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Reducing the inhalation dose from radon decay products

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Dear Editorial Board

We want to thank Dr. Wang and colleagues for their recently reported findings titled, “Mitigation of Radon and Thoron Decay Products by Filtration” in the November 2011 issue. Their experiments advanced what is known about the role of filtration in reducing exposure to ionizing radiation and broadened the discussion for mitigation alternatives when active soil depressurization is not feasible. In particular, the low-cost idea of using a fan with surgical mask material is a strategy to address risk reduction across socioeconomic strata.

In reading the results we wondered about two elements of interpretation made by Dr. Wang et al. First, in Fig. 3 they showed extremely significant reductions when the filter was operated at 0.8 h^{-1} rate, yet they used a less robust setting on the filter for their dose calculations. As reported in Table 2, using the lower filtration rate of 0.5 h^{-1} they achieved an overall dose reduction of 26%. We are interested to know what the dose with filtration reductions was with the higher filtration rate, since it is our understanding that room air purifiers are often sized at air exchange rates of 1 to 1.5.

Second, in the concluding statement of the manuscript the authors stated, “The small effect of filtration on the inhalation dose from radon decay products could be confirmed.” This statement seems modest when the data show a 26% reduction in the total radon decay products. Perhaps this statement was made relative to the greater reductions in the thoron decay products they achieved. In any case, we are interested to know if the 26% reduction in radon decay products, particularly in regions where radon is the primary concern rather than thoron, should be considered as both a statistically and clinically significant reduction in exposure.

Respectfully submitted,