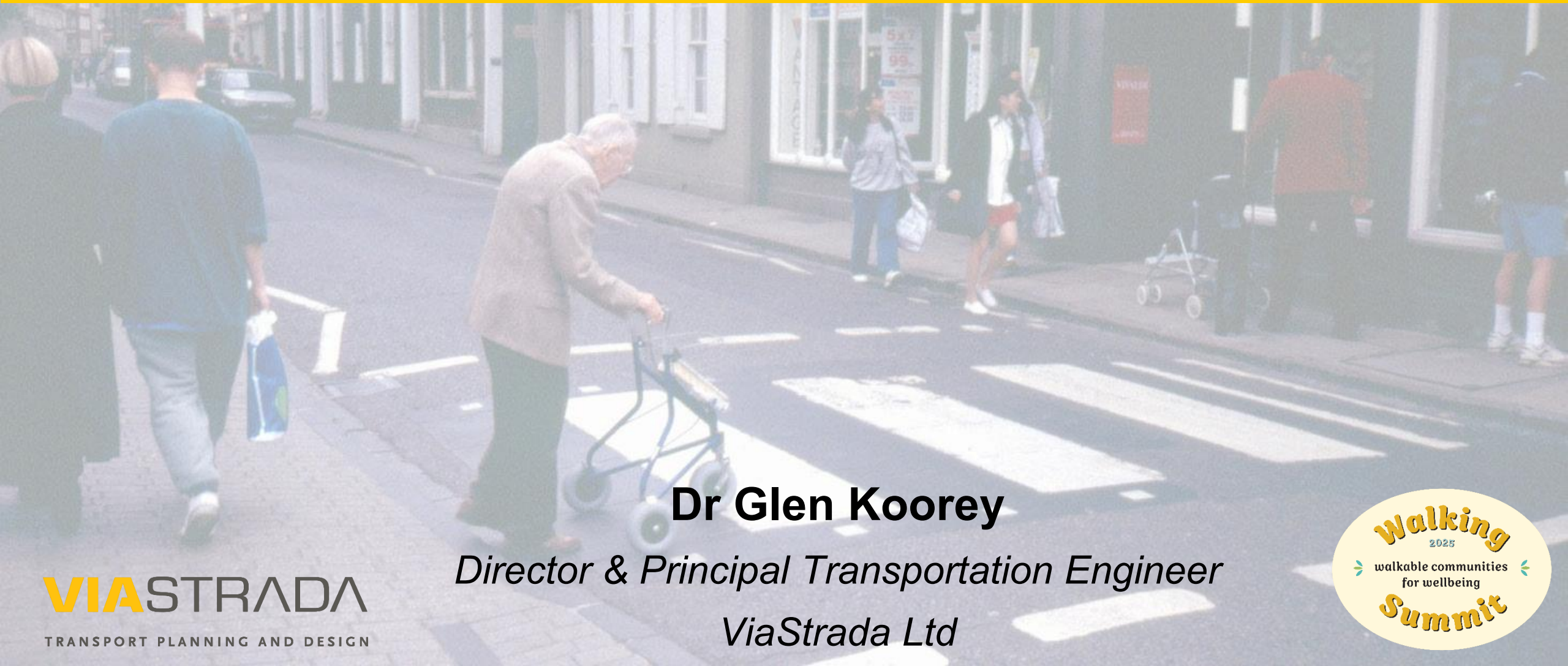


Hidden Harm – Walking Injuries from Slips and Falls



Presentation outline

- How do we define road safety crashes/injuries?
- Some recent case studies
 - Auckland study of vulnerable transport users
 - MoT National domestic transport costs & charges study
 - Christchurch study of harm on the road network
 - Wellington study of older road users
- Some implications
 - Possible new measures of transport harm reporting



Defining safety

What is a transport "crash" / "accident"?

- Two motor vehicles colliding
- A motor vehicle hitting a tree
- A person walking hit by a motor vehicle
- A bus passenger falling when the bus stops suddenly?
- A person cycling running into a pedestrian?
- A car slowly driving over a person's foot?
- A person slipping on a footpath while walking?



Do they count if no-one is injured or no vehicle damaged?

Do they count if they occur away from a road corridor?

Reported crashes

- Not all transport crashes are **reportable**
 - Don't involve a motor vehicle
 - Don't involve an injury
 - Below property damage cost threshold (*some jurisdictions*)
- Not all reportable crashes are **reported**
 - Road user guilt/evasion over actions taken
 - Lack of follow-up by parties, Police, etc
- Some crashes less likely to be reported
 - Single-veh, remote rural, cyclist or pedestrian
 - Less severe injuries (*influenced somewhat by road user age*)



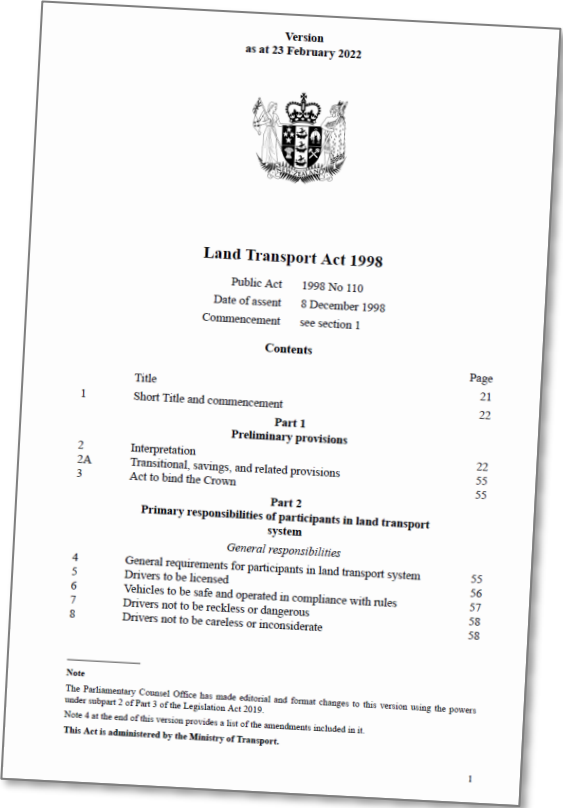
Current crash reporting requirements in NZ

- The NZ Land Transport Act states:

*If an accident arising directly or indirectly **from the operation of a vehicle** occurs to **a person or to a vehicle**, the driver or rider of the vehicle must... stop and ascertain whether a person has been injured...*

: :

*If the accident involves an injury to or the death of a person, the driver or rider **must report** the accident to an enforcement officer as soon as reasonably practicable, and in any case not later than 24 hours after the time of the accident*



Version
as at 23 February 2022



Land Transport Act 1998

Public Act 1998 No 110
Date of assent 8 December 1998
Commencement see section 1

Contents

	Title	Page
1	Short Title and commencement	21
	Part 1	22
	Preliminary provisions	
2	Interpretation	22
2A	Transitional, savings, and related provisions	55
3	Act to bind the Crown	55
	Part 2	
	Primary responsibilities of participants in land transport system	
	General responsibilities	
4	General requirements for participants in land transport system	55
5	Drivers to be licensed	56
6	Vehicles to be safe and operated in compliance with rules	57
7	Drivers not to be reckless or dangerous	58
8	Drivers not to be careless or inconsiderate	58

Note
The Parliamentary Counsel Office has made editorial and format changes to this version using the powers under subpart 2 of Part 3 of the Legislation Act 2019.
Note 4 at the end of this version provides a list of the amendments included in it.
This Act is administered by the Ministry of Transport.

1

Implication: any injury accident involving a cycle, scooter or other 'vehicle' must be reported

Implication: accidents only involving a pedestrian do not need to be reported

Case study 1: the safety challenge for people travelling outside of vehicles in Auckland

- Vision Zero strategy enacted for Tāmaki Makaurau (Auckland) in Sep 2019
- How well do we understand the safety challenge for people travelling *outside* of vehicles?
- ViaStrada commissioned to do a deep dive into further data sources to find out more...



"Vulnerable Transport Users"



People walking



People on bikes



People on motorcycles



Other transport devices

Auckland Transport study: Phases 1 & 2

Phase 1:

Use CAS / ACC / MoH data

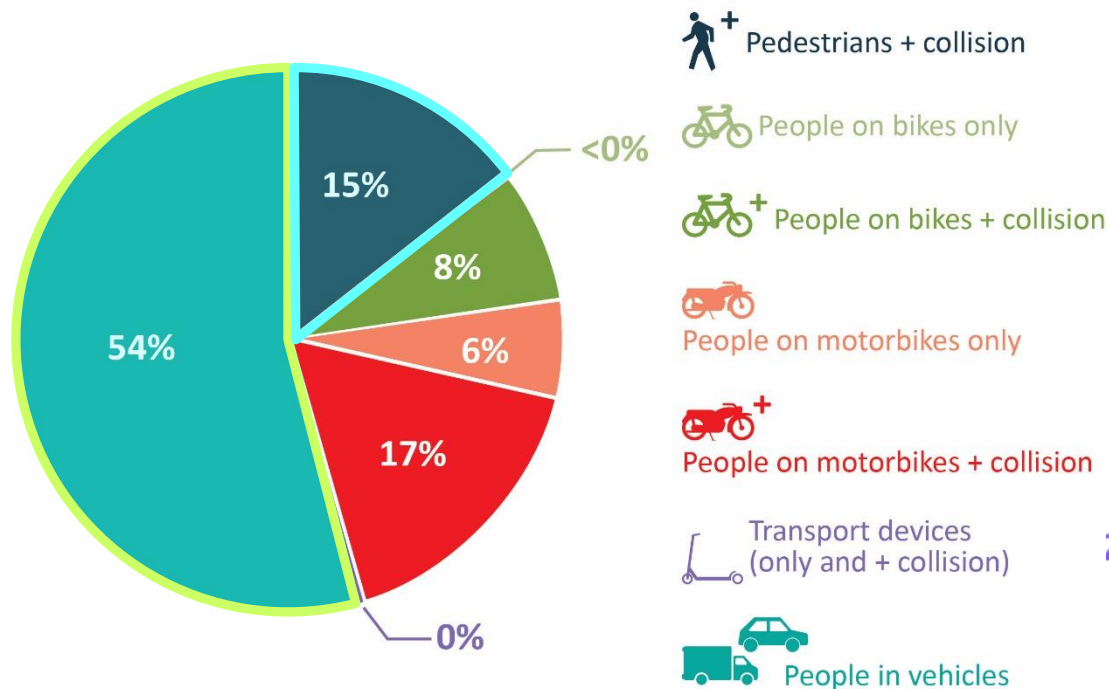
- How big is the problem?
 - Is it getting better/worse?
- What does it look like?
 - Who? (mode, age, ethnicity)
 - Where? (local board areas)
- What are the causes?
 - Key risk factors
- If not controlled, what might happen?

Phase 2:

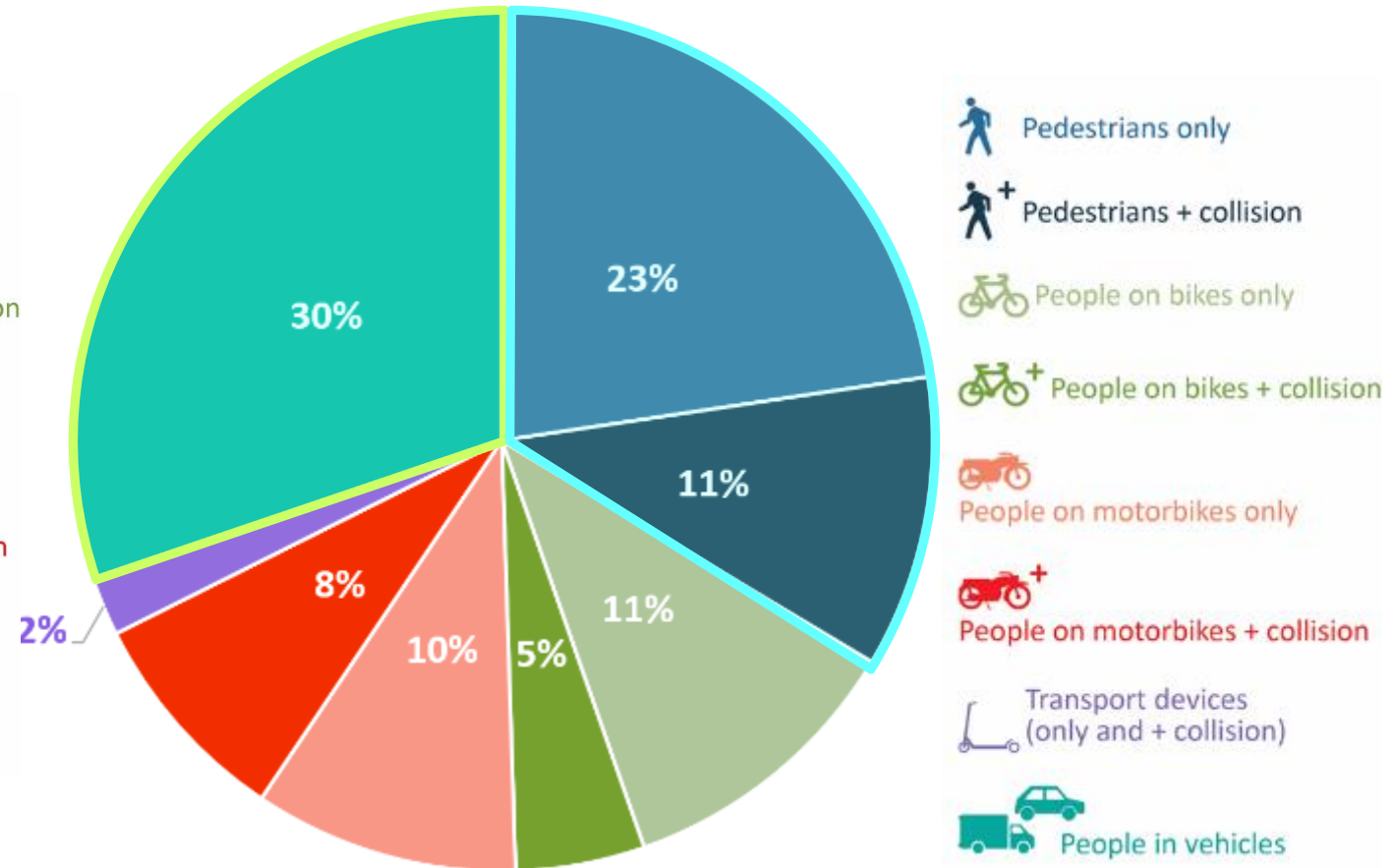
- Are we capturing all fatalities?
- How many out-of-region cases in Akld hospitals?
- Medical events causing falls?
- More info on minor injuries?
- Where in Akld might people be more at risk from slips/falls?
- Injuries at transport worksites?
- Update the Waka Kotahi tables for Akld under-reporting?

We're seeing just the tip of the iceberg...

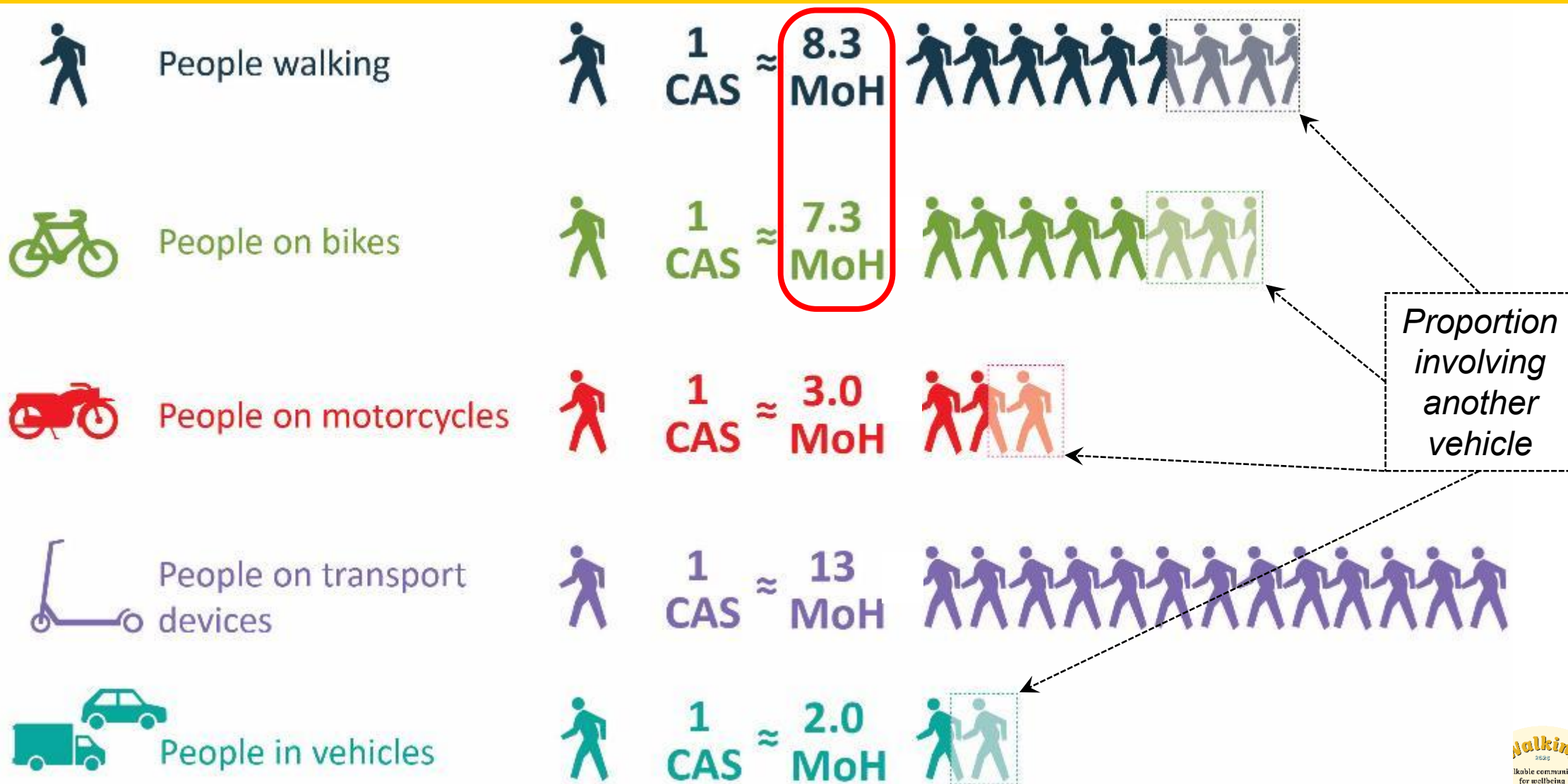
2,457 serious injuries in the
Crash Analysis System (CAS)



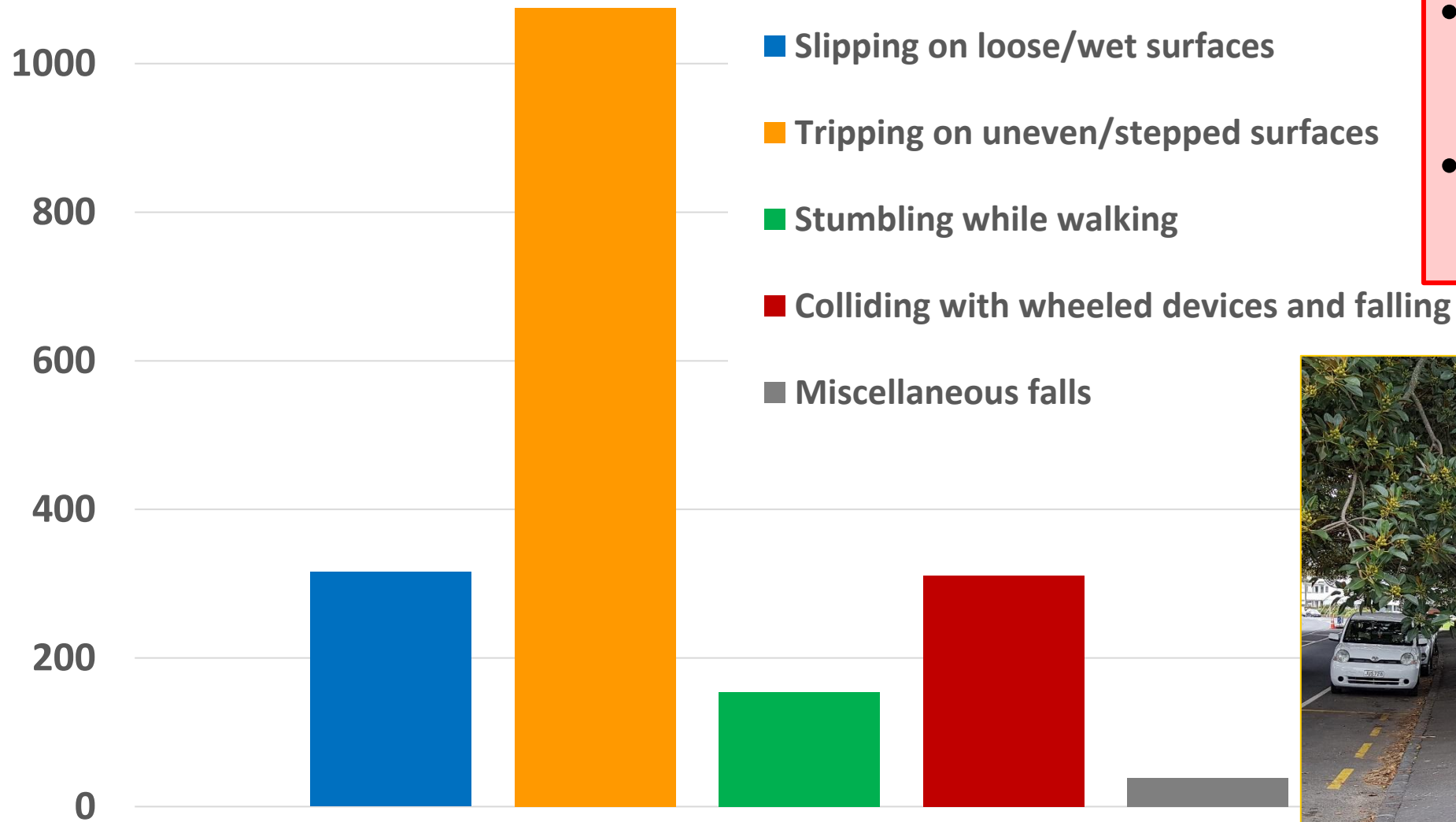
8,514 serious hospital admissions captured
by the Ministry of Health (MoH)



Non-motor vehicle serious injuries are highly under-reported via traditional channels



Serious pedestrian-only crashes: a big problem



(2016-19 data)

- ***Only ~7% with alcohol or drugs***
- ***<1% with prior medical event***



Case study 2: MoT Trpt Costs & Charges study

For the NZ Ministry of Transport:

- Derive estimates of the **Social costs** of road transport-related "*accidents*" in NZ
 - All those involving **Motor Vehicles**
 - **Non-motorised** users only (pedestrians, bicycles, etc)
- Costs to be investigated
 - **Total** Costs (by road/vehicle type)
 - **Average** Costs (per VKT/PKT/NTK)
 - **Marginal** Costs ($c/\Delta\text{VKT}$)
 - Assessment of **Internal vs External** Costs



Total/average non-motorised crash costs

- Based on Crash Analysis System (CAS) and ACC datasets
 - Including pedestrians, cyclists, wheelchair users, small-wheeled devices (skateboards, scooters, etc)
- Many accidents by these modes not captured by Police crash records but reported through hospital & ACC data e.g. Slips, Falls

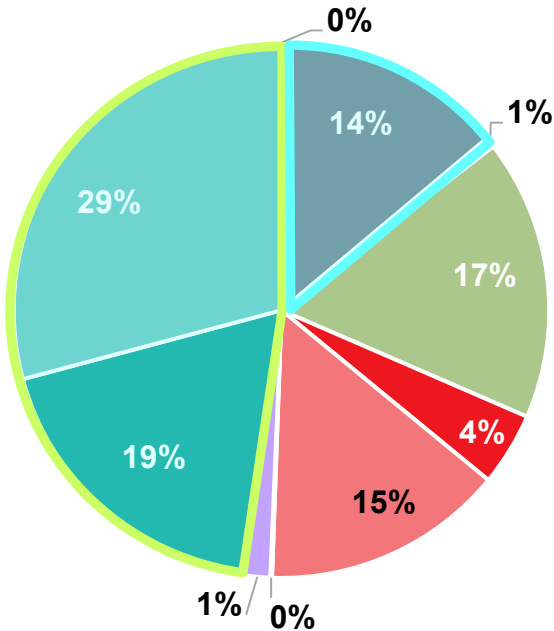
Note the health and other benefits of active modes

With M.Veh:	Bicycle	Pedestrian
Total Costs shared (\$m/year)	\$110m	\$219m
Cost shared per distance travelled by person (c/PKT)	35.7c	31.0c

Without M.Veh:	Total NMU-only
Distance travelled by person (PKT, million km)	1014m km
Total costs shared (\$m/year)	\$830m
Cost shared per distance travelled by person (c/PKT)	82.0c

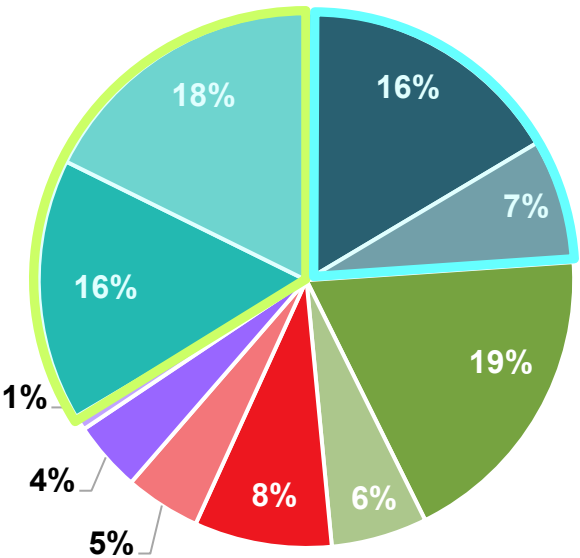
Case study 3: A similar story in Christchurch...

971 deaths and serious injuries in the Crash Analysis System (CAS)



- Pedestrians only
- Pedestrians + collision
- People on bikes only
- People on bikes + collision
- People on motorbikes only
- People on motorbikes + collision
- Wheeled devices only
- Wheeled devices + collision
- Motor vehs only
- Motor veh + collision

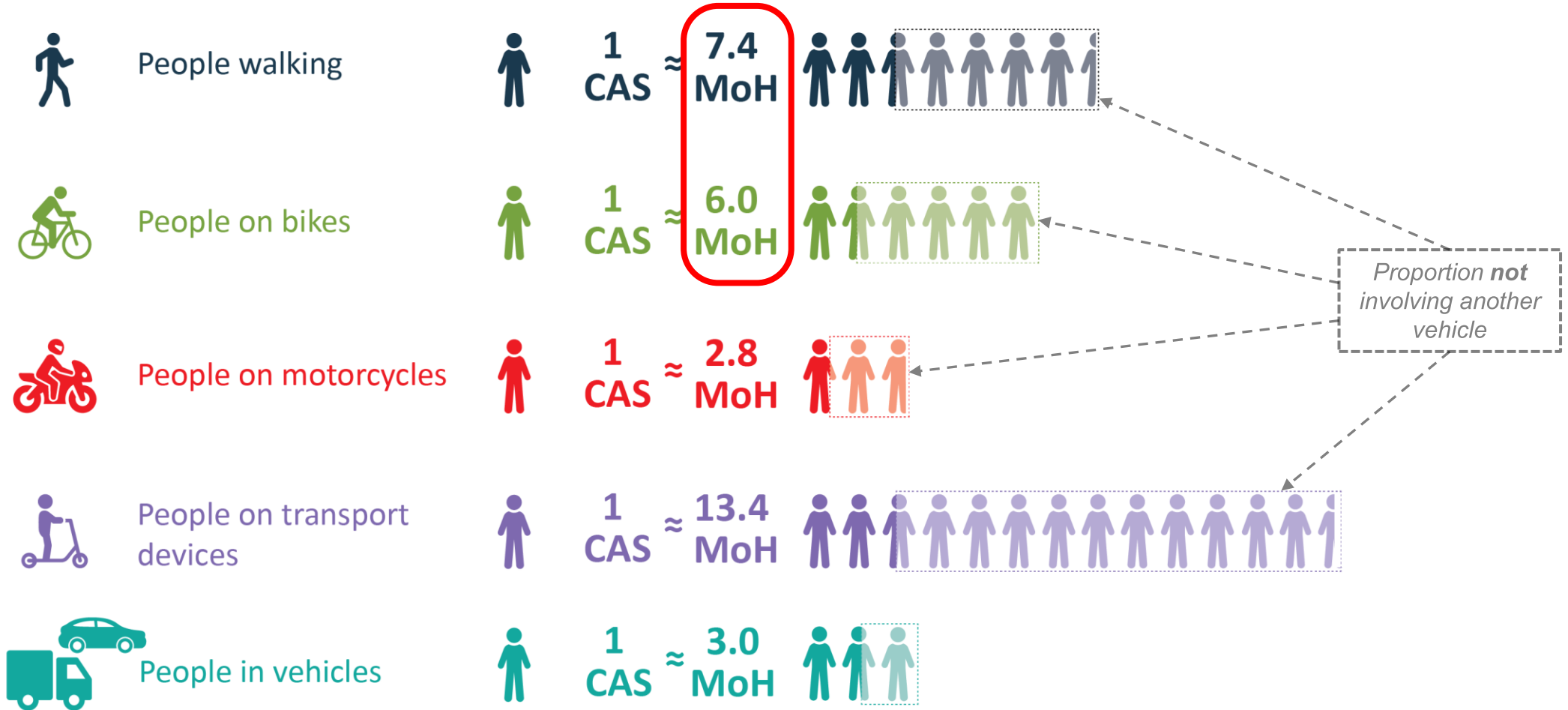
4,195 deaths and serious injury hospital admissions captured by the Ministry of Health



- Pedestrians only
- Pedestrians + collision
- People on bikes only
- People on bikes + collision
- People on motorbikes only
- People on motorbikes + collision
- Wheeled devices only
- Wheeled devices + collision
- Motor vehs only
- Motor veh + collision

Christchurch: Under-reporting factors

Non-motor vehicle injuries are highly under-reported via traditional channels



Chch Pedestrian DSIs by age

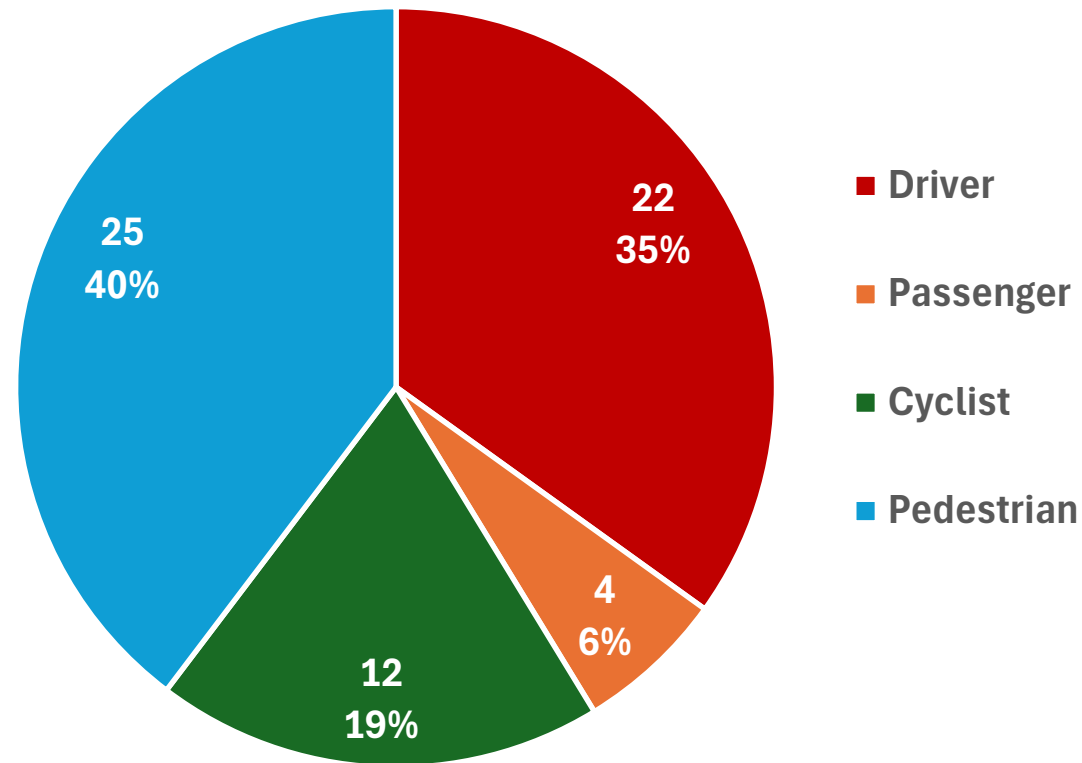
Adults experience more injuries involving slipping, tripping and falling as they get older



Case study 4: Wellington older road users

- Investigated road safety harm to people ≥ 65 years old
 - Compared CAS data with MoH hospital admission data
- Make-up of older DSIs by road type (CAS):

2017-24 Wgtn City data
– 63 DSIs



Wgtn Region under-reporting

- Comparing CAS vs MoH numbers for older road users:
 - Serious injuries across whole Greater Wgtn region

Vehicle Type	CAS Numbers	MoH: User vs M.Veh	MoH: User-only	MoH: User vs Non-MV	MV scaling factor	Non-MV scaling factor
Light M.Vehicle	81	130	131	2	3.2	-
Heavy Vehicle	3	2	32	0	11.3	-
M'bike/scooter	10	18	39	0	5.7	-
Bicycle	20	26	78	19	1.3	4.9
Pedestrian	40	96	634	7	2.4	16.0
Wheeled device	1	0	26	0	-	26.0
Grand Total	155	272	940	28		

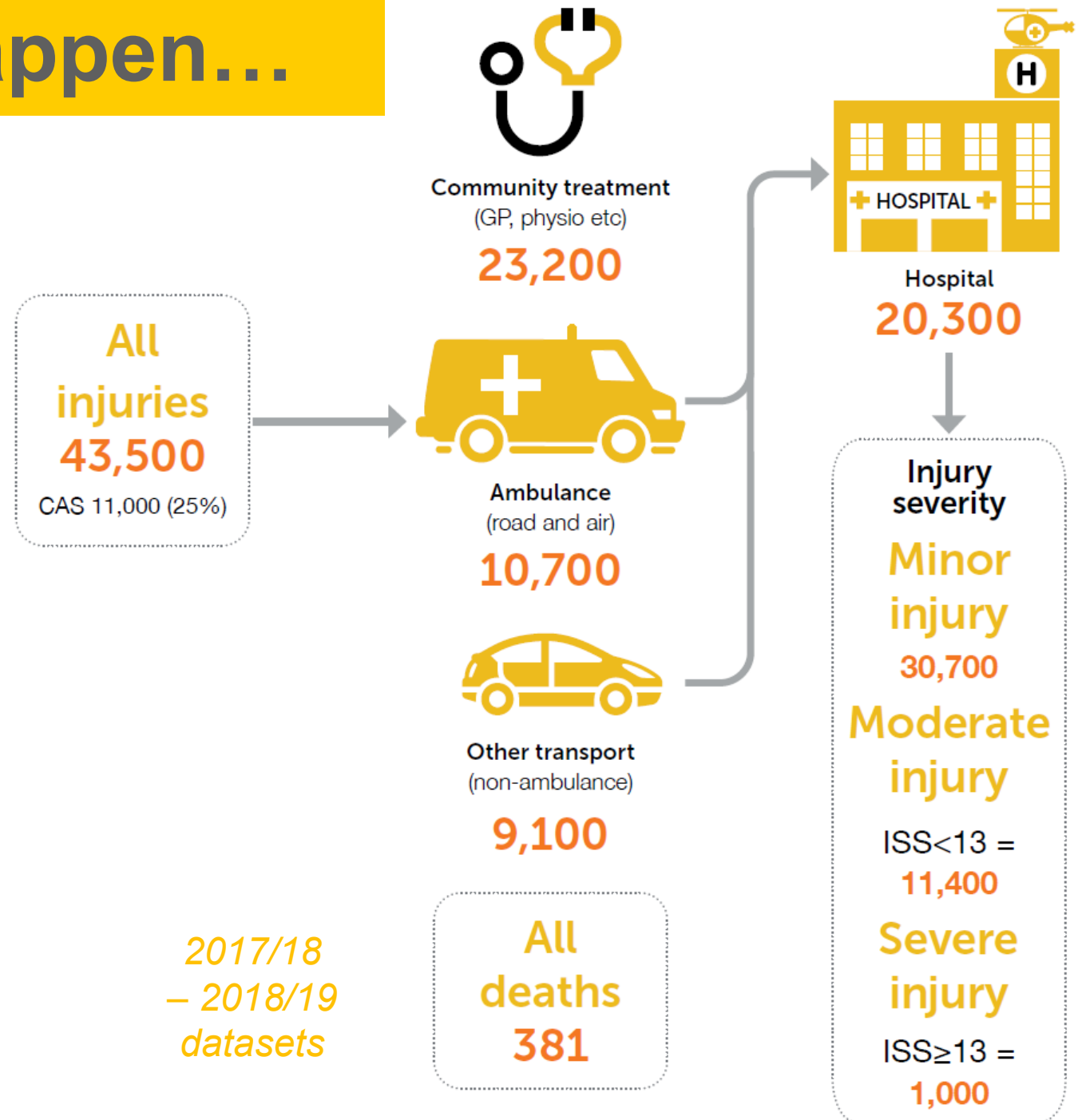
*Older **pedestrians** have even greater under-reporting rates of slips, trips, and falls*

Implications

- Traditional Police-reported crash datasets miss ***a lot***
 - Even more so for crashes with non-motor vehicle users
 - Very few CAS crashes where no motor vehicle was involved at all
- Hospital/injury datasets can help fill in the gaps
 - They help to indicate the relative scale of the problem
 - But are limited in what transport/location info they can provide
- Road/path maintenance budgets could also be for safety
 - There is a hidden cost to having poor quality walking routes

Work is starting to happen...

- MoT SORTED Study (2023)
 - Study of Road Trauma: Evidence & Data
- 2 yrs of combined data about transport-related injuries
 - Acc Compensation Corp (ACC)
 - Ministry of Health (hospitals)
 - St John / Wellington Ambulance
 - National Trauma Network
 - Waka Kotahi (NZTA)
 - Ministry of Transport
 - New Zealand Police



Ngā mihi | Thank you!

Patai | Questions?

VIASTRADA

TRANSPORT PLANNING AND DESIGN

✉ glen@viastrada.nz

in [/glenkoorey/](https://www.linkedin.com/company/viastrada/)

www.viastrada.nz