Queensland scientists easing the pain for children with cystic fibrosis

Megan Roe’s broad grin masks the discomfort of her chronic condition.

The 13-year-old Bribie State High student has cystic fibrosis, the most common recessive genetic condition in Australian children. The life-threatening condition clogs the body’s organs – including the pancreas, lungs and liver - with a thick, sticky mucus, causing breathing difficulties and long-term liver damage.

Thanks to an anonymous donation of a $150,000 piece of equipment, researchers at QIMR are conducting an Australian-first liver study, which could ultimately eliminate the need for painful liver biopsies.

The “Fibroscan” machine is the only paediatric equipment of its kind in Queensland and will be used by Professor Grant Ramm from QIMR’s Hepatic Fibrosis Laboratory and Dr Peter Lewindon from the Queensland Liver Transplant Service at the Royal Children’s Hospital (RCH) to measure the health of the child’s liver.

The machine uses ultrasound to locate the liver under the chest wall, and send a small vibration or pulse into the liver, measuring the rebounding pulse wave which determines the level of scarring on the liver.

Liver scarring is a crucial indicator of whether a child with cystic fibrosis will need a liver transplant, and biopsy is the current gold standard for assessing this. The biopsies are taken under general anaesthetical, but still leave the patient sore for several days.

Cystic Fibrosis (CF) is the most common life-threatening recessive genetic disorder in Australian children and young adults. Over the last 30 years the average life expectancy has increased from 17 to 37 because of breakthroughs in research.
Hot on the wheels of the remarkable success of the Rio Tinto Ride to Conquer Cancer, I’m pleased to announce that QIMR has launched another major fundraising event, this time focussed specifically on women’s cancers.

The Weekend to End Women’s Cancers will be a two-day, 60 kilometre walk through Brisbane in October 2013.

The Weekend to End Women’s Cancers will provide the community with a chance to honour loved ones, while making a real difference to research and treatment programs.

We’ll be sharing the proceeds with our friends at the Royal Brisbane and Women’s Hospital. Funds raised will support women’s cancer research at QIMR and cancer care at the hospital.

This August we’ll be celebrating our third annual Rio Tinto Ride to Conquer Cancer. The record-breaking support for this Ride provides not only an enormous addition to research funding, but also a morale boost for our scientists, who are reminded that the community values and supports their important work.

Meanwhile, our scientists are now conducting their research out of our new state-of-the-art building. In this edition of Lifelab you’ll find a special feature on the official building opening, and the man who made it all happen, American philanthropist Chuck Feeney. I hope you’ll take up the offer of a free tour of the facilities, as a thank you for your ongoing support of QIMR.
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Professor Ramm said the QIMR study would compare Fibroscan results in children.

“We’ll compare the scan results of healthy children, children with CF with healthy livers, and children with CF who have liver scarring. We also plan to compare these Fibroscan results against blood tests which may also prove useful in identifying children with CF who have liver scarring,” Professor Ramm said.

“This piece of equipment will help provide benchmarks for doctors, and ultimately eliminate or reduce the need for biopsies.”

Dr Lewindon said the Fibroscan could also be used regularly, while doctors tried to limit the number of biopsies.

“We can get a more accurate picture of the development of scarring, and pick up the early signs which normal ultrasounds can’t detect. Combined with the benchmarks this study with QIMR hopes to provide, Fibroscan could become best practice,” Dr Lewindon said.

“For most patients, we’ll be able to reassure them about the future health of their liver. When the screening is indicating more scarring, we can at least prepare those 5 – 10 % of children whose scarring indicates they may need a transplant,” he said.

For Megan’s mum, Inge Aird, the Fibroscan research is another important step on a long journey.

“For us, the research is huge, because we’re waiting for our cure,” she said.

Ongoing research holds the key to this extremely dangerous condition. In the last 30 years continued research like this has helped increase the life expectancy of children diagnosed with cystic fibrosis from 17 to 37.

With more investment in research we can make even more improvements – and help children like Megan live longer, happier lives.

The life cycle of fundraising

More than 1500 riders and almost 300 crew members raised an extraordinary $5.2 million for QIMR research in the second annual ride on August 18-19 last year.

These efforts have funded 17 new research projects at QIMR, with more to come.

Following is a snap shot of a few of the important research projects funded by the 2012 Rio Tinto Ride of Conquer Cancer:

• Decoding genetic variants which increase susceptibility to breast cancer
• Factors that influence survival in ovarian cancer
• Optimising the use of colonoscopy in Queensland (bowel cancer)
• Understanding how leukaemia arises from normal blood cells
• Identifying genomic changes associated with tobacco smoking
• Understanding the mechanisms of specific proteins in prostate cancer
• Developing new methods to improve “personalised medicine” in treating late stage melanoma
• Analysis of the role of a virus protein in brain cancer
• Reporting patient outcomes of pancreatic, bowel and endometrial cancer and melanoma
Adele Green’s moment in the sun

It was a wonderful day for women in science when QIMR Professor Adele Green AC was named the Queensland Australian of the Year 2013 in recognition of her 20-years of skin cancer research.

Professor Green is a senior scientist at QIMR, a former Deputy Director, and Head of the Institute’s Cancer and Population Studies Group.

Professor Green said she was delighted that the value of medical research was being recognised.

“Skin cancer is a huge issue for Queenslanders and QIMR works hard to determine the causes and work on prevention strategies, particularly for melanoma,” Professor Green said.

“I’d like to pay tribute to my colleagues at QIMR without whose support our research would not have had such an impact.

“I’d also like to congratulate all the other finalists in my category. It was an honour to be considered alongside them.”

Adele Green’s world-first research established that daily sunscreen use can prevent melanoma.

Professor Green also headed up a study which determined that the survival rate of patients with thin invasive melanoma was 96%, offering hope and reassurance to sufferers. It remains the only published analysis of very long-term survival rates for these patients.

Another of Professor Green’s key projects is the 20-year follow-up study of almost 1,000 residents of Nambour, Queensland. This study focuses on the most common skin cancers: basal cell carcinoma (BCC) and squamous cell carcinoma (SCC).

Our director Professor Frank Gannon congratulated Professor Green.

“This is well-deserved recognition of Professor Green’s passion and commitment and recognises the significance of health and medical research for all Australians,” Professor Gannon said.

“She’s led significant advances in understanding the causes and prevention of skin cancer.”

“Professor Green has also proven herself to be a brilliant mentor to early-career scientists at QIMR.”

“Her commitment to students demonstrates her passion and support for science and medical research as an important and vital vocation.”

Professor Green was appointed a Companion of the Order of Australia in 2004 for service to medical research to public health including improved Indigenous health, and for leadership in the wider scientific community.
Associate Professor David Harrich, from QIMR’s Molecular Virology Laboratory, has developed a way to use HIV to beat HIV in the laboratory.

Associate Professor Harrich has successfully modified a protein in HIV to inhibit the virus growth and provide strong, lasting protection from infection.

“This is like fighting fire with fire,” he said.

“If this research continues down its strong path, and bear in mind there are a number of hurdles to clear, we’re looking at a cure for AIDS.”

Associate Professor Harrich runs the only research laboratory and containment facilities in Queensland working with the HIV virus.

He invented the “Nullbasic” protein by mutating an existing HIV protein. It’s shown remarkable abilities to stop the virus replicating in a lab environment.

“I have never seen anything like it. The modified protein works every time,” Associate Prof Harrich said.

“You would still be infected with HIV, it’s not a cure for the virus. But the virus would stay latent, it wouldn’t wake up, so it wouldn’t develop into AIDS. With a treatment like this, you would maintain a healthy immune system.”

The successful development of this type of one-off treatment would also have economic implications. HIV patients currently take a regime of drugs for the rest of their lives, which can be a significant financial burden.

Associate Professor Harrich has been researching HIV for 30 years, since starting as a research assistant at the University of California, Los Angeles (UCLA) in the early 1980s when the first cases of HIV/AIDS emerged.

“I’ve come close to giving up in the past. But today I’m so encouraged. I feel very fortunate because not a lot of scientists are able to stay in the same game long enough to see these sorts of developments. It involves perseverance, dedication and, of course, sustained research funding.

Associate Professor Harrich’s research is funded by an Australian Research Council Future Fellowship.

This research is published in the current issue of Human Gene Therapy.
Did you know we are investigating the fastest rising cancer?

QIMR scientists have found that oesophageal cancer rates in Australia continue to grow at an alarming rate and they’ve developed a prediction model to identify people at high risk.

Dr Aaron Thrift, from the Cancer Control Group, said the incidence of oesophageal adenocarcinoma (OAC) had increased markedly in Western populations in the past 40 years.

“While some recent reports suggested that the rate of increase had slowed, or plateaued, our research shows that oesophageal adenocarcinoma rates are still rising in Australia and the United States, and will continue to rise in coming decades. It remains the fastest rising cancer in Australia,” Dr Thrift said.

About 700 Australians are diagnosed with OAC each year and the prognosis is grim. Seven in 10 patients will die within five years.

Dr Thrift’s research found the incidence in Australian men was increasing by about 2% each year.

“It’s a disease that predominantly affects men, occurring up to seven times more frequently than in women. Clinicians need to anticipate an increase in the numbers of men presenting with this potentially fatal cancer,” Dr Thrift said.

Dr Thrift’s team have now developed a risk model to determine the likelihood of a person developing OAC in a five-year period.

“We’ve incorporated the known risk factors into the model, such as gastro-oesophageal reflux, obesity and smoking as well as aspirin intake, which has been shown to have positive health benefits,” Dr Thrift said.

“What this means is we can now determine who is at higher risk of developing OAC, and target them for cancer prevention strategies.”

QIMR is also researching another type of oesophageal cancer: oesophageal squamous cell carcinoma (OSCC).

Our scientists have shown for the first time that heavy alcohol consumption more than doubles the risk of dying from OSCC.

Dr Thrift said that more than three drinks a day, over a lifetime, had an enormous affect on survival rates in OSCC.

“It’s another reason to observe moderation in alcohol consumption,” he said.

QIMR has received funding from the National Health and Medical Research Council to bring together Australia’s major oesophageal cancer research teams, in a Centre of Research Excellence.
The 15-floor “QIMR Central” houses world-class facilities and purpose-built laboratories and is the centrepiece of a $180 million project funded by the State and Federal Government and Mr Feeney’s gift of $27.5 million.

Professor Frank Gannon said, “Mr Feeney’s generosity would allow the Institute to expand its groundbreaking work in cancer, infectious diseases and mental health/complex disorders.”

“We currently have more than 600 world-class researchers in over 50 laboratories,” Professor Gannon said.

“This new facility will mean we can expand to more than 1000 scientists in the next decade, and intensify our research interests even further, with an ongoing commitment to translating discoveries into treatments, diagnostics and prevention strategies.”

Professor Gannon said Mr Feeney’s contributions had helped put QIMR on the world map.

“Mr Feeney’s initial gift to QIMR in 2001 was his first in Australia and started an era of transformation and opportunity for QIMR and other Australian research institutes and universities,” Professor Gannon said.

“I’d also like to thank the State and Federal Governments for recognising the importance of medical research to the wellbeing of all.

“And, of course, thank you to Chuck Feeney. We’ve had an extraordinary relationship with him over the past decade, and in that time he’s given $59 million to QIMR.

“Queenslanders have benefited enormously from his commitment to ‘Giving while Living’.”

“But Chuck goes further: he also believes in giving what you can. Of course, the scale of Chuck’s donation has attracted attention. But QIMR knows that a small donation from a person with lesser means is just as generous an act, and one we are no less grateful for.”

Chuck Feeney was a co-founder of the global chain Duty Free Shoppers. In 1982, he founded The Atlantic Philanthropies to distribute his wealth before he died. To date more than US$6 billion has been given to charities and institutions around the world.

Mr Feeney has given AU$233 million to biomedical research in Queensland since 1998. When all current building projects he is supporting are completed, Mr Feeney will have helped to build or expand 12 research institutions throughout Australia.

Would you like to see QIMR’s new facilities for yourself?

QIMR runs regular, free public tours. The next tours are:

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You can also arrange a private tour of QIMR for your community group, or attend one of our free research information sessions. Alternatively, we can have a guest speaker to come to your event. Bookings are essential: please ring free call 1800 993 000.
Law firm DibbsBarker has embraced the idealism of its young staff members and included QIMR in its policy of giving back.

The company chose QIMR as a charity partner in its workplace giving program, which has been running for the past three years. 110 Brisbane employees have been able to make regular donations from their pre-tax salaries, which the firm matches dollar for dollar.

DibbsBarker Partner, Scott Guthrie, said donating to QIMR was a way to make a significant, lasting impact.

“When we asked staff to vote on which health charity they’d like to support, they liked that QIMR was local. And I think there’d be almost no one here who hasn’t been affected in some way by cancer. I think what QIMR represents, and works towards, resonates very strongly with people in the office.”

“The program is driven by younger team members, who bring a real sense of community to the firm, and a sense that giving back is important.”

“A great thing for our older staff members – and I consider myself one of them – is that it reminds us of our idealistic youth. So you have this cross-generational cooperation in the office. What we’ve gained in return is a workplace where people know their views are respected, and a reminder that younger people have something to teach all of us.

In addition to its workplace giving program, last year DibbsBarker again fielded a team of cyclists and crew members in the Rio Tinto Ride to Conquer Cancer. 63 of the firm’s staff and clients raised over $131,000 for cancer research.

THANK YOU!

A huge thank you to our dedicated community fundraisers. Without the support from the community we simply could not conduct the amazing research that QIMR does.

A special thanks to:
- All British Classics Car Club Inc.
- Amanda Jepson
- Annie Davies
- Bob Rice and Robyn Bailey - Riverside Charity Golf Day
- Brisbane Family Law Centre
- Carmel Farrow Annual Walk for Ovarian Cancer
- Clayfield College
- CountryCo Blackwater
- Data #3 Ltd
- Davis Family and Queensland Historical Bottle & Collectibles Club Inc.
- Essential Brands Group
- Filipino Australian Care Trust Inc
- Fitton Insurance Charity Race Day
- Happy Face Cent Auction (organised by Sunny Drescher)
- Lorraine Duckwitz
- Luke’s Swim (organised by the Ogden Family)
- Miss Fiona Evans
- Mount Coolum Golf Club
- Greg Vogler Memorial Golf Day
- Team Liam Cent Auction (organised by the Watego Family)
- Mrs Valerie Wolff
- Nambour Golf Club
- The Old Rockers
- Phoebe Dupont – Cindy Field Memorial Art Exhibition
- SQUIDS
- Ron McLaughlin
- The Powell Family
- Toowoomba Golf Club Women members
- Wavell Slimmers Club