



Burden of Serious Fungal Diseases in Republic of Korea

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Objective

- Republic of Korea is a member of the Organization for Economic Cooperation and Development (OECD) with a population of 50.7M in 2011 (49.9% female, 9.2% < 10 years, 11.2% ≥ 65 years) and GDP of \$30,370 in 2009.
- Although advanced health surveillance systems are being used in Korea, there have been no nationwide data for serious fungal diseases to date.
- The objective of this study is to estimate the burden of serious fungal diseases in Republic of Korea

Methods

- The bases for the computations have been adopted from previously published literature (Denning et al, Bull World Health Organ. 2011;89:864-72 and Denning et al, Med Mycol. 2013;51(4):361-70).
- Population and hospital data were obtained from Korean Statistical Information Service (KOSIS). HIV/AIDS data were obtained from World Health Organization (WHO), Korea Centers for Disease Control and Prevention (KCDC), and the KCDC Cohort Study in HIV/AIDS patients.
- Transplant data of 2011 were obtained from KCDC and Korean Society of Blood and Marrow Transplantation.

Conclusions

- Based on local data and estimates of this investigation, **1.9%** of South Koreans have serious fungal diseases.
- Considering that nationwide survey of fungal infections in susceptible populations are lacking and invasive fungal infections in cancer or HIV/AIDS patients tend to be under-reported by medical record/health insurance systems, the true number of serious fungal infections in Korea should be higher than our estimates

Results

- Current burden of serious fungal diseases in Republic of Korea was estimated at 961,099 cases every year (1.9% of Korean population; details shown in Table).
- Based on the total of 8,544 previously diagnosed HIV/AIDS patients and 273 newly diagnosed AIDS patients in 2011, the burden of cryptococcal meningitis was estimated at 37 cases and *Pneumocystis jirovecii* pneumonia at 213 cases in this population.
- Oesophageal candidiasis has been estimated to affect 135,177 patients every year, including 10,510 patients with cancer.
- Assuming the prevalence of asthma in adults is 4.57%, the prevalence of ABPA was estimated at 94.8/100,000 and SAFS at 125.2/100,000.
- The rate of candidemia was estimated at 5/100,000 population with 2,537 cases per year.
- Assuming 5% of adult women have recurrent *Candida* vaginitis, *Candida* vaginitis affected 689,214 women.
- Invasive aspergillosis in immunocompromised patients was estimated at 813 patients and in COPD admissions 1,215 cases with a combined rate of 3.5/100,000.
- Apart from serious fungal infections, there were 2,384,446 patients (4.7% of population) with dermatophytoses in 2009, including 40,700 children (0-9years) and 116,384 older children (10-19 years). The numbers for 2012 were 2,468,332 patients (4.9%), 41,813 (0-9years), and 120,422 (10-19years).
- Prevalence of tinea capitis in children was unable to be identified.

Distribution of dermatophytoses in Korea 2009 vs. 2012

Distribution	2009		2012	
	Number	%	Number	%
Nail	1,158,985	46%	1,200,928	46%
Foot	791,844	31%	803,158	31%
Body	270,261	11%	306,249	12%
Tinea cruris	192,932	8%	198,173	8%
Others	125,459	5%	114,204	4%
Total	2,384,446		2,468,332	

Burden of Serious Fungal diseases in Korea

Burden of Fungal Infection	Number of infections per underlying disorder per year					Total Burden	Rate/100K
	None	HIV/AIDS	Respiratory	Cancer/immunocompromised	ICU/ abdominal surgery		
Cryptococcal meningitis	-	37	-	-	-	37	0.07
Pneumocystis pneumonia	-	213	-	-	-	213	0.42
Invasive aspergillosis	-	-	1,215	559	-	1,774	3.50
Chronic pulmonary aspergillosis	-	-	20,140	-	-	20,140	146.11
Allergic bronchopulmonary aspergillosis (ABPA)	-	-	48,110	-	-	48,110	94.83
Severe asthma with fungal sensitization	-	-	63,505	-	-	63,505	125.17
Candidemia	-	-	-	1,776	761	2,537	1.50
Candida peritonitis	-	-	-	-	381	381	0.75
Oral candidiasis	-	-	-	-	-	-	-
Oesophageal candidiasis	117,502	427	6,738	10,510	-	135,177	266.44
Recurrent Candida vaginitis (> 4/year)	689,214	-	-	-	-	689,214	2,716.96
Mucormycosis	-	-	-	10	-	10	0.02
Histoplasmosis	-	-	-	-	-	-	-
Coccidioidomycosis	-	-	-	-	-	-	-
Blastomycosis	-	-	-	-	-	-	-
Fungal keratitis	-	-	-	-	-	-	-
Tinea capitis	-	-	-	-	-	-	-
Total serious fungal infection burden	806,716	677	138,493	12,855	2,357	961,099	

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