

## **Submission to the Strategic Review of Health and Medical Research**

### **Summary:**

The HEARING CRC's submission to the review focuses primarily on the key question "How can we optimize translation of health and medical research into better health and wellbeing?"

It is clear that investment in basic biomedical research that leads to new discoveries is fundamental to the development of new health technologies or clinical services. However, funding cycles for such basic research are often of limited duration, and in general involve one or possibly a few institutions. Outcomes are primarily knowledge-based, and researcher's career paths are linked primarily to high-value publications and success in grant approvals. Commercial or clinical application of knowledge developed is often an after-thought, seen as dependent on outcomes and separate from the direction and conduct of the research itself.

The Cooperative Research Centres Program was developed and continues to specifically address the gap between knowledge development and achievement of impact.

For example, the HEARING CRC receives funding from the Commonwealth Government's Cooperative Research Program. It draws together 26 research, clinical and industry organisations and focuses them on a long-term multidisciplinary research program addressing the twin challenges of more effective prevention and improved remediation of hearing loss. The stated objectives of the HEARING CRC are:

- to enhance Australia's industrial, commercial and economic growth through a program of sustained, user-driven cooperative research into hearing loss prevention and mitigation; and
- Through education and commercialisation of research findings, reduce the incidence of hearing loss and increase the effectiveness with which hearing loss and hearing disorders are treated through improved technology, processes or clinical services.

The HEARING CRC is just one example of how CRCs in the medical sector are focused directly on translation of health and medical research into real outcomes. CRCs can bring together and manage the large multidisciplinary consortias over the longer-term multi-year research plans that are necessary to develop new approaches to significant health issues and to encourage significantly increased investment and participation by medical sector industries and clinical service providers.

It is our view that while funding for basic medical research through CSIRO, NH&MRC and university funding for initiatives such as the Centres of Clinical Research Excellence is fundamental, there is a critical need for adequate levels of funding and support for longer-term, multidisciplinary translational research to ensure that the benefits of new knowledge are reflected in health and economic outcomes for Australians.

### **Submission:**

There are 11 Cooperative Research Centres currently operational in the medical sector. Together, these CRCs involve collaborations with 23 Australian Universities; more than 20 international universities; 40 medical research institutes; 29 medical technology companies; 10 public hospitals; 37 Commonwealth/State government health departments health service agencies or; many divisions within CSIRO; and over 80 other clinical services agencies, professional associations and health-related foundations and networks – a significant grouping of Australia's medical research and health industry sector.

As such, the CRCs in the medical sector are examples of how national and international support for Australian health and medical research can be effectively increased, and more efficiently used and monitored to ensure outcomes (Terms of Reference 3). Previous reviews of the CRC Program have confirmed that it is a benchmark for how collaboration can achieve outcomes, and the CRC Program framework is being implemented in other countries. While this should lead to an expectation of increased funding into this successful model, subsequent to Backing Australia's ability, the funding for translational research through the CRC Program has been reduced, despite positive economic findings in each review of the program that has been conducted.

The argument is not that funding for basic discovery-focused research should be reduced, but rather that adequate funding for support of translational research is a necessity to achieve the stated aims of improved health and wellbeing.

There are many examples of the significant economic and health returns that have been created through the CRC Program's Medical Sector centres:

- The high-oxygen-permeable soft contact lenses developed by the Vision CRC in collaboration with Novartis AG and CIBA Vision;
- Improved treatments for asthma developed by the CRC for Asthma and Airways;
- Improved prevention of dental decay through use of Recaldent, a technology developed by the Oral Health CRC; and
- New directions for cancer treatment developed through the CRC for Cancer Therapeutics.

As an example, the HEARing CRC has developed:

- New electrode technology commercialised by Cochlear Limited – resulting in new patient indications for adults and children with some usable residual hearing;
- NAL-NL2 fitting prescription software, now used to fit half of the world's hearing aids; and
- Soundshield, the world's first acoustic shriek protection technology for use in call centres.

These developments highlight how the focus on industry involvement results in usable products and clinical services that can be taken up both in Australia and world-wide.

In addition, the longer-term research plans of CRCs, and industry involvement in all facets of research projects, creates additional new opportunities for higher degree research students and early career scientists to develop the innovative skills that are increasingly necessary in the next-generation of Australia's medical researchers. CRCs have a higher than average completion rate for PhDs, and a significant proportion of these students go on to take up positions in industry, an investment in improved future collaboration between industry and medical science institutions.

Australia's needs a vibrant and effective medical research sector – primarily as the economic burden associated with health and ageing is projected to increase. In our field, hearing loss affects one in six Australians, with a total financial cost estimated to be around \$23 billion / annum<sup>1</sup>, with a significant component being lost productivity due to the effects of hearing loss on employment opportunities. The prevalence of hearing loss is projected to increase to one in four by 2050, potentially increasing these costs. Much of this hearing loss is in fact preventable. The detrimental effects of hearing loss have been articulated by the World Health Organisation, and include not only problems with communication, but also a significant burden of disease including heart disease, cognitive impairment, sleep disturbance, tinnitus and distress from annoyance.

Clearly, Australia needs a vibrant medical research sector. However, it may be moment to acknowledge that current funding/career models such as the NHMRC are good at administering peer-reviewed basic research, but that alternative models, such as the CRC Program, should have an increased emphasis as primary providers of translational research that is critical to achieving outcomes that impact on both increased efficiencies in health services and increased profitability and expansion of our medical technology and pharmaceutical sectors.

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<sup>1</sup> Listen Hear, Economic Impact of Hearing Loss in Australia, CRC HEAR, Access Economics, 2007.