University of Birmingham

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Professor of Environmental & Respiratory Medicine

Occupational and Environmental Medicine

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About

Jon Ayres is Professor of Environmental & Respiratory Medicine and Head of the Institute of Occupational and Environmental Medicine.

He has published over 300 research papers, reviews and editorials in scientific journals as well as a number of reports for various government departments. These have been in the fields of asthma treatment and management and the influence of environmental factors on health notably outdoor and indoor air pollution. He has received major grants from the MRC, NERC and the Department of Health.

He has been an advisor to Government on air pollution for over 20 years and also advises a range of learned societies on environment and health issues.

Qualifications

- Fellow of the Royal College of Physicians and Surgeons of Glasgow (ad eundem) 2008
- Fellow of the Faculty of Occupational Medicine 2005
- Fellow of the Royal College of Physicians of Edinburgh 2004
- Fellow of the Royal College of Physicians 1989
- MD 1984
- MB BS 1974
- BSc (Hons) 1st 1971

Biography

Jon Ayres studied medicine at Guy's Hospital, qualifying in 1974 having obtained a 1st in an intercalated BSc in medical sciences in 1971. He obtained an MD at the University of London on alcohol and asthma in 1984 having been appointed as a consultant physician to the then East Birmingham Hospital in the same year. He developed a keen research interest in the effects of air pollution on health through human challenge studies and epidemiology. In 2002 he was appointed as Head of the Department of Environmental & Occupational Medicine at the University of Aberdeen returning to Birmingham, this time to a University post, in 2008.

He has been chair of the Dept of Health's Committee on Medical Effects of Air Pollution (COMEAP) since 2001 and chair of DEFRA's Advisory Committee on Pesticides (ACP) since 2005. He was the sole medical member of the Royal Committee on Environmental Pollution until its abolition in 2011.

Teaching

- **Occupational Health MSc/Diploma (/postgraduate/courses/taught/med/occupational-health.aspx)**
- **Science of Occupational Health, Safety and the Environment MSc/Diploma (/postgraduate/courses/taught/gees/science-occupational-health-safety-environ.aspx)**

Postgraduate supervision

He is interested in supervising doctoral research students in the following areas:

• Air pollution and health
• Occupation and the lung
• Effects of pesticides on health.

If you are interesting in studying any of these subject areas please contact him on the contact details above, or for any general doctoral research enquiries, please email: **dr@contacts.bham.ac.uk (mailto:dr@contacts.bham.ac.uk)** or call +44 (0)121 414 5005.

For a full list of available Doctoral Research opportunities, please visit our **Doctoral Research programme listings (http://www.bham.findaphd.com/?es=y&apl=y&aplt=&show)** .

Research

RESEARCH ACTIVITY

Nanoparticles and Health

He has been active in understanding the health impacts of particles below a micron in size (nanoparticles are <100 nano metres in size) for many years. Recently with colleagues in Biological Sciences and with the University of Aberdeen he has gained a NERC/MRC grant on the nanoparticles. We will measure levels of metallic nanoparticles in ambient air, characterise them physioc-chemically, track how they enter cells and then measure their toxicity bit in cellular systems and in intact organisms.

Outdoor Air Pollution

He has been researching the effects of outdoor air pollution since the late 1980s and was responsible for the first UK study which informed Government on the size of the health effect in the UK. His research is now largely based on epidemiological studies but in the past human challenge studies have yielded significant and important information both on particulate exposures and gaseous exposures.

Indoor Air Pollutions

Biomas smoke exposure

Through work in Nepal and Malawi he has shown the effects of differential toxicity from different solid fuels (notably animal dung and wood) and their impact on health. Work in Nepal has shown by teenage years there is an effect on lung function suggesting an influence on lung growth.

Environmental Tobacco Smoke Exposure

He has conducted work both in Scotland and England on the effects of the smoking bans on the health of bar workers showing a marked reduction in respiratory symptoms even in those bar workers who themselves continued actively to smoke. One key paper showed a reduction in admissions for asthma in children following the ban in Scotland which was published in the New England Journal of Medicine in 2010. These findings suggest that side stream smoke is considerably more toxic than main stream smoke on a mass for mass basis.

Occupational COPD

He is currently involved in two research projects which consider different aspects of occupation and COPD. An HSE funded study (led by Imperial College) will define the contribution of occupational exposures to the development of COPD while an NIHR funded cohort of 2000 COPD patients is being set up in Birmingham one component of which is to look, in those still at work, how COPD influences work capability in terms of absenteeism and presenteeism. This is the first such prospective study of its type in COPD, the only chronic disease which is increasing worldwide.

Other activities

- COMEAP (Dept of Health) He has been a member since this committee's inception in 1992 and chair since 2001. This committee has been fundamentally important in helping construct the Government's Air Quality Strategy and in providing up to date information on air quality to the general population through the banding system on DEFRA's and DH's websites.
- He is also currently a member of 2 COMEAP sub-committees – the quantification committee (QUARK) and the air quality standards committee (CSAS)
- He has been chair of DEFRA's Advisory Committee on Pesticides (ACP) for the last 6 years, a key committee with regulatory activity as well as acting as a source of advice to government ministers

Publications

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Wood AM, Harrison RM, Semple S, Ayres JG, Stockley RA. Particulate matter is associated with rapid decline of lung function in alpha 1 antitrypsin deficiency. OEM 2010;67:556-61.

Mackay D, Haw S, Ayres JG, Fischbacher C, Pell JP. Impact of comprehensive, smoke-free legislation on the incidence of childhood asthma. NEJM 2010;363:1139-45

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