

To: Transport & Health Policy Makers, & Practitioners
From: Professor Adrian Davis
Date: 10th January 2023
Subject: Essential Evidence 4 Scotland No.62 Pedestrian falls

Top Line: Any vehicle crash and pedestrian fall occurring in public spaces should be included within the definition of crashes and casualty in data collection to better reflect the true levels of pedestrian falls.

Widely accepted definitions of traffic crashes focus on vehicle crashes occurring on public roads. These definitions exclude incidents such as pedestrians slipping, tripping or colliding with objects resulting in falls in public spaces leading to injury or death. According to Methorst and colleagues, the current definition of traffic crashes emerged in the early 20th century when motorisation led to increasing numbers of people losing their lives in motor vehicle crashes.¹ As a consequence, traffic crashes were defined and measured as (motor) vehicle crashes. Although there have been very few, if any, official statistics of pedestrian falls until recent times, the first studies show the size of the problem.

UK researchers have found that of all pedestrian casualties hospitalised in England (2007–2009) 23,528 were involved in a road traffic collision and 76,087 were injured in falls on the public highway.² The number of pedestrian fall casualties were, similar to Dutch figures, over three times greater than those involving a motorised vehicle.³ This research found that about three quarters of the pedestrian falls were related to bad or slippery pavement conditions, i.e. lack of ‘walkability’ as defined by how conducive, friendly and safe the urban environment is for walking.

Elkiv and Bjørnskau examined the risk of pedestrian injury in falls in the city of Oslo in order to determine the level of risk faced by pedestrians and analyse variation in risk with respect to age, gender, and walking surface condition.⁴ Unlike most previous papers dealing with pedestrian falls, risk is stated as the number of falls per kilometre walked. Most previous studies, they noted, did not contain any data on exposure to risk or estimated risk using population as an indicator of exposure. Their main results were that: pedestrians in Oslo run an extremely high risk of getting injured when falling. The risk is 90–110 times higher than the injury risk to car occupants; risk varies by age and gender - being higher for women than for men while risk decreases from childhood to adolescence and early adulthood, but then increases by age for both genders: risk increases substantially in winter - greater for women than for men; and the main pattern in risk variation by age, gender and walking surface condition found agrees with the findings of other studies.

Methorst and colleagues¹ recommended changing the definition for road traffic crashes (for instance in the International Classification of Diseases) to the following: “any vehicle crash and pedestrian fall occurring in public spaces.” For the same reasons of usability by authorities they recommend broadening public roads to include public spaces. The inclusion of pedestrian falls in the definition, they suggest, would lay the basis for the collection of more comprehensive data on injuries on public roads and in public spaces. This would inform more accurate research and analysis of traffic risks and lead to better input and guidance for road authorities, urban planners, and public health authorities, to enable them to design inclusive and safe public spaces, improve walkability and thereby helping the elderly to stay mobile, independent and (physically) active.

¹ Methorst, R. et al, 2017 'Pedestrian falls' as necessary addition to the current definition of traffic crashes for improved public health policies, *J. Transport & Health*, 6: <http://dx.doi.org/10.1016/j.jth.2017.02.005>

² Mindell, J.S., Leslie, D., Wardlaw, M., 2015 Exposure-based, ‘like-for-like’ assessment of road safety by travel mode using routine health data. *PLOS* <http://dx.doi.org/10.1371/journal.pone.0050606>

³ Den Hertog, P., Draisma, C., Kemler, E., et al., 2013 Ongevallen bij ouderen tijdens verplaatsingen buitenshuis (Accidents with seniors during outdoors trips). VeiligheidNL, Amsterdam

⁴ Elkiv, R., Bjørnskau, T 2019 Risk of pedestrian falls in Oslo, Norway: Relation to age, gender and walking surface condition, *J. Transport & Health*, 12: <https://doi.org/10.1016/j.jth.2018.12.006>