

SUBMISSION REPORT

WA SUSTAINABLE HEALTH REVIEW



Ms Robyn Kruk

Chair

WA Sustainable Health Review Panel

189 Royal Street

East Perth, WA 6004

Dear Ms Kruk,

I am pleased to enclose the Health Support Services submission to the WA Sustainable Health Review. As the statutory authority accountable for the delivery of system-wide enabling support services for the WA health system, Health Support Services appreciates the critically important responsibility that we have in ensuring the effective and efficient provision of technology, supply, workforce and financial services from both an operational and a strategic perspective.

We welcome the opportunity to submit this paper which includes our views and recommendations on improving the sustainability of the WA health system and our role in enabling improved health, safe, quality care and better value for all Western Australians. All of us who work within the WA health system as servants to the WA public have a responsibility to ensure that we play our role in facilitating and delivering quality and financially sustainable health care to all Western Australians.

The WA health system is not alone in facing financial and social pressures due to an ageing population, increasing chronic disease, mental health and health inequity. All State governments, the Commonwealth government and many governments across the world are currently reviewing their health systems and rethinking what needs to be done to put patient care first, and address the unsustainable growth in health care costs. Despite some unique WA challenges, this highlights an opportunity to be more collaborative, expansive, and open to working in partnership to leverage existing research, analysis and expertise, and to drive innovative solutions.

The Reid report provided key foundations for improving the infrastructure, process, technology and operating model of the WA health system. Despite the increased investment and significant effort to reform WA health, many of the same challenges still exist today and, in some cases, the challenges have become even greater.

It is for this reason that we believe that the only option moving forward is to fundamentally rethink, redesign and transform the way things are done across the WA health system.

To this end, in developing this submission, our approach has been to envisage what the Western Australian public (the beneficiaries of our endeavours) expect and are likely to expect of the WA health system in the future, and to offer our views on some of the big issues, themes and concepts that we believe need to be considered to deliver a sustainable health system for all Western Australians.

We invited and received contributions from Health Support Services employees across all functional units and across all levels of the organisation through workshops, one-on-one interviews and via written responses. We thank all those who took up the offer to get involved to provide their views and to contribute to the development of this submission.

Yours sincerely,

Robert Toms

Chief Executive

Health Support Services

[Redacted signature]

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Executive Summary

Health costs are growing and continue to grow well in excess of inflation due to a number of reasons, among them the ageing population, the cost of new medical technology, increasing chronic disease, mental health and health inequity.

The ongoing growth in health care costs is unsustainable. The case for change is clear, but not new. All State governments, the Commonwealth government and many governments across the world are facing similar pressures and are developing plans to address this issue for today's and future generations. This, combined with ever-improving connectivity through significant advances in technology, means that we are fast approaching a tipping point for success - we have a significant need for change and, at the same time a growing capability to fundamentally rethink, redesign and transform the way things are done across the WA health system. This change requires transformational leadership, a sharp focus on strategy execution, and a culture of innovation, collaboration and performance excellence.

Our view is that there are six strategic imperatives for delivering a safe and high quality, patient-centred, integrated and financially sustainable health care system in WA:

- **Healthier Communities** – Developing healthier communities and reducing demand on health institutions by focusing on preventative health, providing alternatives and increasing community awareness;
- **Whole of Society Partnerships** – Creating an ecosystem of partnerships, leveraging expertise across the private and public sectors to deliver innovation and safe, quality care;
- **Safe, Accessible and Quality Health Care** – Providing safe, integrated, consistent and quality health care when and where needed;
- **Internet of Health** – Transforming the health care experience using artificial intelligence, predictive analytics, machine learning, robotics and augmented reality to deliver health care 'at our fingertips';
- **Transformational Leadership** – Embedding transformational leadership and a culture that drives strategy execution and performance excellence across all levels of the WA health system; and
- **Efficient Support** – Developing an agile operating model with streamlined processes and digitised work practices.

Our 12 recommendations are provided in detail in this submission and include:

1. Focus investment on prevention and promotion;
2. Reduce demand on health institutions;
3. Foster and focus on WA health innovation hubs;
4. Increase collaboration across the public and private sectors;
5. Implement safe and consistent standards of quality care;
6. Deliver patient-centric integrated health care;
7. Develop technology foundations and enable Internet of Health;
8. Develop capability to analyse and use data for predictive purposes;
9. Build a Transformational Leadership capability and change-ready culture;
10. Develop strong governance and financial discipline;
11. Embed an agile and fit-for-purpose operating model; and
12. Use technology to streamline processes.

Health Support Services has a critical role to play in working with all parts of WA Health and supporting the drive to a sustainable health system for all Western Australians.

As the statutory authority responsible for the delivery of key shared services across the WA health system, there are three overarching objectives that we are seeking to deliver on: to drive return on investment (ROI); to enhance service levels; and to create a customer-focused, innovative and accountable culture.

Our priorities are to support WA Health by transforming our service delivery approach to create a Model 'Support Services' business for the health industry and to do whatever is necessary to support and contribute to the broader transformation of the health system through the Sustainable Health Review.

The sustainability of the WA health system will require all of us to play our role. A key to our success in supporting the required future changes will be to ensure that we resource and prioritise the transformation program appropriately. We are well positioned to support the transformation through the Sustainable Health Review by delivering technology, supply chain and workforce reform.

Future of Health Care – James Carroll's Story

This story provides insight into expected advances in technology and changes that will help to put the health system onto a more sustainable footing. The story does not profess to be medically or scientifically accurate. Rather, it provides a sense of what the future state of health care could look like over the next 15 to 20 years, as seen through the fictional life of James Carroll.

James Carroll was born in 1989. In his early years, James was a young boy growing up and doing the things that most young boys do – going to school, playing a variety of sports and leading a normal life. In his mid-twenties, James had times where he was feeling uncharacteristically tired and found that he struggled to keep up with his mates when they were going for a run or playing sport. Initially, he and his family simply put this down to his genetic make-up (he was more solid and shorter than most of his mates) but, one day, after feeling exhausted after only a limited amount of activity, James made an appointment to see his local GP. The local GP gave James a full physical examination and referred him to a cardiologist to get specialist advice on what might be causing his lethargy. After undertaking multiple tests, James was diagnosed with cardiomyopathy – his heart was enlarged and not pumping sufficient blood around his body, particularly when undertaking more intense physical activity.

James and his cardiologist developed a plan to manage the risks associated with his cardiomyopathy, including making some changes to his lifestyle – losing some weight, having a good diet with as little salt as possible, limiting his alcohol intake and doing only light to moderate physical activity. His cardiologist also prescribed various pharmaceutical drugs to help keep his blood pressure and cholesterol within an acceptable range and to keep his heart strong.

Although James accepted that he needed to make these lifestyle changes, it annoyed him that he was not able to do many of the things that his mates were able to do. Also, due to the need for a lot of interstate and overseas travel for work, he was frustrated by the inconvenience (not to mention the cost) of having to make regular appointments with his GP and cardiologist to monitor his condition, to get referrals to the pathologist to check his cholesterol and blood sugars, to have a 6 monthly electrocardiograph and a 12-monthly echo-cardiograph ECG, periodic Holter monitoring, and to obtain new prescriptions for his pharmaceutical requirements.

Jump forward to 2035

James is now in his mid-forties. He remains active and has been managing his diet and lifestyle reasonably well. His work still requires him to travel interstate and overseas regularly. Five years ago, sick and tired of the inconvenience and cost of all his regular appointments and check-ups, James had a health monitoring microchip installed. The microchip technology had been used successfully in cases similar to James' situation for about 18 months. It was the culmination of a number of years work between health scientists, academia, predictive analysts and technology specialists through a government funded innovation initiative.

The microchip changed James' life completely. It constantly read and seamlessly recorded his health status into his electronic health file stored in the cloud and available to all of James' health care team. Behind the scenes, James' "guardian angel" software was constantly monitoring and analysing his health status against the benchmarks that his GP and cardiologist had conjointly developed as part of his overall health plan. This meant that he no longer had to physically present himself for regular tests to monitor his vital health measures. This had saved him around \$30,000 over the past 5 years, but equally as importantly, it meant that he had the freedom to travel to remote places and still be confident that, if something went amiss, he would be alerted via the connection to his digital personal assistant, Jacobi. Jacobi had also proved to be invaluable for James providing continuous personal organisational support including such things as reminders about what he had coming up. When James thought back to his life prior to the installation of his microchip and Jacobi, he was amazed at the incredible advances in technology and the benefits that they brought to his life.

Never was this new world of interconnectivity and support more apparent than when, 6 months ago, Jacobi received an alert from James' "guardian angel" advising that his heart was showing signs of deterioration despite the fact that he hadn't felt any different himself. Jacobi advised James that there was an issue. Jacobi had also proactively made a video link appointment for James with both his GP

and cardiologist to discuss his situation - some thickening of the walls of his heart, some general enlargement of his heart muscle cells and a fluid build-up in his lungs.

Overall, James' situation wasn't promising. James cardiologist advised him that his situation was becoming quite dire and that he may, at some stage over the next two years, require a new heart. Although he didn't like what he was hearing, James was reassured by his cardiologist that due to the significant innovations in bio-technology that there was a very positive future. Nevertheless, they needed to start the process of planning for James to be provided with a new heart without delay.

James initial thoughts were that he would need to be put on a waiting list for a transplant from a donor. However, his cardiologist advised him that, these days, there was a better option, that being for him to have a new immunological matched heart created from his own stem cells using 3D printing technology. This was a safer option and would also provide him with a better longer-term quality of life. The process to completely re-constitutionalise James' new heart would take around 12 months with the benefits being that there were no rejection issues and that, once the surgery was completed and he recovered, James would be able to lead a full and normal life.

The next 12 months went by pretty quickly, though not without some anxious moments. About nine months after the process of creating James new heart from his own stem cells had commenced, Jacobi had woken James in the middle of the night. James had been having difficulty breathing while he was asleep and Jacobi had received an alert from James' "guardian angel" software signalling a need for immediate action. Simultaneously, James' "guardian angel" software had alerted his local hospital and had called the local ambulance service. Although he was anxious, he was comforted by the fact that Jacobi had confirmed that the ambulance had been called, would be arriving in 10 minutes and that the emergency health care team at his local hospital was already preparing for his arrival. When the paramedics arrived, they gave James oxygen and stabilised him for the trip to the hospital. They didn't need to take his vitals because these had been fed automatically into his electronic health file to which they had access.

The trip to the hospital took 7 minutes. James' emergency health care team (including the emergency cardiologist via video link) had a full picture of his condition prior to the ambulance arriving at the Emergency Dept. James' septum had thickened and was bulging into his left ventricle which was restricting his blood flow through his heart to the rest of his body. They also knew that James' new stem cell created heart was still three months from being completely constituted and ready for insertion. By the time the ambulance arrived, the decision had been taken by James' emergency cardiologist to prepare him for keyhole septal myectomy surgery by the hospital's robotic cardio thoracic surgeon to remove part of his thickened septum. The advances in septal myectomy surgery over the past 10 years had been enormous. Back in the mid-2020's, septal myectomy required full open-heart surgery with a recovery period of between 2 and 6 months. Two weeks after James' keyhole robotic septal myectomy surgery, he was back to living his normal life having only had to spend 2 days in hospital. Incredible, James thought to himself, now I just need to prepare myself for my new heart.

Three months later, James' new heart had been created using a 3D printer from his own stem cells. On this occasion, due to only a limited number of "own" heart replacement surgeries having been undertaken (though all successful to date), James' cardio thoracic specialist performed this surgery himself though he envisaged that it would only be a couple of years before this surgery too would also be performed using robotics. Thankfully, everything went exactly as expected. James new heart kicked in as soon as it was in place.

James was also pleased with the fact that he only had to spend five days in hospital. As part of his recovery plan, he was able to move into the MediHotel adjacent to the hospital where he was able to continue with his recovery in a lower cost environment with more personalised care which was a significant benefit for James as he lived on his own. After his 2 weeks at the MediHotel, he continued to receive personal care in the comfort of his own home via the local community care organisation.

His recovery went smoothly with no issues of concern and he was able to go back to living a normal life within 6 months of the surgery. And, the even better news was that with his new heart, his cardiologist had advised him that he was unlikely to have any cardiomyopathy issues for the rest of his life.

A Future State Model for WA Health

Governments across Australia and the world are grappling with the challenge of making their health care systems sustainable. The challenge of sustainability exemplifies the inevitable trade-offs between ever-increasing community expectations, rising health care costs and limited resources.

The pressures on the health care system will not be met with incremental change or a piecemeal approach. Advances in technology and research in all industries, including the health industry, have been significant over recent years, and the pace of innovation and change is accelerating and ongoing. The real opportunity through this Sustainable Health Review lies in envisaging a better (and bolder) future, leveraging advances in technology, working in partnership and transforming the WA health system.

For the purposes of this submission, Health Support Services has envisaged a future state model (Figure 1) for WA Health. It is acknowledged that, although work is currently underway for some of the elements of this model, as a framework, it provides a useful structure to define strategy and implement holistic change for better outcomes.



Figure 1 – A Future State Model for WA Health

At the top of the model are three overarching principles which represent the 'triple bottom line' for sustainable health: *Improved Health*, *Safe and Quality Care*, and *Better Value*. The 'triple bottom line' is achieved through improving the health of all Western Australians (*Prevent*), providing safe, quality care when and where needed (*Treat*), and optimising and sustaining ongoing health (*Sustain*). These outcomes represent an integrated continuum of care covering healthy lifestyles, prevention, diagnosis, treatment, recovery and home care.

To achieve these outcomes, we have identified six strategic imperatives for the WA health system: *Healthier Communities*; *Whole of Society Partnerships*; *Safe, Accessible and Quality Health Care*; *Internet of Health*; *Transformational Leadership*; and *Efficient Support*. In the body of this submission, we provide further explanation of each strategic imperative and specific recommendations across short-term, medium-term and long-term time horizons.

Summary of Recommendations

The 12 recommendations made in this submission are summarised below. The consolidated detail across short-term, medium-term and long-term time horizons is provided in Appendix 1.

Healthier Communities



Developing healthier communities and reducing demand on health institutions by focusing on preventative health, providing alternatives and increasing community awareness

Recommendation 1: Focus investment on prevention and promotion.

Recommendation 2: Reduce demand on health institutions.

Whole of Society Partnerships



Creating an ecosystem of partnerships, leveraging expertise across the private and public sectors to deliver innovation and safe, quality care

Recommendation 3: Foster and focus on WA health innovation hubs.

Recommendation 4: Increase collaboration across the public and private sectors.

Safe, Accessible and Quality Health Care



Providing safe, integrated, consistent and quality health care when and where needed

Recommendation 5: Implement safe and consistent standards of quality care.

Recommendation 6: Deliver patient-centric integrated health care.

Internet of Health



Transforming the health care experience using artificial intelligence, predictive analytics, machine learning, robotics and augmented reality to deliver health care 'at our fingertips'

Recommendation 7: Develop technology foundations and enable Internet of Health.

Recommendation 8: Develop capability to analyse and use data for predictive purposes.

Transformational Leadership



Embedding transformational leadership and a culture that drives strategy execution and performance excellence across all levels of the WA health system

Recommendation 9: Build a Transformational Leadership capability and change-ready culture.

Recommendation 10: Develop strong governance and financial disciplines.

Efficient Support



Developing an agile operating model with streamlined processes and digitised work practices.

Recommendation 11: Embed an agile and fit-for-purpose operating model.

Recommendation 12: Use technology to streamline processes.

The following sections of this submission provide further explanation of each strategic imperative and its associated recommendations across short-term, medium-term and long-term time horizons.

Healthier Communities



Developing healthier communities and reducing demand on health institutions by focusing on preventative health, providing alternatives and increasing community awareness

The concept of 'healthier communities' is a broad one. Typically, the health of our community extends beyond medical issues. The World Health Organisation (WHO) defines health as: "... a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity."¹ There are many factors that play a part and impact on the health and wellbeing of individuals and society at large, including our physical, social, natural and economic environments. Governments at all levels have critical roles to play in collaborating and coordinating their efforts towards the end goal of creating healthier communities.

Preventative health and health promotion are cost-effective ways to improve the overall health of the population and reduce demand on health institutions. A policy summary paper prepared for the WHO² highlights the growing evidence base of a range of health promotion and disease prevention initiatives that reduce health risk factors, reduce system health costs, and generate additional health and other benefits to society.

The Canadian Public Health Association³ has also highlighted a range of preventative health and health promotion programs that show significant benefits and return on investment (ROI), such as mental health and addictions (3,600%), early childhood and health education and development (800%), workplace health and safety (500%).

Below are some examples that provide further information in relation to these specific areas:

Focus on mental health as a key target area

Few people would argue that mental health is becoming an increasing issue and societal challenge. 45% of all Australians will experience a mental health problem over the course of their lives and one in five will do so in any given year⁴. 75% of mental health problems first appear before the age of 25⁵.

Total government spend on issues related directly to mental health across the country is estimated to be more than AU\$13.8 billion annually⁶. The World Economic Forum has forecast that over the next two decades, the cost of mental illness will exceed the costs of cancer, diabetes and respiratory ailments combined⁷.

The good news is that some robust plans to address these challenges are already underway and the evidence regarding prevention and early intervention programs is significant. For example, there is strong evidence for preventive interventions that combine screening adolescents for early signs of depression and the subsequent provision of brief cognitive behaviour therapy to those identified as being at high risk. Such initiatives have been shown to reduce the incidence of depression in adolescents by 35%⁸.

¹ World Health Organisation. 1948: Preamble to the Constitution of the World Health Organisation, WHO Geneva

² World Health Organisation, Regional Office for Europe. 2013: Promoting health, preventing disease: is there an economic case? – Sherry Merkur, Franco Sassi, David McDaid.

³ Canadian Public Health Association, Ottawa. 2013: Public Health: A Return on Investment
https://www.youtube.com/watch?v=TVZxtuZhN_M

⁴ Slade T., Johnston A., Teesson M., Whiteford H., Burgess P., Pirkis J. & Saw S. 2009: The Mental Health of Australians 2. Report on the 2007 National Survey of Mental Health and Wellbeing. Canberra: Department of Health and Ageing.

⁵ Kessler R.C., Amminger G.P., Aguilar-Gaxiolas S., Alonso J., Lee S. & Ustun T.B., 2007, Age on onset of mental disorders: A review of the recent literature. *Current Opinion in Psychiatry*, 20(4):359–364.

⁶ Medibank/Nous Group. 2013: The Case for Mental Health Reform in Australia: A Review of Expenditure and System Design. Medibank/ Nous Group.

⁷ Bloom D.E., Cafiero E.T., Jané-Llopis E., Abrahams-Gessel S., Bloom L.R., Fathima S., Feigl A.B., Gaziano T., Mowafi M., Pandya A., Prettner K., Rosenberg L., Seligman B., Stein A.Z. & Weinstein C. 2011: The Global Economic Burden of Noncommunicable Diseases. Geneva: World Economic Forum.

⁸ Mihalopoulos C., Vos T., Pirkis J. & Carter R. 2012: The population cost-effectiveness of interventions designed to prevent childhood depression. *Pediatrics*, 129:1–8. doi: 10.1542/peds.2011- 1823.

Early childhood health education

Research shows that starting the education process in early childhood settings develops good healthy lifestyle habits which are more likely to continue in later life. For example, the US National Forum on Early Childhood Policy and Programs has found that high quality early childhood programs can yield a US\$4 - US\$9 dollar return per US\$1 invested⁹.

Workplace health promotion programs

Workplace health promotion programs cover occupational health and safety programs, the promotion of healthy lifestyles, and various non-occupational factors such as family welfare, home and commuting conditions, and other community factors which affect the health and wellbeing of workers.

A systematic review of the literature¹⁰ on the return on investment of workplace health promotion programs undertaken by Baxter and colleagues and reported in the American Journal of Health Promotions¹¹ shows an overall weighted ROI of US\$2.38 returned for each US\$1 invested.

Extending health institution services and increasing community awareness of other options

Based on the empirical evidence conducted over a multitude of studies, it is evident that well-structured, properly targeted preventative health and health promotion programs will have a positive impact on improving the health of the community and therefore reduce the demand on health institutions.

In addition to preventative health and health promotion programs, there are also other actions that can be taken to reduce acute clinical demand and attendances on Emergency Departments (EDs) such as:

- Extending Health Services to the Community

Minor Injury Units and Urgent Care Centres (UCCs) are common features across health systems in several countries. In WA, moves are already afoot to establish UCCs at hospital sites and in the community to reduce the pressure on EDs, reduce the time people need to wait to access care, and to deliver more responsive and appropriate care for non-life-threatening conditions.

In the UK, the National Health Service (NHS) operates a number of Minor Injury Units and Urgent Care Centres in key locations across the country. These units are usually led by nurses and were set up with the specific intention of reducing demand in hospital Accident and Emergency Departments.

Research undertaken on behalf of the NSW Department of Health¹² concludes that after-hours services have a positive impact on acute care utilisation.

Other research indicates that the quality of patient care provided by 'nurse led' after-hours units is not negatively impacted by the absence of a General Practitioner (GP) on-site to treat patients¹³.

- Increasing community awareness of other options available to them.

Due to the often-stressful nature of accidents and emergencies, and the general knowledge that health institutions are resourced to deal with most incidents when they occur, the default position and first thought for many in the community when confronted with an accident or emergency is to proceed to the nearest hospital ED.

The national Health Direct, an after-hours GP helpline, was added to the nurse triage and advice services in Australia in July 2011 with the intention of improving access to GP advice after hours.

⁹ The Centre for High Impact Philanthropy. 2015: University of Philadelphia.

¹⁰ 51 studies, 61 intervention programs, 261,901 participants and 122,242 controls from 9 industry types in 12 nations over 28 years

¹¹ Baxter S, Sanderson K, Venn AJ, et al. The relationship between return on investment and quality of study methodology in workplace health promotion programs. American Journal of Health Promotions. 2014, Vol 28: 347–363.

¹² Margaret Fry. University of Technology, Sydney, 2008, on behalf of The Sax Institute and the NSW Department of Health.

¹³ J. Dale, B Dolan. 1995: Do Patients Use Minor Injury Units Appropriately? UK Journal of Public Health Medicine, Vol. 18.

Research conducted by Rosemary McKenzie in 2013¹⁴ concludes that although the service is rated highly by the community who have used it, the vast majority of the community have little awareness of its existence. 28% of respondents to the national survey were aware of the after-hours GP hotline when prompted with a list of telephone services providing health advice and less than 1% was aware when not prompted.

This research shows that there is a significant opportunity to create greater awareness of the Health Direct service and therefore reduce the number in the community attending hospital EDs.

There may also be opportunities to consider alternative payment structures that incentivise annual health checks and use of hospital alternatives, and disincentivise opt-out of 'My Health Record' (individual's digital health record). These financial levers would reinforce the pursuit of healthier lifestyles, alternative treatment options and the value associated with centralised health records.

The specific recommendations for *Healthier Communities*, across short-term, medium-term and long-term time horizons, are summarised in the table below.

Recommendation 1: Focus investment on prevention and promotion		
Short-term	Medium-term	Long-term
- Review current initiatives being undertaken on health promotion and prevention to determine ROI. - Develop plans for increased investment on prioritised future initiatives focusing on key targeted areas.	- Implement and monitor initiatives as part of a holistic program of work. - Establish benchmarks for future investment consideration.	Continue to invest in initiatives where returns meet established benchmarks.
Consider options (e.g. cost sharing incentives) and develop a plan that promotes and encourages individuals to create tailored health plans in conjunction with their primary health care provider.	- Implement selected alternative payment structures that incentivise preventative behaviours (e.g. free annual checks for those who participate in preventative health programs). - Evaluate benefits achieved from selected alternative payment structures.	Consider and implement additional programs that incentivise preventative behaviours.
Develop a plan to engage and encourage the community to be involved in prevention initiatives using technology and data analytics (e.g. usage of wearable technology to track individual health statistics).	Build the capability and resources to analyse individual and community health data (refer to Internet of Health section).	Implement predictive data analytics that enables individuals to monitor their health and provides proactive alerts when key health indicators are outside set parameters.

¹⁴ Rosemary McKenzie. 2016: Consumer Awareness, Satisfaction, Motivation and Perceived Benefits from using an after-hours GP helpline: The Royal Australian College of General Practitioners, AFP Vol 45, No 7.

Recommendation 2: Reduce demand on health institutions

Short-term	Medium-term	Long-term
- Develop a plan that sets targets to increase awareness, promotion and usage of alternative triage screening options (e.g. Health Direct, online / web chat). - Conduct research to set a baseline awareness measure and set target for improvement.	- Track and monitor progress in lifting awareness and usage of alternative triage screening options. - Refine plan and investment according to success of promotional activities. - Review and revise benchmark targets for usage.	Reinvigorate efforts to support the community's awareness and use of relevant triage screening options.
- Build on the work and pilot program that has commenced at Royal Perth Hospital (RPH) in relation to the establishment and promotion of Urgent Care Centres in selected locations. - Set performance benchmarks for the pilot program.	- Track and monitor progress of the pilot program against performance benchmarks. - Based on outcomes, determine expansion plans for further Urgent Care Centre in appropriate locations. - If appropriate, establish additional Urgent Care Centres.	With Urgent Care Centres having helped support reduced demand on EDs, review and scale back ED requirements where appropriate.
- Review initiatives and plans aimed at addressing whole of society issues (e.g. the increasing drug related problems and the impact on hospitals). - Consider alternative actions and develop new plans to address whole of society issues.	Continue to work with other government departments and agencies to review and address progress on whole of society issues (e.g. drug use, mental health, smoking, chronic disease) and continue to reduce demand on health institutions.	With most whole of society issues having been adequately addressed and trends heading in the right direction, reduce investment in initiatives to sustainable levels.

Whole of Society Partnerships



Creating an ecosystem of partnerships, leveraging expertise across the private and public sectors to deliver innovation and safe, quality care

A 'whole of society' partnership approach is a way of working where the private and public sectors collaborate to deliver higher quality and safer health at an acceptable cost.

Adopting a whole of society partnership approach has two primary benefits, including:

- Leveraging resources and expertise to deliver higher quality outcomes; and
- Avoiding duplication of effort.

Although a whole of society approach has the potential to address the challenges facing health systems around the world, the engagement and involvement of multiple parties across diverse industries will undoubtedly require stronger, more coordinated, centrally driven leadership (see also Transformational Leadership section). This will involve having:

- A clearly articulated strategy, vision and culture for the future;
- A united focus on delivering and embedding sustainably successful outcomes; and
- The ability to involve, incentivise and pro-actively engage with the right partners and all involved.

A sustainable health system will not be achieved in isolation. Success relies on an 'ecosystem' where stakeholders are all working together to put patients first and deliver safe and quality care. Without all parts of government, non-government and private sectors working together to prevent illness, promote healthier choices, provide safe and quality care and support post treatment care, it is unlikely that sustainability will be achieved. This ecosystem provides an opportunity for collective research, problem solving and innovation, leveraging each sector's expertise, and eliminating fragmentation and silos.

Establish innovation hubs

In 2016, the previous WA government developed an innovation strategy to drive economic diversity and support the commercial success of WA ideas. Although the current WA government is reviewing this strategy, the need for ongoing innovation in today's ever-changing and complex world remains important as does the need to develop a robust commercialisation process.

Innovation hubs facilitate the process of bringing people together to share ideas and information, learn and ultimately benefit the whole community by expanding our economy¹⁵. Successful innovation achievements within the WA community include Dimerix, an organisation created to discover and develop new therapeutics¹⁶. This organisation is a spin-out company of University of Western Australia, a venture capitalist, a public listed company and Harry Perkins Institute of Medical Research.

The Queensland State Government has also recently released a Health Digital Innovation Strategy¹⁷ which highlights the benefits that innovation provides. More importantly, it provides an approach to executing and delivering specific outcomes as well as a list of innovation initiatives including hackathons, data innovation and an innovation portal (see also Internet of Health section).

Another example of an innovation hub is the [National Energy Resources Australia \(NERA\)](https://www.nera.org.au/)¹⁸ established by the energy resources industry to grow collaboration and innovation between

¹⁵ Government of Western Australia. 2017, <https://www.innovation.wa.gov.au/>

¹⁶ Government of Western Australia. 2017, <https://www.innovation.wa.gov.au/showcase/dimerix>

¹⁷ Queensland Health. 2017: Digital Innovation Strategy – Mainstreaming Innovation.

¹⁸ NERA. 2017, https://www.nera.org.au/Category?Action=View&Category_id=86

companies, regulators, academia, and entrepreneurs. It has been formed to improve productivity, direct research and development (R&D), deliver future work skills and promote fit-for-purpose regulation. NERA's Innovation Voucher program, in its first 9 months of operation, has already delivered some successful projects. One such project addressed workplace safety challenges for back and muscular-skeletal injuries using low-cost wearable sensors¹⁹.

WA Health is planning to establish an innovation fund and a hub at Royal Perth Hospital. By building on these plans or by leveraging the existing WA government innovation hub, WA Health can focus on and develop selected innovation ideas, incentivise participation and commitment, and support partnerships through a collaborative platform.

Leverage academia through research and development

Academia can provide much needed research and development, knowledge, experience, a pipeline for the workforce and a facility for innovation. One way to increase leverage could be to identify big issues that need to be resolved and to incentivise academia to find solutions, possibly in partnership with other stakeholders.

Examples of successful collaboration with academia are currently underway. Cisco's [Innovation Centre Perth](#)²⁰ established by Curtin University and Woodside, brings together start-ups, industry experts, developers and researchers in an open environment to create innovative solutions that foster growth, provide jobs and help build sustainable economies. Innovative solutions specific to health care could be developed through this Centre.

Another example is the NSW government's [Partnership Centres](#)²¹ which is collaboration between University of Notre Dame Australia, BUPA and NSW Health. This organisation provides implementation support for research-informed changes, undertakes collaborative new research that is cross-sectoral and inter-disciplinary, and builds capacity to use research as part of change management.

Align with federal and state government initiatives

Over the past decade, the Federal government and other State governments have conducted several reviews and are implementing initiatives that aim to enhance their health systems. Examples include the [Australian Digital Health Agency](#)²² responsible for using data and technology, the [NSW State Health Plan towards 2021](#)²³, [Victoria Health 2040](#)²⁴, and [Queensland Hunter Review](#)²⁵. There are significant benefits and opportunities available for governments at all levels to work more closely together, and avoid duplication of effort and resources.

The National Digital Health Strategy Framework for Action, approved by the Council of Australian Governments Health Council in August 2017²⁶, has outlined a strategy to put the consumer at the centre of health care and provide choice, control, and transparency. The framework includes a road map to deliver:

- My Health Record – availability of health record whenever and wherever needed;
- Secure Messaging – secure exchange of clinical information between health care professionals;
- Interoperability and Data Quality – high quality data including standards that are commonly understood;
- Medication Safety – better availability and access to prescriptions and medicines;
- Enhanced Models of Care – digitally-enabled models of care;

¹⁹ NERA. 2017, https://www.nera.org.au/Chapter?Action=View&Chapter_id=20

²⁰ CISCO. 2017, <http://research.curtin.edu.au/institutes-centres/cisco/>

²¹ Health System Sustainability. 2017, <http://www.healthsystemsustainability.com.au/about-us-2/purpose-of-nhmrc-partnership-centres/>

²² Australian Digital Health Agency. 2017, <https://www.digitalhealth.gov.au/about-the-agency>

²³ NSW Health. 2017, <http://www.health.nsw.gov.au/statehealthplan/Pages/NSW-State-Health-Plan-Towards-2021.aspx>

²⁴ Victoria Health. 2017, <https://www2.health.vic.gov.au/about/publications/policiesandguidelines/Health-2040-advancing-health-access-and-care>

²⁵ Queensland Health. 2017, <https://publications.qld.gov.au/dataset/hunter-review>

²⁶ Australian Digital Health Agency. 2017: Framework for Action.

- Workforce Education – confident use of technology by workforce; and
- Drive Innovation – delivery of world-class health care through innovation.

Similar themes of usage of collaboration, technology and quality are outlined in this framework. It will be important for WA Health to work closely with the Australian Digital Health Agency (ADHA) to deliver sustainable outcomes without duplication of effort and cost by focusing on a consistent set of priorities.

Partner with the Private Sector and Not for Profit (NFP) organisations

The idea of collaborating and partnering with the Private Sector and NFPs is already well ingrained in the WA health system. Some examples include:

- CarePoint Program – with Medibank and HBF Health;
- Silver Chain Home Hospital initiative;
- Secondary Triage Line – with St John Ambulance;
- Residential Care Line – with Residential Aged Care Facilities; and
- Private Public Partnerships (PPP) such as those at Joondalup Health Campus (with Ramsay Health Care), Midland Public Hospital (St John of God), Fiona Stanley Hospital (with Serco), Emergency Transport and other ambulance services (with Royal Flying Doctor Service and St John Ambulance). Though significant challenges are being experienced, this should not deter WA Health in further exploring PPP opportunities.

Collaboration with the NFPs and private sectors can be further improved through delivering more targeted health programs such as preventative initiatives on remote areas where it is much needed, co-developing innovative solutions for medical purposes and enabling processes, and funding health-related research.

The specific recommendations for *Whole of Society Partnerships*, across short-term, medium-term and long-term time horizons, are summarised in the table below.

Recommendation 3: Foster and focus on WA health innovation hubs		
Short-term	Medium-term	Long-term
• Develop WA health innovation strategy, set priorities, common goals and align them with the operating model (refer to the Efficient Support section). • Establish (as planned) the health research and innovation hub that will facilitate and enable collaboration between stakeholders. • Develop program of work to deliver innovation strategy priorities and goals through various initiatives (e.g. robotics for picking and packing at warehouses, predictive analytics for preventative care). • Provide resources and support to implement initiatives.	• Deliver innovation program of work and assess ROI. • Expand initiatives to include more advanced health solutions such as augmented reality and Watson Health. • Ensure that processes and systems capture and realise benefits expected and available from new initiatives. • Develop a template of project delivery based on successful initiatives.	• Embed project delivery of innovative solutions across the health system. • Establish innovation hubs in regional areas. • Benchmark innovation hubs with international public health collaboration hubs, and continuously improve. • Work with the international health community to implement standardised medical taxonomy (refer to the Internet of Health section).

Recommendation 4: Increase collaboration across the public and private sectors

Short-term	Medium-term	Long-term
• Develop collaboration framework, process and strategy. • Identify key players from academia, NFPs, suppliers, private sector and other government agencies to collaborate and work on solving key health problems (e.g. NERA for WA resources industry). • Develop program of work to deliver significant improvements based on collaboration, targeting key focus areas (e.g. prevention, mental health, regional centres). • Leverage national capabilities and programs (e.g. ADHA, the Digital marketplace). • Conduct a hackathon with key stakeholders focusing on key themes of Prevent, Treat and Sustain.	• Deliver program of work. • Report and reinvest benefits realised. • Collaborate and work with other state Health Departments to better leverage limited resources (e.g. joint investment in systems development).	• Benchmark ecosystem and partnership forums with international public health collaboration hubs, and continuously improve. • Leverage international, national and state capabilities and resources.
• Review Public Private Partnerships initiatives, identify any improvements that can be adopted.	• Develop strategies to attract more private sector investment in health.	• Extend and deliver private sector investments in health.

Safe, Accessible and Quality Health Care



Providing safe, integrated, consistent and quality health care when and where needed

In a recent study²⁷ by American researchers comparing the health care systems across 11 high income countries, Australia's health care system was rated among the best in the developed world and second only to the United Kingdom. Importantly, Australia was ranked the number one country for health care outcomes and administrative efficiency and ranked second for its care process. In addition to being among the best in the developed world, Australia also ranks favourably in terms of low health care spending as a percentage of GDP²⁸.

However, with significant advances in technology and consumer expectations rising exponentially, the pressures to deliver ever-increasing higher levels of safe, accessible and quality health care at a reasonable cost are going to continue. In addition, there are significant disparities across the community with those living in low socio-economic conditions, those living in regional and remote locations, and the poorer health of indigenous Western Australians.

Consistent standards

A review undertaken by Lord Carter of Coles²⁹ from 2014 to 2016 looked at what could be done to improve efficiency in hospitals in the UK. The review reported widely varying resource utilisation across the NHS and estimated that at least £5 billion or around 10% could be saved by acute hospitals by reducing unwarranted variation (see breakdown of saving opportunities by area of cost in Figure 2 below).

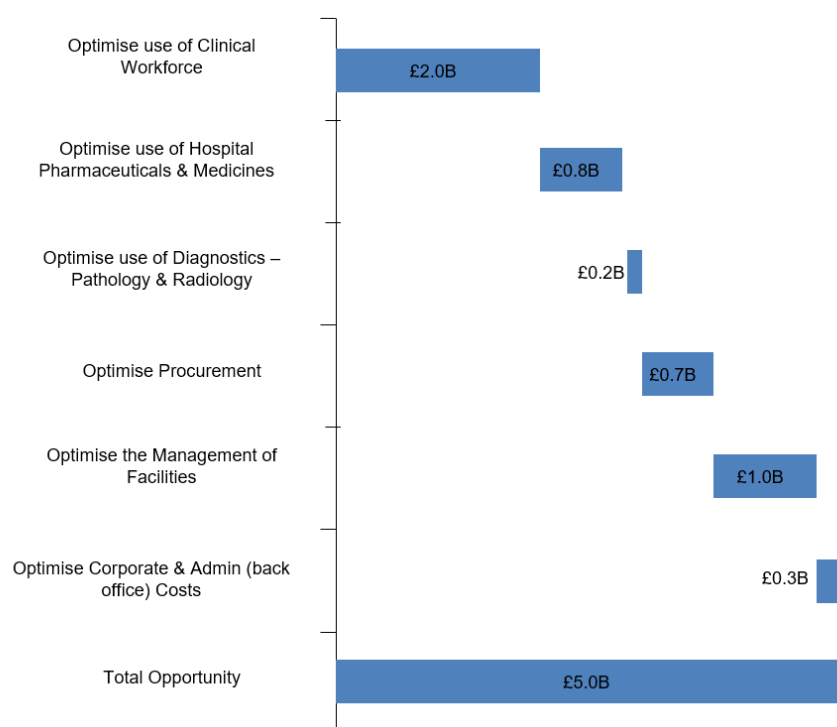


Figure 2 – Breakdown of Opportunities in NHS by Cost Area

²⁷ Mirror, Mirror. 2017: International Comparison Reflects Flaws and Opportunities for Better U.S. Health Care - Eric C. Schneider, Dana O. Sarnak, David Squires, Arnav Shah, and Michelle M. Doty.

²⁸ OECD Health Data. 2016: Data are for current spending only, and exclude spending on capital formation of health care providers.

²⁹ Lord Carter of Coles. 2016: Operational productivity and performance in English NHS acute hospitals: Unwarranted Variations - an independent report for the Department of Health.

An approach like that adopted by Lord Carter of Coles could be implemented across the WA health system to define the 'Model Hospital', create greater standardisation and provide consistent standards of care with reduced clinical variations through:

- The provision of high quality clinical care and good resource management;
- Having a clear, consistent approach to monitoring and managing the performance of all Health Service Providers (HSPs) against the 'Model Hospital'; and
- By moving those who are medically fit into settings that are more appropriate for the delivery of their care or rehabilitation.

Patient Safety

A constant theme in this submission is the significant opportunity that exists to leverage advances in technology to support more tailored, patient centric and better health care at a lower cost. Patient safety is another critical element in the health care transformation equation.

With proper design, implementation, and use, the opportunity exists for technology to reduce medical errors and improve quality care. Although the use of technology presents many new opportunities to improve patient care and safety, it can also create new risks and opportunities for error. It is therefore vital that, the risks associated with its use are identified and managed effectively to ensure that patient safety is not put at risk.

To this end, a safety and quality reform program is currently underway to ensure that all HSPs have safety and quality care built into their governance processes and play their role in developing plans to implement the recommendations proposed in the review undertaken by Professor Hugo Mascie-Taylor³⁰.

Integrated health care

The WHO defines integrated health care as “the organisation and management of health services so that people get the care they need, when they need it, in ways that are user-friendly, achieve the desired results and provide value for money³¹.”

In a nutshell, integrated health care is about providing the right care, in the right place, at the right time, by the right health care professionals, at the right cost (see Figure 3).

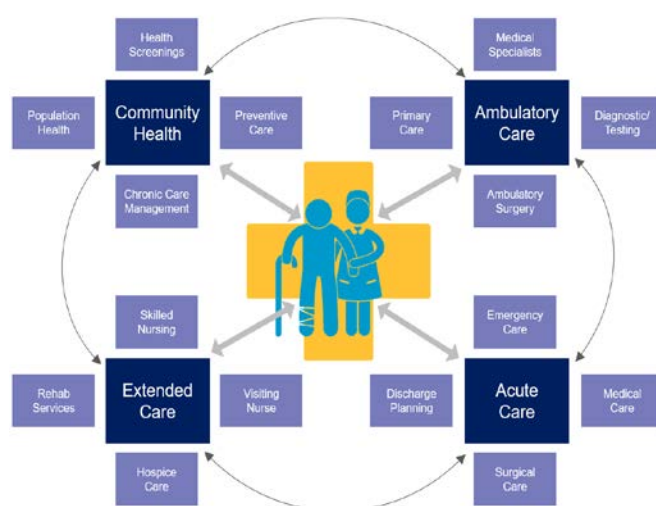


Figure 3 – Integrated Health Care

³⁰ WA Department of Health. 2017: Review of Safety and Quality in the WA Health System – a strategy for continuous improvement.

³¹ WHO Technical Brief No 1. 2008: Integrated Health Services – What and Why?

We acknowledge that reforms are challenging given the multitude of stakeholders and complexity of the relationships. We also acknowledge that progress is being made and support the actions already underway to develop more coordinated and integrated health care. This includes the establishment of MediHotels, the Emergency Telehealth Service available in regional WA, and additional focus on other community health services including the provision of health care in the home.

In addition, there are opportunities to rethink how the entire health profession is better organised to work more collectively (e.g. both horizontal and vertical integration). Horizontal integration is the linking together of similar levels of care across multi-professional teams (e.g. GPs and Pharmacies). Vertical integration is the linking together of different levels of health care (eg. primary, secondary, and tertiary care). With growing interconnectivity, improvements in telecommunication infrastructure and increasing community expectations for more convenient access to health care, there is a significant opportunity to broaden and widen the use of Telehealth services regardless of patient location.

The specific recommendations for *Safe, Accessible and Quality Health Care*, across short-term, medium-term and long-term time horizons, are summarised in the table below.

Recommendation 5: Implement safe and consistent standards of quality care		
Short-term	Medium-term	Long-term
Define the 'Model Hospital' (refer to the work of Lord Carter of Coles on the UK, NHS) to set benchmark standards across WA public hospital.	Develop and implement a performance improvement program to ensure HSPs are achieving benchmark standards against the 'Model Hospital.'	Standardise and create consistent levels of safe and quality care by reducing clinical variations.
Continue to work with other States and national agencies to develop plans that align WA health safety standards with the National Safety and Quality Health Services (NSQHS) Standards and the Australian Digital Health Agency ADHA).	Develop processes, systems and risk management controls to implement WA health safety standards that are aligned to the national standards set by the NSQHA and the ADHA.	As new technologies and new health care service options are introduced, ensure that processes, systems and risk management controls continue ensure and have patient safety as the primary focus.

Recommendation 6: Deliver patient-centric integrated health care

Short-term	Medium-term	Long-term
Develop future state-wide step up / step down plan to ensure that patients receive the right health care, at the right time, in the right place, by the right health care professionals at the right cost (including MediHotels, Hospital in the Home Care).	Implement future state-wide step up / step down plan to ensure that patients receive the right health care, at the right time, in the right place, by the right health care professionals at the right cost.	As integration of step up / step down plan is implemented and the community changes its way of interacting with clinicians and hospitals, review facilities available to public and reduce scale or close those that are no longer required.
- Review plan (including setting future targets) to increase the awareness and use of the different health care service options available to patients (self-service portal, eHealth, Telehealth). - Review and extend plans to increase Telehealth services to remote regional communities, including to indigenous Western Australians. - If not already on the agenda, work with the Council of Australian Governments (Health) to develop a plan that ensures that Telehealth services receive the same patient Medicare support as a face to face GP visit.	- Continue to implement plan to increase the awareness and use of the different health care service options available to patients. - Review plans and progress against benchmark targets; refine plans and reinvest to ensure they are producing expected returns.	Continue to work towards everyone in the community knowing and using the right health care professionals, in the right location or via the most convenient technology, at the right time and at the right cost.
Develop a plan that sets the priorities and path to integrate the foundations necessary for future advances in technology and community expectations (see also Internet of Health section).	Invest in technological innovations that enable better and safer clinical and health care solutions for the community (e.g. 3D stem cell printing, robotic support for clinicians, augmented reality).	Use advances in technology to implement tailored health solutions that continually improve the safety and quality of end-to-end patient care.

Internet of Health



Transforming the health care experience using artificial intelligence, predictive analytics, machine learning, robotics and augmented reality to deliver health care 'at our fingertips'

Research indicates that in 10-20 years, both patient and carer experience in health care will have significantly changed due to technology. Artificial intelligence, predictive analytics, machine learning, robotics, big data, econometrics, and augmented reality (the Internet of Health) are some of the technological advances that will significantly disrupt the traditional way of care. The Internet of Health (Internet of Things) will provide the integration and connectivity of such technologies. Patients will be better informed about their health based on readily available data, will have better control of their care, will have a more accessible health system and will be offered different care options. In addition, health care professionals will have information at their fingertips enabling them to spend more time with patients and provide safer and better-quality care.

In 2014, McKinsey conducted research on the economic value of digital technologies in health care. The research found that the use of digital channels and patient self-management solutions produced net economic benefit of 7-11% of total health care spending³².

Innovation strategy to deliver Internet of Health

To enhance the health care experience and drive new efficiencies, digitisation must be considered as a cornerstone in successfully delivering innovative health solutions. This is possible through a clearly articulated strategy around digitisation, innovation and research. This strategy should include a vision on how digitisation supports the WA Health Strategic Intent 2015-2020³³, how new technologies and skills can be embraced to adopt new ways of providing service, and how big data can be used to inform and make better decisions.

The Queensland government, in its Health Digital Innovation Strategy, has stated that exponential growth in technology and delivering value to its customers can be done through digital innovation. eHealth Queensland outlines its definition of innovation, articulates its vision, and describes its approach to setting priorities, assessing risk and managing its proposed work program³⁴.

The principles and approach outlined in the Queensland government's Health Digital Innovation Strategy may be useful in guiding, extending and building on the innovation strategy developed by the previous WA government, particularly in relation to setting common goals, providing clear direction, articulating accountabilities, and prioritising initiatives (e.g. focusing on 10-20 key initiatives).

In line with delivering patient-centric solutions, it will also be important to consider the specific nature of different health issues (e.g. obesity, aboriginal health and drug use) and to tailor appropriate clinical and non-clinical technology solutions to address them.

Digital information management and having information that can be used as the 'single source of truth' is important to ensure accessibility to current, accurate and relevant information whenever and wherever required. It will also be critical to ensure that open system architecture is adopted to enable integration of all technology applications and that information can be securely shared with internal and external stakeholders.

Given the significant and ongoing changes that will take place in the innovation and technology areas, a review of resourcing (both funding and people) and capabilities will be necessary to support and ensure the successful delivery of agreed key priorities.

³² McKinsey&Co. 2016: ehealth 2.0 How health systems can gain a leadership role in digital health.

³³ WA Department of Health. 2017, <http://www2.health.wa.gov.au/About-us/Strategic-Intent>

³⁴ eQueensland Health. 2017: Digital Innovation Strategy – Mainstreaming Innovation.

Aside from establishing innovation hubs (refer to Whole of Society section), below are some examples on how digitising health care positively impacts patients, clinicians and carers:

Pro-active management or early detection of illness

Technology applications through phone apps and wearables are already beginning to be regularly used to collect health and lifestyle data, perform analytics and provide alerts for treatment. Wearable vests are also being used to remotely monitor patients, prevent serious incidents, assist in learning different activities that will increase or reduce occurrence of repeat traumas and prevent life-long or chronic conditions.

In the UK, the NHS uses the [Streams App](#)^[1] to provide early detection of kidney problems of a patient, alerting specialists, enabling them to respond within minutes rather than hours. Streams App allows nurses to access all relevant information through the app eliminating the need to check information from various systems, while providing a mechanism to monitor kidney function remotely. In addition to helping to save patient's lives, Streams App has also reduced nurse's work time by up to two hours each day thus allowing more face-to-face consultation with patients.

[IBM Watson](#)³⁵ collaborated with private companies to develop an app that provides hypoglycaemia warnings based on blood glucose patterns. It has been reported that the app predicted events three hours in advance 80% of the time.

Patient-centric care using artificial intelligence, machine learning and predictive data analytics

[IBM Watson Health](#)³⁶ is also supporting and transforming clinician's use of data to provide evidenced-based treatment options. This ultimately results in safer and better-quality care with a reduction of variations. The technology allows the clinicians to stay up to date with growing research and development, use predictive data analytics to develop safer and better care management plans, and provides accessibility to information anytime wherever it is needed. Predictive analytics leverages machine learning by reading, recording and interpreting big data via the use of algorithms.

Barrow Neurological Institute applied [IBM Watson](#) for drug discovery identifying five novel Ribonucleic Acid (RNA) binding proteins altered in Amyotrophic Lateral Sclerosis (ALS). The technology could predict those most likely to be involved in the disease from nearly 1,500 candidate proteins³⁷.

The European Commission published recent research on [Guardian Angels technology](#)³⁸ which is an intelligent, autonomous systems-of-systems featuring sensing, computation and communication beyond human aptitudes. [Research](#)³⁹ included the use of this technology to model the biology of every patient while using data analytics to tailor patient health care needs. This includes aspects of medication, monitoring early symptoms and rehabilitation. In the future, the expectation is that this technology will provide individuals with ultimate control of their wellbeing.

Augmented reality in clinical and consultation use

The use of [augmented reality](#) (AR)^[1] and HoloLens technology provides clinicians with accurate three dimensional images projection of the human body prior to commencing surgery. This helps to inform clinicians as to the best and safest approach to complex interventions providing patients with superior outcomes and faster recovery times.

[1] Royal Free London, NHS Foundation. 2017, <https://www.royalfree.nhs.uk/news-media/news/new-app-helping-to-improve-patient-care/>

³⁵ Diabetes Community. 2016, <http://www.diabetescommunity.com/news/2016/01/smartphone-app-predicts-hypoglycemia-three-hours-advance.html>

³⁶ IBM Watson Health. 2017, <https://www.ibm.com/watson/health/>

³⁷ IBM. 2016, <https://www.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=HLW03040USEN&>

³⁸ European Commission. 2012, http://cordis.europa.eu/project/rcn/99205_en.html

³⁹ Guardian Angels. 2012, <http://cordis.europa.eu/docs/projects/cnect/6/285406/080/deliverables/001-D31GuardianAngelsEthicsWhitePaper.pdf>

[1] B Mesco. 2017, <https://www.linkedin.com/pulse/mixed-reality-healthcare-hololens-review-bertalan-meskó-md-phd/>

The Australian Breastfeeding Association conducted a trial in 2014 with [Google Glass](#)⁴⁰ that allowed telephone counsellors to see through the eyes of mothers who are struggling with breastfeeding. This resulted in significant improvement in consultation based on the patient's perspective.

[AccuVein](#)^[3] is using AR technology to assist nurses to find veins easier. It has been reported that using AR has improved nurses' ability to find veins on the first attempt by 350%.

Robotics in WA health system

Robotics is also now widely in use to support clinicians. An example is WA Health's allocation of AU\$5 million on a robotic system that will be used to treat prostate cancer called the [da Vinci system](#)⁴¹. It is being established at the Fiona Stanley Hospital to deliver significantly safer and better surgical outcomes and improved patient care.

Integrated health system

There are various systems currently used to manage individual health records. These systems typically have limited interaction with each other. This results in various components of patient health records being held and stored in multiple, stand-alone systems with no single system nor the patient having holistic access to their health information.

To ensure that information can be shared across the end-to-end health care pathway, and be more efficient, an integrated health system is required. This will make the overall experience seamless from the patient's perspective. An integrated health system is one where different technology systems and applications can communicate, exchange data (including electronic health records), and use the information that has been exchanged. Examples of technologies being used to support integrated health systems include [HIMSS Analytics](#)^[1], [HMS](#)^[2], [Bleen](#)^[3] or [CHKS](#)^[4].

The key to a fully integrated health system will be to ensure that technologies such as these workflow platforms are integrated with digital health records. This will enable secure access of information by the patient and health care professionals at home, at clinics, at hospitals and anywhere else that supports a ubiquitous outcome.

Remote patient and clinician interaction

Cloud-based solutions such as [Cisco spark](#)^[1] are changing the way patients and health care professionals interact and communicate with each other eliminating the need, on many occasions, for face-to-face appointments. These technologies will provide a practical means to address many of the challenges associated with being able to people living in remote communities and will be invaluable in helping to support and improve health outcomes for much of the indigenous Western Australian community.

The above examples are just some of the technologies already being used and/or developed to provide safer and better-quality health care experiences for Western Australians. The key to leveraging the benefits of these advances in technology will be to develop a technology strategy including long-term technology architecture, to provide adequate resourcing and funding, to ensure that open system architecture is fully adopted to enable integration, and to support the delivery and implementation of the National Digital Health Strategy.

⁴⁰ The Medical Futurist. 2017, <http://medicalfuturist.com/augmented-reality-in-healthcare-will-be-revolutionary/>

^[3] The Medical Futurist. 2017, <http://medicalfuturist.com/augmented-reality-in-healthcare-will-be-revolutionary/>

⁴¹ Government News. 2017, <https://governmentnews.com.au/2017/09/public-hospitals-get-robotic-surgical-system/>

^[1] HIMSS Analytics. 2017, <http://himssanalyticsasia.org/>

^[2] HMS. 2017, <http://hms.com.au/>

^[3] Bleen. 2017, <http://bleen.com/solutions/clinics/ontario>

^[4] CHKS. 2017, <http://capitahealthcaredecisions.com/health-analytics/patient-population-health-management/patient-workflow-management/>

^[1] Cisco. 2017, <https://www.ciscospark.com/products/overview.html>

The specific recommendations for *Internet of Health*, across short-term, medium-term and long-term time horizons, are summarised in the table below:

Recommendation 7: Develop technology foundations and enable Internet of Health		
Short-term	Medium-term	Long-term
- Develop an over-arching strategy to enable the delivery of an integrated and interoperable health system, encompassing individual electronic medical records, artificial intelligence, predictive data analytics, augmented reality, big data, robotics, etc. - Develop an implementation strategy including establishing goals, priorities, implementation roadmap, benchmarking, and understanding current state. - Identify key strategic technology service providers to support optimal delivery. - Deliver the strategy based on implementation roadmap.	- Implement integrated health system in stages through the proposed Transformation Office (refer to Efficient Support section). - Ensure that processes and systems capture and realise benefits expected and available from new technologies. - Establish processes and structures that continue to support forward visionary thinking and ensure that new and emerging opportunities are not overlooked.	Continue to invest in new technologies and innovations that provide appropriate return and enable sustainability and enhance the ability to have health care 'at our fingertips.'
- Review and ensure implementation of the National Digital Health Strategy by ADHA. - Work with ADHA and other states to deliver My Health Record. - Prioritise resourcing and funding to support the plan.	Work with ADHA and other states to implement standardised clinical terminology (medical taxonomy).	Review implementation of ADHA locally and nationally. Support ADHA where improvements are identified and requiring improvement action plan.
Recommendation 8: Develop capability to analyse and use data for predictive purposes		
Short-term	Medium-term	Long-term
- Create predictive data analytics strategy including priorities, goals, capabilities and infrastructure requirements. - Identify key problem areas to focus on, where predictive analytics can provide solutions. - Start to build the capability and resources to analyse data.	- Implement predictive data analytics concepts and harvest ROI. - Develop and implement framework and systems to support the analysis of individual and community health related data. - Identify and start working on areas where predictive analysis will support high quality care.	- Use predictive data analytics as the norm for problem-solving. - Use and analyse data as a predictive tool for innovation and to support quality health care and standardisation. - Use machine learning to develop integrated ubiquitous patient monitoring and alerts / advice using predictive data analytics.

Transformational Leadership



Embedding transformational leadership and a culture that drives strategy execution and performance excellence across all levels of the WA health system

The key to providing a sustainable health system is to fundamentally rethink, redesign and transform the way things are done across the WA health system. This change requires transformational leadership, a sharp focus on strategy execution, and a culture of innovation, collaboration and performance excellence.

The primary and secondary data collected to inform this submission confirms that the case for change is well understood across all levels of government. There are many plans for the future health system and many improvement initiatives are already underway. The challenge is to develop a holistic and integrated approach to sustainable health and to execute on that commitment given the complexities of the health environment. Fundamental to addressing this challenge is having the right leadership capabilities at all levels of the organisation to look forward, collaborate, set strategy, provide focus on a clear set of priorities, engage the workforce and successfully execute on the strategy.

These observations are consistent with the findings in the recently released Service Priority Review Interim Report to the WA Government⁴². Similar issues were also highlighted in the NSW Government's Public Service Commission's 2013 discussion paper on 'Creating an Innovative Public Sector'⁴³. One of the immediate priorities identified in this paper was the need for "Leadership engagement leading to cultural change."

Given the significant and ever-increasing advances in technology, the need for a more holistic approach to the problem, and the magnitude and complexity of the changes envisaged to put the WA health system on a sustainable footing, our view is that nothing short of transformational leadership is required. In addition, it will, almost certainly, be necessary to identify and undertake a comprehensive assessment of the skills and capabilities necessary to meet the challenges associated with the significantly different future landscape across the WA health system and to develop a clear, robust plan for tomorrow's workforce.

By transformational leadership, we mean:

- An ability to create an inspiring and clearly articulated vision of what the future looks like from government right across all parts and levels of the WA health system;
- An unrelenting, passionate and united focus on why we exist (our purpose) and our respective responsibilities in delivering the right outcomes for the WA public;
- An ability to involve, motivate and pro-actively engage all relevant stakeholders (the public, employees, suppliers, the private sector, other related government departments, academia and not for profit organisations / agencies);
- The establishment of a culture that encourages collaboration, endeavour, innovation and appropriate risk taking, embraces uniqueness, challenges the status quo, pro-actively supports people to develop and grow, and appropriately rewards and recognises those who make a difference no matter what level and where they may be working; and
- The capability to lead large, complex change programs that deliver successful outcomes, and to embed and sustain the benefits.

This leadership needs to be supported and driven by clear accountabilities, more customer focused (agile) organisational structures, strong governance and financial disciplines.

⁴² WA Department of the Premier and Cabinet. 2017: Service Priority Review Interim Report to the WA Government.

⁴³ NSW Public Service Commission. 2013: Ideas at Work – Creating an Innovative Public-Sector Discussion Paper.

The specific recommendations for *Transformational Leadership*, across short-term, medium-term and long-term time horizons, are summarised in the table below.

Recommendation 9: Build a Transformational Leadership capability and change-ready culture		
Short-term	Medium-term	Long-term
- Define crystal clear future vision for WA health through the Sustainable Health Review. - Ensure the senior leadership team understands their individual and collective roles in unifying and driving the cultural changes necessary to deliver the future vision. - Establish 'Transformation Office' reporting directly to the Director General of Health to lead change program, drive strategy execution, business improvement, performance excellence and innovation. - Design and develop transformational leadership and cultural change program.	- Prioritise resources and focus implementation efforts on the key building blocks for the future vision. - Refine operating model and performance management processes to encourage innovation and support the transformation and cultural change program.	Embed culture of performance excellence, innovation and continuous change across the WA Health.
- Undertake a baseline review across all of WA Health to identify capability gaps and determine readiness for change. - Create plan to address gaps and prepare all involved for the changes ahead. - Develop clear, robust plan for future workforce and capabilities.	- Develop workforce capabilities required to deliver future vision. - Create targeted career pathways and development plans for workforce. - Flatten and modify organisation structures and increase standards of accountability to support reform program.	Embed Transformational Leadership capability at all levels of WA Health.
Recommendation 10: Develop strong governance and financial disciplines		
Short-term	Medium-term	Long-term
- Bed down governance processes and structures for statutory authorities. - Develop investment governance model/plan to support future culture and vision. - Develop and implement a plan/approach that links funding mechanism to Model Hospital performance outcomes (i.e. penalises under-performance and incentivises over-performance).	- Implement investment governance plan that ensures prioritisation and consistency of allocation of resources and funding to support future vision. - Review and fine-tune management systems to ensure that decision-making focuses on key priorities and optimises return while encouraging flexibility and innovation.	Embed and continuously enhance governance and financial disciplines to support continually changing community expectations and the future needs of the health system.
- Identify opportunities for productivity gains (e.g. Lord Carter of Coles benchmarking). - Develop short-term initiatives to redirect and drive investment towards priority focus areas. - Develop reporting model to track progress.	Prioritise and implement initiatives to optimise returns, reduce costs and amend funding allocations on an ongoing basis to ensure that benefits expected are realised.	

Efficient Support



Developing an agile operating model with streamlined processes and digitised work practices

Our reference to 'efficient support' means any business process or service that either helps health care professionals to provide the best possible health care for their patients or enables any aspect of the health care system to be managed more productively.

With the demand for safer and better-quality health care increasing, complexity in the overall health system growing and health spend escalating, the need for efficient support processes is critical. The key characteristics of efficient support are:

1. Remaining focused on the end goal (i.e. delivering a sustainable health system for all Western Australians);
2. Being forward thinking and across the opportunities that innovation and the advances being made in technology can bring to the health system;
3. Investing wisely with the right partners and adapting to the ever-changing environment; and
4. Continually streamlining processes and work practices.

These characteristics need to form the foundation of the WA Health operating model.

Agile operating model

An operating model defines how an organisation creates, delivers, captures and sustains value.

Accenture⁴⁴ asserts that to achieve success in the Age of Digital, organisations need to have operating models that are agile, adaptive and aligned. This is supported by a McKinsey study which found that digital companies that have adopted an agile operating model accelerated their innovation by 80%⁴⁵.

In order to achieve agility, adaptability and alignment, they highlight that organisations need to alter their current operating models to:

- Cut fat – this requires a culture of productivity and innovation so that cost savings are re-invested into new opportunities;
- Boost growth – this includes partnering and collaborating across an extended ecosystem; and
- Facilitate innovation - this requires moving beyond rigid compliance and management control systems and providing a licence to try new things in a safe environment.

The principles of agility, adaptability and alignment are also highly important for the WA health operating model particularly given the magnitude, complexity and holistic nature of the changes (both immediate and ongoing) necessary to deliver a sustainable health system. These changes will require continual adjustment to the WA health operating model.

As the operating model evolves, it will be necessary to continually redefine roles, responsibilities and accountabilities across the WA health system to ensure that it remains fit-for-purpose, customer-focused and adapts to technological advances, political demands, ever-changing demographics, and the expectations and needs of the public.

⁴⁴ Accenture. 2017, <https://www.accenture.com/us-en/insight-fathers-business-model-competitiveness-digital>

⁴⁵ McKinsey. 2017, McKinsey. 2017, <http://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/an-operating-model-for-company-wide-agile-development#0>

Also important from the perspective of efficient support are Model ‘Support Services,’ supply chain transformation, simplification of industrial relations environment and workforce management.

The Model ‘Support Services’

The notion of ‘Support Services’ is sometimes misconceived to involve centralising and/or consolidating similar activities into one location. This is typically just the first stage of maturity when implementing a support services model.

A Model ‘Support Services’ operation takes the concept to a much higher level. It involves providing support service activities as if they are being purchased in the open market, with the ‘support service’ business delivering services to internal customers at a cost, quality and timeliness that is competitive with alternatives.

Analysis undertaken by CEB Inc (now part of the Gartner Group)⁴⁶ has identified that there are three different ways in which support services organisations provide value to their internal customers and provides insight as to the principles of a Model Support Services business:

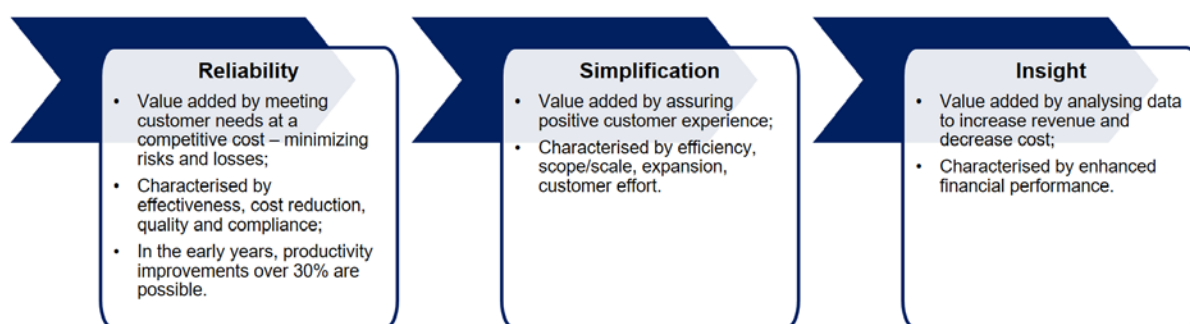


Figure 4 – Principles of Model Support Services Business

Research conducted by Ernst and Young⁴⁷ has identified the following factors as being critical to successful support service functions:

- There must be clear benefits to all stakeholders;
- There must be strong leadership and active high-level support and sponsorship from senior executives and politicians;
- There must be appropriate consultation and participation, while avoiding the trap of ‘death by committee’;
- Strategies must be credible and provide certainty around the benefits they deliver (even if these benefits come in stages, over several years);
- Change management and transition must be handled meticulously;
- There must be a focus on instilling a service and continuous improvement culture; and
- The governance structure must provide a clear delineation of roles and responsibilities between the purchaser and provider of shared services.

Some international examples of successful support services in the government sector include Shared Services Canada⁴⁸, Common Technology Service (UK)⁴⁹, Interior National Information Centre (Saudi Arabia)⁵⁰ and Mohawk Shared Services (Canada)⁵¹.

⁴⁶Struhar, Cliff, CEB Inc. 2015: Three Ways to Show How Valuable Shared Services Can Be.

⁴⁷ Ernst & Young. 2013: Shared services optimisation Elevation to the next generation of shared services.

⁴⁸ Shared Services Canada. 2017, <https://www.canada.ca/en/shared-services.html>

⁴⁹ Common Technology Services. 2017, <https://www.gov.uk/government/groups/common-technology-services-cts>

Supply Chain transformation

Across the world, supply chain cost is typically the second largest expense to health systems after the cost of labour. Some hospitals have indicated that they expect their supply chain costs to overtake the cost of labour by 2022⁵².

Supply Chain is a critical element to the efficient operation of all businesses in any industry. Below are some examples of recent initiatives that are or have focused on ongoing supply chain improvements:

- The Assistant Federal Minister for Digital Transformation Angus Taylor announced recent procurement reforms on digital innovation as the Australian government is the largest single buyer of IT services, spending AU\$6.5 billion annually⁵³;
- Deere & Company achieved US\$1 billion in savings through a significant reduction in customer delivery lead times and through annual transportation cost savings of around 5%⁵⁴; and
- A leading confectionary company, as part of transformation initiative to improve its supply chain performance, increased its profit by 15% over an 18-month period by reducing waste and transforming its cultural mindset and capabilities⁵⁵.

An opportunity exists to build on the supply chain improvement initiatives already underway across WA Health. Please refer to the section on Our Priorities for further information.

Workforce Management

With around 50,000 staff employed across the WA health system and an environment that will be subjected to enormous change over the next decade, it will be essential to have a workforce management strategy that aligns to, adapts to and supports the changing environment. This will be particularly important as the health system evolves and individuals have the opportunity and are encouraged to take greater responsibility for their own health and have increased access to more convenient virtual support.

In the context of efficient support, there are some key priorities that we feel need to be given attention to support the transformation to a sustainable health system. These include:

- Engaging with and preparing the workforce for change;
- Supporting the cultural change necessary to operate efficiently;
- Reviewing roles, responsibilities, policies, procedures and systems to ensure that they are relevant and will appropriately support the changes expected;
- Aligning performance expectations and management systems to meet future requirements; and
- Reviewing workforce skills and developing plans to prepare for future requirements.

In addition to the above, from the interviews and workshops conducted during the course of the preparation of this submission, two significant issues were highlighted as opportunities for improved overall efficiency:

1. Simplifying the Industrial Relations environment; and
2. Improving productivity and service through automation of workforce management.

⁵⁰ INTC. 2017, <https://www.bayt.com/en/company/national-information-centre-ministry-of-interior-233020/>

⁵¹ Mohawk SSI. 2017, <https://www.mohawkssi.com/>

⁵² Logistics Bureau. 2017, <http://www.logisticsbureau.com/nursing-hospital-and-healthcare-supply-into-a-new-age/>

⁵³ GovernmentNews. 2017, <https://governmentnews.com.au/2017/09/digital-procurement-needs-major-reforms/>

⁵⁴ Logistics Bureau. 2017, <http://www.logisticsbureau.com/3-mini-case-studies-successful-supply-chain-cost-reduction-and-management/>

⁵⁵ Stroud. 2017: Supply Chain Transformation.

Simplifying the Industrial Relations environment

There are currently 45 different Enterprise Agreements in place across WA Health. This translates to complexities in administering the payroll process, recruitment, capability assessment and development. Although addressing and simplifying industrial relations environment would be a significant challenge, there is a real opportunity to create greater efficiency through the simplification and standardisation of Enterprise Agreements.

Improving service and productivity through the automation of workforce management

Earlier in this submission, we expressed the view that one of the elements critical to operating an effective and integrated patient-centric health system is having the right people with the right skills available at the right place (both physical and virtual), at the right time and at the right cost.

In the UK, the NHS implemented a SMART workforce management system;

- To improve patient workload planning (i.e. aligning the patient's level of care complexity with appropriate clinical expertise and experience)
- To enable e-Rostering for all clinical, administrative and support staff;
- To provide automatic monitoring of staff hours and linking this directly to the payroll system; and
- To enable the efficient management of temporary and agency staff to cover unplanned roster gaps and ensure critical clinical cover at all times.

One of the hospitals which implemented the SMART workforce management system reported that they had saved circa £0.5 million through just the e-Rostering component of the system but also commented of other benefits including a more transparent system for managing the deployment of ward staff which would provide spin offs in other areas in the future⁵⁶.

The opportunity exists to review WA Health's workforce management processes and systems to provide improved patient care and service, more efficiently than currently occurs.

In addition, just as artificial intelligence is expected to be more widely used in the provision of health care over the next decade, so too is it expected to be used in future workforce management systems⁵⁷. This will be an important component as the technology evolves and will provide further opportunities for the health system to adapt and embed increased access to more convenient virtual patient support.

The opportunities available to deliver more efficient support are substantial. In this section, we have offered our views on some of the areas where a focused reform agenda can make a significant immediate and long-term improvement and difference to the sustainability of the WA health system.

The specific recommendations for *Efficient Support*, across short-term, medium-term and long-term time horizons, are summarised in the table below.

⁵⁶ Kennedy, S: Salford Royal NHS Foundation Trust – smart-workforce.com

⁵⁷ <http://www.tanda.co/cognitive-payroll/>

Recommendation 11: Embed an agile and fit-for-purpose operating model

Short-term	Medium-term	Long-term
- Review the WA Health operating model to ensure alignment with the outcomes from the SHR. - Develop a plan to transition HSS to a Model 'Support Services' business, including the identification of core and non-core HSP support services. - Benchmark Model against national and international standards. - Review service level agreements (SLAs) and pricing mechanism if appropriate.	- Establish operating model in line with SHR outcomes. - Continually review and improve performance against SLAs and global standards, and identify any areas where improvements can be made.	Continually strive to become the benchmark Model 'Shared Service' business across the health industry globally.
- Establish a Transformation Office reporting directly to the Director General of Health, that will drive performance excellence across WA Health (refer to the Transformational Leadership section). - Through the Transformation Office, benchmark current performance, develop new set of KPIs, manage and report performance.	Review KPIs against best in class performance.	Embed culture of performance excellence across WA Health.

Recommendation 12: Use technology to streamline processes

Short-term	Medium-term	Long-term
- Review current workforce management systems (resourcing, rostering, scheduling and payroll) to identify opportunities for improved efficiency. - Develop plan to optimise workforce management processes and systems.	Implement plans to optimise workforce management processes and systems (resourcing, rostering, scheduling and payroll).	Leverage artificial intelligence to continuously improve workforce management processes and systems for full automation and self-management.
Conduct current state assessment on IR environment, and implications to process and operating model.	Implement improvements and simplify the IR environment.	Continually fine-tune according to need but ensure simplification principle is maintained across WA health system.
- Assess current performance of Supply Chain, and benchmark against targets. - Develop a Supply Chain transformation program of work (refer to the Our Priorities section).	- Deliver Supply Chain improvement initiatives. - Track benefits realised, and re-invest savings where appropriate.	Benchmark Supply Chain against international and national targets.

Our Priorities to Support WA Health

Health Support Services has a critical role to play in working with all parts of the WA Health in supporting the drive to a sustainable health system for all Western Australians.

As the statutory authority responsible for the delivery of key shared services across the WA health system, we have three overarching objectives: to drive ROI; to enhance service levels; and to create a customer-focused, innovative and accountable culture.

Since Health Support Services was established on 1st July 2016, our focus has been on ensuring the effective and efficient provision of information communication technology, supply and procurement, workforce administration and payroll, and financial processing. These services are important in relation to the current day to day operations of the WA health system. They will become even more important as enablers to deliver a sustainable health system.

Our priorities are to support WA Health by transforming our service delivery approach to create a Model 'Support Services' business for the health industry, and to do whatever is necessary to support and contribute to the broader transformation of the health system through the Sustainable Health Review.

Model 'Support Services' for the health industry

As the statutory authority responsible for the delivery of shared services across the WA health system, our aim is to provide HSPs with benchmarks and peer group comparisons in order to deliver the most efficient and effective support services possible.

The Efficient Support section provides a description of the Model 'Support Services' business. Our ultimate goal is not just to provide high quality services to support the delivery of optimal patient care, but to become the organisation that others look to as a Model 'Support Services' business across the health industry. This means that we aspire to provide market leading shared services at a cost, quality and timeliness that is second to none.

Acknowledging that our plans will need to align with the outcomes from the Sustainable Health Review, we have already initiated the following actions to commence the journey:

Operating model and performance review

Having built the foundations over the past 12 months, we are now conducting a baseline review of Health Support Services performance and reviewing our operating model. The aims are to understand the current level of performance across key functions, to identify strategies and actions for improvement, and to enable improved customer engagement and performance outcomes. We expect to have this review completed by the end of November 2017.

Supply Chain transformation

Last fiscal year, around AU\$1.8 billion⁵⁸ was spent by WA Health on procuring goods and services from suppliers. The major items included in this expenditure are pharmaceuticals, ICT licensing and services, building construction and maintenance, prosthesis, finance lease charges, utilities excluding water, medical equipment, consumables and supplies, food supplies, laundry and linen. The figure excludes spending on home and community care, patient transport services, mental health, palliative care, health care and support staff employment-like arrangements, grants, delivering community partnerships such as Royal Flying Doctors Service and St John Ambulance and public patients in private service.

There is significant opportunity to review and transform the supply chain. Health Support Services has already initiated the following actions to commence the journey:

- Better procurement governance through the Procurement Policy Framework, procurement authorisations, procurement development and management systems;
- Improved contract management of Whole of Health contracts delivering cost savings;

⁵⁸ HSS Strategic Management reporting, 2017, Spend Dashboard

- Improved clinical engagement to ensure that accurate requirements are obtained throughout the whole procurement process;
- Improved procurement capacity and capability through dedicated contract management teams for high transactional contracts and embedding new procurement competency framework;
- Availability of procurement education and training including trainer-led courses, symposium events and newsletters; and
- Supply chain distribution optimisation including improved delivery in full on time (DIFOT), inventory holding efficiency, and automated receipting, picking and packing.

As indicated in the previous section of Efficient Support, more can be achieved through supply chain transformation. For transformational outcomes to be achieved, the following will be required:

- Harvesting financial savings by:
 - o Becoming the market maker rather than being simply a buyer of goods and services. This can be done through aggregating the overall demand to create a buying leverage by establishing a whole of WA government contracts (for general support services) and whole of health (other states and federal) contracts, and participation in national forums;
 - o Rapid sourcing for immediate cost savings that can be reinvested to gain long-term benefits;
 - o Clean sheeting and strategic supply chain management, including category management;
 - o Driving and extracting optimal savings through performance incentives.
 - o Rationalising and optimising inventory management; and
 - o Increasing focus on end-to-end contract management to avoid contract leakage.
- Improving supply chain data and technology by:
 - o Embedding information data standards in line with ADHA and GS1⁵⁹ to improve the quality of data and to enable predictive data analytics; and
 - o Integrating supply chain technology to enable automation (e.g. B2B e-commerce, RFID, robotics, automated guided vehicles, drones).
- Reconsidering the current procurement framework (e.g. legislation, policies and procedure) to enable greater flexibility as the operating environment changes; and
- Increasing investment in supply chain awareness and capability right across WA Health.

Digitising the health system

Given the significant reliance on advances in technology as an enabler of the transformational change required to enhance the health care experience and drive new efficiencies, digitisation and our role in supporting and delivering on the reform agenda is critical.

To this end, as mentioned above, we are currently conducting a baseline review of our operating model which will include our readiness to support and lead the WA Health digitisation change process as outlined in the previous sections of this submission and particularly the Internet of Health section.

In summary, the sustainability of the WA health system will require all of us to play our role. A key to our success in supporting the required future changes will be to ensure that we resource and prioritise the transformation program appropriately. We are well positioned to support the transformation through the Sustainable Health Review by delivering technology, supply chain and workforce reform.

⁵⁹ Global Standard 1. 2017, <https://www.gs1.org/about/what-we-do>

Appendix 1 – List of Recommendations

Recommendation 1: Focus investment on prevention and promotion

Short-term	Medium-term	Long-term
- Review current initiatives being undertaken on health promotion and prevention to determine ROI. - Develop plans for increased investment on prioritised future initiatives focusing on key targeted areas.	- Implement and monitor initiatives as part of a holistic program of work. - Establish benchmarks for future investment consideration.	Continue to invest in initiatives where returns meet established benchmarks.
Consider options (e.g. cost sharing incentives) and develop a plan that promotes and encourages individuals to create tailored health plans in conjunction with their primary health care provider.	- Implement selected alternative payment structures that incentivise preventative behaviours (e.g. free annual checks for those who participate in preventative health programs). - Evaluate benefits achieved from selected alternative payment structures.	Consider and implement additional programs that incentivise preventative behaviours.
Develop a plan to engage and encourage the community to be involved in prevention initiatives using technology and data analytics (e.g. usage of wearable technology to track individual health statistics).	Build the capability and resources to analyse individual and community health data (refer to Internet of Health section).	Implement predictive data analytics that enables individuals to monitor their health and provides proactive alerts when key health indicators are outside set parameters.

Recommendation 2: Reduce demand on health institutions

Short-term	Medium-term	Long-term
- Develop a plan that sets targets to increase awareness, promotion and usage of alternative triage screening options (e.g. Health Direct, online / web chat). - Conduct research to set a baseline awareness measure and set target for improvement.	- Track and monitor progress in lifting awareness and usage of alternative triage screening options. - Refine plan and investment according to success of promotional activities. - Review and revise benchmark targets for usage.	Reinvigorate efforts to support the community's awareness and use of relevant triage screening options.
- Build on the work and pilot program that has commenced at Royal Perth Hospital (RPH) in relation to the establishment and promotion of Urgent Care Centres in selected locations. - Set performance benchmarks for the pilot program.	- Track and monitor progress of the pilot program against performance benchmarks. - Based on outcomes, determine expansion plans for further Urgent Care Centre in appropriate locations. - If appropriate, establish additional Urgent Care Centres.	With Urgent Care Centres having helped support reduced demand on EDs, review and scale back ED requirements where appropriate.
- Review initiatives and plans aimed at addressing whole of society issues (e.g. the increasing drug related problems and the impact on hospitals). - Consider alternative actions and develop new plans to address whole of society issues.	Continue to work with other government departments and agencies to review and address progress on whole of society issues (e.g. drug use, mental health, smoking, chronic disease) and continue to reduce demand on health institutions.	With most whole of society issues having been adequately addressed and trends heading in the right direction, reduce investment in initiatives to sustainable levels.

Recommendation 3: Foster and focus on WA health innovation hubs

Short-term	Medium-term	Long-term
- Develop WA health innovation strategy, set priorities, common goals and align them with the operating model (refer to the Efficient Support section). - Establish (as planned) the health research and innovation hub that will facilitate and enable collaboration between stakeholders. - Develop program of work to deliver innovation strategy priorities and goals through various initiatives (e.g. robotics for picking and packing at warehouses, predictive analytics for preventative care). - Provide resources and support to implement initiatives.	- Deliver innovation program of work and assess ROI. - Expand initiatives to include more advanced health solutions such as augmented reality and Watson Health. - Ensure that processes and systems capture and realise benefits expected and available from new initiatives. - Develop a template of project delivery based on successful initiatives.	- Embed project delivery of innovative solutions across the health system. - Establish innovation hubs in regional areas. - Benchmark innovation hubs with international public health collaboration hubs, and continuously improve. - Work with the international health community to implement standardised medical taxonomy (refer to the Internet of Health section).

Recommendation 4: Increase collaboration across the public and private sectors

Short-term	Medium-term	Long-term
- Develop collaboration framework, process and strategy. - Identify key players from academia, NFPs, suppliers, private sector and other government agencies to collaborate and work on solving key health problems (e.g. NERA for WA resources industry). - Develop program of work to deliver significant improvements based on collaboration, targeting key focus areas (e.g. prevention, mental health, regional centres). - Leverage national capabilities and programs (e.g. ADHA, the Digital marketplace). - Conduct a hackathon with key stakeholders focusing on key themes of Prevent, Treat and Sustain.	- Deliver program of work. - Report and reinvest benefits realised. - Collaborate and work with other state Health Departments to better leverage limited resources (e.g. joint investment in systems development).	- Benchmark ecosystem and partnership forums with international public health collaboration hubs, and continuously improve. - Leverage international, national and state capabilities and resources.
Review Public Private Partnerships initiatives, identify any improvements that can be adopted.	Develop strategies to attract more private sector investment in health.	Extend and deliver private sector investments in health.

Recommendation 5: Implement safe and consistent standards of quality care

Short-term	Medium-term	Long-term
Define the 'Model Hospital' (refer to the work of Lord Carter of Coles on the UK, NHS) to set benchmark standards across WA public hospital.	Develop and implement a performance improvement program to ensure HSPs are achieving benchmark standards against the 'Model Hospital.'	Standardise and create consistent levels of safe and quality care by reducing clinical variations.
Continue to work with other states and national agencies to develop plans that align WA health safety standards with the National Safety and Quality Health Services (NSQHS) Standards and the Australian Digital Health Agency (ADHA).	Develop processes, systems and risk management controls to implement WA health safety standards that are aligned to the national standards set by the NSQHA and the ADHA.	As new technologies and new health care service options are introduced, ensure that processes, systems and risk management controls continue ensure and have patient safety as the primary focus.

Recommendation 6: Deliver patient-centric integrated health care

Short-term	Medium-term	Long-term
Develop future state-wide step up / step down plan to ensure that patients receive the right health care, at the right time, in the right place, by the right health care professionals at the right cost (including MediHotels, Hospital in the Home Care).	Implement future state-wide step up / step down plan to ensure that patients receive the right health care, at the right time, in the right place, by the right health care professionals at the right cost.	As integration of step up / step down plan is implemented and the community changes its way of interacting with clinicians and hospitals, review facilities available to public and reduce scale or close those that are no longer required.
- Review plan (including setting future targets) to increase the awareness and use of the different health care service options available to patients (self-service portal, eHealth, Telehealth). - Review and extend plans to increase Telehealth services to remote regional communities, including to indigenous Western Australians. - If not already on the agenda, work with the Council of Australian Governments (Health) to develop a plan that ensures that Telehealth services receive the same patient Medicare support as a face to face GP visit.	- Continue to implement plan to increase the awareness and use of the different health care service options available to patients. - Review plans and progress against benchmark targets; refine plans and reinvest to ensure they are producing expected returns.	Continue to work towards everyone in the community knowing and using the right health care professionals, in the right location or via the most convenient technology, at the right time and at the right cost.
Develop a plan that sets the priorities and path to integrate the foundations necessary for future advances in technology and community expectations (see also Internet of Health section).	Invest in technological innovations that enable better and safer clinical and health care solutions for the community (e.g. 3D stem cell printing, robotic support for clinicians, augmented reality).	Use advances in technology to implement tailored health solutions that continually improve the safety and quality of end-to-end patient care.

Recommendation 7: Develop technology foundations and enable Internet of Health

Short-term	Medium-term	Long-term
- Develop an over-arching strategy to enable the delivery of an integrated and interoperable health system, encompassing individual electronic medical records, artificial intelligence, predictive data analytics, augmented reality, big data, robotics, etc. - Develop an implementation strategy including establishing goals, priorities, implementation roadmap, benchmarking, and understanding current state. - Identify key strategic technology service providers to support optimal delivery. - Deliver the strategy based on implementation roadmap.	- Implement integrated health system in stages through the proposed Transformation Office (refer to Efficient Support section). - Ensure that processes and systems capture and realise benefits expected and available from new technologies. - Establish processes and structures that continue to support forward visionary thinking and ensure that new and emerging opportunities are not overlooked.	Continue to invest in new technologies and innovations that provide appropriate return and enable sustainability and enhance the ability to have health care 'at our fingertips.'
- Review and ensure implementation of the National Digital Health Strategy by ADHA. - Work with ADHA and other states to deliver My Health Record. - Prioritise resourcing and funding to support the plan.	Work with ADHA and other states to implement standardised clinical terminology (medical taxonomy).	Review implementation of ADHA locally and nationally. Support ADHA where improvements are identified and requiring improvement action plan.

Recommendation 8: Develop capability to analyse and use data for predictive purposes

Short-term	Medium-term	Long-term
- Create predictive data analytics strategy including priorities, goals, capabilities and infrastructure requirements. - Identify key problem areas to focus on, where predictive analytics can provide solutions. - Start to build the capability and resources to analyse data.	- Implement predictive data analytics concepts and harvest ROI. - Develop and implement framework and systems to support the analysis of individual and community health related data. - Identify and start working on areas where predictive analysis will support high quality care.	- Use predictive data analytics as the norm for problem-solving. - Use and analyse data as a predictive tool for innovation and to support quality health care and standardisation. - Use machine learning to develop integrated ubiquitous patient monitoring and alerts / advice using predictive data analytics.

Recommendation 9: Build a Transformational Leadership capability and change-ready culture

Short-term	Medium-term	Long-term
- Define crystal clear future vision for WA health through the Sustainable Health Review. - Ensure the senior leadership team understands their individual and collective roles in unifying and driving the cultural changes necessary to deliver the future vision. - Establish 'Transformation Office' reporting directly to the Director General of Health to lead change program, drive strategy execution, business improvement, performance excellence and innovation. - Design and develop transformational leadership and cultural change program.	- Prioritise resources and focus implementation efforts on the key building blocks for the future vision. - Refine operating model and performance management processes to encourage innovation and support the transformation and cultural change program.	Embed culture of performance excellence, innovation and continuous change across the WA Health.
- Undertake a baseline review across all of WA Health to identify capability gaps and determine readiness for change. - Create plan to address gaps and prepare all involved for the changes ahead. - Develop clear, robust plan for future workforce and capabilities.	- Develop workforce capabilities required to deliver future vision. - Create targeted career pathways and development plans for workforce. - Flatten and modify organisation structures and increase standards of accountability to support reform program.	Embed Transformational Leadership capability at all levels of WA Health.

Recommendation 10: Develop strong governance and financial disciplines

Short-term	Medium-term	Long-term
- Bed down governance processes and structures for statutory authorities. - Develop investment governance model/plan to support future culture and vision. - Develop and implement a plan/approach that links funding mechanism to Model Hospital performance outcomes (i.e. penalises under-performance and incentivises over-performance).	- Implement investment governance plan that ensures prioritisation and consistency of allocation of resources and funding to support future vision. - Review and fine-tune management systems to ensure that decision-making focuses on key priorities and optimises return while encouraging flexibility and innovation.	Embed and continuously enhance governance and financial disciplines to support continually changing community expectations and the future needs of the health system.
- Identify opportunities for productivity gains (e.g. Lord Carter of Coles benchmarking). - Develop short-term initiatives to redirect and drive investment towards priority focus areas. - Develop reporting model to track progress.	Prioritise and implement initiatives to optimise returns, reduce costs and amend funding allocations on an ongoing basis to ensure that benefits expected are realised.	

Recommendation 11: Embed an agile and fit-for-purpose operating model

Short-term	Medium-term	Long-term
- Review the WA Health operating model to ensure alignment with the outcomes from the SHR. - Develop a plan to transition HSS to a Model 'Support Services' business, including the identification of core and non-core HSP support services. - Benchmark Model against national and international standards. - Review service level agreements (SLAs) and pricing mechanism if appropriate.	- Establish operating model in line with SHR outcomes. - Continually review and improve performance against SLAs and global standards, and identify any areas where improvements can be made.	Continually strive to become the benchmark Model 'Shared Service' business across the health industry globally.
- Establish a Transformation Office reporting directly to the Director General of Health, that will drive performance excellence across WA Health (refer to the Transformational Leadership section). - Through the Transformation Office, benchmark current performance, develop new set of KPIs, manage and report performance.	Review KPIs against best in class performance.	Embed culture of performance excellence across WA Health.

Recommendation 12: Use technology to streamline processes

Short-term	Medium-term	Long-term
- Review current workforce management systems (resourcing, rostering, scheduling and payroll) to identify opportunities for improved efficiency. - Develop plan to optimise workforce management processes and systems.	Implement plans to optimise workforce management processes and systems (resourcing, rostering, scheduling and payroll).	Leverage artificial intelligence to continuously improve workforce management processes and systems for full automation and self-management.
Conduct current state assessment on IR environment, and implications to process and operating model.	Implement improvements and simplify the IR environment.	Continually fine-tune according to need but ensure simplification principle is maintained across WA health system.
- Assess current performance of Supply Chain, and benchmark against targets. - Develop a Supply Chain transformation program of work (refer to the Our Priorities section).	- Deliver Supply Chain improvement initiatives. - Track benefits realised, and re-invest savings where appropriate.	Benchmark Supply Chain against international and national targets.

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