

Inside story

TAKING NOTE:
Colin Cochrane with
his notebook and
digital timer.
PHOTO/GEORGE NOVAK



New trial aims to:

Blast away prostate woes

Tauranga is part of a revolutionary trial that uses high-speed jets of water to make incisions in the prostate, potentially making the lives of men around the world easier. **Annemarie Quill** investigates

COLIN COCHRANE is meticulously logging figures in a notebook. Under columns headed 'time', 'quantity', 'colour' and 'flow', he records each day's activity. He will convert the data to an Excel spreadsheet soon, for better analysis.

"I've been using a digital timer and measuring system to calculate flow in millilitres per second. At the weekend it was one millilitre per second but it has improved to 10 now. But as you see from these figures, it is still not the quantity it should be, so I will be working on that."

This analytical approach is what you would expect for a process control instruments technician — Cochrane has been working at the paper mill in Tokoroa for 35 years.

But the 69-year-old is not at the plant in Tokoroa now — he is in his Papamoa lounge. And he is not monitoring chemicals at the plant,

but his own urine flow using a stopwatch and a measuring jug which he keeps in the bathroom.

Four days ago Cochrane had surgery to correct his enlarged prostate, which over a period of 10 years had grown to three times what it should have been, causing him pain and discomfort and affecting his everyday life and work.

"It would stop me doing things. I would think twice about going for a walk and avoid long drives. The one hour 20 minute drive each way to work became difficult. If I went out anywhere, I would always make sure I would know where the toilets were. 'Never pass a toilet without using it,' that was my motto."

Cochrane now is very open, to the point of joviality, about his condition. He says his colleagues at work joke with him, asking him if he knows where the toilet is. If in a meeting, he tells people from the outset that he might have to pop out for a toilet break.

He hasn't always been that open about his symptoms. A grandfather

BENIGN PROSTATE ENLARGEMENT

In men with prostate problems, nine out of 10 will have a prostate that has grown too big.

This puts pressure on the urethra and may squeeze it enough to block outflow of urine.

An enlarged prostate problem is called benign prostatic hyperplasia (BPH) and affects more than half of all men older than 50.

Medicines or surgery are used to treat it but only when symptoms become troublesome. BPH is not prostate cancer even though some of the symptoms are the same when passing urine.

Symptoms of an enlarged prostate include trouble starting and stopping urination, needing urgently to pass urine at any time, sometimes with nothing coming out, and pain or burning when passing urine.

Source: www.prostate.org.nz

and father to three daughters, his wife had passed away and Cochrane thinks if he had sought treatment earlier it might have not have got to the point it did three months ago when his prostate was so enlarged he couldn't pass urine at all.

"In retrospect I should have come forward sooner and pushed for solutions. I think men often hide symptoms because they are embarrassed."

There was no embarrassment last Saturday morning in Tauranga

Hospital. In fact, Cochrane had never had so much attention focused on his prostate.

"The theatre was the size of my house — with cameras, video cameras, and heaps of people. It was like a movie set."

IT WAS NOT just the entourage of people in theatre in Tauranga focusing on Cochrane, though; he had the eyes of the world on him.

That day, Cochrane, along with five other Bay of Plenty men, became the first to take part in a \$64 million worldwide trial to pioneer a groundbreaking treatment for enlarged prostate problems — called benign prostatic hyperplasia (BPH), a common condition affecting more than half of all men older than 50.

The 18-month trial, called WATER, will involve 225 patients in 19 centres around the world — and will test a surgical procedure that uses high-speed jets of water to make incisions in the prostate, developed by Silicon Valley-based company PROCEPT BioRobotics, which raised the funds for the trial by venture capital and private investors.

Spearheading the trial is Tauranga doctor Peter Gilling, who will be one of two principal investigators overseeing the trial — the other is in the US. Tauranga and Melbourne are the only Australasian

THE TRIAL

■ **Called:** WATER — Waterjet Ablation Therapy for Endoscopic Resection of Prostate Tissue.

■ **Cost:** Silicon Valley-based company PROCEPT BioRobotics raised NZ\$64 million in venture capital for the trial and early commercialisation efforts.

■ **Where:** The trial will take place in 19 sites across the world (11 in the US, 6 in Europe, and Melbourne and Tauranga).

■ **When:** The trial began in Tauranga Hospital on November 21 and will take place over 18 months worldwide.

■ **Who:** Tauranga's Peter Gilling is one of two principal investigators on the trial. The trial will involve 225 patients, with up to 20 in Tauranga. Six Bay of Plenty men were the first in the trial on November 21.

sites in the trial, with the other 17 centres in Europe. The company elected to trial the surgery in Tauranga because of Gilling's reputation as a world-class surgeon.

"We trialled a version of this machine in Tauranga in 2013 which was the first time it had been tried on humans — before then it had only been used on dogs, but this is a brand new international trial. If successful, it means this machine will become commercially available in 2017, making the treatment of the enlarged prostate more accessible, safer, quicker and easier for many men," says Gilling.

In his surgical rooms, on the first floor opposite Tauranga Hospital, Gilling's enthusiasm for the subject is infectious.

He always wanted to enter the field of urology, he says, because of "fascinating pathologies, dynamic research opportunities — and lots of gadgetry."

His multi-disciplinary clinic in Tauranga, Virtuoso, specialises in minimally-invasive techniques and state-of-the-art procedures.

OVER THE YEARS, Gilling's research into BPH has been driven by a belief that with proper diagnosis and early treatment more serious complications could be avoided, such as urinary tract infections, bladder stones, as well as kidney and bladder damage. Tauranga is a very relevant setting for such research, he says, given the city's ageing population.

"The poor old prostate — it does good work as a sex gland — when you ejaculate 70-plus per cent of fluid is prostatic fluid, without whose enrichment the sperm wouldn't be fertile. But then after men's fertile years it kind of

becomes a less useful accessory. The prostate issues that men have today wouldn't have existed 100 years ago because we didn't live long enough. But nowadays the prostate can get infected, get cancer, but most commonly with age it just gets enlarged, meaning it's difficult to pee, you pee more often and it hurts."

Surgery for enlarged prostate, to remove all or part of the tissue, is one of the most common surgeries, says Gilling. Several thousand Kiwi men a year have prostatectomies with up to 10 a week performed in Tauranga Hospital.

TAURANGA HOSPITAL was the first in the world to pioneer usage of a Holmium laser, developed by Gilling and colleagues, which is now used in many hospitals around the world. Yet despite this laser technology, another prostatectomy procedure, called TURP, has been the commonly used around the world since the 1930s. This surgery, which involves more invasive cutting of tissue, can be improved upon, says Gilling, and the new trial aims to make the operation less invasive than ever.

"Despite advances that we made here in Tauranga using laser, the old procedure is still the most common around the world but that old system does come with certain risks — such as affecting sexual function, ejaculation and incontinence problems."

The WATER trial will involve blind, randomised testing of the old TURP system against the new technology called Aquablation — high-velocity water ablation.

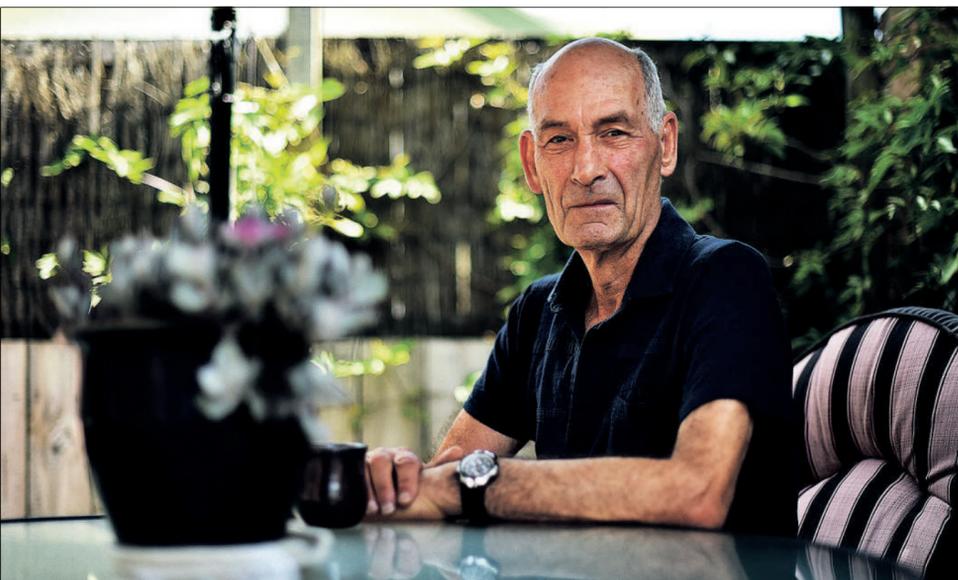
In the procedure, Gilling, after examinations, tells the machine how much tissue to remove, and inserts the robotic arm into the patient's prostate.

The machine then takes over and a jet of water as thin as a strand of hair and accelerated almost to the speed of sound tears off the affected tissue with precise, automated incisions.

Similar gadgetry has been used in industry to cut metal, wood and glass, but Gilling says this system is more uniquely refined.

"An industrial machine would use pressure of up to 90,000 PSI, whereas this is 8000 PSI so it's less pressure but still enough to deal with the tissue. In industrial uses it is the pressure of the water doing the cutting, but this system uses water through a tiny outlet, smaller than the diameter of a human hair. To create cavitation in the cavity so the tissue is effectively vaporised — you are effectively blasting a hole in the thing."

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FIRST IN LINE: Alistair Possin was the first man in the WATER trial.

PHOTO/GEORGE NOVAK

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