TARN
THE TRAUMA AUDIT & RESEARCH NETWORK

University Hospital Southampton NHS
NHS Foundation Trust

Polytrauma in the Acute Medical Unit

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CHAIR TARN OLDER PERSONS WORKING GROUP

Wessex Trauma Network

Background

Consultant Physician and Orthogeriatrician at UHS since 2009

Full Part in the Geriatrics AMU rota

Started as Clinical lead for major trauma rehabilitation since 2013

Clinical Director of Major Trauma since 2016

- Recognised variation from the “Classic” polytrauma
- Large number of older polytrauma patients

Introduction and Aims

Understand basics of trauma care

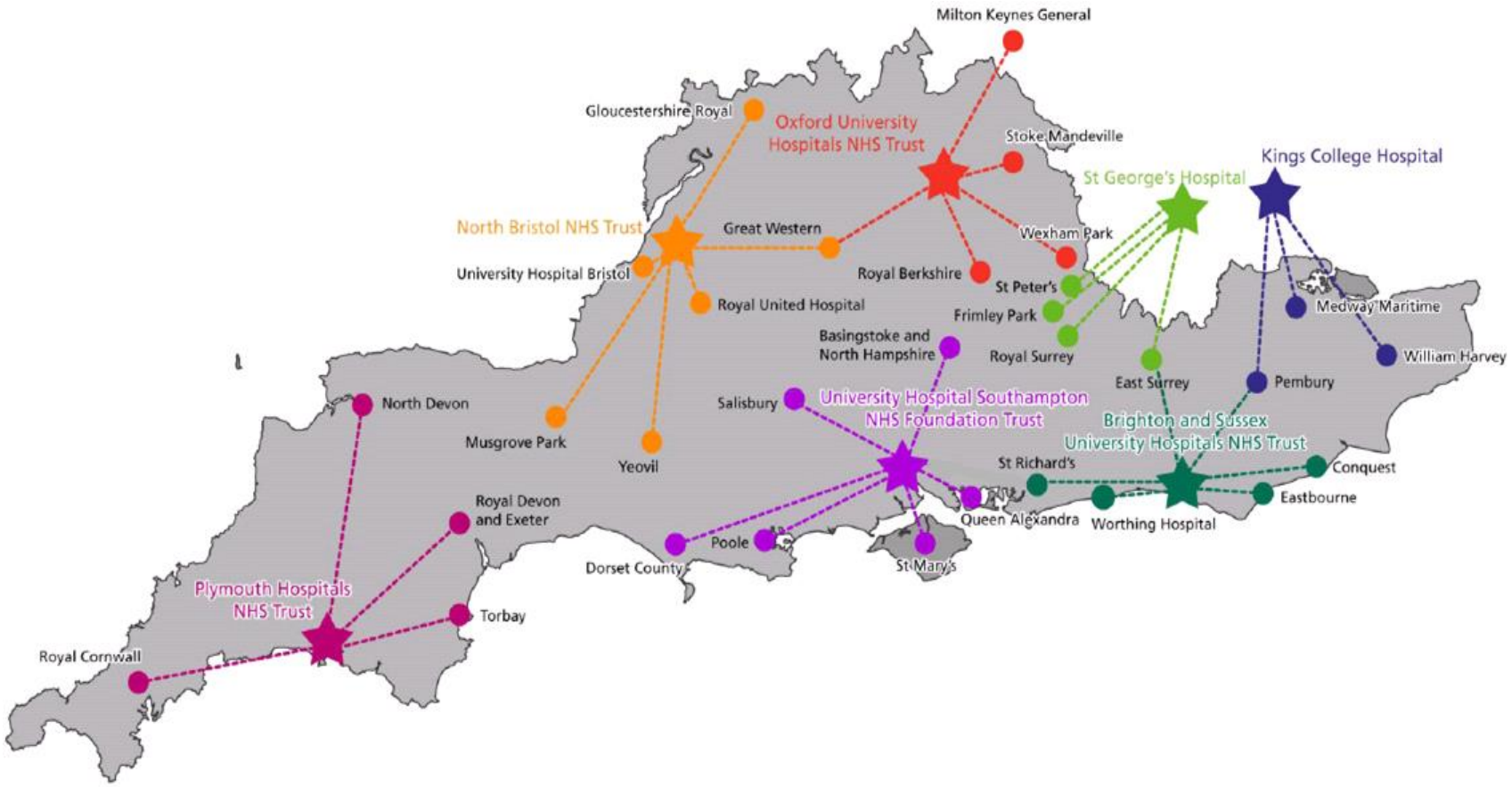
National picture of trauma care (inc BPT)

Basic Principles

“Stealth” trauma

Challenges on AMU

Map - South of England Major Trauma Networks



BPT for Major Trauma

level 1 BPT is payable for all patients with an ISS of more than eight providing .that:

a) the patient is treated in a major trauma centre

b) Trauma Audit and Research Network (TARN) data are completed and submitted within 25 days of discharge

c) a rehabilitation prescription is completed for each patient and recorded on TARN

d) any coroners' cases are flagged within TARN as being subject to delay to allow later payment

e) tranexamic acid is administered within three hours of injury for patients receiving blood products

f) if the patient is transferred as a non-emergency they must be admitted to the major trauma centre within two calendar days of referral from a trauma unit (TU) treated in a major trauma centre

BPT for Major Trauma

A level 2 BPT is payable for all patients with an ISS of 16 or more providing level 1 criteria are met and that:

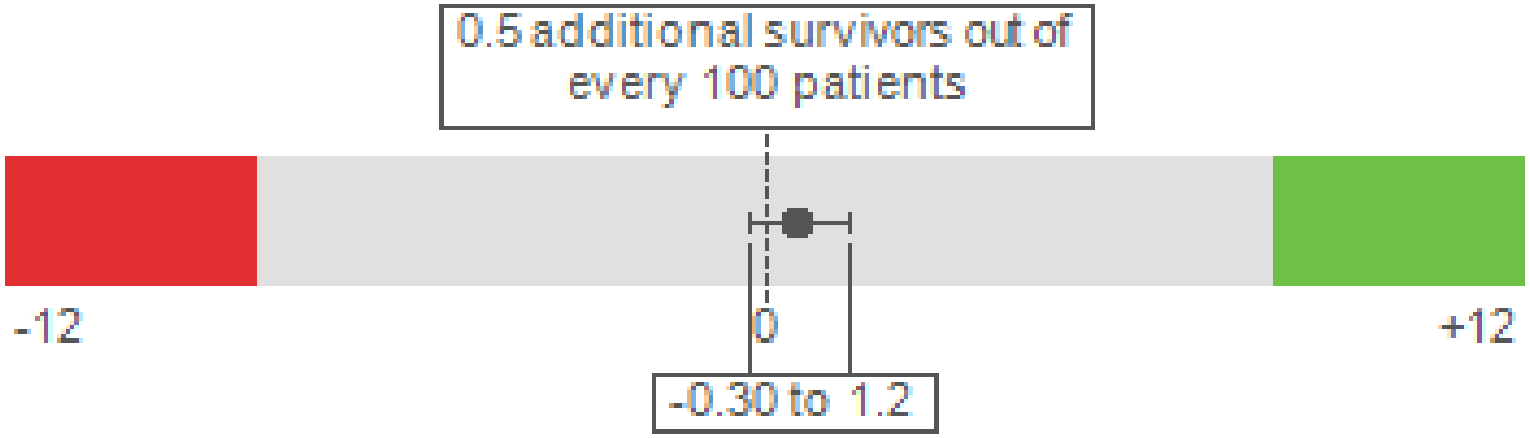
a) if the patient is admitted directly to the major trauma centre or transferred as an emergency, they must be received by a trauma team led by a consultant in the major trauma centre; the consultant can be from any specialty, but must be present within five minutes

b) if the patient is transferred as a non-emergency, they must be admitted to the major trauma centre within two calendar days of referral from the trauma unit

c) patients admitted directly to a major trauma centre with a head injury (AIS 1+) and a Glasgow Coma Scale (GCS) score of less than 13 (or intubated pre-hospital), and who do not require emergency surgery or interventional radiology within one hour of admission, receive a head CT scan within 60 minutes of arrival.

Case History

UHS Survival



How Do you define trauma?

- Defined as an Injury Severity Score (ISS) >/=15
- ISS is derived from Abbreviated injury scale (AIS).
- 6 body sites
  1. Head & Neck
  2. Face
  3. Chest
  4. Abdomen
  5. Extremity
  6. External

Defining trauma 2 – Abbreviated Injury Scale

AIS Score	Injury Severity
1	Minor
2	moderate
3	serious
4	severe
5	critical
6	unsurvivable

Injury Severity Scale

ISS is calculated from square of top 3 most severe injury sites

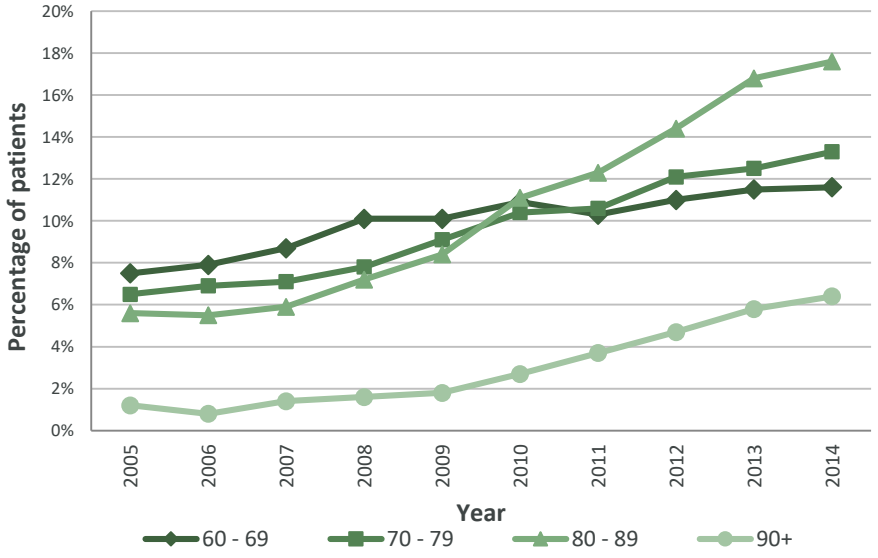
Site	AIS	Square
Head & neck	2	4
face	1	
chest	0	
abdomen	4	16
extremity	3	9
external	0	
	ISS	**29**

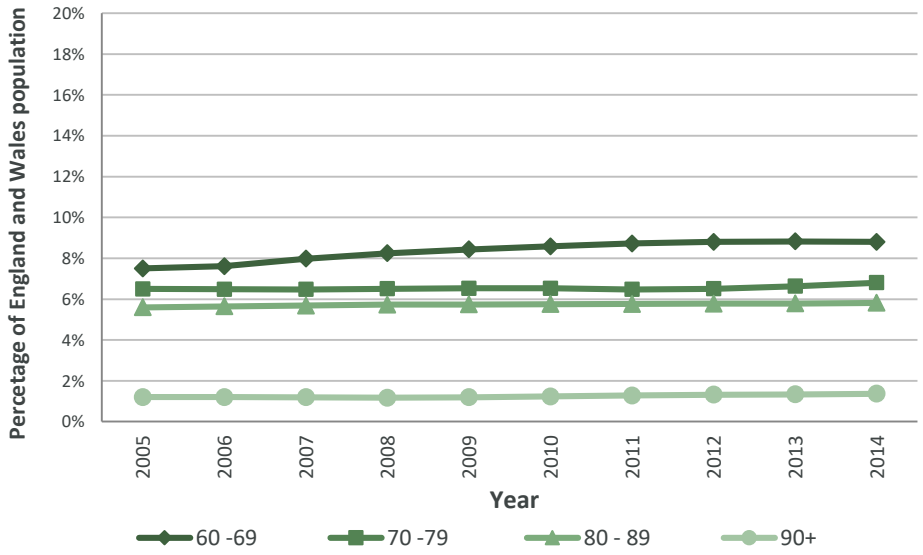
England & Wales

MAJOR TRAUMA IN OLDER PEOPLE

2017

Changing Trends in Major Trauma





AMU

	Total (inc 1 – 8)	ISS 9 - 15	ISS > 15
All Patients	1420	519	652
AMU	73	48	21

“Stealth Trauma”

TARN Data

- **298** patients
  - Aged 65 or greater
  - ISS 15 or greater

- 'Go Live' of MTC 1/4/2012 until 31/8/2014

- Included patients arriving by TU bypass and secondary transfer as well as direct admissions

MTC Demographics

Male 182 (61%), Female 116 (39%)

Avg. age – 78.5yrs

Avg. ISS – 24

Avg. Acute LOS – 15 days

Avg ICU stay – 6.5 days

In hospital mortality – 19.7%

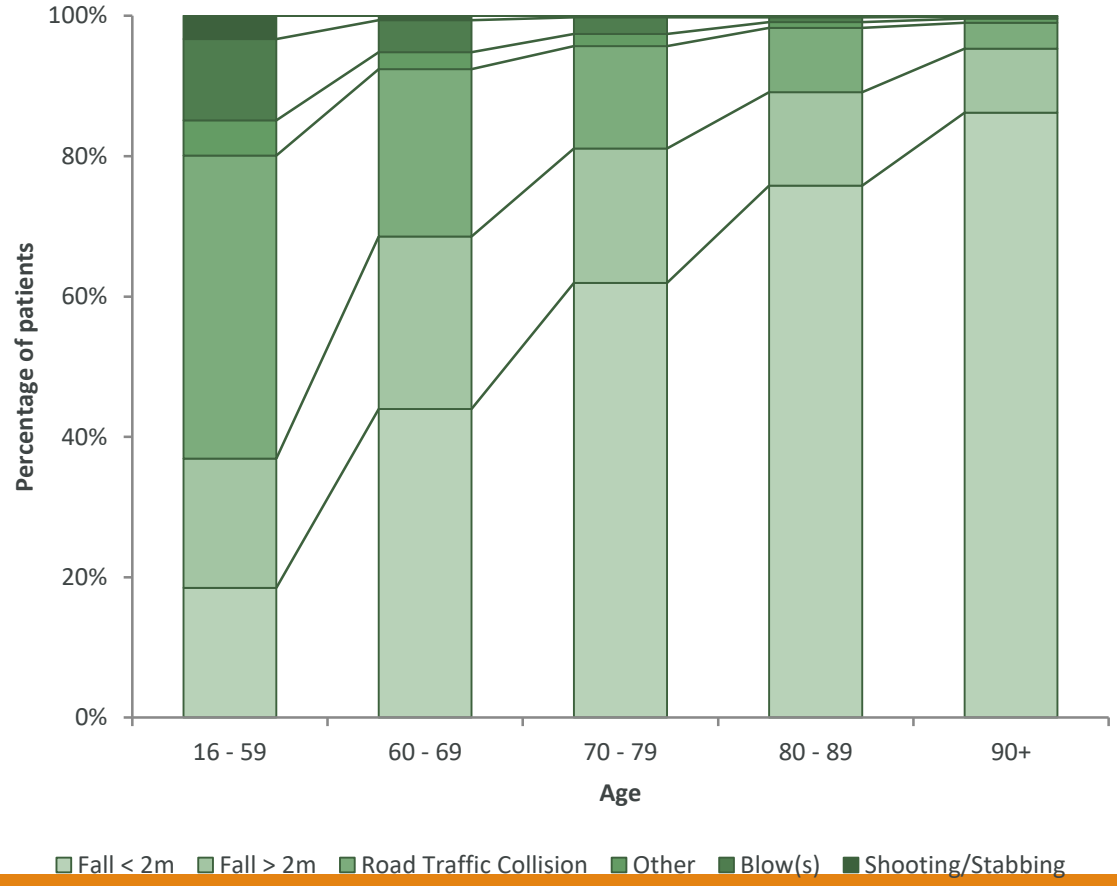
Delayed Diagnosis

24% had a delayed diagnosis of injury (68/282)

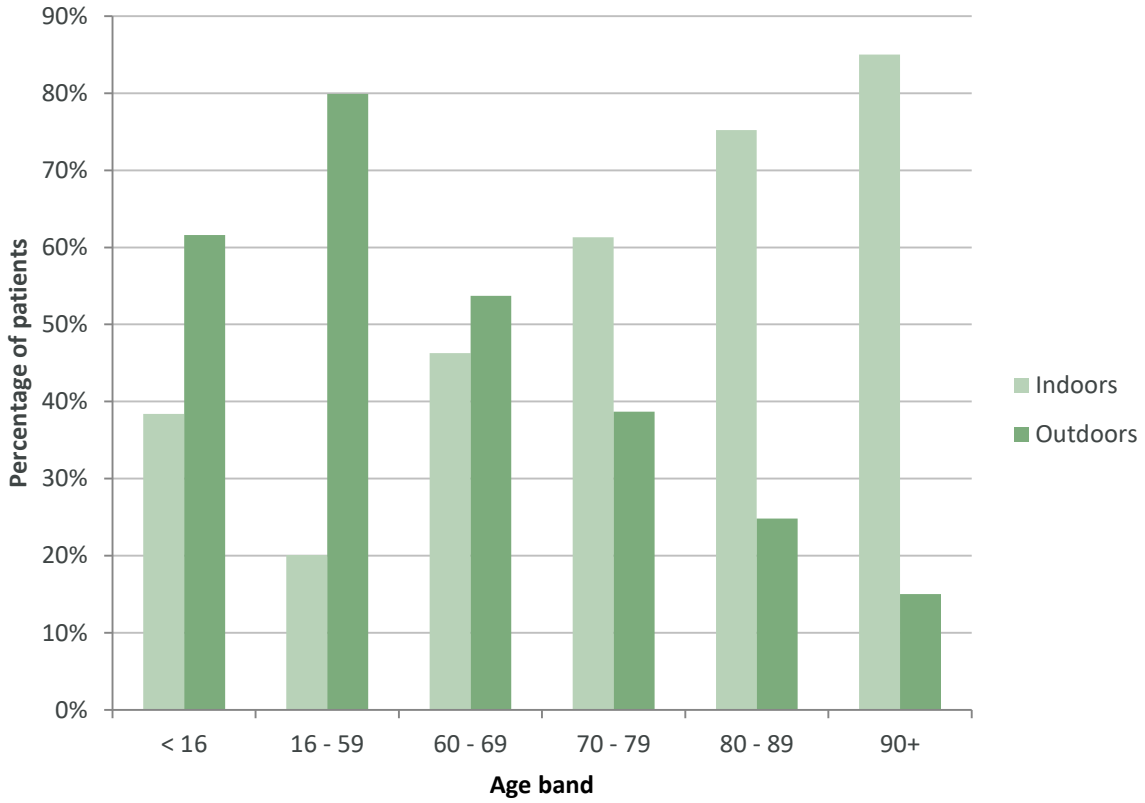
These included >9% with >3 diagnoses

Injuries missed included

Mechanism of Trauma by Age Band



Location of Incident



Triage

Often not recognised

3% from within hospitals

Treatment often delayed

Delayed or no transfer to MTC

Who is treating these patients?

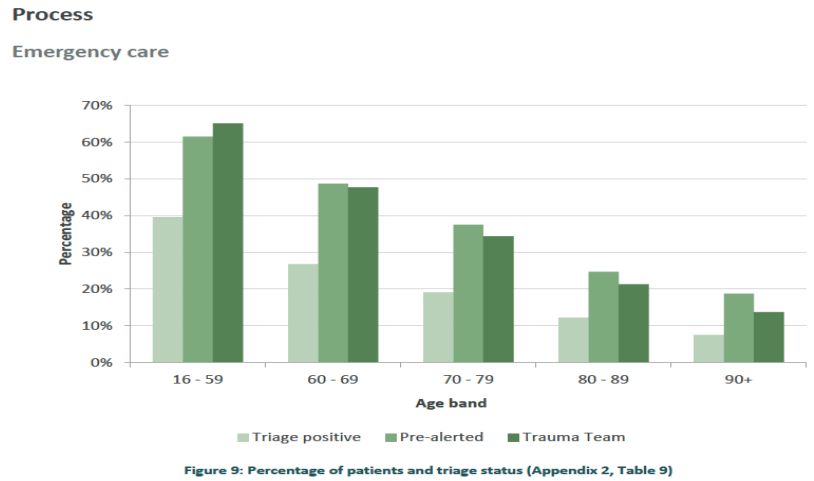
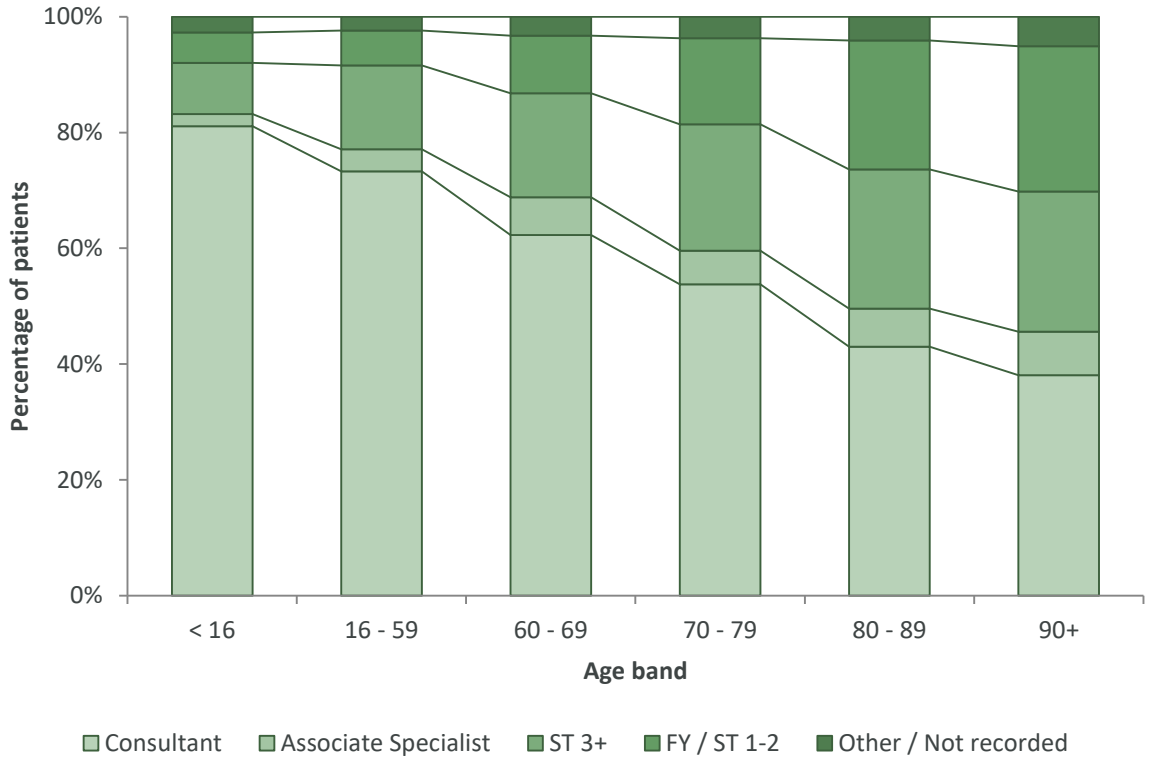
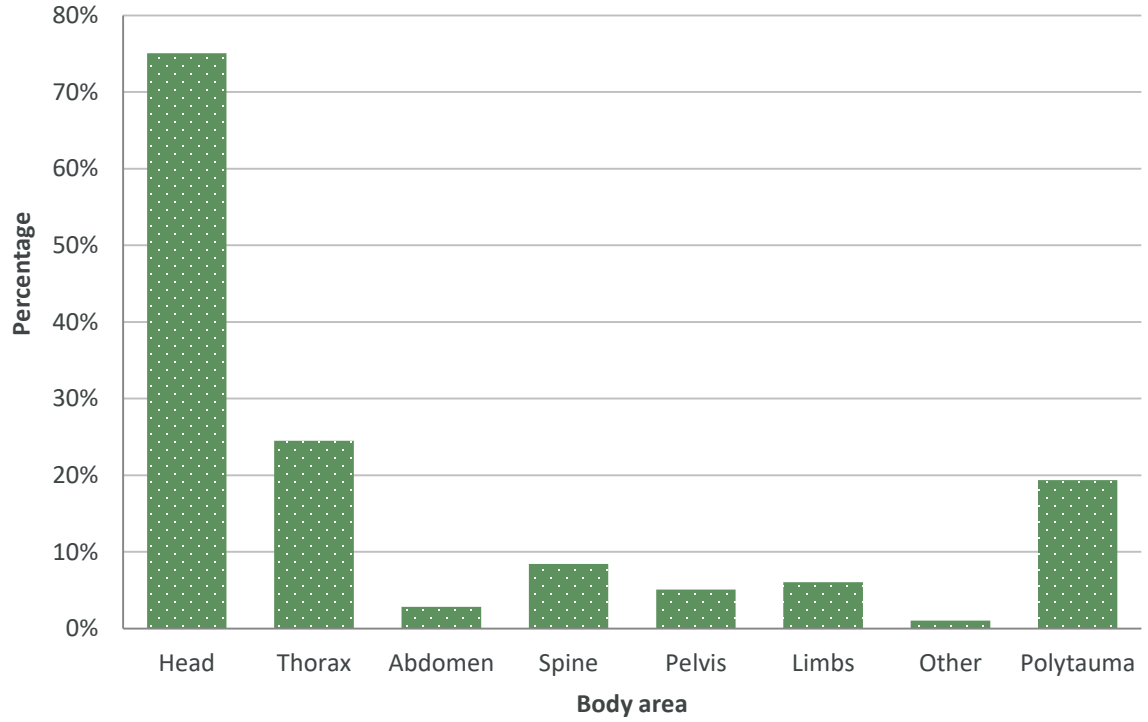


Figure 9: Percentage of patients and triage status (Appendix 2, Table 9)

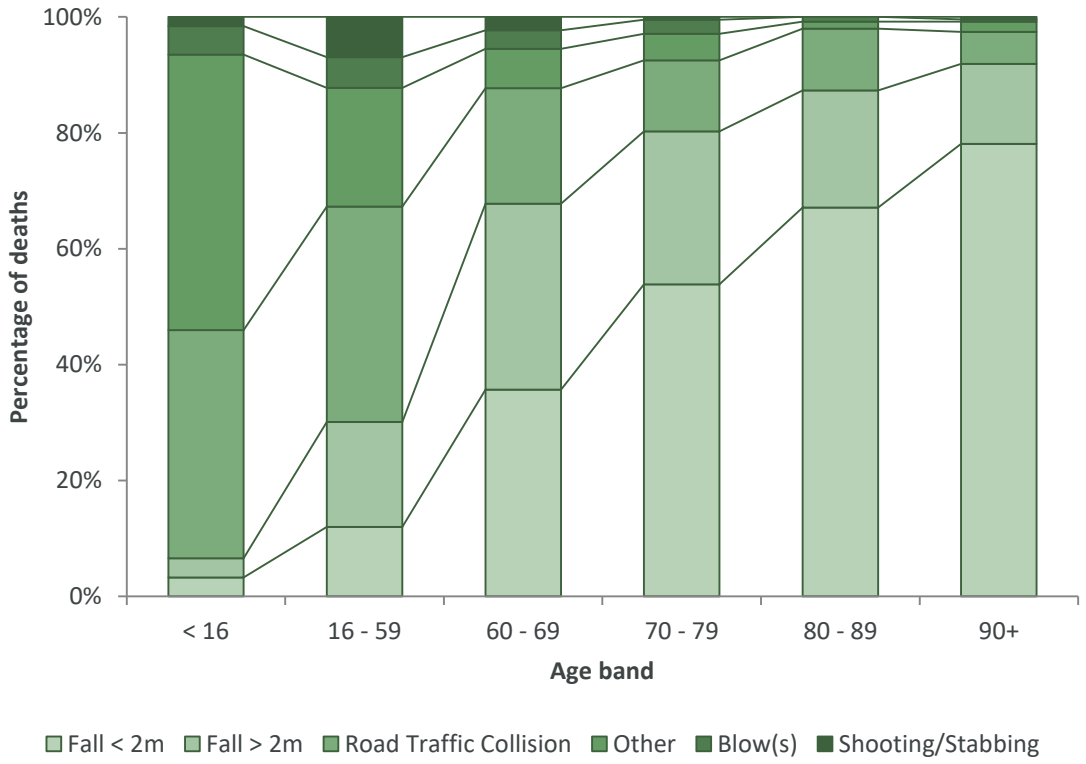
Grade of Clinician - Receiving



Body Area Injured



Injury Mechanism associated with Death



Traumatic Brain Injuries

Time to Head CT for patients with Traumatic Brain Injury (TBI)

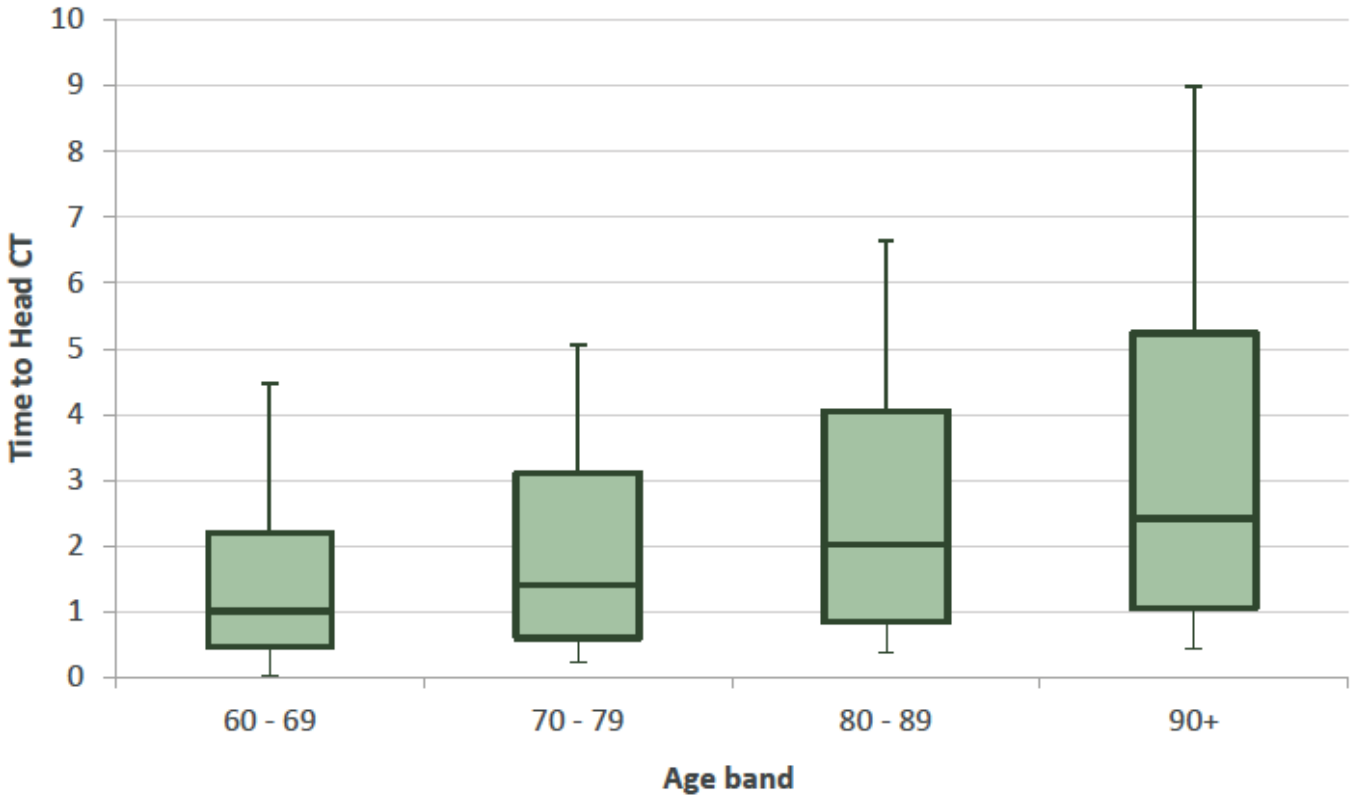


Figure 17: Relationship between age and time to CT head scan (Appendix 2, Table 16)

Time to head scan in older patients with serious TBI (AIS Head 3+) is about 1.5 hours longer than younger patients. This may be due to difficulties in early identification, difficulties in head injury assessment in patients with dementia, a higher proportion of acute on chronic subdural bleeds with a minor mechanism of injury, slower presentation of symptoms as the older cranium has more space to accommodate bleeding, or a lower prioritisation of older patients.

Head Injuries in UHS (>80s)

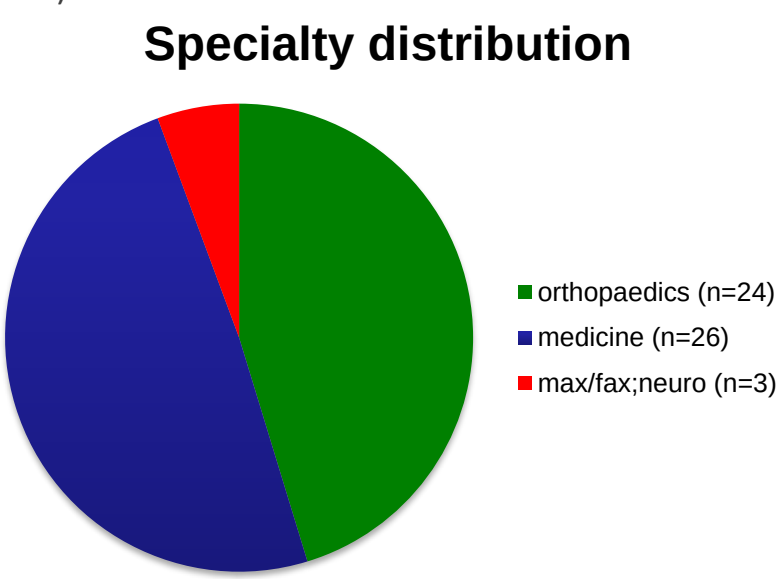
Total 53 patients

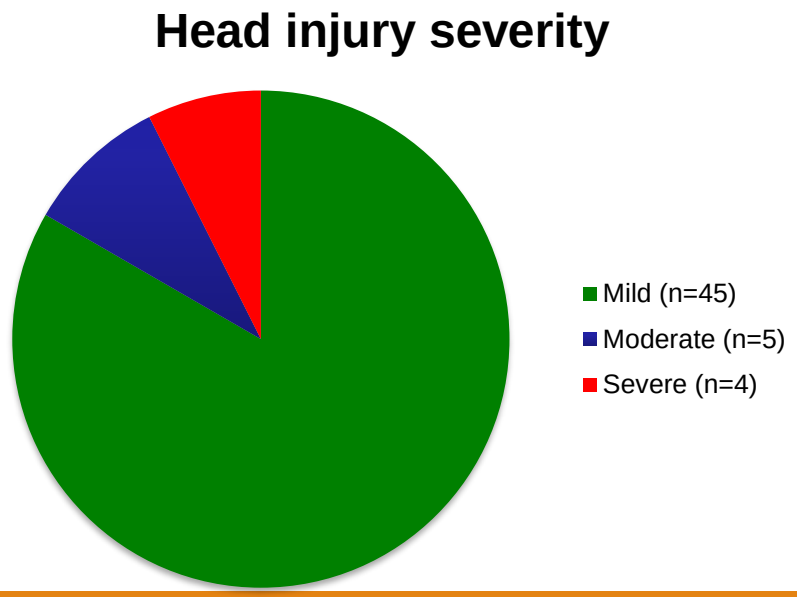
19 male, 34 female

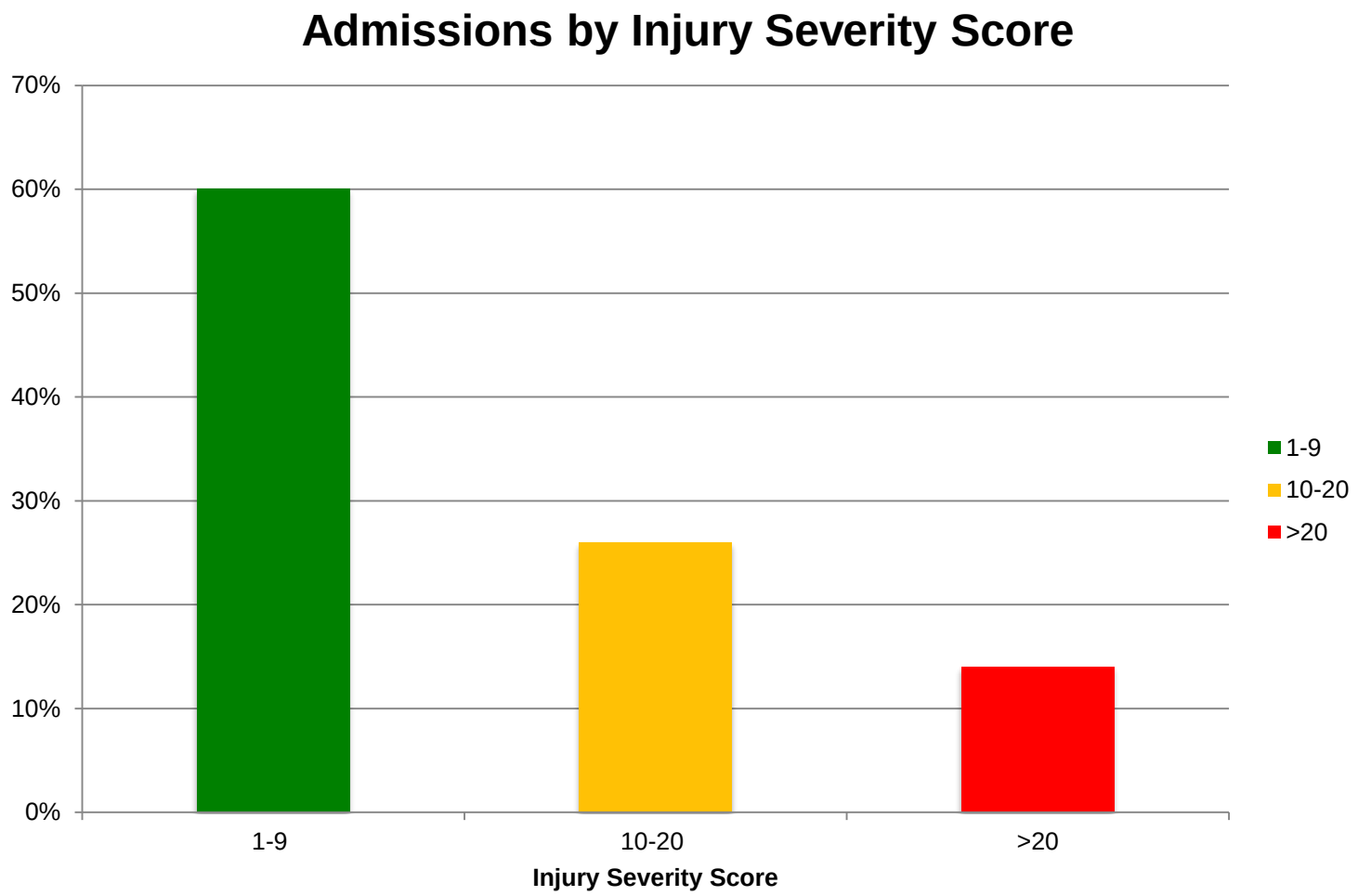
Average age 87.9 years (range 80-100)

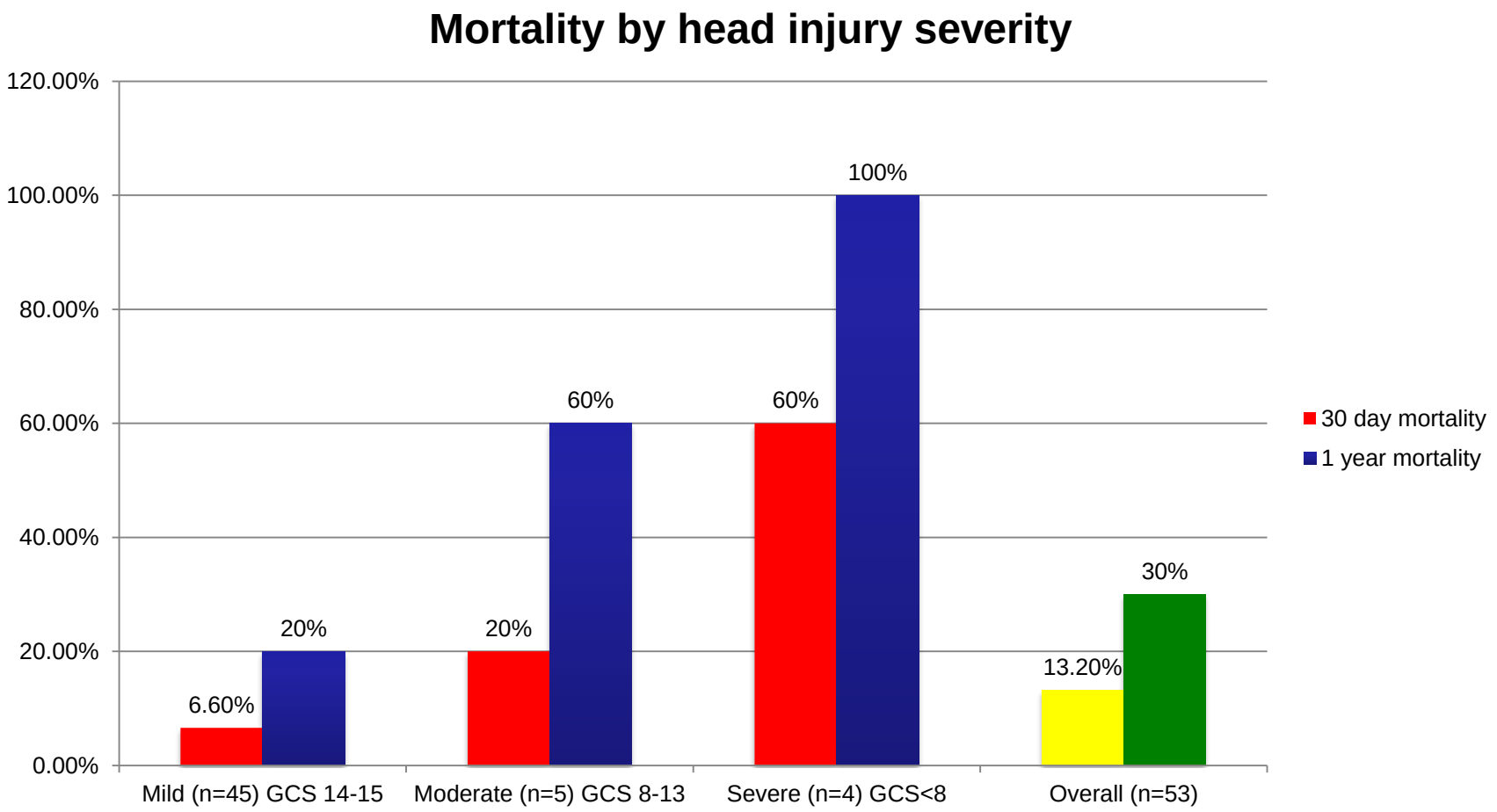
Average CCS 1.8 (range 0-4)

Average ISS 11 (range 1-75)






Admissions by Injury Severity Score
70%
60%
50%
40%
30%
20%
10%
0%
1-9
10-20
>20
Injury Severity Score
1-9
10-20
>20


Mortality by head injury severity
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
0.00%
6.60%
20%
20%
60%
60%
100%
13.20%
30%
Mild (n=45) GCS 14-15
Moderate (n=5) GCS 8-13
Severe (n=4) GCS<8
Overall (n=53)
30 day mortality
1 year mortality

Conclusions

Admission to hospital with a head injury is associated with an increased mortality and morbidity. This seems to be applicable even to mild head injuries.

Risk appears comparable to that of a hip fracture.

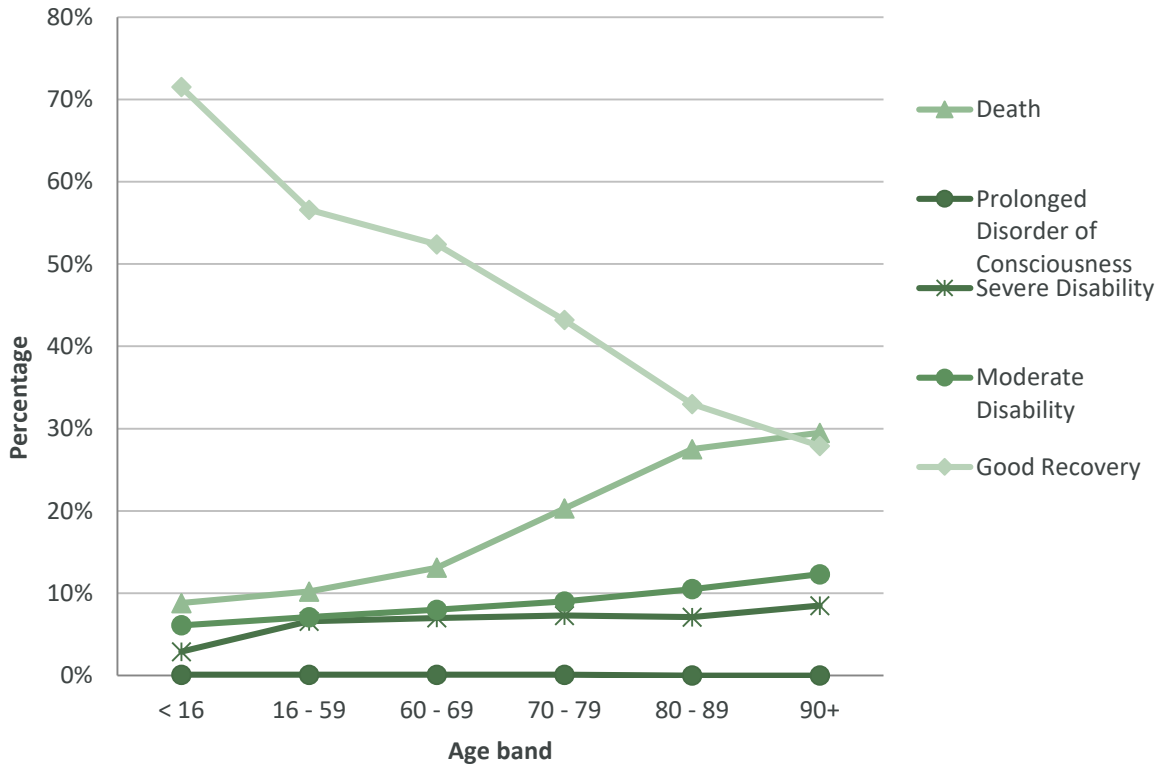
This might suggest that head injury is a frailty admission similar to Hip Fracture

No difference is apparent if patient receives a falls assessment.

Outcomes are worse in medical wards

Patients may benefit from more integrated trauma care with orthogeriatrics

Outcome on Discharge



Summary

Low Energy Transfer Mechanism

Unusual presentations

Under representation from prehospital through to inpatient care

Slower response throughout pathway

The Way Forward

Better prehospital protocols for recognition

Education in ED

Higher index of suspicion throughout pathway

Importance of Primary, secondary and tertiary survey

Discussion with regional MTC

“Rescue Protocols” for missed patients

Many Thanks