

The Near Miss Project: Quantifying Cyclist Comfort and Safety

Thoughts on research, monitoring, and practice
r.aldred@westminster.ac.uk

Rachel Aldred
rachelaldred.org
[@RachelAldred](https://twitter.com/RachelAldred)

Content of talk

- Why near misses matter
- Example: the Near Miss Project – approach and impact on policy & practice
- Other approaches to monitoring/researching near misses
- Considerations for city planners in deciding on an approach

Why near misses matter

- Near misses may predict collision risk situations/locations
- Understand road culture and impact on cycling experience
- Clarify relationship between ‘perceived’ and ‘objective’ risk

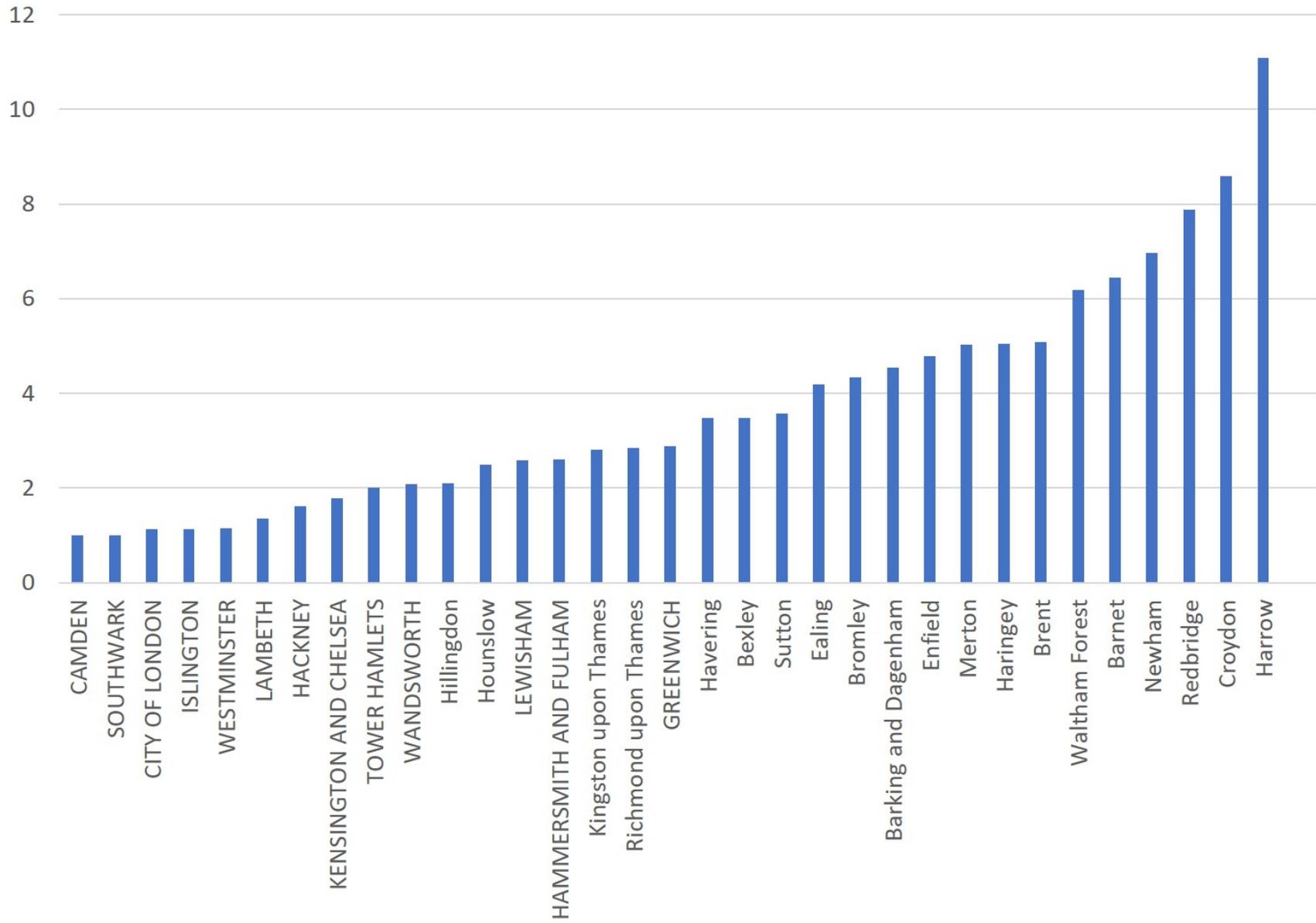


From reactive to proactive road safety?

- Road safety approaches at odds with rail and air safety
 - and workplace safety (even though roads are a workplace for many)
- Rise of ‘Vision Zero’ implies current approach not good enough – act before not after deaths and serious injury
- Increasing evidence about ‘what works’ re: EEE e.g. Teschke et al (2012) on infrastructure & cycle injuries
- So increasingly know what to do at risky locations – but where are they/what kind of places?
- High mode share targets for cycling – need to make roads which don’t have reactive safety data safer, in advance of mode share growing

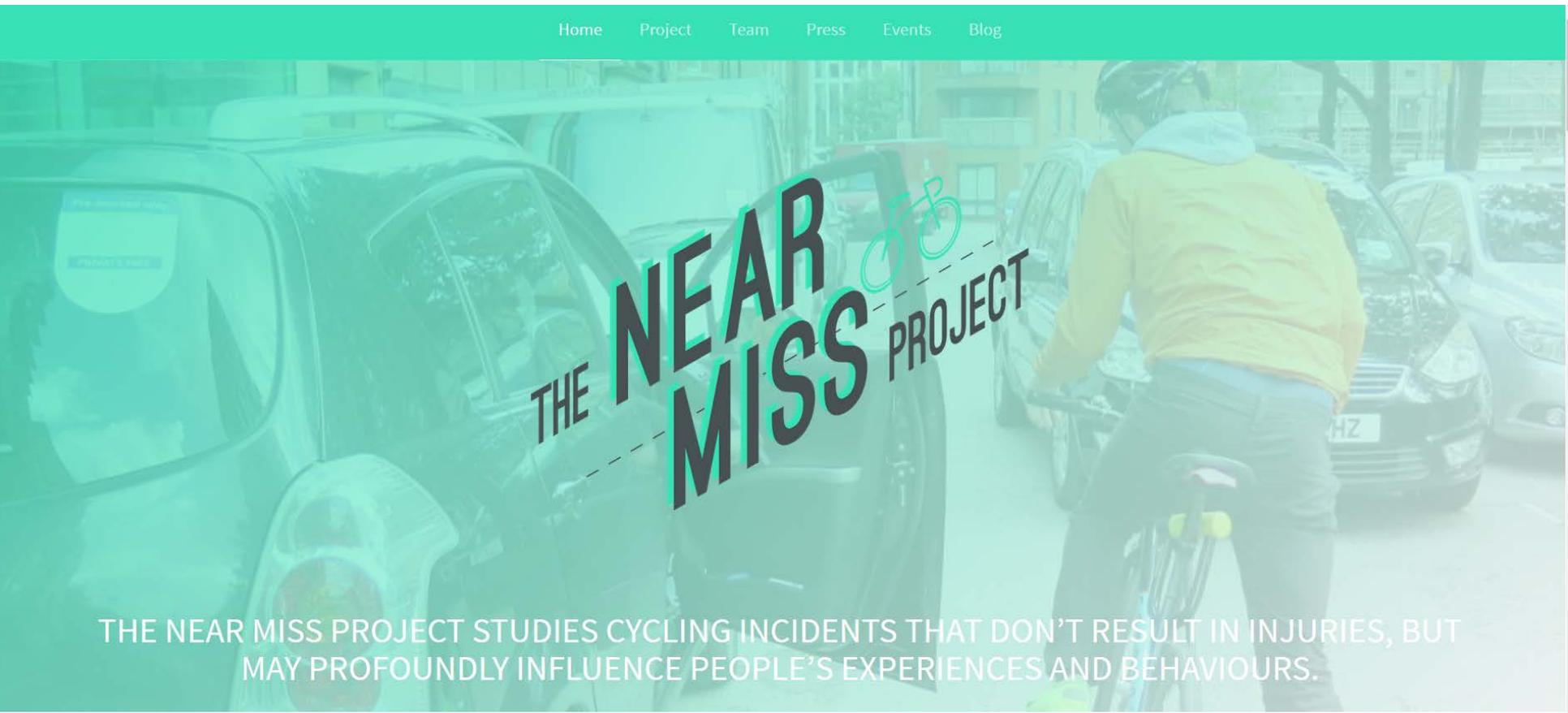
Example: hidden risks in Outer London (till you normalise)

Relative risk by commuter cycle volume (statutory Inner London boroughs plus CoL in CAPS)



The Near Miss Project: one approach

- Key aim: establish near miss rates and compare these to injury rates
- Sub-objectives
 - Classify near misses
 - Analyse variations in near miss rates
 - Analyse perceptions of causes and potential prevention
 - Analyse factors leading to near misses being perceived as more annoying or more scary
- Aims developed in context of new research field & led to specific design – One Day Diary (limited respondent burden, minimises recall bias), concentration on generalisation not geography



THE NEAR MISS PROJECT

THE NEAR MISS PROJECT STUDIES CYCLING INCIDENTS THAT DON'T RESULT IN INJURIES, BUT MAY PROFOUNDLY INFLUENCE PEOPLE'S EXPERIENCES AND BEHAVIOURS.

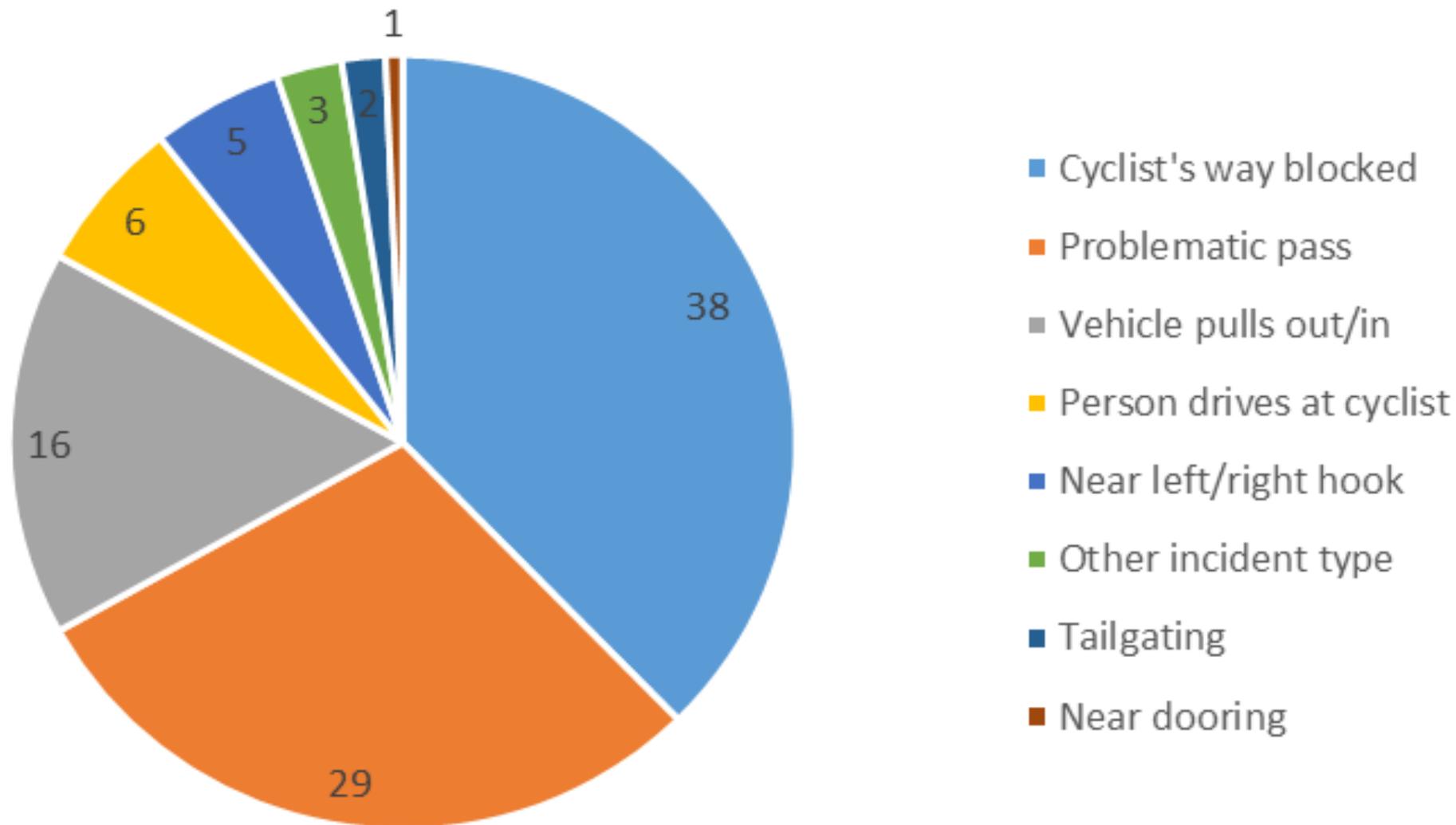
- Asked participants to keep a 'one-day diary' of trips and incidents in Autumn 2014 and again in Autumn 2015 – locating any incidents on a map and answering questions about them
- 2,586 UK participants over both years, >6,000 incidents between them
- First study to estimate a national near miss incident rate that can be compared with minor and serious injury risks

About the sample

- >70% male
- >75% aged 30-59
- 30% live in London
- Most weekday commuter or other utility cyclists
- Most experienced long-term cyclists - Y2 data suggested only 1/20 started cycling within the past 2 years



Reported 'incidents': what were these?

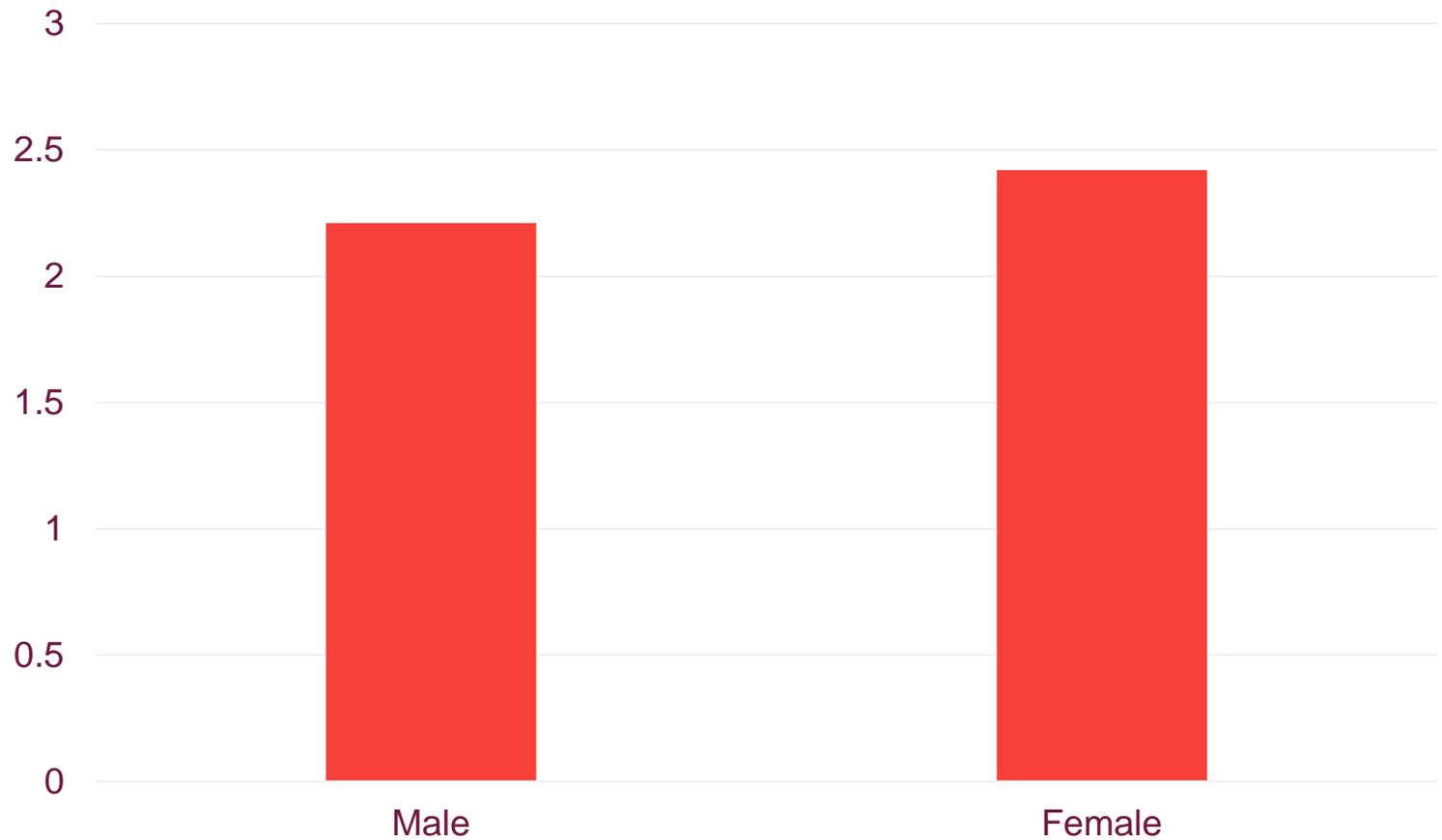


2014 data

Incident scariness



Daily incident rates, 2014 and 2015



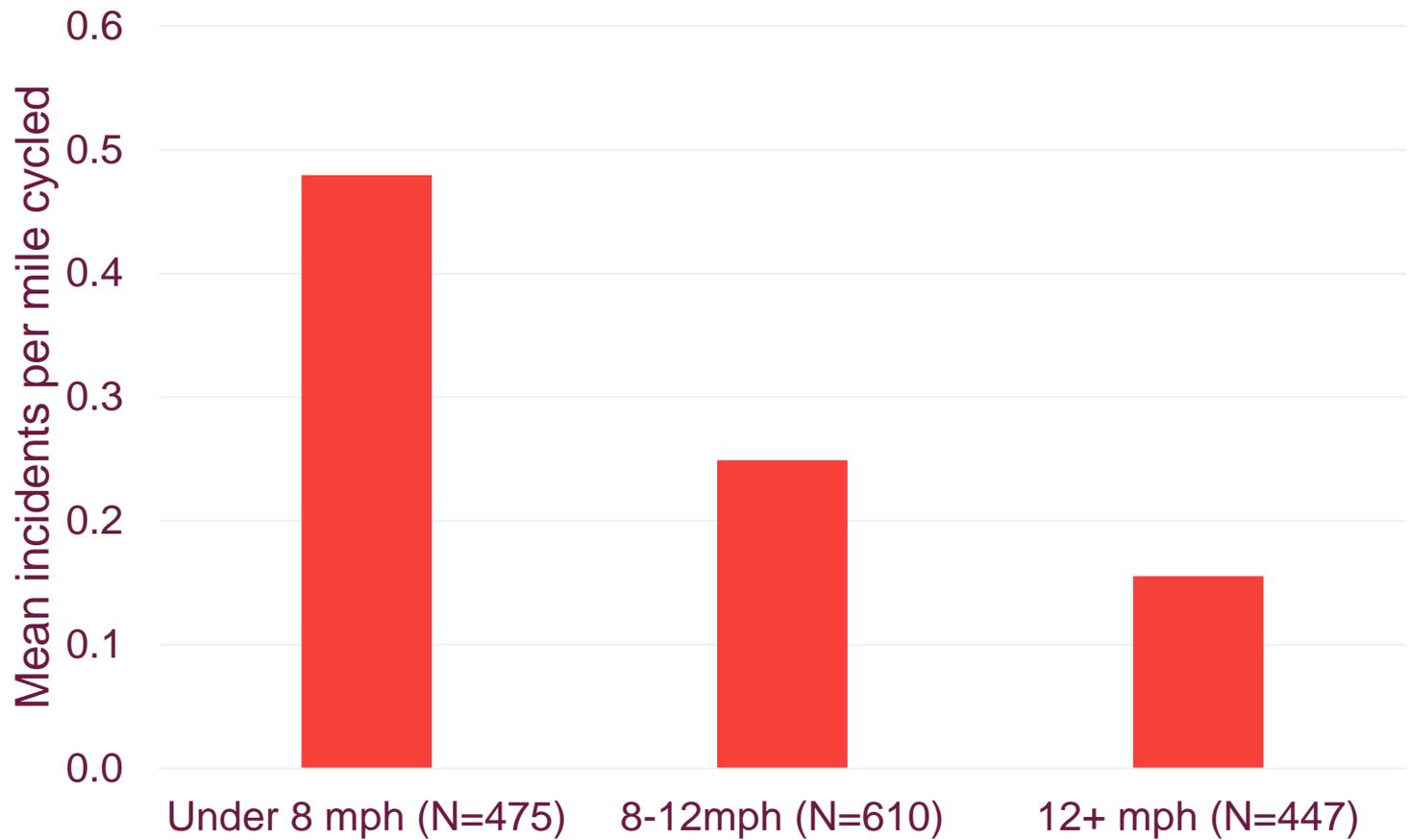
No evidence that incident rate associated with local prevalence of cycling

Comparing injury and non-injury incident rates

Type of Incident	Rate per year, regular UK commuting cyclist
Death	.000125 (once every 8,000 yrs)
Reported serious injury	.0025 (once every 400 yrs)
Reported slight injury	.015 (once every 67 yrs)
Any injury (reported or not)	.05 (once every 20 yrs)
Harassed/abused	20
'Very scary' incident	60
Any non-injury incident	450

Final three figures derived from Near Miss Project data for Year 1. First four derived from published academic sources – see Aldred and Crossweller (2015).

Speed and incidents



New cyclists have twice as many very scary incidents per day*



* 2015 data, gap persists when adjusted for demographics, distance, speed

Impacts on future cycling

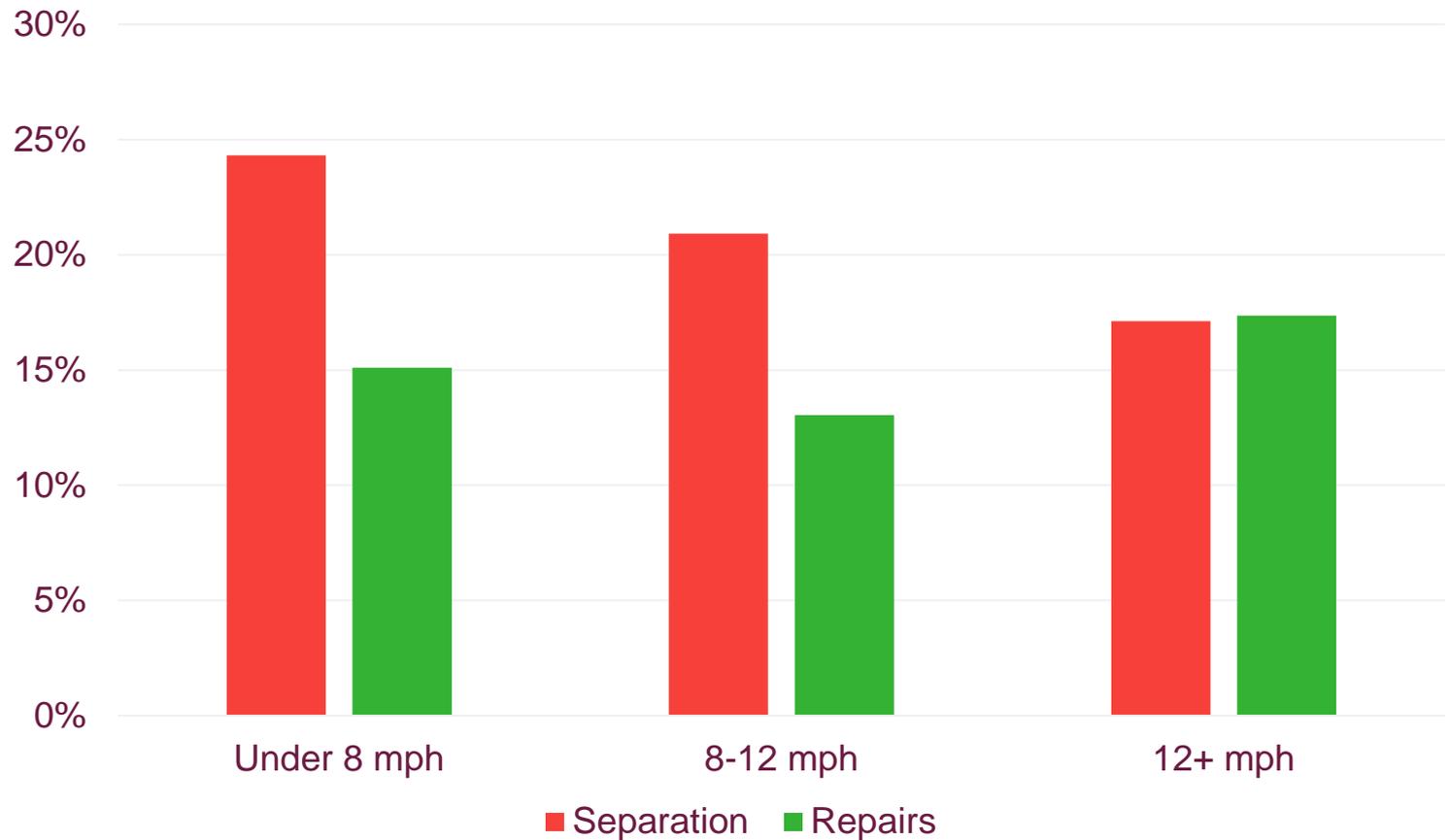
‘I already approach this junction, and indeed every portion of the campus where I have to cycle on the road, with considerable caution. I can only attempt to cycle even more cautiously in future.’

‘An accumulation of these events [...] has made me super cautious, and I now believe it’s not sufficient simply to obey the rules to stay alive. To stay alive one must also anticipate that all others will be careless.’

‘I lack confidence & feel nervous when vehicles come from behind. I’m fed up with drivers overtaking me towards oncoming traffic & providing me with insufficient room &/or nearly pushing the other vehicle off the road.’



Slower cyclists were more likely to suggest protection from motor traffic could have prevented an incident



2014 data

Factor	Indicator
Safety	
Collision risk	Left/right hook at junctions
	Collision alongside or from behind
	Kerbside activity or risk of collision with door
	Other vehicle fails to give way or disobeys signals
Feeling of safety	Separation from heavy traffic
	Speed of traffic (where cyclists are not separated)
	Total volume of traffic (where cyclists are not separated)
	Interaction with HGVs

Responses #1: design guidance

Table 2: The five conflict types most commonly resulting in KSIs to cyclists during 2011-13

Conflict rank	Indicative diagram	Manoeuvre description	Seriously injured casualties (% of total)	Fatal casualties (% of total)
1		Other vehicle turns right across path of cyclist	243 (14%)	2 (5%)
2		Cyclist hits open door / swerves to avoid open door of other vehicle.	160 (10%)	2 (5%)
3		Cyclist and other vehicle travelling alongside each other.	146 (9%)	4 (9%)
4		Other vehicle turns left across the path of cyclist	125 (9%)	11 (25%)
5		Other vehicle fails to give way or disobeys junction control and collides with cyclist	96 (6%)	1 (2%)

Responses #2: enforcement



Login Register Subscribe Rewards Search Video

The Telegraph

HOME NEWS SPC

News

UK World Politics General Election 2017 Science Education Health Brexit

News

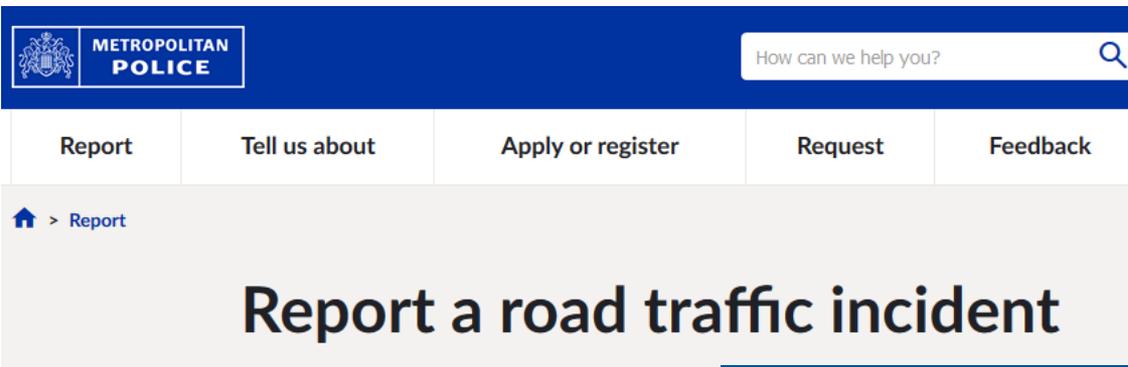
Drivers who overtake cyclists 'too close for comfort' could be lectured by police with giant mats

share

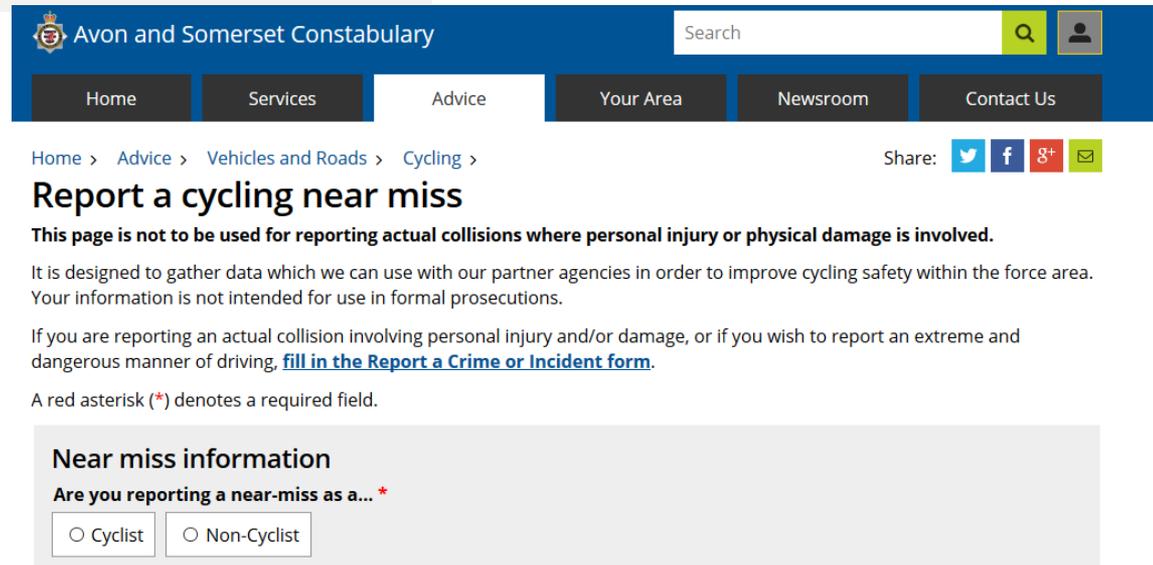


Cycling UK will offer new 'clearance mats' to each police force

Responses #3: enforcement & planning



The image shows the top section of the Metropolitan Police website. It features a dark blue header with the Metropolitan Police crest and logo on the left. To the right is a search bar with the placeholder text "How can we help you?". Below the header is a navigation menu with five items: "Report", "Tell us about", "Apply or register", "Request", and "Feedback". Below the navigation menu is a breadcrumb trail: "Home > Report". The main heading "Report a road traffic incident" is displayed in a large, bold, black font.



The image shows the top section of the Avon and Somerset Constabulary website. It features a dark blue header with the Avon and Somerset Constabulary crest and logo on the left. To the right is a search bar with the placeholder text "Search". Below the header is a navigation menu with five items: "Home", "Services", "Advice", "Your Area", "Newsroom", and "Contact Us". Below the navigation menu is a breadcrumb trail: "Home > Advice > Vehicles and Roads > Cycling >". To the right of the breadcrumb trail is a "Share:" button with icons for Twitter, Facebook, Google+, and Email. The main heading "Report a cycling near miss" is displayed in a large, bold, black font. Below the heading is a bolded warning: "This page is not to be used for reporting actual collisions where personal injury or physical damage is involved." Below the warning is a paragraph of text: "It is designed to gather data which we can use with our partner agencies in order to improve cycling safety within the force area. Your information is not intended for use in formal prosecutions." Below the paragraph is another paragraph of text: "If you are reporting an actual collision involving personal injury and/or damage, or if you wish to report an extreme and dangerous manner of driving, [fill in the Report a Crime or Incident form](#)." Below the paragraph is a note: "A red asterisk (*) denotes a required field." Below the note is a section titled "Near miss information" with a bolded question: "Are you reporting a near-miss as a... *". Below the question are two radio button options: "Cyclist" and "Non-Cyclist".

Approaches to collecting near miss data (1)

- Other time-limited approaches e.g. Dutch bicycle week collects a week of cyclist GPS data & uses in tools like BikePrint
 - aim to maximise participation among wide range of cyclists, & avoid steep drop-off
- Subjective or objective data?
- ‘Objective’ reduces respondent burden and may be seen as more reliable (although I found similar rates) but can only capture a few types of near miss at present



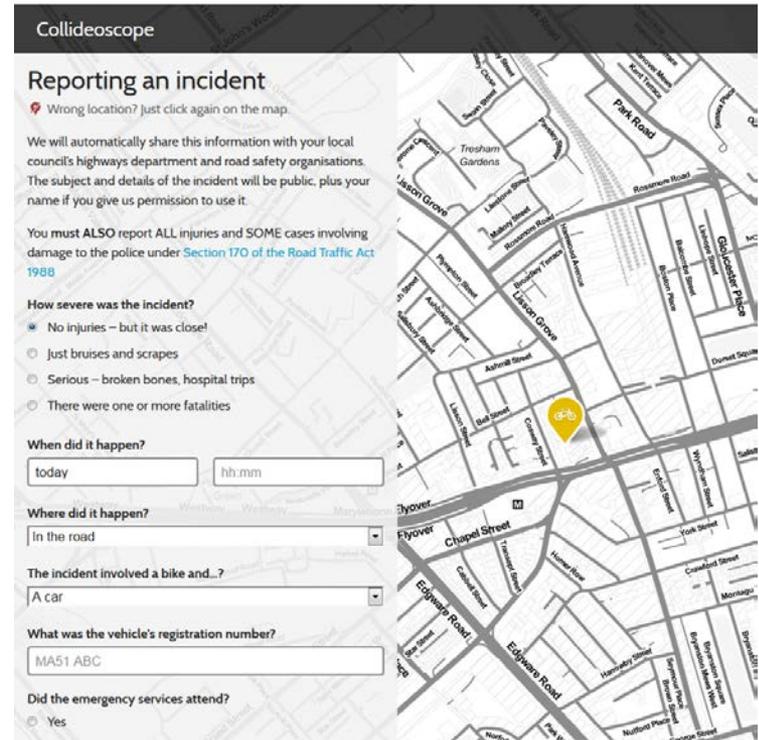
Approaches to collecting near miss data (2)

- Who collects the data?
 - Police services?
 - Local authorities?
 - Academics?
 - Private sector organisations?
 - Advocacy organisations?
- Issues of data management, ethics and re-use – and of credibility and trust – and motivation



Approaches to collecting near miss data (3)

- Open web reporting platforms e.g. BikeMaps.org, Collideoscope (How open? Do you know who replies? Focus on near misses only or other issues?)
- Using apps/smart gadgets e.g. CycleHackney, Give a Beep, may also allow collection of route data (but do not always do so), and often use real-time reporting (more reliable? Risk?)



Collideoscope

Reporting an incident

📍 Wrong location? Just click again on the map.

We will automatically share this information with your local council's highways department and road safety organisations. The subject and details of the incident will be public, plus your name if you give us permission to use it.

You must **ALSO** report ALL injuries and **SOME** cases involving damage to the police under [Section 170 of the Road Traffic Act 1988](#)

How severe was the incident?

- No injuries – but it was close!
- Just bruises and scrapes
- Serious – broken bones, hospital trips
- There were one or more fatalities

When did it happen?

today hh mm

Where did it happen?

In the road

The incident involved a bike and...?

A car

What was the vehicle's registration number?

MA51 ABC

Did the emergency services attend?

Yes

Why is Route Data Important?

- Without it, we can't say e.g. one intersection (or intersection **type**) is riskier than another
- This wasn't so much a problem for the Near Miss Project as aims were different
 - But I'd include route data in future (e.g. to compare with my current work on injuries which uses route data) – and I suggest you consider it
 - Like injury data, near miss data's skewed towards where people currently cycle – but for near misses there'll be much more reporting bias, so controlling for exposure even more important
 - OTOH involves more privacy issues & complicates analysis!

Issues to Consider (1)

- Participant motivation – very high drop-off rates with open reporting, if no ‘comeback’ (can then have negative impact)
- Reaching a broad spread of participants – particularly important if seeking to draw geographical and/or generalizable conclusions
- Privacy and ethical issues – esp. if collecting route data (scramble start and end points), and safety (for subjective real-time reporting)

Issues to Consider (2)

- What are your key questions/goals?
 - Do you want to pinpoint specific sites or learn about factors associated with near miss risk in your area?
 - Implement primarily engineering-based, enforcement or educational responses?
 - Change media / policy debate around road safety?
 - Engage more with cyclists?
 - Focus on particular incident types e.g. close passes? Etc.
- Key research questions (& factors like budget and analytical capacity) should determine approach, who does what, type of data collected, etc.

Thank you for listening!

– Time for Q&A/Discussion

The Near Miss Project: Quantifying Cyclist Comfort and Safety

Thoughts on research, monitoring, and practice

r.aldred@westminster.ac.uk

Rachel Aldred

rachelaldred.org

[@RachelAldred](https://twitter.com/RachelAldred)