It Takes a Team: Building Multidisciplinary Ownership to Improve IPC Compliance

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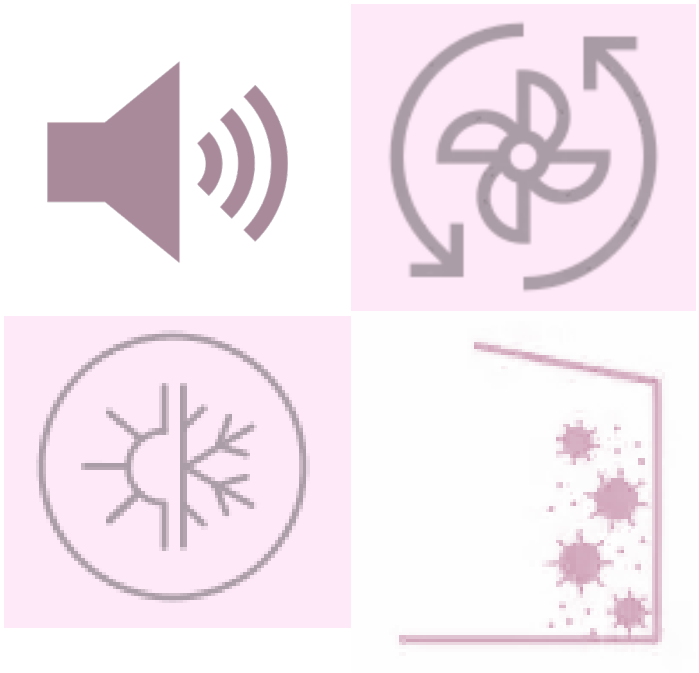
What is Occupational Hygiene?

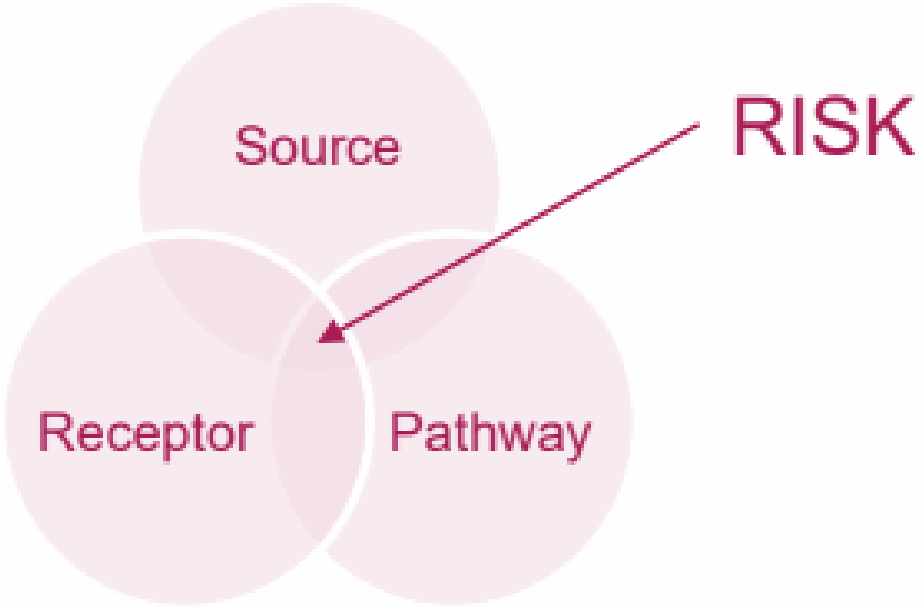
"Occupational Hygiene is the **anticipation, recognition, evaluation, control** and confirmation of protection from hazards at work that may result in injury, illness or affect the wellbeing of workers"

Occupational Hazards

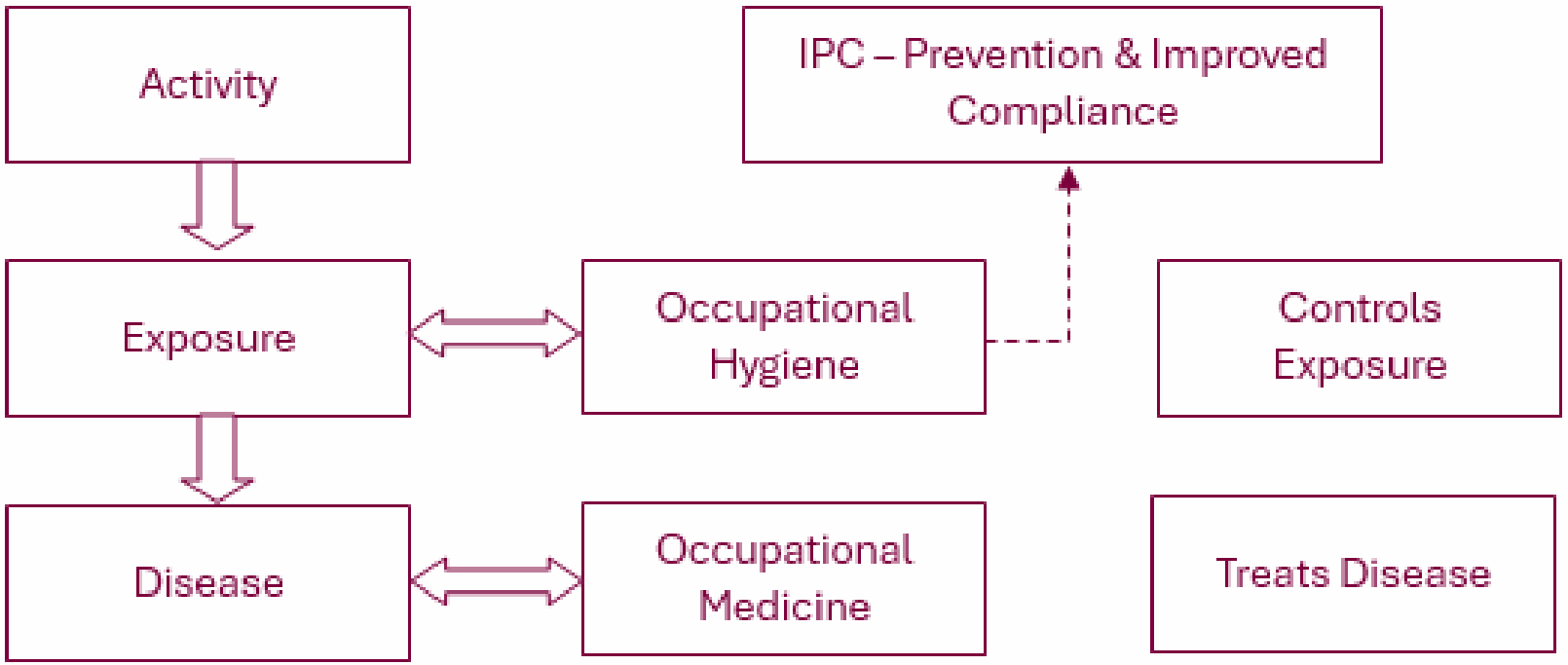
- Chemical & dust exposures
- Heavy metals
- Biological hazards
- Asbestos hazards
- Noise
- Indoor air quality
- Ventilation
- Lighting
- Radiation
- Thermal comfort
- Ergonomics
- Psychosocial hazards



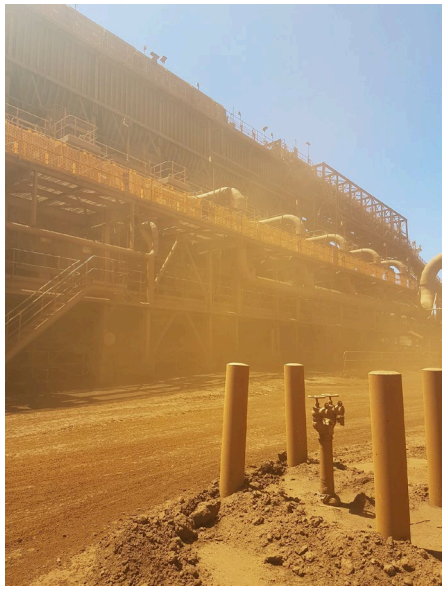
Occupational Health



Occupational Health



Re-framing Dust



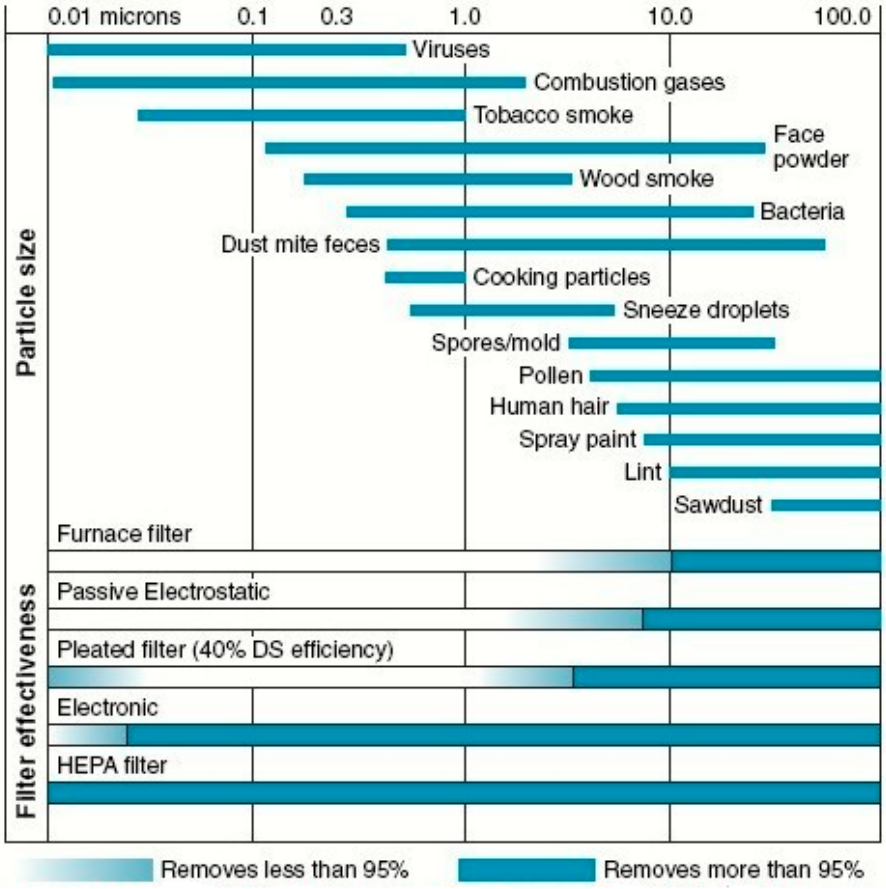
Anticipation and Recognition

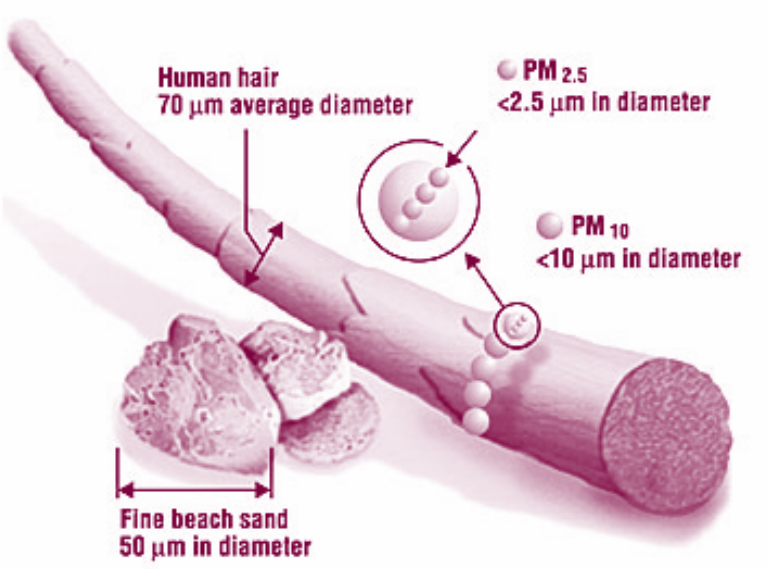
- Chemical:
  - Dusts – Respirable Crystalline Silica
  - Fibres – Asbestos
  - Solvents – Volatile Organic Compounds
  - Lead
- Biological
  - Environmental – Legionella, Pseudomonas, Mycobacteria & Mould
- Other – Physical, ergonomics, psychosocial

Evaluation and Control

- Monitoring strategies:
  - Personal dust sampling within a worker's breathing zone (portable dust pumps)
  - Static real time dust sampling
  - In-situ readings with a particulate counter
  - Verification of filter efficiency
  - Verification of hoarding efficiency

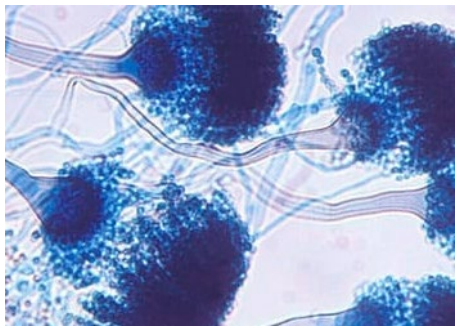
Airborne contaminants



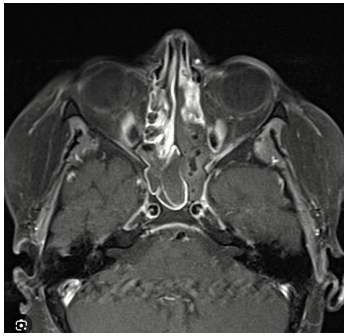


Mould spores

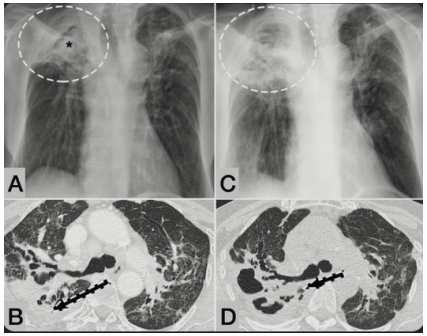
Alternaria alternata
Spores 20 – 60 . Small enough to reach the nose



Aspergillus fumigatus
Spores (conidia) 2 – 3 . Small enough to reach the lungs



Acute Invasive Fungal Rhinosinusitis

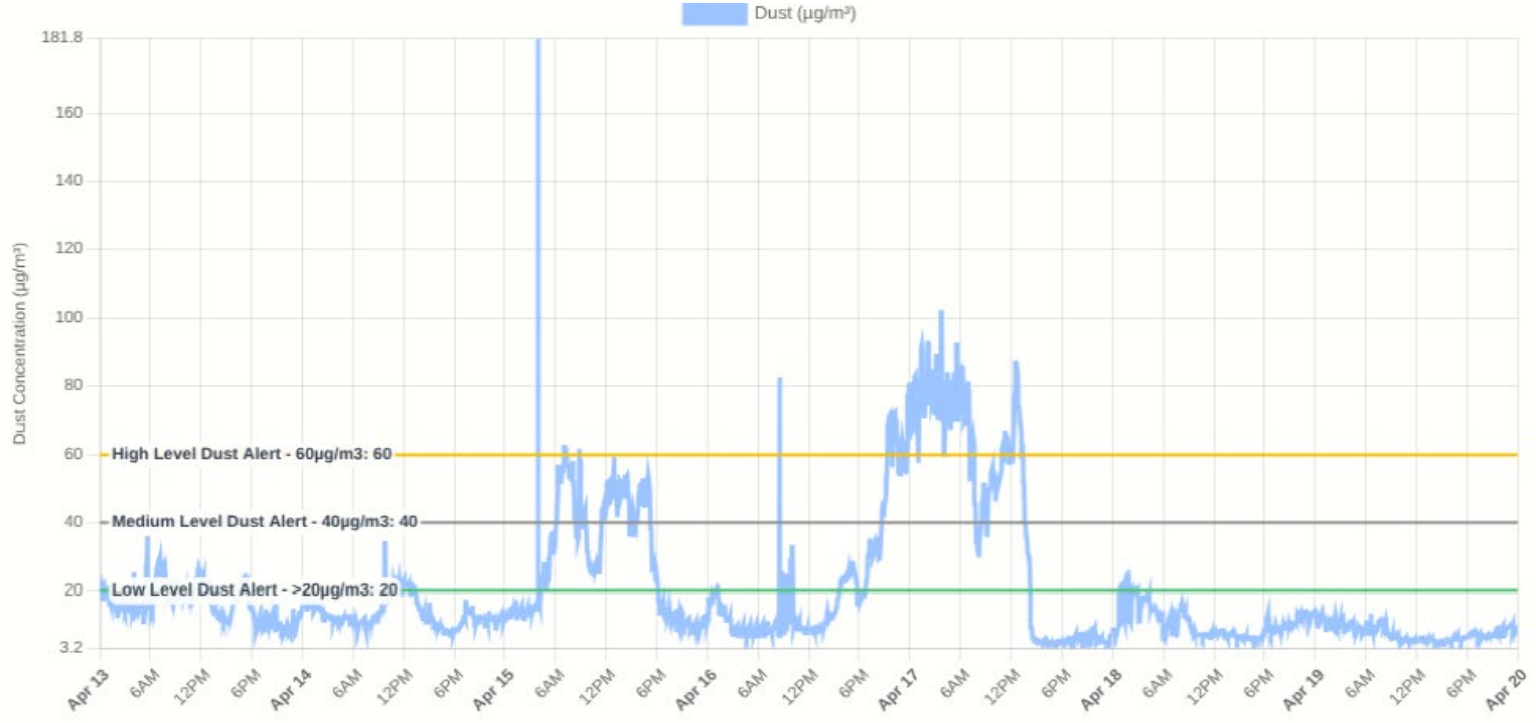


Chronic Pulmonary Aspergillosis

Real Time Particulate Monitoring

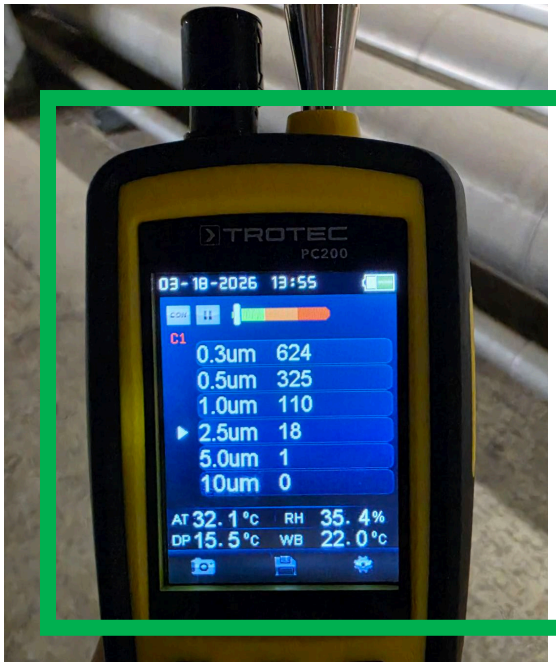
The desired outcome using Air NEPM criteria, is for $PM_{2.5}$ not to exceed a maximum (ambient) concentration of 25µg/m^3 averaged over 24 hours.

Real Time Particulate Monitoring

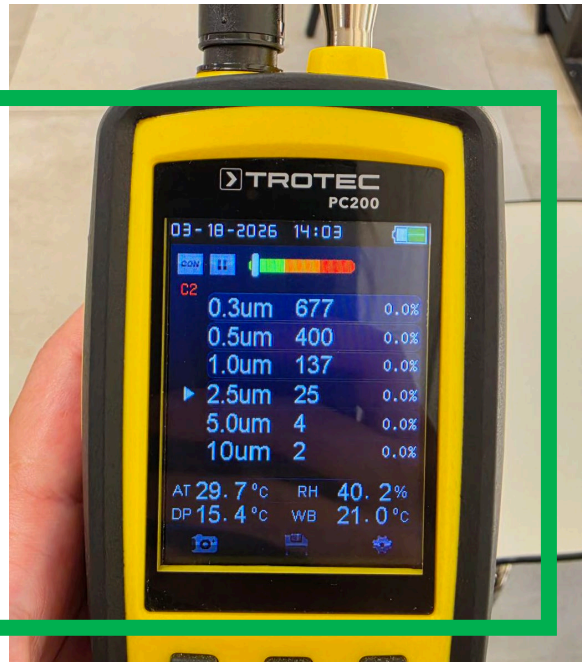


- AS 2922 Ambient Air - Guide for the Siting of Sampling Units.
- National Environment Protection Council (1998) National Environment Protection Measure for Ambient Air Quality, June 1998, and its Variation dated 2015.

Verification Monitoring



Supply air - Outside



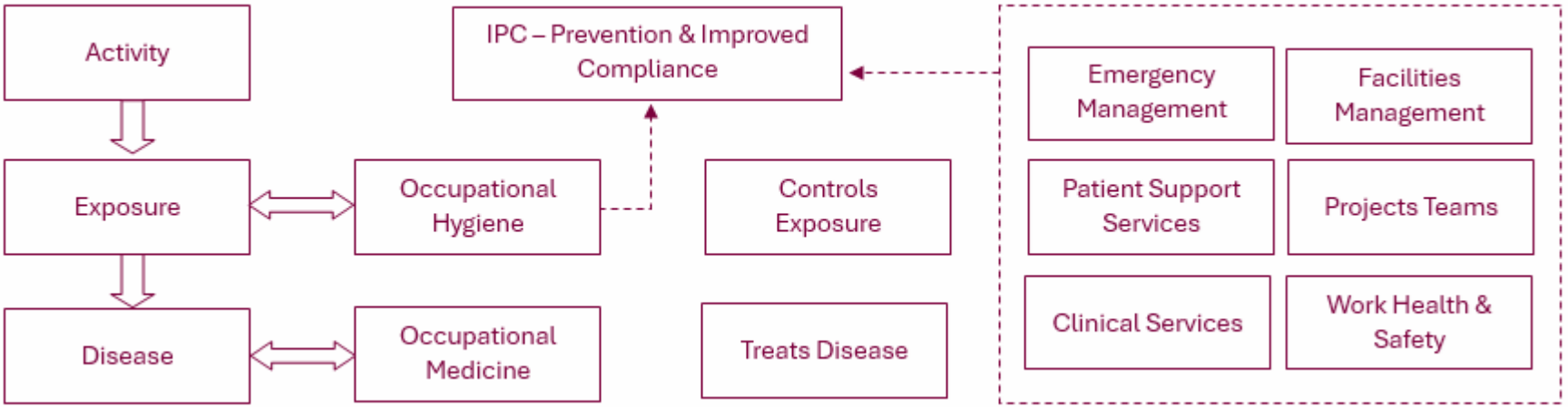
Area served by AHU (A)

Area served by AHU (B)

Monitoring Bio-aerosols - Mould

Spore Trap Mould Analysis				
% Analysed	25	25	25	25
Flow Rate (L/min)	15	15	15	15
Sampling time (min)	5	5	5	5
LOR	53	53	53	53
Background Debris	3	2	2	1
	Raw Counts	Raw Counts	Raw Counts	Raw Counts
Hyphal Structure	7	-	-	-
Un-ID	-	-	-	-
Identification				
Acremonium-like	-	-	-	-
Alternaria	3	-	1	-
Ascomycetes (NS)	1	-	-	-
Asp/Pen-like	-	-	-	-
Basidiospores (NS)	4	-	-	-
Bipolaris-like	-	-	-	-
Cladosporium-like	16	-	-	-
Curvularia	-	-	-	-
Epicoccum	-	-	-	-
Nigrospora	-	-	-	-
Pithomyces	-	-	-	-
Smuts/Myxo/Peri.	9	-	-	-
Trichoderma	-	-	-	-
Water Indicators				
*Aureobasidium**	-	-	-	-
Chaetomium	-	-	-	-
Fusarium	-	-	-	-
Scopulariopsis	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-
Ulocladium	-	-	-	-
Total (fs/m³)	2100	<53	53	<53
Woodrot Basidiospore	-	-	-	-
Intact Fungal Hyphae	-	-	-	-

The Multidisciplinary Impact



Opportunities and Limitations

- Different service delivery models across health care facilities.
- Accuracy of data and representative sampling, including latency of sample results.
- Complex refurbishments and construction in existing facilities.
- Ongoing co-ordination and collaboration between the multidisciplinary teams.