Bike share and safety

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

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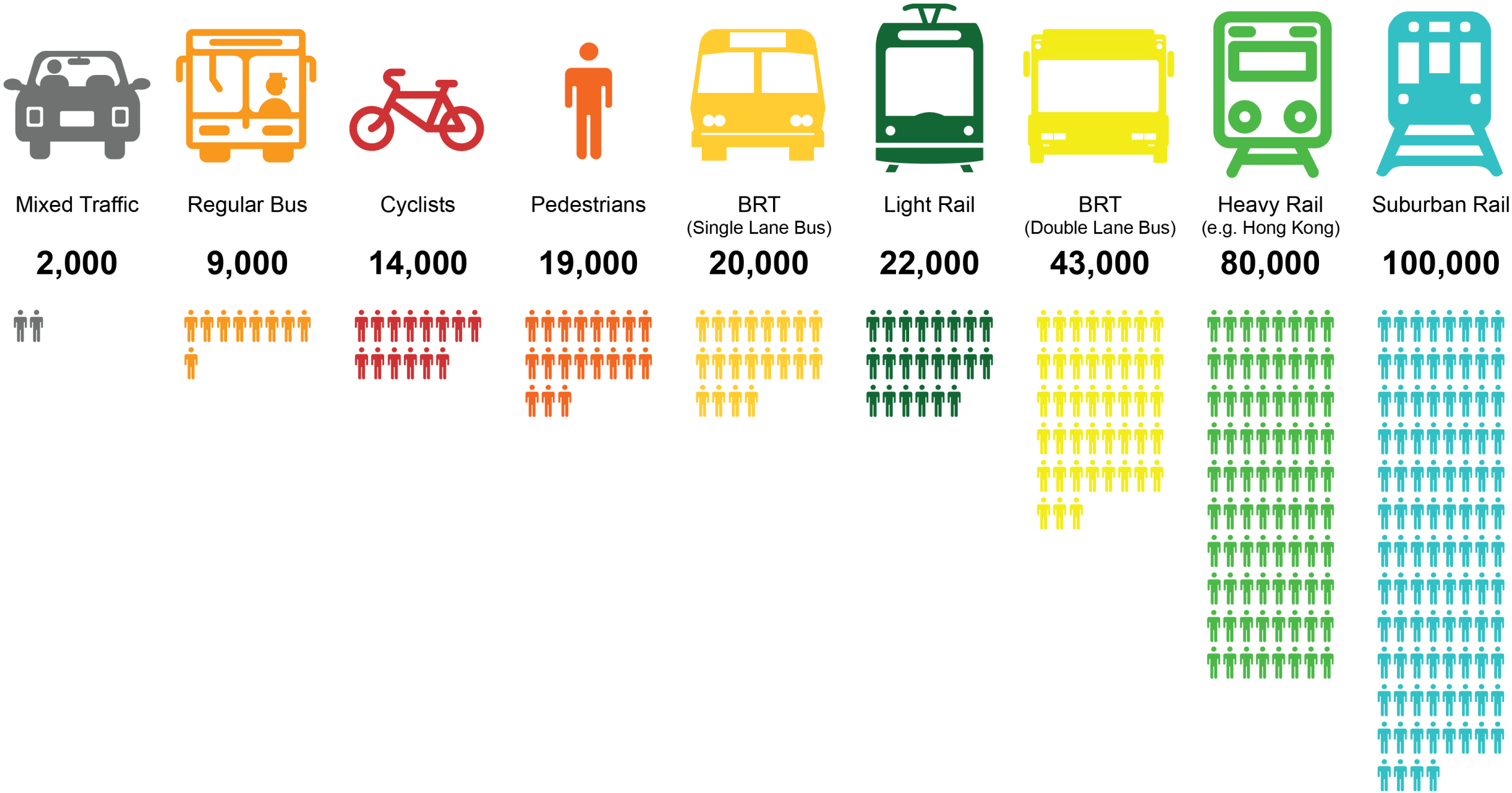
Mixed Traffic
2,000
Regular Bus
9,000
Cyclists
14,000
Pedestrians
19,000
BRT
(Single Lane Bus)
20,000
Light Rail
22,000
BRT
(Double Lane Bus)
43,000
Heavy Rail
(e.g. Hong Kong)
80,000
Suburban Rail
100,000

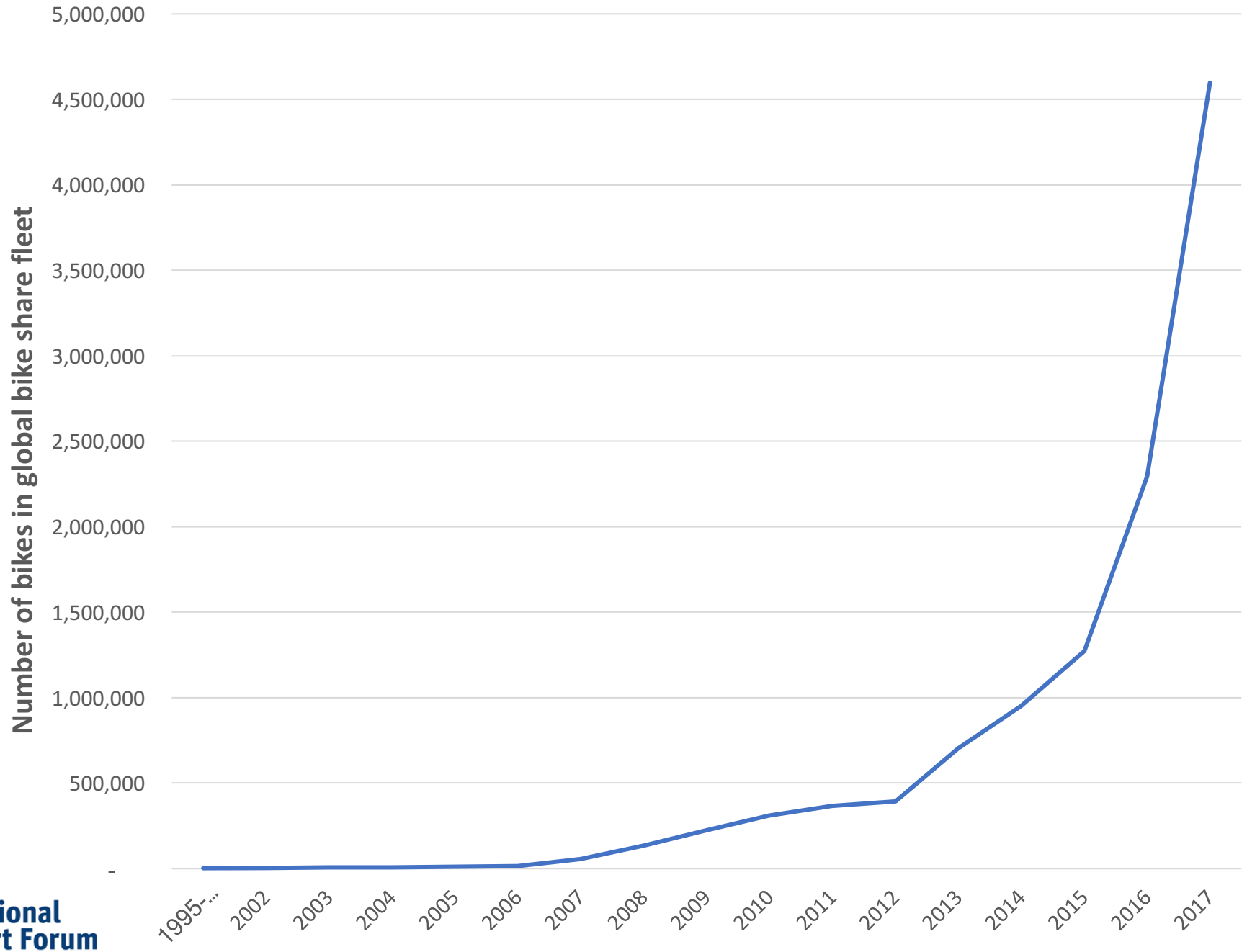

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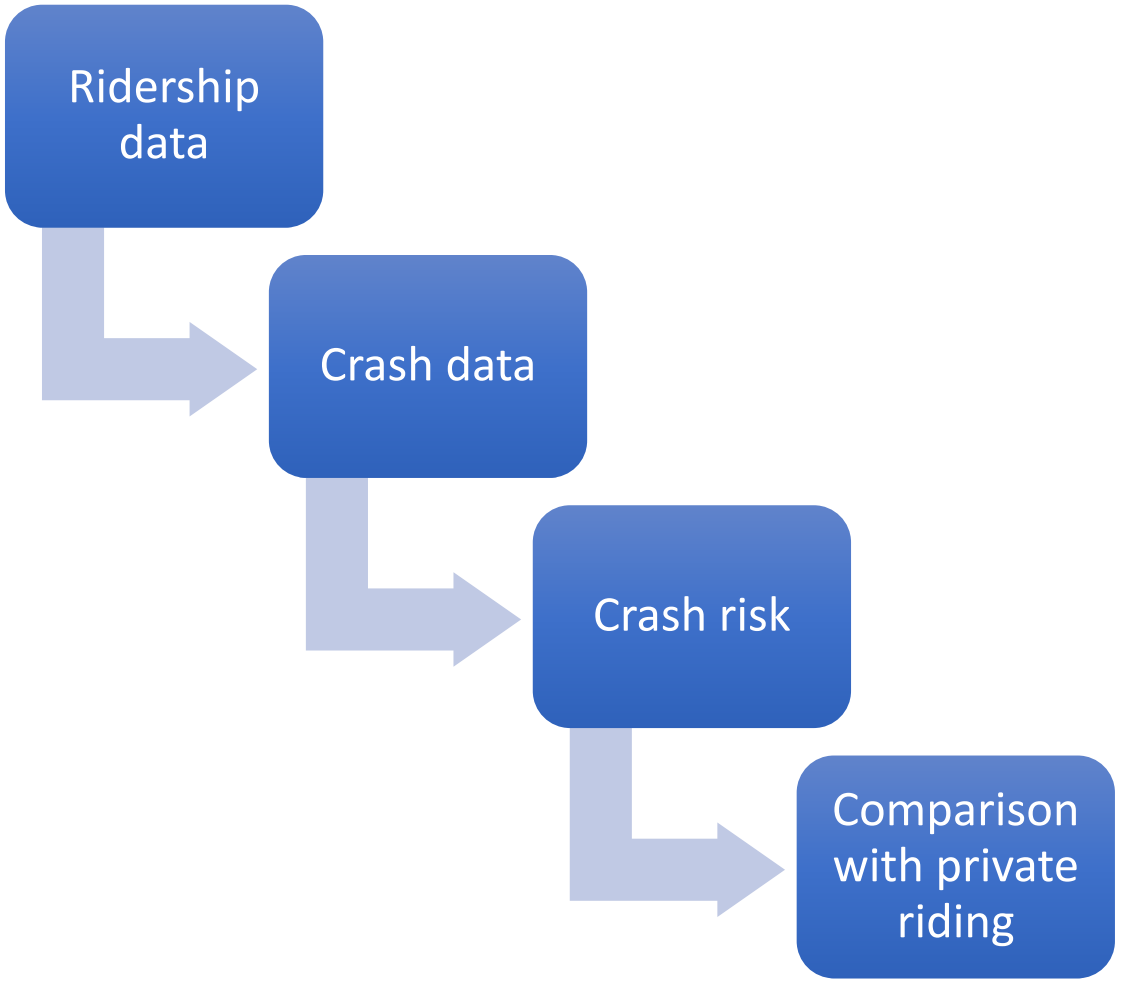
Photo: Nigel G

Methodology



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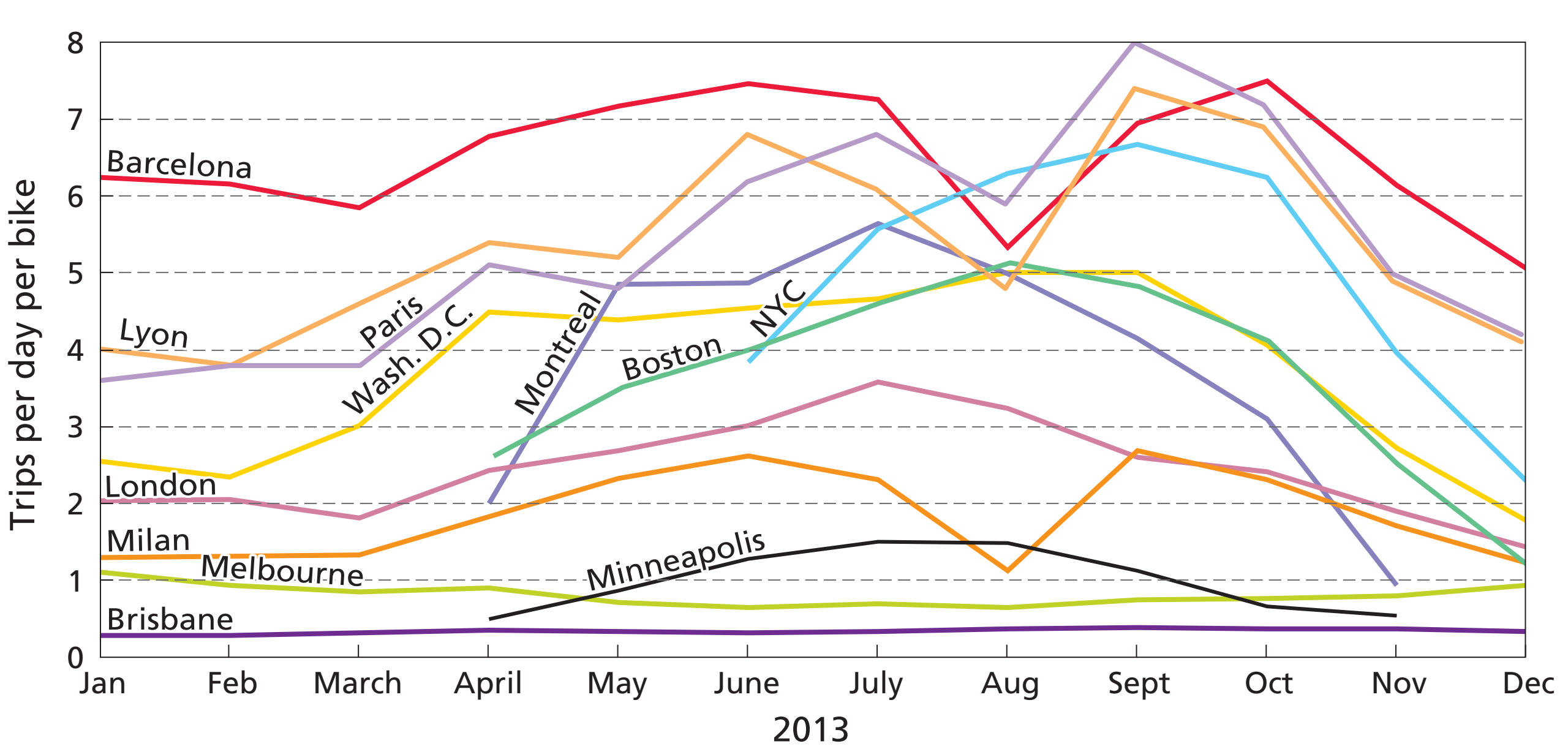

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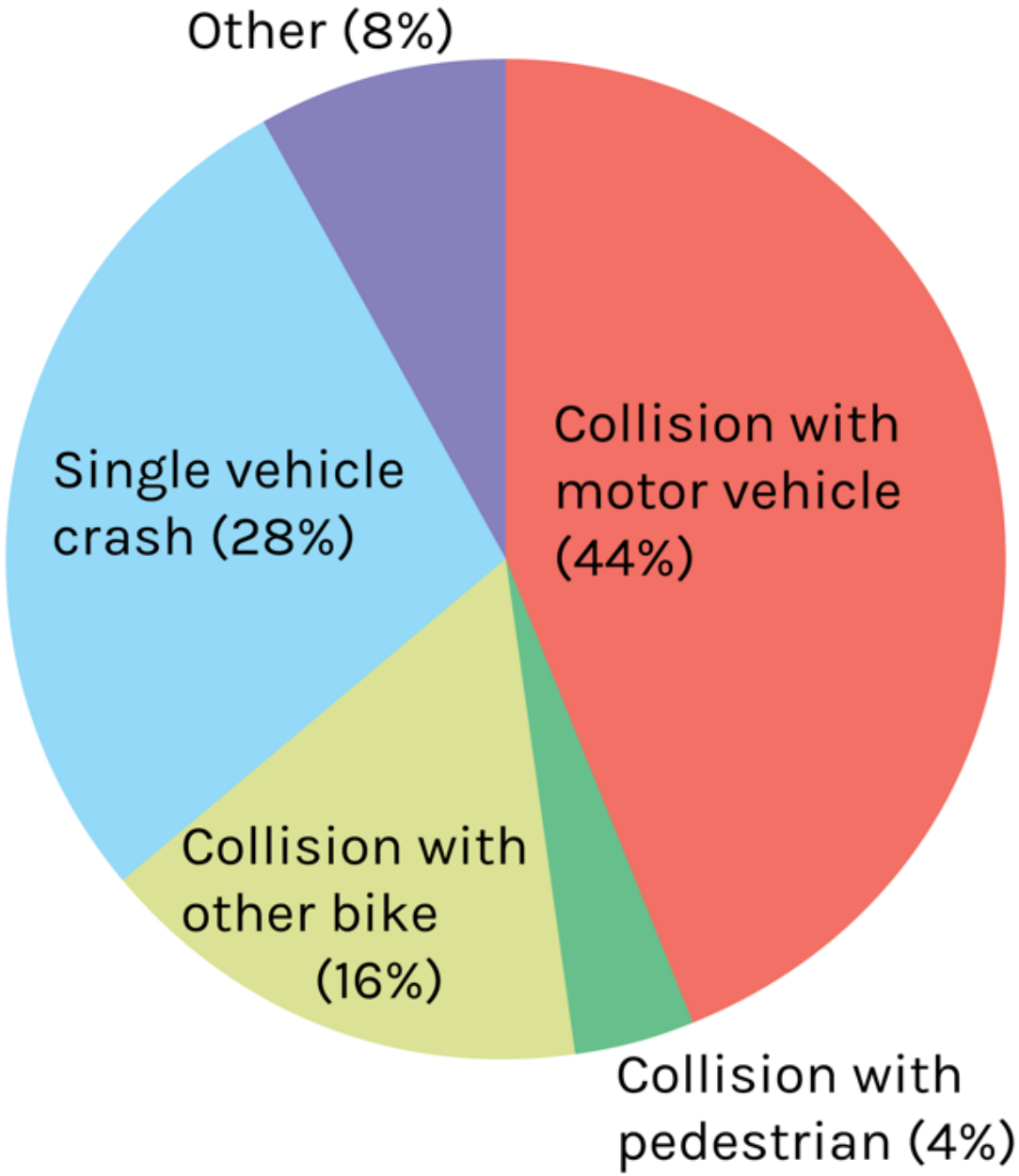
Reported crash type, Montreal bike share (2013)



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

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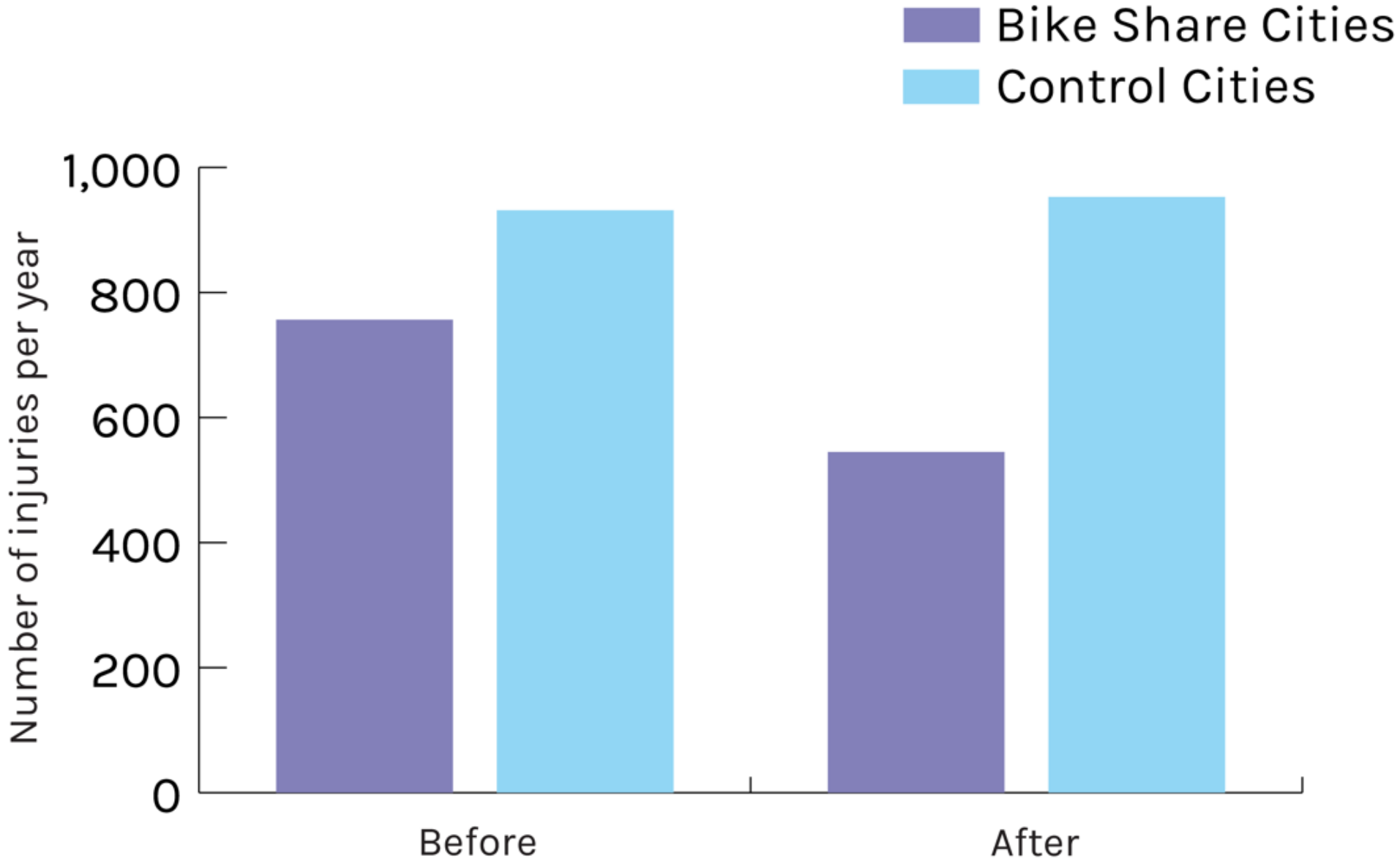

Source: Graves et al. (2014)

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

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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

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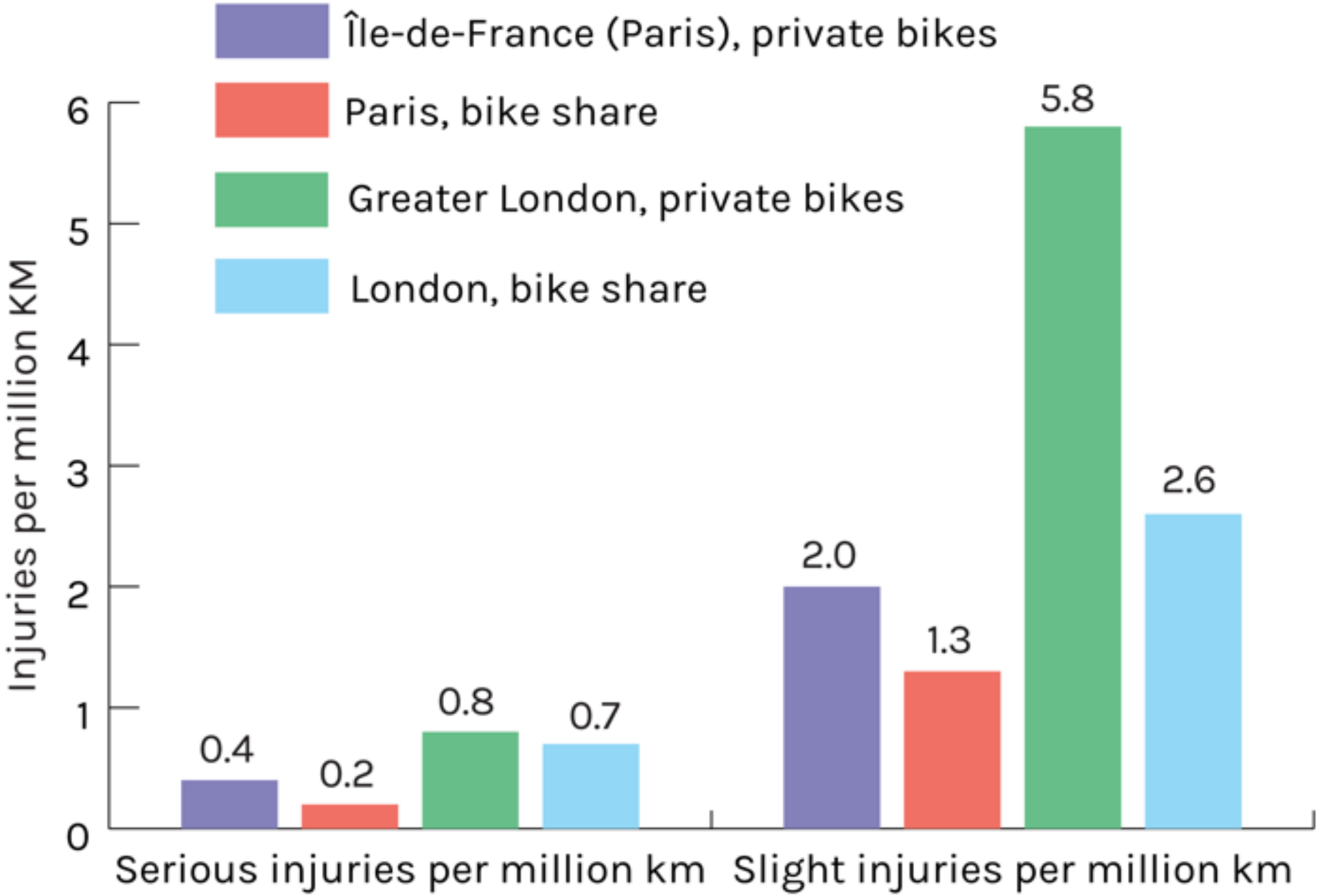
Comparing private and bike share cycling



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


Passage interdit
Share more
Consume less
ofo


JUMP

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?

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