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Reply

To the Editor:

We appreciate the comments from Dr David Hahn,¹ who has previously described the positive association between *Chlamydia pneumoniae* infection and wheezing, asthmatic bronchitis, and the onset of asthma in adults.² As pointed out by Dr Hahn, the role of *C pneumoniae* in the cause of asthma and allergic inflammation in the lungs is not easy to evaluate. On the basis of current information, it is still difficult to determine whether *C pneumoniae* infection in the lower airways of children with symptomatic asthma is a common problem. Although the detection of viable *C pneumoniae* reported in bronchoalveolar lavage fluid from asthmatic children in the study by Webley et al³ is of interest, bronchial lavage is rarely indicated or performed in children with asthma. For this reason, it would be important to know the clinical status and characteristics of the children who underwent this procedure in greater detail to judge the relevance of the results to the general population. In the study by Emre et al,⁴ referenced by Dr Hahn, positive cultures for *C pneumoniae* from the nasopharynx (not bronchoalveolar lavage) were detected in 11% of children with wheezing. It is interesting that serum IgE antibody to *C pneumoniae* was detected by means of immunoblotting in a subset of these patients, but it would be important to confirm these results by using other methods for measuring *C pneumoniae*-specific IgE antibody.⁵ By comparison, a much greater percentage of children with wheezing exacerbations are infected with rhinovirus, which almost all studies indicate is the dominant respiratory tract pathogen linked to acute asthma attacks in children.

In reference to our study, close to half of the children hospitalized for wheezing, ages 3 years and older, were admitted during the fall (September, October, and November).⁶ This is a recurrent problem in Virginia. We suspect that this peak in hospitalizations is not signifi-

cantly associated with acute *C pneumoniae* infections, which are not known to have an annual fall seasonal pattern. A role for *C pneumoniae* in the origins of atopy in pediatric asthma is an interesting hypothesis. In this regard, it would be helpful to know, for example, whether children with *C pneumoniae* induced-lung infections during infancy are more or less likely to become atopic and have asthma as they grow older. We agree with Dr Hahn that studies focused on *C pneumoniae* infections and the cause of asthma are of interest.

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Not enough spores?

To the Editor:

We wish to comment on a recent article by Dales et al¹ regarding the effect of outdoor aeroallergens on hospitalization for asthma.

The authors used Rotorod (rotational impaction) samplers and then enumerated the samples for aeroallergen content at 20 and 40 times magnification (we assume 200× and 400× magnification) by using 15 randomly chosen fields.

We reviewed a number of references cited in the 2002 edition of Multidata's operating instructions for their Rotorod sampler. We were able to find only one reference² for reducing the enumerated sample area by using a threshold level of 400 counted pollen grains.

Even though the 15 randomly chosen field enumeration method "had been previously tested," there is no citation

for this. Multidata recommends 1000 $\times$ for spores because as Smith³ tells us, "The (1000 $\times$) is usually used for oil immersion examination of fungal spores as it makes them more distinct and makes visible many of the small, colorless, transparent spores that would otherwise be not seen at all."

Another Multidata citation⁴ points out that *Ganoderma* species basidiospores will be grossly underestimated by using a rotational impaction versus a slit suction sampler.

Enumerating fungal spores in a small sample area at less than 1000 $\times$ by using a sampler that does not collect small particles efficiently might skew the numbers for basidiospores and ascospores listed in Table IV.

It might not be appropriate to use spore counts from rotational impaction air samplers in health effects studies.

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Reply

To the Editor:

Mr Anderson¹ raises a number of important points that relate to the issue of whether the Rotorod sampler provides a reasonably faithful representation of the fungi in outdoor air in the communities studied. There are 3 considerations that might be offered in this discussion. The first concerns the microscopic examination of the collecting surface. For the example given, *Ganoderma* species, we can safely state that spores of this species were not undercounted. These are large and distinct spores. We are unaware of any counting protocol that would not require going from lower to higher magnification as required for verification, including to 1000 $\times$. We omitted this detail from the methods used in the article by Dales et al² because it is common practice.

The second issue concerns the number of fields examined. In an article in the proceedings of the 1990 Pan American Aerobiology Society, Coates et al³ demonstrated that examining 27% of the Rotorod surface produced consistent total counts between rods. Pairwise correlations yielded correlation coefficients of greater than 0.95. This demonstrates that counting 27% of the Rotorod surface produces reliable data.

The final issue is the assertion that the collection efficiency of the Rotorod sampler is not adequate for determining fungal spores. There is little disagreement that Rotorod samplers reproducibly collect particles with aerodynamic diameters of greater than somewhere between 5 and 10 μm .⁴ The majority of basidiomycete and ascomycete spores that occur in outdoor air in Canada are as large or larger than this value, as are the principal taxa of anamorphic ascomycetes. The underestimation of smaller spored taxa, such as *Cladosporium cladosporioides*, which undoubtedly occurs with the Rotorod, is also a factor for Burkard design samplers.

In the natural outdoor environment measurements from samplers are significantly affected by wind speed, but this effect is smaller with Rotorod samples than some other types.⁵ This returns us to the central question raised by Anderson¹: Is the data set we used in this study consistent and qualitatively reliable for the spore and pollen types we have used in the health analysis. We believe the answer is yes.

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Regarding incorrect allergy injections: Allergists' experiences and recommendations for prevention

To the Editor:

In the July issue of the Journal, Drs Aaronson and Ghandi¹ recommend that all patients on immunotherapy should have individualized rather than off-the-tray vaccines as a mechanism of decreasing errors. This statement is an extension of the practice parameter recommendation on allergen immunotherapy (guideline XII).²