Data on cycling injuries

How do we fail thee? Let me count the ways ...

Kay Teschke
School of Population & Public Health
The University of British Columbia

What do we want to know about cycling injuries?

How big a health problem are they?

- compare to other risks in life
- compare to risks of other transport modes

How can we improve safety?

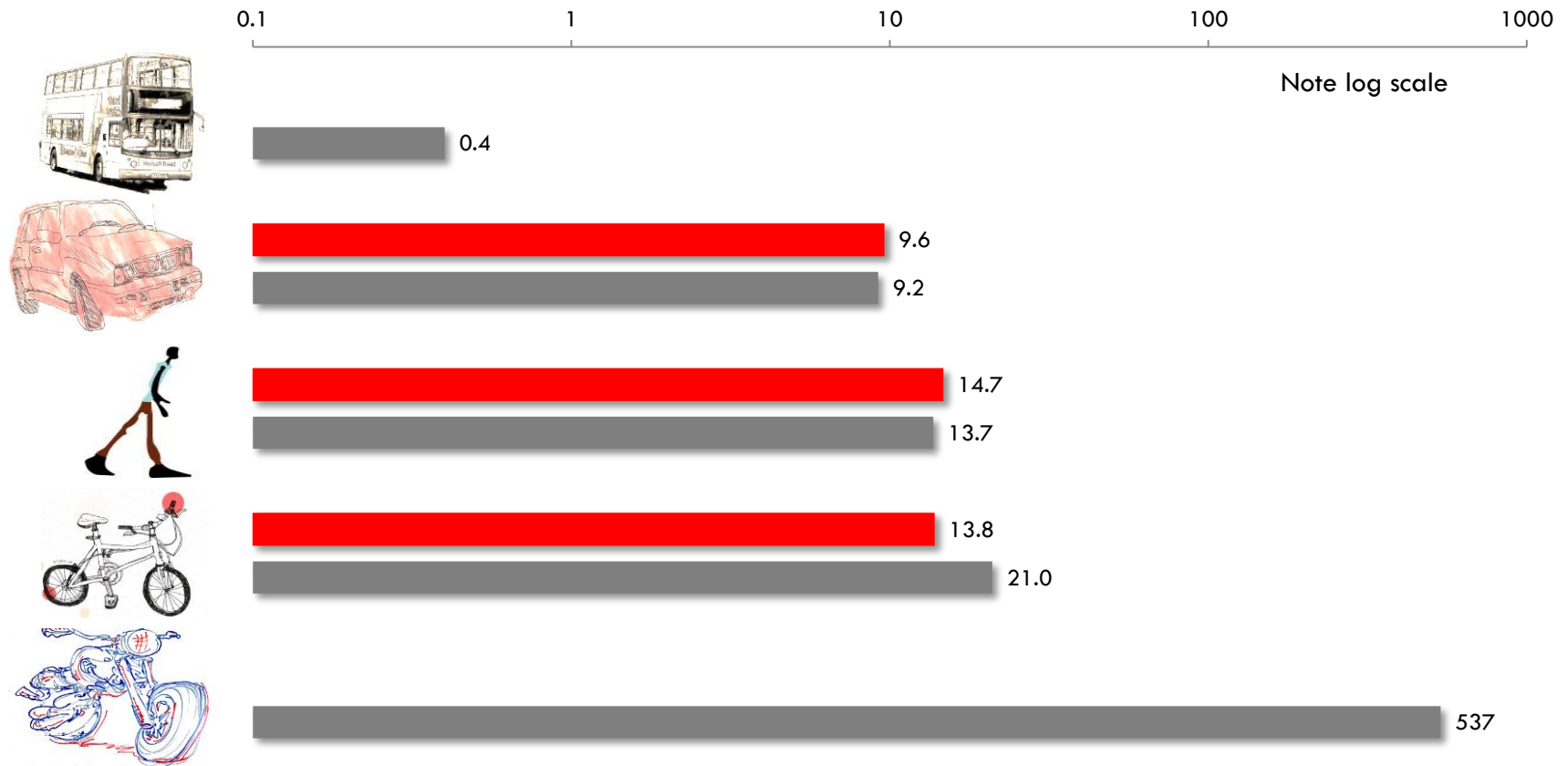- compare to other jurisdictions

Photo: Ken Ohrn

Comparison to other risks in life

	Deaths in Canada, 2015
Heart disease	51,500
Breast & colon cancers	14,300
Cerebrovascular diseases	13,800
Diabetes	7,200
Dementia	6,600
Traffic deaths	1,900 ← Cycling deaths = 50

Comparison to risks of other travel modes

Deaths/100 million trips: British Columbia vs. United States

0.1   1   10   100   1000

Note log scale

- Bus: 0.4
- Car: 9.6 / 9.2
- Pedestrian: 14.7 / 13.7
- Bicycle: 13.8 / 21.0
- Motorcycle: 537

Fatality rate comparison across jurisdictions

Deaths/100 million km

Country	Deaths/100 million km
Denmark	1.6
Germany	1.6
Netherlands	1.1
UK	3.3
USA	5.5
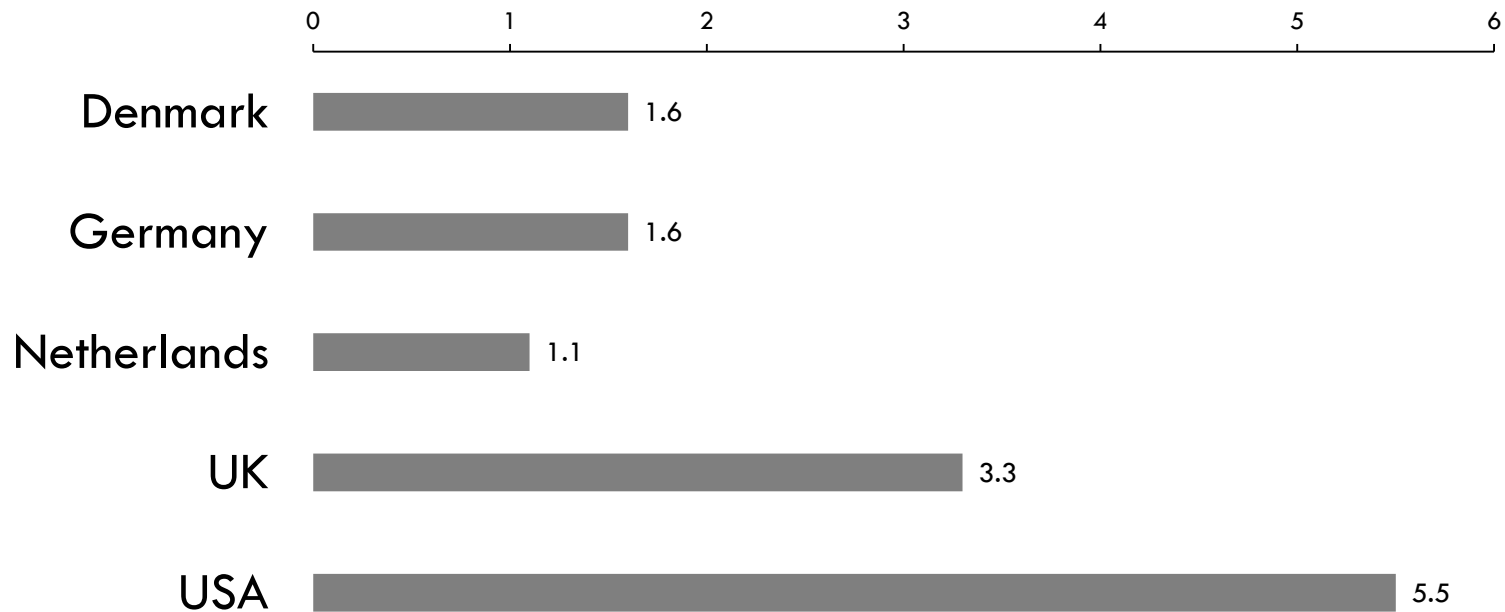
We have some data ... but failings show

	Drive	Walk	Bike	Motorbike	Transit
deaths	✓	?	✓	✓	✗
injuries	✓	✗	✗	?	✗
trip	?	✗	✗	✗	✗
distance travelled	✓	✗	✗	?	✗

to calculate risk, need numerator & denominator data
to compare, need same source data for all modes & jurisdictions

Issues with numerator data: cycle counts too high?

- "pedal cycle" groups mountain biking, racing, trick riding, transport cycling
- "traffic-related" (~50% of total) removes mountain biking, but also off-street paths

Photo: Velosurance

Photo: Ken Ohrn

Photo: Google Streetview

Issues with numerator data: walk counts too low?

- pedestrian injuries = collisions with motor vehicles
- misses falls on streets & sidewalk → may be captured via road/street/highway code
- adds ~25% more deaths, ~150% more hospitalizations (data: BCIRPU iDOT)

Photo: us adult literacy, awesome-adjective-slippery

Photo: Google Streetview

Gaps in Canada-wide denominator data

|	
Census - Long Form (20 or 25% sample of population, every 5 years)	MV, transit, walk, cycle trips Work only Working age population Data collected in May
Canadian Community Health Survey (65,000 per year)	Walking & cycling trips Work, school, recreational Ages 12+ Data collected year round 3-month recall required
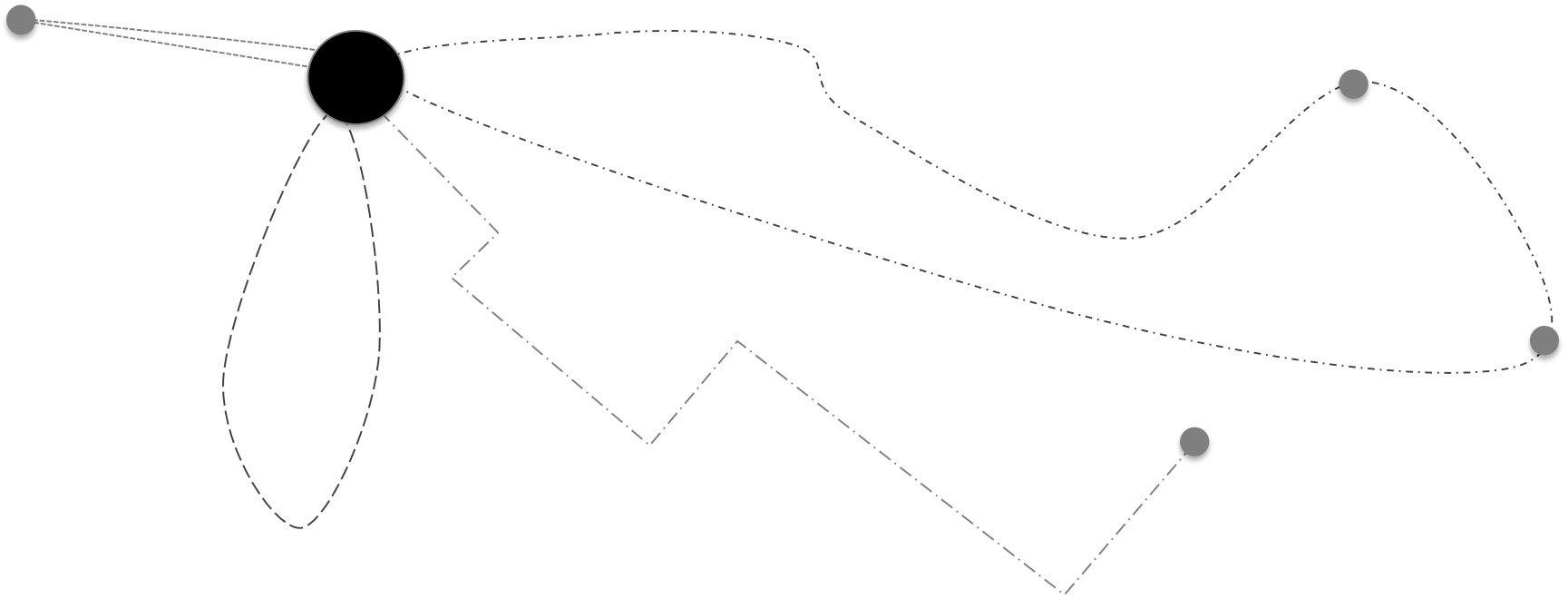
Denmark, Germany, Netherlands, New Zealand, South Africa, Sweden, UK, US

National Travel Survey

large sample, diary of all trips, all age groups, trips & distance travelled, multimodal trips

Flickr art: mitopencourseware, nyoin, adKinn, Will Laren, Ardent Photography
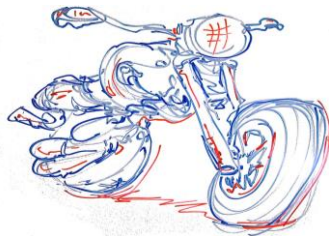
voices for data that will help us improve safety

Photo: Ken Ohrn

Serious injury rate comparison across jurisdictions

All injuries
Hospitalizations per
100 million trips

2006-2011

Male
Female

NL   PE NS   ON QC   MB Terr BC
      NB   AB SK

Teschke, Koehoorn, Shen, Dennis, BMJ Open, 2015