

Epidemiology and Microbiology of Infective Endocarditis in Hong Kong, 2002 – 2019

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Introduction

The epidemiological and clinical characteristics of IE are known to exhibit substantial geographical variability. However, most studies were carried in North America and Europe. The temporal changes in incidence, patient characteristics, and related mortality of IE, remain **unknown** in the Asian population.

We aim to describe the trends in **epidemiology** and **microbiology** of IE in Hong Kong in the past two decades.

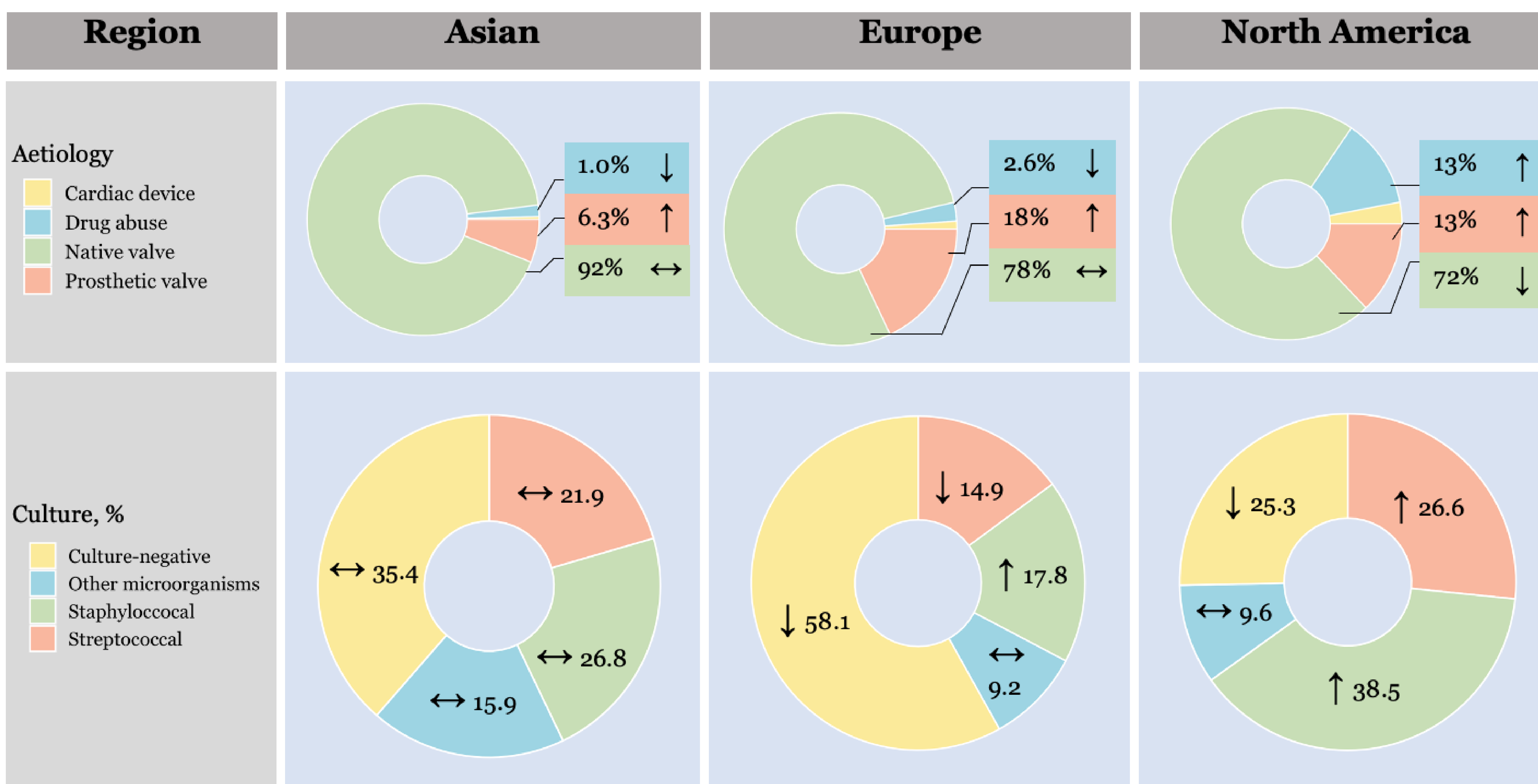
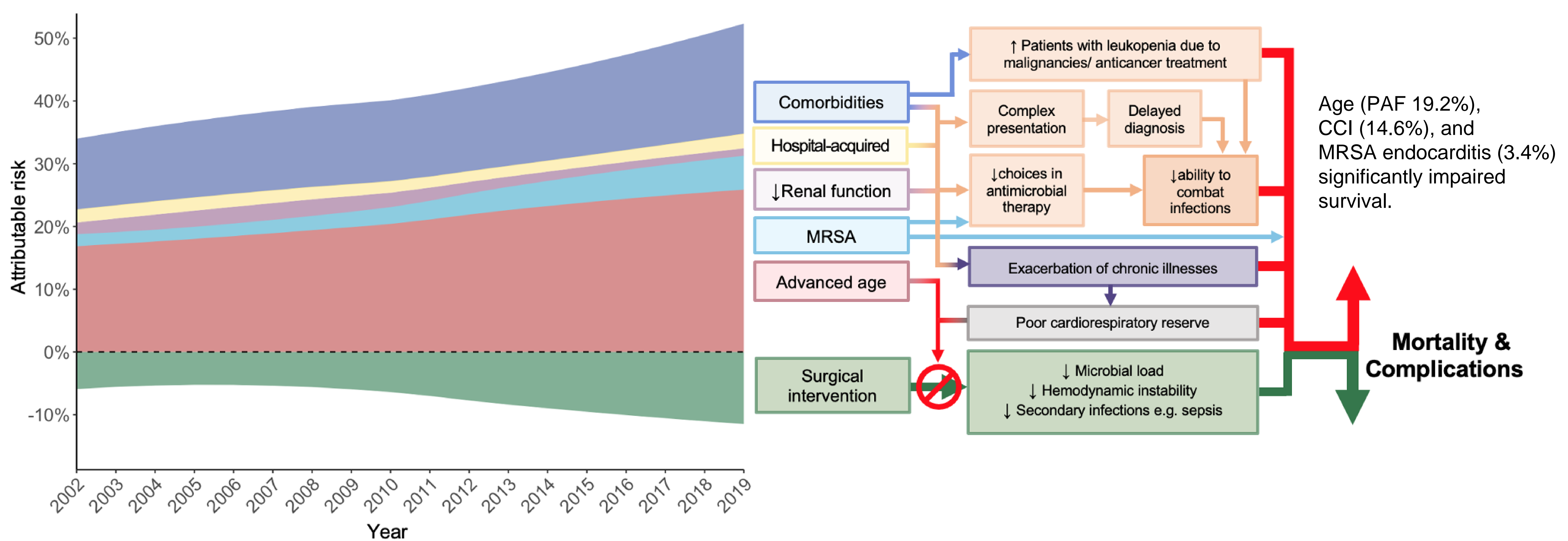
Methods

All patients with incident IE from 2002-2019 in a territory-wide clinical database in Hong Kong were identified. Temporal trends in patient characteristics, microbiology, and outcomes were evaluated using Poisson regression. Significant contributors to 1-year all-cause death using the **population attributable fraction (PAF)**. The change in microbiological profiles before and after the revision of antibiotic prophylaxis guideline was evaluated using interrupted time series.

Results

A total of 5,139 patients (age 60 years; 37.3% women) had incident IE from 2002 to 2019. The mean **age** of patients with IE increased significantly (annual percentage change [APC] 1.0%, 95% CI 0.8 to 1.1, $P < 0.001$). The **Charlson Comorbidity Index [CCI]** increased (APC 3.1%, 95% CI 2.1 to 4.1, $P < 0.001$) concurrently. The crude all-cause **mortality rate at 1 year increased** slightly from 30% in 2002-2007 to 32% in 2014-2019 (APC 0.7%, 95% CI -0.1 to 1.4, $P = 0.087$).

Staphylococcus aureus (1,205, 23.4%) and *Streptococci* (1,125, 21.5%) were the most common organisms. There was no significant change in microbiological profiles after the revision of antibiotic prophylaxis guideline in 2008. Notably, there was significantly increasing trend in **Methicillin-resistant Staphylococcus aureus (MRSA)**, with an APC of 4.2% (95% CI 1.9 to 6.6, $P < 0.001$). Patients infected with **MRSA had a higher all-cause death** at 1 year (Hazard Ratio 2.00, 95% CI 1.70–2.36, $P < 0.001$).



Conclusions

Over time, patients with IE are **increasingly older and more comorbid**. Notably, the burden of **MRSA endocarditis** increased, together leading to a dismal prognosis. Taken together, our findings provide important insights into the **geographical disparities** in epidemiological, clinical, and microbiological profiles of patients with IE.