



LEADING  
INTERNATIONAL  
**FUNGAL**  
EDUCATION

# Get The Facts

Number and impact of fungal infections – revised August 2018

## The size of the problem

Estimates of fungal infection burden are derived from multiple sources and are all crude estimates. Better local estimates are required. Some infections are common everywhere (Candida vaginitis as an example), while others are much more common in tropical developing countries (cryptococcal meningitis in AIDS), and others in temperate, industrialised nations (i.e. SAFS). The global burdens of several important fungal infections can be found with their sources at [www.fungalresearchtrust.org/](http://www.fungalresearchtrust.org/)

	Global burden estimates in main underlying disease groups				
	None	HIV/AIDS	Respiratory	Immune deficit	Critical care
Cryptococcal meningitis	10,000's	223,000		10,000's	
Pneumocystis pneumonia		~400,000		>100,000	
Histoplasmosis	>25,000	100,000	?10,000	>10,000	
Coccidioidomycosis	20,000			5,000	
Oral thrush		>2,000,000	100,000's	1,000,000's	
Oesophageal candidiasis		1,300,000			
Chronic pulmonary aspergillosis			3,000,000		
Allergic bronchopulmonary aspergillosis in asthma and cystic fibrosis			4,800,000		
Severe asthma with fungal sensitisation			>6,500,000		
Fungal rhinosinusitis	12,000,000				
Recurrent Candida vaginitis	~138,000,000				
Invasive aspergillosis			>200,000	>50,000	>50,000
Invasive Candidiasis	50,000			600,000	300,000
Mucormycosis				>10,000	
Fungal eye infection	1,000,000				
Fungal hair infection	200,000,000				
Sporotrichosis	>40,000				

# Impact of fungal infections

## 1. Deaths

- **Cryptococcal meningitis** – 10% death rate in the USA, >70% in Africa. 180,000 deaths annually. Diagnosis simple with antigen test, but often late and appropriate medication not available.
- **Disseminated histoplasmosis in AIDS** - >80% survival treated in USA, ~50% in Central America and 100% if not diagnosed or treated.
- **Invasive aspergillosis** – 50% mortality treated, 100% if not. Diagnosis difficult; treatment often too late, and only partially effective.
- **Chronic pulmonary aspergillosis** – diagnosis often confused with TB, and requires radiology and aspergillus antibody test; 30% mortality in 6 months, often by coughing up blood. Treatment partially successful but long term.
- **Pneumocystis pneumonia** - ~15% mortality in UK in AIDS, 30% in AIDS in Africa (if treated), ~50% non-AIDS, 100% if not diagnosed and treated. Diagnosis difficult without PCR or fluorescence microscopy. Treatment straightforward and available.
- **Candida bloodstream infection** - ~40% mortality, treated. Diagnosis by blood culture. Treatment straightforward, best drugs expensive.
- **SAFS** – increased risk of asthmatic death (estimated to be 450,000 annually worldwide)

## 2. Illness

- **Oral and oesophageal thrush** – unpleasant, reduced food intake and weight loss.
- **ABPA and SAFS** – breathlessness with severe asthma, reducing work capability especially for manual workers, co-morbidity issues with smoke from home cooking – easy diagnosis (skin prick tests), if considered, antifungal treatment 60-80% effective.
- **Chronic pulmonary aspergillosis** – progressive breathlessness and weight loss, with significant hospitalisation and medication costs (typically mis-directed).
- **Fungal eye infection** – usually results in unilateral blindness as diagnosis late, good outcome if treated early. Diagnosis requires expert input; treatment intensive initially but unaffordable for most afflicted.
- **Candida vaginitis** – mis-diagnosis and anxiety major problems; impaired sex life and therefore relationship issues.
- **Fungal hair infection** – most common in black children, who suffer patches of hair loss and psychological problems as a result. Diagnosis and treatment usually straightforward and highly effective.