

Tasmanian Longitudinal Health Study

The Tasmanian Longitudinal Health Study (TAHS) is a world leader in respiratory health and lung diseases.

You, the TAHS participants, have made this possible. We thank you all! This newsletter brings you the latest news on the TAHS, our recent achievements, and our plans into the next decade.

About the TAHS

TAHS is the world's largest and longest-running study of respiratory health. In 1968, over 50 years ago, it enrolled 8,500 Tasmanian school children born in 1961 in a study of asthma, a condition more common in Australia and New Zealand than almost anywhere else. The researchers measured lung function in all the children, and the parents filled in a questionnaire on themselves, their child in the study, and their other children. All up, over 45,000 people were part of the TAHS in 1968.

We continue to build on this pioneering work, and we now have a wealth of data tracking lung health over five decades. TAHS is leading the world in understanding lung health and helping to prevent lung disease, particularly obstructive lung disease.

Our generous TAHS participants



Longitudinal studies such as TAHS follow a group of people over time, to learn about patterns and pathways of health and disease. If such studies are to be successful, it is vital that as many as possible of the participants remain involved in the long term.

You, our TAHS participants, have been outstanding in this regard. After 50 years, you continue to support the study and provide your invaluable contributions.

What motivates you? In one of our follow-up studies, we asked some people, 'What made you decide to attend the testing laboratory?' Over nine in ten of them (90.7%) said it was because their contribution could benefit the community and help find cures. They told us they were very interested in the study, the research was important to them, and they were willing to help with it.

Taking the TAHS into another decade

Our TAHS participants are now entering their 60s – the 7th decade of life. It's an important milestone, as the risk of developing various chronic lung diseases increases from 60 years of age. We need to be able to detect these diseases as early as possible, so we can reduce their impact.

We are planning our 7th decade follow-up, to start in the next few years. We would very much

like you to take part in it.

If you are interested, we will send you a survey that asks about both your general health and your lung health. Even if you are healthy, we hope you will complete and return the survey. It is just as important to discover the factors that are linked to good health as it is to know those linked to poor health. Following the survey, we plan to invite you to participate in a clinical study, which includes some simple breathing tests to assess your lung health. These tests are completely safe and commonly performed in health clinics. We also plan to include a Computed Tomography (CT) scan of your chest. The information gained from the breathing tests and a CT will help us make a more thorough assessment of your lung's condition.



Photo (left to right): Ms. Kirralee (CT modality manager from I-Med), Dr. Raisa Cassim (TAHS research staff)

We ran a small CT feasibility study

At the start of 2021, we ran a small study to find out whether TAHS participants would be happy to have a CT scan as part of our 7th decade follow up. The answer was a resounding 'Yes'.

We invited 30 participants around Hobart to have a CT scan at the Calvary Hospital in the Lenah Valley. The appointments were booked out weeks ahead and all 30 participants arrived on time – even early! We thank them all. Thanks also to the team at IMED Radiology Network for their help. We plan to expand our testing sites so we can scan more participants in our 7th decade follow up.

Meet some of our TAHS researchers



Photo (left to right): Prof. Shyamali Dharmage, Prof. Michael Abramson, Prof. Haydn Walters, Dr. Jennifer Perret, Dr. Dinh Son Bui, A. Prof. Garun Hamilton, Dr. Richard Wood-Baker, Dr. Gayan Bowatte

Photo not shown: Prof. Gregory King, A. Prof. George Washko, Prof. Alvar Agusti Garcia Navarro, Prof. Christine McDonald, Dr. Kerry Handcock, Dr. Don Vicendese, A. Prof. Raul San Jose Estepar, A. Prof. Adrian Lowe, A. Prof. Caroline Lodge, Prof. Alan James, Prof. MeiLan Han

What we have achieved

Predicting Chronic Obstructive Pulmonary Disease (COPD)



COPD is common in Australia, particularly as we age. The sooner it can be diagnosed, the sooner treatment can start, to reduce its impact and maintain quality of life. But because there is no effective screening tool, COPD is often diagnosed late.

Our researchers took up the challenge. Their aim was to find ways to identify, in middle age, those people who are at high risk of developing COPD as they get older.

Our extraordinary TAHS database has allowed us to track changes in lung function over the decades. We found six different patterns, or 'trajectories' of lung health, three healthy and three unhealthy. The unhealthy trajectories captured most of the TAHS participants who had already developed COPD. They also revealed factors in early life that had led to that COPD, including childhood asthma, bronchitis, and pneumonia.

We now plan to look for unique 'biomarkers' for each lung function trajectory – a biological 'tag' that would show which trajectory you are on, and therefore whether you are at high risk of developing COPD. We then plan to develop ways to promote the healthy trajectories and prevent the unhealthy ones.

Air pollution and lung health

Australians breathe some of the cleanest air in the world – but it doesn't take much pollution to cause respiratory problems. While many 'snap-shot' studies have established a link between air pollution and respiratory problems, the TAHS is one of very few studies in the world investigating the impact of air pollution on respiratory health over time.

Despite Australia's low air pollution, we found that, over a period of 5 years, TAHS participants who lived within 200 metres of a major road had a 50% higher risk for asthma, wheezy breathing and lower lung function, than those who lived further away. Genetic make-up, however, also plays a role. In particular, we found that people who don't carry the gene GSTT1 are at higher risk of asthma and wheezy breathing.



Understanding Sleep Apnea

In sleep apnea, your breathing repeatedly pauses while you are asleep. It becomes increasingly common with age, and particularly with weight gain. Not only does it disrupt sleep, but it can also contribute to a number of other long-term health risks.

To learn more about sleep apnea, we asked some TAHS participants to take part in an overnight sleep study. With the extra information this provided, we learned about differences in the causes of sleep apnea and the ways it presents in different people. For example, some people may have daytime fatigue, high blood pressure and brain fog, while others may have none of these symptoms. We also found that the symptoms of night-time asthma and sleep apnea can be similar, and our research showed an overlap between the two conditions.

Based on these findings, we worked out how health professionals can best use existing screening questionnaires to identify those who would benefit from an overnight sleep study to check for sleep apnea.

With this state-of-the-art approach to screening and diagnosis of sleep apnea, we continue to make health professionals more aware of sleep disorders and how to manage them, and to broaden community understanding of these disorders.



Don't leave your doctor out of your Asthma Action Plan

If you have asthma, one of the most effective ways to manage it is to have an Asthma Action Plan. You should see your doctor regularly to review the plan, so you keep your asthma as well controlled as possible, and know what to do if symptoms get worse.

Even so, we found that less than half of TAHS participants with ongoing asthma had seen a doctor for their symptoms in the last 12 months, and even fewer had asked a pharmacist for advice. On the up side, 80% of TAHS participants with asthma had been trained in how to use their inhaler.

WOULD YOU LIKE TO READ OUR PUBLICATIONS?

If you would like to read some of TAHS published papers in a pdf format, please contact the TAHS team via email or give us a call on 1800-110-711



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Still learning from the 5th decade follow-up

Although the 5th-decade follow-up was completed almost two decades ago, we continue to learn from it. It has given us a better understanding of how chronic asthma and/or smoking can obstruct airflow. Importantly, we also now know that if growth in lung function is slowed during childhood, the body is less able to defend against further lung damage in adulthood. For individuals, these changes are usually small, but they can have a large impact across the population.

We are now developing a model to identify people in their mid-forties who could benefit from lung function screening, even if they do not have symptoms. This would make it possible to focus on reducing risk factors in those who need it.

Learning from the 6th decade follow-up

With our 6th decade follow-up complete, we now have health data spanning over half a century. Using this unique database, we are looking into factors that contribute to a rapid decline of lung function in middle age. In particular, we are exploring the relationship between long-term asthma and chronic lung function changes, as well as outdoor air pollution and its impact on respiratory health. The 6th decade follow-up repeated a number of lung function tests we'd done in the 5th decade follow-up, including spirometry before and after Ventolin, to assesses the calibre of the lung tubes; gas transfer factor, to measure how easily gases diffuse from the lungs into the blood stream; and skin prick tests to look for allergic reactions. We also collected data to assess dietary influences, women's health, occupational lung disease, and even sleep quality.

For more information on our next follow-up study, or to change your participation, contact us on: Phone: 1800-110-711 (free call in Australia) Email: ing-tas@unimelb.edu.au

HOW TAHS IS CHANGING POLICIES

- Our work is advancing a new area of research that focuses on the earlylife development of COPD.
- Our research on sleep apnoea is influencing how clinicians manage and refer Australians with suspected sleep apnoea for an overnight sleep study.
- Our lung function models can be used to identify people who could benefit from lung function screening, even when they do not have symptoms.

MORE INFORMATION ABOUT THE TAHS?

Contact us

Phone: 1800-110-711 (free call in Australia)

Email: <u>inq-tas@unimelb.edu.au</u>

Visit us at: <u>www.tahs.com.au</u>

You can also help us reach you by updating your contact details using the 'contact us' form on our website, at: www.tahs.com.au/contact-us/