

Pattern of Respiratory Illnesses in Hong Kong

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Burden of Lung Disease Project: The Significant Findings

- In 2005, respiratory disease was ranked as the top cause of mortality and hospitalization in Hong Kong.
- Respiratory diseases accounted for 16% of all inpatient bed-days.
- Although there has been a slow decline in respiratory mortality rate in the past decade, there has been no change in respiratory hospitalization rates.
- Respiratory diseases, therefore, have accounted for the largest share of the health-care burden locally.

Respiratory Diseases in 2005

% of Resp Diseases	Mortality	Hospitalization	In-patient bed days
Respiratory infection	39.0	41.3	37.2
Lung Cancer	33.2	5.7	9.2
COPD	17.9	14.6	20.5
Tuberculosis	2.4	3.9	7.1
Bronchiectasis	1.7	1.7	1.7
Asthma	0.9	5.7	2.6
Pneumoconiosis	0.4	0.2	0.2
OSA	0	5.5	0.7
Others	4.5	21.5	20.7

Air Pollution vs Asthma: Methods

- Retrospective ecological study from Jan 2000 to December 2005 (Dr F Ko)
- Daily emergency hospital admissions to 15 major hospitals in HK for acute asthma (Hospital Authority)
- Total 69,716 admissions for asthma from January 2000 to December 2005
 - Mean daily admissions = 31.9

Every 10 μ g/m³ increase in air pollutants was associated with:

Air pollutants	Increased risk of asthma hospitalization
O ₃	3.4%
NO ₂	2.8%
PM ₁₀	1.9%
PM _{2.5}	2.1%

Daily summary of the number of asthma admissions, meteorological and pollutant data

	Mean	SD
Admissions for asthma	31.9	10.9
Temperature	23.4	5.1
Relative humidity	72.2	13.3
NO ₂ (μg/m ³)	53.2	19.3
O ₃ (μg/m ³)	43.4	23.7
PM ₁₀ (μg/m ³)	52.5	27.1
PM _{2.5} (μg/m ³)	36.4	21.1
SO ₂ (μg/m ³)	18.8	13.1

Ref: Clinical and
Experimental Allergy 2007:
37:1312-13



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WHO (2006) recommended guideline

NO ₂	40ug/m ³ annual mean
O ₃	100ug/m ³ 8-hr mean
SO ₂	20ug/m ³ 24-hr mean
PM _{2.5}	25ug/m ³ 24-hr mean
PM ₁₀	50ug/m ³ 24-hr mean

Data on COPD:

Retrospective ecological study Jan 2000 to Dec 2004

Air pollutants	Increased risk of COPD hospitalization
O ₃	3.4%
NO ₂	2.6%
PM ₁₀	2.4%
PM _{2.5}	3.1%
SO ₂	0.7%

- Significant association between hospital admissions for acute exacerbation of COPD and an increase in 10mcg/m³ of all the 5 pollutants (O₃, NO₂, PM₁₀, PM_{2.5} and SO₂) was observed
- O₃ contributed to the greatest risk of hospital COPD admissions
- Public health measures are urgently needed to improve air quality in Hong Kong