

Correspondence

The risk of allergic reactions to allergen extracts in personnel

To the Editor:

I would like to comment on the interesting letter to the Editor by Bandino and Tankersley.¹

First, I will address the risk of handling stock solutions. Thirty years ago, I was clinically responsible for developing a series of freeze-dried allergenic extracts/stock solutions (1:10 wt/vol) for the US market. The potency of the timothy extract was 5000 µg of Phl p 1/mL.^{2,3} Thus 1 drop contained 250 µg of Phl p 1, which was approximately 10 times more than the top dose of timothy extract for subcutaneous immunotherapy marketed by ALK-Abelló (Hørsholm, Denmark) on the European market. Given as a first shot, that dose is definitely capable of inducing anaphylaxis.

Second, as for my personal experience of the risk for personnel handling allergen extracts, in 1963, a nurse without earlier allergic problems was involved in bronchial provocation testing in a pediatric ward. She experienced cough in the winter season. On her first day back at work after the summer vacation, she experienced severe asthma in direct connection with the first bronchial provocation. She got another job but continued to have seasonal grass pollen-induced rhinitis in subsequent years.

Two years later, I had a second case in Uppsala. A nurse in the pediatric allergy department became symptomatic at work and was found to be sensitized. In Uppsala we performed bronchial challenges but had no air-evacuation system at that time.

In the 1970s, I worked in another hospital. On the basis of my experience, we built boxes with air evacuation for bronchial provocation and skin testing. The 2 nurses working with diagnostic procedures had increasing allergic problems at work and were found to be sensitized to common environmental allergens. The unit was closed by the Swedish Work Environment Authority for 1 year because the unit was regarded as a high-risk working environment.

A survey among 20 nurses in pediatric allergy units showed that 18 reported sensitization or new allergic symptoms after they started working in the unit.

The conclusions were as follows:

- Allergen extracts can cause sensitization and allergic symptoms in personnel working in allergy units.
- Bronchial provocation tests (eg, allergen or methacholine) should be performed in special rooms/boxes with air evacuation at the site of provocation.
- Drops of allergen on benches, skin, and the floor must be removed with a soft tissue that should be discarded in a separate container.
- Used hypodermic needles, syringes, and lancets should be collected in separate containers.

This year, the Swedish Association of Allergy Nurses⁴ performed a Web-based survey among 570 members to investigate precautions to avoid allergic problems at work and possible allergies among allergy nurses/assistants. Four hundred eighteen



FIG 1. Skin prick testing in the Allergy Center of Linköping University hospital. The test is performed on a perforated stainless-steel box. Air is sucked through the holes of the box into the box and further through the vertical stainless chimney. After the test, remaining allergen extract is removed by pressing a tissue against the forearm of the patient. Syringes, needles, tissues, and so on are deposited in separate plastic containers (shown in the background). Photograph courtesy of Karin Hanson.

(71%) nurses responded. Active air evacuation was used by 24% at skin prick testing (Fig 1), 17% in connection with allergen immunotherapy and 33% when performing methacholine and penicillin challenges. Furthermore, tightly closed containers for disposal were used by 57% in connection with skin prick tests, 60% in conjunction with immunotherapy, and 42% in conjunction with penicillin challenges. Most, but not all, performed methacholine challenges in special rooms with air evacuation. In total, 18% reported allergy to pets, and 28% reported allergy to pollens. Of those who reported symptoms in the last year, allergic rhinoconjunctivitis was reported by 25%, and wheezing/asthma was reported by 20%. Furthermore, 8% meant their problems were connected with their work. Most importantly, 51% reported parental heredity for allergies.

On the basis of the experience of Bandino and Tankersley,¹ Kalm-Stephens et al,⁴ and myself,⁵ I propose the addition of a section on the risk of sensitization and symptoms in employees involved in the direct handling of allergen extracts to the fourth edition of the practice parameters on immunotherapy. I also propose recommendations for reducing the risk for both sensitization and symptoms.

Furthermore, I will propose that the Immunotherapy, Allergen Standardization, and Allergy Diagnostics Committee, together with the Allied Health Committee, perform a survey among

nurses, assistants, and extract-compounding personnel to investigate the present situation in US offices.

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Disclosure of potential conflict of interest: S. Dreborg declares that he has no relevant conflicts of interest.

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doi:10.1016/j.jaci.2011.11.048