

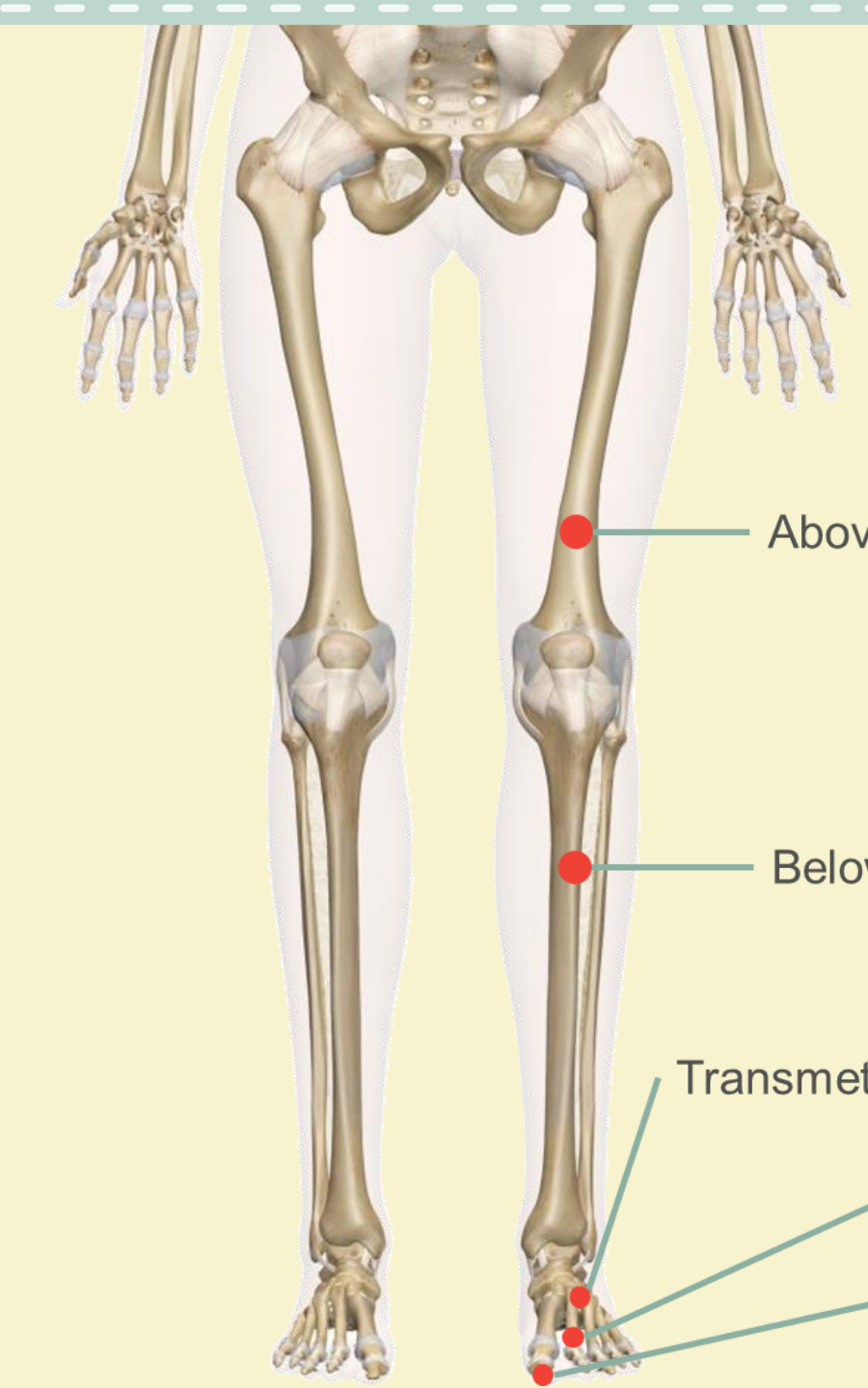
THE INCIDENCE OF FOOT DISEASE-RELATED AMPUTATIONS IN AUSTRALIA

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BACKGROUND



Foot disease typically refers to foot ulcer and/or foot infection ¹. It is preceded by major risk factors such as peripheral neuropathy, peripheral arterial disease, and foot deformities ².

Foot disease is also known to be the leading cause of lower limb amputations. Lower limb amputation can be classified into major and minor amputations.

Major amputation involves a surgery through the bone proximal to the ankle joint ³.

Minor amputation involves a surgery through or distal to the ankle joint ³.

In Australia,

1 in 20

inpatients present with a foot disease ⁴

8000

lower limb amputations performed every year ⁵

4

deaths due to diabetic foot disease every day in 2005 ⁶

\$1.6 billion

of healthcare costs every year ⁷

The risk of amputation is higher in people with diabetes. However, some studies reported that only 40 to 59% of cases account for people with diabetes ⁸⁻¹². This seems to suggest a large incidence of nondiabetic amputations. There is also little literature in Australia on nondiabetic amputation rate.

Foot disease can occur in people with and without diabetes

Research Objectives

- To determine the incidence of foot disease-related amputations in Australia from 2008 to 2015
- To compare the incidence of foot disease-related amputations in people with and without diabetes

Conclusion

- Findings showed a significant increase in minor foot disease-related amputation rates, and a significant decrease in major foot disease-related amputation rates across all study populations.
- The relative risk of foot disease-related amputation is 4-folds in people with diabetes versus people without diabetes.
- Findings were also clinically significant and can be used to evaluate foot care strategies to inform policy makers and relevant stakeholders about the foot disease burden in Australia.

METHODS

2. DATA INCLUSION

- Patients with foot disease-related hospitalisation and lower limb amputation according to ICD-10-AM codes from 2008 to 2015 were included in this study

4. DENOMINATOR

- General resident population from Australian Bureau of Statistics ¹⁵
- Diabetic population from National Diabetes Services Scheme ¹⁶
- Nondiabetic population

6. STATISTICS

- χ^2 test of independence used for categorical variables
- χ^2 test for trend used for incidence rates
- Significance level of $P < 0.05$

1. STUDY DESIGN

- Retrospective analysis ¹³⁻¹⁴
- Data acquired from Australian Institute of Health and Welfare
- Includes patient sex, age, residence, state, principle and secondary diagnosis and procedures

3. NUMERATOR

- Number of foot disease-related amputations (FDA)
- 1^o outcome: total, minor, and major FDA
- 2^o outcome: diabetic and nondiabetic FDA
- Stratified by sex and age

5. INCIDENCE RATES

Number of FDA
Study Population

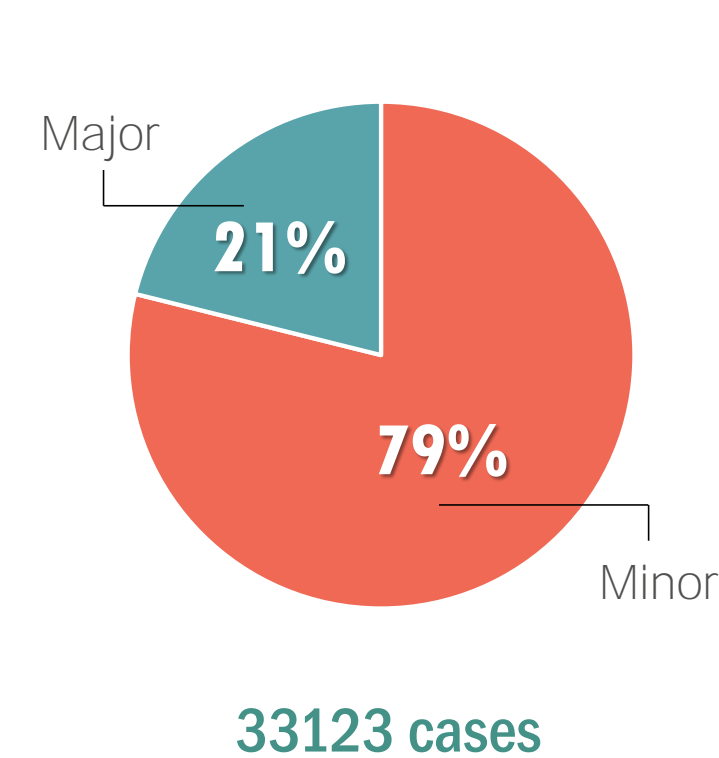
- Crude incidence (95% CI)
- Age-sex standardised rates based on 2011 Census
- Age- and sex- specific rates

RESULTS

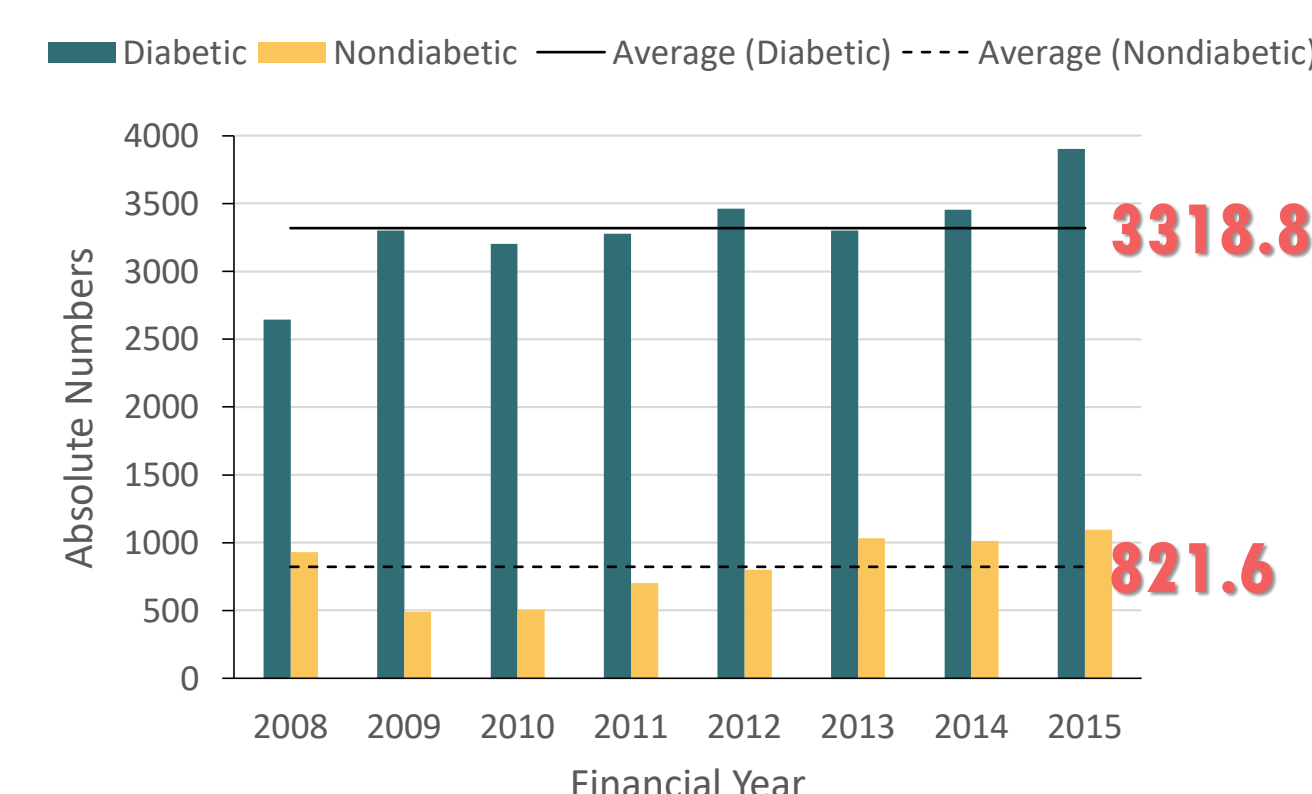
Absolute Numbers

(A) A total of 33123 cases were identified. Of these, 79% accounts for minor FDA and 21% accounts for major FDA. (B) Annual FDA cases in people with and without diabetes from 2008 to 2015. Of these, diabetic FDA makes up 80% of total cases. (C) Participants' demographics stratified by their age, sex, and diabetic status.

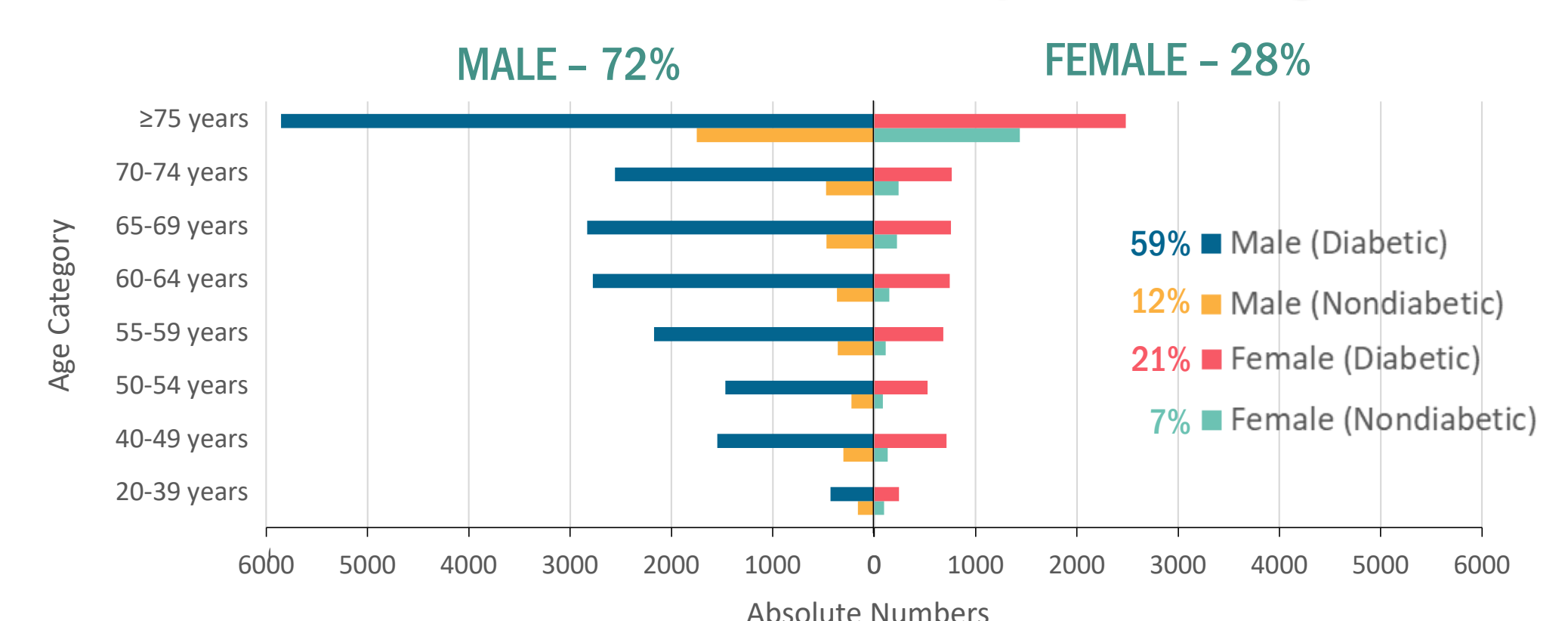
A. Total FDA



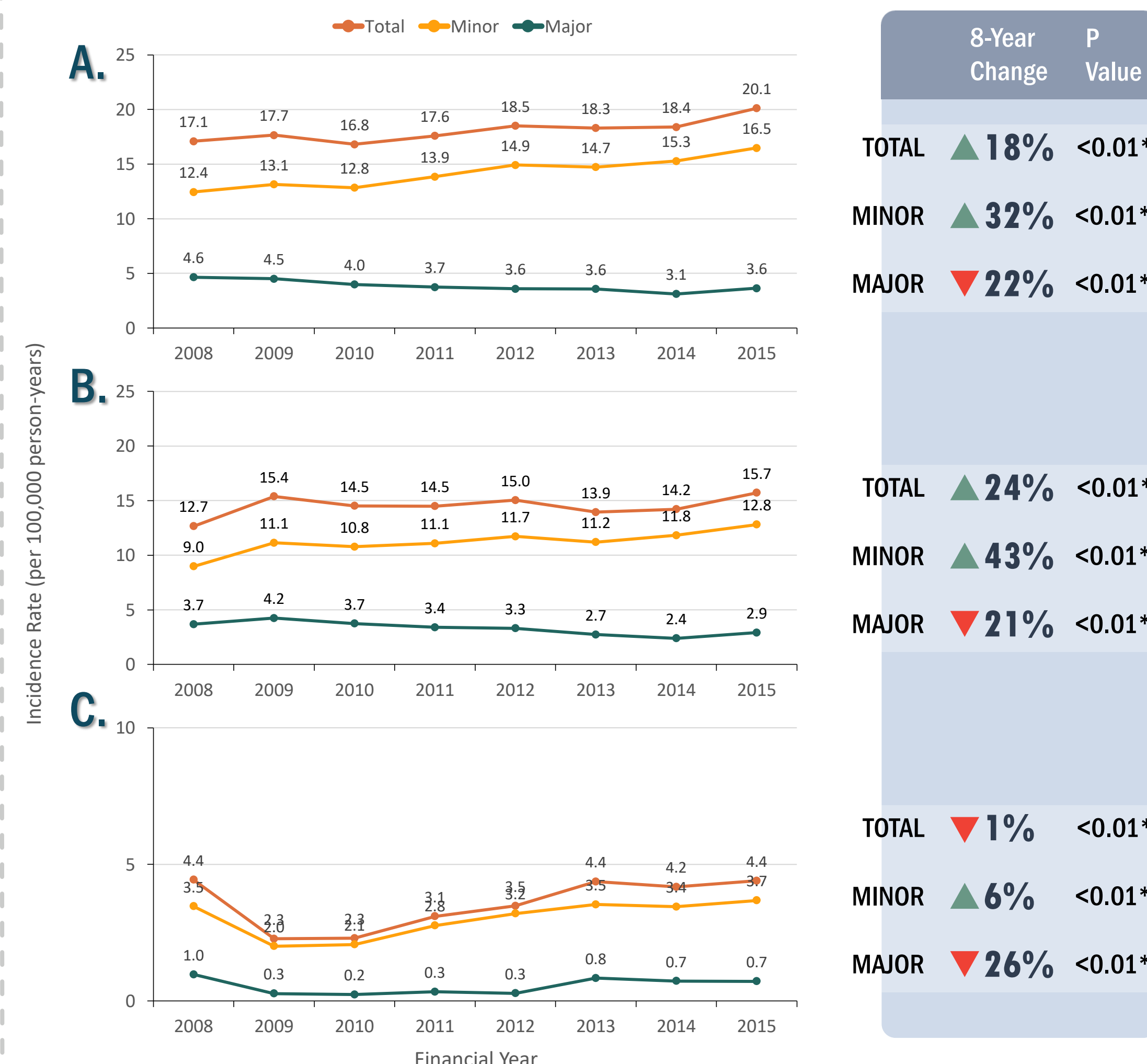
B. Diabetic and Nondiabetic FDA



C. Total FDA stratified by sex and age



Incidence Rates



Age-sex standardised rates in Australia from 2008 to 2015 amongst the (A) general population, (B) diabetic population, (C) nondiabetic population. Minor FDA rates increase significantly and major FDA rates decrease significantly across all study populations.

DISCUSSIONS

First study to evaluate foot disease-related amputation rates in Australia

Study results correlate with previous studies, suggesting that minor amputation is intended to limit major amputation while maintaining limb function ¹⁷.

Foot disease also makes up slightly over half of total lower limb amputations in Australia ¹⁴. Our study focused on foot disease-related amputations while previous studies included all lower limb amputations ¹⁸⁻²⁰. By identifying specific foot disease markers, we were able to demonstrate the severity of foot disease-related amputation in Australia.



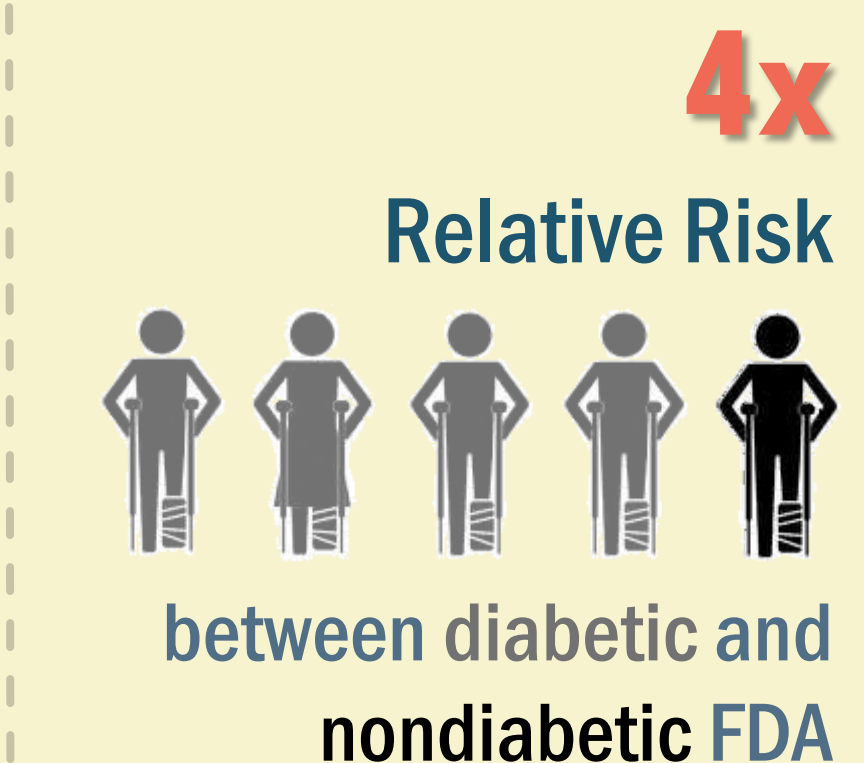
Significant increase in MINOR FDA rates



Significant decrease in MAJOR FDA rates

First study to evaluate diabetic and nondiabetic foot disease-related amputation rates in Australia

The relative risk reported in our study is much lower than previous studies ranging between 8 and 23.3 folds ⁸⁻¹¹.



The reason being that we were able to report incidence rates closer to the interest group who are admitted patients with foot disease. It was hypothesised that admitted patients may have exhibited more critical symptoms, such as re-ulceration or infection, requiring an amputation ²¹⁻²².

Moving forward...

Study results showed clinical significance. Thus, the appropriate response is to prioritise best foot care services to people with and without diabetes who are high risk of foot disease.

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