

511 Intensive Infection Control at a Canadian Tertiary Allergy and Clinical Immunology Clinic during COVID-19 to Provide Crucial Services



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RATIONALE: Several groups have made recommendations for adjustments during COVID-19 to facilitate the care of urgent/high-risk patients. Here we describe our Canadian multi-allergist tertiary allergy & clinical immunology clinic's observational data with intensive infection control measures to provide crucial services.

METHODS: After instituting an intensive infection control protocol, we measured the daily number of patients seen (virtually and in-person), skin tests, target biologic therapy (TBT), venom (VIT) and allergy immunotherapy (AIT) administered as well as adverse safety events (allergy related and viral transmission related).

RESULTS: Our protocol consisted of scheduling in-person visits by appointment-only, health screening during the reminder call (ensuring no COVID-19 symptoms, exposures, and recent high-risk travel history) and before clinic entry, providing obligatory hand sanitizer and mask at the door, scanning body temperature, disinfecting rooms in-between patients, daily deep cleaning after-hours, donning full personal protective equipment for any direct patient care, and performing spirometry in outdoor tents with plexiglass. AIT patients waited in their own vehicle, if possible, to be directly monitored by staff for 30 minutes to maximize physical distancing. For any concerns, patients immediately called over front door staff or honked their car horn. Since the pandemic, we provided virtual care and accommodated over 18,000 patients. On average per day, there were 25 new teleconsults, 12 skin tests, 40 TBT, 30 VIT, and 80 AIT patients. There have been no adverse safety events.

CONCLUSIONS: By adopting intensive infection control measures, we can optimize reduction of viral transmission and maintain crucial allergy services to keep high-risk allergic conditions under control.

512 Springtime is associated with increases in total indoor fungi and allergenic species concentrations in a pediatric asthma cohort in New York City



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RATIONALE: Allergy and asthma severity commonly vary by season, due to a confluence of factors including fluctuating outdoor and indoor allergen levels. Seasonal variation in indoor microbial communities may also play a role. We hypothesized that total fungal concentration and concentrations of select allergenic species in house dust vary by season in this pediatric asthma cohort.

METHODS: The Neighborhood Asthma and Allergy Study (NAAS) recruited 349 participants from higher (HAPN) and lower (LAPN) asthma prevalence neighborhoods in New York City. We extracted DNA from bedroom floor dust samples collected throughout the year and combined next-generation sequencing with quantitative polymerase chain reaction (qPCR) to obtain absolute concentration of fungal species.

RESULTS: Total fungal concentration in spring was significantly higher than all other seasons ($p \leq 0.005$). A total of 291 fungal species were identified in at least 20% of homes. Mean concentrations of 227 of these species were elevated in the spring, and of these, 77 were significantly higher ($p < 0.05$) than all other seasons. We identified 10 allergenic fungal species significantly associated ($p < 0.05$) with seasonal variation. *Aspergillus niger*, *Candida albicans*, *Epicoccum nigrum*, *Penicillium*

chrysogenum, and *Rhodotorula mucilaginosa* were significantly increased in springtime.

CONCLUSIONS: Over 75% of fungal species identified in NAAS cohort were most abundant in the springtime. Further, concentrations of 5 established allergenic species were significantly higher in the spring when compared to other seasons. These findings demonstrate seasonal variation of allergic fungal species implicated in asthma control, and better characterize patterns of indoor microbial exposures in New York City overall.

513 Effect modification of the association between domestic mold report and wheeze by age and seroatopic predisposition among children living in lower-income New York City neighborhoods



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RATIONALE: Report of domestic mold is a well-established risk for wheeze. However, how age, sex and allergic sensitization modify susceptibility is less well-characterized. We hypothesized that report of mold would be associated with wheeze among children living in lower-income New York City (NYC) neighborhoods and that this association would be modified by age, sex, and seroatopic predisposition.

METHODS: Current domestic mold exposure and wheeze in the previous year were reported at multiple ages between 1 and 11 years in the Columbia Center for Children's Environmental Health birth cohort study. Seroatopic predisposition at all ages was defined as IgE against common aeroallergens measured between 5-9 years. Prevalence Ratios (PR) were calculated in repeated measures models adjusting for age, sex, race/ethnicity, maternal asthma, environmental tobacco smoke and material hardship. Effect modification was tested with multiplicative interaction terms.

RESULTS: Data were available on $n=644$ children at an average of 5.5-time points. Children in homes with reported mold (17.4%) were more likely to have wheezed ($PR=1.22$, $P=0.002$). This association did not differ by sex ($P_{interaction} > 0.99$) and was observed among children at ages 3, 5, and 7 (all $P < 0.005$), but not among children at ages 1-2 or 9-11 (all $P > 0.4$). Among children with IgE data ($n=414$), the association was observed among children with ($PR=1.4$, $P < 0.001$), but not among children without seroatopic predisposition adjusting for IgE measurement age.

CONCLUSIONS: Among children living in lower-income NYC neighborhoods, report of domestic mold was associated with wheeze among boys and girls between the ages of 3-7 years and among those predisposed to seroatopy.