



CASE STUDY OF IMPACT  
June 2016



# Accelerating Australia's healthcare into competitive global markets

**+** CSIRO partnered with Medical Developments International to help it meet the growing demand for Pentrox® in domestic and international markets.

## The challenge

After its public listing in 2004, Medical Developments International (MDI) grew steadily and so did its production of Pentrox, commonly known as the 'green whistle'. Pentrox is used by medical practitioners, the defence forces, ambulance and surf lifesaving services to administer emergency pain relief.

By 2010 the company was operating at close to its maximum manufacturing capacity. Further expanding MDI's existing manufacturing process was not a cost-effective option.

A new approach to manufacturing the product was required. However, MDI did not have the financial resources or technical capability to undertake such a risky research & development (R&D) project on its own.

## The response

CSIRO possesses world-leading expertise in advanced manufacturing processes. In 2012, MDI engaged CSIRO to develop a manufacturing solution for the production of the drug methoxyflurane, the pain-relieving ingredient in Pentrox.

---

Penthrox® improved the wellbeing of many thousands of people with trauma injuries every year

---

The broad experience of CSIRO researchers in delivering results for industrial clients allowed them to quickly understand MDI's needs, to offer solutions that were implementable within time and budget constraints, and to understand the importance of working with MDI on-site.

In partnership with MDI, CSIRO developed a concept for an improved processing technology. CSIRO developed the processing technology in-house over a 12 month period and engaged MDI, via an Australian Growth Partnership (AGP) program.

The goal of this collaborative technology transfer project was to commission a scalable, reliable, and low-cost manufacturing solution for the production of methoxyflurane.

The technology transfer was successfully completed in 2015.

## The impact

CSIRO was able to provide critical assistance to support MDI's growth ambitions. The long standing collaboration between CSIRO and MDI has helped the firm to develop and expand its own production of an important treatment for patients suffering from painful injuries. As a result MDI has increased its sales in the Australian market and is now poised to become a major exporter.

The growth in MDI's sales of Pentrox® will generate considerable additional revenue for MDI and royalty payments to CSIRO. A recent economic assessment estimates that in 2015 dollars, the net present value (NPV) of CSIRO's impact to 2030 will range from \$168.8 million to \$270.6 million.

---

<sup>1</sup> ACIL Allen Consulting, 2016. *Medical Developments Australia – An Independent Assessment*. ACIL Allen Consulting, Canberra.

## CONTACT US

**t** 1300 363 400  
+61 3 9545 2176  
**e** [csiroenquiries@csiro.au](mailto:csiroenquiries@csiro.au)  
**w** [www.csiro.au](http://www.csiro.au)

## WE DO THE EXTRAORDINARY EVERY DAY

We innovate for tomorrow and help improve today – for our customers, all Australians and the world.

**WE IMAGINE. WE COLLABORATE.  
WE INNOVATE.**

## FOR FURTHER INFORMATION

Dr Paul Savage  
Manufacturing  
**t** +61 3 9545 2523  
**e** [paul.savage@csiro.au](mailto:paul.savage@csiro.au)  
**w** [www.csiro.au/impact](http://www.csiro.au/impact)