

CREATING A HEALTHY FUTURE

Victoria has built a thriving, globally competitive health and medical research system through sustained investment in science and research infrastructure, skills and product development and commercialisation capabilities. This has created jobs, attracted investment, generated exports, delivered better healthcare and has enabled a rapid response to the coronavirus (COVID-19) pandemic.

Commencing 20 years ago, successive Victorian Governments have made a series of strategic investments in science, technology and innovation, with a strong focus on the health and medical research sector.

This report presents the impact of investments made in the 2000 to 2010 timeframe (the 'experimental period') since sufficient time has elapsed to evaluate the outcomes of these investments.

In particular, this report focuses on the impact of:

- the \$620 million *Science, Technology and Innovation (STI) Initiative* (50 percent of investments were biotechnology-related), which was delivered through two contestable rounds commencing in 1999 and 2004;
- the \$230 million *Healthy Futures: Victoria's Life Sciences Statement* in 2006; and
- the *Operational Infrastructure Support (OIS) Program*, which commenced in its current form in 2001 and continues to this day.

Alongside these investments in science and research capability, several Biotechnology Strategic Development Plans were released over the period to provide policy direction and some support to facilitate growth of the associated industry sectors. The Plans played a critical role in providing a strategic framework that informed investment decisions but were not a major grant program in and of itself.

Together, these programs worked to secure Victoria's position as a globally recognised leader in health and medical research and biotechnology. Eleven case studies are presented to illustrate the diversity and strategic intent of the programs and their impacts over time.

VICTORIA'S SCIENCE, TECHNOLOGY AND INNOVATION INITIATIVE, HEALTHY FUTURES AND OPERATIONAL INFRASTRUCTURE SUPPORT PROGRAMS DELIVERED SUBSTANTIAL ECONOMIC IMPACT AND JOBS

A series of economic evaluations have been undertaken at an individual program level and in combination.

The primary findings were that every dollar of Victorian Government funding invested to support the health and medical technologies and pharmaceuticals sectors has generated an additional Gross State Product (GSP) of \$3.66 and additional income of \$4.54 in Victoria.¹ For the three programs within focus, this equates to an annual average GSP to funding ratio of 15.7 percent for the *STI Initiative*, 20.5 percent for *Healthy Futures*, and 19.2 percent for the *OIS Program*.

Victorian Government investment over the period to 2016-17 also generated nearly 28,000 employee years of Full-Time Equivalent (FTE) direct employment, and nearly 46,000 employee years of FTE indirect employment in the broader Victorian economy.



IMAGE CREDIT: DEPARTMENT OF JOBS PRECINCTS AND REGIONS

INVESTMENT HAS CREATED LASTING CAPABILITY

The *STI Initiative*, *Healthy Futures* and *OIS Program* have provided the investment to support the structure (bricks) and strength (mortar) of Victoria's health and medical research system and corresponding industry sectors. These investments have underpinned essential capabilities in:



Discovery research: through the creation of the Bio21 Institute, the expansion of the Walter and Eliza Hall Institute and the Murdoch

Children's Research Institute, the establishment of the Australian Regenerative Medicine Institute and the amalgamation of neurosciences institutes into the Florey Institute, Government investment boosted Victoria's medical research base. These, along with later investments in discovery research including the Peter Doherty Institute for Infection and Immunity, the Victorian Comprehensive Cancer Centre and the Olivia Newton-John Cancer Wellness & Research Centre, have attracted global technology firms to establish joint facilities such as the recent \$60 million Illumina-University of Melbourne Genomics Hub and the global headquarters of CSL.



Product development and commercialisation capabilities:

quality pre-clinical candidates through the Centre for Drug

Candidate Optimisation (contributing to over 260 drug discovery projects across Australian companies), early-clinical trial capability through Nucleus Network (conducting over 800 Phase I clinical trials for biotechnology and pharmaceutical companies), and early-stage product development through the Medical Research Commercialisation Fund (creating 25 new biotechnology companies in Victoria), supports the translation of Victoria's first-class research into improved health outcomes.



Research platform technologies:

ranging from major research facilities such as the Australian Synchrotron through to smaller but nevertheless impactful platforms such as the Victorian Microarray Technology Consortium, these facilities provide access to the cutting-edge and world-class capabilities needed to support research breakthroughs. Victoria hosts nine National Collaborative Research Infrastructure Strategy (NCRIS) capabilities, more than any other state and has attracted close to \$400 million of Australian Government investment since 2006.



Industry and Academic

Networks: by establishing and collaborating with organisations such as the BioMelbourne

Network, AusBiotech and the Alfred Research Alliance, Victorian Government investment supported the creation of critical mass and the building of local, national and international networks that are the hallmark of leading global research systems.



INVESTMENT HAS CREATED AN ENVIRONMENT ABLE TO RAPIDLY RESPOND TO THE CORONAVIRUS CRISIS

Victoria's response to the coronavirus pandemic has shone a light on the value of investment across areas such as infectious disease, epidemiology, immunology research, public health and advanced manufacturing and clinical trials capabilities.

A rapid and multidisciplinary response by our health and medical system has positioned Victoria at the forefront of local, national and global coronavirus responses.

This includes the development of therapies and potential vaccines, testing, diagnostics and public health advice, with notable examples including:

- The Doherty Institute was the first laboratory outside of China to grow the novel coronavirus in January 2020 and has since provided modelling work to support the government response to COVID-19.
- The Burnet Institute is progressing development of a rapid diagnostic test.
- Walter and Eliza Hall Institute of Medical Research is using the National Drug Discovery Centre to accelerate the discovery and development of new medicines for COVID-19 and other coronaviruses.
- The Murdoch Children's Research Institute is leveraging its expertise in child health to support the response, including researching the differences in the way that children experience COVID-19 infection and immunity compared to adults.
- Nucleus Network is undertaking Phase I and II clinical trials for four COVID-19 vaccine candidates.

- 360biolabs is providing specialist technical services for multiple international COVID-19 vaccine trials.
- Australia's largest multinational biopharmaceutical company, CSL, is manufacturing potential COVID-19 vaccines for roll-out in Australia, subject to regulatory approval.
- Starpharma is expediting development of a COVID-19 antiviral nasal spray.

THERE IS AN ONGOING ROLE FOR THE VICTORIAN GOVERNMENT TO CONTINUE TO SUPPORT THE SECTOR

The impact of these early programs demonstrate that investments by Government in health and medical research – both large and small – generate clear returns on investment and make a critical contribution to the establishment of a thriving system. Importantly, initial government investments are catalytic; creating a basis for further government, commercial and philanthropic funding which allow for ground-breaking research with transformational impact.

The strength of Victoria's health and medical research system has been underpinned by strategic, long-term and cross-government support and investment. Looking forward, the evidence of the impact of past investment tells us that there is a clear role for the Victorian Government to support the sector as it continues to evolve and grow – ensuring it is equipped with the right capabilities and capacity needed to address increasingly complex challenges, to contribute to a high quality healthcare system and continue powering a thriving economy.



IMAGE CREDIT: DEPARTMENT OF JOBS PRECINCTS AND REGIONS

THE OVERALL STRENGTH AND COMPETITIVENESS OF THE HEALTH AND MEDICAL RESEARCH SYSTEM AND BIOTECHNOLOGY SECTOR HAS INCREASED SINCE 2000

Victoria is now a world-class life science cluster and has a global reputation as a leading health and medical research centre of excellence. Victoria's biomedical universities and 12 independent Medical Research Institutes provide a flow of talent, knowledge, tools, technology and global relationships that support jobs across the broader economy.

Strategic Victorian Government investment has meant the State is well positioned to attract medical researchers, life sciences companies, R&D investment and medical research funding.

EVERY DOLLAR
of Victorian Government
funding generated

\$4.54

OF ADDITIONAL INCOME



Victorian Government funding generated

73,717 EMPLOYEE YEARS

of **direct and indirect full-time equivalent jobs in Victoria**

over the 18-year period to 2016-17



Melbourne consistently attracts
MORE THAN

40%

of Australia's medical
research funding



Melbourne is only one of four cities in the world to have

TWO UNIVERSITIES

IN THE GLOBAL TOP 40 BIOMEDICINE RANKINGS

Victoria medtech and
pharmaceutical exports
are worth over

\$2.4 billion
EACH YEAR



Victorian medical technologies
and pharmaceutical
companies spend just under

\$1 billion

A YEAR ON RESEARCH
AND DEVELOPMENT

i This includes the three programs within the scope of this report and further related initiatives or sub-prgrams and represents the impact of investment beyond 2010. The 2018 report by ACIL Allen Consulting modelled the impact across 15 programs from 1999-2000 to 2016-17.