

# Trends in infective endocarditis (IE) mortality between 1990-2019: an analysis of the Global Burden of Diseases database

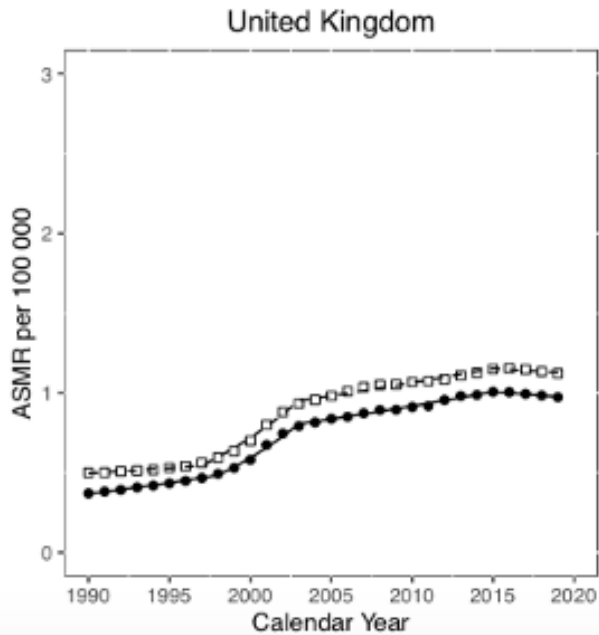
Matthew Hammond-Haley, British Heart Foundation Centre of Research Excellence, King's College Hospital, London

Adam Hartley, Becker M Al-Khayatt, Augustin J Delago, Alireza Ghajar, Dominic C Marshall, Justin D Salciccioli, Joseph Shalhoub



**Study aim:** To describe temporal trends in IE mortality in high-income countries ('EU 15+') over the last 30 years

**Methods:** An observational analysis of the Global Burden of Diseases database. Age-standardised mortality rates (ASMR) per 100,000 population between 1990-2019 were extracted and stratified by sex. Mortality trends were assessed using Joinpoint regression analysis (Joinpoint Version 4.1.1.1, United States National Cancer Institute Surveillance Research Program)



## Trends in IE ASMR in the UK.

Example joinpoint graph of ASMR in the UK. Clear squares indicate males, filled circles indicate females.

## Key Findings

- IE ASMR increased for both sexes in all included countries except Finland and Austria
- The largest % increase in IE ASMR in males was observed in Greece (+197%), the largest % increase in females was observed in Italy (+246%)
- Most recently, a negative mortality trend was observed in the majority of countries
- ASMR were higher in males in most countries (exceptions included Greece and Spain)

## Discussion

IE *incidence* rates (separate analysis, not shown) were higher in males than females, which may partly explain the higher male mortality seen in most countries. However, mortality to incidence ratios are generally higher in females, suggesting worse outcomes in female patients. The reasons for this remain unclear, but might in part represent a higher proportion of more virulent infections (e.g. healthcare associated *Staphylococcus aureus* infections) in higher-risk patients (age, co-morbidities).

Rising incidence rates continues to be a major driver for endocarditis mortality, and preventative strategies, particularly with increasing risk factors including an aging population and increasing rates of invasive medical procedures, should remain a priority.

The epidemiology of IE is complex and multifactorial, and the drivers for the observed trends can not be established from this observational analysis.