

PREVENTION, EARLY DIAGNOSIS AND CONTROL OF CHRONIC RESPIRATORY AND ALLERGIC DISEASES REPRESENT A PRIORITY FOR THE ENTIRE EU

Precision medicine (PM) is an emerging approach for disease treatment and prevention that takes into account individual variability in genes, environment, and lifestyle for each person. It enables the precise endotyping of patients using novel methods like proteomics, metabolomics, genomics, diverse cellular assays, and even mobile health technology. PM allows the design of therapeutic strategies and customised healthcare with medical decisions, practices, and/or products tailored to the individual patient informed but not directed by guidelines.

PM is fundamental to allergology. It has been used for over a century in the diagnosis and treatment of

allergic diseases. The analysis of the sensitization profile of allergic patients has been the diagnostic basis for the start of personalized, allergen-specific immunotherapy since decades.

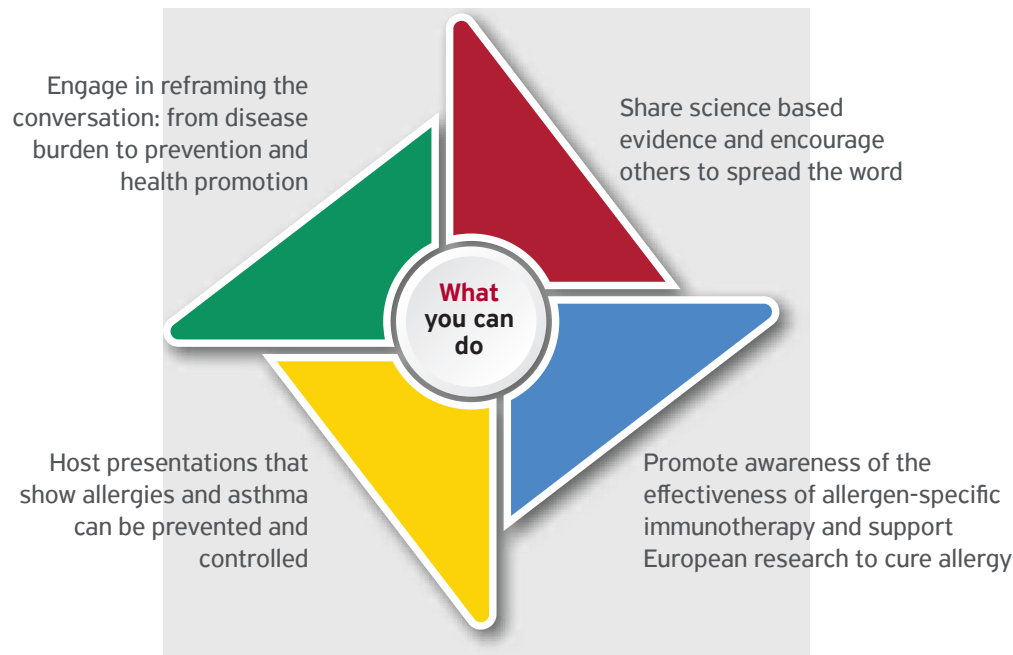
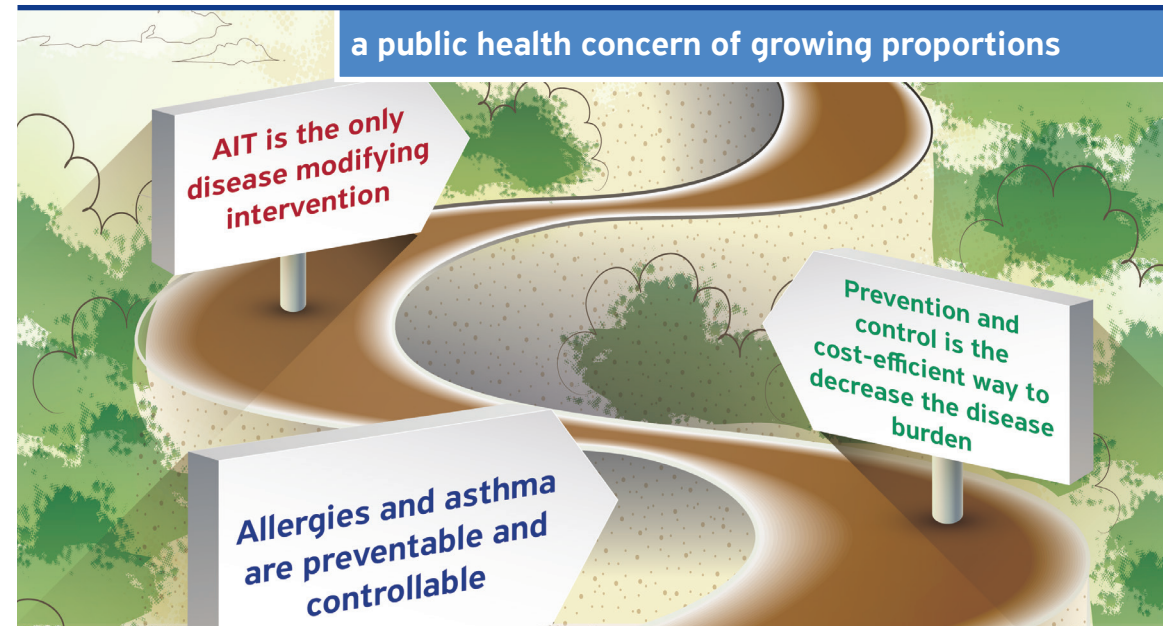
The prospect of broadly applying PM in the field of allergy and chronic airways diseases is relatively new. It is evolving rapidly with new diagnostic tools, allowing endotyping and new therapeutic options. It has the potential to change the way medicine is practiced.

Read more on PM: European Symposium on Precision Medicine in Allergy and Airways Diseases: Report of the European Union Parliament Symposium (14 October 2015).



ALLERGIES

a public health concern of growing proportions



The extent of the epidemic

Chronic respiratory and allergic diseases (e.g. asthma, rhinitis, chronic obstructive pulmonary disease and rhinosinusitis) represent a global health problem. Allergies and chronic airways affect over 1 billion people around the world. Food allergies are also becoming more frequent and severe. Occupational allergies, drug allergies and allergies to the venom of stinging insects add further complexity and concerns. Finally, new types of allergic diseases and allergies against previously non-allergenic substances are being increasingly reported. Allergies and chronic airways are insufficiently diagnosed and controlled, leading to staggering societal and economic costs.

Allergies in Europe

While at the beginning of the twentieth century allergy was seen as a rare disease, in the last few decades we have witnessed a dramatic increase in disease burden. Today, more than 150 million Europeans suffer from chronic allergic diseases. Half of them are underdiagnosed or poorly managed due to a lack of awareness and shortage of medical specialists.

Allergies in numbers

150 million

Europeans suffer from chronic allergic disease

100 million

Europeans suffer from allergic rhinitis

70 million

Europeans suffer from asthma

17 million

Europeans live with a food allergy and 8% are at risk of an acute, life-threatening reaction called anaphylaxis.

There are 3.5 million children with food allergies

45% of patients






have never received an allergy diagnosis

By 2025

it is estimated that more than 50% of all Europeans will suffer from at least one type of allergy

Facts about allergies

Allergies are the most frequent chronic diseases in children and young adults.

-  Allergies usually start in childhood and may persist for many years, sometimes for life. However, allergies can develop at any age.
-  Patients with one allergic disease have a high risk of developing more allergies.
-  In children, one allergic disease often follows another ("allergic march"). Atopic eczema appears first, affecting more than 10% of babies in Europe.
-  Allergies run in families, but most new cases appear in people without a previous family history of allergy.
-  Asthma and allergic rhinitis very frequently co-exist in the same person; together they are called *respiratory allergy*.

... and, most importantly:

Allergies are treatable and preventable!

Recent scientific breakthroughs support the value of prevention for allergic diseases and asthma. Here are some examples:

prevents asthma and has a long-lasting effect

Schmitt et al., 2015, Jacobsen et al 2007; AIT for more than 3 years in patients with AR

prevent asthma and wheeze

Garcia-Larsen et al., 2015; Mediterranean diet, food enriched in vitamin C, E and D, fruits and fish from pregnancy on

prevents asthma

Lumia et al., 2015; Introduction of fish from 6 months

prevents atopic and non-atopic asthma

Lumia et al., 2015; Higher consumption of cow milk products (with and without CMA)

positive effect on asthma

Platts-Mills, 2015; Outside activity, reduced amount of sitting in front of a screen

anti-allergic effect

Arshad et al., 2005; Breastfeeding during 4-6 months (all infants)

prevents AD and cow milk allergy

von Berg et al., 2008; HA-formula (if breastfeeding is not possible and for high-risk infants)

prevents AD

Prescott et al., 2007, Bermudez-Brito et al., 2012, Osborn et al., 2013; Probiotics from pregnancy on

Zuccotti et al., 2015;
A mixture of probiotics is more effective than one single probiotic

Kalliomaki et al., 2001; Simpson et al., 2015; It is mainly probiotics started prenatally and in combination with breastfeeding, showing the best effectiveness

prevents AD

Simpson et al., 2014, Horimukai et al., 2014; Early moisturizing from birth

prevents FA

Du Toit et al., 2015; Early introduction of peanut in high-risk infants with AD from 4 months

Katz et al., 2010; Early exposure to cow's milk, as a supplement to breastfeeding, might promote tolerance to cow's milk

Tang et al., 2015; A combination of oral immunotherapy and probiotics was shown to have a success rate exceeding 80%