

The Medical Technology Association of Australia (MTAA) Value of Technology (VOT) research improves the understanding of the impact of advances in medical technology on healthcare expenditure in Australia, and the associated costs and benefits for the Australian healthcare system and community. VOT research provides support for advocacy for funding of a range of technologies that might not have strong Australian evidence to date and/or lack funding.



**Medical Technology**  
ASSOCIATION OF AUSTRALIA

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**Insulin pump therapy** delivers fast acting insulin continuously through a small needle or cannula inserted and left in place under the skin. It is cost-effective, and has several clinical advantages over conventional multiple daily injection (MDI) therapy. These include:

- better glycaemic control and prevention of complications
- a reduction in the insulin dose per day, and
- improved quality of life for the patient and their family, including a reduction in chronic fear of severe hypoglycaemia, and more flexibility of lifestyle.

In 2010 there were 1,310 Australians on the kidney transplant waiting list and only 548 kidney transplants, therefore most individuals with end stage kidney disease rely on renal dialysis for survival. **Home dialysis** has been shown to be the most cost-effective form of dialysis; however, only around 30% of individuals dialyse at home. An increase in the use of home dialysis over the next 10 years is estimated to result in **net savings of \$378 - \$430 million for the Australian healthcare system.**

Australia has one of the highest rates of overweight and obesity among developed countries. **Bariatric surgery**, including a range of procedures such as laparoscopic gastric banding, sleeve gastrectomy and Roux-en-Y gastric bypass, has proven to be a successful method in treating individuals who are morbidly obese. In Australia, surgically-induced weight loss has been shown to be a cost-effective intervention for managing obese patients with Type 2 diabetes, with **mean medication costs 1.5 times higher for conventionally treated patients compared with patients who underwent bariatric surgery.**

Osteoarthritis is a major contributor to the musculoskeletal disease burden in Australia, and is one of the most common causes of chronic knee pain. **Total knee replacement surgery** has been shown to be **highly cost-effective (\$12,000 per disability-adjusted life-year)**, improving the quality of life of patients with osteoarthritis.

More than \$2.6 billion per year is spent by the Australian healthcare system on chronic wounds (greater than \$60,000 annually per individual with a wound). The high cost of chronic wounds, which includes venous leg ulcers, diabetic foot ulcers and pressure ulcers, is often due to the increased length of stay in hospital and number of hospitalisations. **Modern wound care devices** offer considerable clinical and economic benefits over traditional wound care treatment, including a **reduction in the:**

- number of dressing changes required
- healing time of the wound
- clinician and nursing time for assessment and treatment
- cost and frequency of complicating infections, and
- number and length of hospital stays.

In Australia, there are approximately 700 – 800 new **cochlear implant** recipients each year; however, as many as 84,000 more people would benefit from a cochlear implant. Improved patient access to cochlear implants has flow on effects, including improved employment opportunities, socioeconomic status and health-related quality of life. The cochlear implant is **extremely cost-effective, generating important health benefits at reasonable direct costs and providing net savings to society if benefits translate into reduced educational costs and increased earnings.**

Atrial fibrillation (AF) is the most common cardiac arrhythmia, and can lead to serious complications such as heart failure and stroke (cause of 15-20% of strokes). The estimated annual cost of AF is at least \$1.25 billion per annum. **Catheter ablation is a proven treatment for patients with AF and arrhythmias**, and is associated with a high rate of acute procedural success and low follow-up rate. Treatment of AF using **catheter ablation is associated with substantial cost savings** gained through:

- reduced hospitalisations and GP visits
- reduced medication use and carer's duties
- improved quality of life and quicker recovery and return to work.

**Remote monitoring of chronic heart failure (CHF) patients with implantable cardiac devices** may result in decreased direct and indirect health costs. For example, the implementation of remote monitoring of implantable cardiac devices in Australia has the potential to deliver **cost savings of approximately \$115 million per year as a result of a 21% reduction in CHF and CHF-related hospital admissions.**

**Imaging technologies** play a key role in cancer diagnosis. For example, mammography is generally the first imaging modality used in breast cancer screening, and may be supplemented with ultrasound, particularly in young women with dense breast tissue. While magnetic resonance imaging is used mainly in women identified as being high risk for breast cancer.

**In vitro diagnostic tests** are used in cervical cancer screening to detect pre-cancerous cellular changes in epithelial tissue of the cervix that could develop into invasive cancer.

**Radiotherapy** is an effective treatment for primary and advanced cancers, and can be used either alone or in combination with surgery and/or chemotherapy to reduce the size of cancers and alleviate symptoms.

In Australia, at least 18,000 healthcare professionals suffer from needlestick and sharps injuries (NSIs) every year. **Safety-engineered medical devices (SEMDs)** can be used in place of most conventional needles and sharps devices, and are very effective in reducing the number of NSIs. Implementing the use of SEMDs in all Australian hospitals would result in **cost savings of at least \$18.6 million per year for the Australian healthcare system.**

Chronic pain puts considerable strain on the economy through lost productivity, disability and healthcare utilisation. The use of **continuous drug infusion pumps** post-surgery has been shown to reduce the need for analgesics, the risk of surgical site infection and the length of hospital stay by between one and three days. Potential **cost savings of approximately \$400 million per year** could be achieved if pain infusion pumps were used in Australian hospitals following the most common surgical procedures.

MTAA would like to acknowledge the contribution of its members and the following stakeholder organisations:

For further information on MTAA VOT research:  
[www.mtaa.org.au/about-the-industry/value-of-technology](http://www.mtaa.org.au/about-the-industry/value-of-technology)

