

# INTERNATIONAL STUDY OF ASTHMA AND ALLERGIES IN CHILDHOOD

## CORRESPONDENCE TO:

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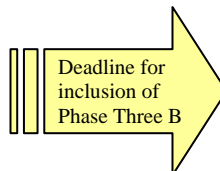
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## NEWSLETTER – MARCH 2006

Dear Colleagues,

On behalf of the Executive I would like to extend my warmest greetings to you all, and welcome you to another exciting year.

2006 is shaping up to be a busy and productive one. The checking process for Phase Three B (Centres participating for the first time in Phase Three) is nearly complete.



If you have outstanding comments or questions from either Philippa Ellwood or Tadd Clayton from the IIDC would you please reply to their emails promptly, as the final deadline for completion of all checks data and methodology inclusion in the worldwide papers will be the 30<sup>th</sup> March 2006. Therefore centres that have not completed data and methodology checks by the 30<sup>th</sup> March 2006 will be excluded from Phase Three Worldwide Papers. If you have not been advised by Philippa or Tadd that your centre report and data checks are completed, please contact them urgently.

Philippa Ellwood: [p.ellwood@auckland.ac.nz](mailto:p.ellwood@auckland.ac.nz)  
Tadd Clayton: [t.clayton@auckland.ac.nz](mailto:t.clayton@auckland.ac.nz)

This year the European Respiratory Society ERS Symposium will be in Munich, Germany September 2<sup>nd</sup>-6<sup>th</sup> 2006. We are very grateful to Erika von Mutius who has offered to host the ISAAC Collaborators Function. Details and the invitation will follow in the next newsletter.

The Steering Committee is supportive of the Asthma Drug Facility (ADF) Initiated by the International Union Against Tuberculosis and Lung Disease (IUATLD). They are working together with WHO to aim to lower the cost of essential asthma medicines thus making it affordable to 10 million people currently living without treatment for their asthma, (please see details on page 4).

We would like to thank Dr Chris Lai and Dr Gary Wong for their wonderful efforts in hosting the 2005 Steering Committee Meeting in Hong Kong. This was a very productive meeting. The publication plan for the first worldwide papers was progressed, with the first time trends paper submitted for publication and three more to follow.

As the analyses of the Phase Three world wide time trends is finishing, and we proceed towards publication, we are very grateful for the outstanding contributions and valuable comments from the Principal Investigators and their colleagues. We look forward to completing a similar process for the World map papers (Phase Three A & B centres) by the year's end. It is a great honour to be part of such a wonderful group of collaborators.

Warm wishes

*Innes Asher*

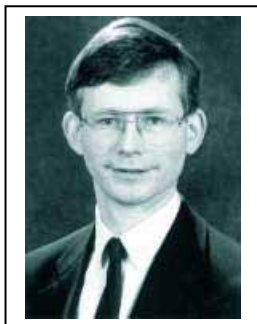
Professor Innes Asher ONZM

On behalf of the ISAAC International Data Centre and Steering Committee

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## ISAAC Profile

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### Professor David Strachan

David Strachan is professor of epidemiology in the Division of Community Health Sciences at St George's, University of London. He and his colleague Ross Anderson were founder members of the ISAAC Steering Committee and David is a longstanding member of the ISAAC Executive. He sometimes wonders whether his middle name should be "Isaac", rather than "Peter"!

David qualified in medicine from Edinburgh University in 1981 and obtained his doctorate in 1990 for epidemiological studies of childhood asthma and the home environment. Following training in primary care, he gained a Wellcome Trust research training fellowship in 1985 to study epidemiology at the London School of Hygiene and Tropical Medicine, where he returned as a lecturer in 1987. He was appointed as senior lecturer in epidemiology at St George's Hospital Medical School in 1991, and was awarded a personal chair by the University of London in 1997.

During his period at the School of Hygiene, he spent many a lazy hour in the library thumbing through the pages of Index Medicus (the paper-based precursor to Medline and Pubmed). It was on one such "wet and windy afternoon" that an entry caught his eye entitled "Hay fever: a post-industrial revolution epidemic". This review article by Emanuel prompted him to look more closely at the epidemiology of hay fever and eczema, rather than just asthma. The resulting speculation led to a short BMJ paper entitled "Hay fever, hygiene and household size", that has received over 400 citations. The "hygiene hypothesis" (that infection prevents allergy) remains highly topical today, but after almost 20 years, David is losing hope of actually being able to explain it!

David retains interest and expertise, developed during the 1990s, in the adverse respiratory effects of both outdoor and indoor air pollution, and associated public health policy issues. An ERS prize-winning series of systematic reviews of the effects of passive smoking, which he published with colleagues Ross Anderson and Derek Cook in 1997-1999, was cited recently (on screen!) as the principal information source underlying the TV advertisement depicting "smoking babies", as part of the UK Department of Health's campaign against parental smoking. This work has been comprehensively updated in a contribution to the forthcoming US Surgeon General's Report "The Health Effects of Involuntary Smoking".

After a diversion during the late 1990s into infection as a possible cause of cardiovascular disease, David's attention returned to the British 1958 birth cohort, which had provided the intriguing evidence linking allergic disease to smaller families. Currently, much of his research effort is devoted to a biomedical examination of this cohort, which has generated a collection of DNA and immortalised cell cultures on a nationally representative sample of over 8000 adults. He is anxiously awaiting the arrival of genotyping data for over 1 million SNPs on about one-fifth of these, as a result of collaborative use of the DNA bank as a reference series for genetic case-control studies. One such collaboration is the EU-funded GABRIEL initiative, which starts in March 2006 and also includes a number of ISAAC members (Bill Cookson, Erika von Mutius and Stephan Weiland).

David has been associate editor of *Thorax* since 1996 and has served on several advisory committees of the UK Department of Health, the Medical Research Council and the Wellcome Trust. He was elected as a Fellow of the UK Academy of Medical Sciences in 2000. He has recently taken over from Ross Anderson as head of division, and within just six months has discovered the heaviest element known to man – administratium!



## Call for support to ISAAC network members

### *Questionnaire on Access to Essential Asthma Medicines*

Dear Colleague,

We would like to inform you about the Asthma Drug Facility (ADF) and invite you to visit ADF's website [www.GlobalADF.org](http://www.GlobalADF.org) – online in English, French and Spanish. The new ADF initiative is being established by the Union in collaboration with its partners, in particular the World Health Organization. The ADF will use pooled procurement and other purchasing and supply strategies to obtain the lowest possible prices for essential asthma medicines. The ADF will supply these medicines, with some technical assistance and monitoring, to participating asthma programmes. Low prices, when combined with accurate diagnosis and treatment according to the degree of severity, should significantly reduce the total cost per patient for good quality treatment. More patients will be able to afford to buy their own medicines.

The ADF wants to raise global and local awareness about the need to improve access to essential asthma medicines. ADF is advocating for political commitment to the development of universal asthma management programmes. For this purpose, it is sending a research questionnaire to asthma experts throughout the world. We turn to you as an expert source of information and advice, and as someone who may be interested in seeing much lower costs for asthma treatment becoming a sustainable reality in your country. The last set of questions in the questionnaire is designed to reflect how much demand might exist in each country or health sector once the ADF makes the supply of low price good quality medication possible. The results generated from this questionnaire will be submitted for publication with acknowledgement to all respondents. Would you be interested in contributing to this research project?

If so, please complete the online web questionnaire as soon as possible.

- Print the attached document and prepare your answers;
- Visit the ADF website at <http://www.GlobalADF.org>
- Select *Questionnaires* in the menu, then select the questionnaire called *Access to essential asthma drugs*;
- Enter your contact details and choose a password to register as a user and be able to save your answers;
- Enter your answers;
- Return another time to complete your answers if necessary, by entering your email and password.

If you are unable to use this online system, you can a) enter your answers into the attached Word document and email it to [imarsilio@uatld.org](mailto:imarsilio@uatld.org) or b) print it and fax ADF your handwritten answers at +33 143 299087.

For any questionnaire enquiries or information about the ADF's services, please contact [adf@uatld.org](mailto:adf@uatld.org)

Thank you in advance for your contribution to this global effort to provide essential asthma medication to all people who suffer from asthma.

Yours sincerely,

Dr Nils E Billo, MD, MPH  
Executive Director, The Union

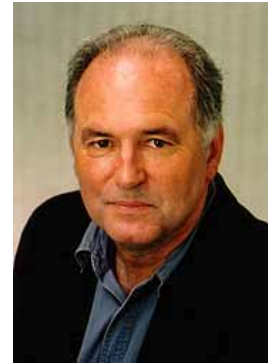
Prof Nadia Ait-Khaled  
Head, Asthma Division

*17<sup>th</sup> International Summer School of  
Epidemiology  
at the University of Ulm, Germany*



- Courses offered:     **Introduction to Epidemiology,**  
Wayne Rosamond, University of North Carolina at Chapel Hill, USA
- Analyses of Case-Control Data,**  
David Richardson, University of North Carolina at Chapel Hill, USA
- Genetic Epidemiology,**  
Michael Province, Washington University, St. Louis, MO, USA
- Cardiovascular Disease Epidemiology,**  
Gerardo Heiss, University of North Carolina at Chapel Hill, USA
- Date:                     July 10 – July 14, 2006
- Location:               University of Ulm, Germany
- Language:              English
- Fees:                    €300.00 per course participation fee  
(€250.00 for DGEpi-members / €100.00 for students)
- Fellowships:            A limited number of fellowships are available for participants from  
low income countries.
- Program Director:     Prof. Dr. med. Stephan Weiland
- Further information:   Nicole Schubert, Department of Epidemiology, University of Ulm  
Helmholtzstraße 22, D – 89081 Ulm  
Phone: ++49 731 50 31061, Fax: ++49 731 50 31069,  
E-mail: nicole.schubert@uni-ulm.de
- Deadline for application: May 15, 2006  
Deadline for fellowship: April 15, 2006

## *The Royal Society of New Zealand elects Professor Neil Pearce as Fellow*



### ***Fellowship***

Fellowship of the Royal Society of New Zealand (FRSNZ) is an honour conferred for distinction in research or the advancement of science or technology. The criteria for Honorary Fellowship are similar to those for Fellowship.

Since its earliest days the Society has made provision for the election of Honorary Fellows (called Honorary Members until the Society's new Act in 1997) to encourage liaison between scientists of different nations and to encourage and promote communication and links.

Professor Neil Pearce was one of 10 Fellows elected by The Royal Society of New Zealand into its science academy in November. The Fellowship selection process is exhaustive, involving discipline-specific selection panels and independent international review to ensure against local bias.

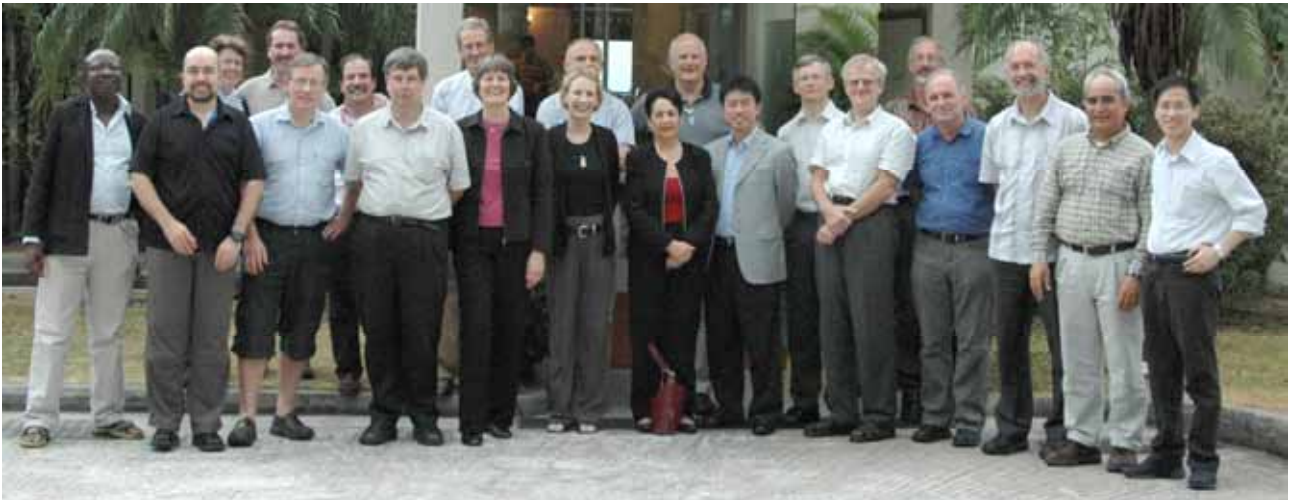
Fellows are expected to enthusiastically disseminate scientific information to the public, help provide expert advice on a range of topics, and play a leading role in promoting best scientific practice.

Professor **Neil E. Pearce**, Professor and Director, Centre for Public Health Research, Massey University, Wellington, has made pioneering contributions to the development, acceptance and practical application of epidemiology as a science in New Zealand, and he is widely regarded internationally as one of world's most broadly-based epidemiologists. His outstanding and original contributions on the epidemiology of cancer, asthma, occupational health and the inequalities of health are published in 14 books, 37 chapters and over 260 original research articles, many in prestigious international journals (e.g., International Journal of Cancer, American Journal of Epidemiology, British Medical Journal, Thorax). His interest in epidemiological methods and occupational epidemiology resulted in a textbook in 1989 that is still the hallmark textbook in this field; he is also the principal author of a leading textbook on asthma epidemiology (1998).

Neil Pearce co-founded the Wellington Asthma Research Group in 1987 and subsequently directed the unit. As Director of the Centre for Public Health Research, he has promoted the establishment of a broadly-based programme of public health research with a focus in non-communicable diseases (including asthma, diabetes and cancer), occupational health, Maori and Pacific health, and the socio-economic determinants of health. He continues to play a leadership role in applying high quality epidemiological research to many of the most urgent health issues facing New Zealand today.



## Steering Committee Meeting 2006 – Hong Kong



Participants at the ISAAC Steering Committee Meeting, Staff Common Room, Chinese University of Hong Kong, Tai Po, New Territories, Hong Kong, SAR China, 7-8 November 2005:

- |                      |                      |                       |
|----------------------|----------------------|-----------------------|
| 1. Joseph Odhiambo   | 2. Tadd Clayton      | 3. Erika von Mutius   |
| 4. Hywel Williams    | 5. Richard Beasley   | 6. Luis García-Marcos |
| 7. Julian Crane      | 8. Bert Brunekreef   | 9. Innes Asher        |
| 10. Philippa Ellwood | 11. Stephan Weiland  | 12. Nadia Ait-Khaled  |
| 13. Colin Robertson  | 14. Chris Lai        | 15. David Strachan    |
| 16. Bengt Björkstén  | 17. Alistair Stewart | 18. Neil Pearce       |
| 19. Ed Mitchell      | 20. Sunia Foliaki    | 21. Gary Wong         |

On behalf of the Executive and Steering Committee, I would like to thank Dr Chris Lai, ISAAC Steering Committee Member, and ISAAC Regional Coordinator for Asia Pacific, and Dr Gary Wong, ISAAC Phase Three coordinator for Asia Pacific and South East Asia, for their incredible efforts in hosting the Sixteenth Annual Steering Committee Meeting for ISAAC in Hong Kong on the 7<sup>th</sup> and 8<sup>th</sup> November 2005.

This meeting was held at the Chinese University of Hong Kong, every effort was made to ensure that our visit was very productive and most enjoyable. I would like to thank Chris and Gary for their attention to detail, their organisational skills and for allowing us to experience some of the diversity of their culture and beauty of their homeland.

Chris and Gary, asked Steering Committee members to speak at one or more of three Hong Kong meetings. “The Autumn Respiratory Seminar organised by the Hong Kong Thoracic Society”, the “Scientific programme for the Annual General Meeting of the Hong Kong Institute of Allergy” and the “Asia Pacific Society of Respiriology Meeting” in Guangzhou. The invitations were very much appreciated and the meetings were informative. It was wonderful to meet so many of our Asian colleagues.

Ho Chi Minh Children's Hospital No.1.  
Dr Baich Vaen Cam, Dr Tran Anh Tuan, Professor Innes Asher and Dr Nguyen Minh Tien.



Following the meeting I was able to travel to Vietnam and Mainland China. In Vietnam I visited collaborator Dr Baich Vaen Cam and his colleagues in the Ho Chi Minh City Children's Hospital No.1.

In China I visited our Beijing Principal Investigator professor Yu-Zhi Chen in the Institute of Paediatrics'



*The Paediatric Respiratory doctors and house staff With Dr Cao Ling, Director, Professor Innes Asher, and Professor Yu-Zhi Chen*

The next Steering Committee Meeting will be held in Santiago, Chile in November 2006 and hosted by Professor Javier Mallol. We look forward to another intensely focused meeting, and would like to thank Professor Mallol for organising this most important event.

## Steering Committee Comments and Photos:

“The organisational arrangements for the Hong Kong trip were simply terrific, thank you Chris and Gary for your attention to detail. I was in two minds whether to come to the Hong Kong ISAAC Steering Committee Meeting in November 2005 as my mother was about to have a major operation, however I am really glad that I made the effort as it was such a productive and enjoyable meeting. After the meeting was through I was able to return to my mother’s bedside and help her recover when she needed me most.”

“As more and more heterogeneous ISAAC results unfold, I am now beginning to visualise this enigma that we call allergic disease and have realised that its not just one disease – it is, as the data suggests, heterogeneous. Sounds like an obvious thing to say, but it is a revelation for me.”

“Hong Kong was a fascinating place to visit – I liked the vibrancy and odd mix of mountains, sea and highly developed infrastructure. Here is the view from the bedroom of the staff quarters that we stayed in. I am very lucky to be part of the ISAAC team”

Hywel Williams



For my very first visit to Hong Kong, I could not have had a nicer group to share some of my experiences with. The 2 day Steering Committee meeting agenda was very full and it was extremely well organized by Dr Gary Wong and Dr Chris Lai. These two wonderful hosts showed us sights of HK that I would not have been able to get around in the time available, nor would I have know where or how to get there. What a vibrant and exciting place to visit. I managed to arrive several days before the St Committee began, due to flight arrangements from another meeting. It was superb to arrive early, to have time to relax and to wander around on my own soaking up the atmosphere around me, experiencing another culture and being part of this amazing city. Thank you Gary and Chris for wonderful memories and for taking the time to organize such a successful few days.



Philippa Ellwood  
IIDC





We arrived in Hong Kong on Saturday afternoon and were very impressed and astounded by the size and efficiency of the new airport. Both my wife Miriam and I had previously visited when the old airport required a dramatic banked approach between apartment blocks. Throughout the meeting we were very favourably impressed by the hospitality and organisation provided by Chris and Gary, and the Chinese University. The meeting went very well (as always) and the social activities were wonderful. We were able to sample some delicious local cuisine and see something of Hong Kong including memorable visits to Stanley, Victoria peak and Lamma Island. After the meeting Miriam and I stayed on in Hong Kong for a few more days of sight seeing. Highlights included a view of Hong Kong at night from Victoria peak, a visit to the enormous Buddha and monastery on Lantau Island and a day trip to Macau. We both enjoyed our stay in Hong Kong a great deal and would love to visit again. Thanks again to Chris and Gary for the warm welcome and generous hospitality.



Tadd Clayton

Steering Committee Members who were able to attend the Steering Committee Meeting, very much appreciated the organisational skill of both Chris and Gary, a most enjoyable productive meeting.

## **Asthma and Allergy in 2005**

Scientific programme for the Annual General Meeting of Hong Kong Institute of Allergy, November 2005.

Developments in the understanding of asthma and allergy were discussed during a recent symposium held in Hong Kong. Held in conjunction with the Annual General Meeting of the Hong Kong Institute of Allergy, the symposium was co-chaired by the Institute's President, Dr Christopher Lai, and Honorary Secretary, Dr Helen Chan.

**Relevance of the hygiene hypothesis to early childhood asthma.** – Professor Ed Mitchell, Auckland, New Zealand, Professor of Child Health Research, Department of Paediatrics, University of Auckland

Professor Mitchell talked about the wide variation in worldwide prevalence of asthma symptoms, found in ISAAC Phase One. A recent analysis of asthma prevalence studies demonstrated that asthma prevalence not only varies from centre to centre, but also appears to be increasing with time in many centres. Why? According to the hygiene hypothesis some data in the literature suggests that large family size may decrease the risk of atopy and asthma, the concept being that older siblings will introduce more infections to infants, who therefore have more infections and are less likely to develop allergy. There is also evidence that TB and measles may reduce the risk of atopy in children.

Professor Mitchell provided some preliminary analysis from the Auckland Birthweight Collaborative (ABC) Study. The original aim of the ABC study was to identify the risk factors for low birthweight. However, the object of the sub-component of the study was to try to identify determinants of asthma in early childhood. He concluded that family and personal history of asthma and/or atopic disease are clearly important factors in developing wheeze at both ages 3.5 and 7 years, while maternal smoking is a risk factor at age 3.5 years but not at 7 years. There appears to be limited support from this data to support the hygiene hypothesis.

**Quantifying asthma in the new millennium.** – Professor Richard Beasley, Wellington, New Zealand, Professor, Medical Research Institute of New Zealand.

Professor Beasley talked about the huge gap between what can be achieved with modern asthma management and what is currently achieved. He emphasised importance of inhaled corticosteroids (ICS), "ICS are the only medications demonstrated to reduce asthma symptoms, improve lung function and quality of life." High morbidity and mortality rates in Asia-Pacific can be attributed to the considerably lower use of inhaled corticosteroids in patients with persistent asthma. He described his findings and concluded that in order to improve asthma outcomes and the burden of disease, those who are not well controlled are at risk of serious morbidity and need to be identified through the Asthma Control Test (ACT). Finally it is important to acknowledge that in Hong Kong there has been a progressive reduction in asthma mortality over the past 20 years that has been associated with an increase in the prescription of ICS over the same period. This represents an example for the Asia Pacific region, whereby the dramatic benefits from increasing the use of ICS are evident.

Poem from the book entitled "Sing Song"  
Author Anne Kennedy,

I Am (1)

Every night she wakes and makes  
herself seem big the way she thumps  
across the hall. Those footfalls cast  
a grownup shadow, minimised

when she arrives at her parents'  
bed. A night-light, weak-wattaged  
blinks on and chases away the adult  
her. That can wait, she's got all night

and all the days of her life. Her mother  
gathers her in like harvest, long days  
much to do, keep going, soon there will be  
lanterns and dancing, and comforts her, her

season, smooths on the cream prescribed  
by every health professional who's ever  
seen her (it) (eczema). Keep the faith, feed  
the soil, in a small lifetime it will be morning.



**ISAAC  
Publications Check**



Dear Collaborators'

Web: <http://isaac.auckland.ac.nz>

Would you all please check the Publications section on the ISAAC Website?

If you have written a paper under the ISAAC umbrella that is not listed on the ISAAC Website please let us know so we can update our Publications list:

Please go to: <http://isaac.auckland.ac.nz>

Then select: Publications

: Please check **all areas** of the Publications except:  
Global Worldwide Publications

Please email a copy if possible to Tania Milne IIDC:isaacadmin@auckland.ac.nz



## **ISAAC Phase One Worldwide Publications**

**Professor Neil Pearce**

ISAAC Phase One Publications Coordinator

ISAAC Executive

E-mail: n.e.pearce@massey.ac.nz

### **1.0 Preliminary Papers**

- 1.1 ISAAC Phase One Manual. 2<sup>nd</sup> ed. Auckland and Münster: ISAAC Steering Committee, 1993.
- 1.2 Pearce NE, Weiland S, Keil U, Langridge P, Anderson HR, Strachan D, Bauman A, Young L, Gluyas P, Ruffin D, Crane J, Beasley R. Self-reported prevalence of asthma symptoms in children in Australia, England, Germany and New Zealand: an international comparison using the ISAAC written and video questionnaires. *Eur Resp J* 1993; 6: 1455-61.
- 1.3 Asher I, Keil U, Anderson HR, Beasley R, Crane J, Martinez F, Mitchell EA, Pearce N, Sibbald B, Stewart AW, Strachan D, Weiland SK, Williams HC. International study of asthma and allergies in childhood (ISAAC): rationale and methods. *Eur Resp J* 1995; 8: 483-91.

### **2.0 Main Findings**

- 2.1 Strachan D, Sibbald B, Weiland S, Ait-Khaled N, Anabwani G, Anderson HR, Asher MI, Beasley R, Björkstén B, Burr M, Clayton T, Crane J, Ellwood P, Keil U, Lai C, Mallol J, Martinez F, Mitchell E, Montefort S, Pearce N, Robertson C, Shah J, Stewart A, Von Mutius E, Williams H. Worldwide variations in prevalence of symptoms of allergic rhinoconjunctivitis in children: The International Study of Asthma and Allergies in Childhood (ISAAC). *Paediatric Allergy Immunology* 1997; 8: 161-76.
- 2.2 ISAAC Steering Committee (Writing Committee: Beasley R, Keil U, Von Mutius E, Pearce N). Worldwide variation in prevalence of symptoms of asthma, allergic rhinoconjunctivitis and atopic eczema: ISAAC. *Lancet* 1998; 351: 1225-32.
- 2.3 Williams H, Robertson C, Stewart A, Ait-Khaled N, Anabwani G, Anderson HR, Asher MI, Beasley R, Björkstén B, Burr M, Clayton T, Crane J, Ellwood P, Keil U, Lai C, Mallol J, Martinez F, Mitchell E, Montefort S, Pearce N, Shah J, Sibbald B, Strachan D, von Mutius E, Weiland S. Worldwide variations in the prevalence of symptoms of atopic eczema in the international study of asthma and allergies in childhood. *J Allergy Clin Immunol* 1999; 103: 125-38.
- 2.4 ISAAC Steering Committee (Writing Committee: Asher MI, Anderson HR, Stewart AW, Crane J). Worldwide variations in the prevalence of asthma symptoms: International Study of Asthma and Allergies in Childhood (ISAAC). *Eur Respir J* 1998; 12: 315-35.

### **3.0 Other Overview Papers**

- 3.1 Asher MI, Weiland SK, on behalf of the ISAAC Steering Committee. The International Study of Asthma and Allergies in Childhood. *Clin Exper Allergy* 1998; 28 (suppl 5): 52-66.
- 3.2 Beasley R, Ellwood P, Asher I. International patterns of the prevalence of pediatric asthma the ISAAC program. *Pediatric Clinics of North America* 2003; 50(3):539-53.
- 3.3 Lai C, Pearce N. The contribution of ISAAC to the understanding of asthma. *Leukotriene Res & Clin Rev* 2001; 2: 1-4.
- 3.4 Mallol J, Asher MI, Williams H, Clayton T, Beasley R. ISAAC Findings in children aged 14 years: an overview. *Allergy Clin Immunol Int* 1999; 11: 176-82.

- 3.5 von Mutius E. Epidemiology of asthma: ISAAC--International Study of Asthma and Allergies in Childhood. *Pediatr Allergy Immunol* 1996; 7(9 Suppl): 54-6.

### **ISAAC Phase One Worldwide Publications - Continue**

#### **4.0 Ecologic Analyses**

- 4.1 Anderson R, Beasley R, David Strachan, Colin Robertson C, and the ISAAC Phase I Study Group. Mortality and hospitalisation rates. In preparation.
- 4.2 Anderson HR, Poloniecki JD, Strachan DP, Beasley R, Björkstén B, Asher MI. ISAAC Phase I Study Group. Immunization and symptoms of atopic disease in children: results from the International Study of Asthma and Allergies in Childhood. *Am J Publ Health* 2001; 91: 1126-9.
- 4.3 Anderson HR and the ISAAC Phase I Study Group. Air pollution and asthma prevalence. In preparation.
- 4.4 Asher I, et al. Overview of findings of ISAAC Phase I ecologic analyses. In preparation.
- 4.5 Burr ML, Emberlin JC, Treu R, Cheng S, Pearce N, and the ISAAC Phase I Study Group. Pollen counts in relation to the prevalence of rhinitis and asthma in the International Study of Asthma and Allergies in Childhood (ISAAC). *Clin Exper Allergy* 2003; 33: 1675-80.
- 4.6 Ellwood P, Asher MI, Björkstén B, Burr M, Pearce N, Robertson CF and the ISAAC Phase One Study Group. Diet and asthma, allergic rhinoconjunctivitis and atopic eczema symptom prevalence: an ecological analysis of the International Study of Asthma and Allergies in Childhood (ISAAC) data. *Eur Respir J* 2001; 17: 436-43.
- 4.7 Foliaki S, Björkstén B, Kildegaard-Nielsen S, von Mutius E, Cheng S, Pearce N. Antibiotic sales and the prevalence of symptoms of asthma, rhinitis and eczema in 13-14 year old children: The International Study of Asthma and Allergies in Childhood (ISAAC). *Int J Epidemiol* 2004; 33: 558-63.
- 4.8 Mitchell EA, Stewart AW, on behalf of the ISAAC Phase One Study Group. The ecological relationship of tobacco smoking to the prevalence of symptoms of asthma and other atopic diseases in children: The International Study of Asthma and Allergies in Childhood (ISAAC). *Eur J Epidemiol* 2002; 17: 667-73.
- 4.9 Shirtcliffe P, Weatherall M, Beasley R, on behalf of the ISAAC Phase I Study Group. An inverse correlation between estimated tuberculosis notification rates and asthma symptoms. *Respirology* 2002; 7: 153-5.
- 4.10 Stewart AW, Mitchell EA, Pearce N, Strachan DP, Weiland SK, on behalf of the ISAAC Steering Committee. The relationship of per capita gross national product to the prevalence of symptoms of asthma and other atopic diseases in children (ISAAC). *Int J Epidemiol* 2001; 30: 173-9.
- 4.11 von Mutius E, Pearce N, Beasley R, Cheng S, von Ehrenstein O, Björkstén B, Weiland S, on behalf of the ISAAC Steering Committee. International patterns of tuberculosis and the prevalence of symptoms of asthma, rhinitis and eczema. *Thorax* 2000; 55(6): 449-453
- 4.12 Weiland SK, von Mutius E, Hüsing A, Asher MI on behalf of the ISAAC Steering Committee. Intake of trans fatty acids and prevalence of childhood asthma and allergies in Europe. *Lancet* 1999; 353: 2040-41.
- 4.13 Weiland S, Hüsing A, Strachan DP, Pearce N, on behalf of the ISAAC Study Group and ISAAC Europe. Climate and the prevalence of symptoms of asthma, allergic rhinoconjunctivitis and atopic eczema in children. *Occup Environ Med* 2004; 61: 609-15.

## **Other Papers**

- 5.1 Anderson R, Robertson C, Montefort S. World-wide variations in asthma in children: association with severity, evidence of other atopic diagnosis and sex ratio. In preparation.
- 5.2 Crane J, Mallol J, Beasley R, Stewart A, Asher MI, on behalf of the International Study of Asthma and Allergies in Childhood (ISAAC) Phase I study group. Agreement between written and video questions for comparing asthma symptoms in ISAAC. Eur Respir J 2003; 21: 455-61.
- 5.3 Pearce N, Sunyer J, Cheng S, Chinn S, Bjorksten B, Burr M, Keil U, Anderson HR, Burney P, on behalf of the ISAAC Steering Committee and the European Community Respiratory Health Survey. Comparison on asthma prevalence in the ISAAC and the ECRHS. Eur Resp J 2000; 16: 420-6.
- 5.4 Stewart AW, Mitchell EA. Month of birth and childhood atopic diseases: the International Study of Asthma and Allergies in Childhood (ISAAC). In preparation.

## **ISAAC Phase Two Publications**

### **1.0 Preliminary Papers**

- 1.1 Weiland SK, Björkstén B, Brunekreef B, Cookson WOC, von Mutius E, Strachan DP, and the ISAAC Phase II Study Group. Phase II of the International Study of Asthma and Allergies in Childhood (ISAAC II): rationale and methods. Eur Respir J 2004; 24: 406-412.

## **ISAAC Phase Three Publications**

### **1.0 Preliminary Papers**

- 1.1 Ellwood P, Asher MI, Beasley R, Clayton TO, Stewart AW and the ISAAC Steering Committee. International Study of Asthma and Allergies in Childhood (ISAAC II): Phase III rationale and methods. Int J Tuberculosis Lung Dis 2005; 9: 10-6.

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