Whenever I return from a conference abroad, my colleagues and patients ask, “did you bring us any sensational new theories, diagnostic tools, treatments for allergy?” and I feel embarrassed because there usually isn’t anything very exciting to report. However, at PAAM 2015, a relatively small conference (1300 participants), I did indeed gather some interesting information.

**DIAGNOSIS**

- **Food allergy**
  A pilot study from Holland described aberrant metabolites measured with nuclear magnetic resonance (NMR) that appear in the blood and saliva of peanut-allergic patients. These metabolites were observed prior to and after a peanut challenge test. In peanut-tolerant subjects the spectra of metabolites were completely different. The author proposes that NMR of blood and saliva with subsequent multivariate analysis be used as a new biomarker for peanut allergy.

A new approach to food allergy investigation by component-resolved diagnosis was proposed. This means detecting food allergen molecules by single reagents (single plex) or as an array of molecules tested at the same time (multiplex). With this procedure genuine allergens can be distinguished from pan-allergens or crossing allergens that might induce symptoms in the allergic patient. This is necessary not only for a proper diagnosis but also for future extracts used in immunotherapy.

- **Respiratory allergy**
  A newly developed mobile allergen exposure chamber for the purpose of provocation tests was presented. This “Allergy Village” looks cozy and inviting, like a real child’s room. To be acceptable, this chamber was validated from technical/clinical points of view following a study that documented the high reliability of provoked symptoms in repeated provocation tests (using grass pollen). This chamber is appropriate for multicentral allergen immunotherapy studies.

**TREATMENTS**

A revolution in allergy treatments has occurred with regard to food allergy. In all my years of pediatric allergy practice the working hypothesis was that prevention of exposure to one’s allergen is the best treatment. And now, in the last decade a new approach has emerged in food allergy, namely, inducing desensitization and tolerance by multiple exposures. Encouraging results have been reported on induced desensitization/tolerance to milk, baked milk, eggs and peanuts.

A well-documented study from Australia was presented on the clinical and immunological outcomes after consumption of
baked egg by 35 egg-allergic children aged 1–5 years old. The final analysis after 6 months included 35 children (intervention group n=17, control group n=18) who underwent the raw egg oral food challenge. Ten children from the intervention group and 6 from the control group tolerated raw egg at the end of the study. Tolerance was independent of age and amount of baked egg consumed. Both groups demonstrated a reduction in skin prick testing wheal sizes and in whole egg, egg white, ovalbumin-specific serum IgE titers, and an increase in whole egg IgG4. No difference between the groups was observed in the percentage of naive (CD4+CD45RA+), central (CCR7-CD45RA) or effector (CCR7+CD45RA-) memory T cells or cytokine excretion after culture of cells with egg allergens. The results suggest that baked egg-tolerant 1–5 year old egg-allergic children are evolving a tolerance to raw egg, which is not hastened by short-term regular inclusion of baked egg.

After a thorough overview of novel concepts in food allergy treatments, Kyrsten Bayer from the Charite in Berlin concluded that desensitization/tolerance to allergenic food can be induced, but the question is: will it last and for how long? However, as happens with all revolutions, time will tell whether it was justified. In the meantime, this new way of thinking definitely deserves our attention.

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Norovirus is the most common cause of outbreaks of acute gastroenteritis in National Health Service hospitals in the United Kingdom. Wards (units) are often closed to new admissions to stop the spread of the virus, but there is limited evidence describing the cost-effectiveness of ward closure. Sadique et al. conducted an economic analysis based on the results from a large, prospective, active-surveillance study of gastroenteritis outbreaks in hospitals and from an epidemic simulation study and compared alternative ward closure options evaluated at different time points since first infection, assuming different efficacies of ward closure. A total of 232 gastroenteritis outbreaks occurring in 14 hospitals over a 1 year period were analyzed. The risk of a new outbreak in a hospital is significantly associated with the number of admissions, general medical, and long-stay wards that are concurrently affected but is less affected by the level of community transmission. Ward closure leads to higher costs but reduces the number of new outbreaks by 6%–56% and the number of clinical cases by 1%–55%, depending on the efficacy of the intervention. The incremental cost per outbreak averted varies from £10,000 ($14,000) to £306,000 ($428,000), and the cost per case averted varies from £500 ($700) to £61,000 ($85,000). The cost-effectiveness of ward closure decreases as the efficacy of the intervention increases, and the cost-effectiveness increases with the timing of the intervention. The authors conclude that ward closure may be cost-effective, particularly if targeted to high-throughput units.

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Although immune cells fight infections, given their potential to cause damage, the brain must carefully regulate their entry. Cupovic et al. sought to better understand this process in mice infected with a neurotrophic coronavirus. They found that in response to infection, pockets of stromal cells in the brain rapidly expressed high amounts of the chemokines CCL19 and CCL21, secreted proteins that can attract virus-fighting T cells. Disrupting this important molecular circuitry increased the susceptibility of mice to the virus, and for the few T cells that could enter the brain, reduced their antiviral capabilities. Viral clearance led to reduced chemokine expression by stromal cells, indicating that the brain quickly rebuilds its barriers once an infection runs its course.

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Cost-effectiveness of ward closure to control outbreaks of Norovirus

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“I love America more than any other country in this world, and, exactly for this reason, I insist on the right to criticize her perpetually”