Victoria’s International Health Sector
CAPACITY REPORT 2018
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The recommendations contained in this report are solely the views of the Global Health Alliance Melbourne.
## Contents

<table>
<thead>
<tr>
<th>Part</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part 1</td>
<td>Introduction</td>
<td>6</td>
</tr>
<tr>
<td>Part 2</td>
<td>Executive Summary</td>
<td>7</td>
</tr>
<tr>
<td>Part 3</td>
<td>The 10 point plan for Victoria’s International Health sector</td>
<td>8</td>
</tr>
<tr>
<td>Part 4</td>
<td>About the Global Health Alliance Melbourne</td>
<td>10</td>
</tr>
<tr>
<td>Part 5</td>
<td>Methodology and data sources used for this report</td>
<td>12</td>
</tr>
<tr>
<td>Part 6</td>
<td>Victoria and the international health equity challenges</td>
<td>13</td>
</tr>
<tr>
<td>Part 7</td>
<td>Defining the Victorian International Health Sector</td>
<td>24</td>
</tr>
<tr>
<td>Part 8</td>
<td>Victoria’s International Health Capability</td>
<td>29</td>
</tr>
<tr>
<td>Part 9</td>
<td>Key statistics – a snapshot</td>
<td>67</td>
</tr>
<tr>
<td>Part 10</td>
<td>Outlook for the Victorian international health sector</td>
<td>68</td>
</tr>
<tr>
<td>Part 11</td>
<td>Findings and recommendations</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>Appendix One</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>Appendix Two</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>Appendix Three</td>
<td>90</td>
</tr>
</tbody>
</table>

The visualisation of the survey results that underpin this report can be viewed at:

www.glham.org/members-expertise
Part 1 Introduction

Message from the Chair

Victoria’s expertise in the international health sector continues to save lives, improve health outcomes and contribute to the Victorian economy. This expertise is crucial to the international health goal: to reduce health inequalities.

From preventing malaria-related deaths to tackling diabetes, Victoria is at the forefront of creating innovative international health solutions. Investments in public health problems in Victoria also have global impacts, such as recent investments into River Blindness, Buruli ulcer and HTLV-1.

The returns on investments in international health are huge: up to $1: $40 for investments in malaria and up to $1: $44 for immunisation. The associated reductions in mortality in low and middle-income countries have contributed to between 11%-24% of their economic growth, and the value to Victoria in terms of GDP, jobs, trade and overseas-sourced income is significant across the 12 international health areas of expertise described in this report.

Many of the key participants in the Victorian global health sector are in close geographical proximity to Australia’s largest health and research precincts. The Global Health Alliance Melbourne (GLHAM) defines these precincts as the Deakin, Monash and Melbourne precincts.

The universities, hospitals, research institutions, international non-government organisations, biotechnology, medical technology and pharmaceutical companies co-located in these clusters are perfectly positioned to work together to produce internationally-recognised breakthroughs in health challenges. With targeted support, facilitation and investment, new collaborations can be enabled which will yield greater health impacts and more health equity for Victorians, Australians and our global community.

This report collates data and provides evidence of impacts to paint a picture of the Victorian international health sector, proposes opportunities for increasing its economic and health impact, and makes recommendations regarding how the sector can be supported to deliver an even larger contribution.

With this new mapping of Victoria’s international health capacity, we are perfectly positioned to tackle the global burden of disease through local and international cooperation and engagement.

The Hon. John Brumby, AO
Chair, Global Health Alliance Melbourne
Part 2 Executive Summary

This report began as a vehicle through which to showcase the capabilities of the ten organisations that founded the Global Health Alliance Melbourne.

We were subsequently invited by the Department of Health and Human Services to expand the report and provide an inventory of the activity and organisational types - both public and private - that work in some aspect of international health in Victoria.

This report showcases eleven areas of specific capacity where we have runs on the board and the potential for growth.

And while it’s well understood that Victoria has a wide range of expertise, from drug discovery to field-based implementation, it’s also true that international health endeavours operate in segments. The Global Health Alliance Melbourne was formed to enable cross-fertilisation between these segments, ensuring that funding is used more efficaciously and has a greater impact.

This report aims to achieve four things:

(i) to demonstrate the depth and breadth of capability in Victoria which is available to address the key international health equity issues – supporting our belief that Victoria is the hub of international health expertise in Australia;

(ii) to showcase the impact and partnership capacity of organisations that are largely co-located in three defined precincts in Victoria;

(iii) to demonstrate the value to Victoria of our international health engagement; and

(iii) to identify what can be done to enable the growth and further development of the international health sector in Victoria.

The audience for this report and the related outputs of this research include Australian High Commissions and Embassies, Victorian State Government Trade Offices both on and offshore, organisations that seek to partner and collaborate with Victorian-based entities to achieve international health equity and career advisors in high schools and universities.

A set of recommendations that arose out of this study has been forwarded to the Victorian Minister of Health and Ambulance Services.

Finally, the results of the survey that underpin this report have been visualised by GLHAM member HDR, and can be viewed at:

www.glham.org/members-expertise

Misha Coleman
Executive Director, Global Health Alliance Melbourne
Part 3 The 10 point plan for Victoria’s International Health sector

The following recommendations are more fully explained on pages 78-84.

**Recommendation (i)**

Victoria’s substantial international health capacities are an exceptional resource that the Victorian Government could include in strategic trade, investment and economic development activities.

**Recommendation (ii)**

The Victorian International Health Sector is broad and deep, but is also segmented. The Global Health Alliance welcomes support in its efforts to foster more international health partnerships, thereby breaking down these segments.

**Recommendation (iii)**

Capitalise on the outstanding capacities for global biomedical and public health research to contribute to addressing complex and obdurate health inequalities, health security risks and health emergencies.

**Recommendation (iv)**

Enable more translation of research in Victoria for the benefit of low, middle and high income nations globally.

**Recommendation (v)**

Increase the opportunities for pre-service education and training, professional development and research capacity building in health for international undergraduate and postgraduate students and people with existing qualifications.

**Recommendation (vi)**

Support and develop more capacity to conduct collaborative clinical trials in Victoria and in Asia Pacific nations.

**Recommendation (vii)**

Maximise the reputational and strategic benefits of having 22 World Health Organization Collaborating Centres based in Victoria by establishing a National Secretariat in Melbourne.

**Recommendation (viii)**

Expand engagement with the international non-government organisations that have Victorian offices through:

- more consultation in strategy development
- involvement in consortium bids and partnerships
- extension of the Victorian Government’s existing health industry networks.

**Recommendation (ix)**

Develop, facilitate and promote new business models for global health financing.

**Recommendation (x)**

Consider reconfiguring the Victorian Government’s health industry networks on a geographic basis – as opposed to the current sectoral basis – and utilise existing peak bodies and industry associations to host and develop the health industry networks.
“The shared global disease burden is a key driver of increased international engagement and cooperation.”

Part 4 About the Global Health Alliance Melbourne

The Global Health Alliance Melbourne (GLHAM) was established in 2016 under the leadership of the Hon. John Brumby AO to coordinate and create partnerships between organisations in Melbourne that work in global health.

GLHAM capitalises on the position of Melbourne and Victoria as the primary hub within Australia of global health expertise.

GLHAM fosters partnerships between a diverse mix of organisations – from universities to hospitals to international non-government organisations (INGOs). Through partnerships and collaboration, organisations can encourage and support health improvements and health equity, whilst contributing to regional stability, assisting with the establishment of new trade relationships, and generating goodwill for the state and country. This produces considerable benefits and offers opportunities for growth locally, in Victoria, regionally and globally.

Core activities of GLHAM include:

- facilitating partnerships between organisations that have not traditionally worked together;
- providing an enabling environment for Victorian-based entities from a number of different sectors;
- identifying strategic opportunities for member organisations;
- supporting and establishing collaborative industry and theme-based networks;
- representing members to achieve enabling policies, strategies and legislation; and
- providing platforms to enable members to meet the Sustainable Development Goals.

Organisational types within the GLHAM membership

- Clients and Patients
- Research
- Advocacy
- Education
- Service Delivery
- Government/Policy
- Philanthropists
- Entrepreneurs
- Private Sector
Part 5 Methodology and data sources used for this report

(i) Data Sources

a) As the most recent data sets describing parts of this sector were compiled in 2014, there was a need to collect new information from organisations in Victoria who work either partially or wholly in the global health sector. To do this, the Alliance developed and distributed a survey to 200 businesses and organisations in late 2017, based on a database that had been compiled by the Department of Health and Human Services (DHHS) and Department of Economic Development, Jobs, Transport and Resources (DEDJTR). This included hospitals, international non-government organisations, and the private sector. Fifty-nine responses were received.

b) Policy Cures Research provided a detailed, bespoke analysis of the investments to Victoria in neglected tropical disease research and development spanning 2007–16.3

c) Policy Cures analysis of the major obstacles for global health research and development in Australia, undertaken by Dr Mary Moran.4

d) Information provided by the Australian Clinical Trials Network.5

e) In-depth interviews with a selection of leaders from the three international health precincts in Victoria (which are based around the three universities: Deakin, Monash and Melbourne).

f) Global Health Alliance Melbourne submission to the Foreign Policy Whitepaper: Return on Investments in Global Health, 2017.6

g) Victoria’s India Strategy: Our Shared Future, 2018.7


i) Bremer+Company Benchmarking the economic impact of Victoria’s health and aged care goods and services exports, 2014.


(ii) Outputs from this research

a) This Victorian International Health Capacity Report.

b) Four data visualisations were designed by member organisation HDR to show the countries deemed most important to GLHAM member organisations, a breakdown of their expertise and member network, and a chart capturing the obstacles and opportunities.8 These can be viewed at:

www.glham.org/members-expertise

c) A global health capability snapshot was provided to all entities that returned a survey response to GLHAM.
Part 6 Victoria and the international health equity challenges

Globally, there has been a large shift over the past decade in the burden of disease from communicable disease and maternal and child health concerns to non-communicable diseases.

This shift is particularly prominent in the Asia Pacific region, where Victorian-based organisations have a record of success in partnering with countries to address the non-communicable disease burden.

The ageing population in many Asian countries, also seen in other parts of the world, is contributing to the rising non-communicable disease burden and will continue to place pressure on health systems and health care costs, as we have experienced in Australia.

The emphasis needed on primary and preventative health services that efficiently address non-communicable diseases is threatened by over-allocation of resources to hospital care, particularly as national health schemes are implemented. The health and development agenda in low and middle-income countries has frequently overlooked non-communicable diseases, and this disease group was excluded from the Millennium Development Goals.9

Reaching under-served populations with benefits from health investments is crucial for more equal growth, stability and health security, but remains a challenge for health systems in the Asia Pacific region.

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Building the capacity of the health system in Uttarakhand, India

This three-year partnership reduced poverty by improving the public health leadership and capacity in a rural, poor area of Uttarakhand, India. The project was delivered through a private-government-university partnership – aligned to the Australian Aid’s focus on private sector development.

Nossal Institute has undertaken various health systems strengthening projects in India. A focus has been building the public sector through training in public health leadership. In this project in Uttarakhand the Institute worked with the state Government and the Public Health Foundation of India to increase the public health knowledge and skills of state medical officers and district program managers. To promote sustainability these local staff were taught to train others, ensuring that public health knowledge is embedded into the health system for the long-term.

The feedback indicated that trainees had never had specific training in public health leadership, yet the skills acquired from Nossal's program have been useful in their daily jobs. The program has been adapted and delivered in other parts of India.
At the same time, as health systems struggle to cope with the growing prevalence of non-communicable diseases and ageing populations, communicable disease and maternal and child health challenges remain. Whilst HIV-related deaths have declined globally, the Western Pacific region was one of the few regions in which there has been an increase between 2005 and 2015.10

Globally, tuberculosis treatment averted 49 million deaths between 2000 and 2015, however two countries in the Asia Pacific region – India and Indonesia – substantially contributed to the 4.3 million gap between estimated cases and those notified, and hence having access to treatment.11 Six of the fourteen countries of multiple high tuberculosis burden – tuberculosis, multidrug resistant tuberculosis and HIV/tuberculosis co-infection – are in the Asia Pacific region: India, China, Indonesia, Myanmar, Thailand and Papua New Guinea.12 57% of multidrug resistant tuberculosis cases occur in the Asia Pacific region, with only one in five people completing treatment.2,13

The Asia Pacific region is second only to Africa in malaria burden with around 16 million cases in 2015 (85% of cases outside Africa) and 28,000 deaths14. Whilst South-East Asia and Western Pacific regions experienced the greatest declines in malaria mortality rates between 2010 and 2015 - 58% and 46% respectively9 – a review of past malaria control has shown how easily resurgence can occur if there is a decline in leadership and resources.15

Artemisinins have revolutionised malaria drug therapy globally. However, artemisinin resistance is spreading and has now been detected in five countries in the Greater Mekong subregion, prompting a renewed focus on elimination in these high-risk sub regions.16 Reaching underserved and at-risk populations, including migrants, is central to malaria elimination efforts in the Asia Pacific region. Countries in both the Western Pacific and South-East Asian regions exhibit large gaps between malaria detection and the receipt of appropriate tests and treatment, largely driven by high rates of case management from private providers who are less likely to adhere to appropriate national protocols.17 The Asia Pacific region is a melting pot of antimicrobial resistance, due in part to self-medication from private pharmacies and inappropriate prescribing in both the human and veterinary health sectors.17,18

Better integration of private providers in national malaria control efforts, including detection, diagnosis, treatment and reporting, is urgently required. By 2050, if left unchecked, drug-resistant infections may kill up to 10 million people a year and cost the worldwide economy $100 trillion.19

Global concern resulted in the United Nations General Assembly declaration in September 2016 on combating antimicrobial resistance, and in larger investments being made by the American and British governments.


Victorian researchers and progress towards a world-first life-saving malaria vaccine

Malaria is an acute febrile illness that causes serious ill health in children and adults, which can lead to death. There were an estimated 216 million cases of malaria in 2016 and 445,000 deaths.\(^{20}\)

Malaria is caused by Plasmodium parasites (primarily *P. falciparum* and *P. vivax*) that are spread to people by mosquitoes. Much of the success in preventing malaria is due to controlling transmission from mosquitoes using insecticides, nets and antimalarial drugs. However, growing insecticide and drug resistance threatens to curb the progress that has been achieved.

Researchers across the world are working to find vaccines against *P. falciparum* and *P. vivax*. Between 2007 and 2016, researchers in Victoria received over $82 million in research funding to combat malaria.\(^{21}\)

Researchers at the Burnet Institute in Melbourne, led by Professor James Beeson and Dr Damian Drew, have identified a potential new vaccine target for the *P. vivax* parasite. The researchers found that antibodies generated by the target protein effectively blocked infection of human red blood cells by *P. vivax*, representing a major milestone in developing a world-first life-saving malaria vaccine.

\(^{21}\) Policy Cures Research, G-FINDER data, March 2018

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CASE STUDY

**Burnet Institute**

**Medical Research. Practical Action.**

**CASE STUDY**

Combatting mosquito-borne diseases through an ecosystems approach

Working to help protect the global community from mosquito-borne diseases, the World Mosquito Program is a Monash University led not-for-profit initiative.\(^{22}\) Supported by the Gates Foundation, Wellcome Trust, Australian and international governments, the World Mosquito Program is working collaboratively with governments, civil society and researchers to help protect local communities from mosquito-borne disease in 12 countries across Australia, Asia, Latin America and the Pacific Islands.

The program uses naturally-occurring bacteria called Wolbachia as a safe and effective method to reduce the threat of mosquito-borne viruses such as Zika, Dengue and Chikungunya without compromising ecosystem health. By working closely with in-country partners to transfer knowledge the program builds local capacity and strengthens regional health security.

The World Mosquito Program has expanded rapidly since launching its first pilot study in Australia in 2011 and is on track to protect over 100 million people in at-risk communities globally by 2022.

\(^{22}\) World Mosquito Program website http://www.worldmosquitoprogram.org
Despite improvements in child mortality, progress was not sufficient to reach the 2015 Millennium Development Goal target of two-thirds reduction, and 16,000 children under the age of five still die every day.

Nearly half of these deaths are due to communicable disease and the remaining deaths are in newborns under 28 days, where mortality rates have not declined as rapidly as in other under-five cohorts.
CASE STUDY

Save the Children and GlaxoSmithKline Partner for Improved Health Outcomes for Children

In 2013, Save the Children and GSK announced an ambitious global partnership to improve child health outcomes. We are committed to sharing our expertise and resources to make a lasting change for the world’s most vulnerable children. The partnership goes beyond the traditional corporate-charity model. It seeks to combine GSK’s capabilities in research and development, procurement and supply chain management, with Save the Children’s expertise in working with government and communities to deliver health programs for the world’s most vulnerable children.

Specifically, the partnership focuses on:

- developing child-friendly medicines to reduce child mortality and new-born deaths
- widening vaccination coverage to reduce the number of child deaths in the hardest to reach communities
- increasing investment in the training, reach and scope of health workers in the poorest communities to help reduce child mortality
- researching new affordable nutritional products to help alleviate malnutrition in children

The partnership has driven innovation in product development to improve child survival outcomes in developing countries. Most notably, the two organisations have partnered to research and co-develop a new gel to reduce umbilical cord infections in newborn babies. The gel is based on an antiseptic commonly used in mouthwash, Chlorhexidine (CHX). GSK will not make any money from CHX as it is designed exclusively for developing countries and will be sold at a not-for-profit price. It has been recommended as safe and effective by the European Medicines Agency.

GSK has also been a critical investor in Save the Children’s Emergency Health Unit (EHU). The EHU takes world-class teams of nurses and doctors – equipped from a global network of supply hubs – to an injured child’s side within 72 hours of a disaster. They are fully equipped and ready to treat life-threatening illnesses and injuries. The EHU has transformed the delivery of frontline emergency healthcare and medical assistance in humanitarian settings. Since 2015, the EHU has undertaken 17 deployments, providing direct healthcare assistance to over 1 million people and training over 2000 government and community health workers.

Together we are finding new ways to help reduce the leading causes of child mortality. The impact of the partnership is far greater than if we were to work alone.
Breathing new life into oxytocin to prevent death during childbirth

Every year over 280,000 women die of postpartum haemorrhage – excessive blood loss after childbirth – making it the largest single contributor to maternal mortality. Postpartum haemorrhage is overwhelmingly concentrated in the poorest countries of the world and is also strongly correlated with infant mortality.

Postpartum haemorrhage can be effectively prevented or treated with an injection of oxytocin.

However, access to this drug is limited in poor, remote communities due to the requirements for refrigeration and the need for trained medical personnel to administer the drug.

Researchers at Monash University’s Institute of Pharmaceutical Sciences have developed an inhalable formulation of oxytocin that is stable at room temperature and resistant to degradation by heat or humidity.23

Administered via a low-cost inhaler device, this innovation could substantially increase access to this life-saving drug in resource-constrained countries where a large number of women give birth at home or in ill-equipped crowded facilities.

Working in a number of targeted countries across the Asia Pacific region, the Inhaled Oxytocin Project is delivered in partnership with international collaborators including GlaxoSmithKline and in-country research groups.

CASE STUDY

Inhaled Oxytocin Project website https://www.monash.edu/pharm/research/iop
Partnering to save the lives of vulnerable women and their babies in Cambodia

Partnering to Save Lives (PSL) is a 5 year partnership (2013-2018) between the Cambodian Ministry of Health, the Australian Department of Foreign Affairs and Trade (DFAT), and three implementing non-governmental organisation (NGO) partners (CARE, Marie Stopes International Cambodia (MSIC), and Save the Children). PSL aims to support the Royal Government of Cambodia in achieving their targets for reducing maternal and child mortality, as outlined in the Ministry of Health’s 2016-2020 Fast Track Initiative Roadmap for Reducing Maternal and Newborn Mortality (FTIRMN), which recognises that ‘improving the health and well-being of women and newborns is transformative’.

Activities of the PSL implementing partners focus on improving access to, and use of quality reproductive, maternal and neonatal health (RMNH) services to populations in greatest need. This includes garment factory workers, woman and girls with disabilities, and people from ethnic communities.

Partnering to Save Lives focuses on improving health outcomes for vulnerable groups, in particular impoverished women, ethnic communities, garment factory workers, and women with disabilities. Activities are focused in the underserved north-eastern provinces of Kratie, Mondulkiri, Ratanakiri and Stung Treng, with broader family planning service improvement activities nationwide.

Working with provincial and district governments, PSL improves health services through health infrastructure refurbishment, supporting midwifery clinical training and professional supervision, strengthening community demand for – and use of – quality health service, strengthening referral systems, removing financial barriers, and promoting positive behaviour change within the community.

With demonstrable improvements made across multiple indicators (PSL 2016 Mid-term Survey), including health facility delivery with a skilled birth attendant, modern contraception use, community referral, and identification of newborn danger signs, PSL has been a valuable investment to supporting the reduction of maternal and child mortality rates in Cambodia by 2020.

Marie Stopes International Cambodia’s efforts are focused on supporting public health sector improvements in long-term family planning and reproductive health services, including safe abortion. MSIC conducts in-service training to public providers and provides focussed quality assurance monitoring and supervision support. MSIC also contributes to Behavioural Change and Communication activities and reducing the financial barriers around accessing services. Through PSL, MSIC is able to have a nationwide impact, including in garment factories in Phnom Penh and Kandal.
Many of these deaths can be prevented by known cost-effective approaches, but reaching under-served populations remains a challenge for many health systems. Around 60% of the estimated 19.4 million infants who are still not reached with routine immunisations live in ten countries, including Indonesia and the Philippines. Though the Hib vaccine has reached 64% coverage globally, coverage is only 25% in the Western Pacific and 56% in the South-East Asia region.

And the figure right shows that although child mortality has declined significantly in many Asian countries, reductions have been far less within the poorest 20% of their populations.

There is still so much to do to achieve health equity in our region. Victoria is extremely well placed to support work to understand and address coverage constraints through collaborative health partnerships. Victoria has the diversity of entities required for the bilateral, public-private and consortium approaches to complex challenges. In the current environment of shrinking public funding, collaboration is the key to addressing most of the global health challenges we currently face.

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Rural urban gaps in under five mortality rate
(Data from Global Health Equity Monitor, WHO)

Equity gap in under 5 mortality – rural urban by selected Asian country

Differences in U5 mortality poorest vs richest socioeconomic quintile

Equity gap – under 5 mortality by socioeconomic status (quintile)

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Analysis based on Demographic Health Survey data accessed through the Global Health Observatory, Health Equity Monitor, WHO.
Part 7 Defining the Victorian International Health Sector

The international health sector is comprised of organisations working to improve the health of individuals and populations both in Victoria and overseas, to deliver greater health equity.

International health, also called geographic medicine, international medicine, or global health, is a field of health care, usually with a public health emphasis, dealing with health across regional or national boundaries.

Organisations within the sector may conduct activities solely focused on international health, such as Medicines Development for Global Health, or they may conduct activities with both international and domestic impacts, such as the Royal Children’s Hospital. It is only the international health focused activities that are the focus of this report.

Additionally, we found that although there are many organisations that have a primary focus on delivering health outcomes to Victorians and Australians, their innovations and solutions are adopted by other developed and developing countries, such as our leadership on tobacco control, avoidable blindness, and cervical cancer prevention.

International health activities conducted in Victoria are diverse, ranging from the development and manufacture of life-saving vaccines to the training of maternal health workers in developing countries, and this report paints a picture of the depth and breadth of that activity.

We have captured the international health activity of 11 organisational types, that range from cancer consortia and partnerships to WHO Collaborating Centres.

Areas of focus

The 2017 survey of the sector undertaken by GLHAM demonstrates that research is the most common activity undertaken by global health organisations, with 65% of respondents involved in some type of research activity. This was followed by education and training (59%) and health service system planning and design (54%). Of the 59 respondent organisations, 43 conducted more than one activity, and 23 were involved in four or more activities. See figure 1.

Information was also collected on the areas of focus for global health organisations. The most common areas of focus were health systems strengthening, communicable disease and non-communicable disease. See figure 2.

Victoria’s international health sector has a high level of engagement with a large number of countries. Respondents surveyed operated in 28 countries. Those organisations that took part in the survey identified the three countries that were most important to them. Overall, this resulted in these countries being the most-often cited in terms of importance:

USA – (13)
China – (12)
PNG – (11)
India – (8)
Indonesia – (7)
Fiji – (6)
New Zealand – (5)
Vietnam – (4)
Myanmar – (4)
Bangladesh/Thailand/Nepal – (3)
Types of international health activities

- Research
- Education and training
- Health service system planning and design
- Medical services
- Health, medical and aged care events
- Health, medical and aged care products
- Facilities design and management
- Other

*Responses do not add to 100% because an organisation can conduct more than one type of activity

Areas of focus

- Animal health
- Other
- Health infrastructure
- Emergency response, humanitarian and disaster
- Human rights/policy/advocacy
- Environment and sustainability
- Medical technologies and devices
- Surgical and clinical intervention
- Disability and inclusion
- Community engagement
- Maternal, child and newborn health
- Medical research
- Non-communicable diseases
- Communicable diseases
- Health systems strengthening

*Responses do not add to 100% because an organisation can have more than one area of focus
The depth of relationships and identification of mutual benefits has already been identified and acted upon by the Victorian Government through:

- implementation of Victoria’s International Health Strategy 2016-2020: Partnering for a healthy and prosperous future26;
- the execution of Partnerships for Prosperity: Victoria’s China Strategy27;
- DEDJTR’s international education team who focus on health and medical students;
- the development of Victoria’s India Strategy28 – which is a highly strategic 10-year engagement plan with a strong focus on health opportunities; and
- the forthcoming ASEAN Trade and Investment statement29, which is also expected to have a strong health focus.

Trade Victoria also provides a huge resource for those pursing international health investment and export opportunities: there are six Victorian-based offices - from Ballarat to Wodonga - and 12 overseas-based offices, from Santiago to Shanghai!

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26 https://www2.health.vic.gov.au/about/health-strategies/international-health-strategy
Victoria gets it!

Victoria understands and invests in initiatives that support collaboration and partnerships. Two examples are LaunchVic and MTPConnect.

LaunchVic is Victoria’s startup agency and was established by the Victorian Government in March 2016 as an independent agency responsible for developing Victoria’s startup ecosystem. Melbourne is one of the most important global health and life sciences ecosystems in the world and currently, one in five start-ups in Victoria are in the Health and Wellbeing, Sector.

Startup Genome’s ‘Melbourne Startup Ecosystem Report’, has found that as Melbourne’s ecosystem grows and achieves stronger global status there is the potential to add between $2.5 - $4 billion in value to the economy.

MTPConnect is a not-for-profit organisation established in November 2015 as part of the Australian Federal Government’s $250 million Industry Growth Centres Initiative. MTPConnect aims to accelerate the growth of the medical technologies, biotechnologies and pharmaceuticals sector and establish Australia as an Asia-Pacific hub for MTP companies. The organisation head office is located at the New Horizons Building at Monash University.

A key project of MTPConnect is the $35 million BioMedTech Horizons program, an initiative to support innovative technologies, proof-of-concept projects and the commercialisation of biomedical/medical technologies. Victoria Biotech companies/research institutes are part of the first 11 recipients to share in $10 million investment from the $35 million BioMedTech Horizons program.

Cluster precincts

Victoria has three of Australia’s largest medical precincts, which have formed around three of our leading universities: Deakin, Melbourne and Monash.

The cluster in Geelong, in regional Victoria, has world leading expertise in communicable diseases. Medical technology, biotechnology and pharmaceutical organisations are situated in the cluster in Melbourne’s eastern and south-eastern suburbs. The Melbourne Biomedical Precinct centred in Parkville has 25 precinct partners and associated collaborating organisations.

Going forward, GLHAM will work within and between these three clusters which we are now referring to as the Deakin, Monash and Melbourne precincts.

Industry clusters have been defined as ‘a group of firms and related economic actors and institutions that are located near one another and that draw productive advantage from their mutual proximity and connections’. A range of actual or potential benefits from clustering have been identified, including access to:

- component suppliers and service industries;
- expertise and a pool of skilled labour;
- formal and informal sources of information; and,
- education institutions.

A clearly identified benefit of cluster precincts is the potential for partnerships between organisations. Respondents to the GLHAM survey conducted in 2017 reported a large number of partnerships. Forty-two businesses and organisations reported at least one partner, and 15 reported having five partners. Of the 127 explicitly identified partnership connections only one was outside Victoria and many were closely physically located. It should be noted that public health research plays a crucial role in enabling partnerships both within and between the precincts.

The benefits of clusters to the global health sector were explicitly acknowledged in the Victorian Government’s Medical Technologies and Pharmaceuticals Sector Strategy. To increase the benefits of clusters, the strategy emphasises assisting companies to access local research and development infrastructure and expertise, develop a skilled workforce, and attract entrepreneurs in the medical technology and pharmaceutical sectors to Victoria, with the aim to ‘position Victoria as a leading biomedical hub and pharmaceutical location.’

Looking to international examples, the State of Washington in the United States has established ‘Economic Innovation Partnership Zones’ to promote collaboration and innovation. Research, workforce training and private sector companies are brought together in geographical proximity to create new jobs and products.
## Part 8 Victoria’s International Health Capability

<table>
<thead>
<tr>
<th>Capability</th>
<th>Page Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. World Health Organisation Collaborating Centres</td>
<td>30</td>
</tr>
<tr>
<td>b. International non-government organisations</td>
<td>33</td>
</tr>
<tr>
<td>c. Health education and training</td>
<td>37</td>
</tr>
<tr>
<td>d. Clinical trials</td>
<td>41</td>
</tr>
<tr>
<td>e. Medical technologies, biotechnology and pharmaceuticals</td>
<td>45</td>
</tr>
<tr>
<td>f. Digital health</td>
<td>46</td>
</tr>
<tr>
<td>g. Data for international health</td>
<td>47</td>
</tr>
<tr>
<td>h. International health research and development</td>
<td>48</td>
</tr>
<tr>
<td>i. Cancer consortia and partnerships in Victoria</td>
<td>52</td>
</tr>
<tr>
<td>j. Indigenous Health Workforce</td>
<td>57</td>
</tr>
<tr>
<td>k. Regional health security expertise</td>
<td>59</td>
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<tr>
<td>l. Genomics leadership</td>
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</table>
a. World Health Organisation Collaborating Centres

World Health Organisation (WHO) Collaborating Centres are research institutes that are designated to carry out activities in support of the WHO’s health improvement programs.\textsuperscript{36}

Designation as a Collaborating Centre requires an exemplary track record of high calibre work towards improving health outcomes. Collaborating Centres are recognised internationally, which raises the institution’s profile and increases opportunities for sharing information, technology and resources.

Victoria is currently home to 22 WHO Collaborating Centres (of 49 in Australia), with areas of focus including injury and violence prevention, diagnostics and laboratory support for HIV/AIDS, and obesity prevention (see Appendix 1 for a full list of Centres).

There is an opportunity to increase the reach and impact of their work through multi-sectoral collaboration with state and federal governments as well as organisations that focus on health service delivery and advocacy.
All about Ophelia: Deakin University facilitates the building of global capacity to enhance health literacy

Deakin University is the global leader in health literacy research and development of evidence based tools and processes that influences policy. Deakin’s Health Systems Improvement Unit (HSIU) within the Centre for Population Health Research (CPHR) is the first World Health Organisation Collaborating Centre (WHO CC) for Health Literacy. The HSIU, led by Professor Richard Osborne, has a work plan that supports the WHO and its member states to achieve the United Nations Sustainable Development Goals (SDGs).

The team at HSIU developed the Health Literacy Questionnaire (HLQ), which was published by Deakin University in 2013. The HLQ provides researchers, clinicians and program managers with fine-grained information for program planning and evaluation. The HLQ has been licensed for use in over 200 projects in 42 countries and translated into 34 languages. It is in the current Australian Government National Health Survey (N=8000), the New Zealand Government National Health Survey (N=14,000), and in multiple Danish population surveys (N=29,000).

The HSIU team also developed the Ophelia (OPtimising HEalth Literacy and Access) process, which uses HLQ data to enable communities to understand their particular health literacy needs.

The Ophelia process then facilitates community members including patients, providers, and policy makers to co-design solutions to improve their community’s health, access and equity outcomes. Ophelia is important because it permits wide-scale, yet locally-tailored, approaches to service improvement and intervention development to support the UN principle axiom and target for the 2030 agenda for ‘no one to be left behind’.

The WHO Global Coordination Mechanism for the Prevention and Control of Non-communicable Diseases (GCM/NCD) has established three WHO National Health Literacy Demonstration Projects in China, Egypt and Myanmar using the Ophelia process. There are other on-going Ophelia projects in Europe, Australia and South East Asia.

Deakin’s health literacy approach includes reporting and recommendations as the WHO CC for Health Literacy and Access as well as regional and national influence. Deakin developed the WHO South East Asia Health Literacy Toolkit for Lowand Middle-Income Countries (2015), and Deakin’s tools feature in Scotland’s National Health Service policy Making it Easier. A Health Literacy Action.
Recommendation

Maximise the reputational and strategic benefits of having 22 World Health Organisation Collaborating Centres based in Victoria, by establishing a National Secretariat in Melbourne.

The designation as a WHO Collaborating Centre does not bring with it any increased funding or a mechanism to support collaboration between the centres.

Therefore, there is a role for the Victorian or Federal Government to support the enhanced reach and impact of these centres through the establishment of a WHO Collaborating Centre Secretariat in Melbourne. A secretariat would assist to:

- reorient investment to prioritise health promotion and preventive health, with a focus on the social determinants of health and health equity, across all Sustainable Development Goals
- implement the WHO Regional action plan on health promotion in the Sustainable Development Goals 2018–2030 in partnership with other levels of government, NGOs and a wide range of sectors
- harness the expertise and knowledge of Australian WHO Collaborating Centres and state-level agencies in designing and delivering Commonwealth Government action to achieve the Sustainable Development Goals
- establish formal planning, monitoring and reporting mechanisms to ensure that the outcomes of WHO Collaborating Centre/state-level agency action are included in Australia’s reporting, and that efforts complement rather than duplicate that of the Government.37

37 Recommendations from the Victorian Health Promotion Foundation (VicHealth) Submission to Senate Standing Committee on Foreign Affairs, Defence and Trade Inquiry into the United Nations, Sustainable Development Goals, March 2018.
b. International non-government organisations

International NGOs have not previously been ‘counted’ in earlier economic studies undertaken of the global health sector in Victoria. Analyses of the sector have tended to focus on conventional measures of contribution such as economic exports, an area where international NGOs typically do not have a large impact. This fails to show the direct and indirect contribution of international NGOs to improving global health outcomes and to the Victorian economy.

Melbourne is home to seven of the ten largest international NGOs by share of international aid disbursement in Australia. Respondents to the GLHAM survey indicated that even international NGOs headquartered in other states are increasingly setting up satellite offices in Melbourne in recognition of the talent pool that is available here.

International NGOs play a pivotal role in the provision of primary health care, coordination of local non-government health organisations, dissemination of health information to communities, strengthening of health sector capability, and evaluation of health interventions to improve effectiveness.

In addition to their more commonly recognised activities in health program provision, international NGOs also play an important role in driving the research agenda. This is important given the huge economic benefits that come from research, including domestic and international funding, employment, and medical product exports. International NGOs make valuable contributions in a range of health research areas through:

- Advocacy to convince researchers, international donors and governments of important health issues facing communities;
- Contributing to the design of ethical frameworks for health research in developing countries;
- Interpreting the knowledge gained from research and disseminating it amongst communities;
- Providing direct funding and in-kind assistance (such as personnel and materials) for research into priority health issues;
- Linking funding agencies, health providers and communities to better target major health problems; and
- Contributing grass roots knowledge and basic information (such as baseline studies and needs assessment) to research projects.

---

International NGOs and research

In 2010, Oxfam and Monash University established a partnership that pairs academics with field teams and communities. This enables researchers direct access to, and knowledge of, development practice and benefits NGOs by providing evidence-based learning.

An example of the partnership is the study Transforming Harmful Social Norms in Solomon Islands, a comprehensive national prevalence study of violence against women and girls. From this study came the Safe Families initiative, which is the first long-term, locally-developed, community mobilisation-based violence prevention program in the Solomon Islands.

The strength of international NGO and university partnerships has been recognised and formalised by the Department of Foreign Affairs and Trade through the Research and Development Impact Network, housed at the Australian Council for International Development.

CASE STUDY

Oxfam CEO Helen Szoke AO at the launch of the Transforming Harmful Social Norms in Solomon Islands Project.
Recommendation

Consider reconfiguring the Victorian Government’s health industry network on a geographic basis - as opposed to the current sectoral basis - and utilise existing peak bodies and industry associations to host and develop the health industry networks.

International NGOs have the potential to play a greater role in partnering with other parts of the global health sector.

Their knowledge of specific regions, their established connection with communities across the world, and their extensive involvement in health delivery makes them a valuable resource that has not been fully exploited.

The development of health industry networks that has already begun in Victoria under the International Health Strategy 2016-2020, could include international NGOs and could be based on geographic areas, as opposed to industry types.

These networks would be best managed by existing peak bodies: it would be preferable if the Government was a member of the health industry networks as opposed to just being the host.

Recommendation

Expand the Victorian Government’s engagement with the international non-government organisations that have Victorian offices.

Collaboration is critical to optimising the limited resources available to our sector.

The Victorian Government could build on the industry networks developed during 2017, and foster more global health partnerships and opportunities by engaging a non-government entity to host the new networks. This would facilitate greater partnering between WHO Collaborating Centres, international NGOs, universities and the full diversity of the Victorian global health sector, in areas such as research, drug and therapeutic product trialling areas. Intelligence gained by Government regarding new and emerging markets could be made available via the health industry networks mentioned above.
Envisioning a new future for eye health across the world

Around the world there are 32.4 million people who are blind and 4 of 5 of them experience avoidable or treatable blindness.

Australia is a leader in combatting avoidable blindness, with local and international consortia led by The Fred Hollows Foundation. The Fred Hollows Foundation makes a significant contribution to improving the eye health of Indigenous Australians and provides access to eye care in over 25 countries, predominantly in the Asia Pacific region.

The Foundation is expanding its activities in countries such as China and initiating new programs, including in Timor Leste.

The Foundation works with the World Health Organisation, global health and education agencies, health research bodies and other large international eye-health organisations to deliver on its mission to end avoidable blindness.

The Fred Hollows Foundation has its headquarters in Sydney, but in 2012 established an office in Melbourne to capitalise on skills and experience of the talent pool that exists in Melbourne and opportunities to collaborate with other international NGOs, universities and eye health organisations.

The Foundation invests in research to build a strong evidence base for eye-care, trial innovative health financing models that draw in the private sector and seeks to influence government policy to strengthen health systems. All the different facets of the Foundation’s work are about achieving two things: providing long term sustainable eye health care and ending avoidable blindness.

From urban slums to healthy communities: sustainable water systems for informal settlements

Access to clean water and toilets are the basic hygiene requirements for a healthy life. A lack of good sanitation, water and hygiene was responsible for 842,000 deaths from diarrheal disease in 2012. In Indonesia, approximately one in eight households do not have access to safe drinking water and 50 million people don’t use toilets.

Sanitation is a particularly complex issue in urban informal settlements, which lack adequate infrastructure. The Revitalising Informal Settlements and their Environments (RISE) project is an action-research program working at the intersection of health, environment, water and sanitation in urban slums. Led by the Monash Sustainable Development Institute, RISE is a randomised controlled trial involving 24 informal settlements across Makassar, Indonesia and Suva, Fiji.

In partnership with local communities the project will deliver tailored and multi-functional water infrastructure to improve public health. RISE aims to turn urban slums into independent sites that recycle their own wastewater, harvest rainwater, create green space for water cleansing and food cultivation, and restore natural waterways to encourage diversity and prevent flooding.

Funded by the Wellcome Trust and the Asian Development Bank, the project brings together leading Monash University researchers in medicine, architecture, engineering, ecology, economics and social sciences.

41 www.who.int/gho/phe/water_sanitation/burden/en/
42 www.unicef.org/indonesia/wes.html
43 www.rise-program.org/
c. Health education and training

Medicine and health sciences are particular strengths of Melbourne’s research and tertiary education sector which attracts the bulk of Australia’s medical research funding totalling US$370 million per annum. Melbourne is one of only three cities in the world to have two universities in the global top 20 biomedical rankings\textsuperscript{44}.

In 2017, more than a third of ALL international students in Australia were studying at Victorian universities.\textsuperscript{45}

The enrolment of international students in health-related courses in Victoria has been on the increase over the past five years, with 9900 international students undertaking study in 50 different health-related disciplines.

The most popular health-related course for international students coming to Victoria is General Nursing, followed by health and then medical studies, as per the table provided overleaf.

In 2016 China was the main source for international students coming to Australia, with 196,052 enrolments (27.5\% of the total).

India came second with 78,128 enrolments (11\% of total).\textsuperscript{46}

\begin{itemize}
\item \textsuperscript{45} Commonwealth Department of Education and Training, Dec 2017
\item \textsuperscript{46} Australia’s Economic Relationship with China and India: A Snapshot http://www.australiachinarelations.org/content/australia%E2%80%99s-economic-relationship-china-and-india-snapshot
\end{itemize}
## Detailed Field Of Education 2013 to 2017

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Driving international student enrolments through long-term education partnerships

Deakin University has carved a niche in the competitive international student market through a strong focus on India and building long-term research partnerships in a range of disciplines, including biotechnology, obesity and diabetes.

For more than 20 years the University has invested in research and teaching partnerships with organisations such as the highly respected Madras Diabetes Research Foundation.

PhD scholarships are offered to Indian students with joint Deakin University and Indian partner supervisors.

The University works with its partners to develop pathways for Indian students into undergraduate and postgraduate degrees in science, business and health.

In 2016, there were 9,887 international students enrolled at Deakin University and 11.8% were studying health-related courses. Since 2012, there has been a 27% growth in international students who belong to leading source countries including China, India, Sri Lanka, Vietnam and Malaysia.

The University is a leader in online learning and currently delivers 200 online courses, of which 55 are health-related. More recently Deakin has created high quality online courses through the international FutureLearn platform. There is great potential to tap into the growing market in Asia, and Deakin has focused on student recruitment and research partnerships in China, Sri Lanka, Vietnam and the Philippines.

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48 Deakin University, 2017, 2016 Annual Report, Deakin University, Melbourne, pp. 15-16.
Recommendation

Increase the opportunities for pre-service education and training, professional development and research capacity-building in health, for international undergraduate and postgraduate students and people with existing qualifications.

A long-term strategy to assist universities to engage with Asia would help to increase the commercial opportunities for Victoria, including the tertiary health education sub-sector.

International students and health education

- Over $\frac{1}{3}$ of all international students are studying at Victorian universities.
- $5$ billion contributed to the international education sector.
- China & India were the main sources of international students.
- Victoria attracts two Melbourne-based universities in the TOP 20 biomedical rankings.
- Victoria attracts 40-50% of Australia's medical research funding.
- Over $\frac{1}{3}$ of all international students are studying at Victorian universities.
d. Clinical trials

Melbourne is an attractive location for fast, cost-effective and high-quality clinical trials: it has a streamlined multi-site clinical trial network, fast ethics approval and Australia's Clinical Trial Notification system together with Australia's R&D tax incentive for companies that provides up to a 45% cash refund.50

A key indicator of clinical trial activity is the number of trials conducted per year. Clinical trials activity in Victoria showed a 62% increase from 2013 to 2017;51 and during this 4-year period, Victoria had the highest degree of registered trials compared to any other state.52 Victoria also hosts the Australian Clinical Trials Alliance, currently chaired by Monash University Professor John Zalcberg.

Whilst clinical trials cover a wide range of medical conditions, priority is given to those conditions which contribute to the highest burden of disease. VicHealth reported that Victoria’s largest burdens are cardiovascular disease, cancer, injuries, diabetes and mental health.53 Trials within each state reflect the resources and centres available. For example, Victoria is home to leading cancer research facilities, such as the Cancer Council and the Victoria Comprehensive Cancer Centre (see case study on page 54). When researching current trials available on the ANZCTR search engine,54 there were 1,315 cancer-related clinical trials within a 100km radius of Melbourne CBD.

This was higher than any other category, such as cardiovascular conditions which had 520 available trials. This registry suggests that cancer is the leading disease indicator within Victoria, potentially a reflection of the resources and facilities available.

Clinical trials can be conducted by commercial entities or clinical investigators/researchers. Commercial entities might include pharmaceutical companies or research organisations that are contracted to support licensing or regulatory approval of new therapies or diagnostic methods.55 Clinical Investigators-led trials are often conducted to test therapies and generate clinical evidence to inform health-related decisions and improve the safety and quality of health care.56

Industry sponsored clinical trials in Australia have experienced a greater growth than non-industry led trials between 2012-2015.57 The majority of these clinical trials conducted are interventional trials, with a strong focus on drug trials; a trend that is reflected in the Victoria clinical trial landscape.

Investment in the clinical trial sector provides high returns on investment; for example, an NHMRC investigation into 25 trials showed that each dollar invested can yield up to $51.10.58 Similarly, every dollar invested in cancer research yields $1.70 benefits to the community.59

52 Ibid.
56 Ibid.
57 Ibid.
In 2015, clinical trials were estimated to have contributed around $1.1 billion to the Australian economy through direct spending or investment. Data collected by the Australian Clinical Trials Alliance (ACTA) for the period 2004 to 2014 found that there were 37 investigator-initiated clinical trials networks covering a wide range of disease groups across all levels of the healthcare system.\(^{60}\) The 34 networks that provided information employed more than 10,000 clinical researchers, and between 2004 to 2014 had undertaken more than 1,000 studies.\(^{61}\) When completed, these studies will have involved nearly one million participants. Employment in this sector is predicted to reach 12,900 - 15,600 nationally by 2025.\(^{62}\) In addition, clinical trials provide benefits for the participants and add value to the healthcare system. The participants have access to clinical test and early treatments at no cost, thereby reducing the cost of healthcare services and the NHRMC led investigation found that clinical trials reduce health service costs by up to $2 billion.\(^{63}\) Moreover, improved access to new medicines from clinical trials is estimated to save Australian taxpayers $100 million annually through avoiding PBS treatment costs.\(^{64}\)

Within Australia, trials are run by State and Territory governments, as well as private institutions. Therefore, each state is autonomous and has its own pricing method for the conduct of clinical trials. The development of central benchmarking and a consistent pricing method for trials conducted in Victoria would strengthen the attractiveness of Victoria as clinical trial destination.

There are numerous strengths which specifically make Victoria a leader in the Australian clinical trial landscape: one of these is the speed of conducting trials. Initiation time is much faster than many overseas locations, attracting foreign researchers who want to quickly and efficiently conduct their study. This is a result of the Clinical Trials Notification (CTN) scheme, which submits research proposals directly to the ethics committee rather than traveling through numerous panels. Furthermore, there is no legal requirement to submit an Investigational New Drug (IND), avoiding yet another time-consuming process. These features allow 99% of Australian trials to begin within one week of registration and is a key attraction for foreign researchers. In Australia, each state uses their own ethical review system which determines the speed of conducting trials. Victoria uses a system of single ethical review which is required to take less than 30 days. Other states, such as NSW and Queensland, are allowed up to 60 days for review,\(^{65}\) deeming Victoria one of the fastest locations for conducting trials.

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61 Ibid.


Victoria’s funding landscape is promising. Each year, Victoria attracts more than 40% of NHMRC funding, acting as the highest receiving state. Victoria also receives specific state funds, such as the Victorian Medical Research Acceleration Fund which provides $3 million per annum to address current market gaps (including clinical trial research). This financial support also makes Victoria an attractive state for conducting clinical trials.

Another motivation to conduct a trial in Victoria is its abundance of world-class research organisations and facilities. Victoria is home to some of the largest scientific clusters, including the Melbourne Biomedical Precinct and the Clayton Innovation Cluster. It also contains nine world-class universities, ten teaching hospitals, and more biotechnology companies than any other Australian State. Finally, it is home to leading research facilities, such as the Nucleus Network which is known to be the largest early phase clinical centre. Not only does this environment provide great resources and facilities for researchers, but it fosters easy networking, communication, and collaboration.

Victoria’s competitive advantage is challenged by factors such as low patient recruitment/awareness that in turn limits the conduct of Phase III trials. Other areas to enable future growth are: the need to attract and train more trial specialists; more investment in infrastructure; and enhancements in exhaustive trial monitoring and data management. Such infrastructural investments have been undertaken by other states such as NSW and SA. Victoria needs to keep pace with the improvements made in other States to remain Australia’s leading clinical trial state.

Recommendation

Support and develop more capacity to conduct collaborative clinical trials in Victoria and in Asia Pacific nations.

In 2015, clinical trials were estimated to have contributed around $1.1 billion to the Australian economy through direct spending or investment.

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Collaboration to solve endocrine disorder mysteries.

Some of our most common chronic diseases are endocrine disorders, including cancer, diabetes, obesity and thyroid conditions. There are also several rare conditions that result from problems with the endocrine system. Because of their rarity, it is often challenging for researchers and clinicians to gather sufficient amounts of patient data.

Established and led by Professor Richard Sinnott, Director, eResearch at The University of Melbourne Endocrine genomics virtual laboratory (endoVL), the ‘lab’; allows researchers to collaborate to increase understanding and treatment of endocrine disorders.

More than 8,500 adrenal tumour cases are currently registered on endoVL, which allows researchers to draw on large enough cohorts to conduct studies with real statistical power.

More than 25 large-scale clinical trials in diabetes and in adrenal tumours involving research groups globally are currently underway.

CASE STUDY

HIV Clinical Trials

Omega Diagnostics, in conjunction with the Burnet Institute, announced the commercial release of its VISITECT® CD4 point-of-care test. VISITECT® CD4 is the world’s first instrument-free and affordable rapid test for determining CD4 threshold in people living with HIV.

VISITECT® CD4 provides access CD4 testing in rural areas without the need of significant investment or highly technical scientific skills.

The VISITECT® CD4 test is expected to make a significant difference in HIV treatment and prevention programs that care for many millions of patients worldwide. The VISITECT® CD4 has successfully achieved the CE-Marking following successful performance evaluations in India and the UK.
e. Medical technologies, biotechnology and pharmaceuticals

Melbourne, Victoria, is home to one of the world’s largest biotechnology clusters, consisting of global and homegrown companies known for their excellence and innovation.

With more than 180 companies contributing more than US$12 billion in economic activity, together with key R&D infrastructure and advanced manufacturing expertise, it is a highly sought-after destination for global companies including CSL, GlaxoSmithKline and Catalent Pharma Solutions, who all have recently expanded their Victorian facilities.

More than 40 per cent of the Australian ASX-listed Life science companies are based in Melbourne and many are partnering with multinational companies. In the years 2013-2014, more than US$160 million in new private funds were invested in Victoria’s life sciences industry. Access to global markets from Melbourne is convenient as the time zone bridges North American and European business hours. This has encouraged a growing number of trans-Pacific partnerships and Melbourne is an Asia Pacific gateway for industry collaboration and excellence.

Melbourne has a strong culture of collaboration which has led to breakthroughs in research. An interactive map of Melbourne’s research institutions and collaborations is available at: https://www.natureindex.com/collaboration-maps/melbourne

Research institutions and map of collaborations

Melbourne has a strong culture of collaboration which has led to breakthroughs in research. This interactive map can be found at:


f. Digital health

Digital health involves the use of software to cover a range of communications and information-based technologies to deliver and oversee a variety of medical and health related services. These include telemedicine, hospital information systems, and health informatics that lower cost and promote more efficient healthcare coordination and delivery.69

Australia’s healthcare IT market was valued at $1.2 billion in 2015 and is forecast to be worth $2.21 billion by 2020. Of the 39 digital health companies listed by Austrade, 36% are headquartered in Victoria70.

CASE STUDY

Transforming management of type 2 diabetes through technology

There are more than 138 million people with diabetes in the Western Pacific region and it is estimated that this may rise to 201 million by 2035.71 More than 60% of the people with diabetes live in Asia.72

Diabetes requires daily management of diet, exercise, blood sugar levels, and medications.

The My Diabetes Coach program uses digital technology to help people with type 2 diabetes to manage their illness and promote healthy behaviours. A continuation of an existing project (the Telephone-linked Diabetes program), My Diabetes Coach uses more up-to-date technology. The original program showed positive results for blood glucose control and mental health.

The trial of My Diabetes Coach is managed by the Nossal Institute for Global Health alongside industry funding partners Diabetes Australia, Roche Diagnostic, and Bupa.

72 Ibid.
**CASE STUDY**

### One billion and counting

The Data for Health initiative headed by Professor Alan Lopez and based at the University of Melbourne seeks to address this very issue and works to improve public health data so that governments are equipped with the tools and systems to collect and use data to prioritize health challenges, develop policies, deploy resources, and measure success.

Based in Melbourne, Data for Health is a four-year, $100 million initiative co-funded by Bloomberg Philanthropies and the Australian Government.

With a goal of improving the critical evidence base necessary to inform health policies and programs to reduce premature mortality from largely avoidable causes, the Data for Health Initiative partners with countries to:

- Develop and apply cost-effective tools and methods to rapidly and comprehensively improve the availability and quality of data on causes of death in populations
- Build analytical capacity to more confidently and competently assess data quality and to make better use of data to guide policy decisions
- Use public health data to inform policy priorities, especially by improving the ability to track trends and plan interventions at the national level.

To date, 20 countries have partnered with Data for Health, reaching more than 1 billion people in the following countries:

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<td>Ghana</td>
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### g. Data for international health

Less than half of all deaths around the world are registered with a cause of death, meaning that 29.4 million deaths go unrecorded each year. This lack of data means that many health policy decisions are made without adequate information. This lack of reliable information on who dies of what, and how the leading causes of death are changing, can lead to poor policy decisions and lost opportunities to prevent premature deaths and improve population health.

The lack of data disproportionately affects low- and middle-income countries with 60% of these countries not reporting any data, covering 2 billion people.

Additionally, nearly 40% of the 128 million babies born worldwide each year are not officially registered.

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h. International health research and development

Those who suffer from neglected tropical diseases such as malaria, tuberculosis and Ebola “...are also mired in poverty, perpetuating a doubly intolerable and unacceptable situation destined to live in permanent disability”.75

Because of the significant challenges that characterise endemic areas, including the remote and difficult geography, the lack of infrastructure and resources, and, most relevantly, the poverty of the sufferers, there is an inability to attract investment for research and development efforts.

Private sector companies assess that there is not a viable and lucrative market for these products and therefore choose not to invest in these areas. As a consequence, very few therapeutic options for these serious and life-threatening tropical diseases exist relative to the level of research effort.76

Global health research and development - the process of producing these missing medicines, diagnostics and vaccines - is a growing asset class and during the period 2007-16 Victoria secured $172 million in neglected tropical diseases research funding.77 This represents 53% of the total funding distributed to Australian recipients, with $152 million awarded to all other Australian states and territories combined.

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74 This section drawn from several publications authored by Policy Cure’s Professor Mary Moran, see for example: http://www.devpolicy.org/fixing-australias-global-health-rd-mess-20180118/


76 Dr Mark Sullivan, Medicines Development for Global health, interview March 2018.

Preventing infections in mothers and newborns

Infections, including skin and soft tissue infections, are common causes of infant and maternal morbidity and a common cause of infant mortality. There are five bacteria that cause the majority of these infections, and for young infants, are vertically- and horizontally-acquired. A simple, low-cost approach to preventing these infections is required in settings where access to health care is poor, and where developed country approaches are not suitable. Associate Professor Fiona Russell, Murdoch Children’s Research Institute, and Dr James Fong and Dr Ilisapeci Tuibeqa from the Colonial War Memorial Hospital, Fiji, will lead a trial of a simple, low-cost intervention to prevent infection in mothers and their newborns by providing a single dose of azithromycin to the mother during labour. The trial will also monitor the effects of azythromycin on antibiotic resistance, which is low in Fiji, and on the microbiome of newborns.

This results of this trial will be highly relevant to the Pacific region and for Indigenous Australians, where skin and soft tissue infections cause a very large burden of disease, and where control of these infections is a public health priority.

From discovery of virus to effective vaccine for rotavirus

Rotavirus gastroenteritis continues to be a major cause of disease in children less than five years of age worldwide. Of the estimated 215,000 deaths due to rotavirus gastroenteritis each year, more than 90% occur in low income countries in Africa and Asia.

The RV3-BB vaccine is the culmination of over four decades of research in Australia by the Murdoch Children’s Research Institute, The Royal Children’s Hospital Melbourne and the University of Melbourne, following the discovery of rotavirus by a team led by Professor Ruth Bishop in 1973.

MCRI has developed a low cost human neonatal rotavirus vaccine (RV3-BB). After completion of Phase I and II trials in Australia New Zealand and Indonesia the team, now led by Professor Julie Bines, have demonstrated proof of principle that the vaccine protects against severe rotavirus gastroenteritis and well tolerated in neonates and infants.

MCRI is currently working to license the RV3-BB vaccine to manufacturing partners to produce the RV3-BB vaccine at large scale to meet global demand.

Community-based treatment for neglected tropical disease

Scabies is a skin condition that is now recognised by the World Health Organization as a neglected tropical disease. An estimated 100 million people have scabies worldwide; most live in low and middle income countries. Scabies is caused by a microscopic mite (Sarcoptes scabiei var. hominis) and infestation can cause debilitating itchiness, with secondary infection by Streptococcus pyogenes or Staphylococcus aureus potentially leading to septicemia, glomerulonephritis, and rheumatic heart disease.

While effective treatment is available, in settings where scabies is endemic reinfection can occur quickly. Mass drug administration, which generally involves repeat administration of single-dose therapeutic agents to whole communities, has become a central strategy for the control of several neglected tropical diseases. Professor Andrew Steer and his team at the Murdoch Children’s Research Institute have shown in clinical trials in Fiji and the Solomon Islands that mass drug administration of ivermectin is effective for the control of scabies and impetigo.
However, as the diagram below shows\textsuperscript{78}, the vast majority of this funding went to basic research, with only a tiny fraction (2\%) of these projects being funded for further development or commercialisation. A domestic mechanism is urgently required to support the translation of basic research breakthroughs into products that save lives and improve global health outcomes.

There are currently no mechanisms or agencies in Victoria or Australia that fund global health research and development translation. Additionally, investment rates from Australian Governments are comparatively low: for example, the Federal Indian Government has invested more than Australia in every year that this has been tracked (since 2007/2008).

Public-private investment funds for global health translation are a familiar vehicle used to achieve global health translation in countries including Canada, Germany, Japan and Sweden. Australia does have a public-private Biomedical Translation Fund however it is focused on commercial research: global health products – with their lower commercial returns – are unlikely to be prioritised.

\textsuperscript{78} The “valley of death” refers to the gap between an academic discovery and turning that discovery into a product that saves lives; early development refers to animal and laboratory studies needed to test a discovery before it is trialled in humans; late development refers to clinical trials needed to test a product’s safety and efficacy in humans.
**Recommendation**

Enable translation of research in Victoria for the benefit of low, middle and high-income nations globally.

Victoria could lead the country in the translation of medical research focused on products that enhance developing world health outcomes and equity, by commencing discussions on a potential Biomedical Translation Fund for Global Health.

By focusing on Australian international health breakthroughs in these more modest commercial areas, such a Fund could fill the gap in current initiatives, allowing a decade-long backlog in potentially high-impact Australian international health research to move forward.

**CASE STUDY**

**Alleviating the burden of buruli ulcer in Victoria - through matched funding - will have global impacts**

A recent example of matched funding is the investment of $1.5 million by the Federal Government and $250,000 by the Victorian Government. Buruli ulcer – a neglected tropical disease – will be supported through a new two-year study led by the University of Melbourne’s Professor Tim Stinear. Addressing this local public health problem will have global impact.
i. Cancer consortia and partnerships in Victoria

Cancer is one of the leading causes of disease burden globally, causing approximately 8.8 million deaths globally in 2015. In 2016, Victoria reported 33,000 cases and an estimated 138,000 new cases are projected to occur in Australia in 2018. In line with Australia’s trend in having one of the best cancer survival rates globally, Victoria contributes to about 50% of cancer research funded activities in Australia. Some of the key initiatives undertaken in Victoria towards the control of cancer and the international relationships therein, follow:

Preventing cancer and infectious diseases through excellence in the provision of public health services supporting screening and vaccination.

VCS (Victorian Cytology Service Ltd) is a not-for-profit organisation whose vision is to contribute to the prevention of cancer and transmissible diseases through excellence in the provision of public health services supporting screening and vaccination programs. VCS is currently the largest provider of population health registry services in Australia outside of Government, and the largest single laboratory reporting cervical screening tests in Australia. The organisation presently manages the records of over six million Australians, equating to over 28 million screening and vaccination episode records.

VCS is uniquely positioned as a single service provider to deliver improved cancer outcomes in Australia and has an award winning sophisticated and flexible population health registry platform that is being adapted to respond to the needs of cervical screening programs in the Asia Pacific region including Malaysia, Tonga and Samoa.

With extensive experience in the provision of registry and laboratory services, VCS can implement practical and forward thinking solutions for local and developing countries, including screening, vaccination and population health needs. Most recently VCS has collaborated with the University of Malaya and the Malaysian Ministry of Health to develop a new approach to cervical screening that integrates the latest advances in self sampling, HPV screening and digital health platforms to effectively respond to the needs of Malaysian women. The initiative, “Project ROSE”, empowers women to take their own cervical screening sample, and having the initial result sent to them via SMS that same day.

VCS has been a major contributor to cervical cancer prevention for over 50 years and has a proven track record of excellence in working as a trusted advisor to government and international organisations such as WHO, going above and beyond as a true strategic partner to improve public health outcomes.
CASE STUDY

The Victoria Comprehensive Cancer Centre

The Victoria Comprehensive Cancer Centre (VCCC) hosts ten leading health partners that are committed to providing a holistic approach in the prevention, control, and cure of cancer. VCCC has the largest research program in Australia and the research activities of its members have attracted international collaborations with 120 countries.

The VCCC brings four key benefits to the community:

1. High-impact research that delivers major breakthroughs in cancer
2. Reduced burden of cancer on patients, the community and the economy
3. Consistent delivery of optimal evidence-based cancer care
4. A sustainable, high calibre workforce of international standing.

CASE STUDY

The International Legal Training Program

The McCabe Centre for Law and Cancer is the only centre of its kind in the world, and exists to contribute to the effective use of law for the prevention and control of cancer, and other non-communicable diseases (NCDs), by building knowledge, expertise, capacity and networks at global, regional and domestic levels.

With a broad range of expertise, the McCabe Centre is dedicated to the full spectrum of cancer and NCD prevention and control; from their focus on legal challenges to implementation of the World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC), to their work in protecting the rights of people affected by cancer.

One example of this work is the three-week International Legal Training Program aimed primarily at government lawyers and policymakers from low- and middle-income countries in the Indo-Pacific region.

The Program builds their capacity in the use of law to prevent cancer and other NCDs with an emphasis on coherent and mutually supportive practices and policies across health, trade, investment, sustainable development, and human rights. With strengthened knowledge and understanding, the participants are empowered to effect changes in policy and law to improve public health outcomes in their own countries.

Since its initiation in February 2014, the McCabe Centre – in collaboration with the Secretariat to the WHO FCTC and the WHO – has carried out eight International Legal Training Programs, training a total of 149 participants from 63 countries.

The McCabe Centre for Law and Cancer, established in 2012, is a Melbourne-based joint initiative of Cancer Council Victoria, the Union for International Cancer Control, and Cancer Council Australia.
Partnership with US National Cancer Institute

The Victorian Government has an MOU with the US National Cancer Institute which includes fostering cross-Atlantic collaboration through the USA Cancer Exchange Fellowship Program.

The Victoria-USA Cancer Fellowship Exchange Program is a complementary scheme to enable researchers who apply for a VCA grant to conduct part of their research at a National Cancer Institute -designated Cancer Centre for a period of between three and twelve months.

j. Indigenous Health Workforce

Our indigenous health workforce is critical in addressing the healthcare needs of indigenous Australians. By aligning technical and sociocultural skills, improvements can be made in patient care, access to services and the delivery of more culturally appropriate care and service provision by both indigenous and non-indigenous health care workers. Melbourne has a large and growing collective expertise around Indigenous health in Australia and in the developing countries where our members work. This knowledge comes from the communities we work with and learn from, grassroots health organisations, researchers, academics and international organisations.

The number of Indigenous Australians in Victoria employed in registered health professions in 2014/2015 was 635, indicating a 67% increase from 2006. Increased participation of Indigenous health workers is needed for adequate access to health services for the broader Indigenous Australians.

This remains an area of focus for Victorian global health organizations, as shown by a survey carried out by Global Health Alliance, Melbourne (GLHAM) in 2017 to evaluate areas of priority for global health organizations in Victoria. Findings from the survey (below) indicate a significant emphasis on indigenous health in Australia: with some level of engagement with international indigenous/tribal populations.

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87 ABS and AIHW analyses of 2006 Census
Applying an indigeneity lens to programming

The Fred Hollows Foundation has begun an initial examination of its role in improving eye health outcomes of Indigenous and tribal people in the 25 countries in which it works. Informed by the recent study by Lancet-Lowitja, The Foundation is in the process of sourcing key data relating to Indigenous and tribal peoples to create country profiles for each of 25 countries where it is already programming.

Regions in which the Fred Hollows Foundation works that have a known presence of Indigenous and tribal peoples (based on a preliminary internal desk-top scoping exercise) include the following (as highlighted in orange):


89 Based on internal consultations, Indigenous and tribal peoples are not only found in the mountainous north. Approximately 49 ethnic groups with at least 240 subgroups are geographically dispersed throughout the country’s lowlands, midlands and highlands and across The Foundation’s project sites.
k. Regional health security expertise

Current investments in health security in the South-East Asian region have led to progress in establishing the policies and frameworks to prepare for, detect and respond to emerging and re-emerging and zoonotic diseases. However, challenges in operationalising these policies through the expansion of vertical surveillance, the strengthening of health systems and community engagement – all of which are critical for outbreak management – remain.

The SAHELI Program

The Security and Health Executive Leadership Institute (SAHELI) has been established to enhance the local and global response to issues where both a security and health issue intersect for example; in responses to emerging infectious diseases, health outcomes in criminal justice systems, asylum and refugee health, family violence, health in conflict settings and security. It is increasing clear that in response to these protracted and emerging issues that whole of government and whole of community collaborative partnerships must be prioritised. The Global Health-Security Agenda in fact calls for enhanced partnerships across public security and public health but how these partnerships are formed and sustained is not widely understood.

SAHELI is the Nossal Institute’s new professional development programme with the objective to strengthen the potential for senior collaborative leadership and communication across complex issues that impact the Australia-Asia-Pacific Region. SAHELI provides a platform for enhancing deeper understanding and expanded dialogue between senior leadership and policymakers from across these inter-related areas, as well as provide the impetus for more collaboration and information sharing among key personnel. The SAHELI program also fosters and facilitates issue-specific dialogue and works with partners at all levels of government at a local, state and federal level in Australia and overseas. SAHELI hosts cross sector leadership development institutes in Australia and the Asia Pacific region.

For more information contact Dr Nicholas Thomson on email nicholast@unimelb.edu.au
Boosting regional health security to prevent and contain emerging diseases

The Indo-Pacific Centre for Health Security was launched by the Minister for Foreign Affairs and Trade in 2017. It contributes to the prevention and containment of communicable diseases that have the potential to cause social and economic harm on a national, regional and global level. Led by Australia’s Ambassador for Regional Health Security. This initiative aims to inform evidence, prevent avoidable epidemics and support local and international outbreak responses. The initiative is guided by a Technical Reference Group (TRG) which provides strategic advice to inform priorities, policies and investment decisions.

Three of the group’s advisors are based at GLHAM member organisations in Melbourne.90

With funding of AUD$300 million over five years, the Health Security Initiative will invest in:

- Promoting global and regional cooperation;
- Catalysing international responses to countries’ identified needs;
- Applying Australia’s unique strengths in health security; and
- Accelerating access to new and effective tools for health security.91

Leadership to promote community resilience and health security

Australian Red Cross (ARC) is a regional leader in disaster preparedness, response and recovery. A member of the global Red Cross Red Crescent Movement, comprising the International Committee of the Red Cross (ICRC), the International Federation of Red Cross and Red Crescent Societies (IFRC), 190 national societies and 17 million volunteers world-wide, ARC provides support in Australia and across the Asia Pacific to empower communities to take charge of their health. Drawing on the collective resources of the Movement, ARC is committed to building strategic partnerships to respond to the increasingly complex health threats facing the Asia Pacific region and to strengthening the evidence-base to inform locally appropriate responses.

ARC’s approach to epidemic detection and control is built upon the following areas of work:

Prevention and preparedness

ARC supports national societies across the Asia Pacific region. These national societies have established a broad network of skilled, health literate volunteers, trained in community based health and first aid (CBHFA), including the basics of disease prevention and early response to disease threats. Harmonisation of the CBHFA approach with early detection and response tools – community based monitoring and surveillance (CBMS) and epidemic control for volunteers (ECV) – provides a platform to strengthen community resilience across all programs operating in at-risk areas.

Early detection, early action

Recognising that epidemics begin and end in communities, promotion of stronger community-based roles in detection, response and treatment will ensure early responses to emerging disease outbreaks. Ensuring communities are health literate, have effective communication channels to reach health authorities, and are empowered to take action when a threat is detected is critical to ensuring a rapid, community-centric and localised response. Additionally, improved health informatics and situational awareness at regional and global levels ensure information sharing and rapid response by national societies to threats not only in their own countries but also across borders.

ARC has been at the forefront of recent community led responses to epidemics in our region, including the dengue outbreak in Vanuatu (2017) and the measles outbreak in Papua New Guinea (2017). ARC aligns its work to the Movement’s global initiatives such as the Humanitarian Pandemic Preparedness Program (H2P) 2007-10 and the USAID-funded Epidemic and Pandemic Preparedness Program (EP3) 2008, the latter including an initiative to support real time collection of emergency health data. Together with IFRC, we are currently scoping an Indo-Pacific pilot initiative, which will include a CBMS model that is localised, sustainable, strengthens community engagement in health, and is linked to and supports public health surveillance.

Public health surge capacity

ARC contributes to emergency public health surge capacity through its delegate pool of highly experienced and qualified professionals. Delegates provide emergency health expertise and coordination during humanitarian responses, and contribute expertise in a range of roles including environmental health, WASH, clinical health and epidemiology. They deploy with short term notice and play a major role in supporting local health staff and volunteers in disease surveillance and response, including ECV and CBMS.

Within the Movement, ARC delegates are recognised as leaders in the public health in emergencies field, and regularly contribute to the design and facilitation of national, regional and global trainings. The global CBMS guidelines were authored by an Australian Red Cross delegate.

The role and importance of communities and local organisations such as Red Cross national societies and their vast networks in strengthening health security cannot be understated. The community-based access and referral point to the public system is often the missing link in health surveillance work in the region. The preparedness of communities to identify and act in response to infectious disease outbreaks and their links to health systems is central to determining if health risks escalate from a local containable outbreak, to national and regional threats.

The current threats to our regional health security require a coordinated response that locates community actors and community-based mechanisms at the centre of local, national, regional and international health systems and services. Early identification of disease outbreaks, together with rapid humanitarian response, is critical to the containment and therefore prevention of epidemics and pandemics. More resilient communities are a vital component of strengthening health security at every level.

Australian Red Cross’ Health Practice Lead, Dr Lisa Natoli, plays a crucial role in facilitating working relationships with other Movement partners and advising on relevant International guidelines to strengthen community resilience that will contribute to regional health security.
CASE STUDY

Doherty Institute leading antimicrobial stewardship

Based in Melbourne, the Doherty Institute is a joint venture between the University of Melbourne and the Royal Melbourne Hospital. The Institute addresses antimicrobial resistance using a ‘one health’ approach that recognises the critical links between humans, animals and the environment in the emergence and spread of antimicrobial resistance.92

The Doherty Institute’s National Centre for Antimicrobial Stewardship is a research group that works collaboratively with hospitals, aged care homes, general practice clinics and veterinary specialists to assess the prevalence and quality of antimicrobial prescribing, and develop and evaluate interventions that limit the inappropriate use of antimicrobial drugs.93

Research relating to antimicrobial consumption, inappropriate use, interventions to change prescribing behaviour and the effectiveness of these interventions is undertaken by the centre. It conducts national antimicrobial prescribing surveys to monitor and improve antimicrobial prescribing and use in hospital and community settings, including the aged care, agricultural and veterinary sectors.94

These surveys highlight areas of antimicrobial prescribing and quality of care that require improvement, inform antimicrobial stewardship policy and contribute to quality improvement initiatives.95

Accordingly, recognising antimicrobial resistance as a priority topic in the development agenda and one that can have a substantial impact on health security, as recognised in Australia’s First National Antimicrobial Resistance Strategy 2015-19, which was jointly developed by the Department of Health and Department of Agriculture and Water.

93 Ibid.
94 Ibid.
95 Ibid.
**Recommendation**

Capitalise on the outstanding capacities for international biomedical and public health research to contribute to adding complex and obdurate health inequities, health security risks and health emergencies.
I. Genomics leadership

Victoria is home to the Melbourne Genomics Health Alliance (MGHA) – an active member of the Australian Genomics Health Alliance (AGHA). These bodies are both active in implementing the National Health Genomics Framework.96

This framework aims to improve individual and population health through application of genomic knowledge and technology into the healthcare system in an effective, ethical and equitable way by improving co-ordination of activity across Australia. Incorporating genomics into healthcare services is an innovative field, with the potential to improve diagnosis of some diseases, ensuring proper treatment and management of such diseases.

MGHA comprises of 10 leading healthcare and research organisations committed to bringing the knowledge of genomics to benefit the healthcare of Victorians. To understand the impact of genomics in healthcare, the Melbourne Genomics’ demonstration project, first of its kind in Australia, was launched in 2014 by the MGHA with support from the Victorian government. Genomic sequencing was used to diagnose and identify the underlying cause of certain genetic conditions using 315 patients from the Royal Children Hospital and Royal Melbourne Hospital.

Key findings from the project have demonstrated that incorporating genomic sequencing in healthcare services can often provide quicker, more accurate diagnosis and more personalised care97. Also, the use of genomics techniques can, in certain conditions, provide cost benefits by replacing other tests98. Findings from this project are currently being implemented nationally through the Australian Genomics Health Alliance and in Queensland through the Queensland Genomics Health Alliance.99

This Demonstration Project has also had international impact after being presented at several international conferences in Europe, North America, and Asia. Also, Genomics England and Genome Canada have requested use of this cost-effectiveness data from the Demonstration Project’s Childhood Syndromes Flagship, to support their arguments for the use of genomics in healthcare in each of these countries.100

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97  Melbourne Genomics’ Demonstration Project. Available at: https://melbournegenomics.org.au/media-centre/results-demonstrate-success-genomic-medicine
98  Ibid.
99  Ibid.
Driver projects

GA4GH is an international, non-profit alliance formed to accelerate the potential of genomic medicine to advance human health. The GA4GH has struck formal collaborations with 15 international genomic data initiatives as 2017 Driver Projects. GA4GH Driver Projects will help identify, develop, and pilot data sharing frameworks and standards in real-world settings. By interacting with many of the world’s leading genomic data initiatives, GA4GH will ensure that its efforts are directly connected to the research and healthcare communities’ most immediate needs.

Australia Genomics Health Alliance is one of the only 15 selected collaborators of this global initiative and is led by Melbourne Genomics Health Alliance professionals: Professor Kathryn North, Vice-Chair of the Global Alliance’s Steering Committee and Director of Murdoch Children’s Research Institute; Associate Professor Clara Gaff, Melbourne Genomics Health Alliance Executive Director.
The education of international students is Australia’s third largest export
Part 9 Key statistics – a snapshot

There are two main estimates of the economic value of Victoria’s global health sector – the Benchmarking Report and the State of the Sector Report.

The first report entitled Victorian Exports of Health, Medical and Aged Care Products (referred to as the Benchmarking Report) utilised data from 2012-2013 and found that this sector generated $2.531 billion in exports and employed 10,041 full-time equivalent (FTE).101

The Benchmarking Report covers exports from seven areas including health service system planning and design; research; medical, health and aged-care events; education and training; facilities design and management; medical services and health and medical products.

Secondly, the State of the Sector Report: Medical technologies and pharmaceuticals 2017 focused on organisations engaged in manufacturing and development of pharmaceuticals; life science and biotechnology; medical technology; vitamins, supplements and topical products and service providers. Using data from 2013-14, this sector generated $1.35 billion in exports and 18,000 FTE in employment.102

Thirdly, in terms of global health sector exports and the Victorian economy, in 2015-16103 Australia’s Trade by State and Territory 2015-16 Report found that pharmaceutical products104 were Victoria’s tenth largest export by value, just after aluminium exports ($622 million).

China and India are already major markets for Australian goods and services, but as noted earlier there is considerable growth potential for Victoria’s global health sector exports.

During the period 2007-16 Victoria secured $172 million in neglected tropical diseases research funding.105 This represents 53% of the total funding distributed to Australian recipients, with $152 million awarded to all other Australian states and territories combined.

Finally, the education of international students is Australia’s third largest export behind iron ore and coal and, between 2016-17, Victoria alone generated $9.1 billion.

The enrolment of international students in health-related courses in Victoria has been on the increase over the past five years, with 9900 international students undertaking study on 50 different health-related disciplines.

101 Bremer+Company: Benchmarking the economic impact of Victoria’s health and aged care goods and services exports – Findings pp. 10,12
104 SITC (Standard International Trade Classification) 541 bulk pharmaceuticals
Part 10 Outlook for the Victorian international health sector

a. Opportunities and strengths

In late 2017, GLHAM developed and administered a survey to 200 businesses and organisations including hospitals, international non-government organisations, and the private sector to elicit status and intentions with regards to their global health activity: 59 responses were received and 48 survey respondents identified at least one significant opportunity to grow their global health sector activities.

The strong theme that emerged from the survey responses was the importance of partners and partnerships. 40% of survey respondents viewed working with new or stronger partners as an opportunity for global health sector growth. Although inadequate or excessively restrictive funding was cited by some as an obstacle, the potential to secure additional or new funding from other markets was an opportunity for others. Some respondents were positive about the possibility of a better regulatory and policy environment in target markets due to increased funding possibilities, reduced and/or improved regulation, better integration of government departments, and international policy change. The development of the 10-year Victorian India strategy was welcomed as an example of a more strategic approach from the Victorian Government.

A range of respondents saw opportunities arising from expanding into new or existing markets (including medical tourism), improved goods and services, and the utilisation of technology in product design or service delivery.

Medical research institutes said that the commercialisation of medical research could be supported by:

- increasing the amounts at the State Government level of indirect support costs/overheads within grant applications made by Victorian-based entities; and
- involving health product developers in provision of advice and decision-making in key funding bodies such as the NHMRC around program termination and resource allocation

Other opportunities were identified that ranged from improving political and economic conditions to accessing more volunteers and raising the profile of their organisation.

Various stakeholders have emphasised Victoria’s concentration of high quality medical and health research and service delivery institutions, biotechnology and medical technology companies, and skilled labour as a key strength, if this concentration and co-location can be harnessed.

Finally, access to high-speed computers to analyse the rapidly growing volume of genomic data is both an obstacle and an opportunity. In its report on the Victorian Life Sciences Computation Initiative (now Melbourne Bioinformatics) it was been noted that “the quantity of genetic data being produced daily is doubling approximately every seven months.”

Access to high-speed computers is essential to allow Victoria’s medical research institutions to continue to conduct cutting edge research and attract international funding.106

Key strengths include:

- Victoria had more than 180 companies in the biotechnology sector in 2013-14.107
- As a leader in medical research, Victoria receives over 40% of Federal Government medical research funding annually. The Melbourne Biomedical Precinct houses over 10,000 researchers and clinicians in 25 technology, engineering and medical facilities located at the edge of the Melbourne City Centre.108
- Melbourne scientists receive more than 50% of Australian funding for microbiology and immunology research and nearly 60% of research funding for regenerative medicine, and more than 4700 researchers were working on infectious and inflammatory diseases and immunology.109

- Victoria has a strong pharmaceutical manufacturing sector spread across the production, support and research stages of the production chain.
- More than 40 Victorian based bioscience companies are listed on the Australian Stock Exchange, with a market capitalisation of around $40 billion.110
- Clinical trials in Victoria generate approximately $300 million.111
- Victoria has consistently gained more than 40% of NHMRC research funding. Over the 17 years 2000 to 2016, Victoria’s share averaged 42.3%.112
- Victoria is home to 15 of the key genomics centres of expertise in Australia.113

113 https://www.australiangenomics.org.au/partners/
Recommendation

The Victorian International Health Sector is broad and deep but also segmented. The Global Health Alliance welcomes support in its efforts to foster more international health partnerships, thereby breaking down these segments.

b. Obstacles

Earlier studies in Victoria identified a range of obstacles to the further development of the global health sector. The support provided to medical research by the Victorian Government is acknowledged, including the support for implementation of Victoria’s Health and Medical Research Strategy, 2016-2020. However, ongoing obstacles included the assertion that the State government’s support for indirect costs in Victoria’s medical research institutes has not kept pace with institutes’ growth, resulting in a funding gap for indirect costs such as rent and basic utilities. This widening gap increases pressures on available philanthropic, commercial and international grant revenues for Victorian medical research institutes, meaning that our institutes cannot realise their potential.

Results obtained through the 2017 GLHAM survey showed that in line with earlier findings, funding emerged as the single biggest obstacle for respondents to the GLHAM survey – not just the amount of funding available, but also the focus of funding, and the conditions attached to funding. It was the major limitation faced by at least one respondent in all types of organisations except for-profit businesses. Market conditions and Australian government policies were cited as the second greatest obstacle to growth.

Examples of obstacles posed by Australian government policy and market conditions include the lack of government commitment to global health, National Health and Medical Research Council funding focus on a domestic-only agenda and limited Government (Federal and State) funding opportunities/incentives to support global health and education capacity development initiatives.

In terms of partnerships, respondents reflected the problems they encountered in many joint ventures – finding suitable partners, and managing partner risk and expectations. Obstacles arising from market conditions covered a complex set of regulatory and broader economic issues including market information, costs associated with accessing markets, the level of demand, the extent of competition, foreign government regulations, and finding qualified labour.

Other challenges identified included social and political factors such as the geopolitical environment, political insecurity in certain countries, social attitudes, and the need to prioritise domestic clients and demand over global customers and markets.

Some respondent organisations identified a lack of capacity to maintain and/or increase global health exports (of goods and services), when local demand is high. This was due to domestic clients having priority over offshore demand and organisations and is consistent with the finding that organisations see exporting as a bonus, but not necessarily the most important activity. This view is also consistent with the finding of the 2014 Benchmarking Study which found that numerous organisations did not expect their exports to increase in the three years following the survey and that some organisations were not willing to invest in increased capacity (due to funding or other reasons) that would allow greater involvement in the global health sector. Recommendations arising from this survey follow.
An international work sharing partnership and the role of specialised trade missions

HDR is a global company with a century of expertise in healthcare architecture. International health work is not always about developing medical or health goods or services in Australia and taking them overseas. It can also be about contributing to an international process that is coordinated offshore.

The way work is shared across the various HDR offices is determined by the location of the project, the nature of the project, the capacity of the various offices at the time, and more specific factors such as time zones (where Australia has an advantage in relation to China).

Projects that the Australian office is engaged in currently include the Al Maha specialist long-term paediatric centre in Doha, and the college of Medicine for Qatar University, a large greenfield hospital in Shanghai which includes the involvement of a US-based medical institute. Over time, the share of work in China coming to the Australian office is likely to increase.

Expanding the Australian office’s involvement in the International health sector will require focused rather than generic marketing. Professional consultancies are more difficult to promote than products, and HDR’s architectural practice is specialised within the architectural field. Further, HDR believes Australia tends to underrate its expertise in the health facilities design area. Very specialised trade missions could assist in expanding business opportunities. Such missions would build on existing networks in specific markets, helping raise awareness of HDR’s global specialisation and capacities, including its Australian-based expertise.

Recommendation

Victoria’s substantial international health capacities are an exceptional resource that the Victorian Government could include in more strategic trade, investment and economic development activities.

Examples provided in the survey responses suggested the following:

- Implement global health-themed trade missions to significant markets and support two-way missions that enable repeat contact with organisations and institutions over a period of time, such as a series of “repeat business” missions over the ten-year life of Victoria’s India Strategy.
- Develop and support targeted, thematic trade relations that focus on a high level of granularity in terms of Victoria’s key strengths which include:
  - Planning missions and events with at least a 3-6 month lead-time for both incoming and outgoing missions, with agreed outcomes and identified goals to achieve the maximum return on investment for all those involved.
  - Government assistance provided to develop overseas markets needs to be carefully targeted rather than generic promotions.
- The Victorian Government could increase its work with the federal Department of Foreign Affairs and Trade and Australian embassies to streamline two-way access to Victorian expertise and to ‘sell’ Victorian’s unique global health capability.
- Support organisations to strategically participate in trade and economic development activities, to enable testing of prospective global health partnerships and ‘markets’ before organisations commit funds to expand into ‘risky’ environments.
Global health provides great opportunity for innovation and partnership across public, private and research sectors. Over recent years there has been significant growth in the number of global initiatives to promote the development of diagnostics, treatments and other supporting technologies to address chronic and emerging global health challenges.

Various global and regional facilities provide incentives for development not otherwise available in the market, facilitation of registration processes, and a platform for collaboration across partners who might not otherwise work together.

The Foundation for Innovative New Diagnostics has delivered more than one new test a year to support the detection of tuberculosis, malaria and other diseases. The Tuberculosis Alliance supports development of lower cost and burden treatments for tuberculosis, to improve access and treatment completion rates. Gavi, the Global Vaccine Alliance, is successfully increasing financial access to a range of vaccines in low- and lower-middle-income countries and disbursed over USD$70 million in the South-East Asia region in 2015.

New financing arrangements are helping to ensure these developments are available to the countries that need them most. These new arrangements take a range of forms and are both government and non-government driven.

Recent innovative financing mechanisms such as the Priority Review Voucher Scheme of the US Food and Drug Administration appear to be providing useful incentives for global health research and development in the United States and, to a lesser extent, beyond. Interest in social impact bonds/investment has grown dramatically and the demand for investments that can provide both a social and financial return to investors is currently said to outweigh supply. Many of these investments require some risk sharing, such as upfront financing or loss guarantees, which are important entry points for public-private partnerships in Australian development assistance.

The Global Health Investment Fund, for example, is a $108 million social impact fund focused on communicable disease and maternal and child health in low- and middle-income countries. Global Health Investment Fund supports late-stage innovations and seeks opportunities that have a high probability of successful commercialisation within three years. The Fund employs a range of innovative financing arrangements with partners including equity, convertible debt and project financing. It was enabled by initial funding from the Gates Foundation, which guarantees the first 20% of any losses, if they occur.

Australia can and has benefited from these innovative partnerships through leverage of the Global Health Investment Fund financing and support to Australian global health innovation companies and researchers. Recently Medicines Development for Global Health - a Melbourne-based global health not-for-profit company - received USD$10 million from the Global Health Investment Fund to support the FDA registration process for moxidectin to treat River Blindness (see case study Medicines Development and new financing models).

Non-government driven financing and business models include social enterprises, the creation of development and social impact bonds, and the emergence of philanthro-capitalism. There is a significant role for State and Federal government jurisdictions to promote enabling policy and regulatory environments for these new financing and business models.

117 http://www.ghif.com/
118 See for example: http://www.genevaglobal.com/
New financing models

Based in Melbourne, Medicines Development Limited (trading as Medicines Development for Global Health (MDGH)) is a not-for-profit developer of affordable medicines and vaccines to treat neglected diseases in low- and middle-income countries.

Medicine Development’s business model is unique and involves using the income generated through commercial activities to subsidise not-for-profit medicine development and delivery. Profits generated from commercial activities, such as consulting and drug sales, are reinvested back into not-for-profit programs. Such revenue has also been complemented with grant funding and philanthropic contributions including innovative debt instruments with return of capital and reinvestment potential. This approach has been developed in association with Capital Collaboration and Australian Philanthropic Services.

Combatting river blindness

MDGH is currently seeking approval from the American Food and Drug Administration (FDA) for moxidectin, a new treatment for onchocerciasis (River Blindness), a parasitic disease found predominantly in sub-Saharan Africa. In 2016, approximately 132.5 million people were treated for onchocerciasis. In clinical trials moxidectin has been shown to reduce parasite transmission more than existing treatments, thus accelerating progress towards elimination of onchocerciasis in endemic regions.

The activities required for registration of moxidectin with the FDA, have been made possible by a US$10 million investment by the Global Health Investment Fund. The process is nearing completion with the New Drug Application (NDA) for moxidectin as an oral treatment for River Blindness having been submitted and the FDA confirming that it has qualified for priority review. The FDA only designates drugs for priority review that treat a serious condition and, if approved, would provide a significant improvement in safety and effectiveness. Upon NDA approval MDGH will receive a transferrable Priority Review Voucher (PRV) that entitles the holder to a priority review of another drug or therapy by the FDA. PRVs are tradeable with value in the range of $50-300 million based on prior sales. MDGH plans to sell the PRV with revenue generated being used to fund MDGH’s future development of products targeting neglected diseases.
Recommendation

Develop, facilitate and promote new business models for global health financing.

There is a significant role for State and Federal government jurisdictions to promote and to create enabling policy and regulatory environments for the new financing and business models.
Reaching under-served populations with benefits from health investments is crucial for more equal growth, stability and health security.
CASE STUDY

‘For purpose’ business ventures changing lives across the world

Adara Development is an international development organisation that forms one part of the Adara Group. The other part of the Group are two Australian based corporate advisory businesses named Adara Advisors and Adara Partners. These businesses deliver high-level financial services expertise to clients, with fees generated on transactions that directly benefit people living in extreme poverty. The sole objective of the Adara businesses is to fund Adara Development’s administration and emergency project costs, demonstrating their efforts as “for purpose” rather than for profit. Resultingly, 100% of all other donations to Adara Development contribute directly to project-related costs. Between 1998 and 2017, the Adara businesses donated a total of AU$12.3 million to support the work of Adara Development.

Focused on improving health and education for women, children and communities, Adara has built capacity and expertise in maternal, newborn and child health and remote community development in over two decades. Since 1998, Adara has worked collaboratively with Kiwoko Hospital situated in Uganda on community based healthcare, maternal health, neonatal intensive care, HIV and diabetes.

Now, Adara is building on this expertise to improve newborn health more widely across Uganda. In Humla, a remote mountainous region of Nepal, Adara’s Remote Community Development program has made significant contributions preventing deaths of women, children and disadvantaged people in isolated communities through long-term sustainable support. Quality healthcare services, nutrition, hygiene, sanitation and increased access to education for youth and children aim to improve health and eliminate child trafficking through education. Following Nepal’s earthquake in 2015, Adara also delivered emergency food, medical and shelter supplies to 10,000 people, and has since begun a long-term reconstruction project in the Ghyangfedi district, a small remote community in Nuwakot district, northeast of Kathmandu.
Part 11 Findings and recommendations

These recommendations are solely the views of the Global Health Alliance Melbourne and constitute a ten point plan for 2018 and beyond:

**Introduction**

- The international health sector in Victoria provides national leadership in a wide range of international health areas, and particularly in the Asia Pacific region. The sector is at the forefront of improving health outcomes for people around the world, while making a significant contribution to the Victorian economy. The findings from GLHAM’s 2017 Survey and partial data since 2014 show that the Victorian international health sector has continued to expand, albeit at different rates within and across its various sub-sectors.
- Measuring the contribution of the international health sector to global health outcomes and to the Victorian economy is difficult owing to the depth and breadth of the sector, the large number of countries in which activities take place, the diversity of participating organisations (e.g. universities, medical research institutes, biotech and pharmaceutical companies, and international NGOs), and the lack of relevant consolidated data. Some international activities lead to immediate and measurable economic outcomes (e.g. the tuition fees of an international student studying health sciences at Victorian universities), while others are not as readily quantifiable (e.g. mentoring of public health managers and policy makers to improve leadership skills).

**Recommendation (i)**

Victoria’s substantial international health capacities are an exceptional resource that the Victorian Government could include in strategic trade, investment and economic development activities.

- Exports of pharmaceutical products are a consistent contributor to the Victorian economy, at a value of $621 million in 2015-16. Recently, state level trade data has shown that pharmaceuticals within the international health sector have recorded strong growth where imports of bulk pharmaceuticals exceeded exports by nearly 50%.
- The diverse and technical nature of Victoria’s international health sector means that more precisely-targeted assistance – for example through focused trade missions or support for specific international health sector inputs such as high-speed computing – is likely to bring greater returns. Trade missions – both incoming and outgoing - present an opportunity to ‘sell’ Victoria’s international health expertise. Governments, both state and federal, could support two-way missions that enable repeat contact with organisations and institutions over a longer period of time. The Federal Government could also assist with visa and other in-country support to Australian international health staff working overseas.
**Recommendation (ii)**

The Victorian International Health Sector is broad and deep, but is also segmented. The Global Health Alliance welcomes support in its efforts to foster more international health partnerships, thereby breaking down these segments.

- The Global Health Alliance Melbourne represents 32 organisations across nine different sectoral types. The Alliance is perfectly positioned to foster global health partnerships and create consortia.

- Regarding the outlook for the sector, it was clear from responses to the 2017 survey that many organisations were optimistic about its potential, both in terms of income growth and employment and its contribution to health equity. The diversity of the sector means that opportunities can occur in a wide range of activities and in a variety of places. On this latter point, China and India will most likely continue to increase in importance for the Global health sector over time. However, these markets present significant challenges, including market access and regulation. Other markets in South-East Asia and more traditional funders such as DFID and USAID for health and development, will likely remain important for some parts of Victoria’s global health sector.

- The continued growth of the sector into the future will be influenced by a range of factors, including:
  - the amount of funding available, the focus of funding and conditions attached to funding;
  - government (state and federal) recognition of and support for global health as a priority area;
  - partnering countries also recognising the importance of health as key platform for sustainable economic growth and strengthening their own health budgets.
  - the availability of appropriate technology such as high-speed computers and data storage in Victoria and within partner countries;
  - market conditions, domestic and foreign government regulations, access to markets, and availability of an appropriately qualified workforce both in Australia and in partner countries; and,
  - the geopolitical environment, particularly in conflict zones.

- International health innovation partnerships must go beyond drug testing and clinical trials, and should include health systems capacity building and innovation. The three pieces of the pathway from new health intervention to health improvement must work together - development, financial accessibility and the ability of a health system to deliver interventions effectively to those who need them. It is the third that is often the greatest constraint to health gains and regional health security. As Victoria invests more in global health product development platforms and partnerships, the emphasis on health systems, particularly primary health care systems including electronic data systems and supply chain management, needs to be maintained/enhanced through bilateral economic and development assistance partnerships at the sub-national, as well as the national levels of government.
With adequate and appropriate support, the Victorian international health sector will continue to increase its impact on health equity and economic contribution. This will further advance Victoria’s standing as a centre of international health expertise in the Asia Pacific region and across the world.

Collaboration is critical to optimising the limited resources available to our sector. The Victorian Government could build on the industry networks developed during 2017, foster global health partnerships and opportunities by engaging a non-government entity to provide a dedicated Global Health Partnering Facility. This would facilitate greater partnering between WHO Collaborating Centres, international NGOs, universities and the full diversity of the Victorian global health sector, in areas such as research, drug and therapeutic product trialling areas. Intelligence gained by Government regarding new and emerging markets should be made available via the health industry networks mentioned above.

Recommendation (iii)

Capitalise on the outstanding capacities for global biomedical and public health research to contribute to addressing complex and obdurate health inequalities, health security risks and health emergencies.

Melbourne is home to Australia’s largest concentration of international health expertise. The state hosts more than 180 biotechnology companies, 15 Medical Research Institutes (MRI’s) who account for 7 out of the 10 largest MRI’s in Australia by total revenue, 22 WHO Collaborating Centres, seven of the key international non-government organisations (representing 57% of Australian NGO overseas aid disbursements\(^{120}\) and nine national clinical trial networks.

A strong theme that emerged from the 2017 survey was the importance of partnerships and collaborations to ensure a critical mass and mix of appropriate skills to support continued expansion in the international health sector. Successful partnerships in the international health sector are facilitated by the cluster precincts, which co-locate businesses, universities, MRI’s, health facilities and not-for-profit organisations. The benefits of these clusters were explicitly acknowledged in the Victorian Government’s Medical Technologies and Pharmaceuticals Sector Strategy.\(^{121}\) The strategy advocates for providing assistance to companies to access local research and development infrastructure and expertise, develop a skilled workforce, and attract entrepreneurs to the sector.

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\(^{120}\) ACFID, Major INGOs by share of international aid disbursement 2014-2015.

Recommendation (iv)

Enable more translation of research in Victoria for the benefit of low, middle and high income nations globally.

- Digital health and comprehensive national health data and surveillance systems also have good growth prospects given the pace of technological change, the increasing emphasis on evidence based policy and planning, the rising demand for lower cost health services, and the number of businesses and organisations involved in offshore health system strengthening activities.

- In both clinical trials and digital health, Victoria’s share of businesses (35% and 36% respectively) is greater than the state’s share of Australia’s gross domestic product (23%). A possible opportunity for growth in these areas is more direct funding for Global Health R&D. The funding could facilitate bringing Australian international health innovations to market, creating health and commercial benefits. Victoria could lead a consortium for this purpose – facilitated by GLHAM – and position the state as a leader in Australia in the translation of medical research products to provide life-saving outcomes.

Recommendation (v)

Increase the opportunities for pre-service education and training, professional development and research capacity building in health for international undergraduate and postgraduate students and people with existing qualifications.

- Melbourne will host 53 health and medical conferences in the next 6 years, with 73,450 attendees and an economic return to the state of $428 million.122

- In 2016, there were a total number of 294,693 international students in Australia (28.5% of the total number of all tertiary students). 7.3% of the international students were enrolled in a health-related course (an increase of 7.8% from 2015).123 At Deakin University, 24.5% of total EFTSL enrolments are international students and approximately 25% of total student enrolments belong to health.

- While several Victorian universities have cultivated significant relationships in Asia, the sector may also be assisted by the development of a long-term strategy that aims to increase commercial opportunities for Victoria in the region. Such a strategy could also include activities to develop connections with international alumni of Victorian institutions to promote Victoria’s healthcare expertise and strengthen cultural links.

122 Melbourne Convention Bureau interview.
**Recommendation (vi)**

Support and develop more capacity to conduct collaborative clinical trials in Victoria and in Asia Pacific nations.

Even though clinical trials make up only a small part of the international health sector in economic terms, the latest data supports their potential as a source of growth. This area of the international health sector could be boosted through:

- direct infrastructure support to existing national clinical trial networks based in Victoria to enable an increase in participant recruitment;
- infrastructural support for the major Victorian coordinating centres that support the national clinical trials networks based in Victoria;
- support for large-scale multinational trials led by Victoria that address important clinical questions;
- investment in higher levels of patient recruitment/awareness to enhance the States’ ability to conduct Phase III trials;¹²⁴
- standardisation and streamlining of clinical trials, including costs: the development of centralised benchmarking and a consistent pricing method for trials conducted in Victoria;
- increased funding/incentives for investigator-led trials and trial coordinating centres that are essential in facilitating research;
- support to large clinical trials that investigate or improve the quality of healthcare;
- technical support for CEO’s and researchers to increase the quality of clinical research;
- enhanced international engagement to attract clinical trials to Victoria and conversely to explore opportunities for Victorian companies to participate in offshore clinical trial centres;
- seed funding for new national networks based in Victoria; and,
- workforce development, capability and training.

Recommendation (vii)

Maximise the reputational and strategic benefits of having 22 World Health Organization Collaborating Centres based in Victoria by establishing a National Secretariat in Melbourne.

Victoria is home to 22 WHO Collaborating Centres, hubs of expertise on a range of pressing international health concerns. However, designation as a Collaborating Centre is not accompanied by increased funding or support for administration and cross-pollination. Collaborating Centres may be benefited through the establishment of a National Secretariat, based in Victoria, to:

- reorient investment to prioritise health promotion and preventive health, with a focus on the social determinants of health and health equity, across all SDGs;
- implement the WHO Regional action plan on health promotion in the Sustainable Development Goals 2018–2030 in partnership with other levels of government, NGOs and a wide range of sectors;
- harness the expertise and share the knowledge of Australian WHO Collaborating Centres and state-level agencies in designing and delivering Commonwealth Government, local and international health initiatives; and
- establish formal planning, monitoring and reporting mechanisms to ensure that the outcomes of these collaborations are in Australia’s reporting, and that the efforts complement rather than duplicate the activities of the Government.125

Recommendation (viii)

Expand engagement with the international non-government organisations that have Victorian offices through:

- more consultation in strategy development
- involvement in consortium bids and partnerships
- extension of the Victorian Government’s existing health industry networks.

International NGOs have the potential to play a greater role in partnering with other parts of the international health sector. Their knowledge of specific countries and regions, their established connection with communities across the world, and their extensive involvement in health delivery makes them a valuable resource that has not been fully realised. International NGOs are well placed to participate in the health industry networks established in Victoria in 2017 under the International Health Strategy 2016-2020. However these networks may best managed by strengthening existing bodies that could more effectively achieve the objectives of the industry networks established in 2017.

125 Recommendations from the Victorian Health Promotion Foundation (VicHealth) Submission to Senate Standing Committee on Foreign Affairs, Defence and Trade inquiry into the United Nations Sustainable Development Goals, March 2018.
Recommendation (ix)

Develop, facilitate and promote new business models for global health financing.

Victorian expertise is consistently recognised through the awarding of competitive research and philanthropic funding. In 2015-16, Victorian organisations received $25 million in funding for neglected tropical diseases research, representing 72% of the total funding awarded to Australian researchers.126

Nearly $24 million was granted to 53 recipients in Victoria from 27 US-based philanthropists between 2011-13, representing 25% of all US-based grants to Australia during that time period.127 While increasing funding to a range of organisations in the sector would assist, reducing excessive regulatory requirements and increasing the transparency of funding processes could also enhance the impact of existing funding. Support to promote new models of financing international health initiatives would be useful. Government could provide start-up funding and an enabling policy environment to promote social enterprises, social impact bonds and philanthro-capitalism.

Recommendation (x)

Consider reconfiguring the Victorian Government’s health industry networks on a geographic basis – as opposed to the current sectoral basis – and utilise existing peak bodies and industry associations to host and develop the health industry networks.

The development of health industry networks that has already begun in Victoria under the International Health Strategy 2016-2020, could be expanded to include international NGOs and could be based on geographic areas, as opposed to industry types.

These networks could be best managed by existing peak bodies: it would be preferable if the Government was a member of the health industry networks as opposed to just being the host.

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## Appendix One

### Victorian-based WHO Collaborating Centres

<table>
<thead>
<tr>
<th>No.</th>
<th>Institution</th>
<th>Location</th>
<th>Postcode</th>
<th>WHO Collaborating Centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Monash University</td>
<td>Clayton</td>
<td>VIC 3168</td>
<td>WHO Collaborating Centre for Violence, Injuries and Disabilities</td>
</tr>
<tr>
<td>2</td>
<td>Monash University</td>
<td>Clayton</td>
<td>VIC 3168</td>
<td>WHO Collaborating Centre for Bioethics</td>
</tr>
<tr>
<td>3</td>
<td>Royal Victorian Eye and Ear Hospital</td>
<td>East Melbourne</td>
<td>VIC 3002</td>
<td>WHO Collaborating Centre for the Prevention of Blindness</td>
</tr>
<tr>
<td>4</td>
<td>St Vincent’s Institute of Medical Research</td>
<td>Fitzroy</td>
<td>VIC 3065</td>
<td>WHO Collaborating Centre for Diagnostics and Laboratory Support for HIV/AIDS and Other Blood-borne Infections</td>
</tr>
<tr>
<td>5</td>
<td>St Vincent’s Hospital</td>
<td>Fitzroy</td>
<td>VIC 3065</td>
<td>WHO Collaborating Centre for Research and Training in Mental Health</td>
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<td>University of Melbourne (Melbourne School of Population and Global Health)</td>
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<td>VIC 3053</td>
<td>WHO Collaborating Centre for Women’s Health</td>
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</tbody>
</table>

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128 The database at this link provides an opportunity to learn about various technical program/country perspectives from WHOCCs both in Victoria and around the world [http://apps.who.int/whocc/Search.aspx](http://apps.who.int/whocc/Search.aspx).
<table>
<thead>
<tr>
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<th>Postcode</th>
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<td>Yallambie</td>
<td>VIC 3085</td>
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Appendix Two

**Victorian-based Australian Clinical Trial Networks**

<table>
<thead>
<tr>
<th>Network</th>
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<tbody>
<tr>
<td>Australasian Sarcoma Study Group</td>
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<tr>
<td>Paediatric Research in Emergency Departments International Collaborative</td>
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<tr>
<td>Australian and New Zealand College of Anaesthetists Clinical Trials Network</td>
</tr>
<tr>
<td>Australian and New Zealand Children’s Haematology/Oncology Group (ANZCHOG)</td>
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<tr>
<td>Australian and New Zealand Intensive Care Society Clinical Trials Group</td>
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<td>Australasian Leukemia and Lymphoma Group</td>
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<tr>
<td>Australia and New Zealand Musculoskeletal Clinical Trials Group</td>
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<tr>
<td>ASPIrin in Reducing Events in the Elderly - ASPREE Clinical Trial</td>
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<td>Australian Paediatric Research Network</td>
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</table>
## Case studies contained in this report

<table>
<thead>
<tr>
<th>Case study name</th>
<th>Participating organisation(s)</th>
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</thead>
<tbody>
<tr>
<td>Building the capacity of the health system in Uttarakhand, India</td>
<td>The Nossal Institute for Global Health, Uttarakhand government, Public Health Foundation of India</td>
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<td>Victorian researchers and progress towards a world-first life saving malaria vaccine</td>
<td>Burnet Institute</td>
<td>17</td>
</tr>
<tr>
<td>Combatting mosquito-borne diseases through an ecosystems approach</td>
<td>World Mosquito Program, Monash University</td>
<td>17</td>
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<tr>
<td>Save the Children and GlaxoSmithKline Partner for Improved Health Outcomes for Children</td>
<td>Save the Children</td>
<td>19</td>
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<tr>
<td>Breathing new life into oxytocin to prevent death during childbirth</td>
<td>Institute of Pharmaceutical Sciences at Monash University</td>
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<td>Partnering to save the lives of vulnerable women and their babies in Cambodia</td>
<td>CARE, Marie Stopes International Cambodia, Save the Children, Cambodian Ministry of Health, Australian Department of Foreign Affairs and Trade</td>
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<tr>
<td>All about Ophelia: Deakin University facilitates the building of global capacity to enhance health literacy</td>
<td>Deakin University Health Systems Improvement Unit and WHO Collaborating Centre for Health Literacy</td>
<td>31</td>
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<tr>
<td>International NGOs and research</td>
<td>Oxfam Australia, Monash University</td>
<td>34</td>
</tr>
<tr>
<td>Envisioning a new future for eye health across the world</td>
<td>The Fred Hollows Foundation</td>
<td>36</td>
</tr>
<tr>
<td>From urban slum to oasis: sustainable and healthy water systems for urban informal settlements</td>
<td>Monash University</td>
<td>36</td>
</tr>
<tr>
<td>Driving international student enrolments through long-term education partnerships</td>
<td>Deakin University</td>
<td>39</td>
</tr>
<tr>
<td>HIV Clinical trial</td>
<td>Burnet Institute</td>
<td>44</td>
</tr>
<tr>
<td>Collaboration to solve endocrine disorder mysteries</td>
<td>The University of Melbourne</td>
<td>44</td>
</tr>
<tr>
<td>Transforming management of type 2 diabetes through technology</td>
<td>Nossal Institute for Global Health</td>
<td>46</td>
</tr>
<tr>
<td>One billion and counting</td>
<td>Data for Health, University of Melbourne</td>
<td>47</td>
</tr>
<tr>
<td>Preventing infections in mothers and newborns</td>
<td>MCRI</td>
<td>49</td>
</tr>
<tr>
<td>From discovery of virus to effective vaccine for rotavirus</td>
<td>MCRI</td>
<td>49</td>
</tr>
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<td>Topic</td>
<td>Organisation</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
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<tr>
<td>Community-based treatment for neglected tropical disease</td>
<td>MCRI</td>
<td>49</td>
</tr>
<tr>
<td>Alleviating the burden of buruli ulcer in Victoria will have global impacts</td>
<td>The University of Melbourne, Australian Government Department of Health</td>
<td>51</td>
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<td>Preventing cancer and infectious diseases through excellence in the provision of public health services supporting screening and vaccination</td>
<td>Victorian Cytology Service</td>
<td>53</td>
</tr>
<tr>
<td>The Victoria Comprehensive Cancer Centre</td>
<td>Ten leading health partners</td>
<td>54</td>
</tr>
<tr>
<td>The International Legal Training Program</td>
<td>McCabe Centre for Law and Cancer</td>
<td>55</td>
</tr>
<tr>
<td>Partnership with US National Cancer Institute</td>
<td>Victorian State Government</td>
<td>56</td>
</tr>
<tr>
<td>Applying an indigeneity lens to programming</td>
<td>The Fred Hollows Foundation</td>
<td>58</td>
</tr>
<tr>
<td>The SAHELI Program</td>
<td>Nossal Institute for Global Health</td>
<td>59</td>
</tr>
<tr>
<td>Boosting regional health security to prevent and contain emerging diseases</td>
<td>Australian Government Department of Foreign Affairs and Trade</td>
<td>60</td>
</tr>
<tr>
<td>Leadership to promote community resilience and health security</td>
<td>Australian Red Cross</td>
<td>61</td>
</tr>
<tr>
<td>Doherty Institute leading antimicrobial stewardship</td>
<td>Doherty Institute</td>
<td>62</td>
</tr>
<tr>
<td>Driver projects</td>
<td>Melbourne Genomics Health Alliance (MGHA)</td>
<td>65</td>
</tr>
<tr>
<td>An international work sharing partnership and the role of specialised trade missions</td>
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<td>New financing models</td>
<td>Medicines Development for Global Health</td>
<td>74</td>
</tr>
<tr>
<td>Combating river blindness</td>
<td>Medicines Development for Global Health</td>
<td>74</td>
</tr>
<tr>
<td>‘For purpose’ business ventures changing lives across the world</td>
<td>Adara</td>
<td>77</td>
</tr>
</tbody>
</table>
A snapshot of the Victorian international health sector

**Home to 22 World Health Organisation Collaborating Centres** focusing on issues such as influenza, health literacy and obesity

**Victorian organisations received USD$25 million in funding towards neglected tropical diseases in 2015-16, which is 72% of all Australian funding in this period**

**9900 international students** in 2017 were undertaking courses in 50 health related disciplines in Victoria, and more than a third of all international students in Australia were studying at Victorian universities

**10 leading healthcare and research organisations** have committed to utilising genomics to improve health outcomes

**9 Australian Clinical Trials Networks** are based in Victoria

**Three clusters of high performing global health entities** based around Deakin, Melbourne and Monash

**Birthplace of the Global Health Alliance Melbourne** which is comprised of 33 organisations from 9 different sectors

**Victoria hosts 10 leading cancer health partners** at the VCCC that has international partnerships with 120 countries

**A Pharmaceuticals and medical devices sub-sector that employs more than 23,000 people** and that produced exports worth AUD$1.5 billion in 2016

**180 biotechnology companies** which contribute approximately US$12 billion annually to the economy

**57% of Australian International NGO’s overseas aid/development assistance spending comes from Victoria**

**During 2007-16, Victoria received USD$172 million in neglected tropical disease research funding, representing 53% of all funding awarded to Australia**

**Over 40% of life science companies listed on the Australian Stock Exchange are based in Melbourne**

**Largest number of international non-government organisations working in areas such as health systems strengthening, clinical interventions, humanitarian and emergency response**