Victorian Chamber of Commerce and Industry

Vital to Victoria

HEALTH INDUSTRY TASKFORCE REPORT

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Introduction 02

Executive summary 04

Health industry overview 20

Megatrends 36

Priorities to grow Victoria's health industry 54

INTRODUCTION

Mark Stone AM
Victorian Chamber of Commerce and Industry Chief Executive

> ***Health is vital to Victoria and all Victorians. The quality of our health products and services are among the best in the world and the potential for further growth is strong. However, Victoria's health industry is being disrupted. How the health industry responds will shape its future.***

Victoria's health industry is a highly diverse sector and major contributor to the state economy. It is Victoria's largest employer and one of our fastest growing sectors.

Victoria is home to the country's top manufacturers and developers of pharmaceuticals, biotechnologies, medical technologies and devices, digital health technologies, and vitamins and supplements. We have world-leading medical treatment, research capabilities and infrastructure. The efficiency of our health system and high quality of our healthcare products and services is renowned globally. Victoria also has a fast developing and thriving wellness industry.

However, Victoria's health industry is being disrupted and cannot rely on its existing strengths to guarantee future success. Our population is both growing and ageing. The incidence of chronic disease is rising. Health budgets are under strain and industry costs are rising.

Victorian manufacturers of health medicines and medical equipment are increasingly being challenged by overseas competitors who are leveraging low-cost advantages, improving their health regulatory environments and increasing product quality.

At the same time, emerging trends in personalised care, health science and medical technologies are opening new opportunities for Victoria's health industry to take the lead in the global transformation of the way health products and services are made and used.

How Victoria's health industry responds to these challenges and opportunities will shape the industry's future.

While the Health Industry Taskforce recognises there are steps the industry can itself take to stay competitive and ensure growth is sustainable – such as improving efficiency, closer collaboration and better data sharing – there is also a need for policy reforms to enable the industry to strengthen the quality of products and services it provides, ultimately benefitting all Victorians.

The adoption of the Health Industry Taskforce's priorities and accompanying recommendations will enable Victoria's health industry to operate more efficiently, be more productive and capitalise on its strengths as a high-quality provider of health products, services and expertise.

I take this opportunity to thank Taskforce members who shared their time, expertise and experience in coming together to identify issues, opportunities and ideas to shape a healthier Victoria, and an even stronger Victorian health industry.

EXECUTIVE SUMMARY

The Health Industry Taskforce has identified six priority areas to give Victorian health businesses the best chance of success:

01 Create a more collaborative and integrated health business environment and strengthen local innovation and commercialisation

02 Increase the industry's flexibility in delivering health outcomes and improve access to wellbeing and preventative health options

03 Develop and retain a skilled workforce that is equipped to keep pace with changing consumer preferences and needs

04 Attract investment to improve digital infrastructure and boost manufacturing capacity and efficiency

05 Leverage Victoria's health industry strengths and international networks to build new product and service opportunities in the global marketplace

06 Keep health industry costs low and grow business competitiveness.

Victoria has one of the best health systems in the world with leading care, research, services and manufacturing.

However, like many countries, our health industry is being challenged by demographic, technological and economic megatrends.

The industry faces the immediate challenge of an ageing population, rising chronic disease and increasing demand for new treatments and more services.

Public funding is constrained but expectations to deliver truly patient centred care experiences are rising.

Emerging technologies provide the opportunity to significantly alter the way we deliver health services and products. However, new technology also brings with it challenges to integrate data, build insights and offer new experiences for customers and ways of doing business for health service providers.

The ability of the Victorian health industry to understand, embrace and adapt to this new environment is key to retaining our world-class position.

Policy makers need to think about regulation, policy and funding frameworks that support this journey. They need to work with the industry to foster closer partnerships and ecosystems with organisations across the private -public spectrum. A priority must be to get more small and medium sized businesses engaged in health industry supply chains.

They also need to spur the development and adoption of new technologies and digital health tools that are changing the way health products and services are provided and accessed.

As a state we need to invest in innovation and ensure our education and training system supports new roles and skills across the health industry.

We need to think carefully about how to optimise health and wellbeing for the whole population throughout their lives, not just for those requiring care at a time of illness or injury.

Importantly, we need to keep our pharmaceutical and medical device manufacturers competitive and get more health businesses internationally engaged.

The Taskforce urges policy makers to work with Victorian health businesses to progress these priorities with a sense of urgency.

Victoria's prosperity and the health of all Victorians depends on it.

THE TASKFORCE'S VISION:

The business of health is important to the Victorian economy and all Victorians.

Better health is central to human well-being. It also makes an important contribution to economic progress, as healthy populations live longer, are more productive, and save more.

By adopting the Health Industry Taskforce's recommendations, all Victorians will benefit because Victoria's health industry will be an even stronger and more successful provider of world-leading health products, services and expertise.

It will be an industry characterised by:

> Stronger industry collaboration.

> Increased local innovation and commercialisation.

> Improved operating efficiency, with uncompromised product and service quality.

> More good jobs, with improved career pathways for young people.

> Stronger investment.

> Increased international engagement.

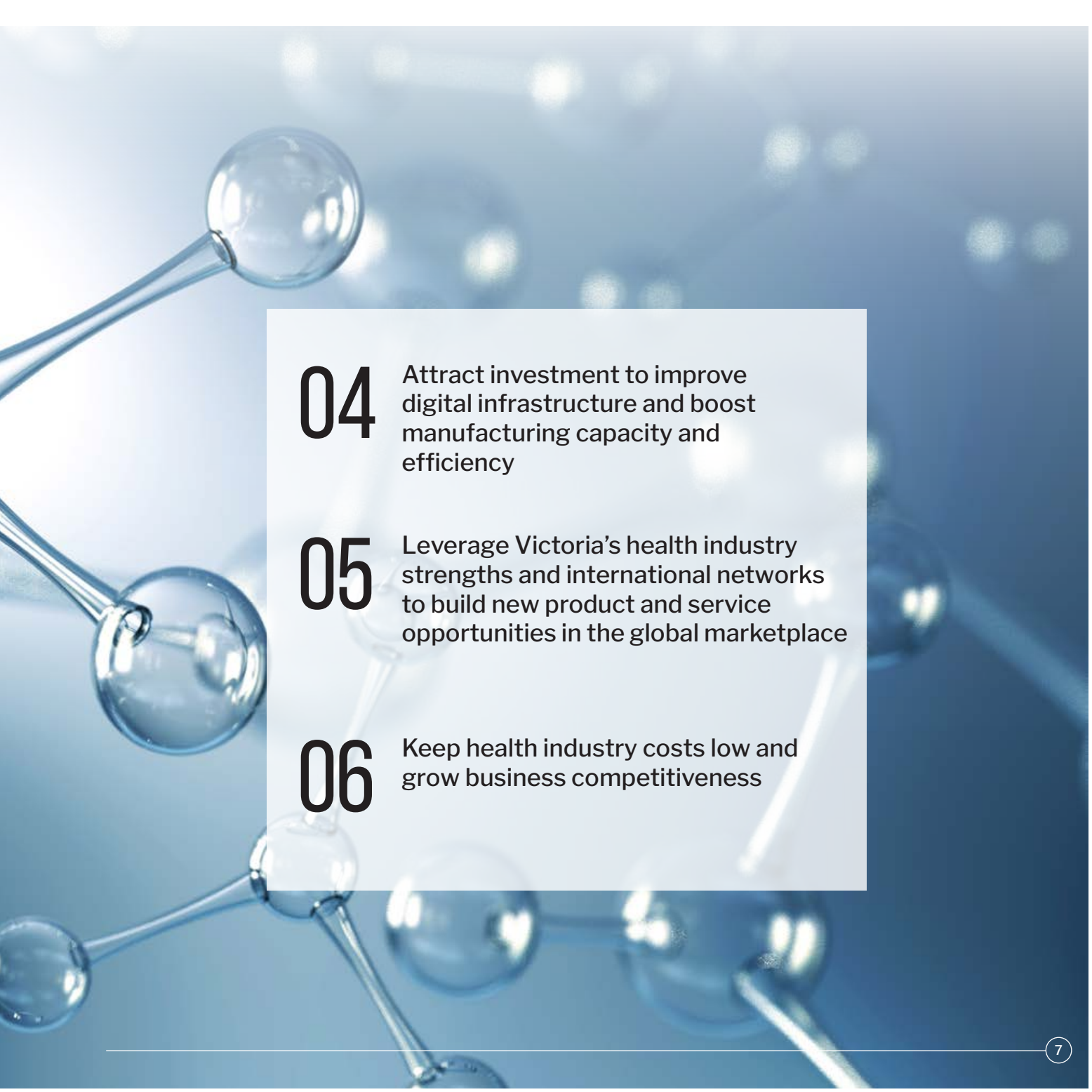
The new capabilities, applications and efficiencies that accompany the industry's growth will lead to improved health product and service outcomes for all.

PRIORITIES TO GROW VICTORIA'S HEALTH INDUSTRY

01 Create a more collaborative health business environment and strengthen local innovation and commercialisation

02 Increase the industry's flexibility in delivering health outcomes and improve access to wellbeing and preventative health options

03 Develop and retain a skilled workforce that is equipped to keep pace with changing consumer preferences and needs



04 Attract investment to improve digital infrastructure and boost manufacturing capacity and efficiency

05 Leverage Victoria's health industry strengths and international networks to build new product and service opportunities in the global marketplace

06 Keep health industry costs low and grow business competitiveness

01

Create a more collaborative health business environment and strengthen local innovation and commercialisation

While Victoria has a world-class health system, our health industry is relatively siloed from other sectors. Sub-sectors within the industry also tend to operate in even smaller silos.

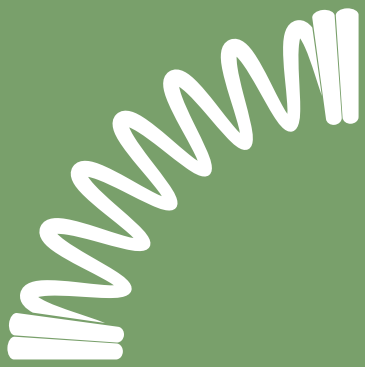
Stronger collaboration between the public and private sectors will provide health businesses with critical exposure to new technologies and skills. It will facilitate operating efficiencies, strengthen workforce development and spur the development and adoption of new technologies.

How this can be achieved:

- Fund a small business *Healthy Supply Chain Development Program* to facilitate connections between SMEs and established health industry businesses and organisations in both the private and public sectors. The objective must be to get more SME and local content into health products and services.
- Support the expansion of industry collaboration with universities on work integrated learning (WIL), such as internship programs and graduate employment placements.
- Establish a system of grants to help SME health industry clients new to the IP system assess the patentability of their ideas. Funding would cover the cost of contractual research, patenting and licensing.
- Reassess programs currently offered by state and federal governments that facilitate and promote public-private collaboration across the health sector. Ensure these programs create, scale and embed significant health system improvements and innovations in organisational systems and structures, and workforce capability (including culture and behaviours).
- Strengthen existing precincts and work with local governments to create new ones to leverage health industry and research institution capabilities, including in regional Victoria and urban growth and renewal areas.
- Streamline the criteria and reporting requirements for government funded collaborative research. These requirements largely focus on governance issues but add undue bureaucracy and divert research resources away from outcomes.
- Undertake a formal review of Health Purchasing Victoria's (HPVs) ability to meet the government's procurement objectives, including maximising local content, increasing the rate of innovation adoption and job creation. Support the commercialisation of local health innovations (innovative local content policy).

02

Increase the industry's flexibility in delivering health outcomes and improve access to wellbeing and preventative health options



The quality of health care depends in large part on the extent to which the industry can respond to changing patient needs and new ways of delivering health products and services. Existing funding models and regulations hamper the development of new delivery models because they are based on activity-based services, rather than health outcomes.

Greater flexibility in achieving health outcomes can provide both direct and indirect benefits to the health industry, including increased productivity and more control over operating costs. Patients can benefit from spending less money to achieve better health.

How this can be achieved:

- Governments at all levels must explore greater use of value-based funding models for healthcare in Australia. Under the value agenda, there is a strong focus on patient-centred outcomes across their entire care experience.

- Conduct a health outcomes trial with a selection of healthcare providers to determine the most appropriate health outcome metrics that could be used to fund health services.

- Allocate funding to pilot a review of practice between health professionals to ensure their roles and responsibilities more clearly reflect the functional needs of health care delivery. The key focus of the pilot would be to examine the scope for skill-mix changes, job widening, job deepening and the development of new roles that enhance organisational effectiveness and patient outcomes.

- Review the number of health regulators and introduce more flexible practice standards to allow appropriately trained health professions to undertake simple case management and prescribing tasks. Provide greater clarity around commonwealth and state legislative frameworks for occupational regulation, accreditation, education and training.

- Invest more government funding in preventative health and wellbeing research with a focus on collaboration and community engagement. Support collaborative approaches to prevention strategies that span multiple chronic diseases.

- Encourage a collective and sustained effort to boost preventive health from government and non-government organisations, businesses, health professionals, communities, families and individuals. This should be part of a 'whole of health industry' approach to improving access, delivery and health outcomes.

- Through the COAG Health Council (CHC) and its advisory body, the Australian Health Ministers' Advisory Council (AHMAC), consider establishing an independent body to scrutinise the cost-effectiveness of public health interventions in the same way that the Pharmaceuticals Benefits Advisory Committee (PBAC) and the Medical Services Advisory Committee (MSAC) assess drugs and clinical procedures.

03

Develop and retain a skilled workforce that is equipped to keep pace with changing consumer preferences and needs

Victoria's health workforce is critical to the overall success of the state's health system. Healthcare providers are being challenged to incorporate big data and new digital technologies into their services and administrative operations.

Meeting this challenge will require quality education and training that develops a high-performing workforce with the knowledge and skills required to respond to new technologies and the shift to consumer-directed service delivery.

How this can be achieved:

- Develop a comprehensive state-wide Health Workforce Strategy to ensure Victoria has the skilled health professionals needed to deliver high quality health care now, and into the future. The strategy needs to identify:
  - The changing needs of the health industry because of population growth, rising rates of chronic disease, an ageing population and technological innovation.
  - The number and type of doctors, nurses and midwives and allied health professionals Victoria needs, both now and into the future (mapping and forecasting).
  - Locations where there is a shortage of health workers, noting type/specialty, and measures to ensure the appropriate distribution of Victoria's medical and health workforce.
  - Training opportunities and career pathways to ensure a skilled workforce, including in regional communities.
- Rethink the way health professionals are trained - and regulated - to ensure the health workforce is more responsive to patient needs, rather than just practitioner, service or organisational drivers. New approaches are needed to shift away from the time-based achievement of qualifications to the incremental achievement of specific competencies. More flexible training models, such as step-on, step-off programs, allow the credentialing of practitioners and provide marketable skills that are responsive to the way they work.
- Expand health professional and medical staff training in the use and application of big data. Work with health industry administrators to improve their knowledge of how digital technologies can be integrated into logistics, system and service coordination.
- Train more advanced generalists in performing patient assessments and coordinating treatment plans with medical specialists and other health professionals.
- Review vocational education and training and tertiary course curriculums to ensure practitioners are not only technically competent but possess the soft skills (etiquette, cultural competency and sensitivity, time management, team player, written and spoken communication, critical thinking, problem solving and decision making, negotiation, and conflict resolution) necessary to be productive.
- Review the current vocational education and training curriculum to ensure it is providing students with an appropriate introduction to the analysis and management of big data and allied digital issues (disruption, cyber-security and data protection, cloud and virtualisation) across all relevant course lists.
- Initiate a campaign to promote Victoria's health manufacturing to new entrants; informing students, parents and educators about the exciting career opportunities in the health manufacturing industry. Continue to promote STEM skills and their fundamental importance to advanced health manufacturing.

04

Attract investment to improve digital infrastructure and boost manufacturing capacity and efficiency

Investment in advanced digital infrastructure can improve health service operating efficiencies, increase options for outpatient care and support new and innovative products and services.

Victoria's pharmaceutical and medical device manufacturing industry has competitive strengths in research and development and some of the highest standards globally for safety and quality. However, it is also under pressure from rising costs and strong competition from low-cost markets. Stronger investment is needed to ensure Victoria's health industry can remain competitive and grow.

How this can be achieved:

- Fund digital health infrastructure and system upgrades across all Victorian public and private hospitals and medical centres which will aid research, clinical decision support, medication management and patient and clinical work flow functions.
- Work with the health industry to develop a Victorian Digital Health Strategy 2025 to improve interoperability across the health industry, including strategies for how information is governed, accessed, used and managed.
- Work with governments to develop an investment attraction policy framework and strategy to support the construction of more Good Manufacturing Practice (GMP) grade health manufacturing plants.
- Expand the Victorian Government's Investment Attraction program stream to support new investment or bringing forward investment in existing health businesses that introduce new manufacturing capability, new technology, process change or plant modernisation which results in business growth and jobs creation.
- Fund a new Healthy Manufacturing initiative which provides health product manufacturers with access to a suite of tailored business improvement opportunities. These include workshops, forums and specific programs across the state including: robotics and automation, digital business capability, supply chain capability, energy and resource efficiency, and B2B network development.
- Provide health product manufacturers with targeted support to:
    - Lift awareness of advanced manufacturing technologies (including robotics and automation, digitalisation, virtual and augmented reality, nanotechnology) and world-best practices.
    - Identify the cost savings achievable through the adoption of world-best practices in areas such as digitalisation, design in manufacturing and sustainable manufacturing.
    - Implement new technologies and practices in a way that aligns with current business capabilities, existing and future required skillsets, and identified goals.
    - Improve information communications and technology literacy.

05

Leverage Victoria's health industry strengths and international networks to build new product and service opportunities in the global marketplace

Increased international engagement provides a strong catalyst to improve the long-term sustainability of Victoria's health system by providing access to additional streams of revenue, strengthening workforce capability and job creation, and exposing the industry to an increased scale and breadth of activity.

While Victorian health exports are already a multi-billion-dollar industry, business utilisation of Free Trade Agreements (FTAs) is low. More needs to be done to assist Victorian health businesses to grow new partnership opportunities in pharmaceuticals, medical technology, hospitals, research and development and aged care in fast growing world markets.

How this can be achieved:

Work with industry associations and health industry businesses to:

- Refresh Victoria's International Health Strategy 2016-20 to ensure it has dedicated market penetration plans for priority high growth markets (including Indonesia, Malaysia, the Middle East, India and China) and health industry organisations (public health, regional health services, aged care services).
- Ensure a whole of government approach to growing health business opportunities in these markets by requiring relevant departments and agencies to clearly outline their role and contribution to the implementation of each of the country specific engagement strategies.
- Develop and implement a program of 'export insights' visits in priority markets for small and medium sized health businesses new to exporting, providing practical information and introductions to successful businesses already in market.
- Boost new collaborative opportunities between Victorian and overseas businesses in areas including:
    - Healthcare provision and skilled health professionals
    - Medical research and Life Sciences
    - Education and training
    - Planning, construction and management of health and aged care facilities
    - Provision of diagnostic, medical and clinical services to international patients, both on and off-shore
    - Medical products and technology.
- Develop and promote a series of dedicated inbound and outbound health industry trade missions to 2022 and support Victorian health businesses to attend international tradeshows in high growth markets.
- Support the work of the Melbourne Convention Bureau to secure a strong pipeline of future health and medical conferences and engage with Victorian health businesses and medical research institutes to ensure international conference guests are exposed to Victoria's health capabilities through tailored business connection services, seminars and health and research facility site visits.
- Develop a Medical Tourism Strategy for Victoria that identifies high growth target markets and strategies to strengthen the capacity of Victoria's medical tourism supply chain: doctors, surgeons and other medical professionals, hospitals; wellness, transport and accommodation services; allied health services; and travel agents.
- Critically reassess Victoria's International Patient Access Policy to ensure it is effectively supporting efforts to position Victoria as a leading location for high-end clinical services for full-fee paying international private patients.
- Determine areas of expertise within Victorian health services that can be delivered remotely to international private patients such as teleconsultations, diagnostics, screening and sample testing.

06

Keep health industry costs low and grow business competitiveness

The footloose nature of capital and investment means it is vital that Victoria's health industry remains competitive against our interstate and global counterparts.

Health businesses are doing their best to stay competitive, developing new market opportunities and new ways of doing business. These efforts need to be supported with wider reforms that reduce the cost of doing business and provide confidence and certainty for health industry investment and job creation.

How this can be achieved:

- Immediately increase in the payroll tax threshold to $850,000, with further increases each year to ensure Victoria remains competitive with other Australian jurisdictions.

- Review the progress made by Victorian health regulators, the Department of Health and Human Services, and Department of Finance and Treasury in implementing the recommendations of the Victorian Auditor-General's March 2015 Report Managing Regulator Performance in the Health Portfolio.

- Continue to prioritise transport, health and education infrastructure upgrades, particularly in regional areas.

- Fund a 'Health Procurement Access' program to improve small business access to health procurement opportunities, how to pre-qualify, where to find out about tenders, how to form joint ventures and facilitate introductions to key procurement officers within government health agencies.

- Establish a consortium of Victorian health agencies and businesses to:
    - Identify key SME's to collaborate with the health industry
    - Gain a greater knowledge of the health business supply chain
    - Identify opportunities to enhance business growth in the health industry
    - Identify health projects to promote jobs.

- Facilitate trade opportunities for Victorian health businesses and organisations by raising the international profile of our health capabilities, assisting with in-market access and building government-to-government relationships.

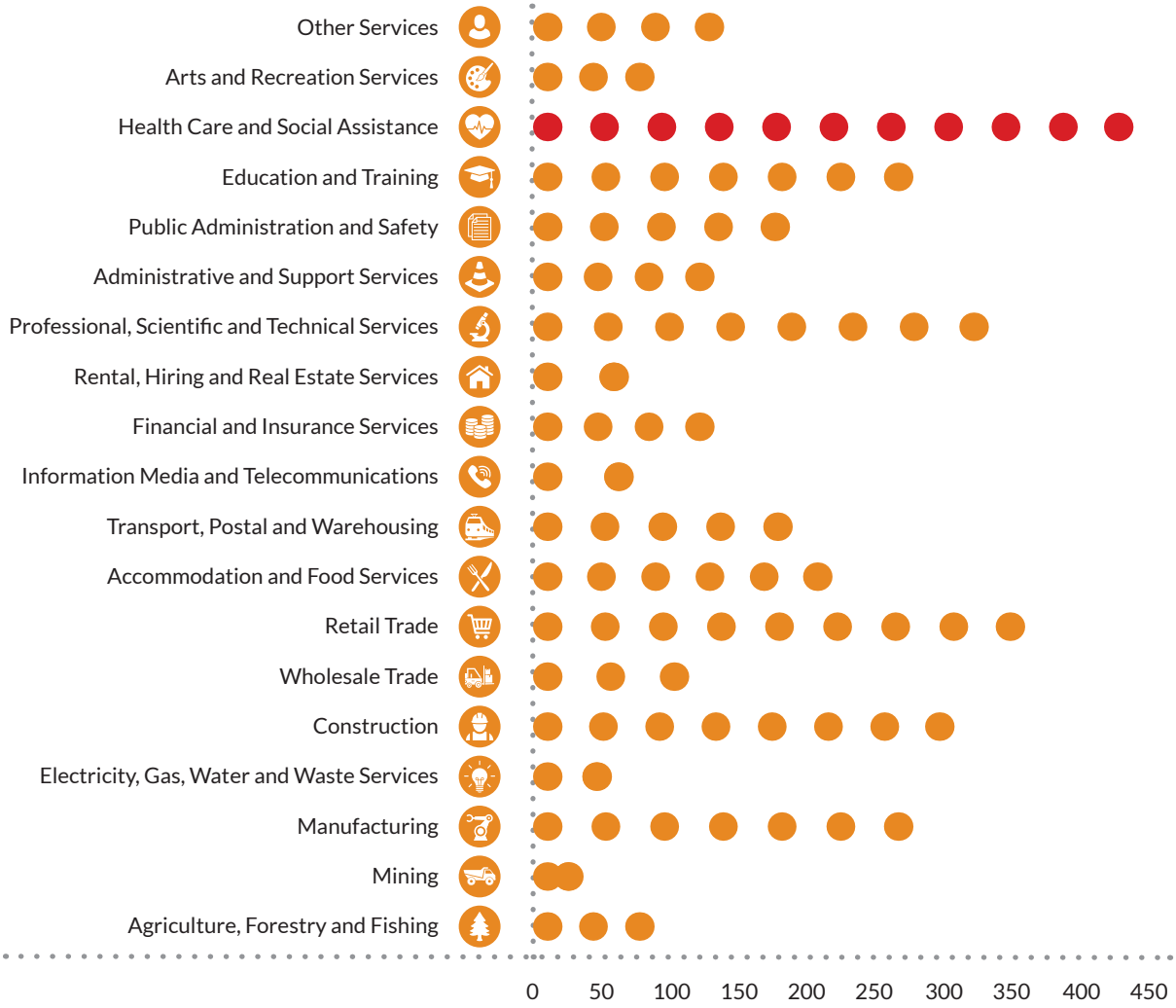
- In collaboration with the Victorian health industry, research and implement an Investment Attraction Strategy focused on interstate and international health product and service suppliers locating in one of Melbourne's Biomedical precincts.

HEALTH INDUSTRY OVERVIEW

THE HEALTH INDUSTRY IS VICTORIA'S LARGEST EMPLOYER AND ONE OF OUR FASTEST GROWING INDUSTRIES

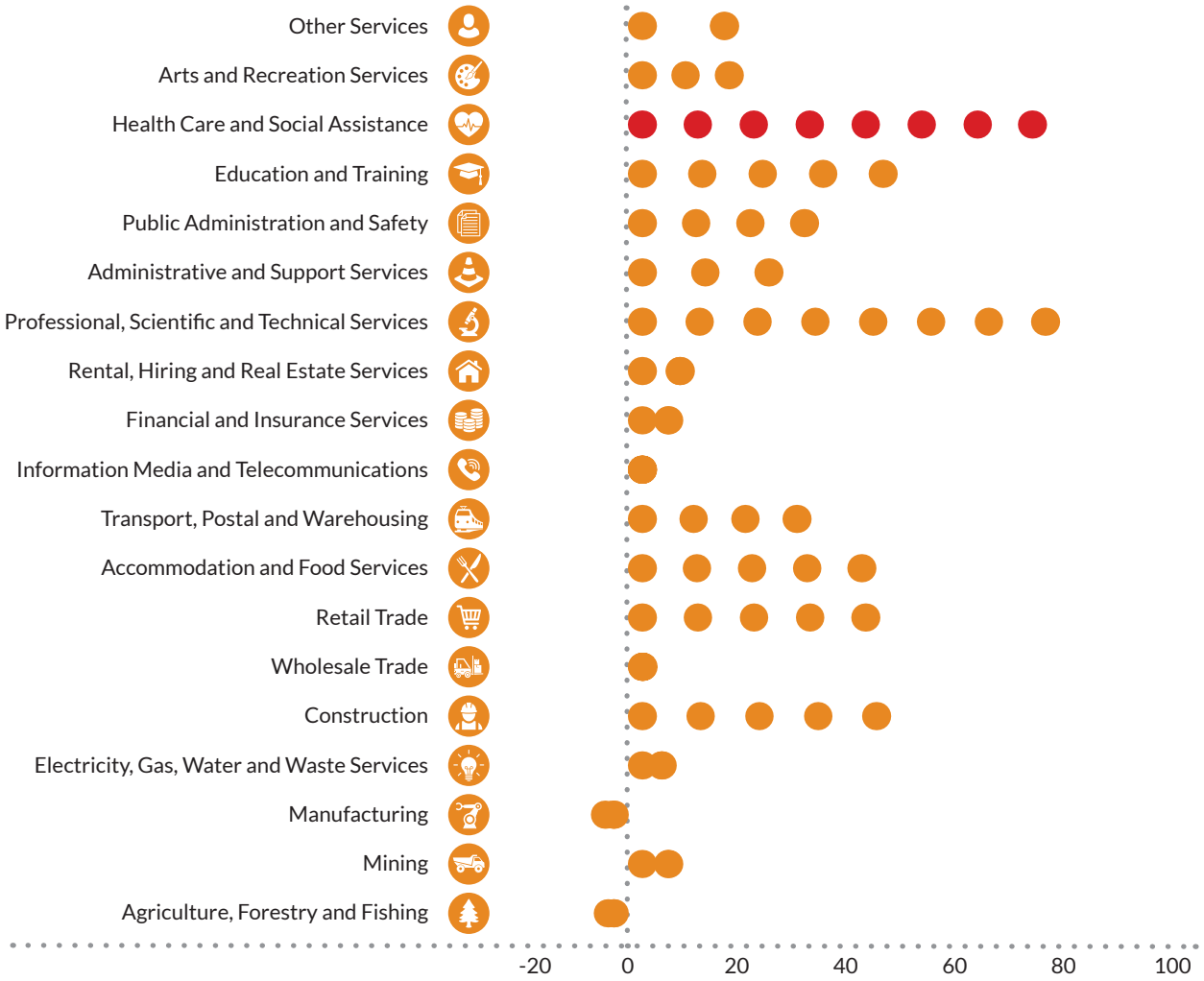
Victoria's health industry is a highly diverse and significant contributor to our economy. It is Victoria's largest employer and second fastest growing business sector.

Victoria: Employed total by industry ('000), February 2019



Source: Australian Bureau of Statistics February 2019, 6291.0.55.003 Labour Force, Australia, Detailed, Quarterly, Table 05. Employed persons by State, Territory and Industry division of main job (ANZSIC)

Victoria: Employment growth by industry ('000), Feb 2014 to Feb 2019



Source: Australian Bureau of Statistics February 2019, 6291.0.55.003 Labour Force, Australia, Detailed, Quarterly, Table 05. Employed persons by State, Territory and Industry division of main job (ANZSIC)

The health industry employs more than 12 per cent of Victorians and contributes over $30 billion a year to the economy.[1] Medical technologies and pharmaceuticals are Victoria's most significant health exports.

The Victorian heath industry consists of many interconnected segments that work together to deliver health benefits to Victorians and others interstate and overseas. It is characterised by a wide range of healthcare providers, manufacturers and ICT businesses that supply products and services to consumer markets in Australia and abroad.

Products are distributed to medical practitioners and retailers who provide services directly to consumers.[2] Service providers include:

Health clinics and the doctors, dentist and nurses who run them

Medical services provided by pathologists and radiologists

Hospitals (public and private)

Allied health providers such as physiotherapists, chiropractors and psychologists

Care facilities for the elderly, disabled and terminally ill

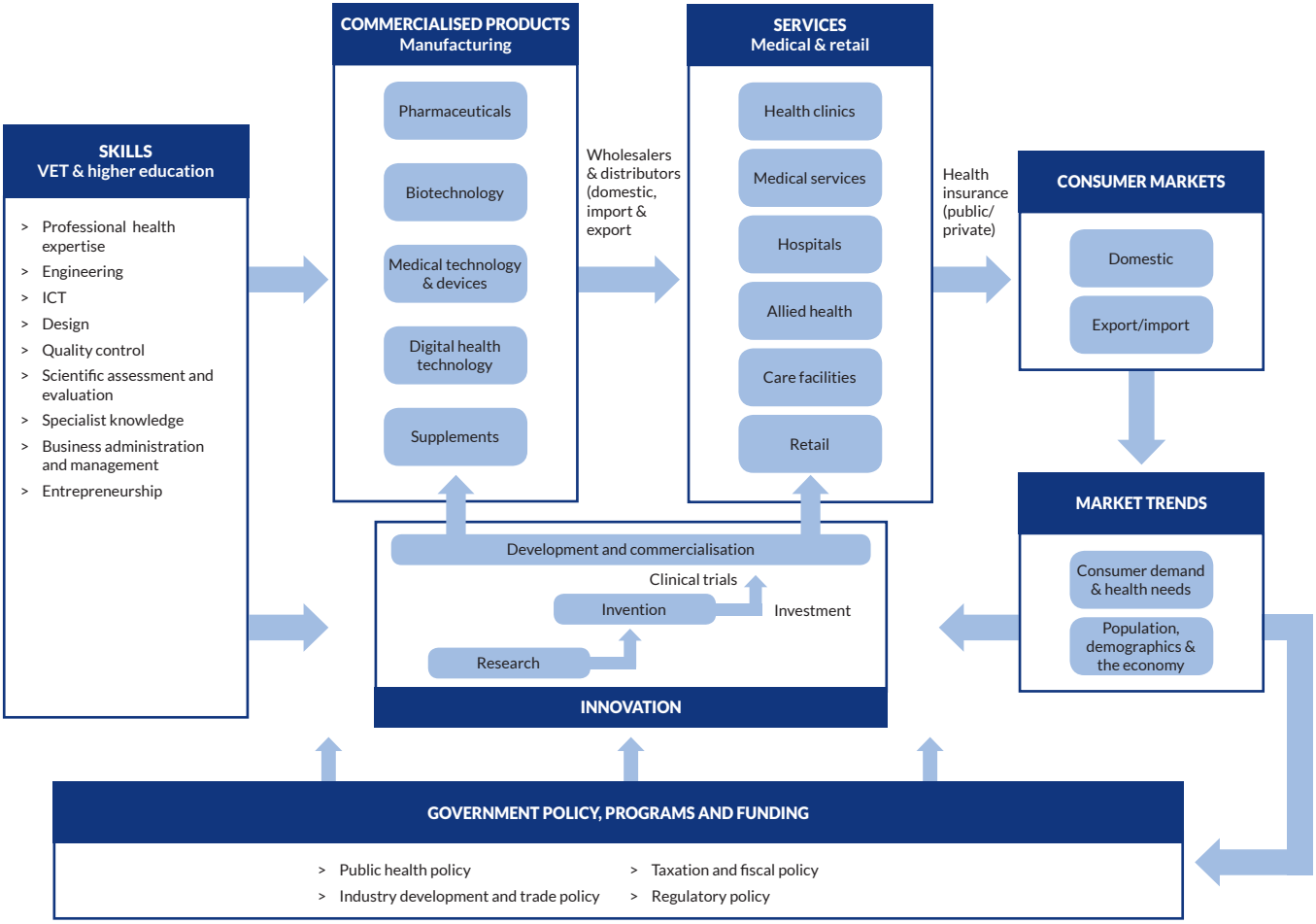
Retail outlets such as pharmacies, online digital technology platforms and other health retailers

A high level of skills and innovation underpins the provision of Victoria's health services and products. Training and research organisations, such as universities, registered training organisations, research institutes and corporate firms, work hard at driving innovation and continuously improving the skills base of the industry.

1 Victoria's International Health Strategy 2016-2020, Victorian Government, July 2016

2 Thomson, R., and Doran, P. (2017). Economic Impact Analysis – Victorian Medical Technologies & Pharmaceuticals Sector. Centre for Transformative Innovation, Swinburne University of Technology. https://economicdevelopment.vic.gov.au/__data/assets/pdf_file/0006/1536558/Economic-Impact-Analysis-Victorian-Medical-Technologies-and-Pharmaceuticals-Sector-February.pdf

Health sector: Sub-sectors and supply chains



VICTORIA IS HOME TO AUSTRALIA'S MAJOR MANUFACTURERS OF HEALTH PRODUCTS

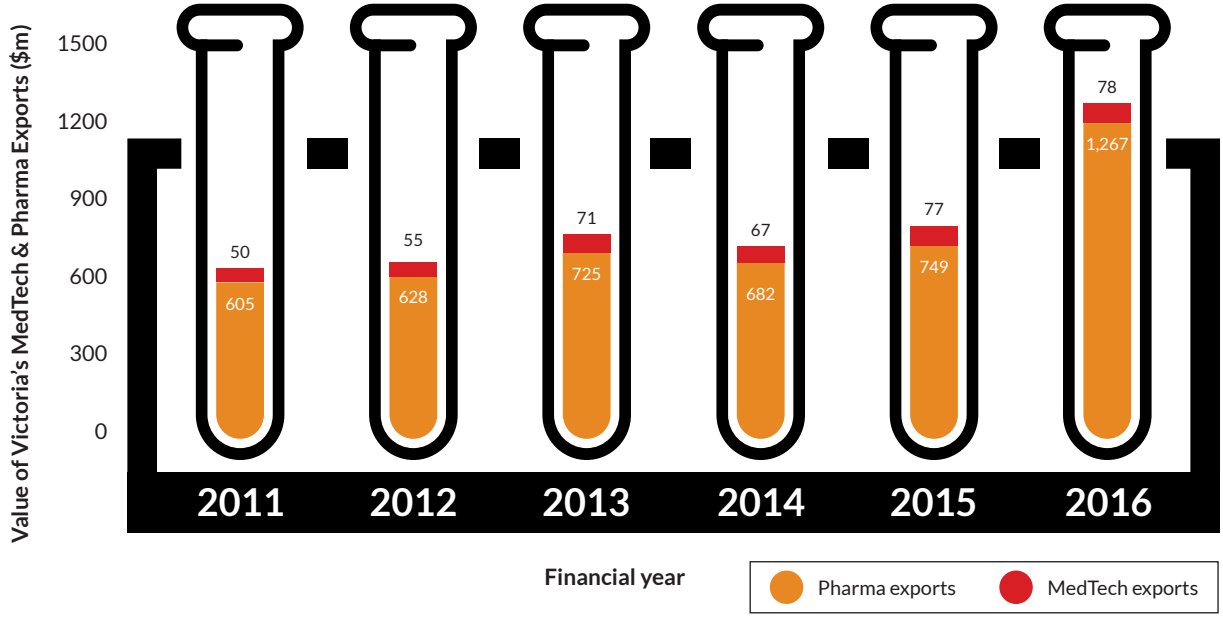
Victoria is home to pharmaceutical, biotechnology, medical technology and devices, digital health technology, and vitamins and supplements manufacturing.

Health products are exported and sold locally, competing with imports in highly regulated domestic and international markets.

Medical technologies and pharmaceuticals are Victoria's top health exports. In 2016 Victorian health goods exports grew by 40 per cent to $1.7 billion and accounted for 47 per cent of Australia's total pharmaceutical products, worth just over $1.5 billion.[3] While the United States and Europe are our largest markets, demand in China continues to increase at a rapid rate.[4]

India and Indonesia also represent markets where demand is growing strongly. Indonesia's per capita healthcare spending is increasing 14 per cent per annum and India's total healthcare spending is projected to rise at an annual rate of over 12 per cent over the next 15 years.[5]

Value of Victoria's MedTech and Pharmaceutical Exports



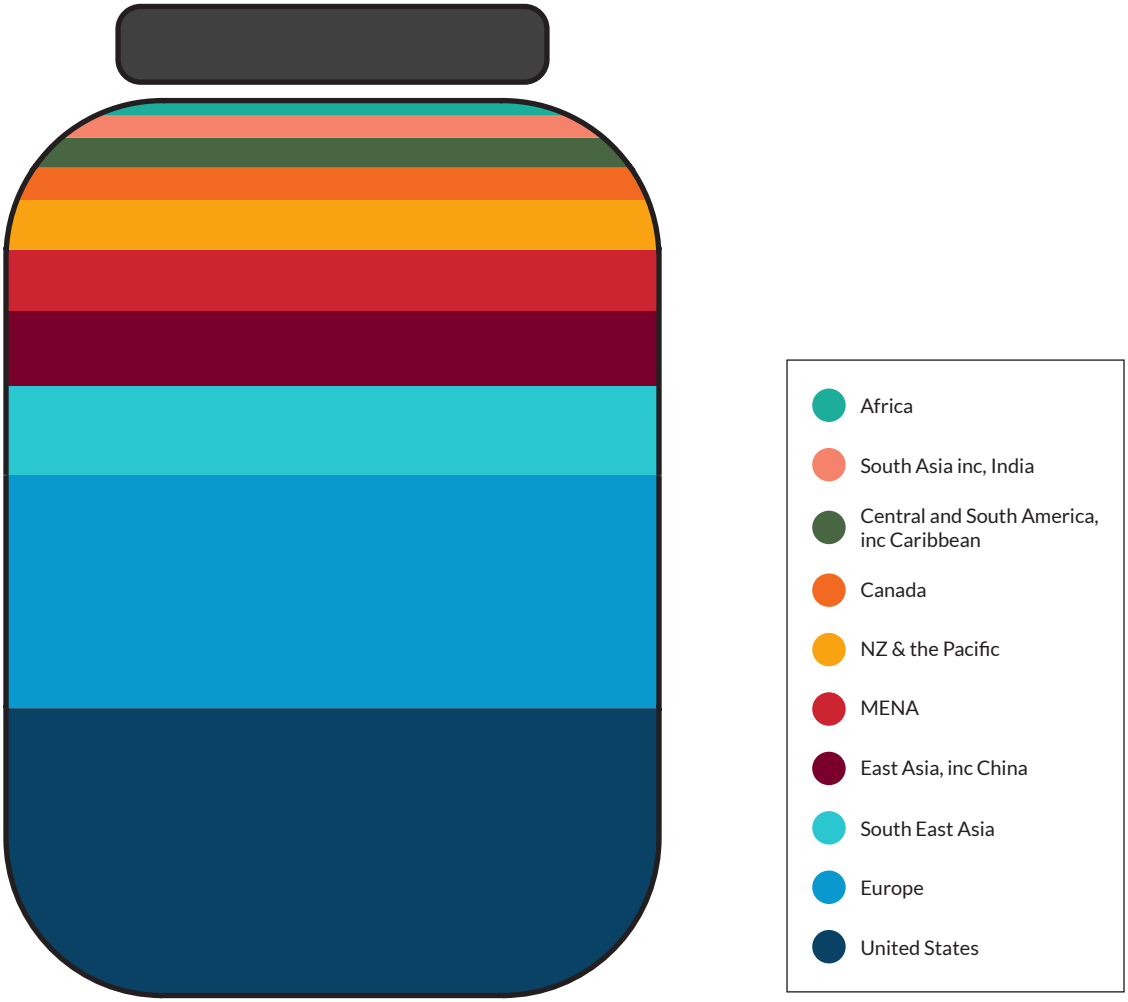
Source: HIS Global Trade Atlas: Global Import/Export Commodity Trade Data, 2016

3 Global Victoria, 2019, Medical technologies, biotechnology and pharmaceuticals. https://global.vic.gov.au/victorias-capabilities/industry-sectors/medical-technologies-biotechnology-and-pharmaceuticals/overview

4 Victoria Government media release, 30 May 2018, *Melbourne secures five premier life science conferences* https://www.premier.vic.gov.au/melbourne-secures-five-premier-life-science-conferences/

5 India – Economic Times, 2015. India needs 3.5 million hospital beds, 3 million doctors by 2034. Indonesia – Frost & Sullivan, 2013. Indonesian Healthcare Expenditure Market to Reach US$60.6 billion in 2018.

Annual average Victorian health goods exports by market 2011-2016



Source: HIS Global Trade Atlas: Global Import/Export Commodity Trade Data, 2016

VICTORIA'S HEALTH INDUSTRY HAS A GLOBAL REPUTATION FOR HIGH-QUALITY HEALTH PRODUCTS AND SERVICES

Victoria has world-leading medical research capabilities and infrastructure and the quality of our healthcare services are regarded as among the world's best.

Compared with other countries' health systems, Australia's healthcare system and its outcomes rank highly. Australia is consistently ranked in the top 10 most efficient healthcare systems in terms of relative cost versus life expectancy. In 2018, Australia ranked eighth in the world for healthcare efficiency, up from tenth in 2017.[6] It consistently ranks at the top of the Better Life Index of the Organisation for Economic Co-operation and Development (OECD), which measures the way citizens perceive their physical, mental, and social well-being.[7]

Health and medical products are manufactured to some of the highest standards in the world based on Good Manufacturing Practice (GMP) validation and stringent therapeutic regulations. These standards are maintained by the Therapeutic Goods Administration (TGA) through a transparent approval process, strict manufacturing compliance guidelines and effective post-market monitoring.[8]

Victoria is one of the world's largest producers of raw opiates that are extracted from poppies. These are used for a range of pharmacy and prescription medicines worldwide.

Victoria is also set to become a nation leader in the cultivation and manufacture of medicinal cannabis. The Victorian Government was the first in Australia to pass legislation to provide patients with access to the medication.

The medicinal cannabis industry is a recent and emerging industry in Australia. The Health Industry Taskforce supports efforts by the Victorian Government to leverage the state's leading pharmaceutical research and development capabilities, and advanced manufacturing and med-tech expertise, to position Victoria as the Australian hub for medicinal cannabis innovation.

6 Bloomberg Health Care Efficiency, 2018
7 OECD, *Better Life Index: Australia*
8 Austrade, https://www.austrade.gov.au/international/buy/australian-industry-capabilities/health-and-wellbeing/

VICTORIA IS A PREMIER LOCATION FOR MEDICAL RESEARCH AND CLINICAL TRIALS

Victoria is recognised as an international leader in health and medical research. As Australia's premier location for medical research and clinical trials, Victoria also attracts a significant proportion of national government medical research funding.

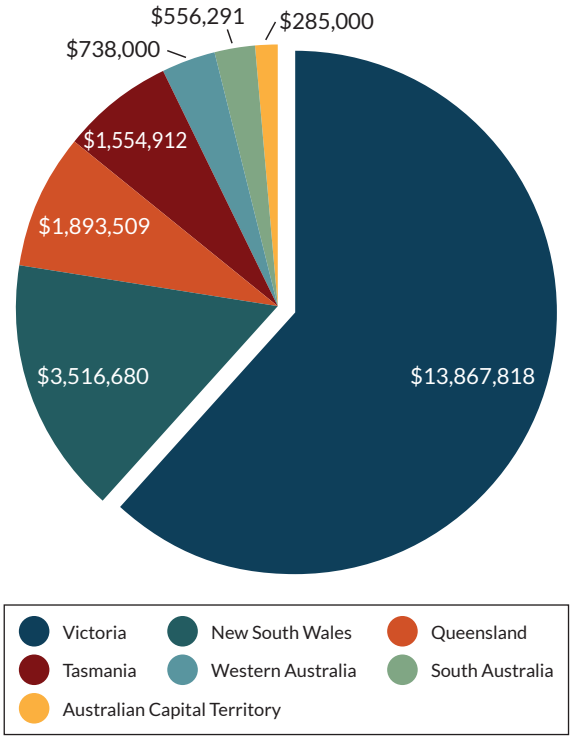
Victoria attracts more R&D investment through the Australian Research Council (ARC) for medical technologies and pharmaceuticals than any other state in Australia. Between 2010 and 2015, 61.9 per cent of ARC Linkage funding was awarded to projects conducted in Victoria. The ARC Linkage program supports research partnerships between researchers and businesses, where partner organisations are required to contribute to the project.

Victoria has significant health and medical research capacity. Victoria has a world-leading base of research talent, having over 10,000 health and medical researchers with strengths in cancer, brain and immunology. Victoria also has an excellent pool of tech talent, with the highest number of graduates from IT and computer science courses in Australia.[9]

Victoria is home to many of the country's top universities and medical clusters, including the Melbourne Biomedical Precinct and the Monash Precinct. Health hubs and precincts in Victoria are growing, with significant infrastructure currently under development.

La Trobe University, for example, is creating a world-class $ 5 billion Health and Wellbeing Hub on its Bundoora campus as part of a 10-year development plan. The Hub is part of a growing research and innovation precinct that will provide strengthened capabilities in healthcare innovation, translation and delivery, with a focus on mental health and sub-acute services.

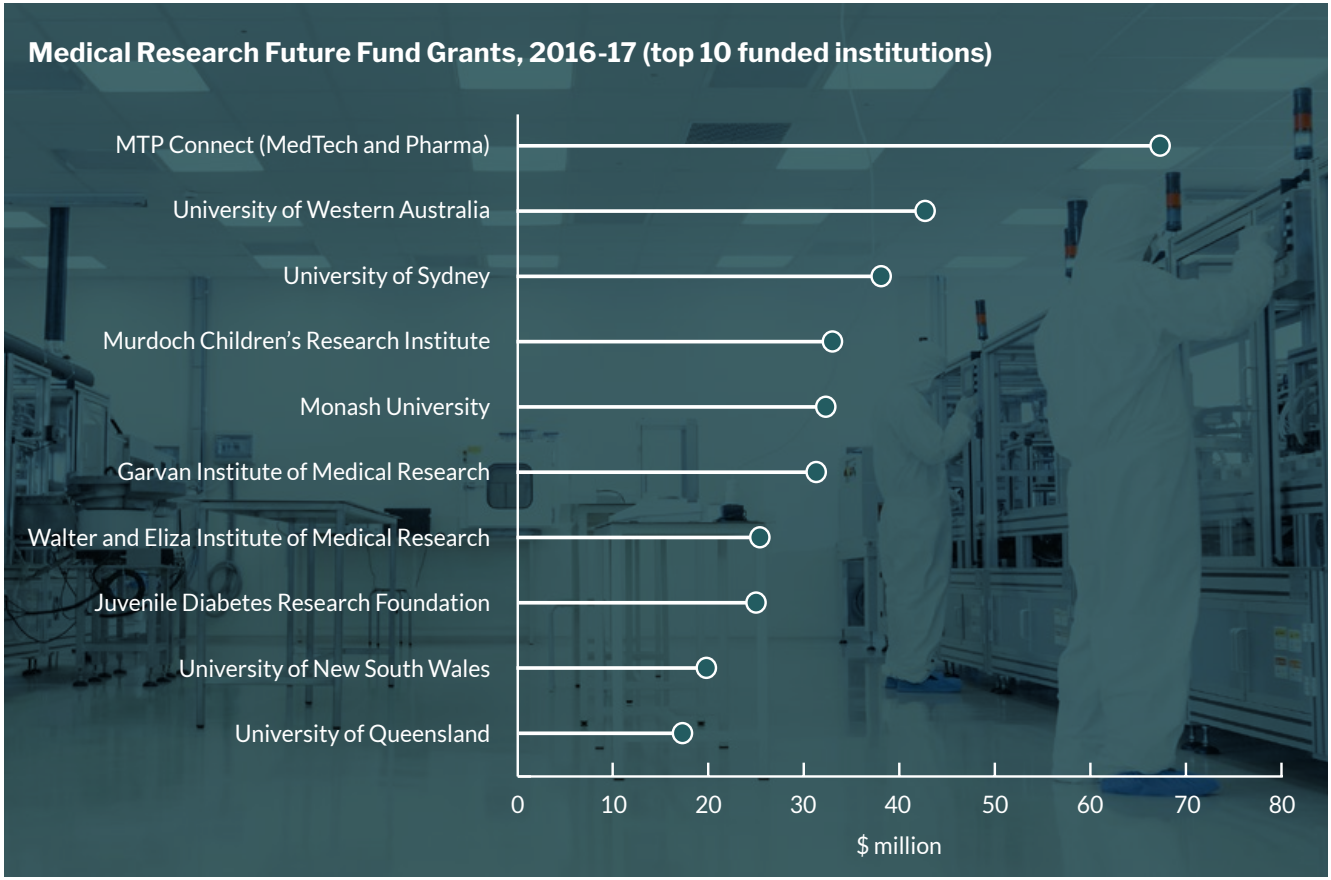
Australian Research Council (ARC) Linkage funding for the medical technologies and pharmaceuticals sector by state (2010-2015)[10]



Victorian medical research institutes are also among the top grant recipients of the Medical Research Future Fund (MRFF). These include Monash University and the Walter and Eliza Institute of Medical Research, which is affiliated with the University of Melbourne and the Royal Melbourne Hospital.

9 LaunchVic, State of *HealthTech Victoria*, 2018

10 Thomson R. and Doran P. (2017). Economic Impact Analysis – Victorian Medical Technologies & Pharmaceuticals Sector. Swinburne University of Technology.



Victoria is also a premier location for clinical trials in Australia. One-third of Australian clinical trials activity takes place in Victoria.[11] Clinical trials play a critical role in the translation of medical research into innovative care, treatments and products.

Victoria leads advancements in innovative clinical trial methods. With government support, Victoria's health industry is working to make clinical trials faster and more efficient to speed up the development of therapeutic products and improve early delivery of new treatments to patients.

Victorian-based organisations with leading expertise in clinical trials include Cancer Trials Australia, Nucleus Network, St Vincent's Hospital Melbourne, and Neuroscience Australia.[12]

Clinical trials provide high returns on investment, with measurable benefits in better health outcomes and reduced health service costs. A recent economic evaluation of clinical trials in Australia found that every $1 awarded in National Health and Medical Research Council (NHMRC) grants to the trials achieved a return of $51.10 in reduced service costs and improved health outcomes.[13]

11 https://global.vic.gov.au/victorias-capabilities/industry-sectors/medical-technologies-biotechnology-and-pharmaceuticals/clinical-trials
12 Idem
13 Australian Clinical Trials Alliance. Economic evaluation of investigator-initiated clinical trials conducted by networks. Sydney: ACSQHC; 2017.

VICTORIA HAS A FAST-GROWING WELLNESS ECONOMY

Victoria's diverse health industry includes businesses engaged in traditional and complementary medicine, wellness real estate, wellness tourism, personal care, beauty and fitness.

Market research shows that the popularity of natural healthcare products is increasing with a growth rate of seven per cent year-on-year. Three-quarters of Australians, including 92 per cent of women aged 20-24, take at least one dietary supplement and a quarter of the population visit complementary healthcare practitioners each year.[14]

The Australian wellness industry continues to grow. Already attuned to alternative approaches to health, discerning baby boomers (Australia's largest population group) increasingly demand greater choice and adopt a preventative healthcare approach to maintaining healthier lives. In Australia, the fastest growth areas are nutritional oils, men's health and eye health.[15]

The TGA register also supports the natural healthcare products industry with evidence-based research, monitoring and safety data. These elements combine to allow Australian manufacturers to supply world-class products at globally competitive prices.[16]

VICTORIA'S HEALTH INDUSTRY HAS STRONG INTERNATIONAL NETWORKS

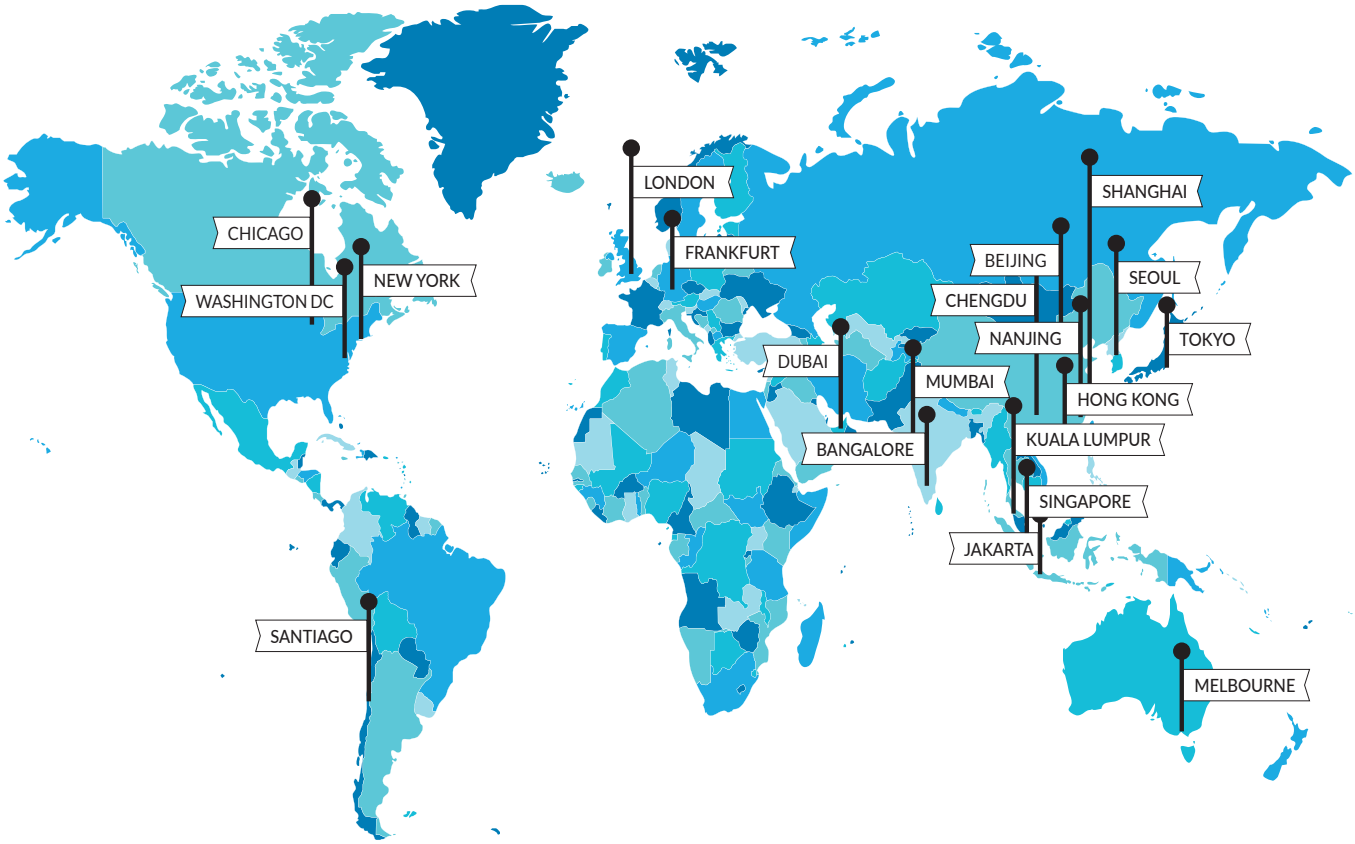
Victoria's health industry is well connected to international markets and has strong international research partnerships. These are supported by an extensive international network of Victorian government trade and investment offices.

Healthcare service needs are expanding exponentially in the Asia-Pacific region, particularly in China and Southeast Asia.

In September 2015, the Victorian government finalised two health collaboration agreements with Jiangsu and Sichuan Provinces. The agreements provide scope to jointly design hospitals and clinics, train health staff and medical specialists, and promote the use of the latest medical technologies. They provide unprecedented opportunities for Victorian health education and training providers, hospital operators and consultancies.[17]

14 Idem
15 Idem
16 Idem
17 Victoria's new China Strategy: Partnerships for prosperity, https://www.vic.gov.au/sites/default/files/2019-01/Victorias-China-Strategy.pdf

Victorian government trade and investment network[18]



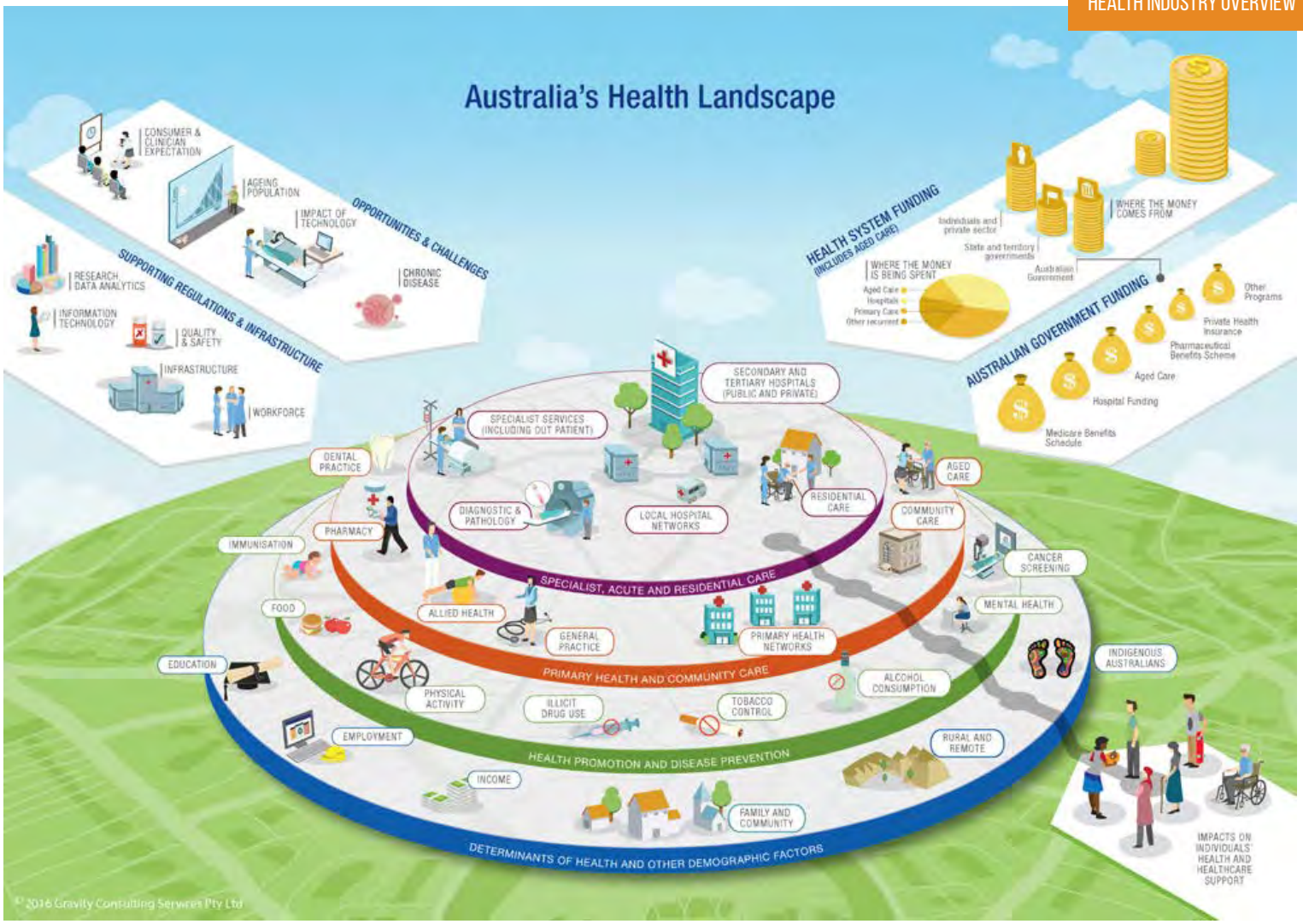
18 Globally Connected: Victoria's Trade Statement 2017

How the health industry operates

Victoria's health industry operates within a national system that spans four tiers:

1. **Determinants of health and other demographic factors** – education, employment, income, family and community, rural and remote and Indigenous Australians.
2. **Health promotion and disease prevention** – immunisation, food, physical activity, illicit drug use, tobacco control, alcohol consumption, mental health and cancer screening.
3. **Primary health and community care** – dental practice, pharmacy, allied health, general practice, primary health networks, community care and aged care.
4. **Specialist, acute and residential care** – specialist services (including outpatient), diagnostic and pathology, local hospital networks, residential care and secondary and tertiary hospitals (public and private).

24 Victoria's International Health Strategy 2016-2020, Victorian Government, July 2016
25 www.monash.edu/industry/mining-resources/monash-precinct



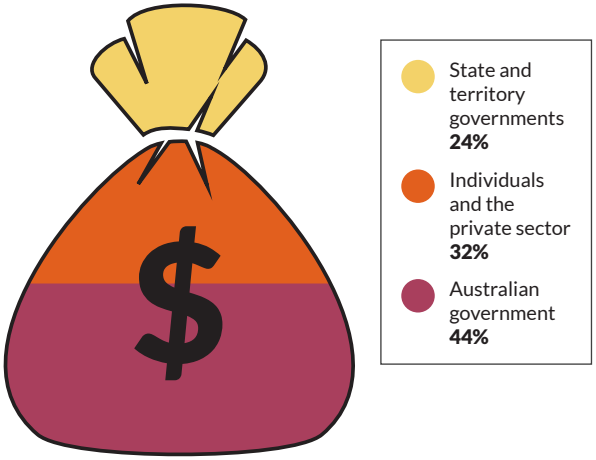
Source : https://beta.health.gov.au/resources/publications/australias-health-landscape-infographic

The health industry is funded by individuals, state and territory governments and the Australian government.

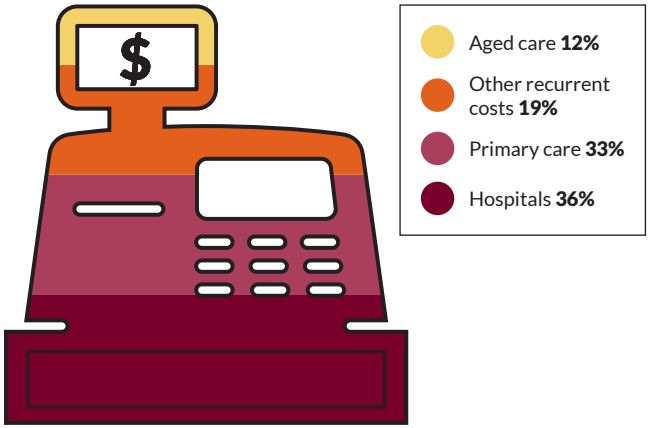
In 2014-15 total national funding for health was $182 billion including aged care. $58 billion came from individuals and the private sector, $43 billion from state and territory governments and $81 billion from the Australian Government. 11.9% was spent on aged care, 36.1% on hospitals, 32.7% on primary care and 19.3% on other recurrent costs.[26]

26 https://beta.health.gov.au/resources/publications/australias-health-landscape-infographic

Sources of health funding in Australia (2014-15)



Health spending allocations (2014-15)



From largest to smallest, funding from the Australian Government was spent on:

1. Medicare Benefits Schedule
2. Hospital funding
3. Aged care
4. Pharmaceutical Benefits Scheme
5. Private health insurance
6. Consolidated funds
7. Research.[27]

The health industry is regulated by three tiers of government

Australia's health industry is regulated by many commonwealth and state government agencies. The Australian Government's regulatory roles include overseeing the safety and quality of pharmaceutical and therapeutic goods and appliances, while the state and territory governments license or register private hospitals and have legislation for the operation of public hospitals.

The licensing of pharmacy premises and pharmacy ownership restrictions is also the responsibility of the states and territories. State and territory governments are largely responsible for health-related industry regulations, such as the sale and supply of alcohol and tobacco products.

Both levels of government jointly regulate some areas, including food standards, safety and quality of health care, and the health workforce. [28]

27 Idem

28 Australian Institute of Health and Welfare (2016). How does Australia's health system work? https://www.aihw.gov.au/getmedia/f2ae1191-bbf2-47b6-a9d4-1b2ca65553a1/ah16-2-1-how-does-australias-health-system-work.pdf.aspx

Main roles of government in Australia's health system

Australian Government

- sets national policies
- is responsible for Medicare (including subsidising medical services and joint funding, with states and territories, of public hospital services)
- funds pharmaceuticals through the Pharmaceuticals Benefits Scheme
- funds community-controlled Aboriginal and Torres Strait Islander primary health care
- supports access to private health insurance
- regulates private health insurance
- organises health services for veterans
- is a major funder of health and medical research, including through the National Health and Medical Research Council
- regulates medicines, devices and blood

State and territory governments

- manage public hospitals
- license private hospitals
- are responsible for public community-based and primary health services (including mental health, dental health, alcohol and drug services)
- deliver preventive services such as cancer screening and immunisation programs
- are responsible for ambulance services
- are responsible for handling health complaints

Local governments

- provide environmental health-related services (for example, waste disposal, water fluoridation, water supply, food safety monitoring)
- deliver some community- and home-based health and support services
- deliver some public health and health promotion activities

Shared

- regulation of health workforce
- education and training of health professionals
- regulation of pharmaceuticals and pharmacies
- support improvements in safety and quality of health care
- funding of public health programs and services
- funding of Aboriginal and Torres Strait Islander health services

MEGATRENDS

TRENDS WHICH PRESENT OPPORTUNITIES FOR THE HEALTH INDUSTRY TO GROW

Global shifts in consumer preferences towards personalised health products and services

The expectations of patients and communities regarding their healthcare experience are changing. Regardless of age or industry, consumers have become accustomed to 24/7 access to personalised and on-demand services.[29]

Today's health product and service consumers are active and informed decision-makers, with e-commerce technologies enabling greater choice, price transparency and convenience.

Older Australians are expressing a desire for independent living rather than aged care, with over 60 per cent strongly preferring to "age in place" in their own homes.[30]

Millennials are now entering their prime spending years and hold different views on health and wellness. They expect healthcare to be designed around them and they look for immediate access to information and services based on technology. In the future, as they become larger consumers, Millennials will drive healthcare services to change and adapt to new needs, preferences and expectations.[31]

Future patients will be educated and informed decision-makers, with more information available to them than ever before. In healthcare, the archetype of the uneducated patient passively following "doctor's orders" is diminishing. [32] Technology and information access are empowering patients to become more proactive in managing their healthcare. [33]

As this trend accelerates, patients will increasingly demand prevention-based and patient-centric solutions with improved efficiency, cost and quality, as well as access to tools and transparent information to help make informed and value-based decisions. Current products and services, and their ecosystems, will need to evolve to meet changing consumer demands around self-management.[34]

29 KPMG, 2018, *Healthcare reimagined: Innovation trends, predictions and actions for healthcare leaders*
30 Idem
31 Idem
32 Business Council of Australia, 2015, *Overview of megatrends in health and their implication for Australia: Background paper*
33 OECD. *Health at a glance. 2007*
34 CSIRO Futures, 2017, *Medical Technologies and Pharmaceuticals: A roadmap for unlocking future growth opportunities in Australia*

Preferences of health consumers change across generations

All generations expect quality of care, access to care and continuity of care. However, they have different attitudes about selecting and changing primary care physicians and hospitals.[35]

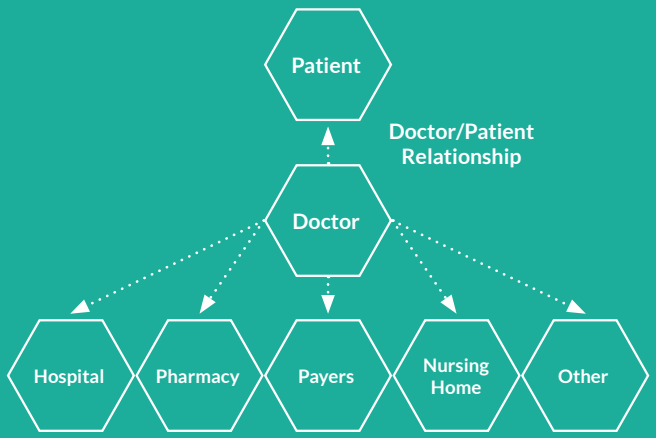
Greatest generation (ages 75+)

Greatest generation trusts the authority of doctors. People of this generation allow doctors to make decisions in their name. They do not use or require new technologies.[36]

Baby boomers (ages 55-74)

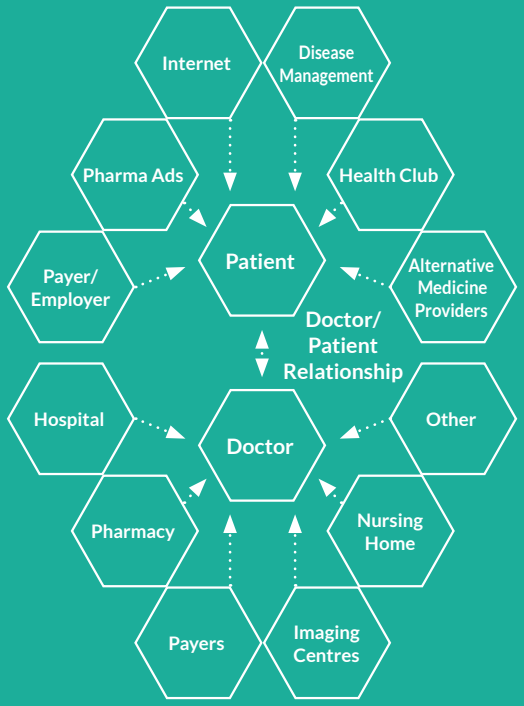
Boomers who now represent most of the patients seeking healthcare services are not passive consumers. They are interested in physicians' credentials and hospital reputation. They do not consider physicians as ultimate authority figures. They expect to be engaged in a dialogue and they are likely to do extensive research of their own. They tend to focus on personal wellness and fighting the aging process. They may use modern technologies, but usually have some scepticism about it.[37]

Healthcare for the Greatest Generation



Source: Howe Associates, Inc.

Boomers Bring Outside Influences to Relationship



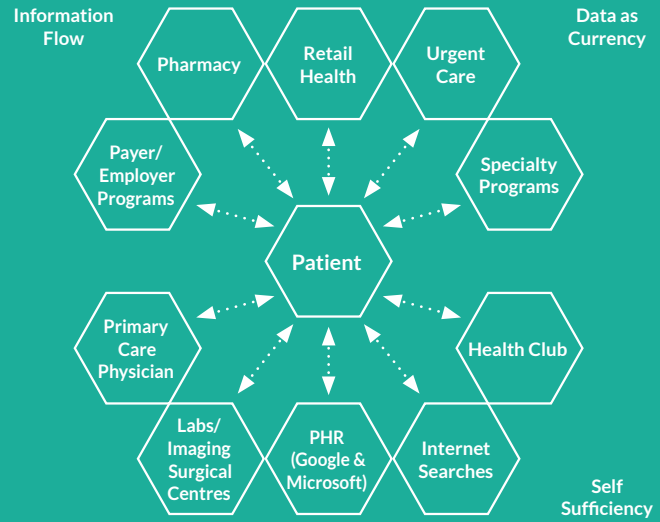
Source: Howe Associates, Inc.

35 MacCracken, L., Pickens, G. and Wells, M. (2009) Matching the market: Using generational insights to attract and retain customers, Thomson Reuters.
36 Howe, R. (2009) Customer Experience: A Generational Perspective, The Beryl Institute.
37 Idem

Generation X (ages 40-54)

Generation X is bringing significant changes in healthcare. They expect healthcare to be designed around them and their family needs. This generation looks for a free flow of information and likes to learn to make diagnoses themselves rather than to wait for an examination. As everyday users of new technologies, they will use them to become self-sufficient in healthcare as in other areas of life.[38]

Gen X Millennial Changing Healthcare Through Involvement



Source: Howe Associates, Inc.

Generation Y or Millenniums (ages 25-39)

Millenniums look for immediate interactions based on technology. They will not wait for appointments, surgery dates, etc. preferring real time, and individualised, problem resolution. This generation believes that electronic or digital connections with other people are as acceptable as face-to-face communication.[39]

38 Idem
39 Idem

Expansion of digital health, new technologies and innovations in precision medicine

The health industry is being transformed through the development of artificial intelligence (AI), 3d printing, robotics, and smart technology. Advances in technology and increased connectivity of patients, medical practitioners, devices and equipment are shaping a digitally enabled and integrated health system. Digital health tools are increasingly influencing the way in which health care is provided.

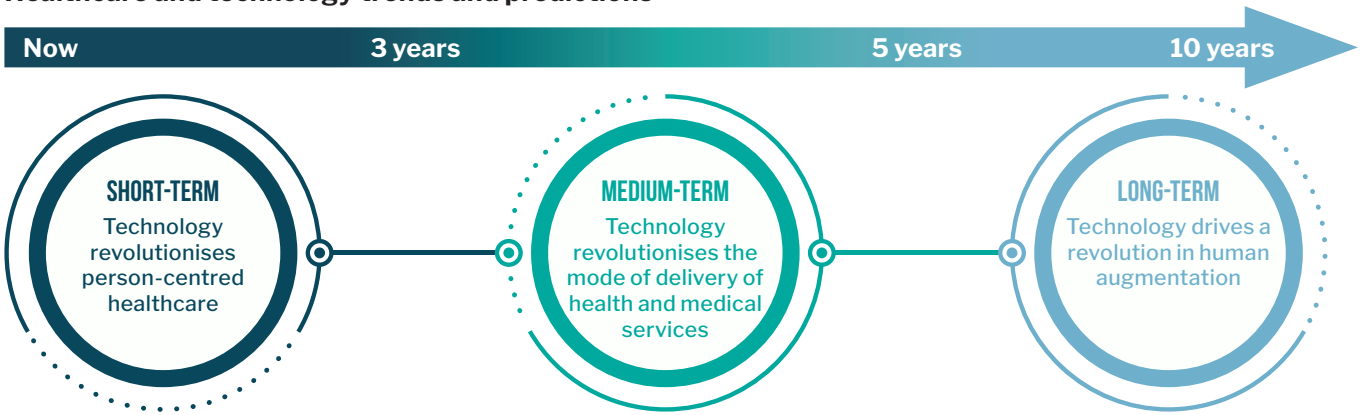
Emerging digital health tools range from telehealth and mobile health tools, remote monitoring devices, electronic medical records, to team-based software and decision support engines. These systems and electronic tools are improving access and the quality of care for consumers, enabling clinicians to make more informed decisions, enhancing the connectivity between systems of care, and reducing costs for providers and payers.

With the massive amounts of data generated daily in the healthcare system, there will be significant shifts in how data is exchanged, processed and used. Standardisation of how data is shared across the industry will accelerate the development of new treatments, technologies and predictive systems, targeting both the individual and the wider health system.

Mobile health applications will also grow as the development of mobile applications and communication technologies help patients manage and monitor certain aspects of their healthcare, often leveraging wearable technology.

The fitness wearables market recently exceeded $1 billion in annual sales globally, and its five-year compound annual growth rate of nearly 50 percent suggests that the full impact of this technology is yet to come.[40] New technology players are also targeting consumers directly, bypassing traditional delivery channels with new consumer-centric business models ranging from providing advocacy and advice, to location management for Alzheimer's patients, to self-dialysis for patients with kidney failure.

Healthcare and technology trends and predictions[41]



- Hospital design evolution
- Increased interaction with artificial intelligence
- Wearables, digestables and implantables
- Consumer-held electronic medical record
- Proactive self-management of wellness
- Augmented reality (AR) and virtual reality (VR)

- Practiced based evidence
- 3D printed casts, implants, and organs
- On-demand personalised health services
- Internet of medical things (IoMT)
- Precision medicine based on individual patient data
- Medical drones and autonomous vehicles
- Automation: rise of medical robots

- Human augmentation: rise of the cyborg
- Gene therapy to treat and prevent diseases
- Other technologies not yet discovered...

40 International Data Corporation. *Worldwide Wearables Market Forecast.* 2015.

41 Adapted from KPMG, 2018, *Healthcare reimagined: Innovation trends, predictions and actions for healthcare leaders*

Precision medicine is advancing rapidly, with technology being the main driver. Precision medicine refers to the tailoring of medical treatment to the specific characteristics of each patient.

While delivering individualised care is a tenet of modern medicine, precision medicine will take this a step further, offering the possibility to predict predisposition to disease, influence decisions about lifestyle choices and tailor medical practice based on an individual's genetic background.

The cost of genome sequencing has dramatically decreased. Immediate benefits are being realised but fully exploiting this data and tailoring a broader range of health solutions remains a long-term challenge.[42]

Improvements in digital health will transform the way hospitals and healthcare facilities provide services, making them more efficient and less costly. Digital tools will reduce reliance on hospitals by moving many services outside the hospital through broadband delivery and models of care based on rich digital information. They will improve patient access to services while reducing the need for hospital beds. They will help avoid errors that cause people to end up in hospital by highlighting key information and risks.[43]

Hospital resources will be holistically managed with the aid of advanced modelling and analytics technologies, allowing administrators to predict, manage, and optimise the flows of patients and clinical staff even before the hospital day begins. Personal e-health records, coupled with evidence-based planning and analysis tools, will help clinicians make difficult diagnoses and dramatically reduce the incidence of human errors. This will help people not stay in hospital longer than they need to.[44]

Telehealth platforms will make in-home patient monitoring the norm for those that need it and will provide the base for an increasing range of services like specialised medical triage or rehabilitation – wherever patients are living. The use of real-time video and data streaming will make it easier to detect the early warning signs of acute events and reduce hospitalisation rates.

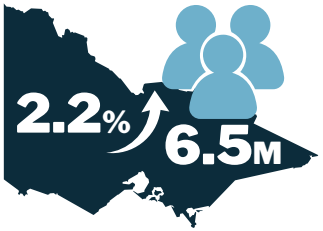
It will also dramatically improve the reach and efficiency of health services to remote and regional Australia, including telepresence-based staff training that can help alleviate skill shortage issues in these areas.[45]

42 KPMG, 2018, *Healthcare reimagined: Innovation trends, predictions and actions for healthcare leaders*
43 CSIRO (2013-14) *A digitally-enabled health system*
44 Idem
45 Idem

Population growth and emerging high-growth markets

Demand for healthcare services in Victoria is progressively rising because of the state's strong population growth. In 2018, Victoria's population grew by 2.2 per cent to reach 6.5 million people, well above the national average, which was 1.6 per cent for the same year.[46]

Melbourne is growing by 125,000 people a year, which is faster than any other Australia city. By 2028, Melbourne is projected to be Australia's largest city. By 2051, Victoria's population is projected to grow to 10.1 million, with 8 million people living in greater Melbourne and 2.1 million in Victoria's regions.[47]

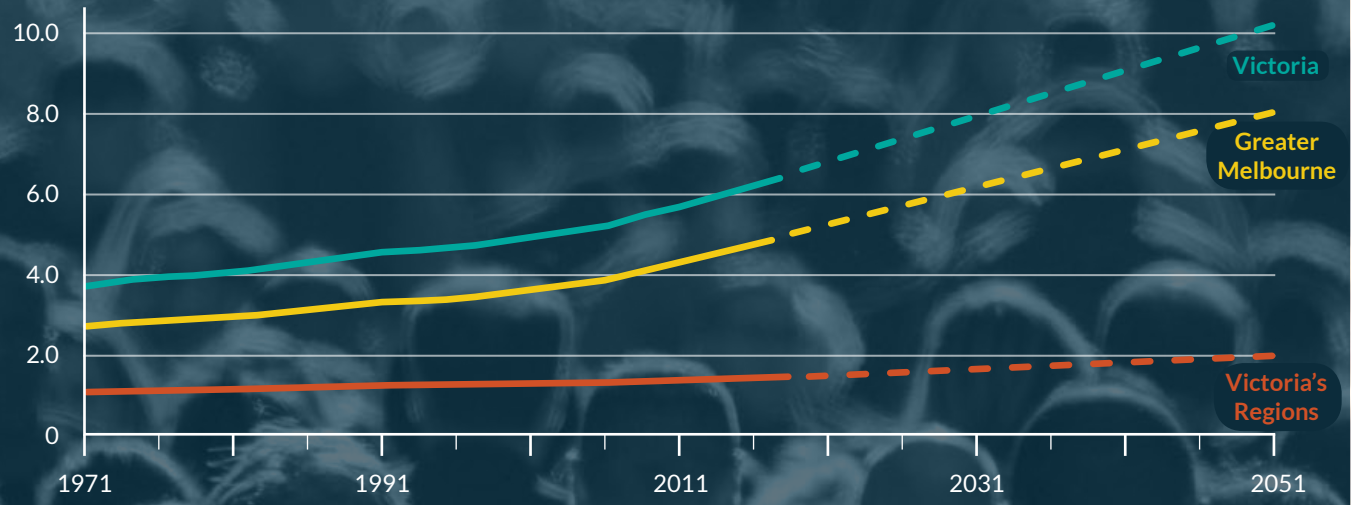


Victorian economic outlook to 2022-23[48]

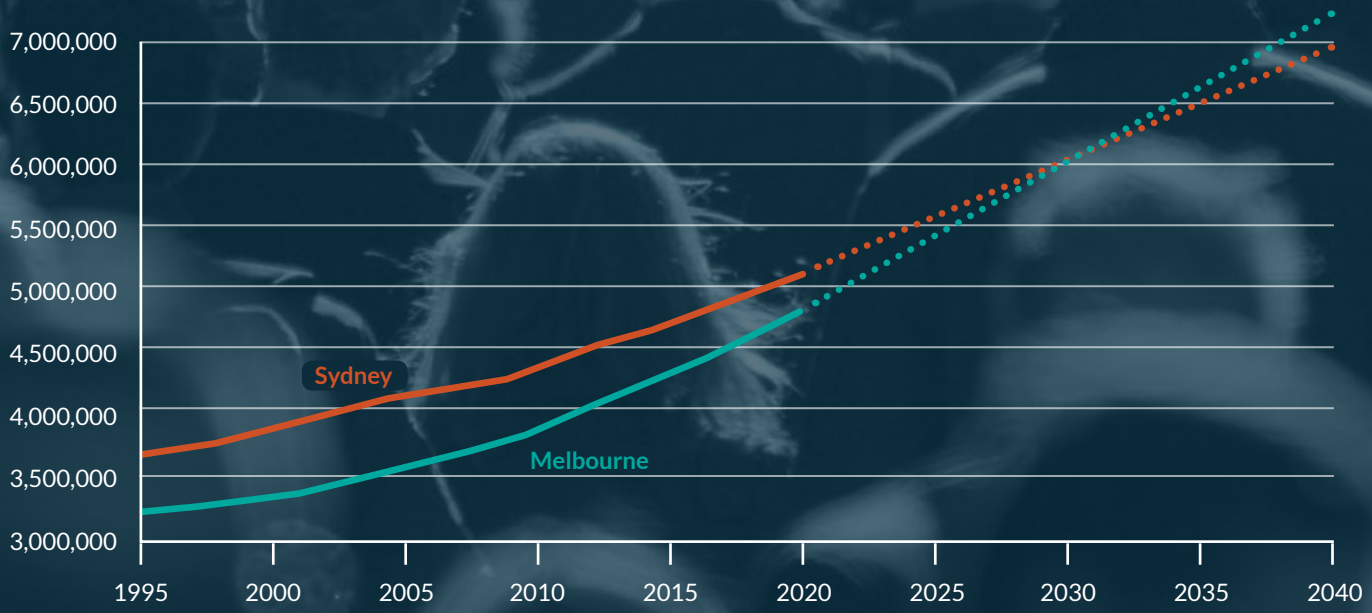
	2017-18 actual	2018-19 forecast	2019-20 forecast	2020-21 forecast	2021-22 projection	2022-23 projection
Real gross state product	3.5	3.00	2.75	2.75	2.75	2.75
Employment	2.8	3.25	2.00	1.75	1.75	1.75
Unemployment rate	5.6	4.50	4.75	5.00	5.25	5.50
Consumer price index	2.3	1.75	2.00	2.25	2.50	2.50
Wage price index	2.3	2.75	3.00	3.25	3.50	3.50
Population	2.2	2.10	2.00	1.90	1.90	1.80

46 Australian Bureau of Statistics, 3101.0 – Australian Demographic Statistics, Sep 2018, www.abs.gov.au/AUSSTATS/abs@.nsf/mf/3101.0
47 The State of Victoria Department of Environment, Land, Water and Planning, 2016, *Victoria in Future 2016: Population and household projections to 2051*
48 Victorian Department of Treasury and Finance, 2019

Estimated resident population, Victoria and major regions 1971 to 2051[49]



Population growth: Sydney versus Melbourne[50]



Source: Australian Bureau of Statistics

49 Idem

50 https://www.abc.net.au/news/2018-10-15/melbourne-will-be-australias-biggest-city-which-party-has-policy/10358988

Emerging high-growth markets, particularly across Southeast Asia, South Asia and China, present significant opportunities for the Victorian health industry to diverse and expand its revenue base.

Developing economies are experiencing a sharp increase in demand for healthcare products and services. At a regional level, population growth is particularly notable in Africa (2.59 per cent), the Middle East (2.07 per cent) and Asia (1.05 per cent).[51]

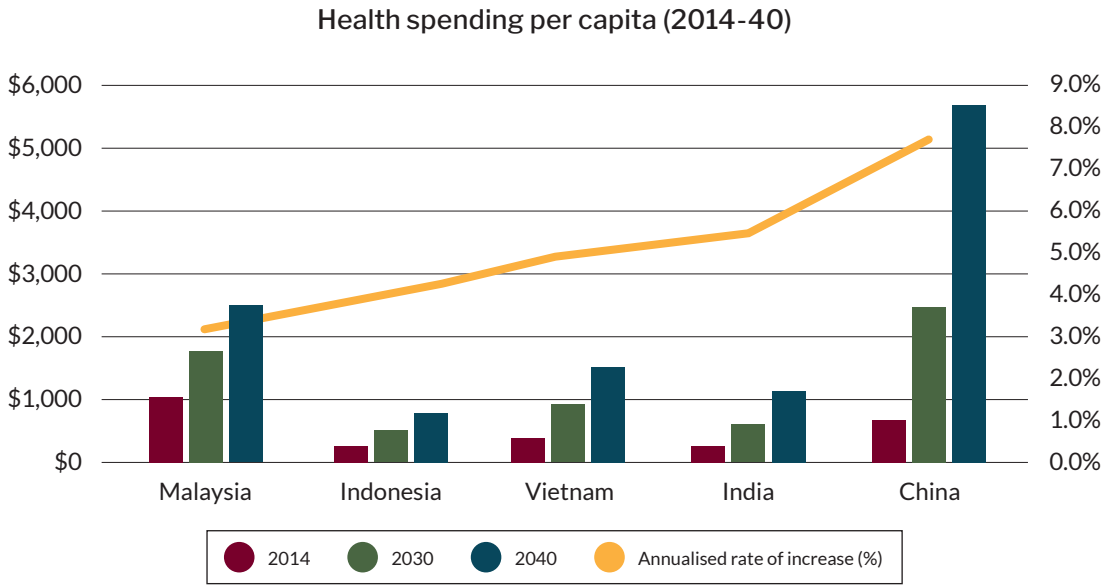
Between now and 2040, the region of Southeast Asia, east Asia and Oceania is projected to experience an average annual growth rate in health spending per capita of 7.0 per cent. This includes China, whose health expenditure per capita is projected to grow year-on-year by 7.7 per cent.

Vietnam is likely to experience a 5.0 per cent rise annually in per capita health spending for the period. Indonesia's expenditure per capita will see 4.0 per cent grow annually, and Malaysia's per capita health expenditure will grow by 3.2 per cent year-on-year.[52]

Health spending per capita across the region of South Asia is expected to increase year-on-year by 5.3 per cent towards 2040. This includes India, which is projected to experience 5.5 per cent year-on-year growth in health expenditure per capita.[53]

Growth of the middleclass across Asia presents a strong opportunity to increase Victorian exports of health products, services, education and training.

Projected health expenditure of emerging high-growth markets[54]



51 LaunchVic, *State of HealthTech Victoria*, 2018

52 Global Burden of Disease Health Financing Collaborator Network, Dr Joseph L Dieleman et al., *Future and potential spending on health 2015–40: development assistance for health, and government, prepaid private, and out-of-pocket health spending in 184 countries.* www.thelancet.com, Vol 389 May 20, 2017.

53 Idem

54 Adapted from Global Burden of Disease Health Financing Collaborator Network, Dr Joseph L Dieleman et al., *Future and potential spending on health 2015–40: development assistance for health, and government, prepaid private, and out-of-pocket health spending in 184 countries.* www.thelancet.com, Vol 389 May 20, 2017.

LOCAL AND GLOBAL ISSUES CONFRONTING VICTORIA'S HEALTH INDUSTRY

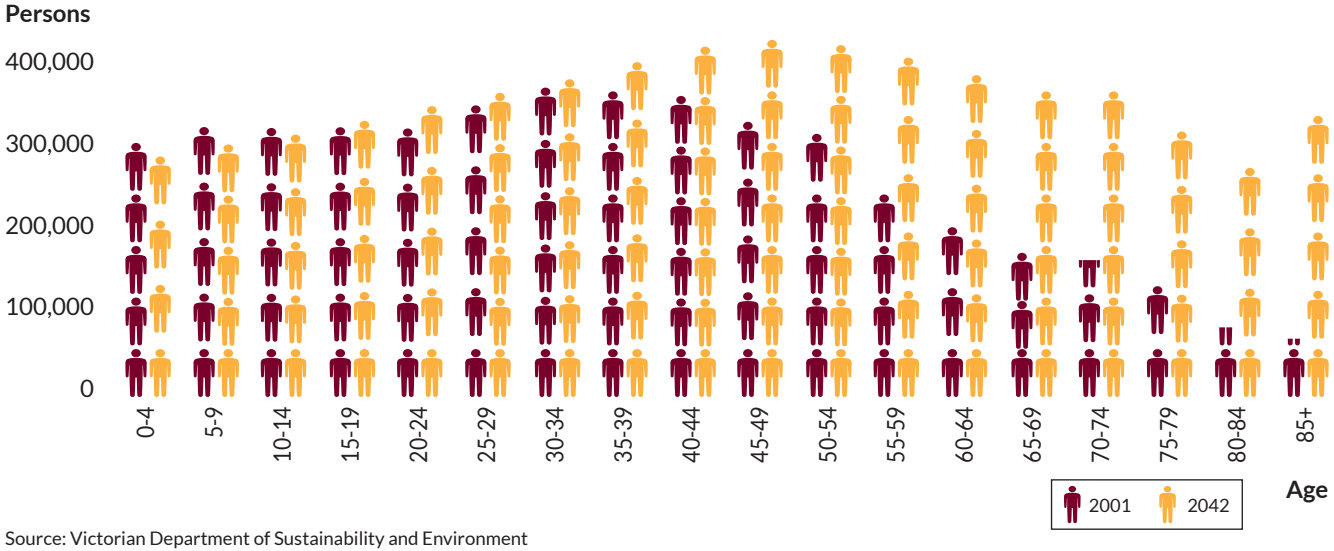
Victoria's health industry is also under increasing pressure. Our population is growing and ageing, the burden of chronic disease on our health system is increasing, industry costs are rising, budgets are constrained, and overseas competition is strengthening.

Populations are ageing

Populations are not only growing, they are also ageing. In 2011, 14 per cent of the Australian population was aged 65 years and over. In the next forty years, this proportion is predicted to rise to almost 25 per cent. By 2040, there will be over 1.1 million Australians over the age of 85.[55] Average life expectancy is also on the rise and currently stands at 83 years.[56] By 2055, government data estimates that the average life expectancy of Australians will be 95.1 years for men and 96.6 years for women.[57]

Victoria's population is also ageing. The proportion of our working age population (15 to 64 years) is currently at a peak. It is projected to decline over the next 40 years, falling from 67 per cent in 2001 to 60.2 per cent in 2042.[58] This means that the proportion of Victorians at an age of 65+ years will rise from 14.0 per cent in 2011 to 21.5 per cent in 2051.[59]

Population age structure of Victoria 2001 and 2042



Source: Victorian Department of Sustainability and Environment

55 Australian Government Treasury, 2014, *Intergenerational Report*
56 Australian Institute of Health and Welfare, 2014, *Australia's Health*
57 Australian Treasury, 2015, *2015 Intergenerational Report: Australia in 2055*
58 Preparing for Victoria's Future, 2004
59 Victoria in Future 2016
60 Preparing for Victoria's Future, 2004

As older Australians retire the labour force will shrink, the number of patients will increase, and the tax revenue needed to pay for healthcare services will reduce.

Over the next decade, the ageing population is projected to subtract 0.4 percentage points from the annual real growth in Australian government revenue and add 0.3 percentage points to the annual real growth in spending. In real dollar terms, this equates to an annual cost to the federal budget of around $36 billion by 2028-29. This is larger than the projected cost of Medicare in that same year. [61]

Global trends are not dissimilar. In 1950, eight per cent of the world's people were over 65 years of age. This grew to 11.2 per cent by 2011 and is forecast to reach 22 per cent by 2050. This means the world will contain more than 2 billion people over the age of 60 by the year 2050. [62]

The shift is particularly marked in emerging countries, where demographic shifts that once lasted a century are now taking place within a generation. For example, in China, the number of people aged over 65 is expected to triple to 330 million people by 2050. [63] This will place an unprecedented burden on their health system.

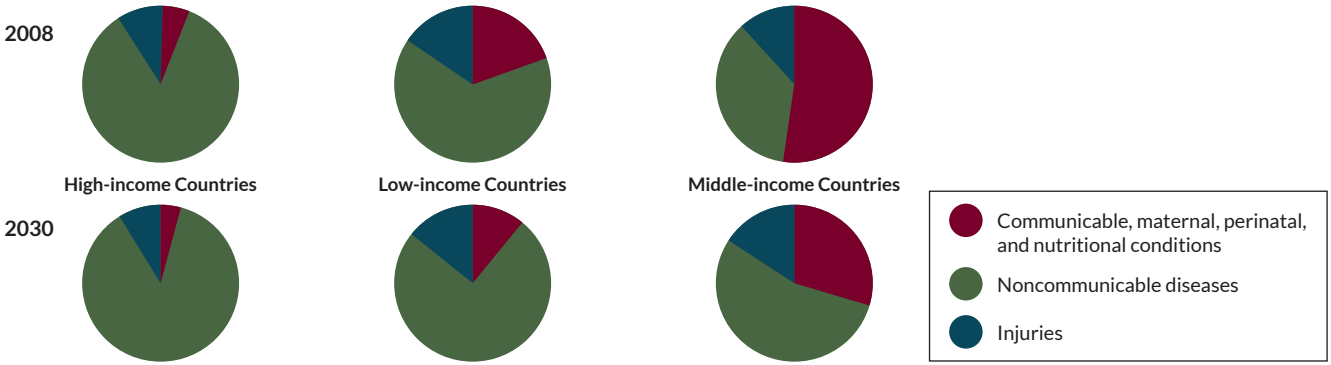
Across countries in the OECD, the average age ratio is expected to nearly double by 2040. This will shift economies from a ratio of four working-age people for every person aged over 65 years to roughly two working-age people. [64]

Chronic disease is on the rise, placing pressure on health systems

Along with an ageing population, the incidence of chronic disease is increasing. This is placing significant demand on healthcare systems. While chronic disease affects all parts of society, it has a disproportionate impact on the aged, people living with a mental illness and indigenous people.[65]

A significantly older population will suffer more chronic illness and degenerative diseases, and require longer hospital stays and more follow-up care. [66]

The increasing burden of chronic noncommunicable diseases: 2008 and 2030[67]



Source: World Health Organization, Projections of Mortality and Burden of Disease, 2004-2030.

61 Parliament of Australia, Parliamentary Budget Office, 2018, *Disability Support Pension: Historical and Projected Trends, Report no. 01/2018*
62 World Health Organization, 2011, *Global Health and Aging*
63 Idem
64 CSIRO Futures, 2017, *Medical Technologies and Pharmaceuticals: A roadmap for unlocking future growth opportunities in Australia*
65 *Department of Health & Human Services (Vic), 2015, Health 2040: A discussion paper on the future of healthcare in Victoria*
66 PWC, 2016, *Australia's healthcare system: An opportunity for economic growth*
67 World Health Organization, 2011, *Global Health and Aging*

Chronic disease already accounts for over 90 per cent of all deaths globally and is the leading cause of illness and disability in Australia.[68] Today, more than 80 per cent of Australians are estimated to have at least one chronic condition or risk factor, [69] with hypertension identified as most common (affecting 26.3 per cent of Australians). Australia has the highest prevalence of chronic disease among OECD countries – followed closely by Hungary (70 per cent) and New Zealand (65 per cent)[70] – and just four chronic diseases account for 36 per cent of all health expenditure in Australia: cardiovascular diseases, oral health, mental disorders and musculoskeletal issues.[71]

Estimated prevalence of selected chronic diseases in 2011 and projected prevalence in 2022 (per cent)

Chronic disease	2011	2022
Arthritis	20.6	18.2
Heart disease	6.8	8.0
Cancer	6.7	8.3
Osteoporosis	4.9	6.3
Stroke	2.6	3.0
Diabetes	4.8	7.8
Depression	19.8	28.0

Source: Department of Health (Vic), Metropolitan Health Plan Technical Paper Update November 2014

The prevalence of mental health disorders has been on the rise in Victoria, with a projected increase of over eight per cent between 2011 and 2022. Beyond Blue reports that one in five Victorians suffer from depression or anxiety.

The Health Industry Taskforce acknowledges the priority given to mental health by the Victorian Government which commenced a Royal Commission into Victoria's Mental Health System in March 2019.

Among people with several chronic diseases, only four in 10 are in paid employment, compared with eight in 10 healthy people. [72] Other studies suggests that across Australasia chronic diseases cause 85 per cent of the total burden of disease.[73] Currently, nine in 10 deaths have chronic disease as an underlying cause. Furthermore, the incidence and prevalence of these diseases is increasing, driven by risk factors such as smoking and obesity.

Many chronic diseases are highly preventable. Reducing obesity, for example, may prevent diabetes, hypertension, heart disease, and certain types of cancers. [74]

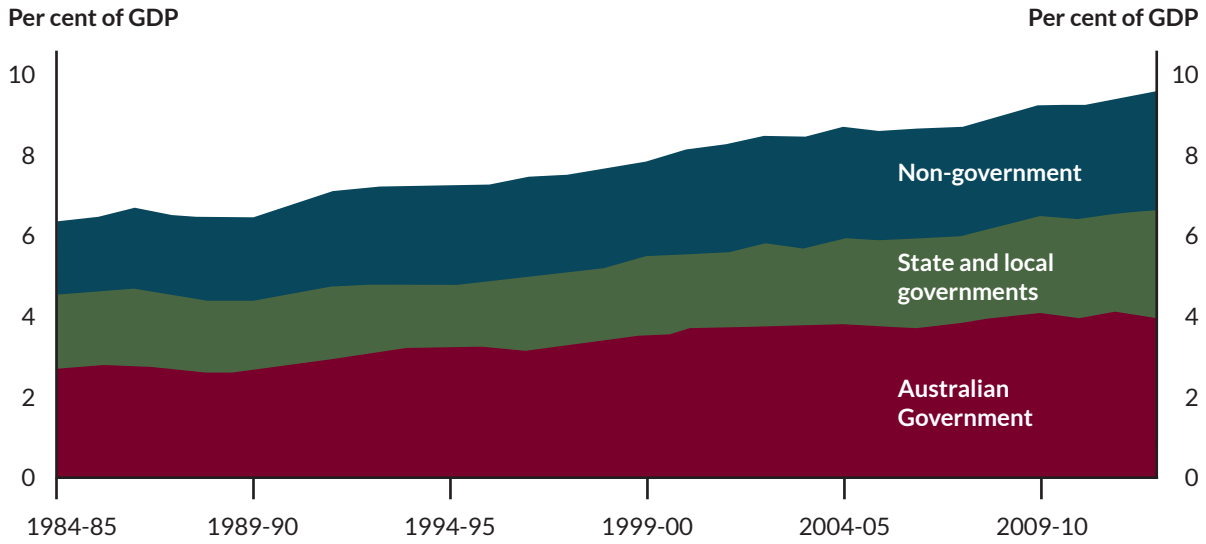
68 OECD. *Prevalence of Chronic Conditions*; 2011
69 Britt H, Miller G, Henderson J, et al. *General Practice Activity in Australia 2013-14*. Sydney University Press; 2014. purl.library.usyd.edu.au/sup/9781743324219
70 Commonwealth of Australia. *Reform of the Federation White Paper; Roles and Responsibilities in Health*; 2014
71 Australian Institute of Health and Welfare 2014, *Australia's health 2014*. Australia's health series no. 14. Cat. no. AUS 178. Canberra: AIHW
72 Business Council of Australia, 2015, *Overview of megatrends in health and their implication for Australia: Background paper*
73 Institute of Health Metrics and Evaluation, 2013
74 Australian Institute of Health and Welfare 2014, *Australia's health 2014*. Australia's health series no. 14. Cat. no. AUS 178. Canberra: AIHW

Public health expenditure is constrained, and out-of-pocket expenses are increasing

Population growth and the ageing of the population are drivers of real growth in health spending. Health is the second largest area of Australian government spending, with health expenditure increasing three-fold over the last three decades.[75] At this rate, by 2043, health expenditure is projected to exceed the entire state and local government tax base and require almost half of all Australian government tax revenue.[76]

In 2012-13, the Australian Government provided 41 per cent of total health spending. State and local governments contributed 27 per cent, and private contributions made up the remaining 32 per cent.[77]

Historic health spending[78]

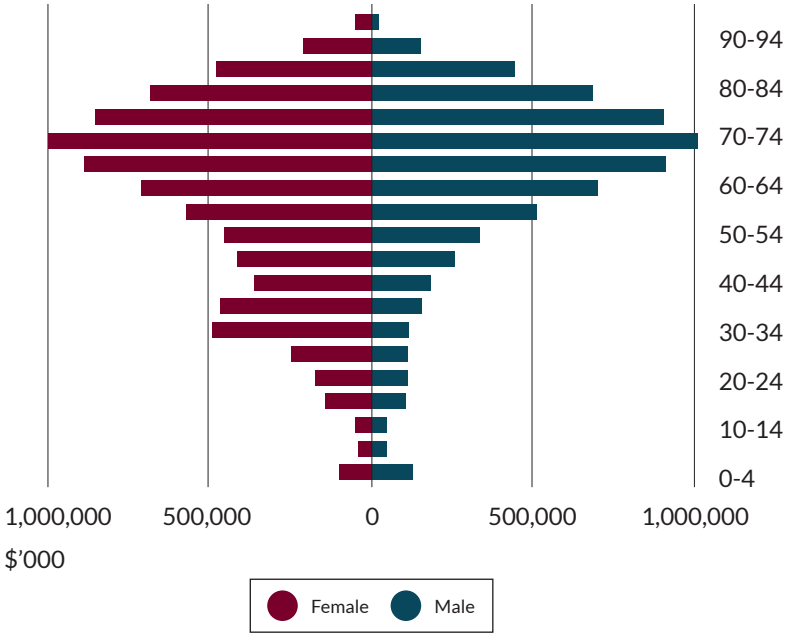


Source: Australian Institute of Health and Welfare health spending database

The healthcare of older persons costs substantially more than the average person. Private healthcare figures alone show that customers ages 60 to 79 are the group that receives the largest payout of hospital benefits.[79]

75 Department of Treasury (2010), *Intergenerational Report 2010*, p.50
76 CSIRO (2013-14) *A digitally-enabled health system*
77 Idem
78 Department of Treasury (2015), *Intergenerational Report 2015*
79 Australian Prudential Regulation Authority (APRA). *Statistics: Quarterly Private Health Insurance Statistics, December 2018* (released 14 February 2019)

Hospital treatment benefits paid by age, 12 months to 31 December 2018



Source: Australian Prudential Regulation Authority (APRA). Statistics: Quarterly Private Health Insurance Statistics, December 2018 (released 14 February 2019)

For both pharmaceutical benefits and public hospital expenditure, spending on persons aged 85 years and older is over four times higher than on the average person across all ages. While medical research is providing better drugs, devices and interventions to keep people healthier and living longer, subsidising these is increasingly expensive.

In the absence of major taxation and health funding reforms, the growing and ageing population will have a progressively greater impact on health expenditure over time.

75 Department of Treasury (2010), *Intergenerational Report 2010*, p.50
76 CSIRO (2013-14) *A digitally-enabled health system*
77 Idem
78 Department of Treasury (2015), *Intergenerational Report 2015*
79 Australian Prudential Regulation Authority (APRA). *Statistics: Quarterly Private Health Insurance Statistics, December 2018 (released 14 February 2019)*
80 2015 Intergenerational Report

Allocated health expenditure per person, by age and sex, 2008-09 (in Australian dollars)

Age group	Male	Female
0 to 4	2,184	1,885
5–14	727	6,33
15–24	1,051	1,655
25–34	1,311	2,863
35–44	1,698	2,679
45–54	2,471	2,814
55–64	4,219	4,030
65–74	7,334	6,648
75–84	11,624	9,870
85+	14,339	11,918

Source: Department of Health & Human Services (Vic), 2015, Health 2040: A discussion paper on the future of healthcare in Victoria

Illustrating this challenge, Australian Government health expenditure is projected to increase as a proportion of GDP from 4.2 per cent in 2014-15 to 5.7 per cent of GDP in 2054-55, an increase of $260 billion.[81] Real health spending per person is forecast to rise from $2,800 in 2014-15 to $6,600 in 2054-55.[82]

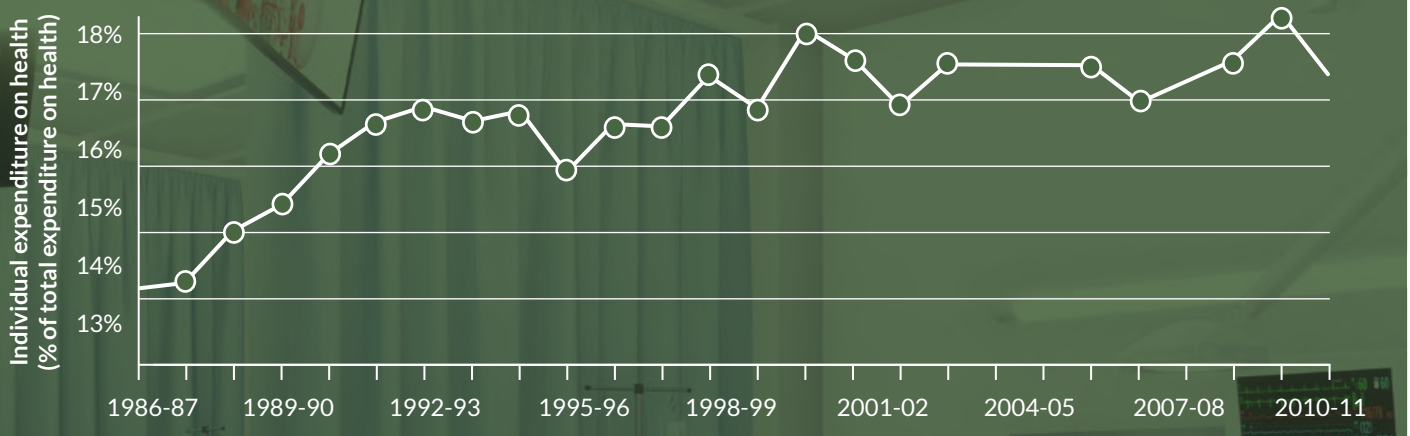
While the government share of total health expenditure in Australia (67.3 per cent) is lower than the OECD average (72.5 per cent), the out-of-pocket share of current health expenditure by Australians, which includes voluntary health insurance, is 32.7 per cent. This is considerably higher than the OECD average (27.4 per cent).[83] As such, Australia's total health expenditure as a share of GDP (9.4 per cent) is higher than the OECD average (8.9 per cent). [84]

Overall health expenditure per capita and out-of-pocket expenditure on health per capita continue to grow at a faster rate than the broader economy, average incomes and overall household expenditure.[85]

As costs increase, Australian healthcare is becoming less affordable. This is placing pressure on health industries to dramatically reduce costs, which could significantly constrain their ability to maintain the high quality of health products and services that Victorians have come to demand and expect.

81 Idem
82 Idem
83 OECD 2015
84 OECD 2015
85 Department of Health, Submission 101, p. 7, to the Community Affairs References Committee inquiry into the out-of-pocket costs in Australian healthcare.

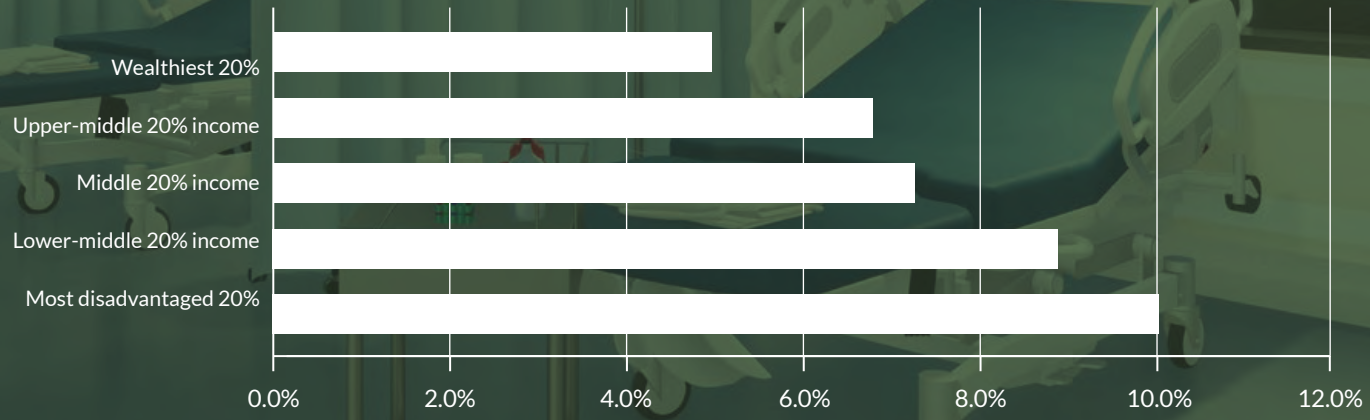
Share of health expenditure funded by out-of-pocket payments, 1986–87 to 2011–12



Source: Department of Health, Submission 101, p. 7. (Departmental analysis of AIHW health expenditure data)

As the above chart shows, limits on public health outlays is resulting in an increasing proportion of health spending being funded by individuals. The consequence is that some disadvantaged and low-income individuals defer medical treatment or the purchase of prescribed medications due to their high cost.

Australians who delayed or didn't get prescribed medications due to cost



Source: Australian Bureau of Statistics, Patient Experiences in Australia: Summary of Findings, 2017-18

The increase in out-of-pocket health expenses in Australia has been a key factor in a recent reduction in the number of people holding private health insurance. This drop is challenging private hospitals and insurers who are already dealing with systemic cost increases. In response, there is likely to be a consolidation in the private hospital sector to grow scale economies and improve efficiencies, along with purchases by international hospital groups. However, in many parts of the industry (e.g. diagnostics) there is limited scope for further consolidation.

Overseas competitors are improving the quality of health products and services

Victoria's competitive advantage, which is built on a reputation for quality, is being challenged. The health industry is facing increasing global competition as overseas industries improve the quality of health products and services. Countries such as Thailand, Singapore, India and Malaysia are increasing their competitive strengths in many areas including pharmaceuticals manufacturing, MedTech, medical tourism and life science products and technologies.

Singapore

Singapore's medical tourism industry has enjoyed consistent growth over the last decade. The US-based International Healthcare Research Centre has ranked Singapore first in Asia in its Medical Tourism Index. Singapore's position in the world ranking is a very respectable fourth.[87]

In 2006, over 410,000 foreigners travelled to Singapore for health care, generating over $US 560 million for the economy.[88] In 2014, medical tourism attracted over 550,000 overseas patients and contributed around $735 million to the Singaporean economy.[89] Health care services accessed by medical tourists include liver and heart transplants, complex neurological procedures, joint replacement and cardiac surgery.[90]

India

The quality of India's healthcare services is improving. Many of India's doctors are high-quality returnees who have studied abroad. India's hospitals are also improving in quality and reputation. Large hospital groups, such as Apollo, have become international brands and established strategic partnerships with brands in high-income countries.[91]

This is contributing to India's rapidly growing medical tourism industry. In 2015, India ranked as the third most popular destination for medical tourism, attracting 243,000 overseas patients. By 2017, government figures show that the number of medical tourists more than doubled to 495,056.[92]

India is the world's tenth-largest pharmaceutical market. Private expenditure is expected to drive growth. Increased use of online pharmacies is creating a demand for more advanced, costly medicines among India's growing middle class.[93]

India also accounts for approximately 20 percent of global generics output, and generic drugs account for three-quarters of the Indian market by volume. Local production of generic drugs and vaccines keeps prices low, while local companies are taking advantage of low labour and research costs to export generics. [94]

87 Singapore Business Review, *Here's what you need to know about Singapore's medical tourism*. https://sbr.com.sg/source/zuu-online/heres-what-you-need-know-about-singapores-medical-tourism

88 Deloitte Access Economics, 2011, *Medical tourism in Australia: A scoping study*

89 Singapore Business Review, *Here's what you need to know about Singapore's medical tourism*. https://sbr.com.sg/source/zuu-online/heres-what-you-need-know-about-singapores-medical-tourism

90 Deloitte Access Economics, 2011, *Medical tourism in Australia: A scoping study*

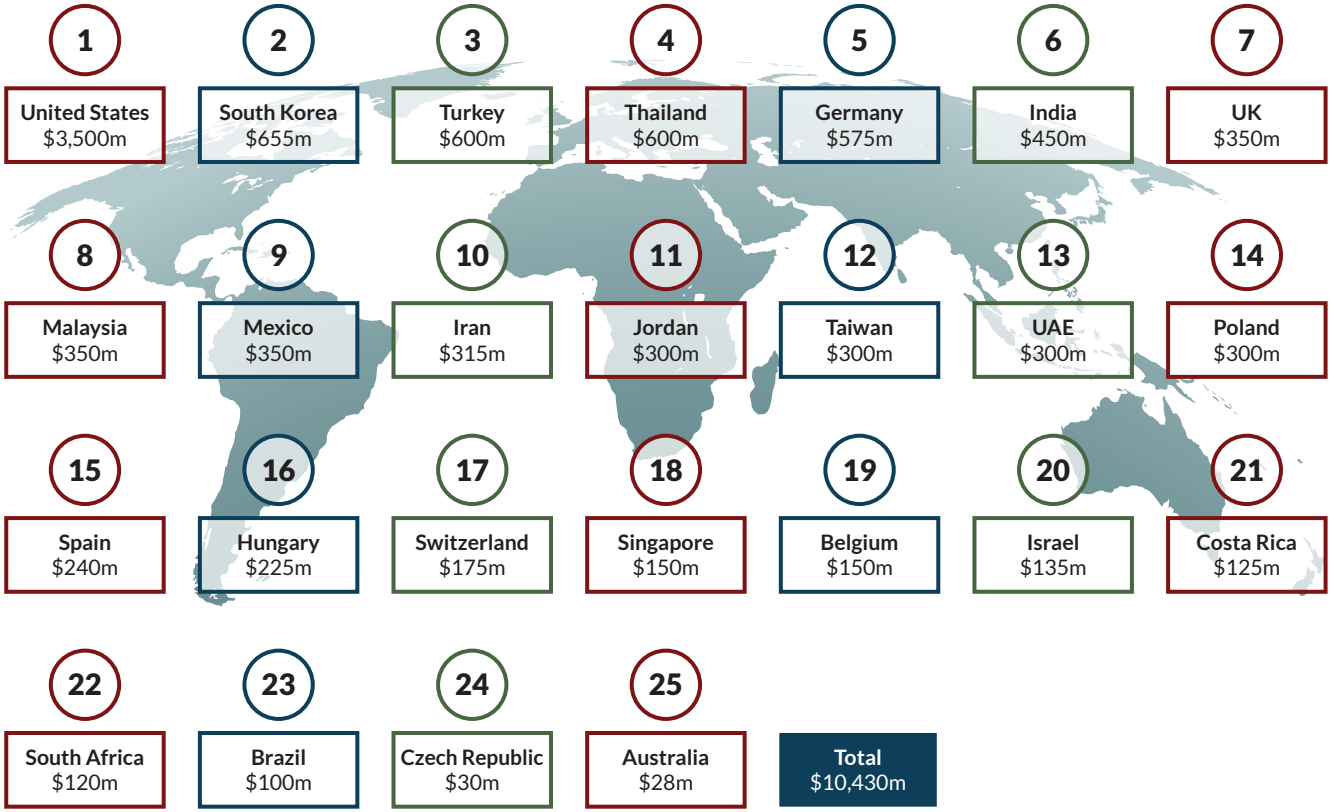
91 CNN, 15 February 2019, *India wants to make medical tourism a $9 billion industry by 2020*, https://edition.cnn.com/2019/02/13/health/india-medical-tourism-industry-intl/index.html

92 CNN, 15 February 2019, *India wants to make medical tourism a $9 billion industry by 2020*, https://edition.cnn.com/2019/02/13/health/india-medical-tourism-industry-intl/index.html

93 Deloitte, *2019 Global life sciences outlook: Focus and transform, accelerating change in life sciences.*

94 Industry Report, Healthcare India, Economic Intelligence Unit, 4th Quarter 2018

The top 25 medical travel destinations in 2018 by value (USD)[95]



Source: IMTJ research, Laing Buisson Medical Travel and Tourism Global Market Report

95 International Medication Travel Journal, 16 May 2018, *IMTJ's latest estimate on leading destination by medical tourism revenue*, https://www.imtj.com/articles/medical-tourism-numbers-game-time-for-a-recount/

PRIORITIES TO GROW VICTORIA'S HEALTH INDUSTRY

As the preceding megatrends demonstrate, health, and the business of health, is rapidly changing.

Consumer health care preferences and needs are changing. The way health products and services are provided and accessed is changing.

New technologies and digital health tools are improving access and the quality of care for consumers. They also bring new challenges to health providers at a time when population growth and population ageing is putting healthcare spending under pressure.

Health industry competitors are challenging Victoria's competitive advantage built on high quality health products and services. They are strengthening their health research and investment, improving quality and growing their presence in the global health marketplace.

Victoria's health industry must respond to stay competitive.

Growing Victoria's health industry and increasing its competitive strengths will require collective action by government and industry.

The Health Industry Taskforce considers continued growth will come from:

- The development of innovative, value-added products and services combined with action to seek out additional sources of revenue to offset rising costs.
- Stronger collaboration and enhanced innovation capabilities, including more active adoption of new technologies.
- Further improvements in workforce skills and competencies to ensure the industry is responsive to changing consumer preferences.
- An increased international presence.

With these challenges in mind, the Health Industry Taskforce has identified several sector-wide priorities that will enable Victorian health industry businesses to continue to grow and succeed in markets at home and abroad. These priorities are:

1. Create a more collaborative and integrated health business environment and strengthen local innovation and commercialisation
2. Increase the industry's flexibility in delivering health outcomes and improve access to wellbeing and preventative health options
3. Develop and retain a skilled workforce that is equipped to keep pace with changing consumer preferences and needs
4. Attract investment to improve digital infrastructure and boost manufacturing capacity and efficiency
5. Leverage Victoria's health industry strengths and international networks to build new product and service opportunities in the global marketplace
6. Keep health industry costs low and grow health business competitiveness.

By leveraging its strengths, Victoria's health industry can leverage new opportunities in response to megatrends

INDUSTRY CHARACTERISTICS

Strengths

- Australia's major manufacturers of quality health products
- Provider of high-quality healthcare services
- Governed by high regulatory standards
- Strong international networks
- World-class research capabilities
- Global reputation for high-quality health products and services

MEGATRENDS

Opportunities

- Changing consumer preferences for personalised health products and services
- Digital health
- Precision medicine
- Population growth
- Emerging high-growth markets

01 CREATE A MORE COLLABORATIVE HEALTH BUSINESS ENVIRONMENT AND STRENGTHEN LOCAL INNOVATION AND COMMERCIALISATION

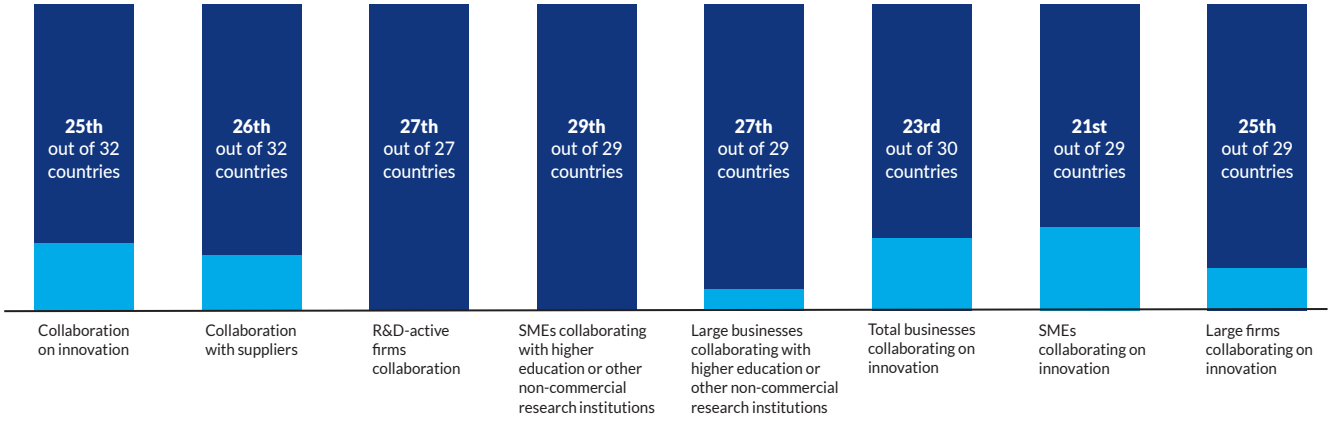
Collaboration across the health system and with research organisations can provide businesses with critical exposure to new technologies and skills. It is a key facilitator of technology development and adoption and can improve economies of scale and support greater investment attraction.

In a competitive marketplace, collaboration helps spur innovation and improve operating efficiency and productivity at the firm level.[96]

Low collaboration impedes innovation

Australia's collaborative performance is, however, comparatively low, ranking in the bottom half of most OECD metrics. The CSIRO suggests this may explain existing gaps in technology adoption. This gap is likely to widen if Australian industries continue to lag in collaboration.[97]

Australia's collaboration rankings against the OECD[98]



The above chart shows Australia's relative position compared to a selection of countries on a range of innovation collaboration measures. The sample includes all 35-member countries of the OECD, as well as China, Taiwan and Singapore (SMEs refers to subject matter experts).

96 https://www2.deloitte.com/au/en/pages/financial-services/articles/collaborate-boost-productivity.html
97 CSIRO, *Australian National Outlook 2019*, https://www.csiro.au/en/Showcase/ANO
98 Idem

Many leading health systems are investing in technologies to better connect with consumers and improve the patient experience. There are also good lessons to be shared from other industries that already have effective strategies for interacting with consumers, such as in the airline, travel/ hospitality and financial industries.

While Victoria has a world-class health system, our health industry is relatively siloed from other sectors. Sub-sectors within the industry also tend to operate in even smaller silos. This is not entirely surprising given that the health industry is a mix of many divergent activities and interests that are difficult to align.

The fact that Victoria has 86 health services that are each governed by separate boards constrains efforts to improve integration and collaboration within the industry.

The lack of collaboration and integration within the health industry impacts the sector's ability to commercialise new products and services in response to changes in consumer demand. This is compounded by current government procurement practices that many small and medium sized health businesses find complex, rigid and inaccessible.

Intellectual property (IP) challenges can also act as a barrier to commercialisation. Common barriers include the cost of IP protection, the perceived benefits of the IP system and a lack of knowledge and understanding of the system. While these issues are not exclusive to small and medium sized businesses operating in the health industry, they do point to the need to make IP protection more affordable and accessible for SMEs.

The fact that some hospitals do not have dedicated R&D budgets can also limit collaboration and innovation, as does research undertaken by institutions and clinicians that lacks a strong industry focus.

Enabling environments that spur collaboration

Precincts are well known for their ability to leverage the benefits of agglomeration – where businesses concentrate in specific geographic areas to match skills, to collaborate, or to share knowledge and resources in a cost-effective way.

They create market visibility and identity for industry and research clusters and build on the opportunities and characteristics of their location. The proximity between firms, institutions and investors enhances collaboration, attracts skilled workers and provides the spaces and infrastructure that suit the various participants – anchor tenants, businesses, research organisations, investors, entrepreneurs, incubators and accelerators.[99]

For this reason, the Health Industry Taskforce encourages policy makers to accelerate the development of health innovation precincts across Victoria.

99 New South Wales Innovation and Productivity Council, September 2018, *NSW Innovation Precincts: Lessons from international experience*. https://www.industry.nsw.gov.au/__data/assets/pdf_file/0011/172892/NSW-Innovation-Precincts.pdf

VICTORIA'S HEALTH PRECINCTS DRIVE COLLABORATION

Melbourne has a world-class system of health services, ranging from large public and private hospitals to GP practices and community-based care. Integrating the provision of these health services in strategically located and well-defined areas provides Victorians with coordinated care close to their homes and contribute to better health outcomes.

Melbourne Biomedical Precinct

Melbourne's Parkville Precinct is ranked in the top five precincts for biomedical excellence in the world.[100]

The Melbourne Biomedical Precinct (MBP) comprises more than 30 world-class hospitals, medical research institutes, bio-medical organisations and universities. It delivers outstanding health care, education and world-class research.

MBP is home to Australia's largest pharmaceutical company (CSL) along with some of the biggest global names in biomedical research. The precinct employs 49,000 people and educates over 7,000 biomedical, health and medical students each year.[101]

It consistently attracts around 23 per cent of Australia's annual competitive research funding, more than any other cluster in Australia.[102] The precinct has received more than $3 billion in capital investment and healthcare facilities over the last decade.[103] MBP's clinical strengths include:

> Infectious diseases and immunology
> Neurosciences, including mental health
> Cancer treatment
> Child health
> Health ageing.[104]

The Monash Precinct

The Monash precinct contributes $9.4 billion to the Victorian economy each year, supports more than 13,000 businesses and employs more than 82,000 people.

The Monash precinct is an innovation cluster located around Monash University in Melbourne's south-east. Monash University is in the top five biomedical universities in the Asia-Pacific region.[105] The Australian Synchrotron, Melbourne Centre for Nanofabrication, CSIRO and Monash Health (the Clayton Campus) all lie within three-kilometres of Monash University's campus in Clayton.

This precinct is world-class and delivers impact globally. The industry-partnered precinct translates discovery into tangible outcomes in areas ranging from next generation pharmaceutical products and medical therapeutics to automated machines and robotics.

The Monash precinct attracts world-leading researchers and international industry partners such as Agilent Technologies, BHP Billiton, Bosch Australia, Janssen, Johnson & Johnson, Lockheed Martin, Pfizer, Woodside, and Bristol-Myers Squibb Australia. The collaborative environment, underpinned with a unique integrated network of infrastructure, enables the precinct partners to push the limits of high-tech manufacturing, computing, imaging and materials.[106]

100 Victoria's International Health Strategy 2016-2020, Victorian Government, July 2016
101 Victorian Government (2018) Melbourne Biomedical Precinct Strategic Plan: From Research Engine to Economic Powerhouse (www.melbournebiomed.com/wp-content/uploads/2018/04/DPC_MBP-Strategic-Plan_WEB.pdf)
102 www.melbournebiomed.com
103 Idem
104 Idem
105 Victoria's International Health Strategy 2016-2020, Victorian Government, July 2016
106 www.monash.edu/industry/mining-resources/monash-precinct

Recommendations

- Provide $3 million to fund a small business *Healthy Supply Chain Development Program* to facilitate connections between SMEs and established health industry businesses and organisations in both the private and public sectors. The objective must be to get more SME and local content into health products and services.
- Allocate $5 million to expand industry collaboration with universities on work integrated learning (WIL), such as internship programs and graduate employment placements.
- Allocate $2 million to establish a system of grants to help SME health industry clients new to the IP system assess the patentability of their ideas. Funding would cover the cost of contractual research, patenting and licensing.
- Reassess programs currently offered by state and federal governments that facilitate and promote public-private collaboration across the health sector. Ensure these programs create, scale and embed significant health system improvements and innovations in organisational systems and structures, and workforce capability (including culture and behaviours).
- Strengthen existing precincts and work with local governments to create new ones to leverage health industry and research institution capabilities, including in regional Victoria and urban growth and renewal areas.
- Streamline the criteria and reporting requirements for government funded collaborative research. These requirements largely focus on governance issues but add undue bureaucracy and divert research resources away from outcomes.
- Undertake a formal review of Health Purchasing Victoria's (HPVs) ability to meet the government's procurement objectives, including maximising local content, increasing the rate of innovation adoption and job creation. Support the commercialisation of local health innovations (innovative local content policy).

02 INCREASE THE INDUSTRY'S FLEXIBILITY IN DELIVERING HEALTH OUTCOMES AND IMPROVE ACCESS TO WELLBEING AND PREVENTATIVE HEALTH OPTIONS

A key theme identified by the Health Industry Taskforce is the need for health businesses to respond to changing patient needs and new ways of delivering health products and services. Industry flexibility is influenced by several factors including funding, performance indicators and available resources. This includes access to solutions that support wellness and not just illness.

Greater flexibility in achieving health outcomes can provide both direct and indirect benefits to the health industry, including increased productivity and more control over operating costs.

Similarly, the ability to draw on wellbeing and preventative health solutions can help reduce the long-term cost pressures associated with the chronic disease burden and improve overall population health.

More flexible models of health care are needed

Inflexibility in healthcare provision can limit innovation and keep health service delivery costs high. Consumers want access to care in different ways, and at times and places that are convenient for them. However, under current arrangements it is difficult to introduce new service models and incorporate new technologies that entail new ways of operating, such as remote monitoring and telehealth.

Healthcare funding is currently tied to service inputs and outputs (e.g. number of hospital beds, number of patients consulted, etc.) rather than the health outcomes these services achieve. This is often referred to as fee-for-service or activity-based funding, which pays for activities rather than outcomes. This approach largely ignores the quality of care, integrated care and innovation around new ways of delivering care.[108]

It also means that there is little incentive to collect data on health outcomes. While ample data exists on how many services people receive, the timeliness of care and the safety of services, there is much less information about patient outcomes from the care and treatment they receive.

Efforts to modify workforce roles and structures in ways that support value-based health care also need to be encouraged. This trend is slowly emerging. For example, pharmacists can now play a greater role in patient care by providing immunisation services, blood pressure checks and other services to help people better manage their medication.

Extending this model further could involve role substitutions between medical practitioners and other health workers, such as nurses and allied health professionals, that see them assume responsibility for less complex prescribing tasks and case management. This would increase the number of clients that nurses and allied health professionals are able to manage.[109]

It would also free up more highly trained practitioners to manage patients with more complex needs. For regional areas, it could provide a means of addressing skill shortages. It could also assist healthcare service providers to reduce costs by making better use of more cost-efficient resources.

107 What is Value-Based Healthcare?, NEJM Catalyst, January 1, 2017
108 PWC (2018), *Funding for value*. https://www.pwc.com.au/publications/pdf/funding-thought-leadership-18apr18.pdf
109 Duckett S.J. (2005) Health workforce design for the 21st century. *Australian Health Review*, 29(2): 201-210.

The importance of preventative health

Victoria is at the forefront in leading reform in disease prevention and early detection and has invested in a range of prevention initiatives targeting specific areas such as tobacco reform, obesity, physical activity, sexual health, heart disease, cancer screening and skin cancer prevention. As a result, the 2019 Victorian public health and wellbeing progress report found that Victorians enjoy an outstanding quality of life, health and wellbeing which are comparable to that found almost anywhere else in the world.

Overall, the report demonstrates a balanced scorecard in terms of progress against several population level measures. There are several positive indicators:

- Physical activity among adults is rising
- The proportion of adults who consume sugar sweetened beverages daily is declining
- The proportion of adults who are at risk of alcohol-related harm is falling
- Male suicide rates are declining
- Population rates of newly acquired hepatitis C (HCV) infections are falling.[110]

Our ability to maintain and continue improving these positive health and wellbeing trends is vital to taking pressure off rising health care costs.

Evidence suggests Australia spends comparable amounts on prevention as countries like Japan and France, but less than countries like the UK, New Zealand and the United States.[111]

While there is a prima facie case to suggest we should spend more on preventative health, there is also an important need to monitor the performance of state and commonwealth spending on preventive health to ensure that the expected impacts are being realised.

> ***Prevention is not a panacea. It is not always better than cure. However, there is clear evidence that many prevention activities do indeed offer good value for money. The evidence is both home grown and international.***

Jackson H, Shiell A. (2017) Preventive health: How much does Australia spend and is it enough? Canberra: Foundation for Alcohol Research and Education

110 Victorian public health and wellbeing progress report, State of Victoria, Department of Health and Human Services, February 2019.
111 Jackson H, Shiell A. (2017) Preventive health: How much does Australia spend and is it enough? Canberra: Foundation for Alcohol Research and Education.

Recommendations

- Governments at all levels must explore greater use of value-based funding models for healthcare in Australia. Under the value agenda, there is a strong focus on patient-centred outcomes across their entire care experience.
- Conduct a health outcomes trial with a selection of healthcare providers to determine the most appropriate health outcome metrics that could be used to fund health services.
- Allocate funding to pilot a review of practice between health professionals to ensure their roles and responsibilities more clearly reflect the functional needs of health care delivery. The key focus of the pilot would be to examine the scope for skill-mix changes, job widening, job deepening and the development of new roles that enhance organisational effectiveness and patient outcomes.
- Review the number of health regulators and introduce more flexible practice standards to allow appropriately trained health professions to undertake simple case management and prescribing tasks. Provide greater clarity around commonwealth and state legislative frameworks for occupational regulation, accreditation, education and training.
- Invest more government funding in preventative health and wellbeing research with a focus on collaboration and community engagement. Support collaborative approaches to prevention strategies that span multiple chronic diseases.
- Encourage a collective and sustained effort to boost preventive health from government and non-government organisations, businesses, health professionals, communities, families and individuals. This should be part of a 'whole of health industry' approach to improving access, delivery and health outcomes.
- Through the COAG Health Council (CHC) and its advisory body, the Australian Health Ministers' Advisory Council (AHMAC), consider establishing an independent body to scrutinise the cost-effectiveness of public health interventions in the same way that the Pharmaceuticals Benefits Advisory Committee (PBAC) and the Medical Services Advisory Committee (MSAC) assess drugs and clinical procedures.

03 DEVELOP AND RETAIN A SKILLED WORKFORCE THAT IS EQUIPPED TO KEEP PACE WITH CHANGING CONSUMER PREFERENCES AND NEEDS

Victoria's health workforce is critical to the overall success of the state's health system. The shift in consumer preferences and needs previously discussed, combined with forecast continuing population growth and ageing and the rising burden of chronic disease, present new challenges for health service delivery.

These trends are prompting businesses across the health industry to find new ways to recruit, retain and deploy talent.[112]

Healthcare providers are being challenged to incorporate big data and new digital technologies into their services and administrative operations. Similarly, turning data into clinically actionable information is difficult due to the volume, heterogeneity and complexity of data.

Getting high-quality data in the right format at the right time with the right analysis remains challenging for several reasons including insufficient numbers of bioinformaticians, biostatisticians, mathematicians, computer scientists and engineers who have a sound understanding of biology and clinical principles and concepts.

With these challenges in mind, education and training changes are needed to ensure the health industry develops a high-performing workforce with the knowledge and skills required to respond to new technologies and the shift to consumer-directed service delivery.

Challenges with current training models

Long training times are a characteristic of the health industry. They increase costs and reduce the responsiveness of the workforce to changing needs. For instance, many allied health and nursing training programs in Australia have expanded from three to four-year undergraduate (bachelor's degree) training programs, post-graduate master's degrees or, in some case, doctoral-level training.

In Australia, post-graduate training for medical practitioners is an increasingly dominant model. Most health practitioner education requires access to several hundred hours of supervised clinical training. Clinical training infrastructure can be expensive for students, training institutions and supervisors. There is evidence that poorly conceived clinical placements are a burden on health service delivery, although well-constructed placements may enhance service efficiency. Clearly, the model of clinical training adopted has the potential to enhance or detract from service delivery and capacity.

Training models for the future

Into the future, training programs will need to extend beyond traditional clinical education to include immersive, experiential, business, leadership and technology topics. Such training will help the workforce to be more engaged, improving patient experiences and strengthening business outcomes.

Similarly, if the roles of some health professionals (e.g. nurses and allied health professionals) are to evolve to include treatment and prescribing tasks, which would give them greater monitoring and evaluation responsibilities, increased training in evaluation and research skills will be required.

Training could also be extended to advanced practitioners to enable them to perform a comprehensive assessment of a client's needs on behalf of all members of the care team. If the assessor also has a continuing primary practitioner role, this would not only reduce the number of professionals interacting with clients, but also improve care continuity.[113]

112 Deloitte 2017 survey of health system CEOs: Moving forward in an uncertain environment

113 Duckett S.J. (2005) Health workforce design for the 21st century. *Australian Health Review*, 29(2): 201-210.

Skills and a changing workforce

Australian healthcare organisations need to attract and retain a highly skilled and innovative workforce. Australia's healthcare system must ensure that the supply, distribution and skill set of its workforce can meet the health needs of an ageing population with increasingly high expectations of healthcare.

However, Australia's current ageing workforce and resourcing model will not sustain future demand for services. The Commonwealth Department of Health has forecast a projected shortfall of about 85,000 nurses by 2025 and 123,000 by 2030. The health workforce is also ageing faster than other workforces in Australia.

It is imperative that the health industry workforce becomes more digitally engaged with stronger competencies around the use of technology to achieve improved patient outcomes. Education and training in technologies such as telemedicine, 3D printing and virtual reality will become increasingly important into the future.

The technological shift will require new skilled workers and even create new careers. An increase in telemedicine capabilities will create a need for technicians to run and maintain the equipment. Engineers and designers will be required to work with 3D printers to print artificial bones, limbs, braces and even artificial organoids.

New technologies will become a large part of what healthcare professions do. As such, the health industry workforce must be trained with the skills and knowledge to adapt and respond to the changes as new ways of operating emerge in the future.

Health product manufacturers also face workforce challenges

Health product manufacturers are also under pressure to operate more efficiently and reduce costs. However, labour costs remain relatively high and the task of developing and retaining workers with advanced skills is difficult. Faced with strong global competition, health product manufacturing is becoming increasingly automated, which is changing the skills sets required of workers.

Consumer demand for personalised products is also driving manufacturing to become more technologically advanced. However, the use of some new technologies can require expertise that is not available in Australia.

The Health Industry Taskforce identified that many parts of the industry, including manufacturing, struggle to attract job-ready graduates. Feedback from Taskforce members suggests the curriculums of some courses are overly broad to cater for as many students (and their interests) as possible.

> ***Medical schools focus on clinical reasoning - getting the diagnosis right. In today's environment of chronic diseases, social determinants of health and team care, equally important are the "soft," or essential, skills: deep listening, asking questions and giving answers, motivating others, delegating and creating a high-performing team***

Margaret Cary, 'In Medicine, the "Soft" Skills Are Essential', MD Magazine, October 26, 2018

Key principles to enhance health workforce flexibility

These issues highlight the need to continue to develop a health system workforce that is even responsive to patient needs, rather than just practitioner, service or organisational drivers. The Health Taskforce supports the following interrelated principles to promote role flexibility in the health workforce:

- **Measure health system performance from the perspective of the patient**
- **Minimise training times**
- **Regulate tasks (competencies), not professions**
- **Match rewards and indemnity to the levels of skill and risk required to work in the environment in which they work**
- **Ensure that practitioners have all the skills they need to perform the tasks required to work in the environment in which they work**
- **Enable practitioners to work to their full scope of practice delegate tasks where required.**

Source: *Six principles to enhance health workforce flexibility*, Human Resource for Health, 7 April 2015. Susan A Nancarrow, School of Health and Human Sciences, Southern Cross University, NSW, Australia

Recommendations

- Develop a comprehensive state-wide Health Workforce Strategy to ensure Victoria has the skilled health professionals needed to deliver high quality health care now, and into the future. The strategy needs to identify:
  - The changing needs of the health industry because of population growth, rising rates of chronic disease, an ageing population and technological innovation.
  - The number and type of doctors, nurses and midwives and allied health professionals Victoria needs, both now and into the future (mapping and forecasting).
  - Locations where there is a shortage of health workers, noting type/specialty, and measures to ensure the appropriate distribution of Victoria's medical and health workforce.
  - Training opportunities and career pathways to ensure a skilled workforce, including in regional communities.
- Rethink the way health professionals are trained - and regulated - to ensure the health workforce is more responsive to patient needs, rather than just practitioner, service or organisational drivers. New approaches are needed to shift away from the time-based achievement of qualifications to the incremental achievement of specific competencies. More flexible training models, such as step-on, step-off programs, allow the incremental credentialing of practitioners and provide marketable skills that are responsive to the way they work.
- Expand health professional and medical staff training in the use and application of big data. Work with health industry administrators to improve their knowledge of how digital technologies can be integrated into logistics, system and service coordination.
- Train more advanced generalists in performing patient assessments and coordinating treatment plans with medical specialists and other health professionals.
- Review vocational education and training and tertiary course curriculums to ensure practitioners are not only technically competent but possess the soft skills (etiquette, cultural competency and sensitivity, time management, team player, written and spoken communication, critical thinking, problem solving and decision making, negotiation, and conflict resolution) necessary to be productive.
- Review the current vocational education and training curriculum to ensure it is providing students with an appropriate introduction to the analysis and management of big data and allied digital issues (disruption, cyber-security and data protection, cloud and virtualisation) across all relevant course lists.
- Initiate a campaign to promote Victoria's health manufacturing to new entrants; informing students, parents and educators about the exciting career opportunities in the health manufacturing industry. Continue to promote STEM skills and their fundamental importance to advanced health manufacturing.

04 ATTRACT INVESTMENT TO IMPROVE DIGITAL INFRASTRUCTURE AND BOOST MANUFACTURING CAPACITY AND EFFICIENCY

Investment is needed to build capacity and scale within Victoria's health industry. This includes investment in advanced digital infrastructure to improve operating efficiencies, increase options for outpatient care and support new and innovative products and services. More digitally networked health supply chains will also reduce costs associated with traditional logistics support.

Investment in digital health must be a priority

Digital health is already transforming the way healthcare is delivered. At the same time, demand across Asia for high-quality health products is forecast to increase exponentially over the next decade.

While digital collaboration on research data is strong in Victoria, there continues to be an underspend on coordinating technologies and digital integration of data in health services. Queensland is currently leading the digital transformation of health in Australia with a dedicated Digital Health Strategy to 2026 that includes actions to improve digital readiness and improved information management across the health system through digital innovation.[114]

In Victoria, however, government investment has to-date largely focused on traditional solutions such as more hospital beds, rather than establishing new technology capabilities, like telehealth rooms.

Governments need to start investing in digital health infrastructure as a more efficient means of offering healthcare that better aligns with the changing expectations and needs of consumers. In many cases, patients no longer need to stay in hospitals to be observed and prefer to be at home sooner. They can be remotely monitored at home by having their vital signs checked via wearable devices and other portable medical devices and be visited by a health professional when needed.

Why is digital health important?

The advancements of both healthcare and digital technology are driving innovation at an accelerated pace. This has led to the reinvention of healthcare through disruptive technologies and innovation. A culture of continual improvement and innovation will be underpinned by increased access, sharing and analysis of information from the community, healthcare consumers, researchers, the healthcare system and global sources. This will enable predictive health delivery where the demand is needed most and ultimately personalised medicine and genomics.

Benefits for healthcare consumers and the community

- Increase patient engagement
- Safer and faster healthcare services
- Improved access to specialist care
- A co-ordinated and connected health system
- Provides support via tools and applications to help consumers make choices about their healthcare pathways and healthy lifestyle choices
- Allows greater control over where, when — and by whom — the required care is provided.

For clinicians

- Quality healthcare supported by improved clinical decision making
- Increased access to patient health information wherever care is provided.

For the health system

- Systematic and high-quality care
- Continuous improvement
- Rapid translation of research and innovation into system-wide practice.

Source: Digital Health Strategic Vision for Queensland 2026, State of Queensland (Queensland Health), March 2017

114 Digital Health Strategic Vision for Queensland 2026, State of Queensland (Queensland Health), March 2017

Renewed efforts to attract investment are needed to ensure Victorian health product manufacturing remains competitive

The Health Industry Taskforce welcomes the Victorian Government's recent allocation of $1.5 million towards the construction of an Advanced Biotechnology Manufacturing Platform at CSIRO's Clayton Biomedical Manufacturing Precinct.

The facility will manufacture products such as vaccines, antibodies, growth factors and stem cells for testing in human clinical trials. It will enable the CSIRO to help new and existing companies develop and grow their biopharmaceutical manufacturing processes locally, instead of heading overseas.

The initiative is well timed. Demand across China and other parts of Asia for these types of health products is growing rapidly.

Australia's high-cost business environment is deterring the investment needed to grow our health product manufacturing capacity. Competition is increasing from emerging markets, such as Brazil, Russia, India and China. With strengthened regulatory environments and their comparatively low wages, abundant human capital and proximity to high growth markets, these countries have become increasingly attractive investment destinations. In recent years, they have achieved stronger growth in pharmaceutical sales than many developed countries, where markets have stagnated or even declined.[115]

This situation will continue to affect Victoria's health industry in the absence of proactive policies that keep local pharmaceutical manufacturers competitive and make the state a more competitive destination for global health investment.

We have a good base to build on. Our pharmaceutical and medical device manufacturing industry has competitive strengths in research and development and some of the highest standards globally for safety and quality. It is a strong testbed for international pharmaceutical companies wanting to develop and manufacture new patentable products for the global market.

World-leading infrastructure and manufacturing equipment is key to attracting the best researchers and keeping Victoria at the cutting edge of best practice. Stronger investment in our advanced manufacturing capacity will ensure Victoria's health industry continues to grow.

115 What do patent expirations mean for the pharma industry? | Pharmaceutical news from Michael Bailey Associates [Internet]. Michaelbaileyassociates.com. Available from: https://www.michaelbaileyassociates.com/news/pharmaceutical/what-do-patent-expirations-mean-for-the-pharma-industry.

Recommendations

- Fund digital health infrastructure and system upgrades across all Victorian public and private hospitals and medical centres which will aid research, clinical decision support, medication management and patient and clinical work flow functions.
- Work with the health industry to develop a Victorian Digital Health Strategy 2025 to improve interoperability across the health industry, including strategies for how information is governed, accessed, used and managed.
- Work with governments to develop an investment attraction policy framework and strategy to support the construction of more Good Manufacturing Practice (GMP) grade health manufacturing plants.
- Expand the Victorian Government's Investment Attraction program stream to support new investment or bringing forward investment in existing health businesses that introduce new manufacturing capability, new technology, process change or plant modernisation which results in business growth and jobs creation.
- Fund a new Healthy Manufacturing initiative which provides health product manufacturers with access to a suite of tailored business improvement opportunities. These include workshops, forums and specific programs across the state including: robotics and automation, digital business capability, supply chain capability, energy and resource efficiency, and B2B network development.
- Provide health product manufacturers with targeted support to:
  - Lift awareness of advanced manufacturing technologies (including robotics and automation, digitalisation, virtual and augmented reality, nanotechnology) and world-best practices.
  - Identify the cost savings achievable through the adoption of world-best practices in areas such as digitalisation, design in manufacturing and sustainable manufacturing.
  - Implement new technologies and practices in a way that aligns with current business capabilities, existing and future required skillsets, and identified goals.
  - Improve information communications and technology literacy.

05 LEVERAGE VICTORIA'S HEALTH INDUSTRY STRENGTHS AND INTERNATIONAL NETWORKS TO BUILD NEW PRODUCT AND SERVICE OPPORTUNITIES IN THE GLOBAL MARKETPLACE

The global health market presents Victoria's health industry with significant opportunities for technical and economic cooperation and improved health outcomes.

Increased international engagement provides a strong catalyst to improve the long-term sustainability of Victoria's health system. It provides access to additional streams of revenue, strengthening Victoria's health workforce capability through economic growth and job creation, and exposing the industry to an increased scale and breadth of activity.

The Health Industry Taskforce considers these benefits can be realised without compromising the primary role of Victoria's health system, which is to deliver the best possible health outcomes for Victorians.

The Victorian health industry is well placed to further leverage its strengths in the global marketplace

Victoria's health industry has significant strengths in the design of facilities, training for health staff and medical specialists, and the use of the latest medical treatments. The state is also home to world leading academic and research institutions.[116]

This expertise is attracting substantial demand and interest from China and others across Asia-Pacific to partner with Victorian organisations to commercialise research, bring new technologies to market, and facilitate knowledge transfer and technology transfer.[117]

Many Victorian health businesses are already well-connected internationally and Victorian health exports are a multi-billion-dollar industry. Most of this revenue comes from the health-related international education sector, as well as a strong contribution from medical technology and pharmaceutical companies.

Health services are also playing an important role in the international marketplace. Melbourne and Victoria are leading destinations for health and medical conferences.

The complementary healthcare industry is growing rapidly, and Victoria's clean environment has made Victoria a destination of choice in the fast-growing global wellness tourism market. This market is estimated at $639 billion with Australia in the top five wellness tourism markets in the Asia Pacific.[118]

Wellness tourism encompasses experiences which directly relate to maintaining or enhancing personal wellbeing, including visiting a health spa, sanctuary or wellbeing centre.

Victoria boasts several areas of high natural amenity which lend themselves to wellness tourism. The Mornington Peninsula and Daylesford in Victoria have grown in prominence as wellness destinations due to their variety of health and wellness activities on offer. These offerings are appealing to increasingly health-conscious consumers who are willing to spend on their wellbeing.

These strengths mean Victoria is in a good position to meet healthcare service needs in both mature and high growth markets in both the Asia-Pacific region and Middle-East.

116 Victoria's International Health Strategy 2016-2020, Victorian Government, July 2016
117 Idem
118 2019 Global Wellness Summit Report

Australia's Free Trade Agreements present opportunities that are wide-ranging and impact health industry participants in different ways.

For example, hospital providers have been granted direct access to the Chinese market. Under the China-Australia Free Trade Agreement, China now offers Australian businesses the opportunity to establish wholly foreign owned hospitals in four provinces (Jiangsu, Fujian, Guangdong and Hainan) and three municipalities (Beijing, Tianjin and Shanghai).

Medical and dental service suppliers can also (subject to regulatory approval) establish Australian majority-owned joint venture hospitals and clinics with Chinese partners in other areas, provided most medical professionals are Chinese.

In the aged care space, Australian providers may now establish wholly foreign owned aged care facilities in China. New tax incentives and fee waivers are also available to foreign as well as domestically owned aged care facilities.

For R&D service providers, under the FTA Australian companies looking to conduct R&D in China will be permitted both to carry out and offer R&D services through Australian-owned subsidiaries based in China.

Across the spectrum of healthcare, the FTA has resulted in 95 per cent of Australian exports to China now being tariff-free. By the end of 2019 the existing 4-6 per cent tariffs on pharmaceutical products (including vitamins) will be removed, along with the 4 per cent tariffs on orthopaedic appliances (currently $56 million in exports) and 10 per cent tariffs on centrifuges (currently $9 million in exports). Tariffs on medical devices will also be eliminated, some immediately and some within five years.[119]

The Victorian Government's International Health Strategy 2016 - 2020 seeks to take advantage of these new opportunities and better connect our health industry directly with international markets. The Health Industry Taskforce supports this strategy and stands ready to work with the Victorian Government to progress its successful implementation.

The development of new export opportunities in both health goods and services can strengthen Victoria's health system by generating fresh financial resources from external demand, improving efficiency and quality standards in the delivery of health care, and spurring upgrades in the health infrastructure of hospitals and other complementary structures, as well as technologies and skills

119 The China FTA is just the tonic for Australia's healthcare operators, Kim O'Connell and Suzy Madar, Business Spectator, July 17, 2015

Fast Growing Health Care Markets Provide Strong Opportunities for Victoria's Health Industry

MIDDLE EAST

Healthcare expenditure in the Middle East continues to soar on the back of rapid population growth and the large burden of lifestyle-related diseases. The Saudi Arabian Government has identified investment in health infrastructure as a priority and there are more than 100 hospitals under construction. Individuals from the Middle East and North Africa (MENA) region spend US$15bn a year travelling abroad for medical care.

INDIA

India has one of the world's highest numbers of diabetes sufferers, at more than 65 million individuals. To match bed availability to the standards of more developed nations, India needs to add 100,000 beds this decade.

CHINA

Expenditure on healthcare is forecast to rise to $US1 trillion by 2020. Current priorities for the Chinese healthcare system include the implementation of activity-based funding – an area of Victorian expertise and leadership. The China–Australia Free Trade Agreement (ChAFTA) will permit Australian suppliers to establish aged care institutions in China.

MALAYSIA

Malaysia's government identified healthcare as a National Key Economic Area (NKEA) in 2010. The NKEA plan is to grow Malaysia's healthcare market from its current value of U$10 billion to nearly US$14billion by 2020.

INDONESIA

Indonesia's per capita healthcare spending is increasing at 14 per cent per annum.

Source: Victoria's International Health Strategy 2016–2020, Department of Health and Human Services, July 2016

Victoria's significant and globally prized health system expertise

Source: Victoria's International Health Strategy 2016-2020, Victorian Government, July 2016

Recommendations

Work with industry associations and health industry businesses to:

- Refresh Victoria's *International Health Strategy 2016-20* to ensure it has dedicated market penetration plans for priority high growth markets (including Indonesia, Malaysia, the Middle East, India and China) and health industry organisations (public health, regional health services, aged care services).
- Ensure a whole of government approach to growing health business opportunities in these markets by requiring relevant departments and agencies to clearly outline their role and contribution to the implementation of each of the country specific engagement strategies.
- Develop and implement a program of 'export insights' visits in priority markets for small and medium sized health businesses new to exporting, providing practical information and introductions to successful businesses already in market.
- Boost new collaborative opportunities between Victorian and overseas businesses in areas including:
  - Healthcare provision and skilled health professionals
  - Medical research and Life Sciences
  - Education and training
  - Planning, construction and management of health and aged care facilities
  - Provision of diagnostic, medical and clinical services to international patients, both on and off-shore
  - Medical products and technology.
- Develop and promote a series of dedicated inbound and outbound health industry trade missions to 2022 and support Victorian health businesses to attend international tradeshows in high growth markets.
- Support the work of the Melbourne Convention Bureau to secure a strong pipeline of future health and medical conferences and engage with Victorian health businesses and medical research institutes to ensure international conferences guests are exposed to Victoria's health capabilities through tailored business connection services, seminars and health and research facility site visits.
- Develop a Medical Tourism Strategy for Victoria that identifies high growth target markets and strategies to strengthen the capacity of Victoria's medical tourism supply chain: doctors, surgeons and other medical professionals, hospitals; wellness, transport and accommodation services; allied health services; and travel agents.
- Critically reassess Victoria's International Patient Access Policy to ensure it is effectively supporting efforts to position Victoria as a leading location for high-end clinical services for full-fee paying international private patients.
- Determine areas of expertise within Victorian health services that can be delivered remotely to international private patients such as teleconsultations, diagnostics, screening and sample testing.

06 KEEP HEALTH INDUSTRY COSTS LOW AND GROW BUSINESS COMPETITIVENESS

The footloose nature of capital and investment means it is vital that Victoria's health industry remains competitive against our interstate and global counterparts.

While Victoria's economic fundamentals are strong, there are headwinds to growth. Labour productivity has slowed, and growth remains patchy across different industries and parts of the state.

Energy costs are rising. Structural changes in the Victorian economy are creating employment challenges for many Victorians.

Victoria's transport infrastructure has not kept pace with population growth, resulting in congestion, delays and lost productivity.

Workplace disruption and increased regulatory intervention by the Victorian Government threatens to damage the perception and reality of doing business in Victoria.

Individual health businesses are doing their best to stay competitive in this environment.

These efforts need to be supported with wider reforms that reduce the cost of doing business and provide confidence and certainty for health industry investment and job creation.

The Victorian Government has taken steps to reduce the payroll tax burden. This is welcome and reflects the Victorian Chamber's advocacy. Also positive are efforts to reduce indirect costs associated with unnecessary red tape that stifles investment and business expansion.

While there should be no diminution in the role regulations play in maintaining high standards of quality and safety across the health system, the fact that Australian, state and territory governments share responsibilities across a vast number of regulatory areas means opportunities to reduce duplication and improve regulator interaction with business must remain a priority.

Infrastructure is of fundamental importance to maximising the potential of health and medical research. The Health Industry Taskforce acknowledges the Victorian Government's investment in health industry infrastructure in recent years which has provided the impetus for continued innovation.

Further investment in physical space, enabling technologies and workforce development is needed to underpin capability building between the private and public sectors and accelerate the translation of research into improved health outcomes and commercialisation opportunities.

Victoria's public hospitals and health services spend some billions of dollars each year on goods and services. Health Procurement Victoria plays a key role in developing, implementing and reviewing procurement policies to ensure Victorian health services meet probity and best-practice requirements.

These efforts need to continue. The Health Industry Taskforce heard that many small and medium sized businesses believe they are missing out on health procurement opportunities. SME involvement can be constrained by poor business knowledge about health procurement opportunities, scale impediments or overly prescriptive tender specifications.

Victorian health industry efforts to grow new business opportunities in overseas markets also need to be supported. Business utilisation of Free Trade Agreements (FTAs) is low.[120] The reasons for not engaging with FTAs are complex and include low levels of understanding of how FTAs work, difficulty in accessing information and the existence of non-tariff barriers on manufactured goods.

More therefore needs to be done to help Victorian health providers and goods producers realise new partnership opportunities in pharmaceuticals, medical technology, hospitals, research and development and aged care in fast growing world markets.

120 Australian Chamber of Commerce and Industry, JSCFADT Inquiry into access to free trade agreements by small and medium sized enterprises, 1 June 2018

Recommendations

- Immediately increase in the payroll tax threshold to $850,000, with further increases each year to ensure Victoria remains competitive with other Australian jurisdictions.
- Review the progress made by Victorian health regulators, the Department of Health and Human Services, and Department of Finance and Treasury in implementing the recommendations of the Victorian Auditor-General's March 2015 Report Managing Regulator Performance in the Health Portfolio.
- Continue to prioritise transport, health and education infrastructure upgrades, particularly in regional areas.
- Fund a 'Health Procurement Access' program to improve small business access to health procurement opportunities, how to pre-qualify, where to find out about tenders, how to form joint ventures and facilitate introductions to key procurement officers within government health agencies.
- Establish a consortium of Victorian health agencies and businesses to:
  - Identify key SME's to collaborate with the health industry
  - Gain a greater knowledge of the health business supply chain
  - Identify opportunities to enhance business growth in the health industry
  - Identify health projects to promote jobs.
- Facilitate trade opportunities for Victorian health businesses and organisations by raising the international profile of our health capabilities, assisting with in-market access and building government-to- government relationships.
- In collaboration with the Victorian health industry, research and implement an Investment Attraction Strategy focused on interstate and international health product and service suppliers locating in one of Melbourne's Biomedical precincts.

NOTES

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