BRAIN WAVE TAKES AUSSIE MEDTECH TO THE WORLD

EXPORT CASE STUDY | MAY 2018

Thousands of South Koreans will benefit from Australia's innovative medical technology after Cortical Dynamics signed an agreement to distribute its Brain Anaesthesia Response Monitor (BARM) in the country.

The agreement will see the device distributed to hospitals across Korea, where it will assist anaesthetists and intensive care staff to monitor patients under anaesthesia and to minimise the incidence of side effects.

'The Korean deal was Cortical's first international distribution agreement for our BARM,' says David Breeze, Executive Director, Cortical Dynamics. 'Once our distributor obtains the necessary regulatory approvals, the monitor should be available in hospitals by the end of 2018.'

A new way of EEG monitoring

Cortical Dynamics was founded to commercialise technology developed at Swinburne University of Technology in Melbourne. The BARM was the result of research undertaken by Professor David Liley, a senior researcher within the Centre for Human Psychopharmacology at Swinburne. Professor Liley co-founded Cortical Dynamics and is its Chief Scientific Officer.

The BARM monitors the effect of anaesthetic agents on brain activity via an adhesive sensor applied to the forehead, helping anaesthetists keep patients optimally anaesthetised. It incorporates the latest scientific understanding of how the brain's electrical activity – the electroencephalogram (EEG) – is produced.

Cortical Dynamics' Brain Anaesthesia Response Monitor

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David Breeze, Executive Director, Cortical Dynamics

While there are many EEG monitors on the market, these systems produce EEG indexes based on statistical approaches. However, every patient has unique physiological attributes that may affect the EEG indexes generated by such methods.

'There is a need for a system that can reliably quantify a patient's anaesthetic state,' says Breeze. 'What makes the BARM different from other devices is that its underlying algorithm produces EEG indexes based on the physiological state of the patient's brain.'

The BARM can produce readings within two seconds, compared to 30 seconds for competing devices. It is also sensitive enough to detect several classes of anaesthesia and analgesics, which other

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devices cannot, and identify changes in brain function and other brain disorders.

'By improving the way patients are monitored, there is potential to reduce the amount of anaesthetics and analgesics used in medical procedures,' says Breeze. 'Patients will take less time to wake up post-operatively, fewer people will be required to monitor them, and they can be moved out of operating rooms and into wards to recover. Hospitals will ultimately save time and money.'

Cortical holds 22 patents worldwide for the BARM. The device is used at hospitals in Sydney, Melbourne and Cairns in Australia; Hamilton (at a leading international centre for the evaluation of anaesthetic monitoring approaches), New Zealand; and Paris, France.

A perfect medtech match in Korea

Cortical was interested in Korea as an export market because of its embrace of medical technology, sophisticated healthcare system and the Korean Government's strong support for the biotechnology and healthcare industries.

The Korean Ministry of Science and ICT has designated brain research as one of its five main fields to receive the greater part of its investments. In particular, the ministry has prioritised the development of technologies to meet social issues such as 'brain mapping' and early diagnosis services for dementia patients.

'They are also interested in developing technologies for customised brain disease treatment, neuro-rehabilitating brain stimulation and optimised learning capability for four major fields in brain research – brain disease, cranial nerve, brain and cognitive science, and brain engineering.

'These are all areas in which our expertise, research and technology can make a significant contribution,' says Breeze.

Austrade key to success

The distribution agreement arose as a result of an invitation from Austrade to attend and present at the Australia Medtech Innovation Showcase in Korea in 2016. Organised by Austrade, the event enabled Australian medtech companies to showcase their products and services to leading Korean pharmaceutical and medical device manufacturers.

In addition to presenting the BARM at the event, Cortical was introduced to senior medical staff and professors in anaesthesia at Korea's leading teaching hospitals and a number of Korean businesses, including its eventual distributor. Austrade also provided Cortical with insights into Korea's healthcare industry and medtech sector to assist with the company's market research.

'Austrade was instrumental in helping us secure the Korean distribution agreement,' says Breeze. 'They paved the way for us to enter a market with a strong need for our system.'

Next stop: Europe

In April 2018, Cortical signed its first European distribution agreement, which will see the BARM available across Belgium, Luxembourg and the Netherlands. Around 70 per cent of operations in Europe use Total Intravenous Anaesthesia (TIVA), a method of inducing and maintaining general anaesthesia without the use of inhalation agents.

'European regulations state monitoring devices must be used in all TIVA operations, so there is significant sales potential for our monitor,' says Breeze.

A device with many applications

Cortical's technology is versatile enough to be applied to other EEG-based markets, such as neuro-diagnostic, drug discovery, drug evaluation and the emerging Brain Computer Interface market. The company has had discussions with a global medical device manufacturer to develop its technology.

'We can develop the monitor to carry out additional functions such as neuro-diagnostics of changes in brain and memory functions, which will help provide early warning of degenerative diseases, pain response and tranquilizer monitoring for trauma patients in intensive care units,' says Breeze. 'There are many avenues for us to develop our technology to meet the world's health and medical needs.'

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