

Understanding Injury Patterns: An Analysis of the Types and Locations of Injuries Caused by Falls

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INTERNATIONAL CONFERENCE
SAFE FALLING for OLDER PEOPLE through **JUDO**

Introduction and Aims

1. Review the incidence of falls in the elderly population resulting in MSK injury
2. Review the most common location and types of injury that occur as a result of a fall in this population
3. Critically discuss the most common mechanisms of injury for lower limb, spinal, upper limb and TBI.



What's the problem?

- In the UK, each year, almost one third of over 65s fall at least once resulting in an estimated 500,000 fragility fractures (NICE, 2018)
- The estimated cost to the NHS is £2.3 billion per year.
- 20-30% of falls cause some type of injury and 5% in hospital admission.
- Hip fractures alone account for 1.8 million hospital bed days and £1.1 billion in hospital costs in the UK every year. This excludes the further high cost of social care. Total estimated to be £4.4billion



What's the damage?



- Upper extremity 12.5% (Bhattacharya et al., 2016)



- A second outcome is trauma to the head with potential TBI and C-Spine fractures



- Wrist fractures are common (17%) whilst hip fractures are the most prevalent (19%)
- Humeral fractures account for (11%) (Palvanen, 2000)

In a 10-year retrospective review of one trauma centre in Denver:

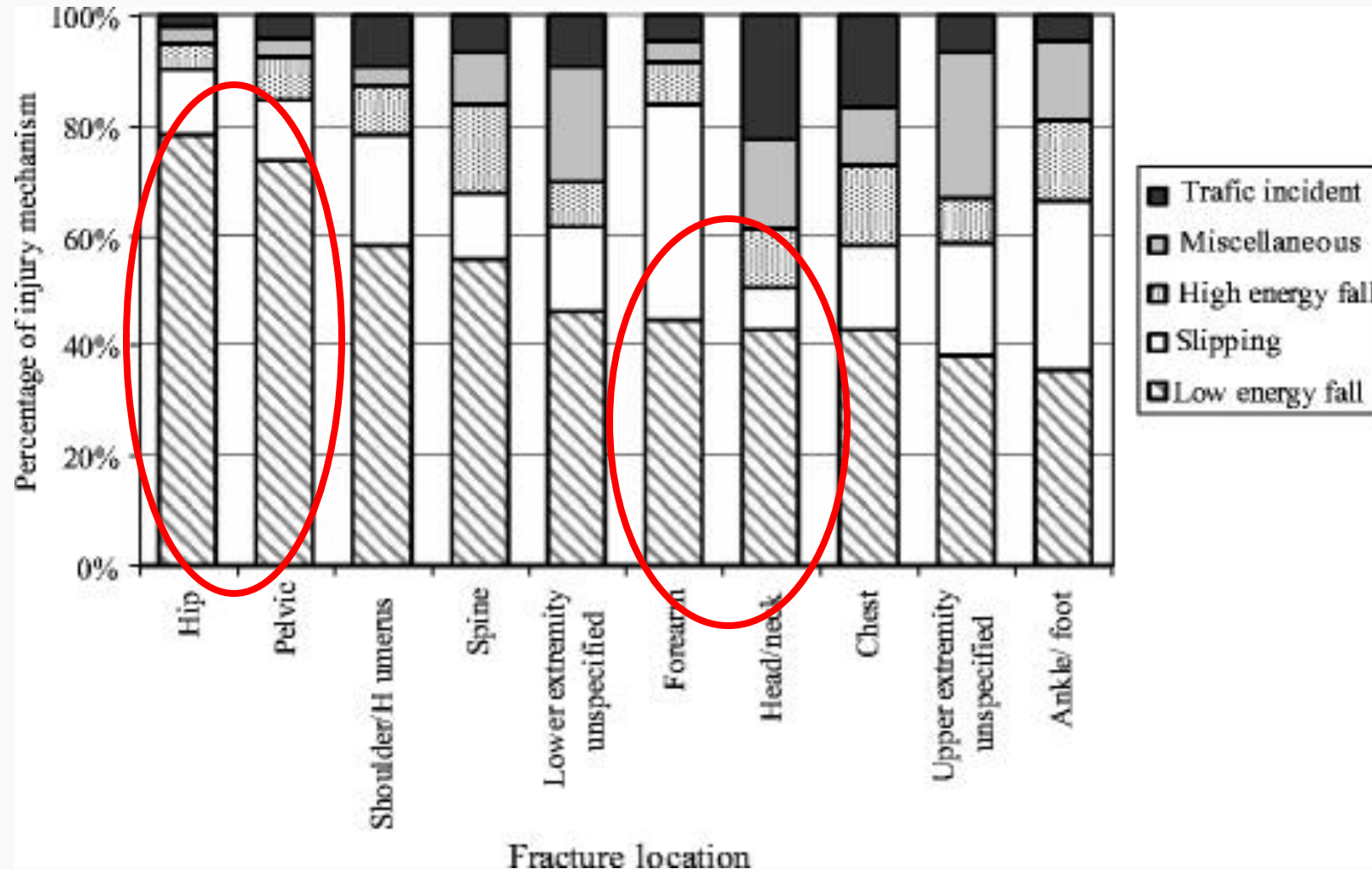
- Hip and lower extremity 46.3%



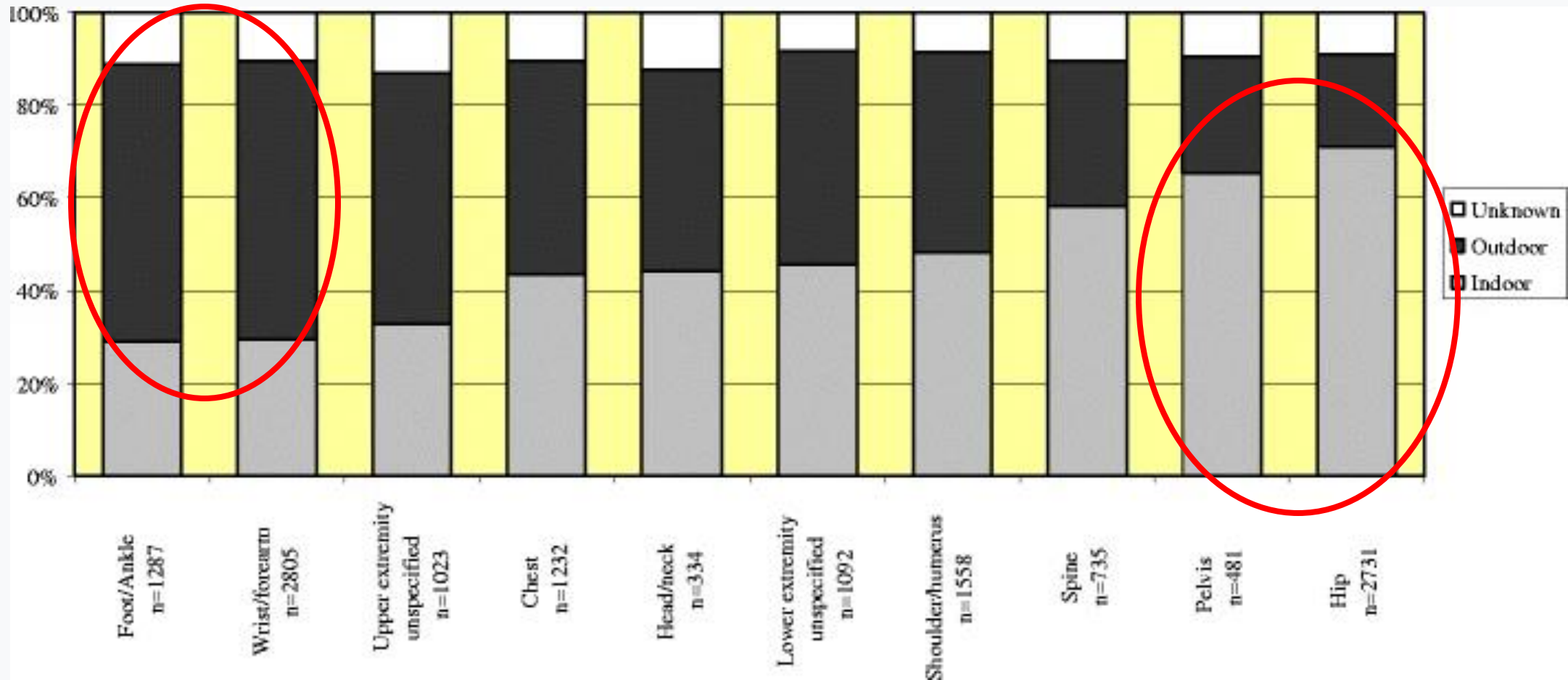
- The most common fracture as a result of a fall is the distal radius (wrist) accounting for 16% of fractures (Beil et al., 2011).



Location of injury

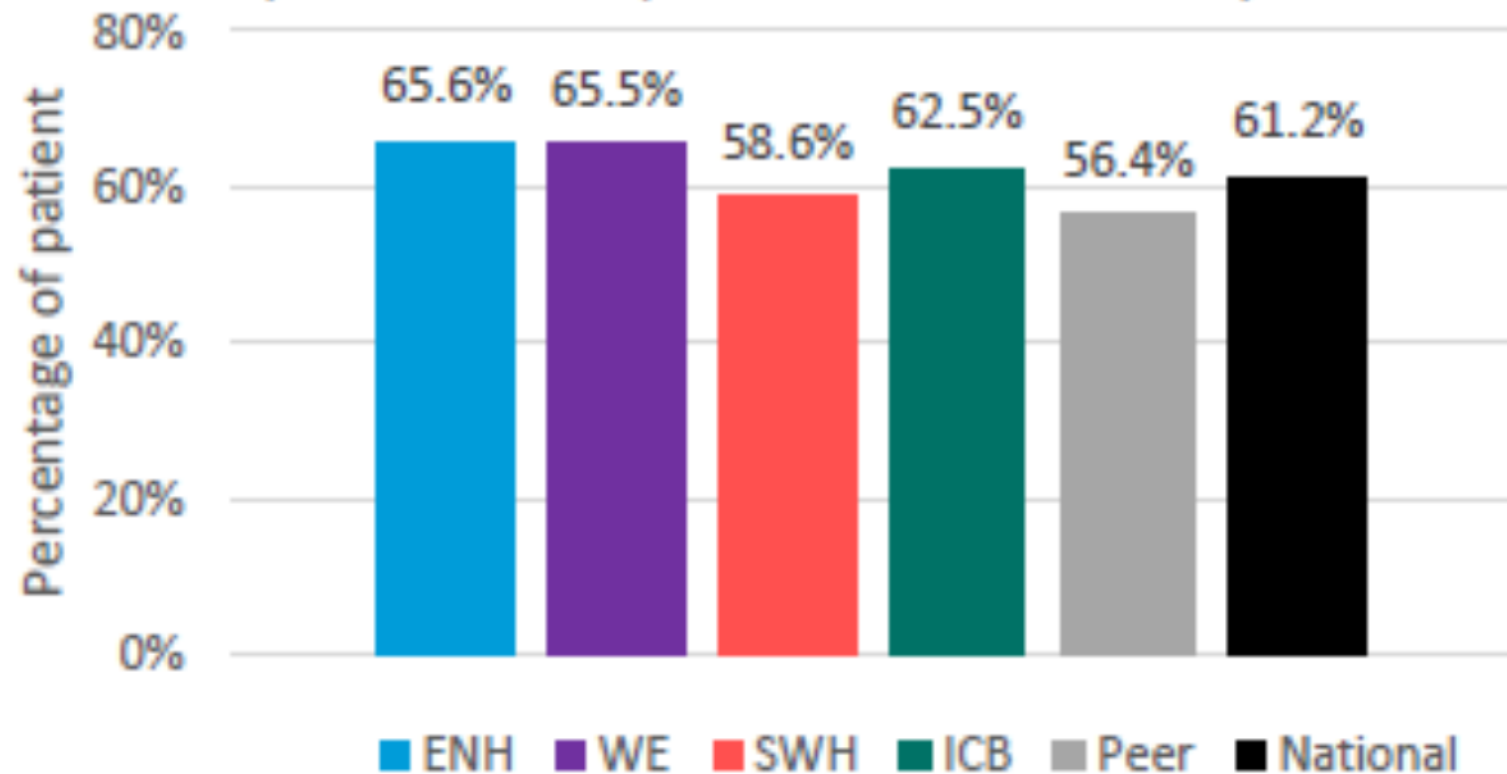


Fracture mechanisms in different fracture location. The hip was the far most common fracture location after a low energy fall followed by forearm fractures (Bergstrom et al., 2008)



Different fracture location panoramas - indoor and outdoor. Foot/ankle and forearm fractures most commonly occur outdoor, while hip and pelvic fractures are primarily indoor events (Bergstrom et al., 2008)

Fig 3. Percentage of patients returning to usual place of residence within 28 days following hip fracture admission
(12 months to quarter end, Q3 2023/24)



Source: National Commissioning Data Repository (NCDR)

Upper Limb Fractures

- Radial fractures account for 16% of all fractures.
- The primary mechanism is falling forward whilst walking, often landing on one or both hands to break their fall (Beil et al., 2011)

In contrast...

- Humerus fractures account for 11% of all frailty fractures, result as a direct impact straight to the upper arm or (Palvanen, 2000).
- Most patients reported falling obliquely forwards or to the side.



Head/ Cervical Spine

- Falling is the lead cause of traumatic brain injury in older adults, with 60% of in-hospital deaths from TBI occurring in the elderly population.
- Cervical spine injuries increase with age, possibly due to bone density but could also be due to postural changes.
- The craniopelvic alignment changes rapidly with age, the centre of gravity moves forward (Bhattacharya et al., 2016).

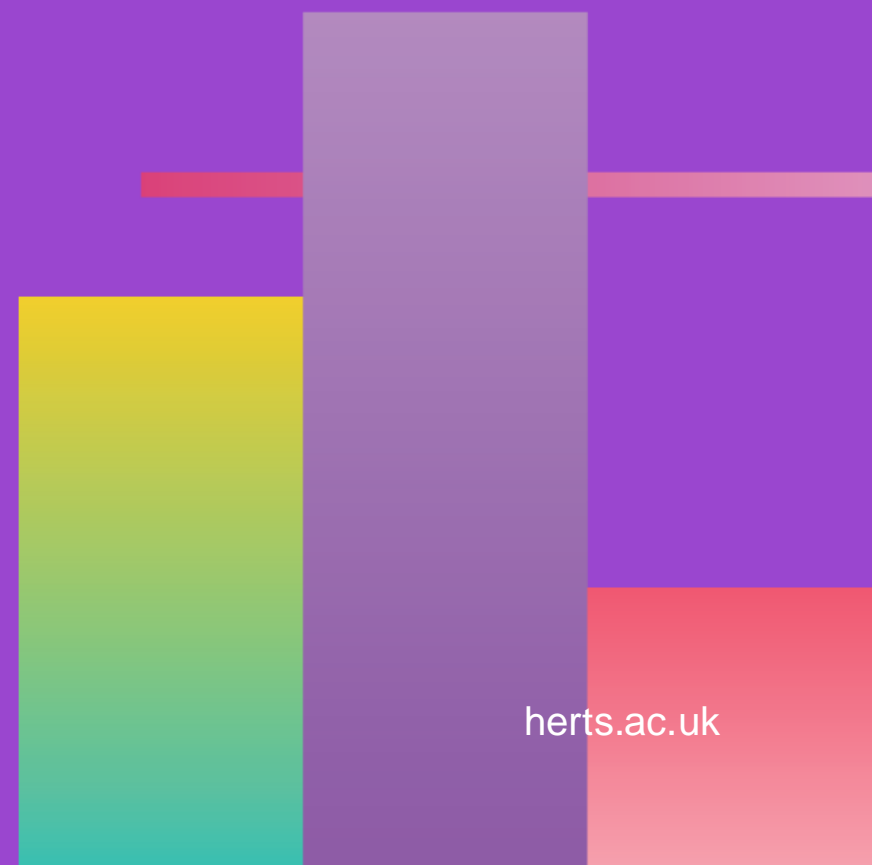


So What and What Next?

- Falls are a significant problem
- MSK injuries occur in up to 30% of falls yet there is a lack of clear injury surveillance studies with clear MSK injury documented.
- MOI is commonly a direct impact to the bone or joint that causes the fracture
- The clinical implications are that an exact knowledge of the injury incidence and the mechanism will provide new possibilities for future prevention.



Thank you



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