

AN EFFECTIVE LONGTERM, LOW-MAINTENANCE, LOW-COST INTERVENTION AIMED AGAINST HOUSE DUST MITES IN HOMES

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Atopic allergies, such as asthma, eczema and perennial rhinitis, have dramatically increased in industrialised countries. Most sufferers are sensitised to house dust mite allergens that have also risen in homes. House dust mites (HDM) possess enzymes, such as proteinases, to digest their exclusive diet of shed human skin. These enzymes remain active in their faecal pellets and can cause lesions in lungs when inhaled by sensitised individuals. Once the lungs are damaged by HDM proteinases, they are vulnerable to a wide range of other enhancers and triggers such as rhinoviruses, outdoor pollutants and cigarette smoke which exacerbate attacks.

The importance of HDM as a sensitiser, enhancer and trigger of asthma has been known for some time, indeed the World Health Organisation published sensitisation and exacerbation levels for HDM exposure in 1987. Nevertheless, the method of patient management preferred by practitioners is to rely exclusively on drug prescription rather to advise patients on how to avoid allergens. Yet there is now overwhelming evidence to suggest that allergen avoidance can prevent the onset of asthma (primary prevention) and reduce the severity of asthma attacks for individuals already sensitised (secondary prevention).

The main aim of this study was to test the efficacy of an inexpensive, long-term and low maintenance intervention directed against house dust mites. Problems have arisen with previous approaches in the past because, for environmental control, measures tend to be laborious and/or interfere with family life resulting in poor user compliance and, for chemical control, adverse side-effects following inhalation have been reported and repeated applications are required. The chemical permethrin, recently introduced on the market for this purpose, is a very efficient killer of mites and has extremely low toxicity in humans. To eliminate problems of inhalant exposure and the need for repeated treatments, permethrin-impregnated bedding is a more suitable presentation for domestic use. Our placebo-controlled field study conducted in the homes of non-atopic volunteers has shown that permethrin-impregnated bedding significantly reduced HDM in mattresses for at least 15 months with no adverse side-effects. This is an enormous improvement on any existing control and, we predict, will provide significant relief to atopic sufferers. Additional cleaning methods using vacuum cleaners, which retain particles < 10 µm, will be required for the removal of pre-existing allergen reservoirs in beds and carpets and we are currently determining the best vacuum cleaner available for domestic use.