

Domestic control of house dust mite allergen in children's beds
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Background:

House dust mite allergen levels in humid coastal regions of Australia are high, particularly in beds. Because high allergen levels in beds are associated with more severe asthma, reduction of levels may be important for asthma control.

Objective:

We tested the effectiveness of an acaricidal treatment of bedding in combination with occlusive mattress and pillow encasings in reducing allergen levels in children's beds in a community setting.

Methods:

A total of 14 beds of children were selected for the active intervention. In each home the bed of a sibling of nearest age was selected as the control. Dust was vacuumed from beds by using a standard protocol, and Der p 1 levels were measured by using ELISA. Adjacent settling dust was collected by using opened Petri dishes. **The intervention consisted of encasing mattresses and pillows in occlusive covers and washing all bedding with Acaril, an acaricidal additive.** The acaricidal wash was repeated twice in 7 households at 2-month intervals. Control beds were not treated.

Results:

The mean Der p 1 concentration at baseline was 27.9 µg/g in the active beds and 18.1 µg/g in the control beds. At 4 days after intervention, Der p 1 decreased to 3.2 µg/g and 15.7 µg/g in active and control beds, respectively. **The average difference (active minus control) over the first 8-week cycle was 78.5% ($P < .0001$), and the difference over 3 washing cycles was 125.1% ($P < .05$).** The mean rate of settling Der p 1 adjacent to the actively treated beds decreased from 24.4 ng·m⁻²·d⁻¹ at baseline to 10.0 ng·m⁻²·d⁻¹ after intervention ($P < .01$).

Conclusion:

A substantial reduction in Der p 1 levels in beds and in airborne dust in a humid region with naturally high house dust mite allergen levels can be achieved and sustained in a community setting with use of occlusive covers and a rigorous washing routine.

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