



You can help us
PREVENT FUTURE SUFFERING FOR OTHERS

Inside:

Changing the lives of terminally ill cancer patients

Helping asthma sufferers breathe more easily

A big thank you for your feedback and inspiration

Busting clots and saving stroke victims from brain damage

The best tool for assessing aged care patients? A kettle.

New chest catheter changing the lives of terminally ill cancer patients.

A new catheter, developed by researchers from Sir Charles Gairdner Hospital and UWA, is helping patients in the final stages of lung cancer, breast cancer and mesothelioma breathe more easily and spend precious time at home, rather than in hospital.

Helping patients breathe

Patients with mesothelioma (a tumour of the internal organs) and lung and breast cancers often suffer from an uncomfortable, potentially dangerous daily build-up of fluid in the chest. The build-up impairs breathing and requires hospitalisation for invasive and often painful procedures.

The new catheter enables patients to drain fluid from their

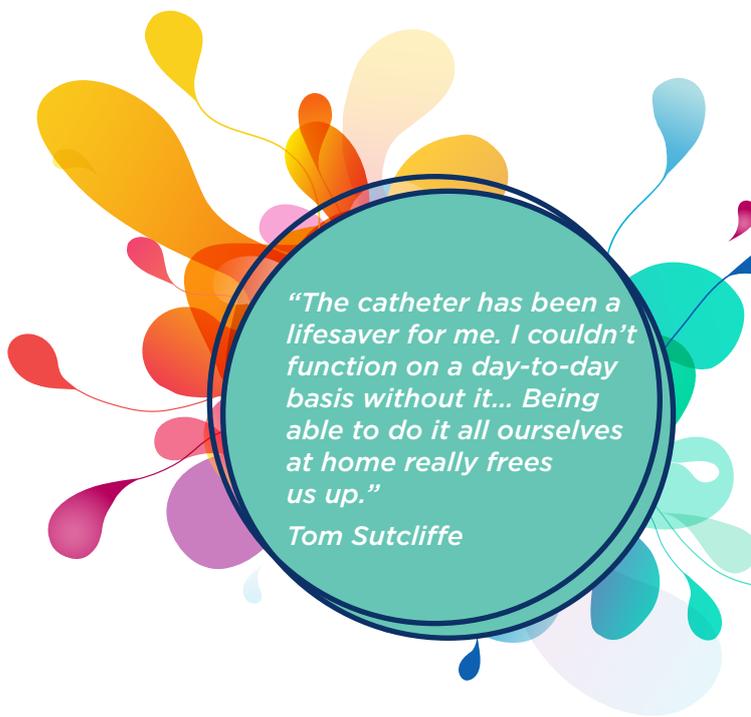
lungs and chest themselves and, crucially, enjoy more time in their last weeks and days at home. In fact, the innovative implant has the potential to almost halve the amount of time patients have to stay in hospital.

The potential to improve lives worldwide

Researchers conducted a study of almost 150 patients and estimated that, with more than 8,000 cancer

and mesothelioma patients across Australia suffering with breathlessness, the new device could save hospitals up to 14,000 bed days and \$20 million a year.

Even more impressively, the catheter could help bring relief to around one million patients worldwide.



“The catheter has been a lifesaver for me. I couldn’t function on a day-to-day basis without it... Being able to do it all ourselves at home really frees us up.”

Tom Sutcliffe

And breathe: A breakthrough in treatments for asthma and airway diseases.



Clinical Professor Alan James, at the Department of Pulmonary Physiology and Sleep Medicine at Sir Charles Gairdner Hospital, is leading the search for more effective treatments for everything from asthma to smoking-related chronic obstructive pulmonary diseases (COPDs) like emphysema.

Traditionally, a whole host of lung and airway diseases have been grouped together and treated in similar ways by physicians, but a growing body of research suggests there's a better way.

Professor Alan James at Charlies and his research partners are at the forefront of this research, pioneering new ways to diagnose and treat asthma and COPDs.

The difference between asthma and COPDs

"With support from Charlies Foundation for Research, we've been looking at muscles in the airways, and particularly the matrix (the fibrous network of tissue) around the muscles and how they interact and differ in asthma and smoking-related lung diseases," explained Professor James.

"By developing sampling techniques and a measuring method called soteriology, we've been able to show that people who have asthma have more muscle and bigger muscle cells. The amount of muscle you have is related to the severity of your asthma and, surprisingly, isn't related to how long you've had asthma.

"The amount of muscle you have is related to the severity of your asthma."

"So, one theory is that people with this increase in muscle may have had it from – or before – birth. Then, if you get another problem, like an allergy, you might end up with asthma. This is what happens with people who have thunderstorm asthma. They've got a strong allergy and probably have more muscle, but it's only when they have a strong exposure to pollen that the muscle contracts and causes problems," he added.

On the other hand, the balance of airway muscle and matrix is different in people who have chronic smoking-related pulmonary diseases.

Different treatments for different conditions

"The airways narrow excessively and variably with asthma, but with people who smoke and get airway diseases, their airways don't narrow and contract – it's like the airways are stiff and fixed," said Professor James. "What we've discovered is that, not only is the muscle layer fixed in people with a COPD,

"When we learn how to treat this matrix, we can help some people with severe asthma improve their airways as well."

Did you know?

- 1 in 7 Australians 40 years or over experience airflow limitation
- COPD is the second leading cause of avoidable hospital admissions
- COPD is still a leading cause of death and disease burden after heart disease, stroke and cancer

“Knowledge of this kind of variation is already improving the way we treat people with asthma and chronic obstructive pulmonary diseases.”

Did you know?

- Around 2.5 million Australians (1 in 9) have asthma
- There were almost 40,000 asthma-related hospitalisations in 2014-15
- There were 419 deaths due to asthma in 2014

but there’s more matrix relative to the muscle, in contrast to asthma sufferers.

“What that tells us is that fixed airflow obstruction (in COPDs) is totally different from asthma and should be treated differently and, possibly, target the matrix in the airway.

“Instead of treating people with COPD with drugs that work for asthma, we should really be looking somewhere else to see what we can do about this matrix. When we learn how to treat this matrix, we can help some people with severe asthma improve their airways as well.”

A pioneering diagnostic tool

Much of the research conducted by Professor James and his partners from around the world has focused on samples taken from patients during surgery or post mortem.

However, Professor James and his colleagues at the University of Western Australia and Fiona Stanley Hospital are currently refining a new diagnostic technique that enables physicians to assess airway muscle and matrix under anaesthetic.

Professor James said, “Our studies have taught us how to measure smooth muscle in specimens, and now we’re translating that into a technique called optical coherence tomography (OCT) using laser technology to look through the airway wall in people who are alive and well, then translate that into trials to see if the treatments we use can reduce the muscle.

New treatments on the horizon

“We’ve already got data that show airway structures vary from person to person in patients with asthma, so treating all people with asthma with the same treatment is not justified.

“This (OCT) can help identify where the muscle is larger in the big airways, in which case the patient may be suitable for treatments such as thermoplasty, where you heat up the muscle in the airways. Similarly, it will also help identify people with more muscle further down (small airways), who might do better with small-particle inhalers that may reverse some of the muscle thickening.

“We don’t have an everyday test yet, but our aim over the next three years is to develop the OCT hardware and improve the signal we get from the muscles to make it easier to collect data and turn it into something that can be used as a diagnostic tool.

“This is the start of a change for respiratory physicians around the world. Knowledge of this kind of variation is already improving the way we treat people with asthma and chronic obstructive pulmonary diseases.”

To support more research initiatives like Alan’s, please visit charliesfoundation.org.au where you can make a secure online donation.



A big thank you for your feedback and inspiration.

The generosity of our donors always amazes me. Your donations change and save lives. But earlier this year, when we distributed a survey to our donors, I was blown away by a different kind of contribution – your time and insights.

Many of our donors have a very personal connection with Charlies, as well as Charlies Foundation for Research – a fact that shines through in the overwhelming number of survey responses we received.

Within them, we found a wealth of insights and inspiration for ways we can take the Foundation forward, raising our profile and more funds for vital life-changing, life-saving research.

In fact, your feedback is already making a tangible difference and is actively guiding the Foundation’s board, our vision and the strategy that will get us there.

On behalf of our board and all the patients that benefit from your generosity, I can’t thank you enough. By taking a little time to complete our survey, you’ve made a big difference.



**Vicki Rasmussen, Executive Director,
Charlies Foundation for Research**



Clinical Professor John Walsh with honours student Cassandra Leatherbarrow.

Gene research that’s demystifying thyroid disease.

Professor John Walsh, a consultant endocrinologist at Sir Charles Gairdner Hospital, is shedding new light on thyroid function with ground-breaking genetic research that could transform treatments for thyroid disease.

A lack of options for thyroid disease

Thyroid hormones affect the body in myriad ways, often producing major changes in health indicators, such as cholesterol, blood pressure, body mass index and cardiovascular health.

But surprisingly, while thyroid disease affects up to 10 percent of the population, there are currently very few treatments available.

Opening the door to new treatments

Professor Walsh and his team of researchers are working to change this, with innovative research

designed to identify specific genes – and gene modifications – that influence thyroid function.

It’s hoped that this vital, cutting-edge research will provide insights that will lead to a new generation of treatments and therapies for thyroid conditions, including hyperthyroidism and hypothyroidism.

After recently securing additional funding for his research from the Medical and Health Research Infrastructure Fund, Professor Walsh and his team are continuing their pioneering research.



Meet the Charlies Foundation for Research Board.

Charlies Foundation for Research funds an array of research projects at Sir Charles Gairdner Hospital, thanks in no small part to the expertise and commitment of our board. With her vast experience and long attachment to Charlies, Sue Davis epitomises that expertise and commitment.

Sue's association with Charlies goes back to 1970, when she trained as a student nurse at the hospital, leaving in 1975 to pursue her career in palliative care, before returning to Charlies in 1995.

Today, as Nurse Director (Corporate Nursing, Research & Education) and member of the Nursing Executive Committee at Charlies, her remit spans the hospital.

"I love Charlies. It's got a really great culture. And I've got such an interesting job, supporting and planning the development of nursing roles and staff across the hospital," said Sue. "My role has such a broad scope, encompassing every nursing discipline."

This deep involvement and attachment makes her an invaluable member of the Foundation's board, with unique insights into how we can fund research that improves frontline care and outcomes.

In her day job, Sue plays a key leadership role at Charlies Centre for Nursing Education.

"We take about 2,000 student placements every year, and about 130 graduate nurses, but we also provide professional development for all the nurses in the hospital, including post-graduate courses," explained Sue.

Crucially, for us at Charlies Foundation for Research, Sue also spearheads the hospital's Centre for Nursing Research.

"The centre supports a lot of multidisciplinary research across the hospital, involving medical, clinical and allied health staff, as well as Murdoch University, Curtin University and Edith Cowan University. The nurses' research spans everything, from cancer and aged care, through to things like pressure injuries."

It's this hospital-wide knowledge that makes Sue so pivotal at the Foundation, as we work to raise the profile of the Foundation and research. Sue's professional knowledge helps us make research accessible for everyone at Charlies, including enabling and encouraging nurses throughout the hospital to get involved in – or even lead – research projects.

"One of the things we're doing is an eight-month program called Engaging in Research," said Sue. "The nurses get coached in research techniques, they have a mentor, and over the course of the program they lead a research project, which culminates in presenting their findings during Research Week."

"It's great because they develop a real understanding of how research works, building their knowledge and learning how to work with data."

"The result is that we have more nurses who are not only able to understand and apply research findings in their day-to-day roles, but who are also more likely to look for and pursue research opportunities themselves, which is good news for everyone."

Clot-busting heroes saving stroke victims from brain damage.

The clot-busting team at Charlies' Neurological Intervention & Imaging Service of WA (NIIwa) are all but eliminating the risk of paralysis for stroke victims.

The NIIwa team at Charlies has been treating patients, including stroke patients, for over 10 years. But a game-changing procedure, known as endovascular clot retrieval, has seen NIIwa become the focus of a state-wide 24/7 stroke service that's transforming outcomes for stroke victims.

A stroke treatment that changes everything

Traditionally, doctors would try to dissolve brain clots using chemicals injected into the blood stream – not always effective for patients with large clots. However, the new retrieval procedure means doctors can extract the clot using a device that's inserted into the femoral artery through the groin.

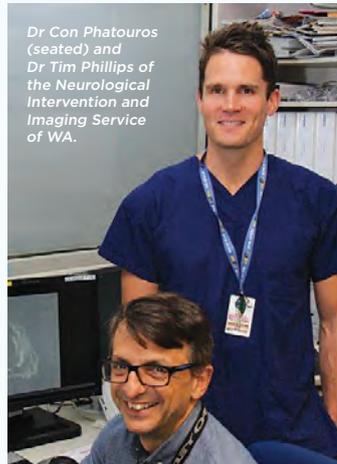
Assuming the procedure is performed promptly,

before a lack of oxygenated blood has caused irreversible brain damage, patients can be back on their feet within hours, showing no adverse signs of their stroke. They literally walk out of the hospital the next day.

Speed is of the essence

The key to the procedure's success lies in getting to NIIwa quickly. As head of NIIwa Dr Con Phatouros explained, "Ideally, we would get to patients within three or four hours of their stroke."

A new set of state-wide protocols, enabling a fast-track pathway to NIIwa, has therefore been implemented across Western Australia's public health system, and the NIIwa service has been expanded to Fiona Stanley Hospital.



Dr Con Phatouros (seated) and Dr Tim Phillips of the Neurological Intervention and Imaging Service of WA.

The best tool for assessing aged care patients? A kettle.

When 82-year-old Reginald Sparrowhawk from Dianella was hospitalised after a fall, it was unclear if he could be discharged. Would he be able to cope at home? One assessment and two cups of tea later, the Occupational Therapy (OT) team had their answer.

The Kettle Test research study

Using a simple assessment called the Kettle Test, the subject of research by Charlies OT department, occupational therapists were able to determine that Reginald would need rehabilitation before he could be discharged, and that he would need support services once he was discharged.

The 100-patient OT research study has shown that the standardised test, which involves making two hot drinks, is the best test for predicting whether aged care patients will be able to manage at home.

Helping Reginald stay in his home

Based on the test, which is scored out of 52 based on how many prompts and how much assistance he required when making the hot drinks, Reginald was transferred to Osborne Park Hospital for 19 days of rehabilitation before being discharged.

Now back at home, Reginald has all the support services he needs, including cleaning, shopping and domestic assistance.

