

AIRWAVE NEWSLETTER 2023

The Airwave Study is one of the largest occupational studies in the UK and is the largest in the world on the police force. Your involvement has not only helped us to answer the original research questions about health and personal Airwave radio use, but also continues to be a valuable source of data that can be used for other studies. Since we last wrote to everyone in the Airwave cohort back in 2019, research across the globe has mainly focused on understanding and monitoring COVID-19. As we recover from the pandemic, Airwave is back to full speed operations. We have resumed the follow-up health screening programme and continue to investigate both occupational and other factors that may affect your future health.



For example, we are planning to analyse some of your stored blood samples for biological markers that will help us to understand the pathways leading to chronic diseases such as heart disease, diabetes, cancer and Alzheimer's disease, and give a better understanding of the mechanisms which may lead to new treatments.

None of this would have been possible without the support of you, the Airwave participants. We would like to thank you all for your support over the years, and look forward to working with you over the coming decades. I hope that you find the content of our newsletter useful and interesting.

Professor Paul Elliott, CBE, [Airwave Principal Investigator](#)

CONTRIBUTION TO COVID-19 RESEARCH

A big thank you to the 5,000 Airwave participants across England who took part in our COVID research as part of the ICL REACT Programme. This valuable study played a key role in monitoring the coronavirus in England, understanding its transmission and impact, and enabling the Government decision-making to ensure that policies are based on the best available evidence.

Another big thank you to the 800 Airwave participants in and around London who participated in the ICL-Siemens Healthineers study in early 2021. This evaluated alternative ways of taking blood samples and testing people for the presence of COVID-19 antibodies to develop better home based sampling methods for antibody status.



Staff ready to test Airwave participants for the ICL REACT Programme



Study visit for COVID research

RESUMING THE HEALTH SCREENING PROGRAMME

We are delighted to announce that following a break of almost two years we are resuming the free follow-up health screening programme in Wales and Scotland for participants who were originally screened at least five years ago. You can find details of how to benefit from this opportunity by visiting our website <https://police-health.org.uk/follow-screening>. If you update your contact details and preferences by visiting our secure website <https://www.police-health.net/followup>, we will send you an invitation when we're in your neighbourhood. Instructions on how to do this are in the cover letter.

HEARING TEST AT HOME

Is your hearing as sharp now as it was when you first joined the police service? We are planning to offer a hearing test that you can do online at home. You'll get feedback on your performance, and there'll be a chance to repeat the test to detect changes over time. Just make sure we've got your current email address, and look out for the invite in your Inbox during the spring / summer 2023.

RESEARCH RESULTS

The Airwave Study continues to be a valuable source of data for other studies. We are delighted to report that your data have contributed to date to a total of around 40 publications in scientific journals covering diet, cancers, cardiovascular disease and mental health issues which have directly benefited from the data and samples collected by the Airwave Study. All the publications are available on our website <https://police-health.org.uk/publications>.

Some of this research might appear to be of interest to specialists, but it remains essential to build our understanding of the way our bodies function and are affected by our environments. For example:

- **Genetics, blood pressure and lifestyle:** Research using the Airwave study cohort provided biological insights into blood pressure regulation and highlighted the interactions between genetics, blood pressure and lifestyle exposures. Their findings identify new biological pathways for blood pressure regulation with potential for improved cardiovascular disease prevention in the future. The full paper is available at <https://pubmed.ncbi.nlm.nih.gov/30224653/>
- **Diet, weight and diabetes risk:** This research shows the importance of a healthy diet high in wholegrains along with maintaining a healthy weight in controlling HbA1c (a component of blood used to identify diabetes) among high-genetic-risk groups. You can read this paper online by visiting <https://onlinelibrary.wiley.com/doi/10.1002/edm2.74>.
- **Mental health, blood pressure and the police force:** The mental health of emergency services personnel has become a key area of concern in recent years. This paper (which is available by visiting <https://pubmed.ncbi.nlm.nih.gov/33180769/>) indicates lower rates of mental disorders than reported in other studies focusing on police employees.

It found that while mental ill health was linked with increased diastolic blood pressure, it was unlikely to be clinically significant.

- **Diet and the police force:** This paper (which is available by visiting <https://pubmed.ncbi.nlm.nih.gov/29098424/>) concluded that the differences in diet quality found in the general populations of England and Scotland is also reflected in the the British police employees. The connection of longer working hours and the stress of the job with diet quality supports workplace nutritional interventions.



The team picking Airwave samples from the -180°C liquid nitrogen tanks at one of the storage facilities used by the study.

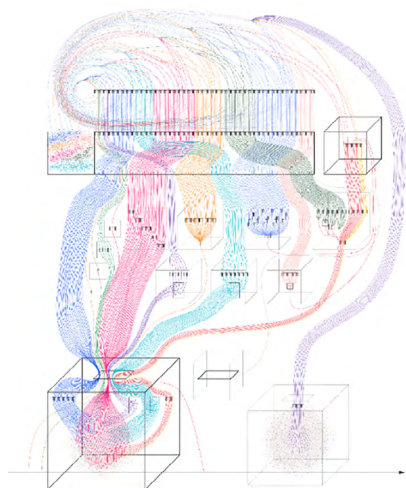
PARTICIPANT ADVISORS WANTED

We are looking for current members of the Airwave Study to join an advisory panel to help us improve our research into the health of police officers, staff, and the wider community. If you become an Advisor, our researcher team may invite you to group discussions on how we set priorities, design questionnaires, and communicate with the wider cohort. You may be invited to attend meetings (no more than two per year) either online or in person. To find out more visit our website <https://police-health.org.uk/ppie>.

AIRWAVE: A WORK OF ART

As well as contributing to scientific advances, the Airwave Study has also featured in the artistic domain. The artwork *Data Murmurations: Points in flight* by Stefanie Posavec was inspired by her meeting and interviewing Airwave participants. Stefanie Posavec's data-driven art practice investigated how the various stakeholders within a biobank (a repository for biological samples) perceive the 'people behind the numbers' who consent to their biological samples and data being used and stored for research.

Alongside this map, Stefanie created a series of drawings that present the various perspectives of study stakeholders from their 'positions' within the Airwave systems. She showed how their ability to 'see' the individual participant within the aggregated data changes depending on where they are located within the study system. These artworks can be viewed on the People Like You Website <https://peoplelikeyou.ac.uk/system/>.



SUPPORTING THE NHS & NATIONAL SCIENTIFIC DISCOVERIES

We would like to tell you about another exciting opportunity for Airwave to contribute to research on the nation's health. The Study has been invited to take part in the **UK Longitudinal Linkage Collaboration ("UK LLC")** which aims to create a national research resource for both scientific discoveries and to support the translation of those into NHS practice.

The UK LLC has been built and is run entirely through a collaboration of UK Universities, the NHS, and the Office for National Statistics.

It brings together **de-personalised** study data from over twenty research studies which will provide a rich source of data to investigate environmental and genetic influences on future health including COVID-19, cancer, heart disease, diabetes, dementia, and mental health. It will be kept up to date as time goes on using data obtained from participants' NHS health records.

As with all Airwave Study data, we appreciate the critical importance of ensuring the security and protection of participants' data. The data in LLC are held in a Trusted Research Environment (TRE) run by the University of Bristol. This is a computer system where approved researchers can access and study data in a way that safeguards participants' data. The TRE stores all data in the UK and researchers cannot remove data from the system. Its security is checked by NHS and ISO27001 professional auditors, ensuring it meets the global standard of security that the Airwave data are already held in by Imperial College. Airwave and the Police Federation will continue to control who can use your data for what purposes in the UK LLC.

You can find out more about the UK LLC at <https://ukllc.ac.uk/faq/>, and there is a short video available at <https://www.youtube.com/watch?v=zFkvpKD3jvs>.

Unless you tell us otherwise, we will include your data in UK LLC later this year, and there's nothing else you need to do. If you don't want your data to be included in UK LLC, please write to us at airwave@imperial.ac.uk or enter your information at <https://www.police-health.net/followup> and we'll ensure that your records are withheld.

ONGOING AND FUTURE WORK

We have a large and active research programme investigating both occupational and other factors that may affect your future health. For example, with funding from the Medical Research Council we are working with researchers at universities in Glasgow, Edinburgh, and Manchester on a study into the relationship between organisational risk factors, mental health, and other outcomes such as heart disease and stroke. This involves understanding what police employees in various roles might be exposed to in the course of their work, such as air pollution, occupational lead exposure, noise, radar, and other sources of electromagnetic frequency (EMF) radiation. We also aim to include other occupational stressors such as workload, shift work, work / life balance, traumatic events, physical violence and other abuse.

As part of our programme, we are planning to analyse some of the stored blood samples for biological markers such as proteins and small molecules in the blood. This will help understand the pathways leading to chronic diseases such as heart disease, diabetes, cancer and Alzheimer's disease, and give a better understanding of the mechanisms which may lead to new treatments.

CANCER

The work includes protein analyses undertaken in collaboration with Somalogic, a leading life-sciences organisation who provide world leading analytic capabilities in this important area of discovery research. Specifically, in the area of cancer there have been few new developments in diagnostics over the past 40 years and this new discovery approach may identify early markers of disease that could lead to earlier and better diagnosis and treatment.

ALZHEIMER'S DISEASE

For all of us our mental abilities change over time and we want to understand what are the biological and lifestyle factors which determine the trajectory of these changes. Many of you completed a cognitive test when you joined the study. We now are asking you to take a further set of tests which we hope you will find both fun and enjoyable, and will help us investigate how and why our cognitive abilities change over time. Ultimately, the results of this research may identify factors which will help prevent, delay, or treat Alzheimer's disease, hopefully many years before its onset.



Sample analyser at Affinity Biomarker Lab

HELP US TO SAVE THE PLANET



When we began the Airwave study back in 2003, people communicated mostly by letter, telephone and fax. Since then, digital communication has become an important part of how we stay in touch. About 50% of our cohort have provided us with an email address, and we would like to communicate with everyone this way. The environmental and financial cost of keeping in touch by post has increased drastically over the last few years. If you are reading this online then we thank you for providing an email address, if you received a paper copy then we were unable to contact you by email. It is also a lot easier to link to the associated information from the online version. By registering your email address with us we can save trees and energy and spend more money on the research.

If you have not yet updated us with your email details, please do so at <https://www.police-health.net/followup>. You can opt out of receiving emails at any time.

You can opt out of receiving Airwave Study newsletters and this will not affect your continued inclusion in the Airwave study. Please see the study privacy notice page of the website for more details <https://police-health.org.uk/imperial-college-research-privacy-notice>. To opt out of receiving newsletters, please notify us via <https://www.police-health.net/followup> or email airwave@imperial.ac.uk.