

The Allergy Epidemic

A Mystery of Modern Life

by Dr Susan Prescott

Published: 20 September 2011

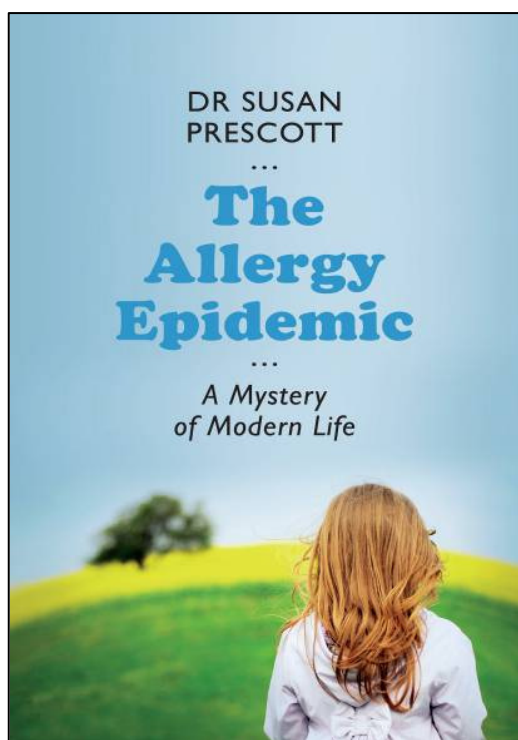
336 pp, \$29.95 pb

ISBN: 9781742582917



'Susan Prescott is a great communicator, telling the intriguing story of allergy in the modern world'

- *Professor Fiona Stanley, Australian of the Year 2003*



In **The Allergy Epidemic: A Mystery of Modern Life**, Dr Susan Prescott, an internationally renowned specialist in childhood allergy and immunology, takes us on a journey into the allergy epidemic.

As the number of those affected by allergies escalates around the globe, Dr Prescott gives explanations about this mysterious disease.

As both an allergy specialist working in a busy children's hospital and as a cutting edge researcher Susan Prescott is perfectly placed to explore how and why we are experiencing an epidemic rise in allergic diseases as well as the practical side of dealing with these potentially life-threatening conditions. Drawing on the latest research, **The Allergy Epidemic** provides clear, no-nonsense explanations that Dr Prescott is renowned for with her clients.

"The alarming and unprecedented rise in allergies and immune diseases has been getting worse with each generation. In a puzzling new twist, the latest generation of young infants is the first to bear the brunt of a completely new epidemic of potentially life-threatening food allergies, which were rare in their parents. Although allergies may not have been taken seriously in the past, the scale and impact of this problem now undeniable, and there has never been a more important time to promote awareness and take action to solve this mystery"

Dr Susan Prescott is a Paediatric Allergist and Immunologist at Princess Margaret Hospital for Children in Perth. She is internationally recognised for her research in the area of allergy and early immune development.



***ALL AUTHOR PROCEEDS WILL BE DONATED TO ALLERGY RESEARCH.**

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Just how big is this problem? The World Allergy Organisation (WAO) now estimates that up to 40% of the world's population now suffer from one or more allergic disease (such as asthma, eczema, food allergy and allergic rhinitis). This translates to many hundreds of millions, making this a global public health problem of major proportions. Australia has one of the highest allergy rates in the world and annual health spend in this area is over \$8 billion. In just 10 years there has been a 5-fold rise in serious (anaphylactic) food allergies in preschoolers. As these younger generations reach adulthood, the burden of allergic diseases is expected to increase even more.

Why is this happening? Allergy is part of an even bigger problem of a global rise in virtually all immune diseases. We see this pattern in every region of the world as they adopt the modern lifestyle. This is very clear evidence that our immune systems are highly vulnerable to modern environmental changes.

What is going wrong with the immune system? The immune system is a complex and intricate network which achieves a fine balance between 'protection' from threats (such as infection) and 'tolerance' to harmless things. Allergies and other immune diseases occur when the 'balance' is disrupted, so that we are more likely to make misdirected responses to harmless things. In essence, we have disturbed the natural balance of our environment and we are now experiencing the impact on our own health.

What are the environmental factors driving this? Our modern lifestyles differ in so many ways from traditional environments that it is hard to pin the blame on any one factor. Increasing 'hygiene' has been a lead candidate, but many other factors are known to have immune effects, such as modern environmental pollutants, reduced sunlight exposure (more screen-time and indoor activities lower vitamin D levels) and modern dietary patterns (with less fresh fruits, vegetables, fibre, and omega 3 fats) which may promote inflammation. It is likely that a combination of these modern lifestyle changes is promoting many modern diseases, not just allergy.

Why is allergy increasing so rapidly in very young infants? The latest Australian data indicate that around 10% of 1 year old infants now have food allergy and even more have other symptoms such as eczema. The fact that first symptoms can occur within weeks of life, and that changes in the immune 'balance' can be detected at birth is clear evidence that the effects of environmental change begin very early in life, even in pregnancy.

What is epigenetics? Epigenetics is a new frontier of medicine that explains how gene expression is controlled, and how environmental exposures can change epigenetic control of gene expression to alter the risk of disease. Harnessing this 'plasticity' may also hold the key to reversing the problem through prevention strategies in early life.

What are the latest treatments and can allergy be cured? There have been significant advances in the treatment of all allergic diseases and the latest approaches are all outlined in *The Allergy Epidemic*. (start at pp112). In some patients immunotherapy (treatment of disease by inducing, enhancing, or suppressing an immune response) provides a solution to allergic disease, and there is intensive research to make this a safe option in a wider range of allergic conditions.

Where is the research heading? Better understanding of the molecular processes in allergy is aimed at providing more effective targeted treatments for people with *established* allergic disease. But the ultimate goal is to reverse the epidemic and prevent allergies in the first place. To do this we need to define environmental strategies that restore an optimal 'immune balance' during early development. It is hoped that reducing early environmental risk factors may ultimately reduce the risk of many modern diseases.

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