# THE LANCET

## Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: Asher MI, Rutter CE, Bissell K, et al. Worldwide trends in the burden of asthma symptoms in school-aged children: Global Asthma Network Phase I cross-sectional study. *Lancet* 2021; **398:** 1569–80.

#### Global Asthma Network Phase I Study Group:

Global Asthma Network Steering Group: MI Asher, Department of Paediatrics: Child and Youth Health, Faculty of Medical and Health Sciences, University of Auckland, Private Bag 92019, Auckland, New Zealand; K Bissell, School of Population Health, Faculty of Medical and Health Sciences, University of Auckland, Auckland, New Zealand; C-Y Chiang, International Union Against Tuberculosis and Lung Disease, Paris, France; and Division of Pulmonary Medicine, Department of Internal Medicine, Wan Fang Hospital, Taipei Medical University; and Division of Pulmonary Medicine, Department of Internal Medicine, School of Medicine, College of Medicine, Taipei Medical University111 Hsin-Long Road, Section 3, Taipei, 116, Taiwan; A El Sony, Epidemiological Laboratory for Public Health and Research, Khartoum 3 Block3-Building 11, Khartoum, Sudan; E Ellwood, Department of Paediatrics: Child and Youth Health, Faculty of Medical and Health Sciences, Private Bag 92019, University of Auckland, Auckland, New Zealand; P Ellwood, Department of Paediatrics: Child and Youth Health, Faculty of Medical and Health Sciences, Private Bag 92019, University of Auckland, Auckland, New Zealand; L García-Marcos, Pediatric Allergy and Pulmonology Units, Virgen de la Arrixaca University Children's Hospital, University of Murcia and IMIB Bioresearch Institute, Murcia; and ARADyAL Allergy Network, Edificio Departamental-Laib, Avenida Buenavista s/n, 30120 El Palmar, 30394 Murcia Spain; GB Marks, Respiratory & Environmental Epidemiology, University of New South Wales, Goulburn St, Sydney 2085, Sydney, Australia; R Masekela, Department of Paediatrics and Child Health, University of Kwazulu-Natal, Pretoria, South Africa; E Morales, Department of Public Health Sciences, University of Murcia, and IMIB Bio-health Research Institute, Murcia, Edificio Departamental-Laib, Avenida Buenavista s/n, 30120 El Palmar, 30394 Murcia, Spain; K Mortimer, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool L3 5QA, United Kingdom; N Pearce, Department of Medical Statistics, London School of Hygiene & Tropical Medicine, Keppel Street, London WC1E 7HT, United Kingdom; DP Strachan, Population Health Research Institute, St George's, University of London, Cranmer Terrace, London SW17 0RE, United Kingdom.

#### Global Asthma Network International Data Centres: GAN Global Centre: P

Ellwood, E Ellwood, MI Asher, Department of Paediatrics: Child and Youth Health,

Faculty of Medical and Health Sciences, Private Bag 92019, University of Auckland, Auckland, New Zealand; Murcia, Spain: L García-Marcos, Pediatric Allergy and Pulmonology Units, Virgen de la Arrixaca University Children's Hospital, University of Murcia and IMIB Bioresearch Institute, Murcia; and ARADyAL Allergy Network, Edificio Departamental-Laib, Murcia, Spain; V Pérez-Fernández, Department of Paediatrics, University of Murcia; and IMIB Bio-health Research Institute, Murcia, Edificio Departamental-Laib, Avenida Buenavista s/n, 30120 El Palmar, 30394 Murcia Spain; E Morales, Department of Public Health Sciences, University of Murcia, and IMIB Bio-health Research Institute, Murcia, Edificio Departamental-Laib, Avenida Buenavista s/n, 30120 El Palmar, 30394 Murcia, Spain; A Martinez-Torres, Paediatric Allergy and Pulmonology Units and Nurse Research Group, Virgen de la Arrixaca University Children's Hospital, University of Murcia and IMIB Bio-health Research Institute, Murcia, Edificio Departamental-Laib, Avenida Buenavista s/n, 30120 El Palmar, 30394 Murcia, Spain; London, United Kingdom: DP Strachan, Population Health Research Institute, St George's, University of London, Cranmer Terrace, London SW17 0RE, United Kingdom; N Pearce, S Robertson, CE Rutter, Department of Medical Statistics, London School of Hygiene & Tropical Medicine, Keppel Street, London WC1E 7HT, United Kingdom; RJ Silverwood, Department of Medical Statistics, London School of Hygiene & Tropical Medicine, Keppel Street, London WC1E 7HT, United Kingdom and Centre for Longitudinal Studies, UCL Social Research Institute, University College London, 20 Bedford Way, London WC1H 0AL, United Kingdom.

**Global Asthma Network Principal Investigators:** Chile: J Mallol, University of Santiago de Chile (USACH), Santiago, (South Santiago); Costa Rica: M Soto-Martinez, University of Costa Rica (Costa Rica); Ecuador: A Cabrera Aguilar Respiraclinic, Planta Baja, Código (Quito); Greece: K Douros, National and Kapodistrian University of Athens (Athens); India: M Sabir, Kothari Medical & Research Institute (Bikaner); M Singh, Postgraduate Institute of Medical Education and Research (Chandigarh); V Singh\*, Asthma Bhawan (Jaipur); TU Sukumaran, Pushpagiri Institute Of Medical Sciences And Research, Thiruvalla (Kottayam); S Awasthi, King George's Medical University (Lucknow); SK Kabra, All India Institute of Medical Sciences (New Delhi); S Salvi, Chest Research Foundation (Pune); Mexico: R García-Almaráz, Hospital Infantil de Tamaulipas (Ciudad Victoria); JV Mérida-Palacio, Centro de Investigacion de Enfermedades Alergicas y Respiratorias (Mexicali); BE Del Río Navarro\*, Service of Allergy and Clinical immunology, Hospital Infantil de México (Mexico City North); SN González-Díaz, Centro Regional de Alergia e Immunología Clínica, Hospital Universitario "Dr. José Eleuterio González", Universidad Autónoma de Nuevo León (Monterrey); EM Navarrete-Rodriguez, Hospital Infantil de Mexico Federico Gomez (Toluca urban); New Zealand: MI Asher, Department of Paediatrics: Child and Youth Health, Faculty of Medical and Health Sciences, University of Auckland (Auckland); Nicaragua: JF Sánchez, Hospital Infantil Manuel de Jesús Rivera (Managua); Nigeria: A Falade, University of Ibadan and University College Hospital (Ibadan); South Africa: HJ Zar, SA MRC Unit on Child & Adolescent Health (Cape Town); Spain: A López-Silvarrey Varela, Fundacion Maria Jose Jove (A Coruña); C González Díaz, Departament of Paediatrics, Universidad del País Vasco UPV /EHU, Bilbao, Spain (Bilbao); L García-Marcos\*, Pediatric Allergy and Pulmonology Units, Virgen de la Arrixaca University Children's Hospital, University of Murcia and IMIB Bioresearch Institute, Murcia; and ARADyAL Allergy Network, Edificio Departamental-Laib, Murcia, Spain (Cartagena); Sudan: M Nour, Epidemiological Laboratory (Epi-Lab) for Public Health, Research and Development, Khartoum, Sudan (Khartoum); Syrian Arab Republic: G Dib, Lattakia University (Lattakia 13-14); Y Mohammad\*, National Center for research and training for chronic respiratory disease and co morbidities (Lattakia 6-7); Taiwan: J-L Huang, Department of Pediatrics, Chang Gung Memorial Hospital, New Taipei Municipal TuChen Hospital, and Chang Gung University (Taipei); Thailand: S Chinratanapisit, Department of Pediatrics, Bhumibol Adulyadej Hospital, Royal Thai Air Force, Bangkok, Thailand (Bangkok).

\* National Coordinators

#### Global Asthma Network National Co-ordinators not named above

Costa Rica: ME Soto-Quirós, University of Costa Rica, Costa Rica; Sudan: A El-Sony, Epidemiological Laboratory for Public Health and Research, Khartoum 3 Block3-Building 11, Khartoum, Sudan; Thailand: P Vichyanond, Mahidol University, Bangkok, Thailand. **ISAAC Phase Three Principal Investigators:** Chile: P Aguilar, Hospital CRS El Pino, San Bernardo, Santiago, Chile (South Santiago); Costa Rica: ME Soto-Quirós\*, University of Costa Rica (Costa Rica); Ecuador: S Barba\* AXXIS-Medical Centre SEAICA (Quito); India: M Sabir, Kothari Medical & Research Institute (Bikaner); L Kumar<sup>†</sup>, Department of Pediatrics (Chandigarh); V Singh, Asthma Bhawan (Jaipur); TU Sukumaran, PIMS Thiruvalla (Kottayam); S Awasthi, King George's Medical University (Lucknow); SK Sharma, All India Institute of Medical Sciences (New Delhi [7]); NM Hanumante, Bharati Vidyapeeth Medical College (Pune); Mexico: R García-Almaráz, Hospital Infantil de Tamaulipas (Ciudad Victoria); JV Merida-Palacio, Centro de Investigacion de Enfermedades Alergicas y Respiratorias (Mexicali Valley); BE Del-Río-Navarro, Service of Allergy and Clinical immunology, Hospital Infantil de México (Ciudad de México [1]); SN González-Díaz, Centro Regional de Alergia e Immunología Clínica, Hospital Universitario "Dr. José Eleuterio González", Universidad Autónoma de Nuevo León (Monterrey); FJ Linares-Zapién, Centro De Enfermedades Alergicas Y Asma de Toluca (Toluca); New Zealand: MI Asher\*, Department of Paediatrics: Child and Youth Health, University of Auckland (Auckland); Nicaragua: JF Sánchez\*, Hospital Infantil Manuel de Jesús Rivera (Managua); Nigeria: BO Onadeko, (Ibadan); South Africa: HJ Zar\*, University of Cape Town (Cape Town); Spain: A López-Silvarrey Varela, Fundacion Maria Jose Jove (A Coruña); C González Díaz, Departament de Paediatrics, Universidad del País Vasco UPV /EHU, Bilbao, Spain (Bilbao); L García-Marcos\*, Pediatric Allergy and Pulmonology Units, Virgen de la Arrixaca University Children's Hospital, University of Murcia and IMIB Bioresearch Institute, Murcia; and ARADyAL Allergy Network, Edificio Departamental-Laib, Murcia, Spain (Cartagena); Sudan: OAA Musa, Faculty of Medicine, National Ribat University, Khartoum, Sudan (Khartoum); Syrian Arab Republic: Y Mohammad, National Center for Research and Training in Chronic Respiratory Diseases - Tishreen University (Lattakia); Taiwan: J-L Huang\*, Department of Pediatrics, Chang Gung Memorial Hospital, New Taipei Municipal TuChen Hospital, and Chang Gung University (Taipei); Thailand: P Vichyanond\*, Mahidol University (Bangkok).

- \* National Coordinators
- † Deceased

**ISAAC Phase Three National Co-ordinators not named above:** Chile: V. Aguirre, University of Santiago de Chile (USACH), Santiago, Chile; Mexico: M Baeza-Bacab, University Autónoma de Yucatán, Yucatán; Sudan: A El Sony Epidemiological Laboratory for Public Health and Research, Khartoum; Syrian Arab Republic: S Mohammad, Tishreen University, Lattakia.

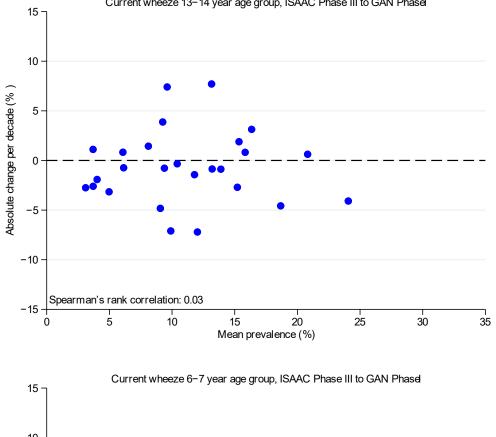
ISAAC Phase One Principal Investigators: Chile: E Cortéz, Universidad de Santiago de Chile (USACH), Santiago, Chile (South Santiago); Costa Rica: ME Soto-Quirós\*, University of Costa Rica (Costa Rica); Greece: CH Gratziou\*, National Kapodistrian University of Athens (Athens); India: L Kumar†, Department of Pediatrics (Chandigarh); TU Sukumaran, PIMS Thiruvalla (Kottayam); K Chopra, Maulana Azad Medical College (New Delhi [7]); NM Hanumante, Bharati Vidyapeeth Medical College (Pune); New Zealand: MI Asher\*, Department of Paediatrics: Child and Youth Health, University of Auckland (Auckland); Nigeria: BO Onadeko, (Ibadan); South Africa: H Nelson, Horsett Hospital (Cape Town); Spain: AD Rubio, Urgencias de Pediatria. Pabellon Makua, Bilbao, Spain (Bilbao); L García-Marcos\*, Pediatric Allergy and Pulmonology Units, Virgen de la Arrixaca University Children's Hospital, University of Murcia and IMIB Bioresearch Institute, Murcia; and ARADyAL Allergy Network, Edificio Departamental-Laib, Murcia Spain (Cartagena); Taiwan: K-H Hsieh†, Chang Gung Children's Hospital (Taipei); Thailand: P Vichyanond\*, Mahidol University (Bangkok).

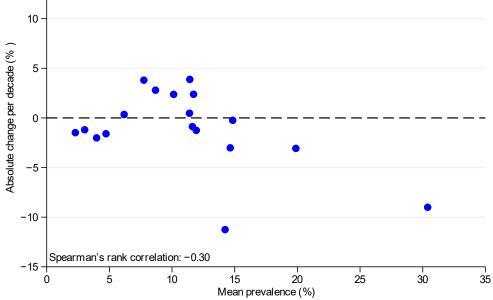
\* National Coordinators

† Deceased

**ISAAC Phase One National Co-ordinators not named above:** Chile: J Mallol, University of Santiago de Chile (USACH), Santiago, Chile; India: J Shah, Jaslok Hospital & Research Centre, Mumbai. Web Figure 1

Bland Altman plots which examined, for current wheeze, the relationship between change in prevalence and average prevalence between time points for both age groups.

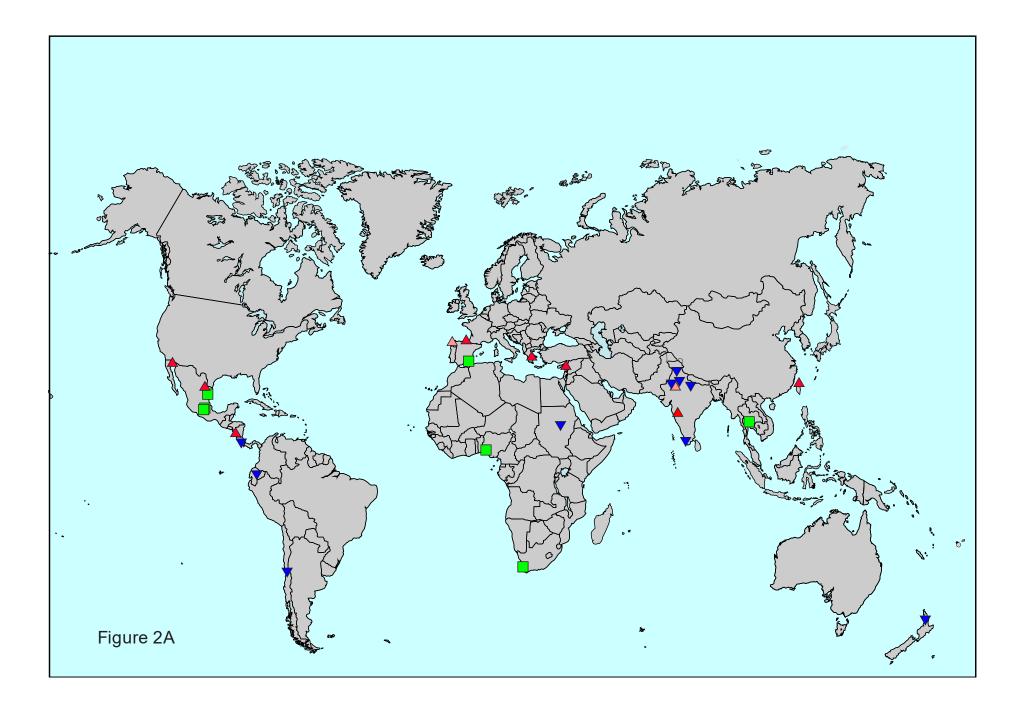


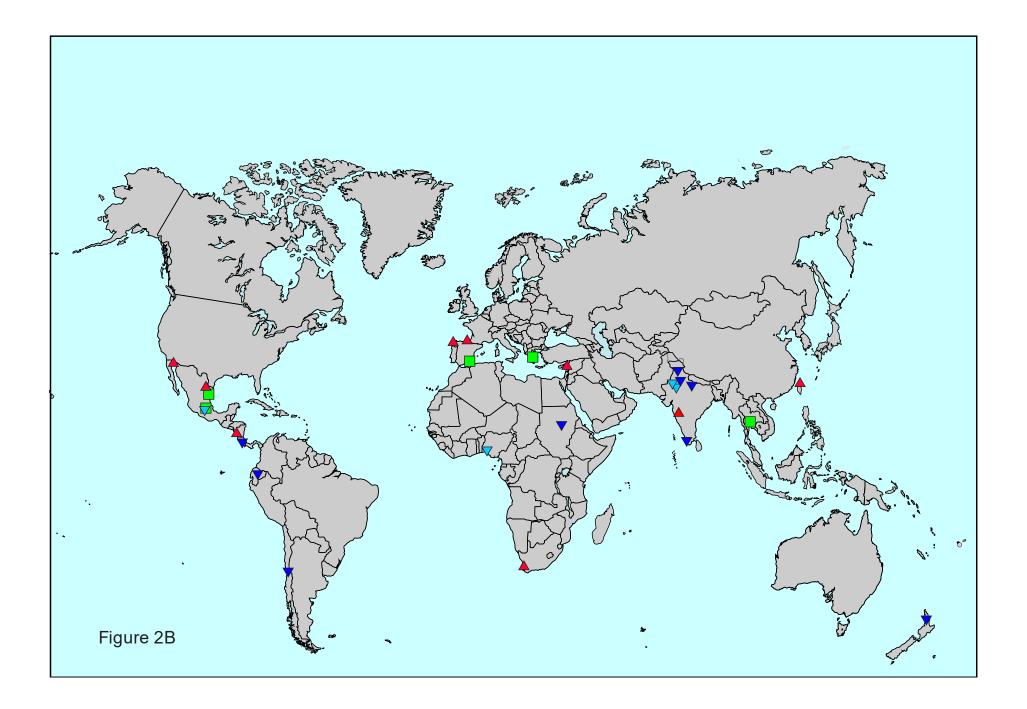


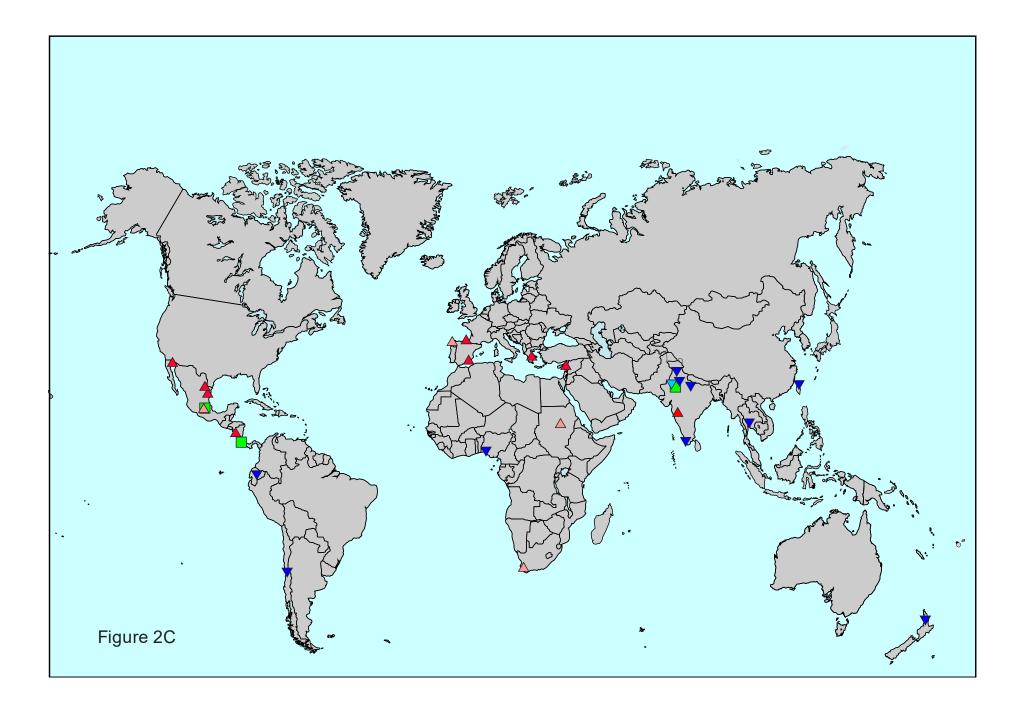
Current wheeze 13-14 year age group, ISAAC Phase III to GAN Phasel

#### Web Figure 2

World map of centres, for 13-14 year olds (adolescents) showing changes in prevalence per year expressed as standard error (SE) per year, with dark blue triangle = prevalence reduced by  $\geq$ 2 SE, light blue triangle = prevalence reduced by  $\geq$ 1SE, green square = little change in prevalence <1 SE per year, light red triangle = prevalence increased by  $\geq$ 1 SE, dark red triangle = prevalence increased by  $\geq$ 2 SE: for current wheeze (2a), severe asthma symptoms (2b) and asthma ever (2c). Athens, included here, undertook ISAAC Phase I but not ISAAC Phase III.







### Web Figure 3

World map of centres, for 6-7 year olds (children) showing changes in prevalence per year expressed as standard error (SE) per year, with dark blue triangle = prevalence reduced by  $\geq$ 2 SE, light blue triangle = prevalence reduced by  $\geq$ 1SE, green square = little change in prevalence <1 SE per year, light red triangle = prevalence increased by  $\geq$ 1 SE, dark red triangle = prevalence increased by  $\geq$ 2 SE: for current wheeze (3a), severe asthma symptoms(3b) and asthma ever (3c).

