



KEY POINT SUMMARY

OBJECTIVES

To identify the cause of the outbreak of *Aspergillus* infection at a tertiary care hospital.

DESIGN IMPLICATIONS

Proper insulation, coating interior surfaces of VAV (Variable Air Volume) units with a fungicide and regular cleaning and maintenance of defusers are essential to reducing risk of infections.

Outbreak of Invasive *Aspergillus* Infection in Surgical Patients, Associated With a Contaminated Air-Handling System

Lutz, B. D., Jin, J., Rinaldi, M. G., Wickes, B. L., Huycke, M.
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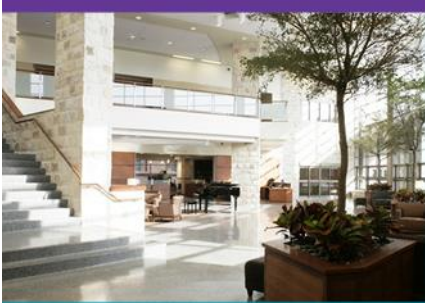
Key Concepts/Context

Surgical Site Infections are a prominent concern Operating Room design. In this study a specific outbreak of *aspergillus* infection in a hospital was investigated and linked back to the air quality conditions in the O.R. The study is significant because typically *Aspergillus* species are ubiquitous thermotolerant molds that rarely cause invasive infection.

Methods

The study was initiated with an index case of a 52 year old woman, who was readmitted to the hospital for surgery. Mold was identified on her open wound post-surgery. Given the unusual nature of the wound infection, and concerns about patient-to-patient transmission, an outbreak investigation was begun. Inpatients were included in the study based on consensus definitions for deep-tissue fungal infections over a 2 year period. Pathology databases and clinical microbiology laboratory records were analyzed. Additionally, medical history, diagnosis, culture and pathological evidence of disease, therapy, therapeutic outcome, dates of hospitalization, room location, evidence of procedures or surgeries, and dates and locations of procedures or surgeries were abstracted. In addition, engineering records were reviewed during the same 2-year period to identify construction or renovation projects.

To assess contaminated operating theater air quality, particle counts were measured as markers for *Aspergillus* conidia. A confined space video camera



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identified moisture and contamination of insulating material in ductwork and variable airflow volume units downstream of final filters.

Findings

- A substantial increase in the proportion of airborne particles was observed in many operating rooms.
- No additional invasive *Aspergillus* wound infections were identified after the operating theater air-handling systems were remediated, suggesting that the unusual outbreak was due to the deterioration of insulating material in variable airflow volume units.

Limitations

- No limitations were identified by the study.
- Study investigated one instance of *Aspergillus* conidia caused infections and cannot be generalized.