Part 6: Stupid Actions and Poor Reports

Friday, August 31
8:00 – 8:15 a.m.

Stupid Things That Can Cause Problems

No Plan For Data Interpretation!

Never sample for microbial agents without a plan for data interpretation. Remember, there are no TLVs or PELs. The results of laboratory analysis are not self-interpretable.

Stupid Things (Cont'd)

No Sampling Strategy!

A sampling strategy for an indoor environment always involves a thorough understanding of the building and its components, and this is achieved by physical inspection. For example, understanding the nature of water damage and the extent of visible (or hidden) mold growth is a prerequisite to development of a sampling strategy in a mycological investigation.

Stupid Things (Cont'd)

Depend On Numerical Guidelines!

Numerical guidelines (TLVs or PELs) for interpreting bioaerosol data do not exist. In other words, there is no scientific basis for relating measurements such as 1,000 spores/m^3 or 100,000 CFU/g of dust to adverse health outcomes.

Stupid Things (Cont'd)

Provide Medical Opinion Based On Sampling Data!

Do not provide medical/clinical opinions based entirely on the results of environmental sampling.

Stupid Things (Cont'd)

Depend On Medical Mycology Books!

Recognize that information in medical mycology books on infections caused by fungi is not directly or even indirectly applicable to environmental sampling where infection is not an issue.

Stupid Things (Cont'd)

Collect One or Two Samples!

Never assume that the collection of one or two outdoor samples and one or two indoor air samples fully characterize the indoor mycological environment.

Poor Reports

Study #1

Consultant receives an academic D- grade; musty house; no inspection; no sampling plan; too many medical mycology books

- *Aspergillus fumigatus* and *A. flavus* dominate the molds in indoor air on potato dextros agar (N6 Andersen). The same molds occur in outdoor air at even higher concentrations.
- Conclusions by investigator: These are pathogens that can cause respiratory and systemic infections to building occupants.
- So do we evacuate the outdoor environment?

Study #1(Cont'd)

Consultant receives an academic D- grade; musty house; no inspection; no sampling plan; too many medical mycology books

- *Staphyloccus epidermidis, S. aureus,* and *Micrococcus* species dominate the bacteria found indoors on blood agar (N6 Andersen). The same bacteria are found in outdoor air at higher concentrations.
- Conclusions by investigator: These are pathogens; can cause pneumonia.
- So, what is to be done? People are common sources of these bacteria. Do people fly in outdoor air?

Study #2

Consultants receive an academic D- grade; inappropriate medical diagnosis based on environmental sampling.

- One-hundred-year-old house; leaky basement with no air-conditioning or dehumidification; homeowners install carpet and wallboard in damp/wet basement.
- Some visible mold is subsequently found on basement wallboard; homeowner litigates against those who made repairs to home at time of sale.

Study #2 (Cont'd)

- Settle plate sample collected in basement after consultant carried out mold remediation; 10 colonies of *Cladosporium* found in sample.
- Conclusions and recommendations made by consultant. "*Cladosporium* causes extrinsic asthma, edema and bronchospasms." Recommend injecting microban into walls of basement and spray rafters and floors with same product. Cost $1,800 plus tax.
- Do not use settle plates.

Study #2 (Cont'd)

Fifth Consultant (3 years later)

- Swab basement wallboard where 1/3 sq. ft visible mold was found; use AIHA accredited lab; MEA used in analysis of swab samples.
- Results: 700,000 CFU/in^2 *Cladosporium cladosporioides* and 600,000 CFU/in^2 *Penicillium chrysogenum*.

Study #2 (Cont'd)

Fifth Consultant – Summary Report

- *Cladosporium* – Cladosporiosis; "species of the genus have been isolated from cerebral and pulmonary lesions; the disease is called black degeneration of the brain."
- *Penicillium*: Penicilliosis; "the ubiquity of species of *Penicillium* and their constant contamination of wounds, urine, sputum, etc., makes the diagnosis very difficult."
- So, should planet earth be evacuated?