

Bike share and safety

Roundtable on Cycling Safety, 29th – 30th January 2018, Paris

Dr Elliot Fishman

Institute for Sensible Transport, Melbourne, Australia

Dr Paul Schepers

Utrecht University, Faculty of Geosciences, Utrecht, The Netherlands

Ministry of Infrastructure and the Environment, The Hague, The Netherlands





Mixed Traffic

2,000



Regular Bus

9,000



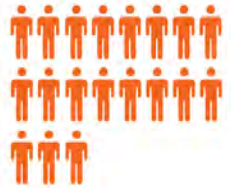
Cyclists

14,000



Pedestrians

19,000



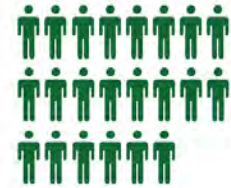
BRT
(Single Lane Bus)

20,000



Light Rail

22,000



BRT
(Double Lane Bus)

43,000



Heavy Rail
(e.g. Hong Kong)

80,000



Suburban Rail

100,000



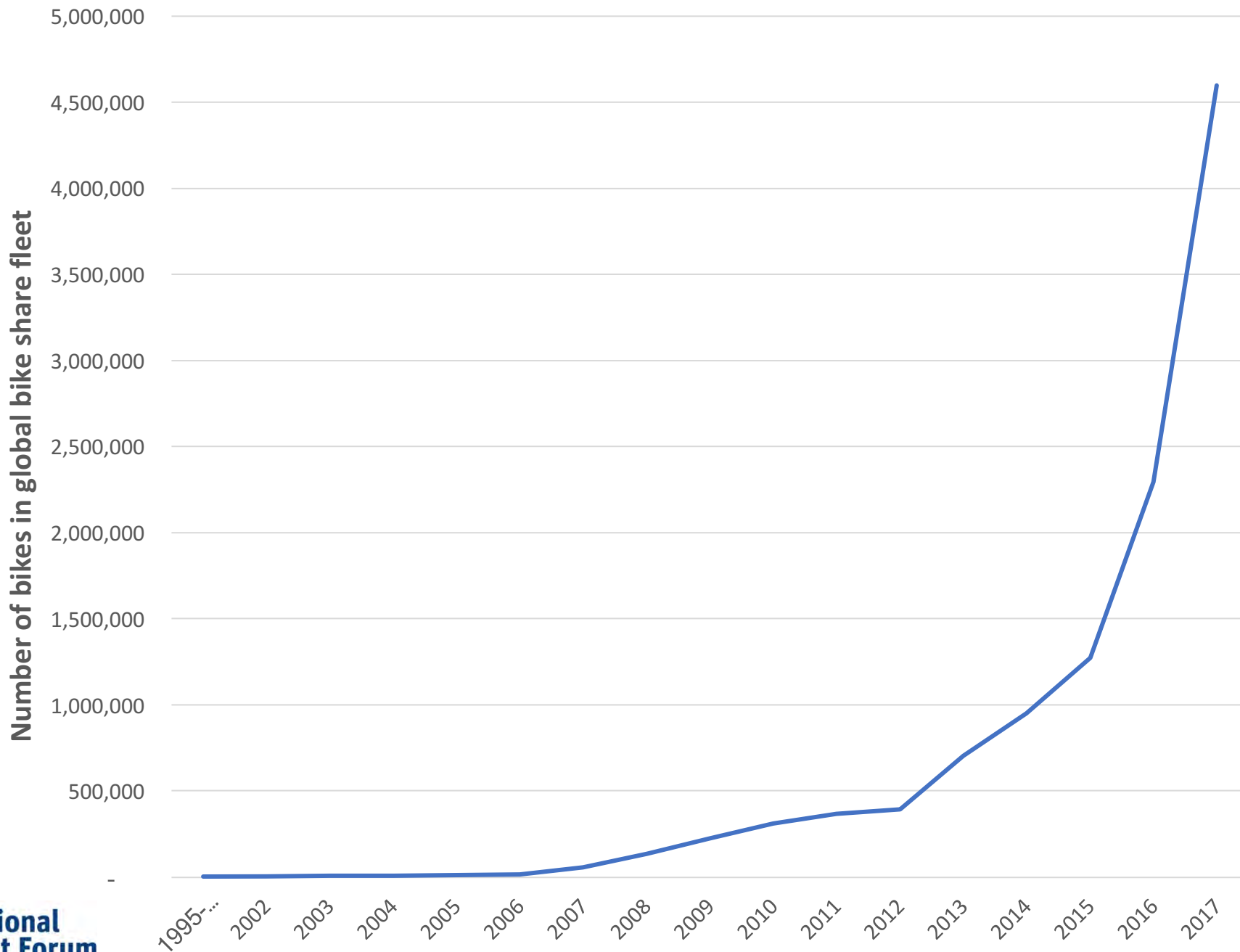
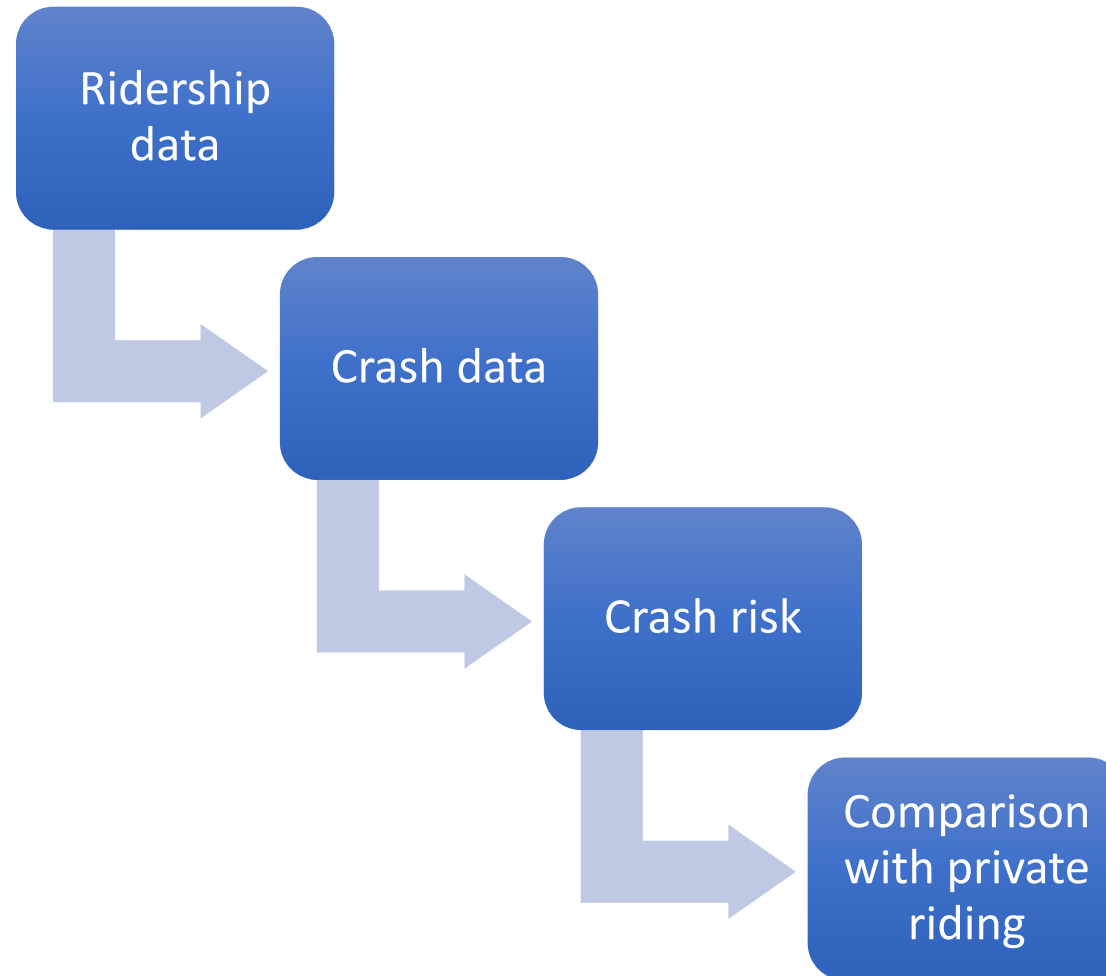


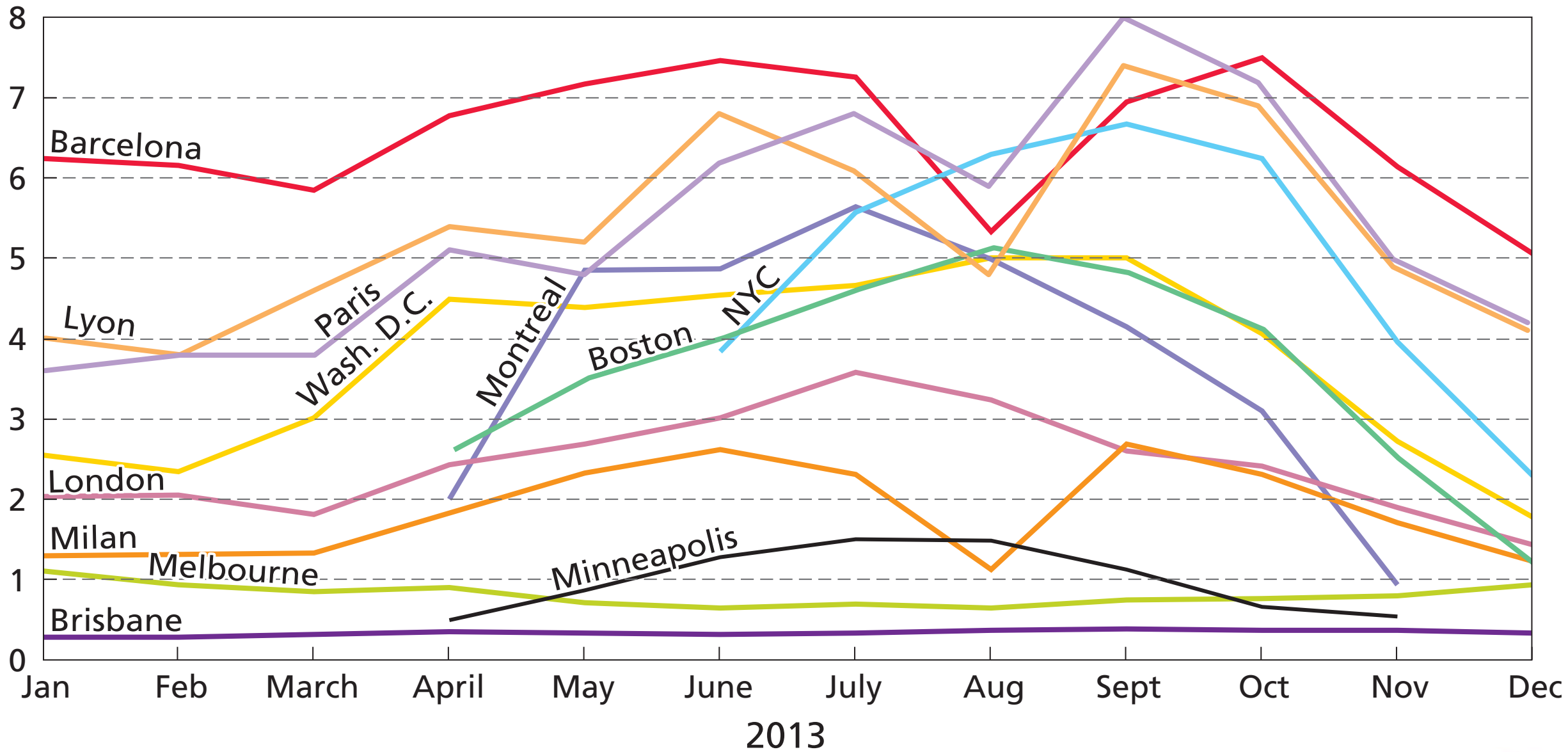


Photo: Nigel G

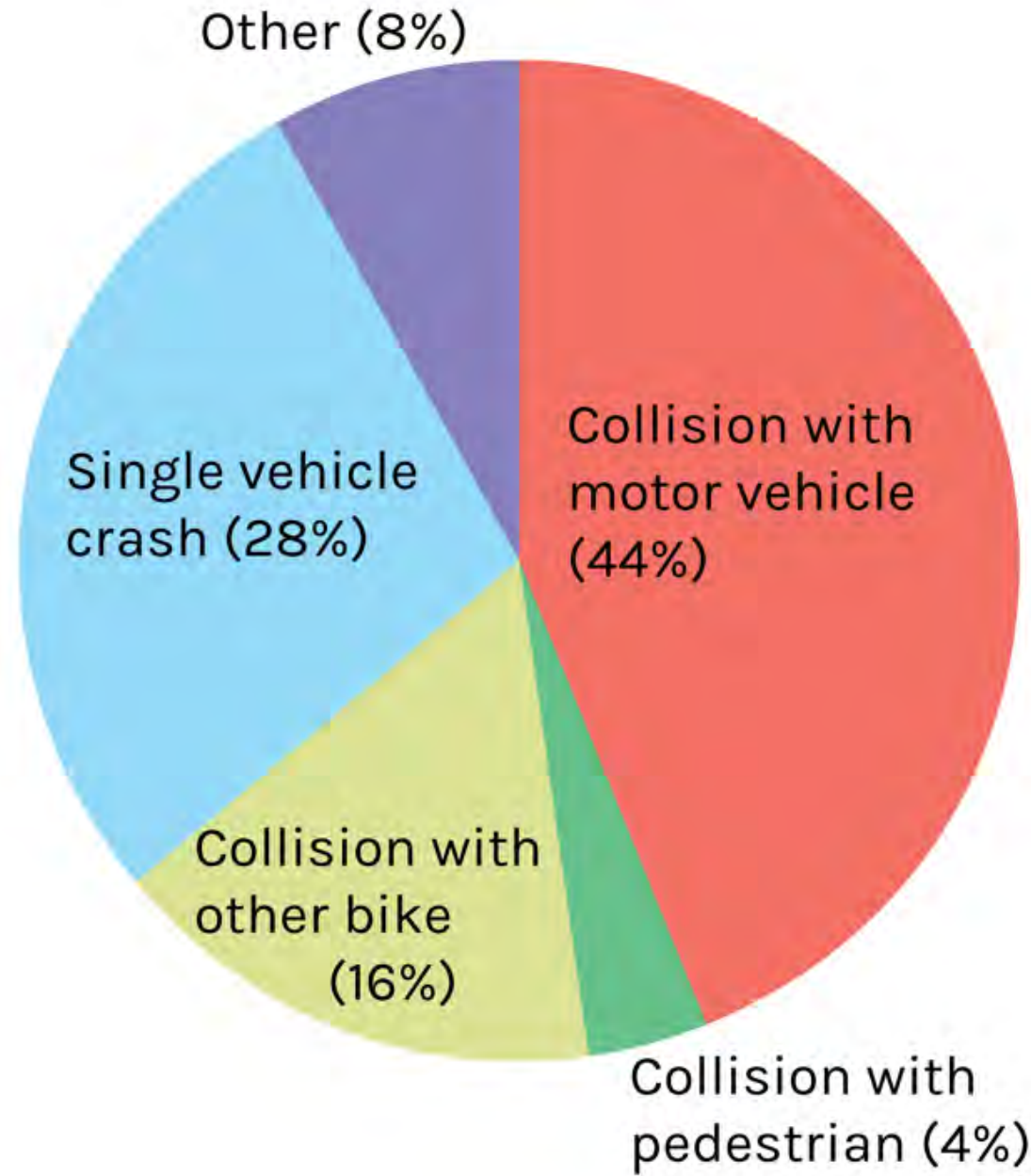
Methodology



Trips per day per bike

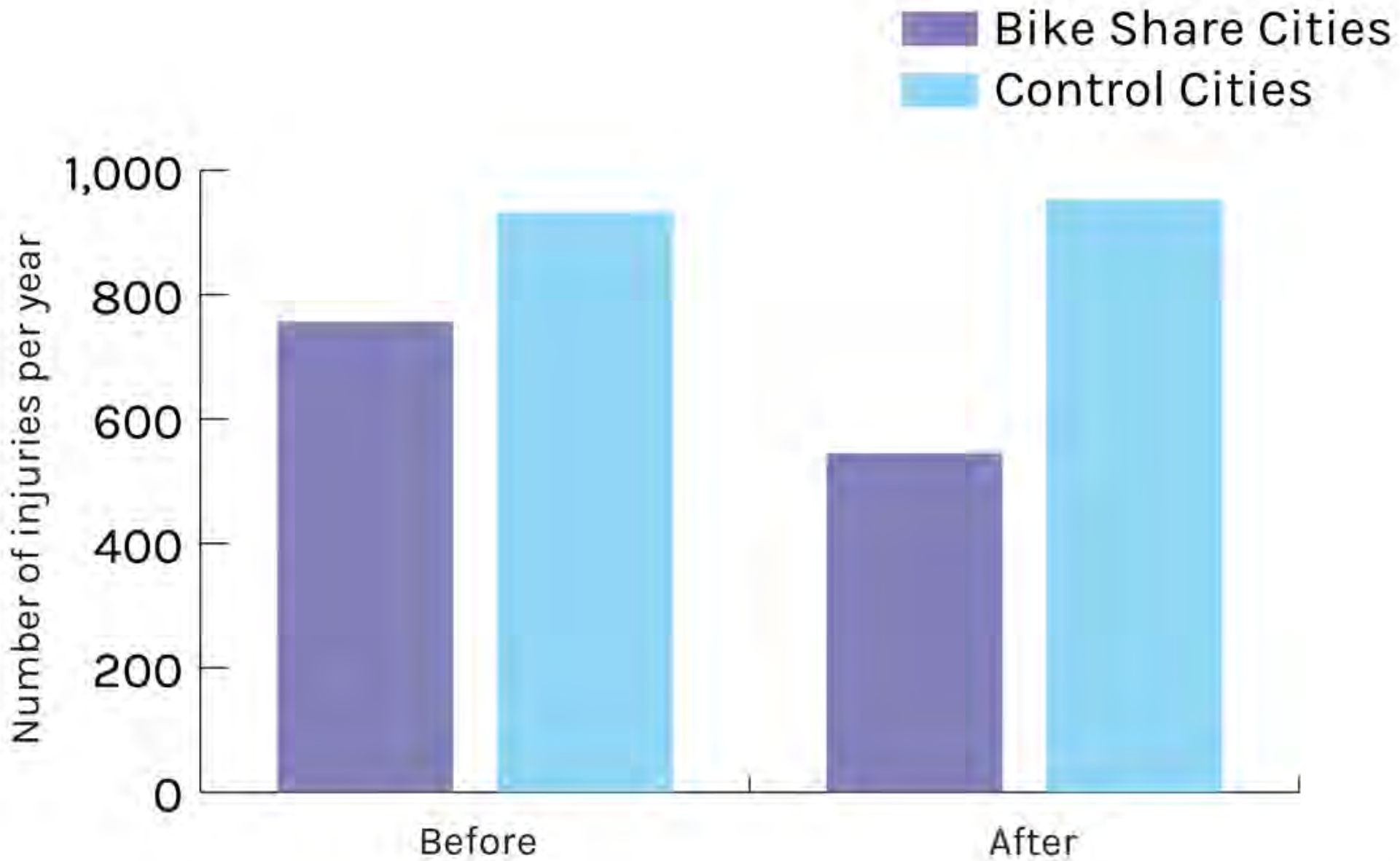


Reported crash type, Montreal bike share (2013)



Study 1: Longitudinal hospital data from bike share and non bike share cities





Injuries

City	Before (per year)	after	total
Bike share cities	1,513 (757)	545	2,058
Control cities	1,863 (932)	953	2,816
Total	3,376 (1,688)	1,498	4,874

Source: Graves et al. (2014)



Study 2: Injury data from bike share users and private bicycle riders

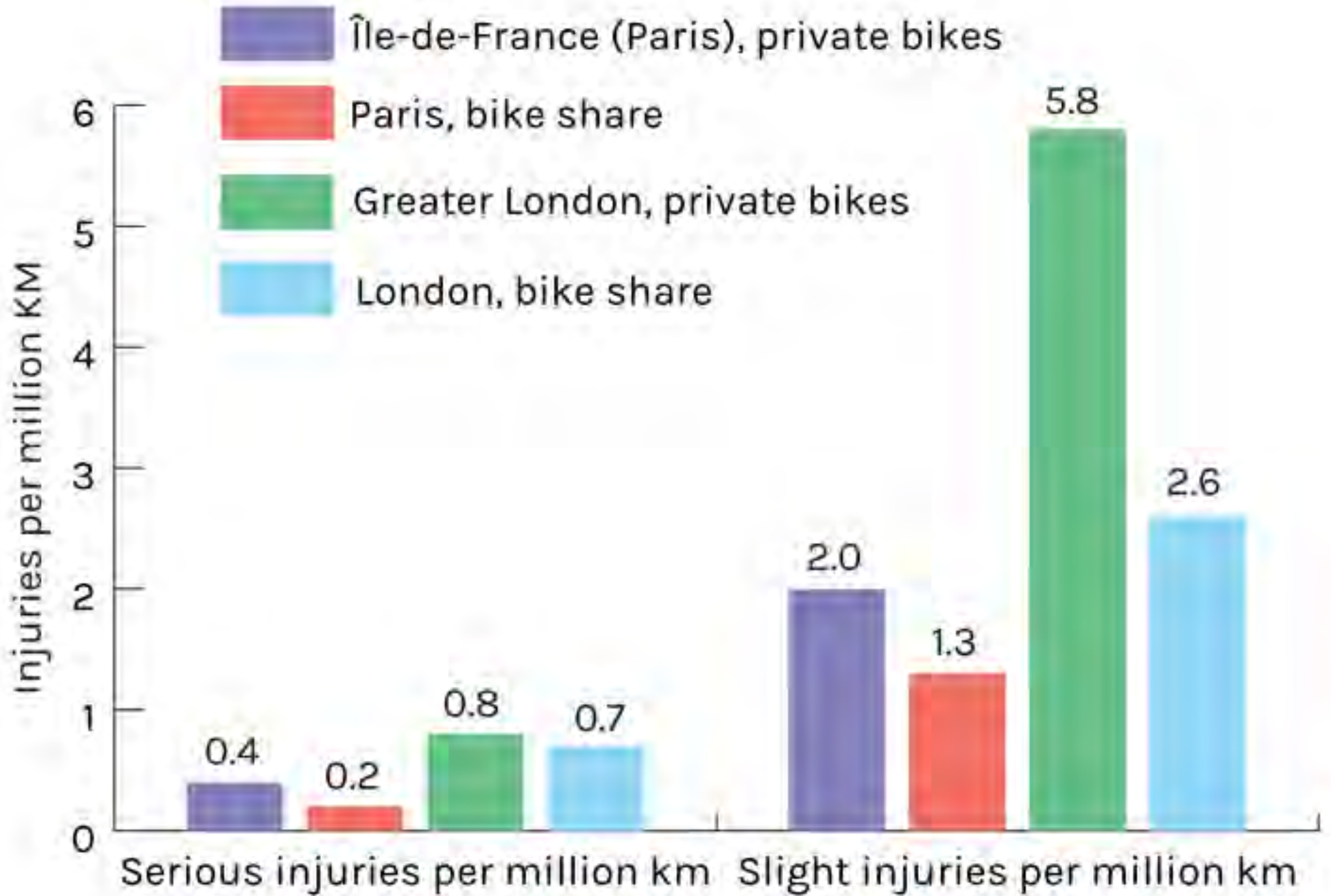


Paris and London bike share programs, size, usage and injury data, 2013

City	Ave. no. bicycles in fleet	Total trips for 2013	Ave. no. trips per day per bike	Est. ave. trip duration (min.)	Est. distance travelled per year (km)	Serious injuries	Fatalities
Paris	18,130	35,021,999	5.3	20	118,607,837	19	0
London	9,083	8,045,459	2.4	17.5	23,841,377	17	1



Comparing private and bike share cycling



Bicycle use and injury rates for private and bike share users

Injury numbers	Serious injuries	Fatalities
Private bicycle	2,015	79
Bike share	36	9
Bicycle use (billion km)		
Private bicycle	3.19	3.19
Bike share	0.14	0.72
Expected based on bicycle use ¹		
Private bicycle	1,964.8	71.8
Bike share	86.2	16.2
Observed versus expected based on bicycle use		
Chi-square	31.5	3.9
P	<0.001	0.048
Injury risks per billion km		
Private bicycle	631	25
Bike share	253	13
Crude Incidence Rate Ratio (95% CI) ²	0.41 (0.29 to 0.57)	0.50 (0.25 to 1.00)

What we found (so far)...

Study 1 The introduction of a bike share program is associated with a reduction in cycling injury risk

Study 2 Bike share users are less likely than other cyclists to sustain fatal and serious injuries



Possible explanations

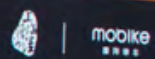
Bikeshare may be safer than other forms of cycling – potentially twice as safe

Possible explanations:

- Slower
- Motorist behaviour
- Upright and full time safety lights
- Spatial catchment of bike share



Dockless Bike Share

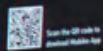


Mobike Preferred Location

Caohejing Street is located in the center of Xuhui District, it has 5.26 square kilometers areas and 30 residents' committees. Caohejing street has a hundred-year-old town reputation, it was one of the five towns in Shanghai County and was placed under the jurisdiction of Xuhui District in 1984, it withdrew the town in 2001 and build streets with the South Railway Station completed zoning adjustment again in 2004. The area is located on the railway Shanghai South Railway Station, long-distance South Station, Cao bus hub station, tourist hub and other urban transport hub and Humen elevated, the subway Line 1, Line 2, Line 12, Shanghai-Hangzhou Railway traffic Network is about to build the subway Line 15 through jurisdiction.

How to use mobike?
Scan the QR code below to download the app, and start riding Mobike for 1 CNY per half hour, and Mobike lite for only 0.5 CNY per half hour.

1. Once you've completed registration, you will be able to scan any Mobike and start riding.
2. You can return the bicycle at any public bicycle parking on the sidewalk. Lock the bike when you're done.



Caohejing and Mobike Inc. support low carbon emission and green transportation.



Share more
Consume less

ofo



Passage
interdit

Accès réservé
aux vélos
mun. billets

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé

Accès
réservé





Recommendations

1. Bike share programs must be introduced in conjunction with improved environments for cycling (e.g. bike lanes, lower speed limits)
2. Operators must develop a consistent approach to data collection on crashes
3. City governments must impose mandatory requirements on operators (both reporting & bike share hardware)
4. Introduce technologies to detect and notify operator of potential crashes



Questions?

Dr Elliot Fishman
Director, Transport Innovation
Institute for Sensible Transport
info@sensibletransport.org.au

