The epidemiology of hockey injuries in Victoria, Australia

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Data sources (datasets held by VISU)

- **Hospital admissions:** Victorian Admitted Episodes Dataset (VAED)
  - Admissions to all public and private hospitals in Victoria
  - Coded to ICD-10-AM
  - Chapter 20 External Causes: Codes for Activity, Causes, Place
- **Emergency Department (ED) presentations, non-admissions:**
  - Victorian Emergency Minimum Dataset (VEMD)
  - ED presentations to 39 public hospitals,
  - Drop-down menu: minimum injury dataset includes narrative
- **Sports participation data:** ERASS national annual survey (persons aged 15+) (Victoria oversampled for minor sports)

Data years analysed

- **Main Analysis**: 2010/11 – 2012/13 (3 years)
- **Trends:** frequency 2002/03 – 2012/13 (11 years)

  rate 2002/03-2009/10 (8 years)

Population

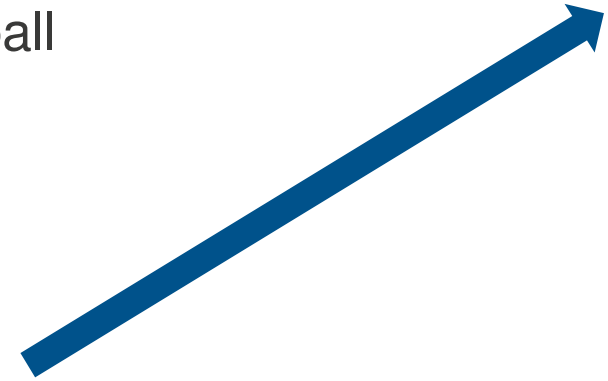
- All ages for frequency, adults only for rates, both sexes, organised and unorganised sport
- Mainly community-level participants

Ranking of sports for serious injury, Victoria

Adult hospital admissions (16 Sports), 2007/08 – 2009/10

Rank based on frequency

1. Australian Football
2. Soccer
3. Basketball
4. Netball
5. Cricket
6. Rugby
7. Tennis
8. Hockey

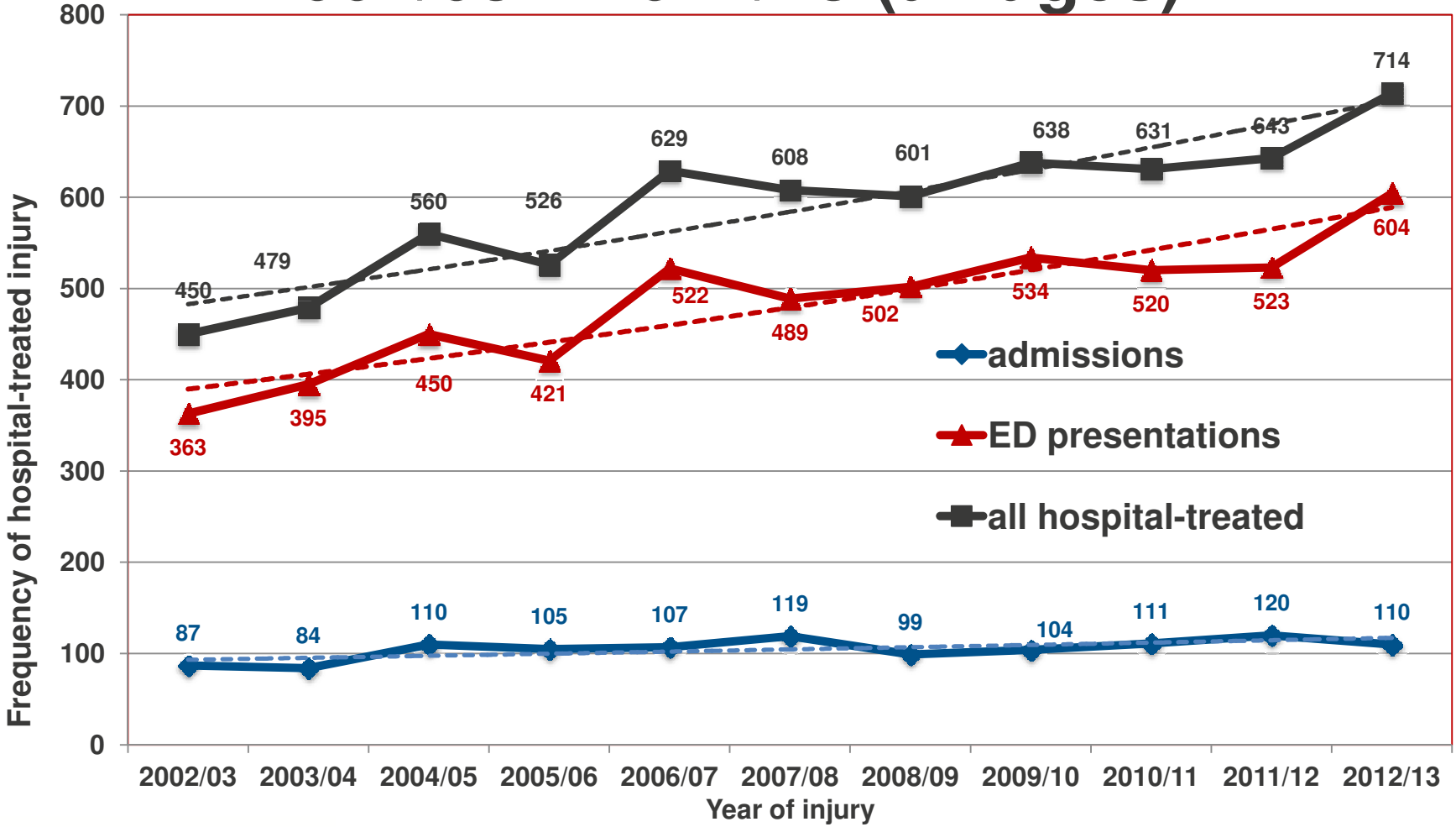


Rank based on rate per 100,000 adult participants

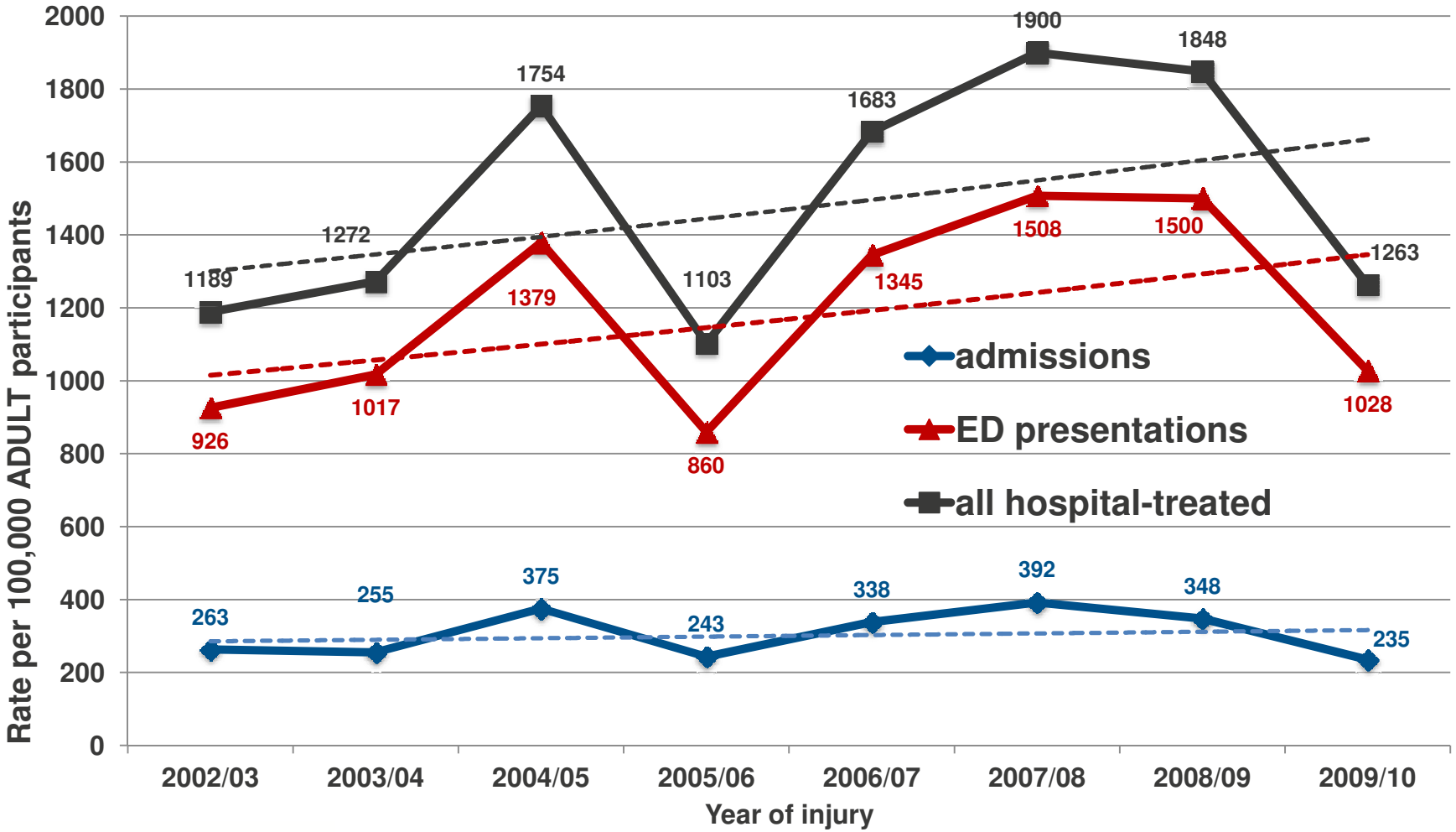
1. Australian Football
2. Hockey
3. Soccer
4. Basketball
5. Netball
6. Cricket

Source: Cassell E, Kerr E, Clapperton A. 'Adult sports injury hospitalisations in 16 sports: football codes, other team ball sports, team bat and stick sports and racquet sports.' Hazard education 2012, 74, Victorian Injury Surveillance Unit, Monash Injury Research Institute 2012.

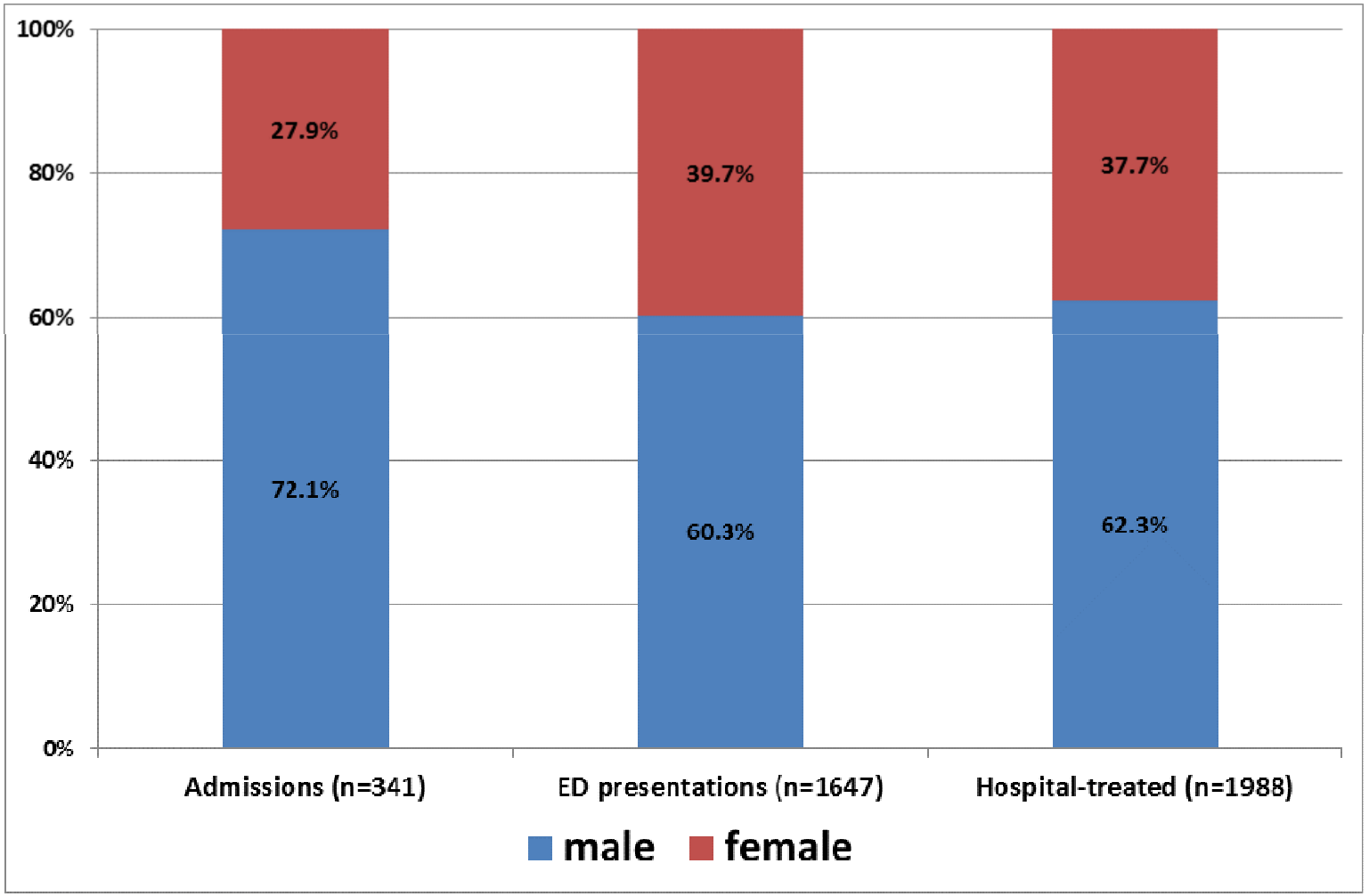
Trend in frequency of injury 2002/03 – 2012/13 (all ages)



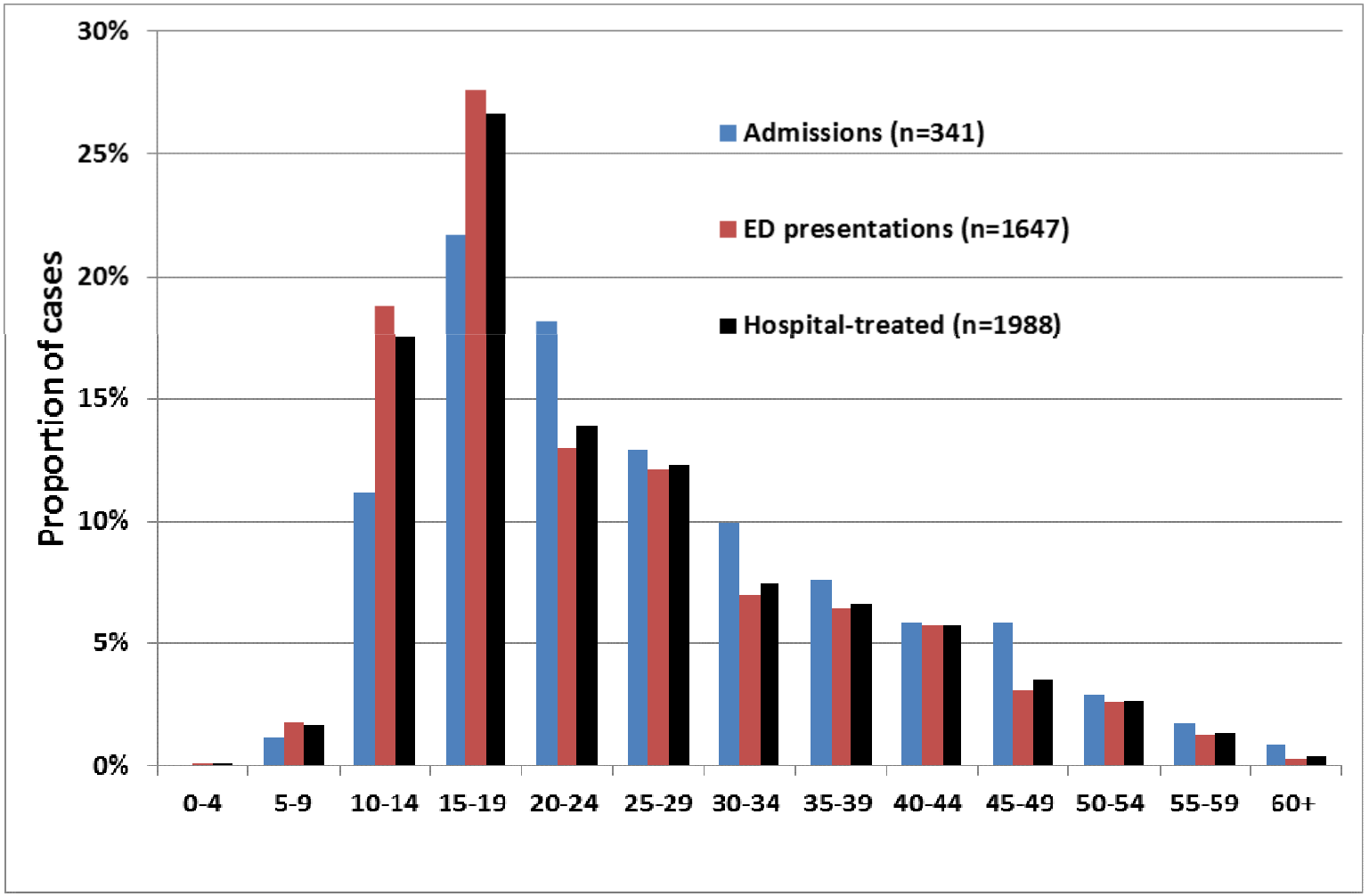
Trend in rate per 100,000 adult participants



Gender


100%
80%
60%
40%
20%
0%
27.9%
39.7%
37.7%
72.1%
60.3%
62.3%
Admissions (n=341)
ED presentations (n=1647)
Hospital-treated (n=1988)
male
female

Age


30%
25%
20%
15%
10%
5%
0%
Proportion of cases
Admissions (n=341)
ED presentations (n=1647)
Hospital-treated (n=1988)
0-4
5-9
10-14
15-19
20-24
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60+

Body Region Injured (Grouped)

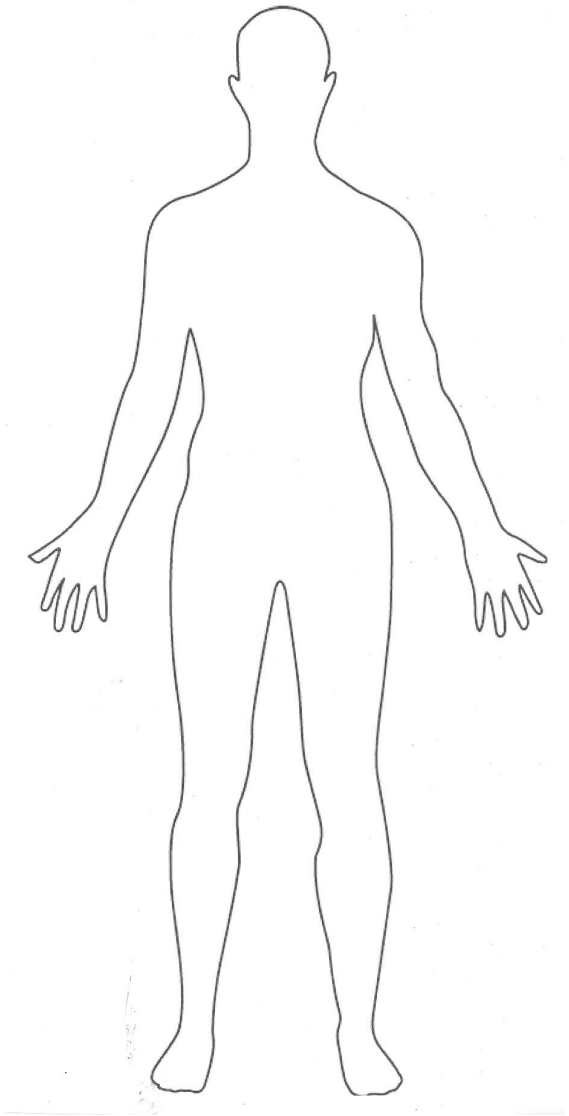
Admissions

Head/face/neck – 36%

Upper extremity – 43%

Trunk - 2%

Lower extremity - 17%



ED presentations

Head/face/neck - 35%

Upper extremity - 35%

Trunk - 2%

Lower extremity - 25%

Commonest injury diagnoses

Admissions (n=341)

1.	Fracture of wrist/hand	29%
2.	Fracture of skull/facial bones	14%
3.	Open wound to head	11%
4.	Dislocation/sprain/strain knee	6%
5.	Intracranial (incl. concussion)	4%
6.	Fracture lower leg including ankle	4%

ED Presentations (n=1647)

1.	Open wound to head	18%
2.	Fracture of hand/wrist	11%
3.	Dislocation/sprain/strain ankle/foot	9%
4.	Dislocation/sprain/strain wrist& hand	7%
5.	Superficial injury of head	6%
6.	Dislocation/sprain/strain knee	5%

Causes of injury

1. Hit/struck by equipment – ball, bat

67% admissions
65% ED presentation
65% ALL

2. Fall

12% admissions
11% ED presentations
11% ALL

3. Hit/struck/crush by person

2% admissions
6% ED presentations
5% ALL

Direct hospital costs – admissions only n=341 (2010/11-12/13)

Total cost: $1.2million AUD

Mean cost per case: $3,577 AUD

Range: $656 - $26,415 AUD

Data limitations

- **Hospital-based collections - capture biased to acute and serious injury -** NSW pop. health survey - only 15% of injured sports participants are treated in hospital (Mitchell et al. 2010)
- **Injury cases on hospital datasets underestimated**

  Substantial missing data on sport being played

- **Lack of information and mechanisms/circumstances of injury** –

  VAED all data coded - no coding of mechanism of injury and no narrative.

  VEMD narrative data of variable quality

- **Uneven commitment from hospital** ED management and staff

  Data quality is variable

Feasibility of sports injury data collection

- Difficult to get funding for a stand-alone Sports Injury Surveillance System
- ED surveillance - ICECI is a better alternative – core and modules
- SportsInjury Tracker – community sports injury on-line surveillance system

What do we know about community level hockey injury?

- Comparatively few studies – all but two descriptive
- One prospective cohort study (Western Australia) but risk factor analysis not done – low number of hockey injury cases.
- No case control studies to investigate risk and protective factors
- One published evaluation: of protective eyewear in US high school hockey found eyewear reduces head and face injuries (Kriz et al, 2012)

Research needs

- More injury surveillance to underpin research and prevention
- More analytical studies to determine risk/protective factors – focus on head injury
- More interventions and evaluations

All photographs courtesy of www.sportsonline.net.au