

Building an Academic—Industry Partnership to Tackle Australia’s Biggest Health Burden



Rachel E. Climie, PhD^a, Bronwyn A. Kingwell, PhD^{a,b},
Gemma A. Figtree, MBBS, DPhil, FRACP^{c,d*1}

^aBaker Heart and Diabetes Institute, Melbourne, Vic, Australia

^bCSL Limited, Bio 21 Institute, Melbourne, Vic, Australia

^cKolling Institute, Faculty of Medicine and Health, University of Sydney and Royal North Shore Hospital, Sydney, NSW, Australia

^dCharles Perkins Centre, University of Sydney, Sydney, NSW, Australia

Cardiovascular disease (CVD) poses a highly significant health and economic burden in Australia and worldwide, with the latest global burden of disease study identifying cardiovascular disease as an “expanding threat to global health” [1]. Australian cardiovascular researchers are recognised internationally for their broad expertise spanning from fundamental molecular and cellular biology, through innovative bioengineering approaches, patient-focussed clinical trials, and impactful community interventions for improved public health. However, funding challenges have resulted in a fragmented research sector struggling to survive, let alone work together as an effective national team with strategic leadership and collaboration. The Australian Cardiovascular Alliance have successfully advocated for a federally supported Mission for Cardiovascular Health (\$220 Million). A key element of success in their goal of enhancing the CV health of Australians, is partnering with industry.

As recently reported in *Heart, Lung and Circulation* [2], the Australian Cardiovascular Alliance (ACvA) is a not-for-profit, incorporated, entity, established to increase the visibility of CVD as a National Health Priority Area, representing the voice of researchers throughout the country and across the translational pipeline. The Alliance is focussed on innovative strategies to drive improved collaboration, translation and ultimately health and to impact the Australian cardiovascular research sector. The first quarter of 2019 has seen achievement of one of our greatest milestones, with respect to advocacy work to date, with the successful proposal to the Federal Health Minister for a Mission in Cardiovascular Health. This was rewarded in February, with a major announcement of a \$220 million investment in Australian cardiovascular research. Together with the NSW Government commitment to \$150 million for cardiovascular research, the investment in the Mission will provide the sector with significant incentive and opportunity to work together to find new ways to reverse brain drain, accelerate

discovery, enhance translation and industry investment, and improve the health of Australians and beyond.

The economic opportunities related to building a sustainable and innovative cardiovascular research workforce in Australia are clear. The direct costs of CVD are approximately \$8.8 billion annually (and rising) [3,4]. The benefit-to-cost ratio of investment in cardiovascular research in Australia is estimated to be over twice that of the average (already high) economic returns for medical research, with up to \$7.90 returned for every \$1.00 invested [5,6]. Cardiovascular device and pharmaceutical companies are an important link between academic discovery and delivery of improved health outcomes. However, to date, the connections between academia and industry have been fragmented and patchy. The ACvA seeks to foster a more strategic national approach to build enduring relationships between the academic, industry and the health care sectors to drive rapid growth in the delivery of better health. This collaborative, whole-of-pipeline platform that is central to the ACvA’s

*Corresponding author at: University of Sydney Kolling Institute, Level 12, Kolling Building, Royal North Short Hospital, NSW, 2065, Australia.

Tel: +61 2 9926 4915., Email: gemma.figtree@sydney.edu.au

¹<http://sydney.edu.au>.

© 2019 Published by Elsevier B.V. on behalf of Australian and New Zealand Society of Cardiac and Thoracic Surgeons (ANZSCTS) and the Cardiac Society of Australia and New Zealand (CSANZ).



Figure 1 The ACvA Industry Round Table in action at the Shine Dome, Canberra.

successful Mission proposal, will make Australia an attractive place for industry to collaborate more closely with academia to advance discovery, development and delivery of new medicines, devices and models of care.

ACvA's objective to create a national strategic platform to support academic–industry partnership was launched at its inaugural ACvA Industry Round Table, which was held at the Shine Dome, in Canberra with generous support by the Academy of Science. Facilitated by Chris Hatherly, Director, Science Policy and Projects at the Australian Academy of Science, the Round Table was framed around two main objectives:

- 1) To discuss and plan how to build academic–industry partnerships, in order to help secure the future of cardiovascular research and,
- 2) To build strategies to increase and optimise all Australians' access to medicines and evidence-based care.

The event was attended by a broad range of stakeholders—from researchers across multiple disciplines including drug discovery, bioengineering, clinical trials and big data, through to clinicians and representatives from State and Federal Departments of Health, venture capitalists, and national heads of industry. Industry representation included health care providers, global pharmaceutical leaders and imaging and device companies, with over 50 participants in total (Figure 1).

An important message that emerged from the first session was that a more coordinated effort was required to attract both local and international industry investment and partnership with Australian academics. The ACvA vision for a more integrated approach was viewed as a major step forward, with general agreement that this must be backed-up with a specific implementation plan, including a dedicated website page, and national showcases, as well as more focussed strategic round tables that engage relevant global industry leaders. Having a “single front door” for industry partners to engage with the Australian cardiovascular sector was considered important to encourage investment in prevention, discoveries and increased activity in first-in-man clinical trials through to large multi-centre clinical trials.

The opportunity for engaging with Australia's strong health care system through the National Health and Medical Research Council (NHMRC)/Medical Research Future Fund (MRFF), Advanced Health and Research Translational Centres and partnering with our Society member the Royal Australian College of General Practitioners, was regarded as a strategic advantage.

While in 2019 the current health care ecosystem was considered as a mix of challenge and opportunity, strategic investment and leadership to establish a strong academic–industry partnership was viewed as a key pillar to place Australia in a global leadership position with broad impact by 2030 (Figure 2).

Opportunities to enhance the use of “big” data to drive more efficient health care delivery was a major focus of the day. Professor Steven Worthley, a cardiologist and Executive Manager of Genesis Care, stressed that the most effective working model is the implementation of bidirectional data sharing that assists companies, but ultimately improves patient care and outcomes. Professor Stuart Grieve, the Parker Hughes Chair of Radiology and Sydney Medical School Group Leader in Cardiac Imaging at the Heart Research Institute discussed academic and industry imaging partnerships and identified how imaging has the potential to have a major impact on health outcomes, but that data management requires major reform. “Our ability to take meaningful imaging data in a standardised fashion and get it into the data banks is very poor at the moment and we're probably using only a fraction of the available technology and health information. We need to enhance existing dedicated capacity in cardiovascular imaging and link scanning data analysis to actual patient outcomes much better than we're currently doing,” he said. Associate Professor Andrew Wilson, the Chief Medical Officer at Health Victoria, said improved measurements of cardiovascular outcomes was an essential step: “The key is to unlock the data held by state and federal governments in a secure manner for the benefit of the sector. We need to measure outcomes at a population level to enable clinical trials on populations with data linkage and robust outcome measures.”

Table 2 Priorities for building an academic–industry partnership.

- Collaboration– building deep relationships around shared interests
- Data linkage– researcher accessibility to de-identified health data to inform clinical need and national health policy
- Partnerships– attracting local and global pharmaceutical, device and health care companies to engage with Australian cardiovascular researchers
- Consumer engagement– in cardiovascular disease research from inception to implementation
- Sustainable career development– including mentorship of the cardiovascular research workforce by industry and the health care sector

References

- [1] Roth GA, Abate D, Abate KH, Abay SM, Abbafati C, Abbasi N, et al. Global, regional, and national age-sex-specific mortality for 282 causes of death in 195 countries and territories, 1980–2017: a systematic analysis for the global burden of disease study 2017. *Lancet* 2018;392(10159):1736–88.
- [2] Figtree GA, Jennings G, Nicholls S, Graham RM. The Australian cardiovascular alliance–towards an integrated whole-of-nation strategy to address our major health burden. *Heart Lung Circ* 2019;28(2):198–203.
- [3] Deloitte Access Economics. Healthcare expenditure and productivity cost savings resulting from increased intake of grain fibre in Australia; Australia 2017.
- [4] Australian Institute of Health and Welfare. Healthcare expenditure on cardiovascular diseases 2008-09; Cat.No. CVD 65. Canberra 2014.
- [5] Lateral Economics. The economic value of Australia’s investment in health and medical research: reinforcing the evidence for exceptional returns. A paper commissioned by research Australia; Sydney, NSW <https://apo.org.au/node/235292010>.
- [6] Access Economics. Exceptional returns: the value of investing in health research & development in Australia. In: Report for the Australian society for medical research; 2003.
- [7] Patridge EV, Gareiss PC, Kinch MS, Hoyer DW. An analysis of original research contributions toward FDA-approved drugs. *Drug Discov Today* 2015;20(10):1182–7.
- [8] Gromo G, Mann J, Fitzgerald J. Cardiovascular drug discovery: a perspective from a research-based pharmaceutical company. *Cold Spring Harb Perspect Med* 2014;4(6):a014092.