

Fracture epidemiology for children in Western Australia between 2005-2015

Do we need to be concerned about bone health?

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Background

Fracture incidence in 0-16 year olds is high and varies between countries with boys having a 1.5 times higher fracture rate compared to girls. Fractures can indicate poor bone health. There are **no specific data for Australia**. We analysed data for Western Australia. Due to the state's unique geography and population distribution the majority of children and adolescents with fractures present to the Emergency Department (ED) at Princess Margaret Hospital (PMH) in Perth.

Study Aim

The aims of this study were to characterize presentations with upper and lower limb fractures to PMH-ED and compare trends in the incidence rate to population data.

Method

Database audit of fracture presentations between 2005-2015 for fracture rates with a sub-analysis for gender, fracture site and age and a comparison to Perth Metropolitan and Western Australian population data.

Results

Fig. 1 Annual fracture rate

A: total, B: per 10⁴ persons, C: upper and D: lower limb
 INCL, with hand and foot fractures included; EXCL, with hand and foot fractures excluded

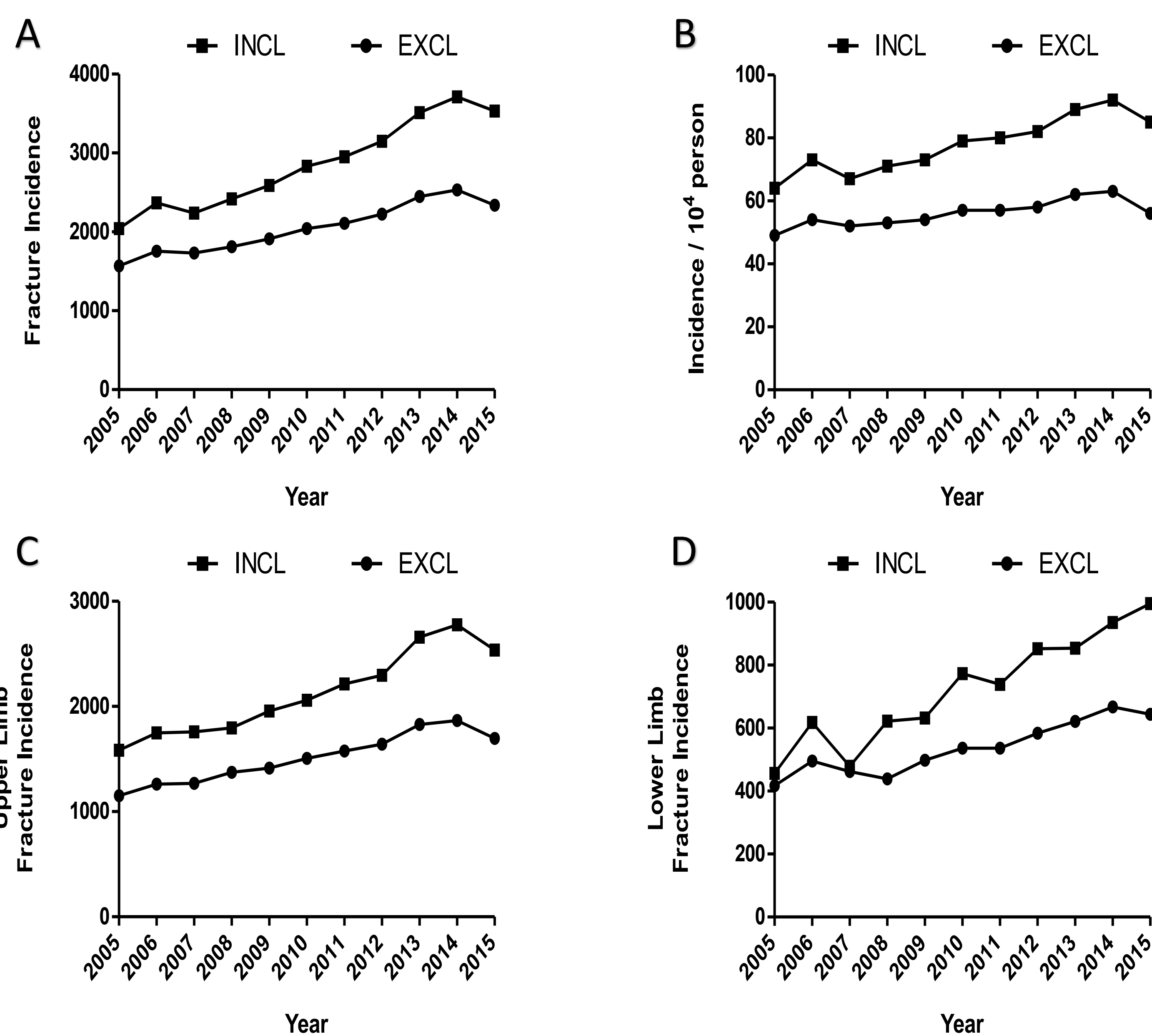


Fig. 2 Monthly fracture rate

A total number/month
 B upper and C lower limb fractures
 INCL, with hand and foot fractures included; EXCL, with hand and foot fractures excluded

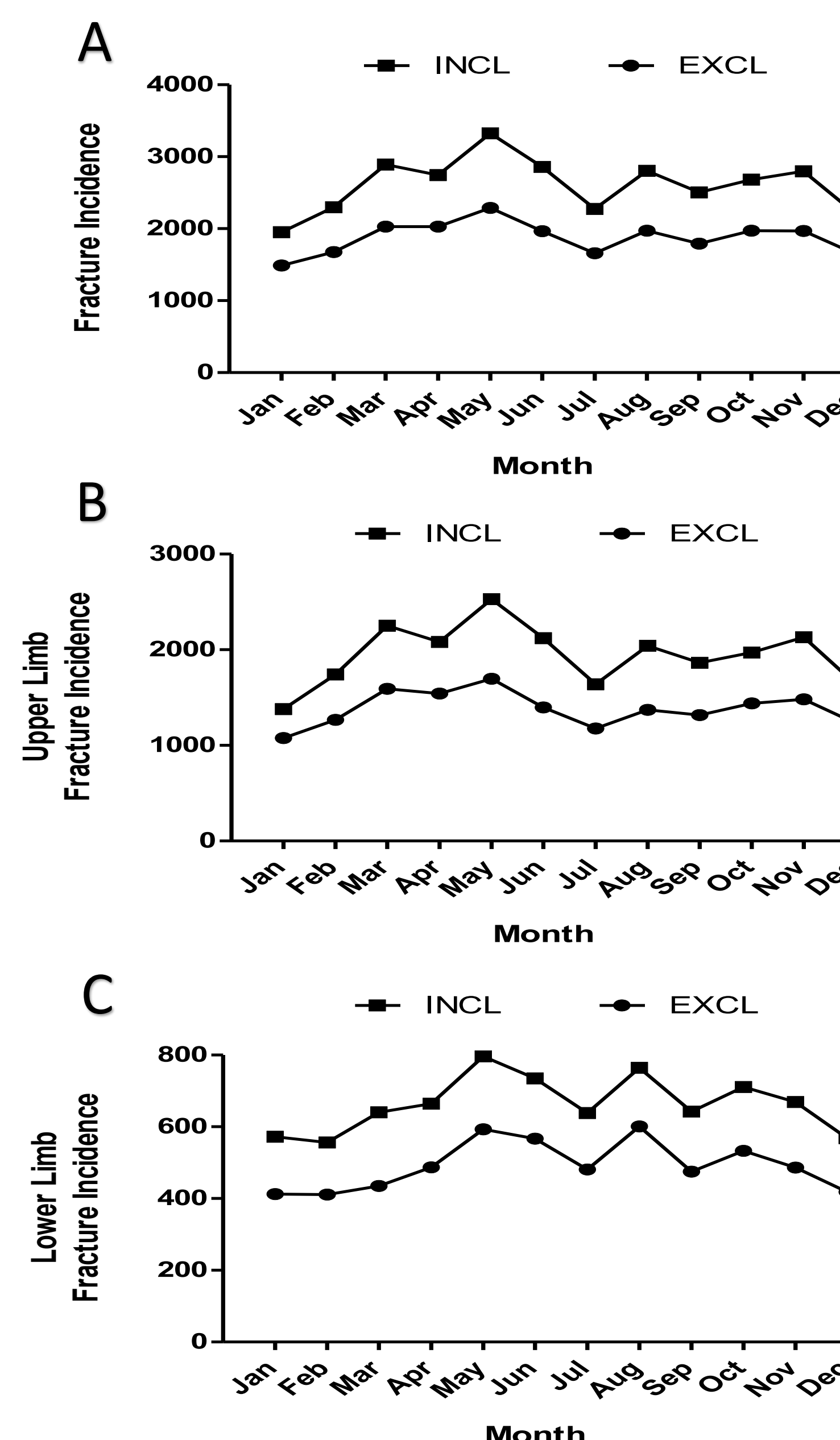
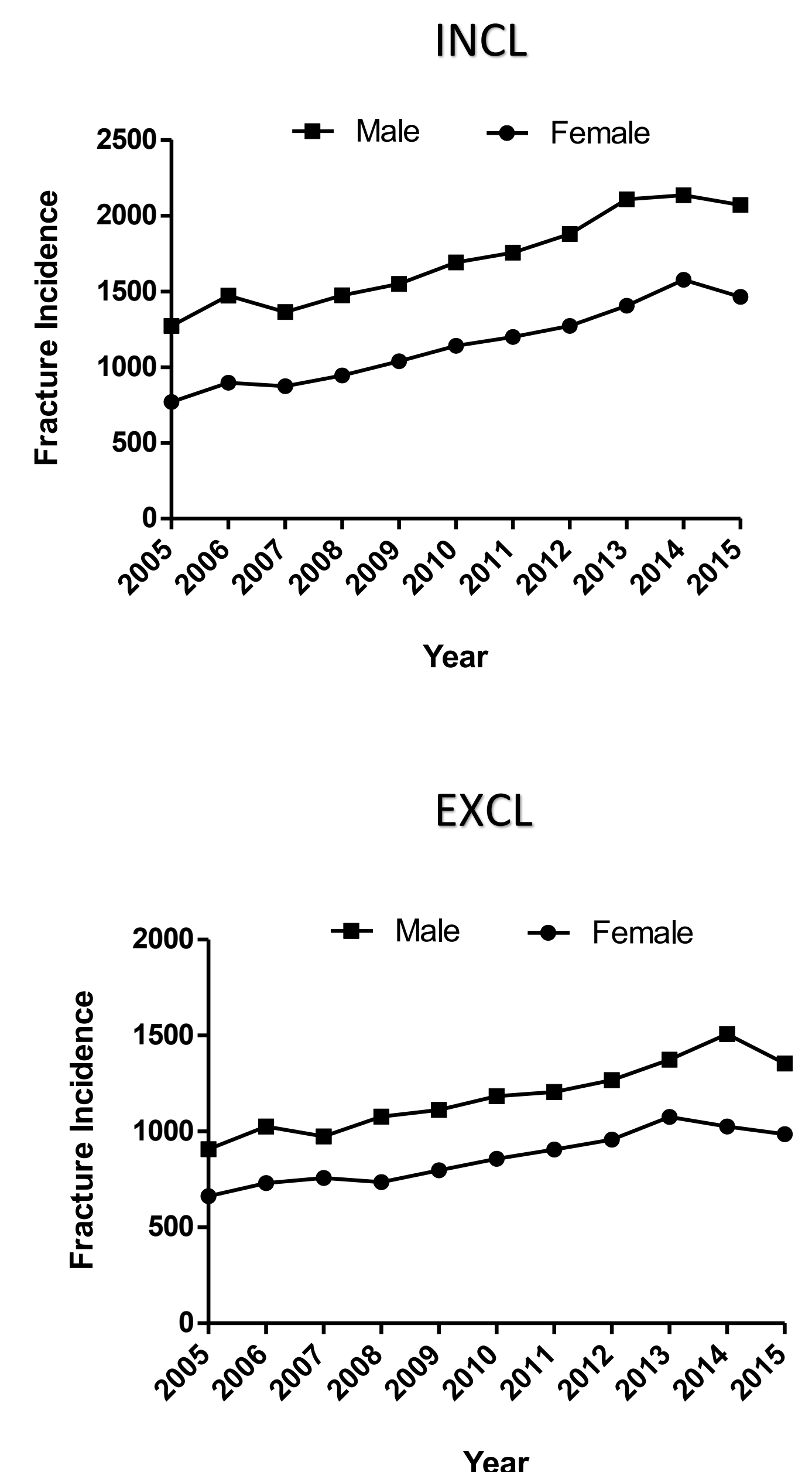


Fig. 3 Gender specific fracture rate

INCL, with hand and foot fractures included;
 EXCL, with hand and foot fractures excluded



Summary of Results

- Analysis of 31,340 fracture presentations
- Annual fracture rate increased from 0.63% (2005) to 0.85% (2015), $p < 0.001$
- Upper limb fractures 3x more common than lower limb fractures ($p < 0.001$)
- Seasonal variation with peak in May/autumn ($p < 0.001$)
- Fracture rate 1.5x higher in males ($p < 0.001$)

Conclusion

Increased fracture incidence in Western Australia between 2005 and 2015 identifies a concerning trend for bone health in children and adolescents that needs addressing. Further research is needed to identify potential lifestyle factors that impact fracture incidence in order to reverse fracture incidence trends seen in children and adolescents in Western Australia.

