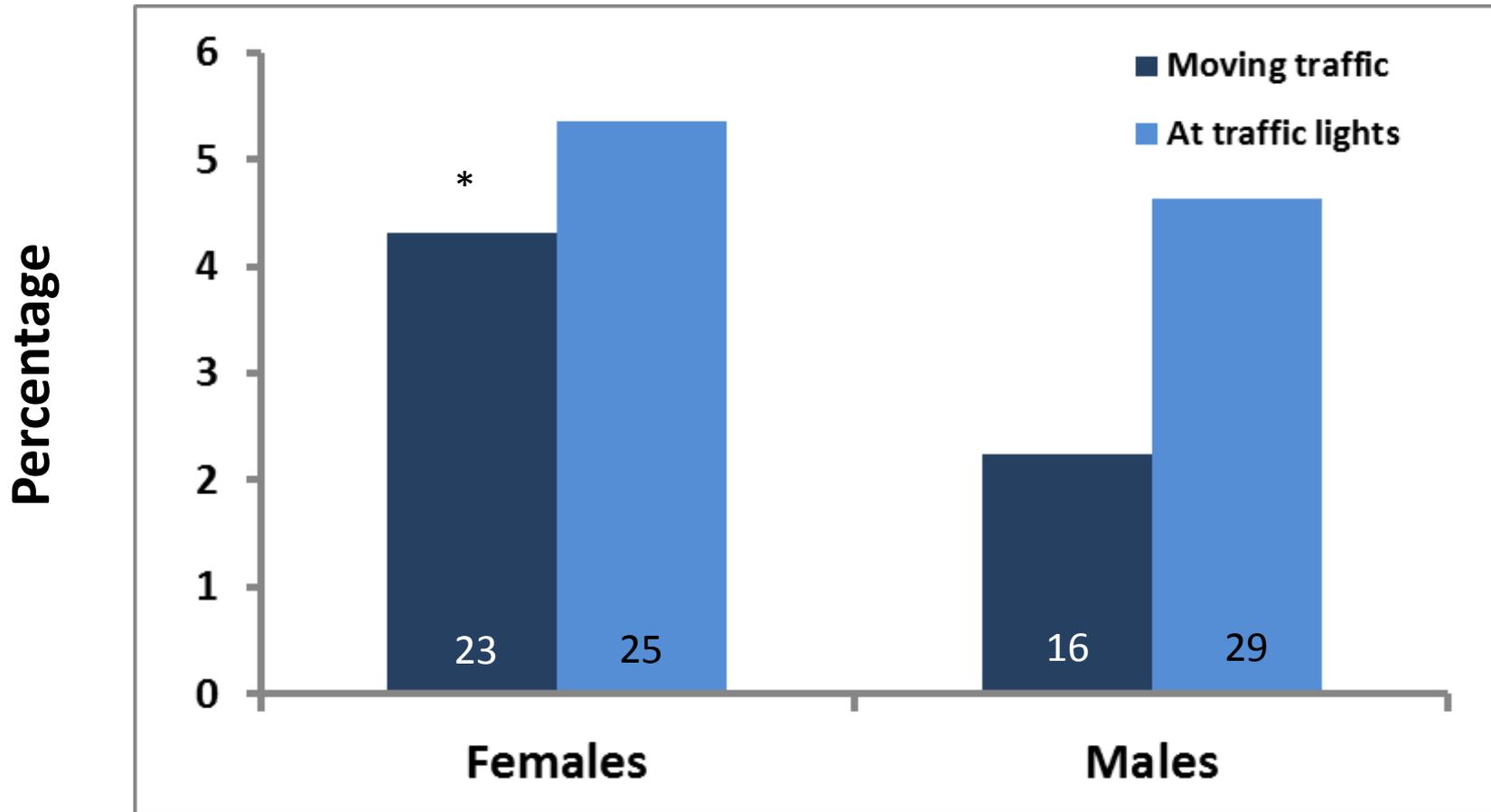
Younger compared to older drivers

Moving traffic **RR=2.85 (1.96-4.13), p<0.001**

At traffic lights **RR=3.40 (2.45-4.69), p<0.001**

Denominator data for analysis is based on the road user survey proportion of <25 drivers =13.1 %, and 25+ = 86.9 %.

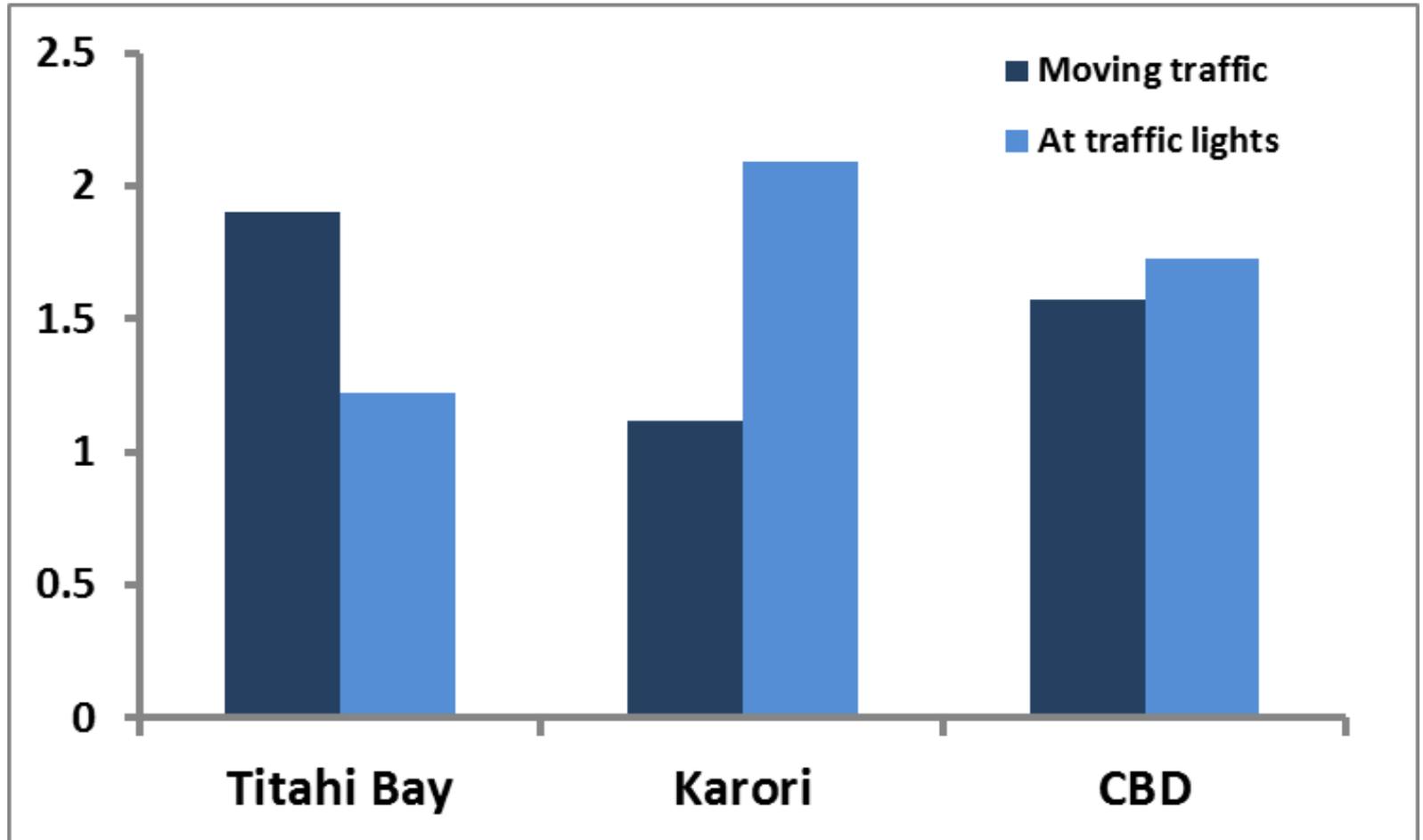
Young (< 25 years) drivers



Females compared to males

Moving traffic **RR=1.93 (1.03-3.61), p=0.041**
At traffic lights RR=1.16 (0.69-1.95), p=0.582

Location and phone use



Discussion

Where and Who

- Young drivers (< 25 years) more likely to use mobile phones compared to older drivers (Sullman & Baas, 2004; Young et al., 2010)
 - Young women more likely to use phone in moving traffic compared to males
- No overall difference between males and females (Townsend, 2006; Young et al 2010)
 - Type of use may differ: Females talked more in moving traffic and texted more at traffic lights
- Drivers more likely to use mobile phone at or near traffic lights
 - Decreased risk of using phone or being caught?

Discussion

Has the legislation altered use?

- Mobile phone use by drivers appears lower than pre- legislation - 1.57% in Wellington CBD vs 3.9% (Auckland, Townsend, 2006)
 - Consistent with long-term reductions observed in some US cities (McCartt & Hellinga, 2007)
 - But differences in study methods
- Specific road and traffic conditions determine use

Conclusions

- Strong law enforcement and publicity are related to sustained reductions
- Education and enforcement campaigns focused towards young drivers
 - Gender specific
- Future directions
 - Investment in technological solutions to disable phones whilst driving
 - More accurate data on mobile phone use and crashes
 - Better monitoring of all types of mobile phone use while driving

Acknowledgments

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Spare bits

- During the first year - 182 crashes attributed to cell-phone use 5 deaths
- In the first 5 months, more than 3,000 drivers were fined \$80 each for driving while using a cellphone
- It will be illegal for drivers to talk or send text messages on handheld mobile phones while driving from November 1, Transport Minister Steven Joyce announced today. Drivers using handheld mobiles would be liable for an \$80 fine and 20 demerit points. The ban comes in changes to the Land Transport (Road User) Amendment Rule.
- "There are a lot of other distractions while driving but handheld mobile phone use has grown to become a significant problem," Mr Joyce said. "The reality is we need to send a strong signal to all road users that it's not on. "Texting and driving, in particular, is a total no brainer."

- **Ban on use of mobile phones while driving**
- (1) A driver must not, while driving a vehicle, —
- (a) use a mobile phone to make, receive, or terminate a telephone call; or
- (b) use a mobile phone to create, send, or read a text message; or
- (c) use a mobile phone to create, send, or read an email; or
- (d) use a mobile phone to create, send, or view a video message; or
- (e) use a mobile phone to communicate in a way similar to a way described in any of paragraphs (b) to (d); or
- (f) use a mobile phone in a way other than a way described in any of paragraphs (a) to (e).
- (1A) Subclause (1) is overridden by subclauses (2) to (7).
- (2) An enforcement officer may, while driving a vehicle, use a mobile phone to make, receive, or terminate a telephone call if the officer is making, receiving, or terminating the call in the execution of the officer's duty.
- (3) A driver may, while driving a vehicle, use a mobile phone if —
- (a) the driver is using the phone to make a 111 or *555 call; and
- (b) it is unsafe or impracticable for the driver to stop and park the vehicle to make the call.
- (4) A driver may, while driving a vehicle, use a mobile phone to make, receive, or terminate a telephone call if the phone does not require the driver to hold or manipulate it to make, receive, or terminate the call.
- (5) [Revoked]
- (6) A driver may, while driving a vehicle, use a mobile phone to make, receive, or terminate a telephone call if the vehicle has stopped for a reason other than the normal starting and stopping of vehicles in a flow of traffic.
- (7) A driver may, while driving a vehicle, use a mobile phone in a way described in subclause (1)(a) or (f), if both the following apply:
 - (a) the phone is secured in a mounting fixed to the vehicle; and
 - (b) if the driver manipulates or looks at the phone, he or she does so infrequently and briefly.
- Clause 7.3A: inserted, on 1 November 2009, by [clause 23](#) of the Land Transport (Road User) Amendment Rule 2009 (SR 2009/253).
- Clause 7.3A(1): substituted, on 11 December 2009, by [clause 6\(1\)](#) of the Land Transport (Road User) Amendment Rule (No 2) 2009 (SR 2009/345).
- Clause 7.3A(1A): inserted, on 11 December 2009, by [clause 6\(1\)](#) of the Land Transport (Road User) Amendment Rule (No 2) 2009 (SR 2009/345).
- Clause 7.3A(5): revoked, on 11 December 2009, by [clause 6\(2\)](#) of the Land Transport (Road User) Amendment Rule (No 2) 2009 (SR 2009/345).
- Clause 7.3A(7): added, on 11 December 2009, by [clause 6\(3\)](#) of the Land Transport (Road User) Amendment Rule (No 2) 2009 (SR 2009/345).