

clinical experience of use of two of the newer agents targeted against Gram negative bacteria, Ceftazidime-avibactam and Ceftolozane-tazobactam. These agents were used for the treatment of Carbapenemase Producing Enterobacteriaceae (CPE), in a post-op cardiothoracic patient with severe hospital acquired pneumonia and Multi Drug Resistant (MDR) *Pseudomonas* in a patient with severe burns airlifted to our specialist burns unit from a hospital in Pakistan.

Conclusions: Antibiotic resistance is a global problem. Resistance mechanisms are becoming increasingly complex to understand and detect, and are highly mobile via genes on plasmids spread through bacterial populations, augmented by air travel and migration. Collaboration between countries is now more essential than ever. We feel that this should include the sharing of real life clinical data and experience of the newer agents, in order to build up clinicians confidence to use them in the clinical setting, thereby increasing treatment options globally.

<https://doi.org/10.1016/j.jiph.2018.10.062>

Fungal diseases in Taiwan – National Insurance Data and Estimation



D. Denning^{1,*}, Y. Huang², Y. Chen²

¹ Manchester University FT

² National Taiwan University Hospital

Background & Purpose: Almost all the Taiwanese population of 23.6 million people are registered on the National Health Insurance Research Database (NHIRD), yet no national analysis of fungal diseases has been undertaken using the NHIRD.

Methods: Using one-in-three sampling ratio, the NHIRD was queried using ICD-9 fungal disease codes to estimate the disease burden in 2013. Documented numbers were compared with modelling as previously undertaken for total and at-risk populations.

Results: Estimates for the annual incidence of HIV-related life-threatening fungal disease include cryptococcal meningitis (243 cases, 51 in HIV), *Pneumocystis pneumonia* (1251 cases, 630 in HIV) and histoplasmosis (54 cases, 3 in HIV). We estimate 4,798 cases of invasive aspergillosis annually, whereas NHIRD had 567 and a prevalence of 7,646 chronic pulmonary aspergillosis cases, compared to NHIRD's 531. Sixty-three mucormycosis cases were documented by NHIRD (0.27/100,000). The annual burden of candidaemia and *Candida peritonitis* is recorded at 861 (3.65/100,000) and 27 cases, respectively. Fungal asthma, including allergic bronchopulmonary aspergillosis (ABPA), probably affects over 100,000 adults, yet 63 cases were captured by NHIRD. Over 20,000 oral candidiasis cases were documented by NHIRD and 1,440 oesophageal candidiasis (6.1/100,000). Over 350,000 women are estimated to be affected by recurrent vulvovaginal candidiasis each year (2,758/100,000 females). Fungal keratitis is found in 8.2% of microbial keratitis, but no total caseload recorded. A small number of tinea capitis, chromoblastomycosis and sporotrichosis cases are seen each year.

Conclusions: About 2% of the Taiwanese population have a serious fungal infection each year, and the NHIRD database documents most of these, with some notable gaps, especially invasive, chronic and allergic aspergillosis, probably a function of limited awareness and diagnosis use.

<https://doi.org/10.1016/j.jiph.2018.10.063>

The estimated burden of fungal diseases in South Africa



I. Schwartz^{1,2}, D. Denning^{1,2,*}

¹ Manchester University

² Global Action Fund for Fungal Infections

Background & Purpose: With a population of 57.7 million, over 7 million persons living with HIV and very diverse ecology and human genetics, South Africa's serious fungal disease burden is probably substantial and diverse. We sought to estimate the burden of serious fungal disease in South Africa.

Methods: Using total and at-risk populations and national, regional, and occasionally global data, we estimated the incidence and prevalence of the majority of serious fungal diseases in South Africa.

Results: Estimates for the annual incidence of HIV-related life-threatening fungal disease include cryptococcal meningitis (23,676 cases), *Pneumocystis pneumonia* (40,587 cases), and endemic mycoses (emergomycosis [100 cases] and histoplasmosis [60 cases]). We estimate 6,676 cases of invasive aspergillosis annually, of which 4,607 are estimated to be involved in AIDS-related mortality. The annual burden of candidaemia and *Candida peritonitis* is estimated at 8,257 and 2,972 cases, respectively. The epidemic of pulmonary tuberculosis has probably driven up the prevalence of chronic pulmonary aspergillosis to 99,351 (175.8/100,000), the highest in the world. Fungal asthma probably affects over 100,000 adults. Mucosal candidiasis is common with an annual prevalence estimated at 1,150,000 and 623,600 oral and oesophageal cases complicating HIV infection alone (estimates in other conditions not made), and over a million women are estimated to be affected by recurrent vulvovaginal candidiasis each year. Tinea capitis in children is common and conservatively estimated at >1,000,000 cases. Sporotrichosis occurs occasionally (an estimated 40 cases), but data were absent for the other inoculation mycoses, chromoblastomycosis and mycetoma. Approximately 10 cases of blastomycosis are estimated each year. Overall, over 4.1 million South Africans are estimated to have a serious fungal disease each year (7.26% of the population).

Conclusions: Significant numbers of South Africans are affected each year by serious fungal infections, emphasising the need for improving diagnosis and management of these diseases.

<https://doi.org/10.1016/j.jiph.2018.10.064>

The burden of serious fungal infections in Ghana



B. Ocansey³, G. Pesewu^{2,*}, F. Codjoe², D. Denning¹

¹ Manchester University FT

² Department of Medical Laboratory Sciences, School of Biomedical and Allied Health Sciences, College of Health Sciences

³ Laboratory Unit, New Hope Specialist Hospital

Background and Purpose: Serious fungal infections are believed to be increasing alongside rise in the number of immunocompromised patients and yet often neglected in developing countries. In Ghana, morbidity and mortality from these infections are high due to insufficient clinical expertise and unavailability of diagnostic tools and antifungals. Estimating their burden is important for increased attention. We aim to estimate the burden of serious fungal infections in Ghana.

Methods: Using local, regional and global data reporting fungal infection rates and population estimates for general and specific