

The Epidemiology of Fungal Keratitis in Queensland, Australia



Queensland Government

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Introduction

Fungal keratitis is rare, but often results in poor outcomes. The incidence is higher in tropical environments and in developing countries. Within countries, degree of urbanisation is also a factor.

We describe the epidemiology of fungal keratitis in Queensland, an Australia state with a 46% rural/regional population and over half its landmass in the tropics. Public healthcare is provided by 15 Hospital and Health Services (HHS), 12 of which are rural/regional (Figure 1). Over 50% of the population live in Brisbane, the capital, and the Gold Coast.

Methods

A statewide pathology database (AUSLAB) has been maintained since 1996. The public sector reference laboratory also works up ocular fungal isolates from private laboratories, and the results are published on AUSLAB. We searched the database for all corneal fungal isolates from 1996-January 2016.

Demographic data was collected, and cases were analysed by rurality (residence metropolitan vs. rural/regional) and climatic zone (tropical vs. non-tropical). Tropical Queensland was defined as being north of the Tropic of Capricorn, comprising 5 HHS (Cairns and Hinterland, Torres and Cape, Townsville, North West and Mackay). Metropolitan Queensland was defined as the Brisbane Metro North and South, and Gold Coast HHS.

Results

237 cases were identified; 221 (from 216 unique patients) were in Queensland residents. 105 cases were in metropolitan HHS (Figure 1), reflecting the high population densities in Brisbane and the Gold Coast. Males (138) outnumbered females (78) 2:1, although in metropolitan Queensland the ratio was closer to 1:1.

The modal age range was 25-50 years irrespective of rurality or climatic zone, accounting for 44% of cases overall. The median age for all patients was 48 years (IQR 24.25). This did not differ greatly when stratified by sex, rurality or climatic zone.

281 fungal isolates were cultured. *Fusarium* (30%) and *Curvularia* (11%) were the top two aetiologies regardless of rurality or climatic zone (Figure 2). Polymicrobial keratitis was commoner in rural/regional areas (80% vs. 26% of cases).

Fig. 1. Number of cases by HHS. Urban Rural

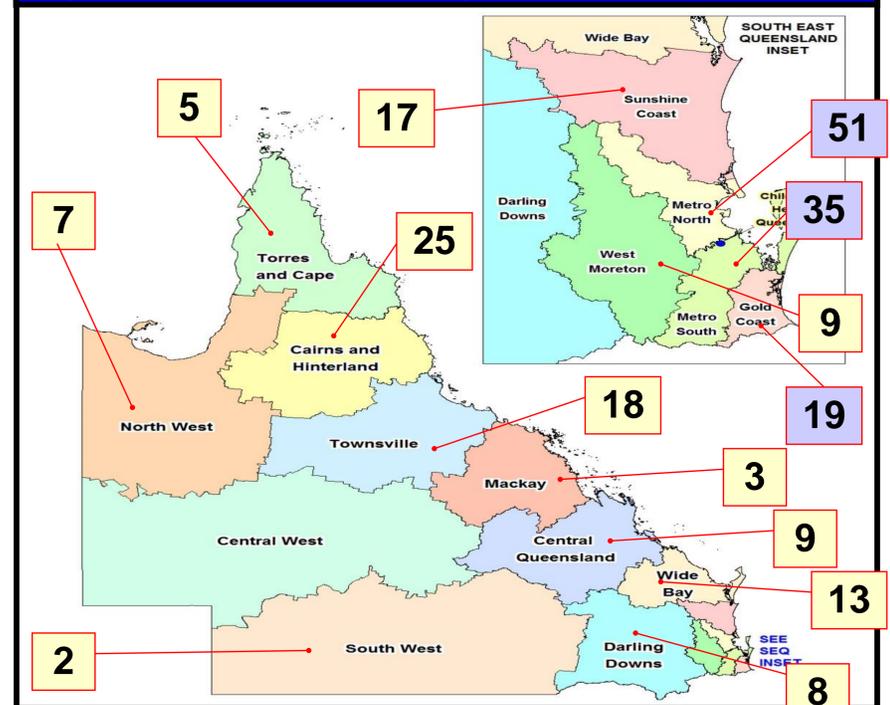
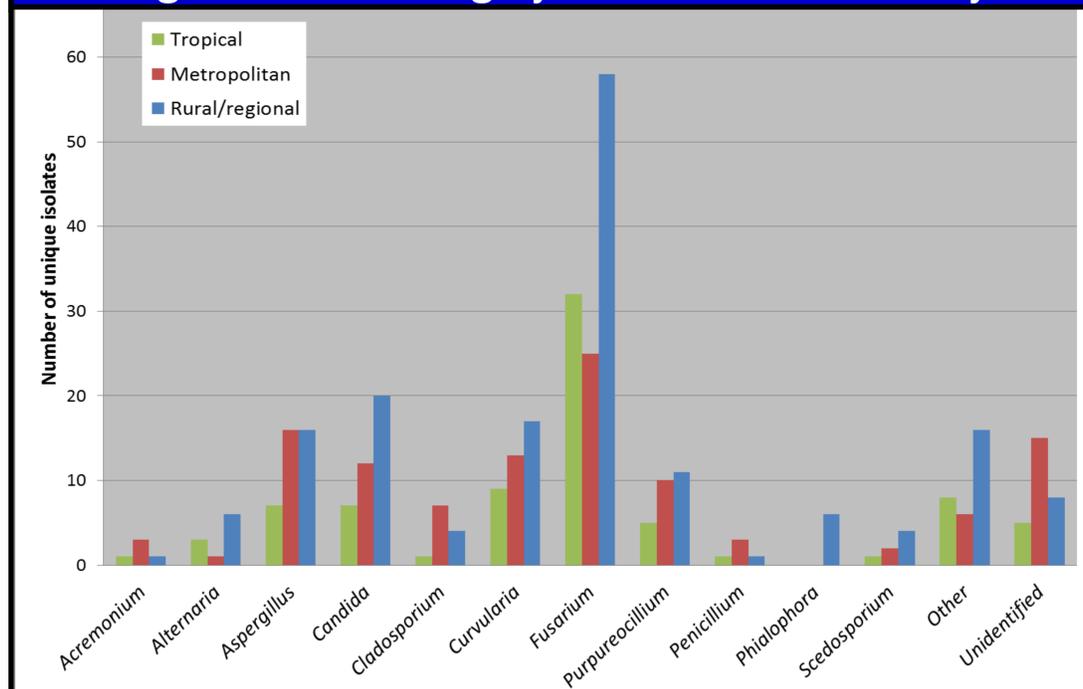


Fig. 2. Causative fungi by climatic zone and rurality



Conclusion

Fusarium is the commonest cause of fungal keratitis in Queensland, regardless of rurality or climatic zone. Younger males are most commonly affected, especially in rural/regional areas. This may be due to higher occupational exposures, which also explains polymicrobial aetiology. The large proportion of cases in metropolitan areas is reflective of their high population densities. Our data provide a relatively accurate representation of the epidemiology of fungal keratitis in Queensland, although we recognise that not all specimens may have been culture-positive.

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