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Burden of serious fungal infections in Bangladesh

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Background: There is fairly good awareness about the occurrence of mycotic infections in Bangladesh, and there are many published reports on superficial mycoses. Deep mycoses are also recognized as an important emerging problem. Here we estimate the incidence and prevalence of serious fungal infections in Bangladesh.

Material/methods: Demographic data were obtained world population reports and the data on TB, HIV, and COPD from CDC fact sheets. All the published papers on fungal infections in Bangladesh were identified through extensive search of literature, using PubMed, MEDLINE, Med Facts, and different sets key words in the search engines.

Results: BD has a population of ~162 million, 31% children and only 6% over the age of 60 years. The 2014 reported pulmonary TB caseload was 119520, assuming a 25% mortality. The leads to an estimated prevalence of 20,720 people with chronic pulmonary aspergillosis, assuming TB accounts for 80% of the cases. The prevalence of COPD is 7.2%, in adults >40 years and asthma affects 5.2% population with an adult prevalence of 3.23%. About 25% population suffer from different allergic disorders in BD. The prevalence of HIV is low in BD, an estimated 8,000 infected people, of whom 2900 are not on ART with a CD4 count <350. HIV infects about 0.1% TB patients. Tinea capitis (12%) and oral thrush (14%) were most prevalent in children, whereas tinea corporis was most common (17.4%) in adults. *Trichophyton rubrum* is the commonest etiological agent (80.6%) followed by *T. mentagrophytes* (8.2%) and *Epiderophyton floccosum* (5.2%). Deep mycoses are an important emerging problem in Bangladesh, as cases of disseminated histoplasmosis, blastomycosis, aspergillosis and mucormycosis have been reported. Cryptococcosis has been diagnosed histologically in animals in Dhaka zoo and presumptively in humans. Mycotic keratitis accounts for 23-40% of suppurative keratitis in BD, often following ocular trauma, which is common.

Conclusions: This is the first attempt to estimate the burden of serious fungal infections in Bangladesh. Superficial mycoses are very common in Bangladesh. Endemic systemic mycoses viz. histoplasmosis and opportunistic fungal infections like aspergillosis and mucormycosis are present few are documented. There is no dearth of trained medical microbiologists and mycologists in BD. Further work on the epidemiology of mycotic keratitis is needed.

Table 1: Estimated cases per year of more frequent serious fungal diseases

Infection	Subpopulation				Total burden	Rate/ 100,000	
	None	HIV	Respiratory	Cancer/Tx/ Imm*			ICU
Oesophageal candidiasis		835			835	0,5	
Recurrent candida vaginitis	2,622,627				2,622,627	3,238	
Candidemia				5,670	2,430	8,100	5
Allergic bronchopulmonary aspergillosis			90,262			90,262	56
Severe asthma with fungal sensitisation			119,146			119,146	74
Chronic pulmonary aspergillosis			20,720			20,720	48
Invasive aspergillosis				972	4,194	1,432	3.2
<i>P. jirovecii</i> pneumonia		58				58	0.04
Cryptococcal meningitis		15				15	0.01