



# Measurement Solutions for Medicine

A business of

CallaghanInnovation



## VALUE TO INDUSTRY

- Make more confident decisions
- Get more consistent outcomes
- Use measurement strategies to solve problems
- Calibrate to international standards of measurement
- Optimise processes and product development
- Cut performance and regulatory risks

**Measurement is critical** to medical decision-making, problem solving and the design and use of medical technologies.

The Measurement Standards Laboratory finds solutions – with smart strategies for measuring and controlling temperature, humidity, mass, pressure, light, electricity, length, time and frequency.

We are New Zealand's official measurement standards body – the source of traceable links to international standards of measurement and your best link to accredited local testing and calibration laboratories.

Whether it's the accuracy of thermometers, laser power in diagnostics, humidity levels in respiratory therapy or the dimensions of artificial implants, we can help.

If there's an inconsistency you can't explain, a big decision that turns on a tiny variable or any other measurement challenge, get in touch.



## CASE STUDY

**The Challenge** – The Department of Surgery and Anaesthesia at the University of Otago, Wellington needed to find out why the joints in some hip replacements squeaked. These squeaks began six months after surgery, were only intermittent and happened only in joints with a ceramic head and liner and a titanium shell and stem. Surgeons suspected the ceramic liner was moving inside the titanium shell. The performance of the joint relies on a tight press-fit, but if the titanium shell is even slightly distorted during the operation the joint can later squeak.

**The Solution** – Surgeons asked the Measurement Standards Laboratory to scrub in. We followed them as they performed simulated operations on cadaver pelvic bones at our calibration laboratory. By measuring the titanium shell before and at each step, we detected a very small but significant distortion. It was happening much earlier in the operation than surgeons expected – during the insertion of the shell into the bone and before screw insertion.

**The Result** – The team discovered that surgeons could not practically avoid distorting the titanium shell. They told the joint manufacturer why it needed to be less flexible.

## CONFIDENT DECISIONS

To make the best decisions you need accurate and reliable measurements and a sound grasp of the uncertainties that can influence outcomes. The Measurement Standards Laboratory can help you get it right.

We can help hospitals get operating theatre light just right for surgery. We've helped design insulated boxes for transporting blood products and medical products for respiratory and acute care.

We've worked with radiologists to calibrate the thermometers and barometers used with ionization chamber detectors to monitor absorbed dose. We've advised on how to use and maintain the equipment to make sure it keeps on meeting specifications.



## WE'VE GOT YOUR MEASURE

The Measurement Standards Laboratory offers expert measurement advice, training, and calibration of your reference equipment.

We can calibrate or provide advice on the calibration of dew point meters, bilirubin meters and blood pressure sphygmomanometers.

We've worked on the manufacture of instruments and implants for orthopaedic surgery and hearing devices.

We can help you reduce risk and ensure the device you're designing will meet performance standards and regulatory requirements.



### CONTACT US

69 Gracefield Road,  
Lower Hutt 5010

PO Box 31310,  
Lower Hutt 5040,  
New Zealand

[www.measurement.govt.nz](http://www.measurement.govt.nz)  
[info@measurement.govt.nz](mailto:info@measurement.govt.nz)