



KEY POINT SUMMARY

OBJECTIVES

The objective of the study was to evaluate the impact of climatic conditions during the different stages of building construction work on fungal contamination.

Could we predict airborne *Aspergillus* contamination during construction work?

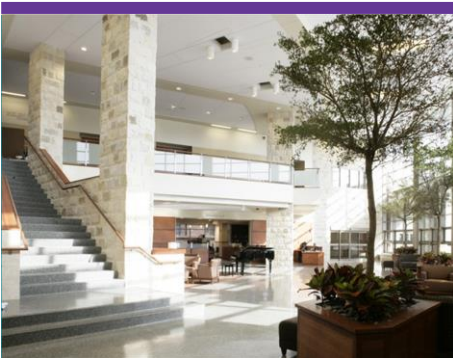
Pilmis, B., Thepot-Seegers, V., Angebault, C., Weiss, E., Alaabouche, I., Bougnoux, M.-E., Zahar, J.-R., 2017 | *American Journal Of Infection Control*. Volume 45, Issue 1, Pages 39-41

Key Concepts/Context

Hospital infections during construction work are common due to airborne pathogens. A major contributor is *Aspergillus*, which spreads from the outdoors during demolition and construction. According to the authors, construction work, especially demolition, produces major dust contamination. Studies reveal that indoor and outdoor fungal contaminations are related. However, there is a lack of evidence of the effect of climatic conditions and type of construction work on fungal contamination. This study examines the impact of building construction work on the spread of the *Aspergillus* pathogen.

Methods

The study was conducted at a 650-bed children's hospital in France during a major construction project. Over a two-year period air samples and meteorological data were collected during demolition, new construction, and renovation. Air samples were taken three times a week using a bio-collector while meteorological data was collected every day, resulting in a total of 201 samples. The air samples were incubated at 30° C and measured for the number of colony units per cubic meter and fungi were identified at the genus level. The seasons were split into six-month periods and defined as either cloudy November-April or sunny May-October. The quantitative data collected for the concentration of fungi, temperature, wind speed, and location of construction, and the bivariate data for *Aspergillus* culture, time of season, rainfall, and the categorical data for type of construction work were analyzed using analytical and statistical models.



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Findings

The study found no correlation between the type of construction work and the amount of *Aspergillus* concentration in the samples collected. Contributors to the increase in contamination were higher temperature, larger and active construction areas, and demolition work. Moreover, there was more fungi concentration on cloudy days compared to sunny days.

Limitations

The authors could not find sufficient literature on fungal airborne contamination data classified by type of construction work and weather conditions. In addition, a relatively small sample was collected for the study at a single facility. Timing and location of the samples, automobile traffic, etc., might have affected the results.

Design Implications

The study did not discuss ways of reducing airborne contamination during hospital construction projects; however, common industry practice is to provide a construction zone separation with dust seals and other measures for the protection of hospital patients. This study adds further evidence to substantiate current industry best practices for Infection Control Risk Mitigation plans.

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