

Submission: Accelerating Research and Development in NSW

The George Institute for Global Health is pleased to make this submission, Accelerating Research and Development (R&D) in NSW.

The George Institute is a leading independent global medical research institute, established and headquartered in Sydney, with major centres in China, India and the United Kingdom, and an international network of experts and collaborators.

Our mission is to improve the health of millions of people worldwide, particularly those living in under-served or low resource settings, by challenging the status quo and using innovative approaches to prevent and treat non-communicable diseases (NCD) and injury.

Accompanying The George Institute is its commercial arm, George Health, which produces a surplus each year to support The George Institute's research. A business of George Health is George Clinical, a commercial clinical research organisation that conducts clinical trials globally for pharma and medical devices companies. George Clinical currently has over 14 offices worldwide, predominately in the Indo-Pacific region, but also in the United Kingdom, the Netherlands and in the United States of America.

Projects we are developing include:

- **The Affordable Dialysis System:** 10 million people worldwide live with end-stage kidney disease, and over seven million of them will die because they do not have access to life-saving dialysis or a kidney transplant. This is the need that Ellen Medical Devices and The George Institute aim to address. Our peritoneal dialysis machine can sterilise water in places where water supply may be contaminated by using solar power, can fit in a small suitcase, and runs on a few dollars a day. This machine is an innovative solution to a massive global health problem that can affect the lives of millions of people in low and middle income countries.
- **Polypill:** Cardiovascular disease is the leading cause of disease burden globally, and affects people across the geographic and socio-economic spectrum. Although many effective treatments are available, only half the people at risk in high income countries and less than 10 percent of at-risk people in low-income countries are receiving all recommended treatments. To combat this problem, The George Institute has developed a range of low-dose combination therapies. This mean patients only need to take one pill, once a day, to receive the multiple drugs they need to prevent secondary

events. These polypills will ensure that more patients take the right pills at the right time, and will help reduce their risk of heart attack and stroke.

- **FoodSwitch App:** Packaged food products often contain surprisingly high levels of salt, sugar, saturated fat and calories, all of which may contribute to health risks such as heart disease and diabetes. In order to make better choices, people need information about what they are buying, but nutrition information on food labels can be confusing. FoodSwitch was designed to help people make healthier choices by empowering users with information, and suggesting healthier alternatives. This app, currently available in ten countries, is allowing people to take control of their health and improve their well-being through informed decision making.
- **SMART*health*:** Five billion people worldwide live without reliable access to primary healthcare. The systems that deliver care are dysfunctional in many low- and middle-income countries, and the medical workforce is often too limited to deliver care, even to those in urgent need. SMART*health* is a low cost, digital platform that supports clinical decision-making and improves the screening, detection and management of chronic disease in adults. It is currently being used in Australia, China, India and Indonesia and has the potential to transform primary healthcare in resource-poor settings, as it provides an accurate, mobile process for identifying high-risk patients and referring those in urgent need for further care.

In October 2019, The George Institute established Genovate, a social entrepreneurship and innovation program. Genovate is dedicated to creating further healthcare solutions that address unmet health needs in underserved populations. It works with our researchers and partners to fast track product development and guide innovation teams toward commercialisation and market success, so we can improve the lives of millions of people. You can find out more information about Genovate by visiting www.georgeinstitute.org/genovate.

Question 1: How can the NSW Government better support The George Institute in its R&D efforts?

The NSW Government can better support The George Institute in its R&D efforts through:

- **Acknowledging the importance of health and medical research:** Health and medical research play an important part in innovation and R&D. It requires specific and targeted support, including financial.
- **Investment through funding:** Invest in innovation and R&D that specifically addresses the rising health burdens of non-communicable diseases and injury.
- **Supporting early-stage commercialisation:** This is best done via seed funding, proof of concept funding, and investment schemes. Please note: the existing schemes, including the Medical Devices Fund and the Minimum Viable Product, are very valuable and should continue, but they do not address the earlier 'valley of death' stages of health and medical R&D, that are often under-funded.

Question 2: How can the NSW Government better support the R&D and innovation ecosystem in NSW?

The NSW Government can better support the R&D and innovation ecosystem in NSW through:

- **Supporting a whole-of-government approach:** Placing best practice innovation and R&D should be at the centre of all government programs, initiatives and decision making. It should be a clearly-defined priority theme and a whole-of-government approach.
- **Establishing a dedicated central and independent government agency:** Ensuring best practice innovation and R&D should be driven by a dedicated government agency to provide oversight and support, as well as encourage collaboration between agencies and industries. It should be an independent government agency / statutory authority, similar to Destination NSW, LaunchVic and the Israel Innovation Authority, governed by an independent chair and board of management.
- **Alignment of funding:** Government funding between jurisdictions should be aligned. This includes the funding of priorities, pools and/or deadlines. For example, NSW should align medical research grants with the Commonwealth's Medical Research Future Fund (MRFF) and National Health and Medical Research Council (NHMRC) grants; or further partnering with Austrade to organise international delegations such as the Landing Pad Program to Israel from 2016 to 2018.
- **Finalising the Sydney Innovation and Technology Precinct:** Finalise plans to establish and promote the Sydney Innovation and Technology Precinct. This precinct should be a world renowned centre for health and medical innovation. There should be incentives for organisations to relocate to the precinct. The George Institute has an interest in the future of this precinct.
- **Integrating Health and Medical Research:** Improving integration for health and medical innovation with innovation and R&D in NSW. For example, NSW Health should be encouraged to provide adequate support and resources, such as integrated access to clinical data, clinicians, and/or consumers for health start-ups for R&D.

Question 3: What barriers for R&D in NSW has The George Institute experienced and how can the NSW Government address these?

The George Institute has experienced barriers in progressing or supporting R&D. The NSW Government can address these through:

- **Supporting researchers to turn their ideas into reality:** Researchers create new ideas and products. In some cases, to further progress, they are required to become commercial and / or venture into business. This can be a barrier. The NSW Government can address this barrier by offering:
 - Advice and training on commercial and business opportunities.
 - Financial support, including low interest or interest free loans, to researchers that progress their idea or product. This is important, as many researchers would cease undertaking research or a salary in order to progress an idea or product.
 - Networking events for researchers to meet investors.
- **Retaining researchers:** Researchers throughout their careers will become more commercial and business focused in order to progress their ideas and products. This creates a financial burden for former researchers wanting to return to research. The NSW Government can address this burden by offering financial support / incentives for researchers to return.

Question 4: What does the NSW Government do well in the R&D space and what are the key opportunities for NSW Government to accelerate R&D in NSW?

The NSW Government does several actions well in the R&D space, with key opportunities to accelerate R&D in NSW through:

- **Appointing a dedicated Innovation Minister:** Since 2015, there has been a Minister for Innovation and Better Regulation. This ministerial portfolio is currently held by the Hon. Kevin Anderson MP (since April 2019), and previously by the Hon Matt Kean MP (January 2017 to April 2019) and the Hon Victor Dominello MP (April 2015 to January 2017). A key opportunity is for the Minister to have a section in all cabinet paper minutes dedicated to “innovation opportunities”.
- **Drafting the Innovation (and R&D) Strategy:** In 2015/16 the NSW Government Innovation Strategy was launched. This document was a vision to boost innovation in NSW. A key opportunity is to review and relaunch the Innovation Strategy in 2020 by undertaking a thorough and robust consultation process.
- **Establishing the Sydney Start-up Hub:** The \$35 million Sydney Start-up Hub, which opened in February 2019, was the first of its kind in Australia. It is key to cementing NSW as the innovation capital in Australia. A key opportunity is to open more start-up hubs in NSW, including in regional NSW. The start-up hubs can also open with a specific focus. For example, AgTech, rural health, and energy and climate change.
- **Establishing innovation precincts:** We welcome the establishment of innovation precincts in NSW. These are currently located in Bankstown, Blacktown, Campbelltown, Macarthur, Frenchs Forest, Greater Parramatta, Greater Penrith, Harbour CBD, Kogarah, Liverpool, Macquarie Park, Randwick, St Leonards. A key opportunity is to establish innovation precincts in regional NSW such as Central Coast, Hunter, Illawarra, Southern Tablelands, South Coast, Central West, Greater West, North Coast, and Northern Tablelands.
- **Investing in programs and funding:** Existing programs and funding schemes are valuable and effective, in particular:
 - Digital Western Parkland City 2019.
 - CX Pipeline.
 - DPI Online Grand Challenge.
 - Smart Cities and Accessibility.
 - Reducing Domestic Violence Reoffending.
 - Pitch to Pilot 2018 (did not take place in 2019).
 - Youth Employment Innovation Challenge 2018 (did not take place in 2019).
 - Partnering with Austrade for its Landing Pad Program to Israel 2016-18 (did not take place in 2019).
 - I4G Pitch 2017 (did not take place 2018 or 2019).

A key opportunity is to continue these programs to ensure the next generation of innovators have the opportunity to see their ideas turn into reality.

Question 5: How can NSW better leverage Australian Government investment in R&D?

NSW can better leverage Australian Government investment in R&D through:

- **Aligning, complementing, partnering and collaborating funding priorities:** As previously stated, government funding between jurisdictions should be aligned and complemented (refer to Question 2). There is the opportunity to partner and collaborate with the Federal Government. For example, the Landing Pad Program to Israel with Austrade from 2016 to 2018 (refer to Question 2 and Question 4), and the Boosting Female Founders Initiative (refer to Question 6).
- **Open innovation:** Support and incentivise open innovation between universities, medical research institutes and the corporate and private sector, including industry placements.

Question 6: Are there examples from other jurisdictions supporting R&D that NSW can learn from/adopt?

The NSW Government can learn, adopt and partner with other jurisdictions in the R&D. Examples include:

- **The Commonwealth's Female Founders:** The Commonwealth Department of Industry, Innovation and Science has organised the Boosting Female Founders Initiative. The program contributes to removing barriers for women's economic participation in the workforce by providing access to finance for start-ups led by women. A key opportunity for NSW is to partner with the Commonwealth on this initiative. Further information is available by visiting <https://consult.industry.gov.au/science-commercialisation/bff-design/>.
- **The Victorian Government's LaunchVic:** LaunchVic was established in 2016 by the Victorian Government. It is an independent agency responsible for developing Victoria's start-up ecosystem with a focus on funding, community building and global recognition for the Victorian start-up ecosystem. They have realised two strategic plans. The first from July 2017 to June 2019 was *Growing Victoria's Start-up Community*; and the second from July 2019 to the present is *Building For Growth*. LaunchVic funds service providers and programs that address specific gaps and needs in the start-up ecosystem, aligning with their strategic plan. Further information is available by visiting <https://launchvic.org/>.
- **The Israel Innovation Authority (IIA):** Established in 1965 as the Office of the Chief Scientist, it was renamed the IIA in 2016. It is an independent government funded agency that partners with venture funds (public-private partnerships) to provide practical tools and funding platforms for local and international innovation ecosystems. Their divisions include Start-up Division, Growth Division, Technological Infrastructure, International Collaboration, Advanced Manufacturing and Societal Challenges. IIA invest in early stage start-up projects that are too risky for private investment. They also undertake 'reverse innovation', which is to start with challenges and unmet needs, followed by calling for innovative solutions. Further information is available by visiting <https://innovationisrael.org.il/en/>.
- **Destination California:** California is ranked the number one United States of America state for innovation. This is due in large part to having approximately 15 percent of S&P 500 companies headquartered in California such as Apple, Alphabet and Facebook. The reason California attracts these innovative companies is due to their start-up environment, including access to universities, industry, venture capital, and effective transport infrastructure, and allows companies to take risks and 'fail safely'. NSW needs to attract the best Australian and global innovative companies if it wants to be the most innovative state in Australia.